MITSUBISHI MATERIALS

C010A

CUTTING TOOLS 2024

DIA EDGE

HOW TO READ THE STANDARD OF INDEXABLE MILLING

●How this section page is organized

①Organized according to the face milling cutting mode.
(Refer to the index on the next page.)

SCOPE OF AVAILABLE WORKPIECE MATERIAL
provides a graph depicting the scope of the available workpiece material for machining.

CORNER ANGLE ICON

TYPE/ NAME OF PRODUCT

APPLICATION ICON
represents available machining applications, such as finishing and roughing.

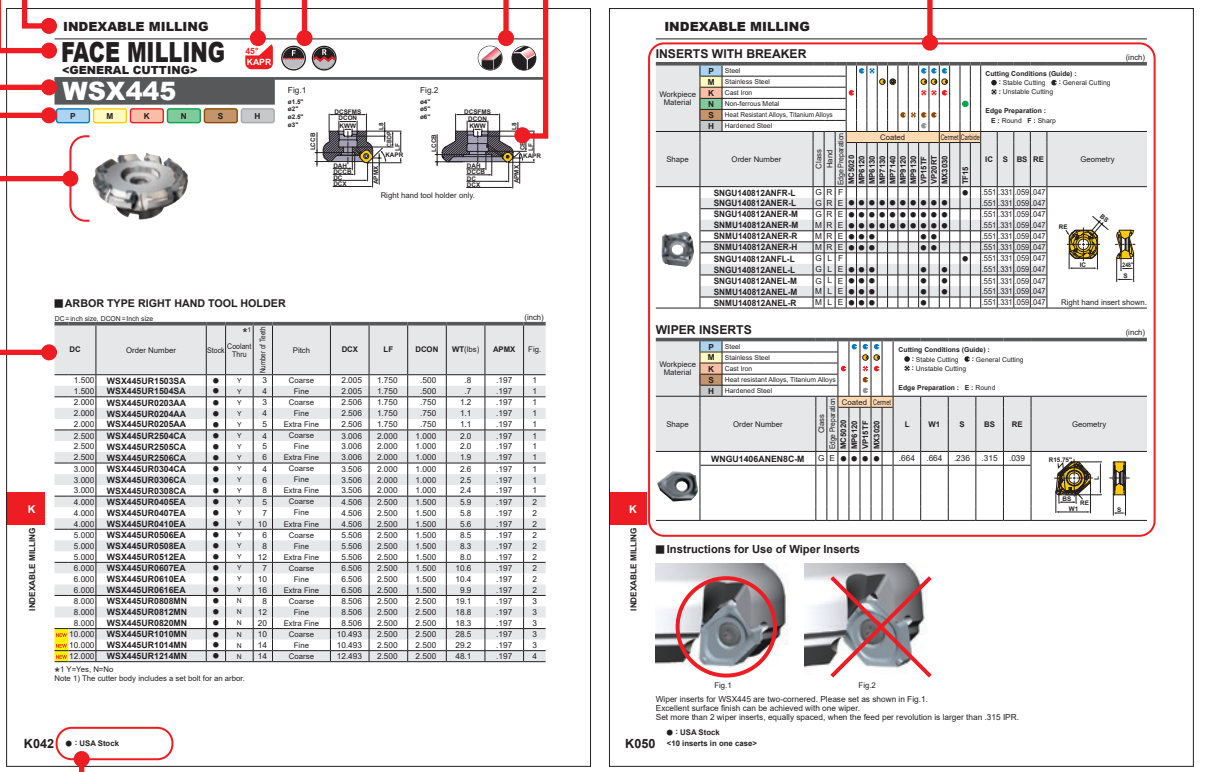
APPLICATION

CUTTING MODE ICON
represents available cutting modes, such as face milling and shoulder milling.

STANDARDS FOR APPLICABLE INSERTS
indicates stock status, dimensions, etc. for applicable inserts.

PRODUCT SECTION

GEOMETRY



LEGEND FOR STOCK STATUS MARK
is shown on the left hand page of each double-page spread.

PRODUCT STANDARDS
indicates tool types, order numbers, stock status (per right/left hand), dimensions, etc.

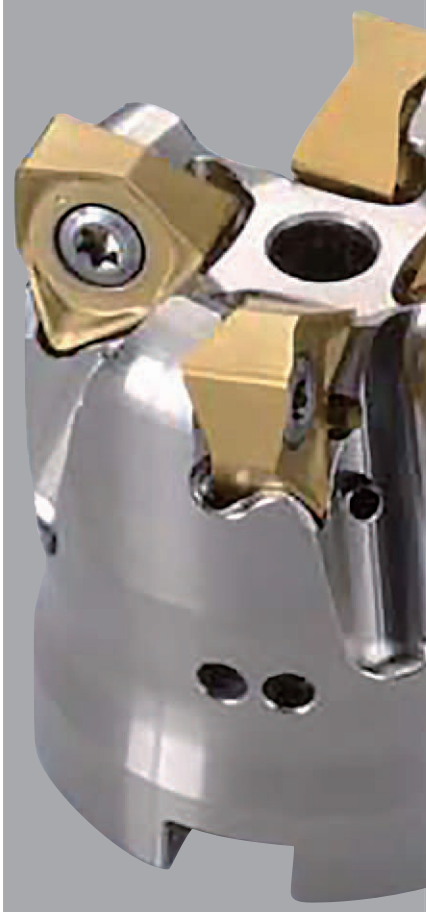
PHOTO OF PRODUCT

●To Order : For title product, please specify order number and hand of tool (right/left).
For insert, please specify insert number and grade.

MILLING TOOLS

INDEXABLE MILLING

STANDARD OF MILLING



*Arranged by Alphabetical order

SYMBOL DESCRIPTIONS

KAPR (Cutting Edge Angle) List

15° KAPR	15°
35° KAPR	35°
45° KAPR	45°
50° KAPR	50°
84° KAPR	84°
90° KAPR	90°
R KAPR	R

● : USA Stock
★ : Stocked in Japan
□ : Made to Order

Application

	Face Milling
	Chamfer Milling
	Shoulder Milling with R
	Face Milling Near the Wall
	Shoulder Milling
	Wall Milling
	Slot Milling
	Step Copy Milling
	Pocket Milling
	Slot Milling with R
	Curved Copy Milling
	Helical Milling

Accuracy

- **Finish Cutting**
- **Medium Cutting**
- **Rough Cutting**

Workpiece Material Range

1st Recommendation

P M K N S H

2nd Recommendation

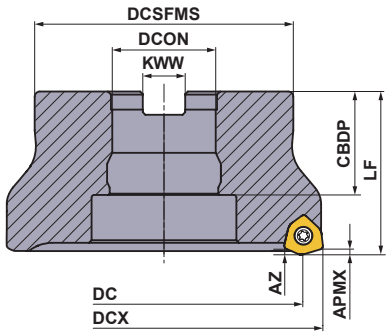
P M K N S H

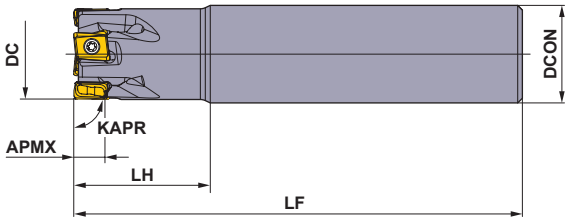
GUIDE FOR ISO13399 SYMBOLS

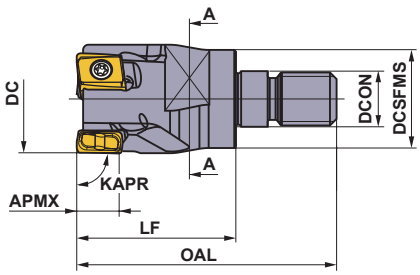
Symbol	Content
APMX	Depth of cut maximum
AZ	Plunge depth maximum
BD	Body diameter
BDX	Body diameter maximum
BS	Wiper edge length
CBDP	Connection bore depth
CRKS	Connection retention knob thread size
CW	Cutting width
DC	Cutting diameter
DCB	Connection bore diameter
DCON	Connection diameter
DCSFMS	Contact surface diameter machine side

Symbol	Content
DCX	Cutting diameter maximum
H	Shank height
KWW	Keyway length
LBX	Body length maximum
LE	Cutting edge effective length
LF	Functional length
LH	Head length
LU	Usable length
OAL	Overall length
RE	Corner radius
RMPX	Ramping angle maximum
WT	Weight of item

*There are exceptions other than those listed above. For more details, please refer to the technical data (page N002).







CLASSIFICATION (ARBOR TYPE)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
General Cutting **WSX445**  45° KAPR	.197"	●Double sided Z Geometry. ●Smooth chip discharge.	Ø1.500" | Ø12.000"	P M K N S H	K042
General Cutting **ASX445**  45° KAPR	.236"	●Precision molded 20° positive insert. ●A wide range of chip breakers. ●Screw-on type. ●High rigidity due to employment of a carbide shim.	Ø2.500" | Ø10.000"	P M K N S H	K056
General Cutting **AHX440S**  50° KAPR	.118"	●Heptagonal double sided insert. ●Economical 14 cutting edge inserts. ●Multi insert design for high feed machining.	Ø1.500" | Ø6.000"	P M K H	K062 K064
High Feed Cutting **AHX475S**  15° KAPR	.063"	●For General Cutting. ●Heptagonal double-sided insert. ●Economical 14 cutting edge inserts. ●Multi insert design for high feed machining.	Ø2.000" | Ø6.000"	P K H	K062 K070
General Cutting **AHX640S**  50° KAPR	.236"	●Heptagonal double sided insert. ●Economical 14 cutting edge inserts. ●Multi insert design for high feed machining.	Ø2.500" | Ø8.000"	P M K S H	K062 K074
High Feed Cutting for Cast Iron **AHX640W**  50° KAPR	.236"	●Heptagonal double-sided insert. ●Economical 14 corner use. ●Fine pitch design allows high feed milling.	Ø3.000" | Ø12.000"	K	K086
High Efficiency Cutting for Cast Iron **WSF406W** NEW  84° KAPR	.276"	●Uniquely designed double-sided insert. ●Adjustable cutting edge run-out system. ●Improved surface finish. ●Suppression of edge chipping.	Ø80 mm | Ø250 mm	K	K103
High Efficiency Cutting for Cast Iron **AOX445**  45° KAPR	8 mm	●Octagonal double-sided solid CBN insert. ●Economical 16 corner use. (when depth of cut is 3mm or less) ●High efficiency machining from roughing to finishing. ●Easy operation and cleaning.	Ø63 mm | Ø160 mm	K	K095
High-efficiency Finishing of Aluminum Alloy **FMAX**  90° KAPR	≤.118"	●For high-efficiency finishing of aluminum alloys. ●Feed Maximum (FMAX) milling cutter for ultra efficient and accurate finishing.	Ø40 mm | Ø160 mm Ø3.000" | Ø5.000"	K N	K096

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
Multi Functional Milling **WJX09** NEW 	.047"	●Negative inserts. ●Stable clamp with dovetail structure. ●Suitable for high feed machining. ●Special designed insert with 6 cutting edges. ●Through coolant holes.	1.500" | 2.5000"	P M K S H	K308
Multi Functional Milling **WJX14** 	.079"	●Negative inserts. ●Stable clamp with dovetail structure. ●Suitable for high feed machining. ●Special designed insert with 6 cutting edges. ●Through coolant holes.	Ø2.000" | Ø6.000"	P M K S H	K318
Multi Functional Milling **AJX** 	.079"	●15° positive insert. ●Air / coolant through. ●High rigidity due to double clamp structure. ●Suitable for high feed cutting. ●Special designed insert with the use of 3 cutting edges.	Ø2.000" | Ø6.299"	P M K S H	K288
Multi Functional Milling of Difficult-to-cut Materials **ARP**  R KAPR	.236"	●Air / coolant through. ●Round Insert Cutter for Difficult-to-cut Materials. ●High run-out accuracy when indexing inserts. ●Solid clamping system. ●Standardized stock of extra fine pitch.	Ø1.500" | Ø4.000"	M S	K328
Multi Functional Milling **BRP**  R KAPR	.302"	●11° positive insert. ●Round shape insert gives strong cutting edge. ●A wide variety of lengths available. ●Suitable for machining of die and mold.	Ø1.500" | Ø4.000"	P M K S H	K345
For General Cutting **WWX200** NEW  90° KAPR	.197"	●High-stability clamping and high-quality machining. ●The optimized “X-type” insert meets the demand for greater strength. ●Economical double-sided 6 corners.	Ø1.500" | Ø6.000"	P M K S H	K112
For General Cutting **WWX400** NEW  90° KAPR	.323"	●High-stability clamping and high-quality machining. ●The optimized “X-type” insert meets the demand for greater strength. ●Economical double-sided 6 corners.	Ø2.000" | Ø10.000"	P M K N S H	K120
For Cast Iron **VOX400**  90° KAPR	.394"	●Vertical inserts with high strength cutting edge. ●Economical 8 cutting edge inserts. ●Screw-on type.	Ø2.000" | Ø10.000"	K	K106
For General Cutting **ASX400**  90° KAPR	.394"	●Economical due to the use of 4 cutting edges. ●Low resistance due to the 3D design of the curved cutting edge. ●Curved cutting edge and high rigidity holder.	Ø2.000" | Ø10.000"	P M K N S H	K138

CLASSIFICATION (ARBOR TYPE)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
Multi Functional Cutting **APX3000**  90° KAPR	.394"	●Air / coolant through. ●Low resistance insert and high rigidity body. ●Ideal chip control. ●High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø1.500" | Ø3.000"	P M K N S H	K156
Multi Functional Cutting **APX4000**  90° KAPR	.591"	●Air / coolant through. ●Low resistance insert and high rigidity body. ●Ideal chip control. ●High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø2.000" | Ø4.000"	P M K S H	K169
Multi Functional Milling **VPX200**  90° KAPR	.315"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.250" | Ø2.500"	P M K N S H	K184
Multi Functional Milling **VPX300**  90° KAPR	.433"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.250" | Ø3.000"	P M K N S H	K195
For Aluminum Alloy and Difficult-to-cut Material Cutting **AXD4000**  90° KAPR	.610"	●Air / coolant through. ●Low resistance inserts. ●High balance quality. ●Excellent wall accuracy. ●Multi functional milling.	Ø1.500" | Ø5.000"	P N S	K227
For Aluminum Alloy Material Cutting **AXD4000A** NEW  90° KAPR	.610"	●Air / coolant through. ●Low resistance insert. ●High balance quality. ●Excellent wall accuracy. ●Multi functional milling. ●For ultra-high-speed machining.	Ø2.000"	N	K240
For Aluminum Alloy and Difficult-to-cut Material Cutting **AXD7000**  90° KAPR	.827"	●Air / coolant through. ●Low resistance inserts. ●High balance quality. ●Excellent wall accuracy. ●Multi functional milling.	Ø2.000" | Ø5.000"	P N S	K246
For Aluminum Alloy and Difficult-to-cut Material Cutting **BXD4000**  90° KAPR	.591"	●Air / coolant through. ●Low resistance inserts & high rigidity body. ●The Anti Fly Insert mechanism guarantees secure high-revolution milling.	Ø1.500" | Ø4.000"	P M N S H	K259

CLASSIFICATION (SIDE CUTTER)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
VAS400 Side Cutter  90° KAPR	.480"	●Insert with 4 cutting edges secure clamping. ●Excellent sharpness with low cutting resistance insert. ●Holders can load all corner R. ∗Cutter bodies are only available through special orders.	Ø4.000" | Ø8.000"	P K	K144
VAS500 Side Cutter  90° KAPR	.638"	●Insert with 4 cutting edges secure clamping. ●Excellent sharpness with low cutting resistance insert. ●Holders can load all corner R. ∗Cutter bodies are only available through special orders.	Ø100 mm | Ø200 mm	P K	K149
VOS400 Side Cutter  90° KAPR	.394"	●For cast iron. ●Cutter body with high-rigidity design. ●Innovative vertical insert. ●Economical 8 cutting edge insert. ∗Cutter bodies are only available through special orders.	Ø80 mm | Ø160 mm	K	K148
ASX400 Side Cutter  90° KAPR	.394"	●High precision non-grinding insert. ●Economical 4 cutting edge insert. ●Excellent wall surface precision with curved cutting edges and high precision body. ∗Cutter bodies are only available through special orders.	Ø80 mm | Ø160 mm	P M K	K152

CLASSIFICATION (BORE BORING TOOLS)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
BMR  35° KAPR	—	●Double positive breaker. ●12-corner type with right hand. ●Body with peripheral cutting edge run-out regulator. ∗Cutter bodies are only available through special orders.	—	K	**K380**

CLASSIFICATION (SHANK TYPE)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
WSX445  45° KAPR	.197"	● Double sided Z Geometry. ● Smooth chip discharge. ● End mill style.	Ø1.500" | Ø3.000"	P M K N S H	K048
ASX445  45° KAPR	6 mm	● Precision molded 20° positive insert. ● A wide range of chip breakers. ● Screw-on type. ● High rigidity due to employment of a carbide shim.	Ø50 mm Ø63 mm Ø80 mm	P M K N S H	K057
AOX445  45° KAPR	8 mm	● Octagonal double-sided solid CBN insert. ● Economical 16 corner use. (when depth of cut is 3mm or less) ● High efficiency machining from roughing to finishing. ● Easy operation and cleaning.	Ø50 mm Ø63 mm	K	K095
AJX 	.079"	● 13°, 15° positive insert. ● Air / coolant through. ● High rigidity due to double clamp structure. ● Suitable for high feed cutting. ● Special designed insert with the use of 3 cutting edges.	Ø.625" | Ø2.000"	P M K S H	K286
WWX200 NEW  90° KAPR	.197"	● High-stability clamping and high-quality machining. ● The optimized “X-type” insert meets the demand for greater strength. ● Economical double-sided 6 corners.	Ø1.000" | Ø1.500"	P M K S H	K114
WWX400 NEW  90° KAPR	.323"	● High-stability clamping and high-quality machining. ● The optimized “X-type” insert meets the demand for greater strength. ● Economical double-sided 6 corners.	Ø2.000" | Ø3.000"	P M K N S H	K123
ASX400  90° KAPR	.394"	● Economical due to the use of 4 cutting edges. ● Low resistance due to the 3D design of the curved cutting edge. ● Curved cutting edge and high rigidity holder. ● Max. depth of cut .394".	Ø1.250" | Ø2.000"	P M K N S H	K140
VPX200  90° KAPR	.315"	● Special designed insert with 4 cutting edges. ● High precision, high quality insert cutting edge with finishing blade. ● Through coolant holes.	Ø.625" | Ø1.500"	P M K N S H	K182
VPX200 Long Cutting Edge NEW  90° KAPR	1.654"	● Special designed insert with 4 cutting edges. ● High precision, high quality insert cutting edge with finishing blade. ● Through coolant holes.	Ø.875" | Ø1.500"	P M K N S	K188

CLASSIFICATION (SHANK TYPE)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
VPX200 Shell Type NEW  90° KAPR	1.654"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.250" | Ø2.000"	P M K N S	K189
VPX300  90° KAPR	.433"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.000" | Ø1.500"	P M K N S H	K193
VPX300 Long Cutting Edge NEW  90° KAPR	1.654"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.500"	P M K N S	K199
VPX300 Shell Type NEW  90° KAPR	2.874"	●Special designed insert with 4 cutting edges. ●High precision, high quality insert cutting edge with finishing blade. ●Through coolant holes.	Ø1.500" | Ø3.000"	P M K N S	K200
APX3000  90° KAPR	.394"	● Air / coolant through. ● Low resistance insert and high rigidity body. ● Ideal chip control. ● High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø.500" | Ø1.500"	P M K N S H	K154
APX3000 Long Cutting Edge  90° KAPR	2.165"	●High accuracy, high quality vertical wall. ●Low cutting force insert.	Ø.750" | Ø1.500"	P M K N S	K164
APX3000 Shell Type  90° KAPR	1.811"	●High accuracy, high quality vertical wall. ●Low cutting force insert. ●Through coolant holes.	Ø2.000"	P M K N S	K164
APX4000  90° KAPR	.591"	● Air / coolant through. ● Low resistance insert and high rigidity body. ● Ideal chip control. ● High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø.750" | Ø1.500"	P M K S H	K168
APX4000 Long Cutting Edge  90° KAPR	3.300"	●High accuracy, high quality vertical wall. ●Low cutting force insert. ●Through air & coolant holes.	Ø1.500" | Ø2.000"	P M K S	K178

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
APX4000 **Shell Type**  90° KAPR	2.200"	●High accuracy, high quality vertical wall. ●Low cutting force insert. ●Through coolant holes.	Ø2.000" Ø2.500"	P M K S	K178
AXD4000  90° KAPR	.610"	● Air / coolant through. ● Low resistance insert. ● High balance quality. ● Excellent wall accuracy. ● Multi functional milling.	Ø1.000" | Ø1.500"	P N S	K226
AXD7000  90° KAPR	.827"	● Air / coolant through. ● Low resistance insert. ● High balance quality. ● Excellent wall accuracy. ● Multi functional milling.	Ø1.250" Ø1.500"	P N S	K246
BXD4000  90° KAPR	.591"	● Air / coolant through. ● Low resistance insert & high rigidity body. ● The Anti Fly Insert mechanism guarantees secure high-revolution milling.	Ø1.000" | Ø1.500"	P M N S H	K258
AQX  90° KAPR	1.500"	● Air / coolant through. ● The center bottom cutting edge enables drilling and end milling without prepared hole.	Ø.625" | Ø1.500"	P M K N S H	K276
ARP  R KAPR	.236"	● Air / coolant through. ● Round Insert Cutter for Difficult-to-cut Material. ● High run-out accuracy when indexing inserts. ● Solid clamping system.	Ø1.000" | Ø2.000"	M S	K329
ARX  R KAPR	.138"	● Precision M-class 15°positive insert. ● Effective for various machining applications. ● Air / coolant through.	Ø10 mm | Ø25 mm	P M K H	K340
WJX09 NEW 	.047"	●Multi functional milling. ●Negative inserts. ●Stable clamp with dovetail structure. ●Suitable for high feed machining. ●Special designed insert with 6 cutting edges. ●Through coolant holes.	1.000" | 1.500"	P M K S H	K309
WJX14 	.079"	●Multi functional milling. ●Negative inserts. ●Stable clamp with dovetail structure. ●Suitable for high feed machining. ●Special designed insert with 6 cutting edges. ●Through coolant holes.	Ø50 mm	P M K S H	K322

CLASSIFICATION (SHANK TYPE)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
BRP  R KAPR	.302"	● 11° positive insert. ● Round shape insert gives strong cutting edge. ● A wide variety of lengths available. ● Suitable for machining of die and mold. ● Max.depth of cut .146"–.302".	Ø.500" | Ø2.500"	P M K S H	K344
LER  90° KAPR	2.500"	● Different helical flute angles prevents chattering. ● Suitable for heavy cutting due to holder rigidity.	Ø1.000" | Ø2.000"	P M K	K274
SPX  90° KAPR	6.200"	● The wavy cutting edge helps to reduce cutting resistance. ● Suitable for heavy machining due to holder rigidity.	Ø1.969" Ø2.000"	P M K S	K268
SPX Shell Type  90° KAPR	2.280"	● The wavy cutting edge helps to reduce cutting resistance. ● Suitable for heavy machining due to holder rigidity.	Ø2.500" Ø3.000"	P M K S	K269
ASPX Shell Type NEW  90° KAPR	2.953"	● Highly reliable clamping mechanism. ● Low cutting resistance due to the use of wavy inserts. ● Suitable for heavy cutting due to holder rigidity.	Ø2.000" | Ø3.000"	S	K262
ASPX NEW  90° KAPR	5.000"	● Highly reliable clamping mechanism. ● Low cutting resistance due to the use of wavy inserts. ● Suitable for heavy cutting due to holder rigidity.	Ø3.000"	S	K263
SRF  R KAPR	.669"	●S-shaped cutting edge provides sharpness similar to that of solid ball nose end mills. ●Highly accurate corner radius tolerance allows for high precision finishing. ●Carbide shank type available.	Ø.375" | Ø1.260"	P K N H	K350
SUF  R KAPR	.205"	●Highly accurate corner radius tolerance allows for high precision finishing. ●Seamless gash.	Ø.394" | Ø1.250"	P M K H	K350
SRM2  R KAPR	1.732"	● Air / coolant through. ● Suitable for roughing to semi-finishing of small and medium molds. ● High rigidity body design. ● Low resistance chip breaker. ● Key type clamp. ● Shrink fit ready.	Ø.625" | Ø1.250"	P M K S H	K362

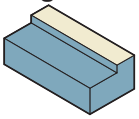
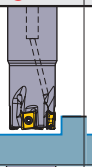
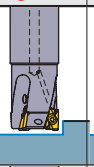
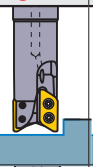
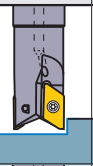
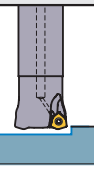
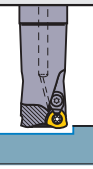
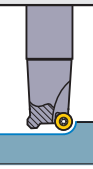
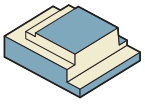
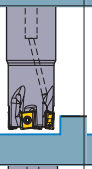
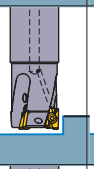
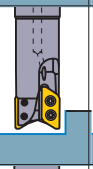
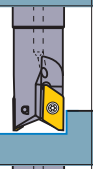
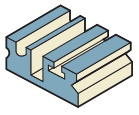
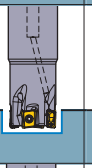
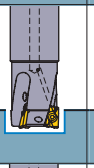
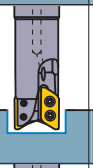
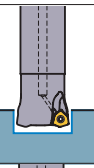
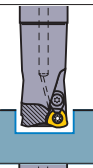
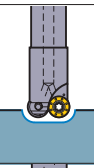
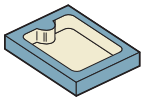
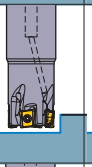
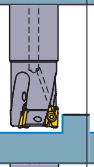
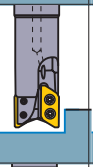
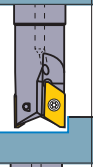
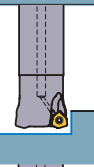
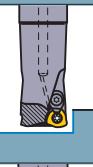
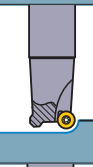
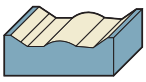
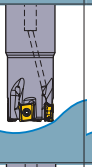
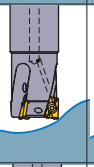
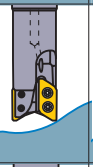
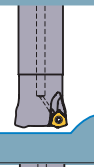
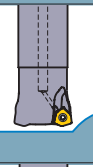
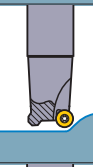
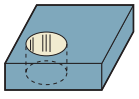
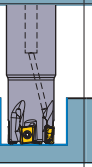
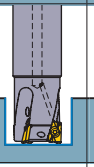
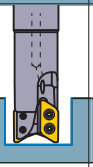
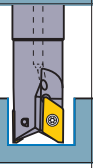
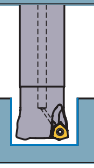
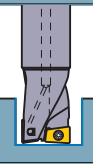
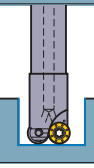
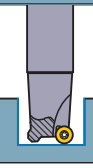
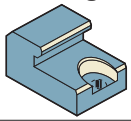
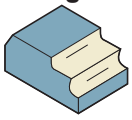
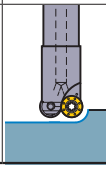
Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
SRM2 ϕ40/ϕ50 (ϕ1.575"/ϕ1.969")  R KAPR	2.480"	● Best for roughing of molds. ● Low resistance chip breaker. ● Highly rigid body.	Ø40 mm (Ø1.575") Ø50 mm (Ø1.969")	P K	K374
CFSP  45° KAPR	.327"	● Excellent sharpness with 11°positive inserts. ● 45°chamfer series.	Ø.313" | Ø1.250"	P K	K348
PMF 	—	● 2 directional cutting with large overhang. ● No burring so no need for hand finishing. ● High precision multi directional insert ensures highly accurate surfaces.	Ø50 mm | Ø80 mm	P K	K378
PMR 	.433"	● 1 directional cutting with large overhang. ● Unique shape of curved edge gives high rigidity and low resistance.	Ø50 mm | Ø80 mm	P K	K379

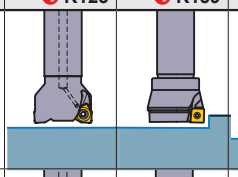
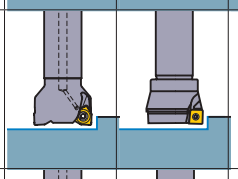
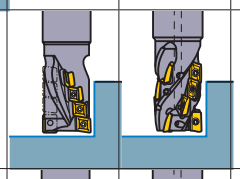
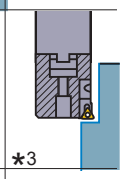
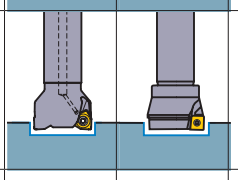
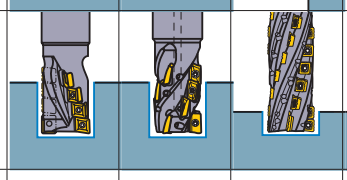
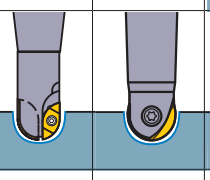
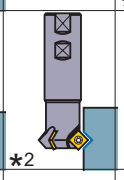
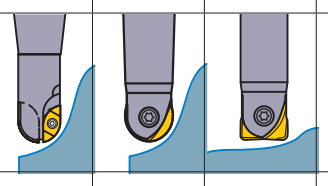
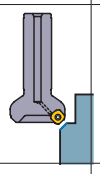
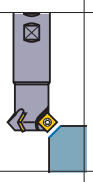
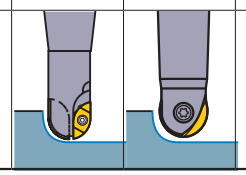
CLASSIFICATION (SCREW-IN TOOLS)

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
ASX400  90° KAPR	.394"	● Economical due to the use of 4 cutting edges. ● Low resistance due to the 3D design of the curved cutting edge. ● Curved cutting edge and high rigidity holder. ● Max. depth of cut .394".	Ø32 mm Ø40 mm	P M K N S H	K139
APX3000  90° KAPR	.394"	● Air / coolant through. ● Low resistance insert and high rigidity body. ● Ideal chip control. ● High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø.625" | Ø1.375"	P M K N S H	K160
APX4000  90° KAPR	.591"	● Air / coolant through. ● Low resistance insert and high rigidity body. ● Ideal chip control. ● High wall accuracy can be produced by using this cutter and unique insert geometry.	Ø1.000" | Ø1.375"	P M K S H	K173
AXD4000 NEW  90° KAPR	.591"	● Air / coolant through. ● Low resistance insert. ● High balance quality. ● Excellent wall accuracy. ● Multi functional milling.	Ø25 mm | Ø40 mm	P N S	K232
AQX  90° KAPR	.709"	● Air / coolant through. ● The center bottom cutting edge enables drilling and end milling without prepared hole.	Ø16 mm | Ø40 mm	P M K N S H	K279
VPX200  90° KAPR	.315"	● Special designed insert with 4 cutting edges. ● High precision, high quality insert cutting edge with finishing blade. ● Through coolant holes.	Ø.625" | Ø1.500"	P M K N S H	K183
VPX300  90° KAPR	.433"	● Special designed insert with 4 cutting edges. ● High precision, high quality insert cutting edge with finishing blade. ● Through coolant holes.	Ø1.000" | Ø1.500"	P M K N S H	K194
AJX 	.079"	● 13°, 15° positive insert. ● Air / coolant through. ● High rigidity due to double clamp structure. ● Suitable for high feed cutting. ● Special designed insert with the use of 3 cutting edges.	Ø.625" | Ø1.375"	P M K S H	K290

Product Name · Shape	APMX	Features	Cutter Dia.	Workpiece Material	Page
WJX09 NEW 	.047"	● Multi functional milling. ● Negative inserts. ● Stable clamp with dovetail structure. ● Suitable for high feed machining. ● Special designed insert with 6 cutting edges. ● Through coolant holes.	1.000" | 1.375"	P M K S H	K310
ARP  R KAPR	.236"	● Air / coolant through. ● Round Insert Cutter for Difficult-to-cut Material. ● High run-out accuracy when indexing inserts. ● Solid clamping system.	Ø1.000" | Ø1.500"	M S	K330
ARX  R KAPR	.118"	● Precision M-class 15°positive insert. ● Effective for various machining applications. ● Air / coolant through.	Ø16 mm | Ø25 mm	P M K H	K341
SRF  R KAPR	.433"	●S-shaped cutting edge provides sharpness similar to that of solid ball nose end mills. ●Highly accurate corner radius tolerance allows for high precision finishing. ●Through coolant holes.	Ø.625" Ø.750"	P K N H	K355
SUF  R KAPR	.205"	●Highly accurate corner radius tolerance allows for high precision finishing. ●Seamless gash. ●Through coolant holes.	Ø16 mm | Ø32 mm	P M K H	K356
SRM2  R KAPR	1.102"	●Suitable for roughing to semi-finishing of small and medium molds. ●High rigidity body design. ●Low resistance chip breaker. ●Through coolant holes.	Ø.750" | Ø1.250"	P M K S H	K366
PMC 	.138"	●For under-cutting trimmed part of press mold. ●2 directional cutting with large overhang. ●Through coolant holes.	Ø25 mm Ø32 mm Ø40 mm	P K	K376

SELECTION CHART

Cutting Mode \ Product Name	Multi Functional Type								
	VPX200 VPX300	APX3000 APX4000	AXD4000 AXD7000	BXD4000	NEW WJX09 WJX14	AJX	AQX	ARX	ARP BRP
									
	K182 K193	K154 K168	K226 K246	K258	K309 K322	K286	K276	K340	K329 K344
Face Milling 									
Shoulder Milling 									
Slot Milling 									
Pocket Milling 									
Copy Milling 									
Helical Drilling 									
Chamfer Milling 									
Radius Milling 									

	General Type				Long Cutting Edge Type			Ball/Radius Type			Special Purpose Type	
	NEW **WWX200** **WWX400**  K114 K123	**ASX400**  K139	**ASX445** **WSX445**  K057 K048	**AOX445**  K095	**LER**  K274	NEW **VPX200** **VPX300** **APX3000** **APX4000** Long Cutting Edge Type  K188 K154 K193 K168	NEW **ASPX** **SPX**  K262 K268	**SRM2**  K362 K374	**SRF** For Finishing  K350	**SUF** For Finishing  K350	**CFSP**  K348	**PMC** ✶1 **PMF** **PMR**  K376 K378 K379
												
											 ✶3	
											 ✶2	
												
												
												

✶1 Vertical Feed Milling ✶2 V-Slot Milling ✶3 Plunging

IDENTIFICATION OF CUTTER INSERTS

■ ISO CODES FOR MILLING

Symbol	Insert Shape	
6	Special Design	–
S	Square	
T	Triangular	
C	Rhombic 80°	
N	Regular Heptagon	
O	Octagonal	
M	Rhombic 86°	
A	Parallelogram 85°	
R	Round	
L	Rectangular	
J	Special Design	–
X	Special Design	–
W	Wiper	–

① Insert Shape

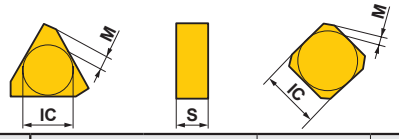
Symbol	Relief Angle **AN**
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other
X	Other

Major Relief Angle

② Relief Angle

	①	②	③	④
INCH	S	E	E	R
METRIC	S	E	E	R

③ Tolerance Class



Class	IC		M	S
A	.500	±.001	±.0002	±.001
C	.250 .375	±.001	±.0005	±.001
E	.500 .625	±.001	±.001	±.001
H	.394 .492	±.0005	±.0005	±.001
G	.551	±.001	±.001	±.005
K	.250	±.002	±.0005	±.001
	.375	±.002	±.0005	±.001
	.500	±.003	±.0005	±.001
	.625	±.003	±.0005	±.001
N	.250	±.002	±.003	±.001
	.375	±.002	±.003	±.001
	.500	±.003	±.006	±.001
	.625	±.004	±.006	±.001
M	.250	±.002	±.003	±.005
	.375	±.002	±.003	±.005
	.500	±.003	±.005	±.005
	.625	±.004	±.006	±.005

④ Chip Breaker With or Without Hole

Metric

Symbol	Hole	Hole Configuration	Chip Breaker	Figure
W	With Hole	Cylindrical Hole + One Countersink (40°–60°)	No	
T	With Hole		Onesided	
U	With Hole	Cylindrical Hole + Countersink (40°–60°)	Double sided	
B	With Hole	Cylindrical Hole + One Countersink (70°–90°)	No	
N	Without Hole	–	No	
R	Without Hole	–	Onesided	
X	–	–	–	Special Design

Note 1) Dimension symbols conforming to ISO13399.
See pages N002-N005 for details.

Inch S	Inch T	Diameter of Inscribed Circle (inch)	Metric R	Metric C	Metric S	Metric T
		.250		06	06	11
		.313		08	07	13
3	3	.375		09	09	16
		.394	10			
		.472	12			
4	4	.500		12	12	22
5		.625		16	15	27
		.787	20			

⑤ Insert Size

Inch	Thickness (inch)	Metric
2.5	.156	T3
2	.125	03
3	.187	04

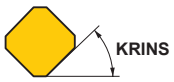
⑥ Insert Thickness

E	Round
F	Sharp
T	Chamfer
S	Chamfer+Hone
Z	Chamfer

⑨ Cutting Edge Condition

⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
4	2	A	F	E	R	1	- JS
12	03	A	F	E	R	1	- JS

⑦ Cutting Edge Angle



A	45°
E	75°
P	90°
Z	Other Angle

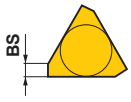
⑧ Wiper Edge Relief Angle

D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

⑩ Cutting Direction

L	Left
N	Neutral
R	Right

⑪ Width of Wiper Edge



1	.055 (.076 only for TEKN)
2	.094 (.094 for SFAN,SFCN)

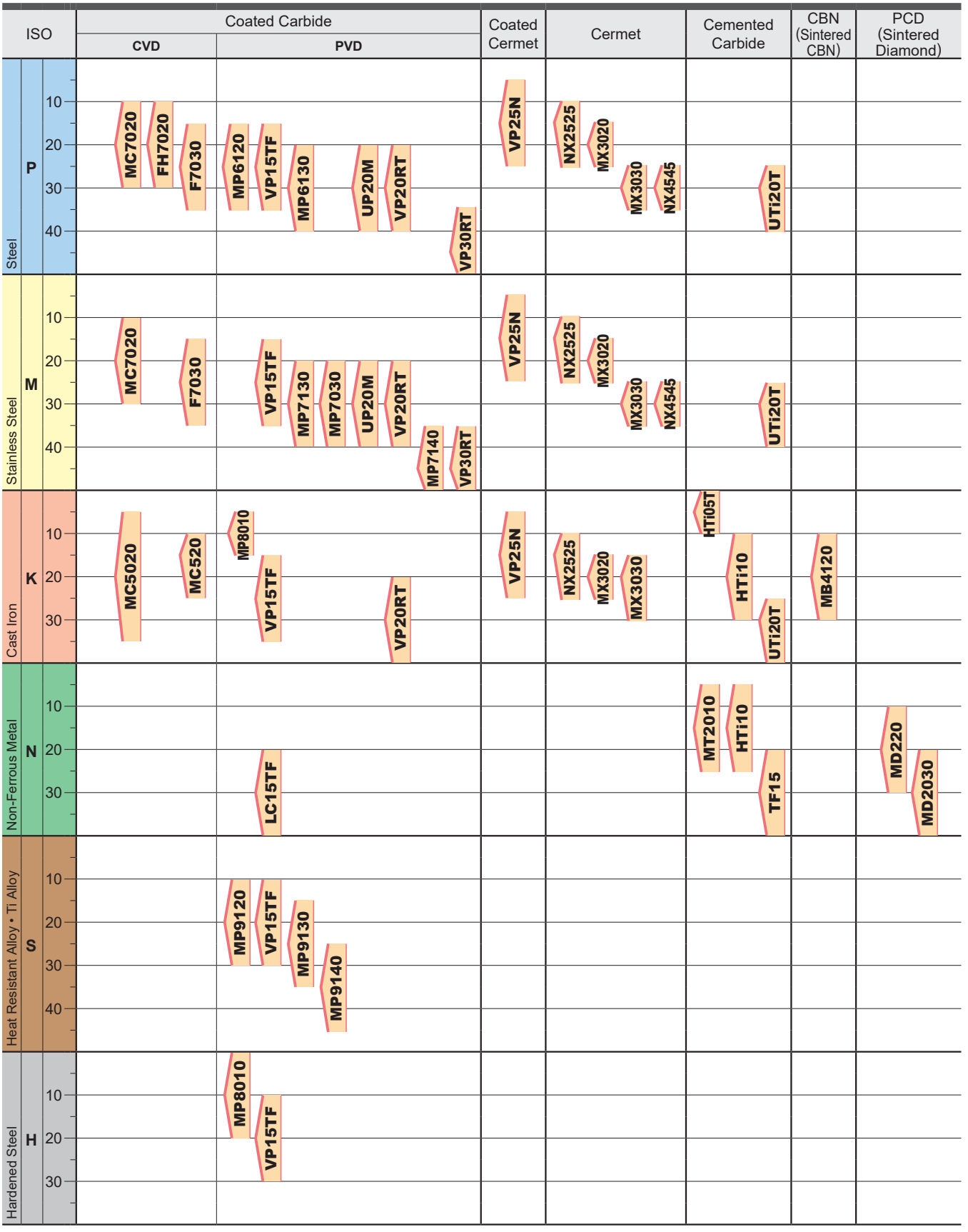
⑫ Chip Breaker

Symbol	Name
FT	FT Breaker
HS	HS Breaker
JH	JH Breaker
JM	JM Breaker
JP	JP Breaker
JS	JS Breaker
LS	LS Breaker
MM	MM Breaker
MS	MS Breaker

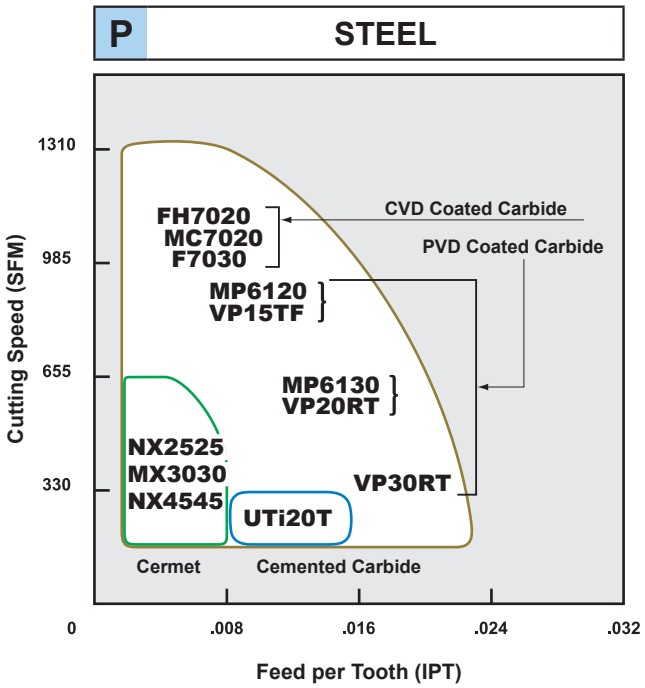
The above table shown as reference example.

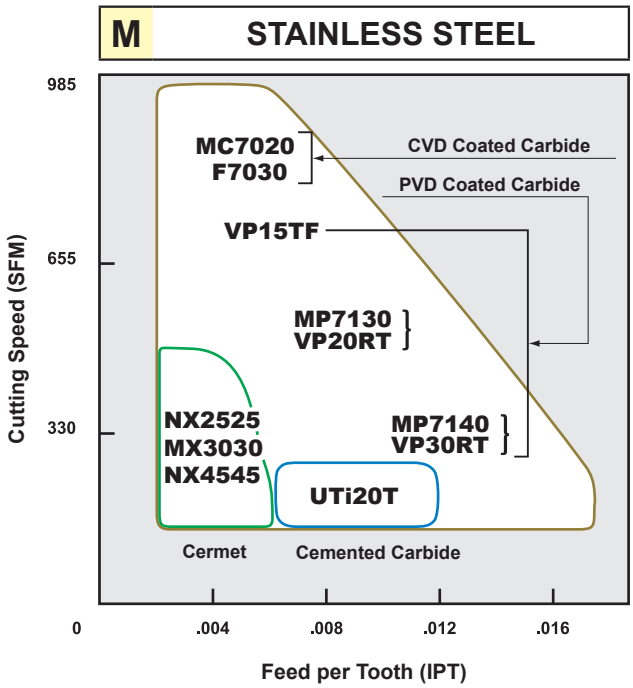
GRADES FOR MILLING

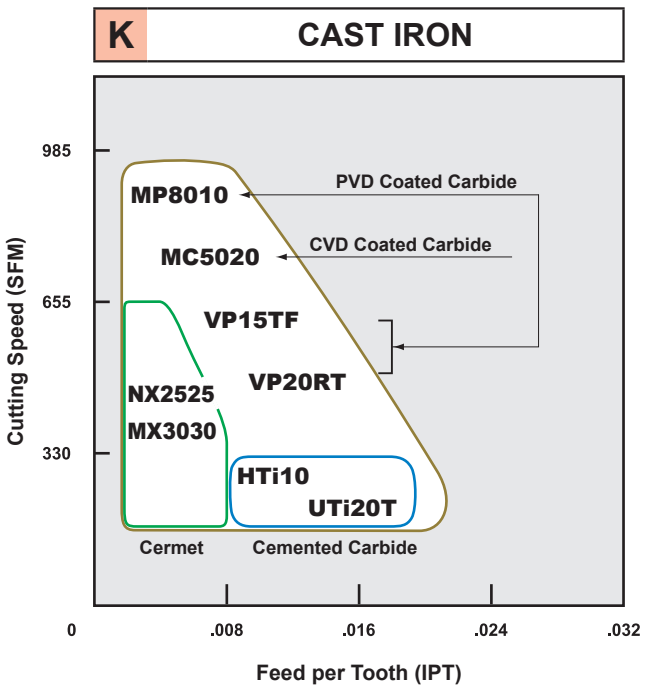
●INDEXABLE INSERT GRADES FOR MILLING

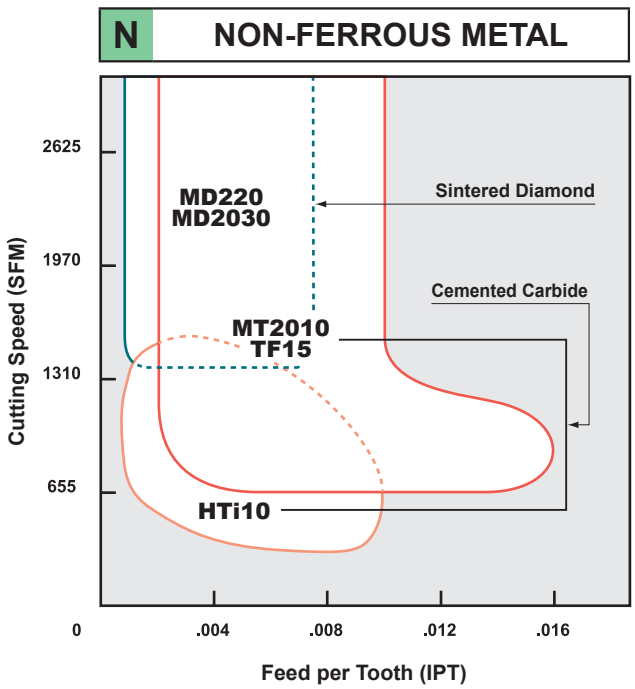


MILLING APPLICATION RANGE





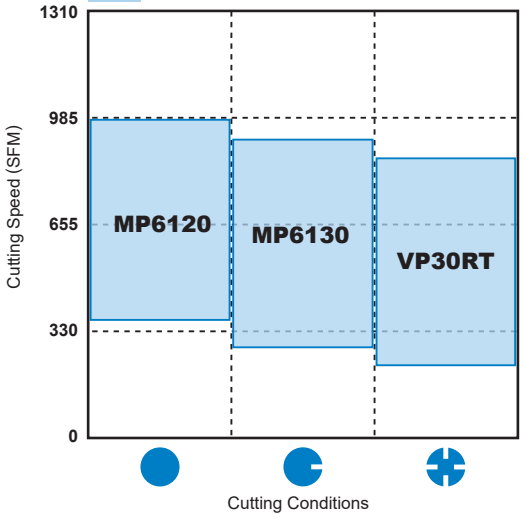




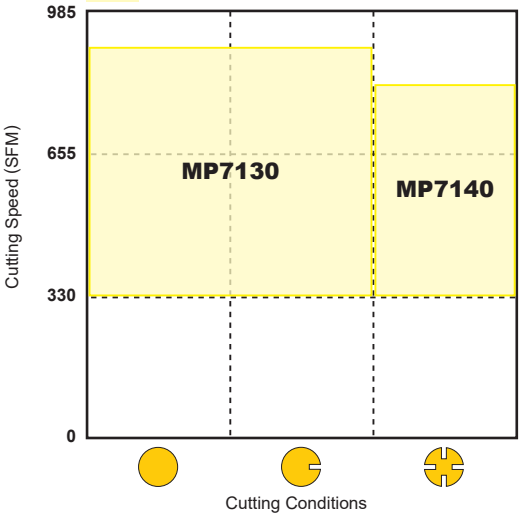
MILLING APPLICATION RANGE

●Recommendation of the main insert grade based on cutting speed and conditions for each workpiece.

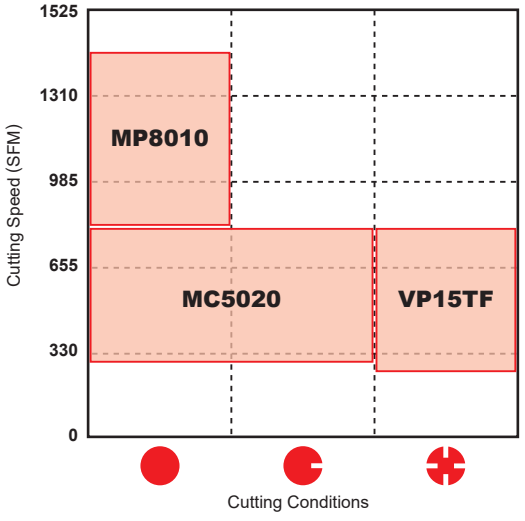
P STEEL (Medium-Rough Cutting)



M STAINLESS STEEL



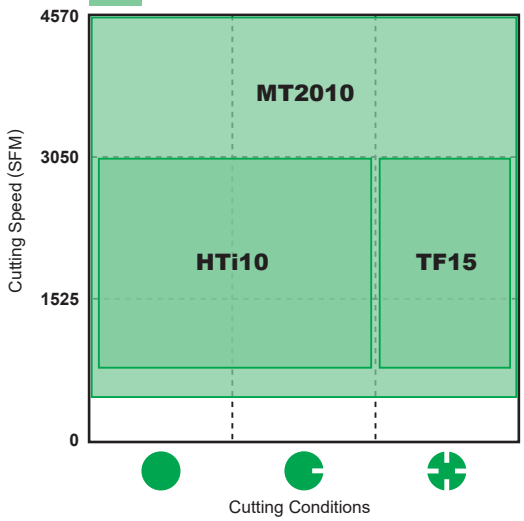
K CAST IRON



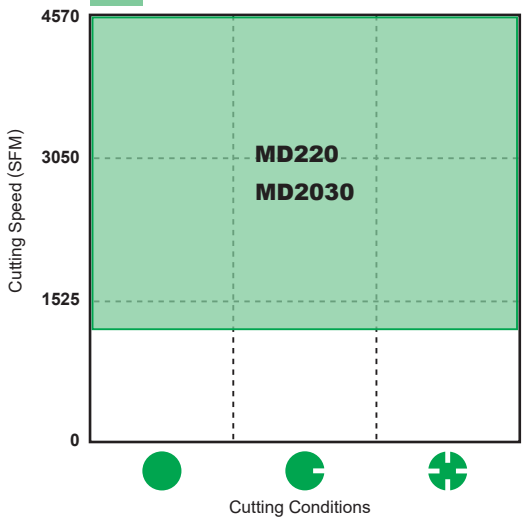
■CUTTING CONDITIONS

●	Stable Cutting	Continuous Cutting Constant Depth of Cut Pre-Machined Securely Clamped Component
◕	General Cutting	
✚	Unstable Cutting	Heavy Interrupted Cutting Irregular Depth of Cut Low Clamping Rigidity

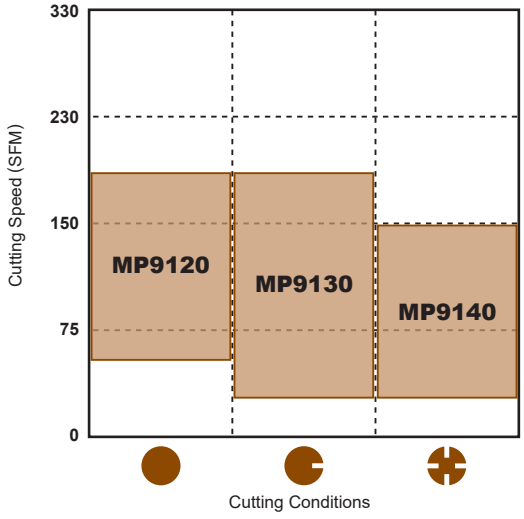
N NON-FERROUS METAL



N NON-FERROUS METAL (PCD)



S HEAT RESISTANT ALLOYS, TITANIUM ALLOYS



COATED CARBIDE (CVD&PVD)

<CVD>
- Special tough fibrous structure improves wear and fracture resistance.
- It covers a wide application range and reduces the number of tools required.

<PVD>
- PVD coating prolongs tool life when compared to cemented carbide under the same cutting conditions.
- Coating of tools with sharp edges is possible without softening or changing the quality of the substrate.

■SELECTION STANDARD

MILLING

	Workpiece Material	Recommended Grade	ISO	Application Range
P	Steel	F7030 MC7020 MP6120 MP6130 VP15TF	P	MC7020, FH7020, F7030, MP6120, VP15TF, MP6130, UP20M, VP20RT, VP30RT
M	Stainless Steel	F7030 MC7020 MP7030 MP7130 MP7140 VP15TF	M	MC7020, F7030, VP15TF, MP7130, MP7030, UP20M, VP20RT, MP7140, VP30RT
K	Cast Iron	MC5020 NEW MC520 VP15TF	K	MC5020, NEW MC520, MP8120, VP15TF, VP20RT
N	Aluminum Alloys	LC15TF	N	LC15TF
S	Heat Resistant Alloys Ti Alloys	MP9120 VP15TF MP9130 MP9140	S	MP9120, VP15TF, MP9130, MP9140
H	Hardened Steel	MP8010 VP15TF	H	MP8010, VP15TF

■GRADE CHARACTERISTICS

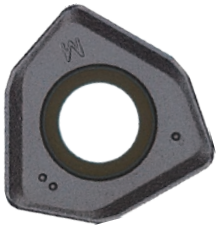
Grade	Substrate	Coating Layer	
	Hardness (HRA)	Composition	Thickness
MC5020	91.0	TiCN-Al_2O_3-Ti Compound	Thick
NEW **MC520**	91.0	TiCN-Al_2O_3-Ti Compound	Thick
MC7020	88.8	TiCN-Al_2O_3-Ti Compound	Thick
FH7020	89.0	TiCN-Al_2O_3-Ti Compound	Thick
F7030	88.8	TiCN-Al_2O_3-TiN	Thin
MP6120	91.5	(Al,Ti,Cr)N	Thin
MP6130	90.5	(Al,Ti,Cr)N	Thin
MP7030	90.5	(Al,Ti)N-Ti Compound	Thin
MP7130	90.5	(Al,Ti)N-Ti Compound	Thin
MP7140	88.8	(Al,Ti)N-Ti Compound	Thin

Grade	Substrate	Coating Layer	
	Hardness (HRA)	Composition	Thickness
MP8010	93.5	(Al,Ti,Si)N	Thin
MP9120	91.5	(Al,Ti,Cr)N	Thin
MP9130	90.5	(Al,Ti,Cr)N	Thin
MP9140	89.0	(Al,Ti)N	Thin
VP15TF	91.5	(Al,Ti)N	Thin
VP20RT	90.5	(Al,Ti)N	Thin
VP30RT	88.8	(Al,Ti)N	Thin
UP20M	90.5	TiN-TiCN-TiN	Thin

Note 1) The hardness values shown represent the typical values of the internal hardness.

For machining of steel and stainless steel

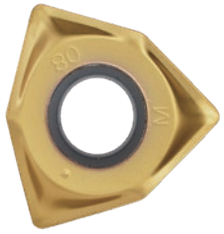
MC7020



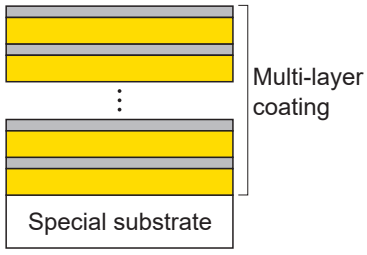
The micro-grain wear resistant Al_2O_3 and fibrous TiCN layers deliver excellent wear resistance in high-speed cutting. Use of a specially developed cemented carbide that provides superior resistance to fracture and thermal cracking prevents the cutting edge from sudden fracturing.

For machining of stainless steel

MP7130



MP7130 has a multi-layer coating based on a newly developed Ti-compound. It provides superior wear and fracture resistance in stainless steel machining. A special tough cemented carbide substrate gives excellent performance in machining of difficult-to-cut materials such as stainless steel.



Heat resistant Alloys, Cutting For Titanium Alloys

MP9130

An enhanced super fine cemented carbide substrate has increased toughness while maintaining hardness. The Al-Ti-Cr-N accumulative coating ensures optimum heat and wear resistance. The combination of these properties gives excellent fracture resistance and welding resistance because of low coefficient of friction when machining titanium alloys.

MP9140

The new technology Al-(Al, Ti)N coating provides stabilization of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

CERMET

- NX2525 for high-speed milling.
- NX4545, MX3030 for general milling.

■SELECTION STANDARD

MILLING

Workpiece Material	Recommended Grade	ISO	Application Range
P Steel Stainless Steel M	NX2525 MX3030 NX4545	P 10 20 30 M	NX2525 MX3020 MX3030 NX4545
K Cast Iron	NX2525 MX3030	K 10 20	NX2525 MX3020 MX3030

Note 1) In case of wet cutting, please use coated carbide VP15TF for steel cutting and coated carbide MC5020 for cast iron cutting.

■GRADE CHARACTERISTICS

Grade	Hardness (HRA)
NX2525	92.2
MX3030	91.0
NX4545	90.0

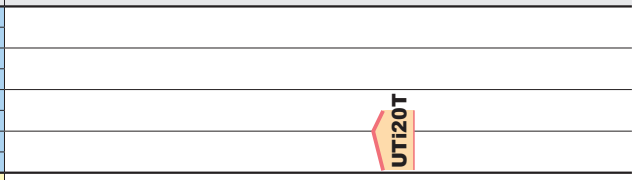
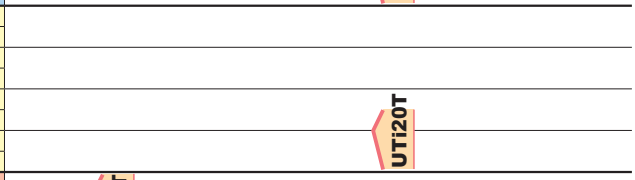
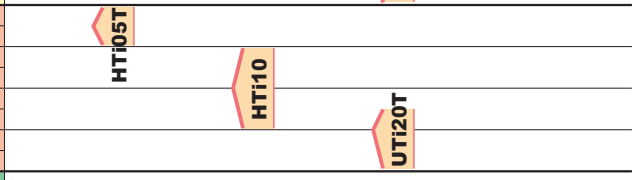
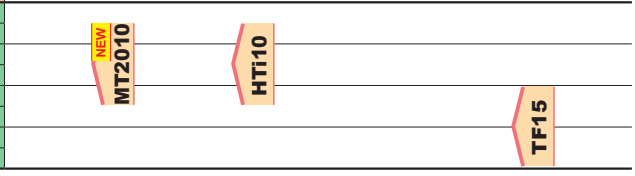
Note 1) The hardness values shown represent the typical values of the internal hardness.

CEMENTED CARBIDE

● **Available grade series are UTi20T for steel and cast iron, and HTi10 for cast iron, non-ferrous metal and non-metal.**

■SELECTION STANDARD

MILLING

Workpiece Material		Recommended Grade	ISO	Application Range
P	Steel	**UTi20T**	P	
M	Stainless Steel	**UTi20T**	M	
K	Cast Iron	**HTi05T**	K	
		HTi10		
		UTi20T		
N	Non-Ferrous Metal	**HTi10**	N	
		NEW **MT2010**		
		TF15		

■MAIN COMPONENT AND APPLICATION

ISO	Main Component	Characteristics	Workpiece Material
P M	WC-TiC-TaC-Co	Heat / Deformation resistance.	Carbon steel, Alloy steel, Stainless steel and Cast iron
K N	WC-Co	High rigidity and wear resistance.	Cast iron, Non-Ferrous metals and Non-metal

■GRADE CHARACTERISTICS

ISO	Grade	Hardness (HRA)
P M	**UTi20T**	90.5
K N	**HTi05T**	92.5
	HTi10	92.0
N	**MT2010**	91.8
	TF15	91.5

Note 1) The hardness values shown represent the typical values of the internal hardness.

CBN (SINTERED CBN)

- MB4120 high efficiency machining of cast iron.
- BC5030 high-speed machining of cast irons available.
- The combination of the BC5030 insert geometry and the AOX allows the use of up to 16 corners per insert, enabling cost effective, high efficiency machining.

■SELECTION STANDARD / RECOMMENDED CUTTING CONDITIONS

Recommended Cutter : FMAX

Workpiece Material		Structure	Cutting Speed (SFM) 820 1640 2460 3280 4100	Feed per Tooth (IPT)	Depth of Cut (inch)	Coolant
Grey Cast Iron	AISI No45B	Pearilitic	MB4120	—.006	—.020	Dry

Recommended Cutter : AOX445

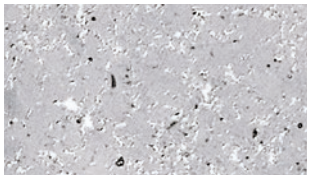
Workpiece Material		Structure	Cutting Speed (SFM) 820 1640 3280 4920 6560	Feed per Tooth (IPT)	Depth of Cut (inch)	Coolant
Grey Cast Iron	AISI No35B	Pearilitic	BC5030	—.006	—.118	Dry

■FEATURES AND BASE

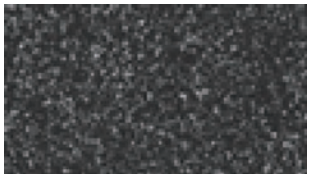
Grade	Application	Features	Main Component	Coating Layer
NEW MB4120	High Efficiency Machining High-Speed Cutting Interrupted Cutting	Fine CBN particles increase cutting edge toughness. The high fracture resistance allows stable performance even during interrupted machining. Optimized grade prevents fracture, edge chipping and thermal cracks under both dry cutting conditions and when cutting workpieces following the wet cutting process.	CBN Co Base Alloy	—
BC5030	High-speed machining at large depths of cut High-speed interrupted machining at large depths of cut	High CBN content and high thermal conductivity. The whole insert is composed of sintered CBN. This enables high-speed, high efficiency machining at larger depths of cut. The coated grade for easy recognition of used corners.	CBN AlN	TiN

PCD (SINTERED DIAMOND)

- **Suitable for cutting of non-ferrous metals such as aluminum alloys.**
- **Suitable for extremely high-speed finishing.**



Micro-Structure of **MD220**



Micro-Structure of **MD2030**

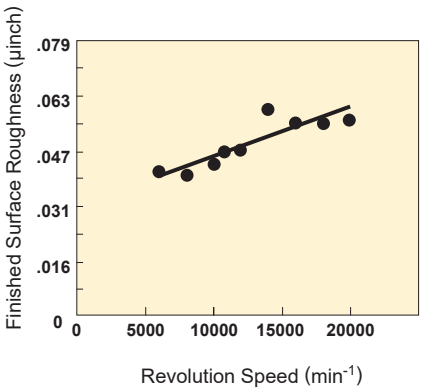
■GRADE FEATURES

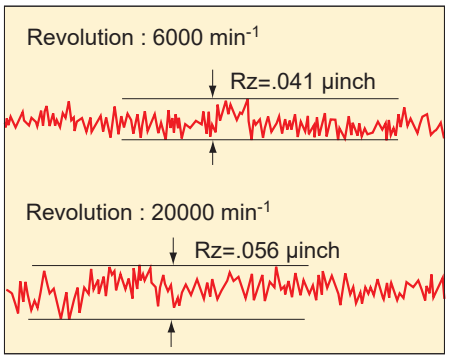
Grade	Features
MD220	Excellent in the balance between wear resistance and fracture resistance. For a wide range of tooling applications.
MD2030	Improved fracture resistance when used in unstable applications. The stability of the cutting edge can meet a wide variety of workpiece material and cutting conditions.

■RECOMMENDED CUTTING CONDITIONS

Workpiece Material	Cutting Speed (SFM)	Grade	Feed per Tooth (IPT)	Depth of Cut (inch)
Aluminum Alloy (Si ≤12%)	3280—19685	**MD220** **MD2030**	—.012	—.020
Aluminum Alloy (Si ≥13%)	655—2625			

■CUTTING PERFORMANCE





<Cutting Conditions>
Workpiece Material : Aluminum Alloy
Insert : NP-GDCW1240PDFR2
Grade : MD220
Tool : V10000R0406D
Feed per Tooth : .008 IPT
Depth of Cut : .020 inch
Width of Cut : 3.150 inch
Dry Cutting

CLASSIFICATION

Order Number	(ISO) Number	Cutter Type	Page
AEMW150304ER	AEMW150304ER	**BAE500**	
AEMW150308ER	AEMW150308ER		K386
AEMW19T304ER	AEMW19T304ER	**BAE600**	
AEMW19T308ER	AEMW19T308ER		K386
AOGT123602PEFR-GM	AOGT123602PEFR-GM	**APX3000**	
AOGT123604PEFR-GM	AOGT123604PEFR-GM		K154
AOGT123608PEFR-GM	AOGT123608PEFR-GM		
AOMT123604PEER-H	AOMT123604PEER-H		
AOMT123608PEER-H	AOMT123608PEER-H		K154
AOMT123616PEER-H	AOMT123616PEER-H		
AOMT123602PEER-M	AOMT123602PEER-M		
AOMT123604PEER-M	AOMT123604PEER-M		
AOMT123608PEER-M	AOMT123608PEER-M		
AOMT123610PEER-M	AOMT123610PEER-M		
AOMT123612PEER-M	AOMT123612PEER-M		K154
AOMT123616PEER-M	AOMT123616PEER-M		
AOMT123620PEER-M	AOMT123620PEER-M		
AOMT123624PEER-M	AOMT123624PEER-M		
AOMT123630PEER-M	AOMT123630PEER-M		
AOMT123632PEER-M	AOMT123632PEER-M		
AOMT184804PEER-H	AOMT184804PEER-H	**APX4000**	
AOMT184808PEER-H	AOMT184808PEER-H		
AOMT184816PEER-H	AOMT184816PEER-H		
AOMT184832PEER-H	AOMT184832PEER-H		K168
AOMT184840PEER-H	AOMT184840PEER-H		
AOMT184850PEER-H	AOMT184850PEER-H		
AOMT184864PEER-H	AOMT184864PEER-H		
AOMT184804PEER-M	AOMT184804PEER-M		
AOMT184808PEER-M	AOMT184808PEER-M		
AOMT184810PEER-M	AOMT184810PEER-M		K168
AOMT184812PEER-M	AOMT184812PEER-M		
AOMT184816PEER-M	AOMT184816PEER-M		
AOMT184820PEER-M	AOMT184820PEER-M		
APMT1135PDER-H2	APMT1135PDER-H2	**SRM2** **SRM2 40/50**	
APMT1604PDER-H2	APMT1604PDER-H2		K362
APMT1135PDER-M2	APMT1135PDER-M2		K362
APMT1604PDER-M2	APMT1604PDER-M2		K386 K387

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APGT1135PDFR-G2	APGT1135PDFR-G2	**BAP300**	
			K386
APMT1135PDER-H1	APMT1135PDER-H1		
APMT1135PDER-H2	APMT1135PDER-H2		K386
APMT1135PDER-H6	APMT1135PDER-H6		
APMT1135PDER-M0	APMT1135PDER-M0		
APMT1135PDER-M1	APMT1135PDER-M1		K386
APMT1135PDER-M2	APMT1135PDER-M2		
APGT1604PDFR-G2	APGT1604PDFR-G2	**BAP400**	
			K386
APMT1604PDER-H1	APMT1604PDER-H1		
APMT1604PDER-H2	APMT1604PDER-H2		
APMT1604PDER-H4	APMT1604PDER-H4		K386
APMT1604PDER-H6	APMT1604PDER-H6		
APMT1604PDER-H8	APMT1604PDER-H8		
APMT1604PDER-M2	APMT1604PDER-M2		
			K387
CCMX083508ENA	CCMX083508EN-A	**LER**	
CCMX09T308ENA	CCMX09T308EN-A		K274
CCMX09T308ENB	CCMX09T308EN-B		K274
CPMT1205ZPEN-M2	CPMT1205ZPEN-M2	**PMR**	
CPMT1205ZPEN-M3	CPMT1205ZPEN-M3		K379

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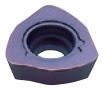
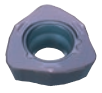
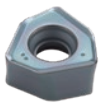
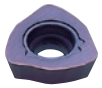
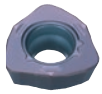
GOER1404PXFR2	GOER1404PXFR2	**FMAX**	
GOER1408PXFR2	GOER1408PXFR2		K099
GOER1408PXFR2-8	GOER1408PXFR2-8		K099
GOER1401ZXFR2	GOER1401ZXFR2		K099
HNMX1206EN06-R	HNMX1206EN06-R	**BMR**	
			K380
HNMX1206ER12-R	HNMX1206ER12-R		K380
JOMW06T215ZZSR-FT	JOMW06T215ZZSR-FT	**AJX**	
JOMW080320ZZSR-FT	JOMW080320ZZSR-FT		K286
JDMW09T320ZDSR-FT	JDMW09T320ZDSR-FT		
JDMW120420ZDSR-FT	JDMW120420ZDSR-FT		
JDMW140520ZDSR-FT	JDMW140520ZDSR-FT		
JOMT06T216ZZER-JL	JOMT06T216ZZER-JL		K286
JOMT080322ZZER-JL	JOMT080322ZZER-JL		
JDMT09T323ZDER-JL	JDMT09T323ZDER-JL		
JDMT120423ZDER-JL	JDMT120423ZDER-JL		
JDMT140523ZDER-JL	JDMT140523ZDER-JL		
JOMT06T215ZZSR-JM	JOMT06T215ZZSR-JM		K286
JOMT080320ZZSR-JM	JOMT080320ZZSR-JM		
JDMT09T320ZDSR-JM	JDMT09T320ZDSR-JM		
JDMT120420ZDSR-JM	JDMT120420ZDSR-JM		
JDMT140520ZDSR-JM	JDMT140520ZDSR-JM		
JDMT120420ZDSR-ST	JDMT120420ZDSR-ST		K286
JDMT140520ZDSR-ST	JDMT140520ZDSR-ST		
JOMU090512ZZER-L	JOMU090512ZZER-L	**WJX09**	
JOMU090512ZZER-M	JOMU090512ZZER-M	NEW 	K308
JOMU090512ZZER-R	JOMU090512ZZER-R		
JOMU140715ZZER-L	JOMU140715ZZER-L	**WJX14**	
JOMU140715ZZER-M	JOMU140715ZZER-M		K318
JOMU140715ZZER-R	JOMU140715ZZER-R		

Order Number	(ISO) Number	Cutter Type	Page
JOMW080320ZZSR-FT	JOMW080320ZZSR-FT	**PMC**	
JDMW09T320ZDSR-FT	JDMW09T320ZDSR-FT		K376
JDMW120420ZDSR-FT	JDMW120420ZDSR-FT		
JDMT120420ZDSR-ST	JDMT120420ZDSR-ST		K376
JOMT080320ZZSR-JM	JOMT080320ZZSR-JM		K376
JDMT09T320ZDSR-JM	JDMT09T320ZDSR-JM		
JDMT120420ZDSR-JM	JDMT120420ZDSR-JM		
JPMT060204-E	JPMT060204-E		K393
JPGX1404080PPER-JM	JPGX1404080PPER-JM	**ASPX**	
JPGX1404120PPER-JM	JPGX1404120PPER-JM		
JPGX1404160PPER-JM	JPGX1404160PPER-JM	NEW	
JPGX1404240PPER-JM	JPGX1404240PPER-JM		K262
JPGX1404320PPER-JM	JPGX1404320PPER-JM		
JPGX1404400PPER-JM	JPGX1404400PPER-JM		
JPGX1404500PPER-JM	JPGX1404500PPER-JM		
JPGX1404635PPER-JM	JPGX1404635PPER-JM		
JPMX140412-JM	JPMX140412-JM	**SPX**	
JPMX190412-JM	JPMX190412-JM		K268
JPMX140412-WH	JPMX140412-WH		K268
JPMX190412-WH	JPMX190412-WH		

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LNGU130804PNER-M	LNGU130804PNER-M	**VAS400 Side Cutter**	
LNGU130804PNEL-M	LNGU130804PNEL-M		
LNGU130808PNER-M	LNGU130808PNER-M		
LNGU130808PNEL-M	LNGU130808PNEL-M		
LNGU130812PNER-M	LNGU130812PNER-M		
LNGU130812PNEL-M	LNGU130812PNEL-M		
LNGU130816PNER-M	LNGU130816PNER-M		
LNGU130816PNEL-M	LNGU130816PNEL-M		
LNGU130820PNER-M	LNGU130820PNER-M		
LNGU130820PNEL-M	LNGU130820PNEL-M		
LNGU130824PNER-M	LNGU130824PNER-M		
LNGU130824PNEL-M	LNGU130824PNEL-M		
LNGU130830PNER-M	LNGU130830PNER-M		
LNGU130830PNEL-M	LNGU130830PNEL-M		
LNGU130840PNER-M	LNGU130840PNER-M		
LNGU130840PNEL-M	LNGU130840PNEL-M		
LNGU130850PNER-M	LNGU130850PNER-M		
LNGU130850PNEL-M	LNGU130850PNEL-M		K146
LNGU130804PNER-R	LNGU130804PNER-R		
LNGU130804PNEL-R	LNGU130804PNEL-R		
LNGU130808PNER-R	LNGU130808PNER-R		
LNGU130808PNEL-R	LNGU130808PNEL-R		
LNGU130812PNER-R	LNGU130812PNER-R		
LNGU130812PNEL-R	LNGU130812PNEL-R		
LNGU130816PNER-R	LNGU130816PNER-R		
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LNGU130820PNER-R	LNGU130820PNER-R		
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LNGU130824PNER-R	LNGU130824PNER-R		
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LNGU130830PNER-R	LNGU130830PNER-R		
LNGU130830PNEL-R	LNGU130830PNEL-R		
LNGU130840PNER-R	LNGU130840PNER-R		
LNGU130840PNEL-R	LNGU130840PNEL-R		
LNGU130850PNER-R	LNGU130850PNER-R		
LNGU130850PNEL-R	LNGU130850PNEL-R		

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LNGU171004PNER-R	LNGU171004PNER-R	**VAS500 Side Cutter**	
LNGU171004PNEL-R	LNGU171004PNEL-R		
LNGU171008PNER-R	LNGU171008PNER-R		
LNGU171008PNEL-R	LNGU171008PNEL-R		
LNGU171012PNER-R	LNGU171012PNER-R		
LNGU171012PNEL-R	LNGU171012PNEL-R		
LNGU171016PNER-R	LNGU171016PNER-R		
LNGU171016PNEL-R	LNGU171016PNEL-R		
LNGU171020PNER-R	LNGU171020PNER-R		
LNGU171020PNEL-R	LNGU171020PNEL-R		
LNGU171024PNER-R	LNGU171024PNER-R		K149
LNGU171024PNEL-R	LNGU171024PNEL-R		
LNGU171030PNER-R	LNGU171030PNER-R		
LNGU171030PNEL-R	LNGU171030PNEL-R		
LNGU171040PNER-R	LNGU171040PNER-R		
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LNGU171050PNER-R	LNGU171050PNER-R		
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LNGU171060PNER-R	LNGU171060PNER-R		
LNGU171060PNEL-R	LNGU171060PNEL-R		
LNGU171070PNER-R	LNGU171070PNER-R		
LNGU171070PNEL-R	LNGU171070PNEL-R		
LOGU0904020PNER-L	LOGU0904020PNER-L	**VPX200**	
LOGU0904040PNER-L	LOGU0904040PNER-L		
LOGU0904080PNER-L	LOGU0904080PNER-L		
LOGU0904100PNER-L	LOGU0904100PNER-L		
LOGU0904120PNER-L	LOGU0904120PNER-L		K188
LOGU0904160PNER-L	LOGU0904160PNER-L		
LOGU0904020PNFR-L	LOGU0904020PNFR-L		
LOGU0904040PNFR-L	LOGU0904040PNFR-L		
LOGU0904080PNFR-L	LOGU0904080PNFR-L		
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LOGU0904160PNFR-L	LOGU0904160PNFR-L		
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LOGU0904040PNER-M	LOGU0904040PNER-M		
LOGU0904080PNER-M	LOGU0904080PNER-M		
LOGU0904100PNER-M	LOGU0904100PNER-M		
LOGU0904120PNER-M	LOGU0904120PNER-M		K188
LOGU0904160PNER-M	LOGU0904160PNER-M		
LOGU0904020PNFR-M	LOGU0904020PNFR-M		
LOGU0904040PNFR-M	LOGU0904040PNFR-M		
LOGU0904080PNFR-M	LOGU0904080PNFR-M		
LOGU0904100PNFR-M	LOGU0904100PNFR-M		
LOGU0904120PNFR-M	LOGU0904120PNFR-M		
LOGU0904160PNFR-M	LOGU0904160PNFR-M		

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LOGU1207020PNER-L	LOGU1207020PNER-L	**VPX300**	
LOGU1207040PNER-L	LOGU1207040PNER-L		
LOGU1207080PNER-L	LOGU1207080PNER-L		
LOGU1207100PNER-L	LOGU1207100PNER-L		
LOGU1207120PNER-L	LOGU1207120PNER-L		
LOGU1207160PNER-L	LOGU1207160PNER-L		
LOGU1207200PNER-L	LOGU1207200PNER-L		
LOGU1207240PNER-L	LOGU1207240PNER-L	NEW	
LOGU1207300PNER-L	LOGU1207300PNER-L		
LOGU1207320PNER-L	LOGU1207320PNER-L		K199
LOGU1207020PNFR-L	LOGU1207020PNFR-L		
LOGU1207040PNFR-L	LOGU1207040PNFR-L		
LOGU1207080PNFR-L	LOGU1207080PNFR-L		
LOGU1207100PNFR-L	LOGU1207100PNFR-L		
LOGU1207120PNFR-L	LOGU1207120PNFR-L		
LOGU1207160PNFR-L	LOGU1207160PNFR-L		
LOGU1207200PNFR-L	LOGU1207200PNFR-L		
LOGU1207240PNFR-L	LOGU1207240PNFR-L		
LOGU1207300PNFR-L	LOGU1207300PNFR-L		
LOGU1207320PNFR-L	LOGU1207320PNFR-L		
LOGU1207020PNER-M	LOGU1207020PNER-M		
LOGU1207040PNER-M	LOGU1207040PNER-M		
LOGU1207080PNER-M	LOGU1207080PNER-M		
LOGU1207100PNER-M	LOGU1207100PNER-M		
LOGU1207120PNER-M	LOGU1207120PNER-M		
LOGU1207160PNER-M	LOGU1207160PNER-M		
LOGU1207200PNER-M	LOGU1207200PNER-M		
LOGU1207240PNER-M	LOGU1207240PNER-M		
LOGU1207300PNER-M	LOGU1207300PNER-M		
LOGU1207320PNER-M	LOGU1207320PNER-M		K199
LOGU1207020PNFR-M	LOGU1207020PNFR-M		
LOGU1207040PNFR-M	LOGU1207040PNFR-M		
LOGU1207080PNFR-M	LOGU1207080PNFR-M		
LOGU1207100PNFR-M	LOGU1207100PNFR-M		
LOGU1207120PNFR-M	LOGU1207120PNFR-M		
LOGU1207160PNFR-M	LOGU1207160PNFR-M		
LOGU1207200PNFR-M	LOGU1207200PNFR-M		
LOGU1207240PNFR-M	LOGU1207240PNFR-M		
LOGU1207300PNFR-M	LOGU1207300PNFR-M		
LOGU1207320PNFR-M	LOGU1207320PNFR-M		
MPMX120412-JM	MPMX120412-JM	**SPX**	
			K268
MPMX120412-WH	MPMX120412-WH		
			K268

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NNMU130508ZER-L	NNMU130508ZER-L	**AHX440S**	
NNMU130508ZEN-M	NNMU130508ZEN-M		K064
NNMU130532ZEN-M	NNMU130532ZEN-M		K070
NNMU130532ZEN-R	NNMU130532ZEN-R		
NNMU200608ZEN-HK	NNMU200608ZEN-HK	**AHX640S AHX640W**	
			K074 K086
NNMU200608ZEN-MK	NNMU200608ZEN-MK		K074 K086
NNMU200708ZEN-M	NNMU200708ZEN-M	**AHX640S**	
			K074
NNMU200708ZEN-MP	NNMU200708ZEN-MP		K074
NNMU200712ZER-L	NNMU200712ZER-L		K074
NNMU200712ZER-MM	NNMU200712ZER-MM		K074
NP-GOEN1404PXSR05	NP-GOEN1404PXSR05	**FMAX**	
NP-GOEN1408PXSR05	NP-GOEN1408PXSR05	NEW 	K099
NP-WEEW13T3AGFR3C	NP-WEEW13T3AGFR3C	**ASX445**	
			K056
OEMX12T3ETR1	OEMX12T3ETR1	**BOE**	
OEMX12T3ESR1	OEMX12T3ESR1		K387
OEMX1705ETR1	OEMX1705ETR1		
OEMX1705ESR1	OEMX1705ESR1		
OEMX12T3EER1-JS	OEMX12T3EER1-JS		K387
OEMX12T3ETR1-JS	OEMX12T3ETR1-JS		
OEMX1705EER1-JS	OEMX1705EER1-JS		
OEMX1705ETR1-JS	OEMX1705ETR1-JS		

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QOGT0830R-G1	QOGT0830R-G1	AQX	
QOGT0934R-G1	QOGT0934R-G1		
QOGT1443R-G1	QOGT1443R-G1		K276
QOGT1651R-G1	QOGT1651R-G1		
QOGT1959R-G1	QOGT1959R-G1		
QOMT0830R-M2	QOMT0830R-M2		
QOMT0934R-M2	QOMT0934R-M2		
QOMT1443R-M2	QOMT1443R-M2		K276
QOMT1651R-M2	QOMT1651R-M2		
QOMT1959R-M2	QOMT1959R-M2		
QOGT0830R-G1	QOGT0830R-G1	AQX(METRIC)	
QOGT1035R-G1	QOGT1035R-G1		
QOGT1342R-G1	QOGT1342R-G1		
QOGT1651R-G1	QOGT1651R-G1		K276
QOGT1856R-G1	QOGT1856R-G1		
QOGT2062R-G1	QOGT2062R-G1		
QOGT2576R-G1	QOGT2576R-G1		
QOMT0830R-M2	QOMT0830R-M2		
QOMT1035R-M2	QOMT1035R-M2		
QOMT1342R-M2	QOMT1342R-M2		
QOMT1651R-M2	QOMT1651R-M2		K276
QOMT1856R-M2	QOMT1856R-M2		
QOMT2062R-M2	QOMT2062R-M2		
QOMT2576R-M2	QOMT2576R-M2		
RPHT1040M0E4-L	RPHT1040M0E4-L	ARP	
RPMT1040M0E4-L	RPMT1040M0E4-L		
NEW RPMT1040M0E8-L1	RPMT1040M0E8-L1		
NEW RPMT1040M0E4-L2	RPMT1040M0E4-L2		
RPHT1040M0E4-M	RPHT1040M0E4-M		
RPMT1040M0E4-M	RPMT1040M0E4-M		
NEW RPMT1040M0E8-M1	RPMT1040M0E8-M1		
NEW RPMT1040M0E4-M2	RPMT1040M0E4-M2		
RPHT1040M0E4-R	RPHT1040M0E4-R		
RPMT1040M0E4-R	RPMT1040M0E4-R		
NEW RPMT1040M0E8-R1	RPMT1040M0E8-R1		K328
RPHT1248M0E4-L	RPHT1248M0E4-L		
RPMT1248M0E4-L	RPMT1248M0E4-L		
NEW RPMT1248M0E8-L1	RPMT1248M0E8-L1		
NEW RPMT1248M0E4-L2	RPMT1248M0E4-L2		
RPHT1248M0E4-M	RPHT1248M0E4-M		
RPMT1248M0E4-M	RPMT1248M0E4-M		
NEW RPMT1248M0E8-M1	RPMT1248M0E8-M1		
NEW RPMT1248M0E4-M2	RPMT1248M0E4-M2		
RPHT1248M0E4-R	RPHT1248M0E4-R		
RPMT1248M0E4-R	RPMT1248M0E4-R		
NEW RPMT1248M0E8-R1	RPMT1248M0E8-R1		

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RDMW0517M0E	RDMW0517M0E	ARX(METRIC)	
RDMW0620M0E	RDMW0620M0E		K340
RDMW0724M0E	RDMW0724M0E		
REMX1705EN	REMX1705EN	BOE	
REMX1705SN	REMX1705SN		K387
REMX12T3EN-JS	REMX12T3EN-JS		
REMX1705EN-JS	REMX1705EN-JS		K387
RGEN2004EN	RGEN2004M0EN	SG20	
RGEN2004SN	RGEN2004M0SN		K391
RPMT07T200E-JS	RPMT07T200E-JS	BRP	
RPMT09T300E-JS	RPMT09T300E-JS		K344
RPMT120400E-JS	RPMT120400E-JS		
RPMT150600E-JS	RPMT150600E-JS		
RPMW120400E	RPMW120400E		
RPMW150600E	RPMW150600E		K344
SDEN42AEN	SDEN1203AEN	Corner Angle 45° 15° Positive	
			K393
SEEN42EFFR1	SEEN1203EFFR1	SE415	
SEEN42EFER1	SEEN1203EFER1		K389
SEEN42EFTR1	SEEN1203EFTR1		
SEEN42EFSR1	SEEN1203EFSR1		
SEER42EFER-JS	SEER1203EFER-JS		
			K389
SECN42AFTN1	SECN1203AFTN1	SE445	
SEEN42AFFN1	SEEN1203AFFN1		
SEEN42AFEN1	SEEN1203AFEN1		K390
SEEN42AFTN1	SEEN1203AFTN1		
SEEN42AFSN1	SEEN1203AFSN1		
SEEN42AFXN1	SEEN1203AFXN1		
SEER42AFEN-JS	SEER1203AFEN-JS		
SEER42AFXN-JS	SEER1203AFXN-JS		K390
SEEN53EFER1	SEEN1504EFER1	SE515	
			K390

Order Number	(ISO) Number	Cutter Type	Page
SEEN53AFEN1	SEEN1504AFEN1	**SE545**	K390
SEEN53AFTN1	SEEN1504AFTN1		
SEEN53AFSN1	SEEN1504AFSN1		
SEER53AFEN-JS	SEER1504AFEN-JS		K390
SEET13T3AGEN-JL	SEET13T3AGEN-JL	**ASX445**	K056
SEMT13T3AGSN-JM	SEMT13T3AGSN-JM		K056
SEMT13T3AGSN-JH	SEMT13T3AGSN-JH		K056
SEMT13T3AGSN-FT	SEMT13T3AGSN-FT		K056
SEGT13T3AGFN-JP	SEGT13T3AGFN-JP		K056
SEER43AFEN-JS	SEER1204AFEN-JS	**Corner Angle 45° 20° Positive**	K393
SFAN42ZFFR2	SFAN1203ZFFR2	**BF407**	K387
SFAN42ZFFL2	SFAN1203ZFFL2		
SFCN42ZFFR2	SFCN1203ZFFR2		
SFCN42ZFFR2	SFCN1203ZFFR2		K387
SL-ONEN120404ASN	SL-ONEN120404ASN	**AOX445**	K095
SNMN432	SNMN120408	**Negative**	K393
SNMN433	SNMN120412		

Order Number	(ISO) Number	Cutter Type	Page
SNMU1206C05ZNER-M	SNMU1206C05ZNER-M	**WSF406W** NEW	K103
WNGU1206ZNER5C-M	WNGU1206ZNER5C-M	NEW	K103
SNMU140812ANER-M	SNMU140812ANER-M	**WSX445**	K042
SNMU140812ANEL-M	SNMU140812ANEL-M		
SNMU140812ANER-R	SNMU140812ANER-R		
SNMU140812ANEL-R	SNMU140812ANEL-R		
SNMU140812ANER-H	SNMU140812ANER-H		
SNGU140812ANER-L	SNGU140812ANER-L		
SNGU140812ANEL-L	SNGU140812ANEL-L		
SNGU140812ANER-M	SNGU140812ANER-M		
SNGU140812ANEL-M	SNGU140812ANEL-M		
SNGU140812ANFR-L	SNGU140812ANFR-L		
SNGU140812ANFL-L	SNGU140812ANFL-L		
WNGU1406ANEN8C-M	WNGU1406ANEN8C-M		K042
SOET12T308PEER-JL	SOET12T308PEER-JL	**ASX400**	K138
SOMT12T308PEER-JM	SOMT12T308PEER-JM	**ASX400** ASX Side Cutter	K138 K152
SOMT12T308PEEL-JM	SOMT12T308PEEL-JM		
SOMT12T308PEER-JH	SOMT12T308PEER-JH	**ASX400**	K138
SOMT12T320PEER-FT	SOMT12T320PEER-FT		K138
SOGT12T308PEFR-JP	SOGT12T308PEFR-JP		K138
SONX1206PER	SONX1206PER	**VOX400** VOS Side Cutter	K106 K148
SONX1206PEL	SONX1206PEL		

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Order Number	(ISO) Number	Cutter Type	Page
SPEN42EEER1	SPEN1203EEER1	**FBP415** 	K388
SPEN42EEEL1	SPEN1203EEEL1		
SPNN42EEER1	SPNN1203EEER1		
SPNN42EEEL1	SPNN1203EEEL1		
SPER42EEER-JS	SPER1203EEER-JS		K388
SPGX1204100PPER-JM	SPGX1204100PPER-JM	**ASPX** NEW 	K262
SPMB1204APT	SPMB1204APT	**BSP** 	K387
SPMM432A	SPMT120408-A	**TBE1** 	K391
SPMN421	SPMN120304	**11° Positive** 	K393
SPMN421T	SPMN120304T		
SPMN422	SPMN120308		
SPMN423	SPMN120312		
SPMN432	SPMN120408		
SPMN433	SPMN120412		
SPMN532	SPMN150408		
SPMW321	SPMW090304	**CFSP** 	K388
SPMW322	SPMW090308		
SPMW421	SPMW120304		
SPMW422	SPMW120308		
SPMX120408-JM	SPMX120408-JM	**SPX** 	K268
SPMX120408-WH	SPMX120408-WH		K268
SRFT0375	SRFT0375	**SRF** 	K350
SRFT0500	SRFT0500		
SRFT0625	SRFT0625		
SRFT0750	SRFT0750		
SRFT1000	SRFT1000		
SRFT1250	SRFT1250		

Order Number	(ISO) Number	Cutter Type	Page
SRFT10	SRFT10	**SRF(METRIC)** 	K350
SRFT12	SRFT12		
SRFT16	SRFT16		
SRFT20	SRFT20		
SRFT25	SRFT25		
SRFT30	SRFT30		
SRFT32	SRFT32		
SRG40C	SRG40C	**SRM2 40/50** 	K374
SRG50C	SRG50C		
SRG40E	SRG40E		K374
SRG50E	SRG50E		
SRG16C	SRG16C	**SRM2(METRIC)** 	K362
SRG20C	SRG20C		
SRG25C	SRG25C		
SRG30C	SRG30C		
SRG32C	SRG32C		
SRG16E	SRG16E		K362
SRG20E	SRG20E		
SRG25E	SRG25E		
SRG30E	SRG30E		
SRG32E	SRG32E		
SRM212C	SRM212C	**SRM2** 	K362
SRM216C	SRM216C		
SRM220C	SRM220C		
SRM212E	SRM212E		K362
SRM216E	SRM216E		
SRM220E	SRM220E		
SRM210C-M	SRM210C-M		K362
SRM212C-M	SRM212C-M		
SRM216C-M	SRM216C-M		
SRM220C-M	SRM220C-M		
SRM210E-M	SRM210E-M		K362
SRM212E-M	SRM212E-M		
SRM216E-M	SRM216E-M		
SRM220E-M	SRM220E-M		

Order Number	(ISO) Number	Cutter Type	Page
SRM16C-M	SRM16C-M	**SRM2(METRIC)**	
SRM20C-M	SRM20C-M		
SRM25C-M	SRM25C-M		K362
SRM30C-M	SRM30C-M		
SRM32C-M	SRM32C-M		
SRM16E-M	SRM16E-M		
SRM20E-M	SRM20E-M		
SRM25E-M	SRM25E-M		K362
SRM30E-M	SRM30E-M		
SRM32E-M	SRM32E-M		
SUFT10R05	SUFT10R05	**SUF(METRIC)**	
SUFT10R10	SUFT10R10		
SUFT10R20	SUFT10R20		
SUFT12R05	SUFT12R05		
SUFT12R10	SUFT12R10		
SUFT12R20	SUFT12R20		
SUFT12R30	SUFT12R30		
SUFT16R05	SUFT16R05		
SUFT16R10	SUFT16R10		
SUFT16R15	SUFT16R15		
SUFT16R20	SUFT16R20		
SUFT16R30	SUFT16R30		
SUFT20R05	SUFT20R05		
SUFT20R10	SUFT20R10		K350
SUFT20R15	SUFT20R15		
SUFT20R20	SUFT20R20		
SUFT20R30	SUFT20R30		
SUFT25R05	SUFT25R05		
SUFT25R10	SUFT25R10		
SUFT25R20	SUFT25R20		
SUFT25R30	SUFT25R30		
SUFT30R05	SUFT30R05		
SUFT30R10	SUFT30R10		
SUFT30R20	SUFT30R20		
SUFT30R30	SUFT30R30		
SUFT32R05	SUFT32R05		
SUFT32R10	SUFT32R10		
SUFT32R20	SUFT32R20		
TECN32PEFR1W	TECN1603PEFR1W	**NSE300**	
TECN32PEER1W	TECN1603PEER1W		K388
TECN32PETR1W	TECN1603PETR1W		
TEEN32PEFR1	TEEN1603PEFR1		
TEEN32PEER1	TEEN1603PEER1		K389
TEEN32PETR1	TEEN1603PETR1		
TEEN32PESR1	TEEN1603PESR1		
TEER32PEER-JS	TEER1603PEER-JS		
			K389

Order Number	(ISO) Number	Cutter Type	Page
TECN43PEFR1	TECN2204PEFR1	**NSE400 SE400**	
TECN43PEER1	TECN2204PEER1		
TECN43PETR1	TECN2204PETR1		
TEEN43PEFR1	TEEN2204PEFR1		K389
TEEN43PEER1	TEEN2204PEER1		
TEEN43PETR1	TEEN2204PETR1		
TEEN43PESR1	TEEN2204PESR1		
TEER43PEER-JS	TEER2204PEER-JS		
			K389
TPEW1303ZPER2	TPEW1303ZPER2	**PMF**	
			K378
TPMN321	TPMN160304	**11° Positive**	
TPMN322	TPMN160308		
TPMN323	TPMN160312		K393
TPMN431	TPMN220404		
TPMN432	TPMN220408		
TPMN433	TPMN220412		
WEC42EFER5C	WEC42EFER5C	**SE415**	
WEC42EFTR5C	WEC42EFTR5C		K390
WEC42AFTR5C	WEC42AFTR5C	**SE445**	
			K390
WEC53AFER5C	WEC53AFER5C	**SE545**	
WEC53AFTR5C	WEC53AFTR5C		K391
WEEW13T3AGER8C	WEEW13T3AGER8C	**ASX445**	
WEEW13T3AGTR8C	WEEW13T3AGTR8C		K056

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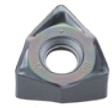
Order Number	(ISO) Number	Cutter Type	Page
WNEU1305ZEN4C-M	WNEU1305ZEN4C-M	**AHX440S** 	K064
WNEU2006ZEN7C-WK	WNEU2006ZEN7C-WK	**AHX640S AHX640W** 	K074 K086
WNEU2007ZEN7C-M	WNEU2007ZEN7C-M	**AHX640S** 	K074
WNEU2007ZEN7C-WP	WNEU2007ZEN7C-WP		
WOEW12T308PEER8C	WOEW12T308PEER8C	**ASX400** 	K138
WOEW12T308PETR8C	WOEW12T308PETR8C		
WOEX1206PER5C	WOEX1206PER5C	**VOX400** 	K106
WPC42EEER10C	WPC42EEER10C	**FBP415** 	K388
WPC42EEEL10C	WPC42EEEL10C		
XDGT1550PDER-G04	XDGT1550PDER-G04	**BXD4000** 	K258
XDGT1550PDER-G08	XDGT1550PDER-G08		
XDGT1550PDER-G12	XDGT1550PDER-G12		
XDGT1550PDER-G16	XDGT1550PDER-G16		
XDGT1550PDER-G20	XDGT1550PDER-G20		
XDGT1550PDER-G30	XDGT1550PDER-G30		
XDGT1550PDER-G32	XDGT1550PDER-G32		
XDGT1550PDER-G40	XDGT1550PDER-G40		
XDGT1550PDER-G50	XDGT1550PDER-G50		
XDGT1550PDFR-G04	XDGT1550PDFR-G04		K258
XDGT1550PDFR-G08	XDGT1550PDFR-G08		
XDGT1550PDFR-G12	XDGT1550PDFR-G12		
XDGT1550PDFR-G16	XDGT1550PDFR-G16		
XDGT1550PDFR-G20	XDGT1550PDFR-G20		
XDGT1550PDFR-G30	XDGT1550PDFR-G30		
XDGT1550PDFR-G32	XDGT1550PDFR-G32		
XDGT1550PDFR-G40	XDGT1550PDFR-G40		
XDGT1550PDFR-G50	XDGT1550PDFR-G50		
XDGT1550PDFR-GL04	XDGT1550PDFR-GL04		K258
XDGT1550PDFR-GL08	XDGT1550PDFR-GL08		

Order Number	(ISO) Number	Cutter Type	Page
XDGX175004PDFR-GL	XDGX175004PDFR-GL	**AXD4000 AXD4000A**	
XDGX175008PDFR-GL	XDGX175008PDFR-GL		
XDGX175012PDFR-GL	XDGX175012PDFR-GL		
XDGX175016PDFR-GL	XDGX175016PDFR-GL		
XDGX175020PDFR-GL	XDGX175020PDFR-GL		K226
XDGX175024PDFR-GL	XDGX175024PDFR-GL		K240
XDGX175030PDFR-GL	XDGX175030PDFR-GL		
XDGX175032PDFR-GL	XDGX175032PDFR-GL		
XDGX175040PDFR-GL	XDGX175040PDFR-GL		
XDGX175050PDFR-GL	XDGX175050PDFR-GL		
XDGX175004PDER-GM	XDGX175004PDER-GM		
XDGX175008PDER-GM	XDGX175008PDER-GM		
XDGX175012PDER-GM	XDGX175012PDER-GM		
XDGX175016PDER-GM	XDGX175016PDER-GM		
XDGX175020PDER-GM	XDGX175020PDER-GM		K226
XDGX175024PDER-GM	XDGX175024PDER-GM		K240
XDGX175030PDER-GM	XDGX175030PDER-GM		
XDGX175032PDER-GM	XDGX175032PDER-GM		
XDGX175040PDER-GM	XDGX175040PDER-GM		
XDGX175050PDER-GM	XDGX175050PDER-GM		
XDGX175004PDFR-GM	XDGX175004PDFR-GM		
XDGX175008PDFR-GM	XDGX175008PDFR-GM		
XDGX175012PDFR-GM	XDGX175012PDFR-GM		
XDGX175016PDFR-GM	XDGX175016PDFR-GM		
XDGX175020PDFR-GM	XDGX175020PDFR-GM		K226
XDGX175024PDFR-GM	XDGX175024PDFR-GM		K240
XDGX175030PDFR-GM	XDGX175030PDFR-GM		
XDGX175032PDFR-GM	XDGX175032PDFR-GM		
XDGX175040PDFR-GM	XDGX175040PDFR-GM		
XDGX175050PDFR-GM	XDGX175050PDFR-GM		
XDGX227008PDFR-GL	XDGX227008PDFR-GL	**AXD7000**	
XDGX227016PDFR-GL	XDGX227016PDFR-GL		
XDGX227020PDFR-GL	XDGX227020PDFR-GL		
XDGX227024PDFR-GL	XDGX227024PDFR-GL		
XDGX227030PDFR-GL	XDGX227030PDFR-GL		
XDGX227032PDFR-GL	XDGX227032PDFR-GL		
XDGX227040PDFR-GL	XDGX227040PDFR-GL		
XDGX227050PDFR-GL	XDGX227050PDFR-GL		
XDGX227008PDER-GLA	XDGX227008PDER-GLA		K246
XDGX227016PDER-GLA	XDGX227016PDER-GLA		
XDGX227020PDER-GLA	XDGX227020PDER-GLA		
XDGX227024PDER-GLA	XDGX227024PDER-GLA		
XDGX227030PDER-GLA	XDGX227030PDER-GLA		
XDGX227032PDER-GLA	XDGX227032PDER-GLA		
XDGX227040PDER-GLA	XDGX227040PDER-GLA		
XDGX227050PDER-GLA	XDGX227050PDER-GLA		

Order Number	(ISO) Number	Cutter Type	Page
XNMU160708R-MS	XNMU160708R-MS	**VFX5**	K392
XNMU160712R-MS	XNMU160712R-MS		
XNMU160716R-MS	XNMU160716R-MS		
XNMU160724R-MS	XNMU160724R-MS		
XNMU160732R-MS	XNMU160732R-MS		
XNMU160740R-MS	XNMU160740R-MS		
XNMU160708R-HS	XNMU160708R-HS		K392
XNMU160708R-LS	XNMU160708R-LS		K392
XNMU190912R-MS	XNMU190912R-MS	**VFX6**	K392
XNMU190916R-MS	XNMU190916R-MS		
XNMU190924R-MS	XNMU190924R-MS		
XNMU190932R-MS	XNMU190932R-MS		
XNMU190940R-MS	XNMU190940R-MS		
XNMU190950R-MS	XNMU190950R-MS		
XNMU190912R-HS	XNMU190912R-HS		K392
XNMU190912R-LS	XNMU190912R-LS		K392
ZCMX083508ERA	ZCMX083508ER-A	**LER**	K274
ZCMX09T308ERA	ZCMX09T308ER-A		
ZCMX09T308ERB	ZCMX09T308ER-B		K274
6NMU0906040PNER-M	6NMU0906040PNER-M	**WWX200**	K112
6NMU0906080PNER-M	6NMU0906080PNER-M	NEW 	
6NMU0906080PNER-R	6NMU0906080PNER-R		

Order Number	(ISO) Number	Cutter Type	Page
6NGU1409040PNER-L	6NGU1409040PNER-L	**WWX400**	K125
6NGU1409080PNER-L	6NGU1409080PNER-L		
6NGU1409040PNFR-L	6NGU1409040PNFR-L		
6NGU1409080PNFR-L	6NGU1409080PNFR-L		
6NGU1409040PNER-M	6NGU1409040PNER-M	NEW 	
6NGU1409080PNER-M	6NGU1409080PNER-M		
6NMU1409040PNER-M	6NMU1409040PNER-M		
6NMU1409080PNER-M	6NMU1409080PNER-M		
6NMU1409160PNER-M	6NMU1409160PNER-M		
6NMU1409200PNER-M	6NMU1409200PNER-M		
6NMU1409080PNER-R	6NMU1409080PNER-R		
6NMU1409160PNER-R	6NMU1409160PNER-R		
6NMU1409200PNER-R	6NMU1409200PNER-R		
2NGU1406ZNER6C-M	2NGU1406ZNER6C-M	NEW 	K125
TAWC12T301-45GM	TAWC12T301-45GM	**TAW** 	K395

LIST OF CUTTING EDGE DIAMETER TOLERANCES

Cutter Type	Cutting Edge Diameter Tolerance
AJX	−.0039" (−0.1mm) −.0157" (−0.4mm)
APX3000 Arbor Type	−.0039" (−0.1mm) −.0157" (−0.4mm)
APX3000 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
APX3000 Long Cutting Edge Type	−.0039" (−0.1mm) −.0118" (−0.3mm)
APX4000 Arbor Type	−.0039" (−0.1mm) −.0157" (−0.4mm)
APX4000 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
APX4000 Long Cutting Edge Type	−.0039" (−0.1mm) −.0118" (−0.3mm)
AQX	−.0039" (−0.1mm) −.0118" (−0.3mm)
ARP Arbor Type	−.0039" (−0.1mm) −.0118" (−0.3mm)
ARP Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
ARX	−.0020" (−0.05mm) −.0059" (−0.15mm)
ASPX	−.0039" (−0.1mm) −.0118" (−0.3mm)
ASX400	0" (0mm) −.0118" (−0.3mm)
AXD4000 Arbor Type	−.0039" (−0.1mm) −.0157" (−0.4mm)
AXD4000 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
AXD4000A	−.0079" (−0.2mm) −.0157" (−0.4mm)
AXD7000 Arbor Type	−.0039" (−0.1mm) −.0157" (−0.4mm)
AXD7000 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)

Cutter Type	Cutting Edge Diameter Tolerance
BRP	−.0039" (−0.1mm) −.0118" (−0.3mm)
BXD4000 Arbor Type	−.0039" (−0.1mm) −.0157" (−0.4mm)
BXD4000 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
PMC	±.0020" (±0.05mm)
PMF	0" (0mm) −.0118" (−0.3mm)
PMR	0" (0mm) −.0118" (−0.3mm)
SPX	−.0039" (−0.1mm) −.0118" (−0.3mm)
SRF	0" (0mm) −.0011" (−0.027mm)
SRM	−.0020" (−0.05mm) −.0059" (−0.15mm)
SUF	0" (0mm) −.0008" (−0.02mm)
VOX400	−.0039" (−0.1mm) −.0157" (−0.4mm)
VPX200, VPX300 Arbor Type	−.0039" (−0.1mm) −.0118" (−0.3mm)
VPX200, VPX300 Shank Type	−.0039" (−0.1mm) −.0079" (−0.2mm)
VPX200,VPX300 Long Cutting Edge Type	−.0039" (−0.1mm) −.0118" (−0.3mm)
WJX	−.0039" (−0.1mm) −.0118" (−0.3mm)
WSF406	±.0039" (±0.1mm)
WWX200	−.0039" (−0.1mm) −.0118" (−0.3mm)
WWX400	−.0039" (−0.1mm) −.0118" (−0.3mm)

Note 1) Cutting edge diameter tolerance when the gauge insert is set.
Note 2) When setting the insert available, the insert tolerance is added to the above tolerance.
(Tolerance when setting the insert for SRF.)

MAXIMUM ALLOWABLE REVOLUTION FOR CUTTER

Diameter (inch)	WSX445		ASX445		AOX445		ASX400	
	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)
1.5"	19000	31	—	—	—	—	—	—
2.0"	17000	31	18000	31	13000	71	18000	31
2.5"	15000	31	16000	31	12000	71	16000	31
3.0"	14000	31	14000	31	11000	71	14000	31
4.0"	12000	31	13000	31	9300	71	13000	31
5.0"	11000	31	12000	31	8300	71	12000	31
6.0"	9500	31	10000	31	7200	71	10000	31
8.0"	8500	31	9000	31	6400	71	9000	31
10.0"	—	—	8000	31	—	—	8000	31

Diameter (inch)	FMAX		AHX640S		AHX640W		WJX14	
	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)
1.5"	30000	—	—	—	—	—	—	—
2.0"	30000	31	—	—	—	—	5000	44
2.5"	27000	31	11800	44.3	—	—	18100	44
3.0"	24500	31	10000	44.3	8900	53	16100	44
4.0"	22000	31	8600	44.3	7800	53	13300	44
5.0"	19600	31	7300	44.3	6600	53	11500	44
6.0"	—	—	6400	44.3	5300	53	9900	44
8.0"	—	—	5000	44.3	4100	53	—	—
10.0"	—	—	—	—	2900	53	—	—
12.0"	—	—	—	—	1700	53	—	—

Diameter (inch)	AXD4000		AXD7000		BXD4000		VPX200		VPX300		WJX09	
	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)	Max. Allowable Revolution (min^{-1})	Clamp Torque (lbf-in)
.625"	—	—	—	—	—	—	37900	8.9	—	—	—	—
.750"	15000	13.3	—	—	15000	35	33200	8.9	—	—	—	—
.875"	—	—	—	—	—	—	31400	8.9	—	—	—	—
1.0"	49000	13.3	—	—	38000	35	29000	8.9	24100	26.6	33000	17.7
1.125"	48500	13.3	—	—	—	—	27200	8.9	22500	26.6	29800	17.7
1.25"	48000	13.3	41000	31	33000	35	25100	8.9	20600	26.6	27500	17.7
1.375"	45000	13.3	—	—	31000	35	23800	8.9	19500	26.6	—	—
1.5"	41000	13.3	36000	31	29000	35	22000	8.9	17900	26.6	24000	17.7
2.0"	35000	13.3	30000	31	24000	35	19200	8.9	15500	26.6	19800	17.7
2.5"	30000	13.3	25000	31	21000	35	16700	8.9	13400	26.6	17200	17.7
3.0"	27000	13.3	23000	31	19000	35	—	—	11500	26.6	—	—
4.0"	23000	13.3	19000	31	16000	35	—	—	—	—	—	—
5.0"	20000	13.3	16000	31	14000	35	—	—	—	—	—	—
6.0"	—	—	—	—	—	—	—	—	—	—	—	—

Note 1) All values shown on this chart are based on the insert being properly seated in pocket and torqued to the recommended values.

FACE MILLING
<GENERAL CUTTING>

45° KAPR

F R

WSX445

P M K N S H

Fig.1

ø1.5"
ø2"
ø2.5"
ø3"

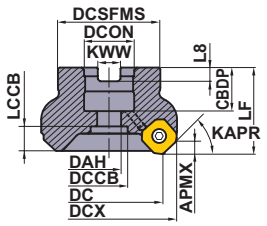
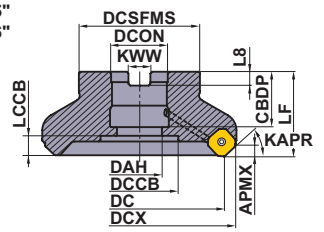


Fig.2

ø4"
ø5"
ø6"



Right hand tool holder only.

■ARBOR TYPE RIGHT HAND TOOL HOLDER

DC = inch size, DCON = Inch size (inch)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	Pitch	DCX	LF	DCON	WT(lbs)	APMX	Fig.
1.500	**WSX445UR1503SA**	●	Y	3	Coarse	2.005	1.750	.500	.8	.197	1
1.500	**WSX445UR1504SA**	●	Y	4	Fine	2.005	1.750	.500	.7	.197	1
2.000	**WSX445UR0203AA**	●	Y	3	Coarse	2.506	1.750	.750	1.2	.197	1
2.000	**WSX445UR0204AA**	●	Y	4	Fine	2.506	1.750	.750	1.1	.197	1
2.000	**WSX445UR0205AA**	●	Y	5	Extra Fine	2.506	1.750	.750	1.1	.197	1
2.500	**WSX445UR2504CA**	●	Y	4	Coarse	3.006	2.000	1.000	2.0	.197	1
2.500	**WSX445UR2505CA**	●	Y	5	Fine	3.006	2.000	1.000	2.0	.197	1
2.500	**WSX445UR2506CA**	●	Y	6	Extra Fine	3.006	2.000	1.000	1.9	.197	1
3.000	**WSX445UR0304CA**	●	Y	4	Coarse	3.506	2.000	1.000	2.6	.197	1
3.000	**WSX445UR0306CA**	●	Y	6	Fine	3.506	2.000	1.000	2.5	.197	1
3.000	**WSX445UR0308CA**	●	Y	8	Extra Fine	3.506	2.000	1.000	2.4	.197	1
4.000	**WSX445UR0405EA**	●	Y	5	Coarse	4.506	2.500	1.500	5.9	.197	2
4.000	**WSX445UR0407EA**	●	Y	7	Fine	4.506	2.500	1.500	5.8	.197	2
4.000	**WSX445UR0410EA**	●	Y	10	Extra Fine	4.506	2.500	1.500	5.6	.197	2
5.000	**WSX445UR0506EA**	●	Y	6	Coarse	5.506	2.500	1.500	8.5	.197	2
5.000	**WSX445UR0508EA**	●	Y	8	Fine	5.506	2.500	1.500	8.3	.197	2
5.000	**WSX445UR0512EA**	●	Y	12	Extra Fine	5.506	2.500	1.500	8.0	.197	2
6.000	**WSX445UR0607EA**	●	Y	7	Coarse	6.506	2.500	1.500	10.6	.197	2
6.000	**WSX445UR0610EA**	●	Y	10	Fine	6.506	2.500	1.500	10.4	.197	2
6.000	**WSX445UR0616EA**	●	Y	16	Extra Fine	6.506	2.500	1.500	9.9	.197	2
8.000	**WSX445UR0808MN**	●	N	8	Coarse	8.506	2.500	2.500	19.1	.197	3
8.000	**WSX445UR0812MN**	●	N	12	Fine	8.506	2.500	2.500	18.8	.197	3
8.000	**WSX445UR0820MN**	●	N	20	Extra Fine	8.506	2.500	2.500	18.3	.197	3
NEW 10.000	**WSX445UR1010MN**	●	N	10	Coarse	10.493	2.500	2.500	28.5	.197	3
NEW 10.000	**WSX445UR1014MN**	●	N	14	Fine	10.493	2.500	2.500	29.2	.197	3
NEW 12.000	**WSX445UR1214MN**	●	N	14	Coarse	12.493	2.500	2.500	48.1	.197	4

∗1 Y=Yes, N=No
Note 1) The cutter body includes a set bolt for an arbor.

Fig.3

ø8"
ø10"

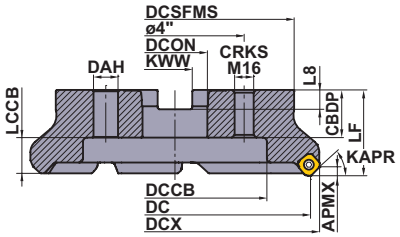
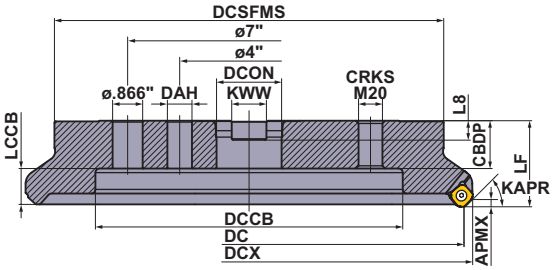


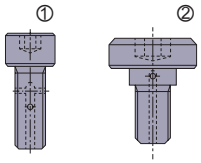
Fig.4

ø12"



Right hand tool holder only.

DC	Set Bolt	Geometry
1.500	HSCU25011H	①
2.000	HSCU37513H	
2.500	HSCU50014H	
3.000	HSCU50014H	
4.000	MBAU75016H	②
5.000	MBAU75016H	
6.000	MBAU75016H	
8.000	—	—
10.000	—	
12.000	—	



With Air / coolant through.

ARBOR TYPE MOUNTING DIMENSIONS

(inch)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
.500	1.500	**WSX445UR1503SA**	.630	.276	.433	.581	1.437	.250	.156	1
.500	1.500	**WSX445UR1504SA**	.630	.276	.433	.581	1.437	.250	.156	1
.750	2.000	**WSX445UR0203AA**	.748	.413	.630	.620	1.750	.313	.187	1
.750	2.000	**WSX445UR0204AA**	.748	.413	.630	.620	1.750	.313	.187	1
.750	2.000	**WSX445UR0205AA**	.748	.413	.630	.620	1.750	.313	.187	1
1.000	2.500	**WSX445UR2504CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.000	2.500	**WSX445UR2505CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.000	2.500	**WSX445UR2506CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.000	3.000	**WSX445UR0304CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.000	3.000	**WSX445UR0306CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.000	3.000	**WSX445UR0308CA**	.945	.539	.827	.671	2.190	.375	.219	1
1.500	4.000	**WSX445UR0405EA**	1.417	1.181	2.205	.778	3.500	.625	.375	2
1.500	4.000	**WSX445UR0407EA**	1.417	1.181	2.205	.778	3.500	.625	.375	2
1.500	4.000	**WSX445UR0410EA**	1.417	1.181	2.205	.778	3.500	.625	.375	2
1.500	5.000	**WSX445UR0506EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
1.500	5.000	**WSX445UR0508EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
1.500	5.000	**WSX445UR0512EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
1.500	6.000	**WSX445UR0607EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
1.500	6.000	**WSX445UR0610EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
1.500	6.000	**WSX445UR0616EA**	1.417	1.181	2.205	.778	3.813	.625	.375	2
2.500	8.000	**WSX445UR0808MN**	1.378	.709	5.512	1.053	6.890	1.000	.560	3
2.500	8.000	**WSX445UR0812MN**	1.378	.709	5.512	1.053	6.890	1.000	.560	3
2.500	8.000	**WSX445UR0820MN**	1.378	.709	5.512	1.053	6.890	1.000	.560	3
2.500	10.000	**WSX445UR1010MN**	1.378	.709	7.087	1.053	8.661	1.000	.560	3
2.500	10.000	**WSX445UR1014MN**	1.378	.709	7.087	1.053	8.661	1.000	.560	3
2.500	12.000	**WSX445UR1214MN**	1.575	.709	8.858	.856	11.220	1.000	.560	4

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Metric Standard

For inch arbors

Fig.1

ø80

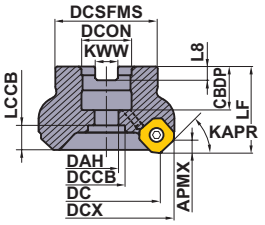
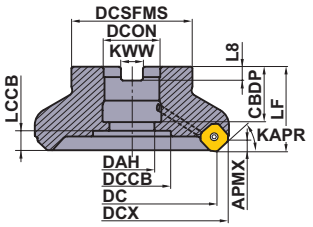


Fig.2

ø100
ø125
ø160



Right hand tool holder shown.

■ARBOR TYPE RIGHT HAND TOOL HOLDER

DC=mm size, DCON=Inch size (mm)

DC	Order Number	Stock	✶1 Coolant Thru	Number of Teeth	Pitch	DCX	LF	DCON	WT(kg)	APMX	Fig.
80	**WSX445R08004CA**	★	Y	4	Coarse	92.9	50	25.4 [1.00"]	1.3	5	1
80	**WSX445R08006CA**	★	Y	6	Fine	92.9	50	25.4 [1.00"]	1.2	5	1
80	**WSX445R08008CA**	★	Y	8	Extra Fine	92.9	50	25.4 [1.00"]	1.1	5	1
100	**WSX445R10005DA**	★	Y	5	Coarse	112.9	50	31.75 [1.25"]	1.8	5	2
100	**WSX445R10007DA**	★	Y	7	Fine	112.9	50	31.75 [1.25"]	1.7	5	2
100	**WSX445R10010DA**	★	Y	10	Extra Fine	112.9	50	31.75 [1.25"]	1.6	5	2
125	**WSX445R12506EA**	★	Y	6	Coarse	137.9	63	38.1 [1.50"]	3.2	5	2
125	**WSX445R12508EA**	★	Y	8	Fine	137.9	63	38.1 [1.50"]	3.1	5	2
125	**WSX445R12512EA**	★	Y	12	Extra Fine	137.9	63	38.1 [1.50"]	3.0	5	2
160	**WSX445R16007FA**	★	Y	7	Coarse	172.9	63	50.8 [2.00"]	4.9	5	2
160	**WSX445R16010FA**	★	Y	10	Fine	172.9	63	50.8 [2.00"]	4.8	5	2
160	**WSX445R16016FA**	★	Y	16	Extra Fine	172.8	63	50.8 [2.00"]	4.6	5	2
200	**WSX445R20008KN**	★	N	8	Coarse	212.9	63	47.625 [1.85"]	8.7	5	3
200	**WSX445R20012KN**	★	N	12	Fine	212.9	63	47.625 [1.85"]	8.6	5	3
200	**WSX445R20020KN**	★	N	20	Extra Fine	212.8	63	47.625 [1.85"]	8.4	5	3
NEW 250	**WSX445R25010KN**	★	N	10	Coarse	262.9	63	47.625 [1.85"]	13.1	5	3
NEW 250	**WSX445R25014KN**	★	N	14	Fine	262.9	63	47.625 [1.85"]	13.2	5	3
NEW 315	**WSX445R31514PN**	★	N	14	Coarse	327.9	63	47.625 [1.85"]	21.5	5	4

■ARBOR TYPE LEFT HAND TOOL HOLDER

DC=mm size, DCON=Inch size (mm)

DC	Order Number	Stock	✶1 Coolant Thru	Number of Teeth	Pitch	DCX	LF	DCON	WT(kg)	APMX	Fig.
80	**WSX445L08004CA**	★	Y	4	Coarse	92.9	50	25.4 [1.00"]	1.3	5	1
100	**WSX445L10005DA**	★	Y	5	Coarse	112.9	50	31.75 [1.25"]	1.8	5	2
125	**WSX445L12506EA**	★	Y	6	Coarse	137.9	63	38.1 [1.50"]	3.2	5	2
160	**WSX445L16007FA**	★	Y	7	Coarse	172.9	63	50.8 [2.00"]	4.9	5	2
200	**WSX445L20008KN**	★	N	8	Coarse	212.9	63	47.625 [1.85"]	8.7	5	3
NEW 250	**WSX445L25010KN**	★	N	10	Coarse	262.9	63	47.625 [1.85"]	13.1	5	3

✶1 Y=Yes, N=No
Note 1) Set bolt not included.

Fig.3

ø200
ø250

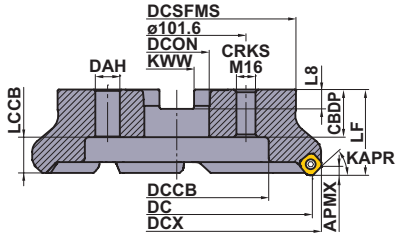
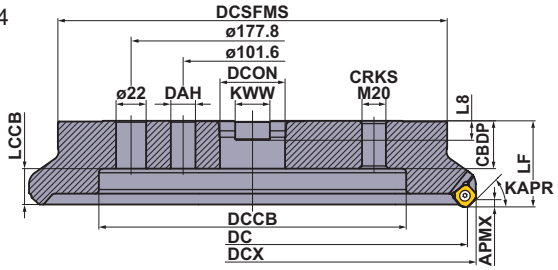


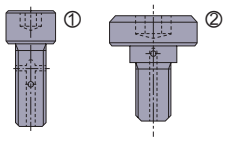
Fig.4

ø315



Right hand tool holder shown.

DC	Set Bolt	Geometry
ϕ80	HSC12035H	①
ϕ100	MBA16033H	②
ϕ125	MBA20040H	②
ϕ160	MBA24045H	②
ϕ200	—	—
ϕ250	—	—
ϕ315	—	—



With Air / coolant through.

ARBOR TYPE MOUNTING DIMENSIONS

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
25.4	80	**WSX445R08004CA**	26	13	20	34	56	9.5	6	1
25.4	80	**WSX445R08006CA**	26	13	20	34	56	9.5	6	1
25.4	80	**WSX445R08008CA**	26	13	20	34	56	9.5	6	1
31.75	100	**WSX445R10005DA**	32	26	45	37	70	12.7	8	2
31.75	100	**WSX445R10007DA**	32	26	45	37	70	12.7	8	2
31.75	100	**WSX445R10010DA**	32	26	45	37	70	12.7	8	2
38.1	125	**WSX445R12506EA**	36	30	56	42	80	15.9	10	2
38.1	125	**WSX445R12508EA**	36	30	56	42	80	15.9	10	2
38.1	125	**WSX445R12512EA**	36	30	56	42	80	15.9	10	2
50.8	160	**WSX445R16007FA**	38	40	72	45	100	19.1	11	2
50.8	160	**WSX445R16010FA**	38	40	72	45	100	19.1	11	2
50.8	160	**WSX445R16016FA**	38	40	72	45	100	19.1	11	2
47.625	200	**WSX445R20008KN**	35	18	135	26.3	175	25.4	14.22	3
47.625	200	**WSX445R20012KN**	35	18	135	26.3	175	25.4	14.22	3
47.625	200	**WSX445R20020KN**	35	18	135	26.3	175	25.4	14.22	3
47.625	250	**WSX445R25010KN**	35	18	180	26.3	220	25.4	14.22	3
47.625	250	**WSX445R25014KN**	35	18	180	26.3	220	25.4	14.22	3
47.625	315	**WSX445R31514PN**	35	18	225	26.3	285	25.4	14.22	4

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
25.4	80	**WSX445L08004CA**	26	13	20	34	56	9.5	6	1
31.75	100	**WSX445L10005DA**	32	26	45	37	70	12.7	8	2
38.1	125	**WSX445L12506EA**	36	30	56	42	80	15.9	10	2
50.8	160	**WSX445L16007FA**	38	40	72	45	100	19.1	11	2
47.625	200	**WSX445L20008KN**	35	18	135	26.3	175	25.4	14.22	3
47.625	250	**WSX445L25010KN**	35	18	180	26.3	220	25.4	14.22	3

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Metric Standard

For metric arbors

Fig.1

ø40
ø50
ø63
ø80

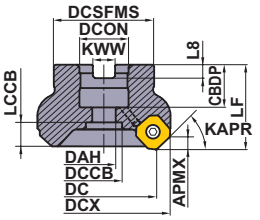
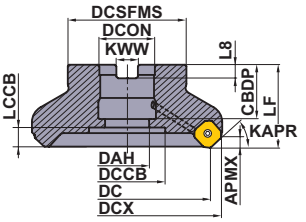


Fig.2

ø100
ø125



Right hand tool holder shown.

■ARBOR TYPE RIGHT HAND TOOL HOLDER

DC=mm size, DCON=mm size (mm)

DC	Order Number	Stock	★1 Coolant Thru	Number of Teeth	Pitch	DCX	LF	DCON	WT(kg)	APMX	Fig.
40	**WSX445-040A03AR**	★	Y	3	Coarse	52.8	40	16	0.3	5	1
40	**WSX445-040A04AR**	★	Y	4	Fine	52.8	40	16	0.3	5	1
50	**WSX445-050A03AR**	★	Y	3	Coarse	62.9	40	22	0.5	5	1
50	**WSX445-050A04AR**	★	Y	4	Fine	62.9	40	22	0.4	5	1
50	**WSX445-050A05AR**	★	Y	5	Extra Fine	62.9	40	22	0.4	5	1
63	**WSX445-063A04AR**	★	Y	4	Coarse	75.9	40	22	0.6	5	1
63	**WSX445-063A05AR**	★	Y	5	Fine	75.9	40	22	0.6	5	1
63	**WSX445-063A06AR**	★	Y	6	Extra Fine	75.9	40	22	0.6	5	1
80	**WSX445-080A04AR**	★	Y	4	Coarse	92.9	50	27	1.3	5	1
80	**WSX445-080A06AR**	★	Y	6	Fine	92.9	50	27	1.2	5	1
80	**WSX445-080A08AR**	★	Y	8	Extra Fine	92.9	50	27	1.1	5	1
100	**WSX445-100B05AR**	★	Y	5	Coarse	112.9	50	32	1.9	5	2
100	**WSX445-100B07AR**	★	Y	7	Fine	112.9	50	32	1.9	5	2
100	**WSX445-100B10AR**	★	Y	10	Extra Fine	112.9	50	32	1.8	5	2
125	**WSX445-125B06AR**	★	Y	6	Coarse	137.9	63	40	3.4	5	2
125	**WSX445-125B08AR**	★	Y	8	Fine	137.9	63	40	3.4	5	2
125	**WSX445-125B12AR**	★	Y	12	Extra Fine	137.9	63	40	3.2	5	2
160	**WSX445-160C07NR**	★	N	7	Coarse	172.9	63	40	4.9	5	3
160	**WSX445-160C10NR**	★	N	10	Fine	172.9	63	40	4.8	5	3
160	**WSX445-160C16NR**	★	N	16	Extra Fine	172.8	63	40	4.6	5	3
200	**WSX445-200C08NR**	★	N	8	Coarse	212.9	63	60	7.5	5	4
200	**WSX445-200C12NR**	★	N	12	Fine	212.9	63	60	7.4	5	4
200	**WSX445-200C20NR**	★	N	20	Extra Fine	212.8	63	60	7.2	5	4

■ARBOR TYPE LEFT HAND TOOL HOLDER

DC=mm size, DCON=mm size (mm)

DC	Order Number	Stock	★1 Coolant Thru	Number of Teeth	Pitch	DCX	LF	DCON	WT(kg)	APMX	Fig.
80	**WSX445-080A04AL**	★	Y	4	Coarse	92.9	50	27	1.3	5	1
100	**WSX445-100B05AL**	★	Y	5	Coarse	112.9	50	32	1.9	5	2
125	**WSX445-125B06AL**	★	Y	6	Coarse	137.9	63	40	3.4	5	2
160	**WSX445-160C07NL**	★	N	7	Coarse	172.9	63	40	4.9	5	3

★1 Y=Yes, N=No
Note 1) Set bolt not included.

Fig.3

ø160

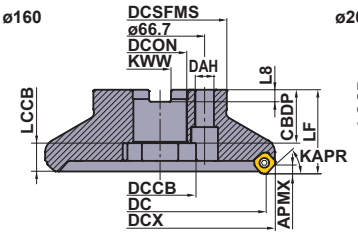
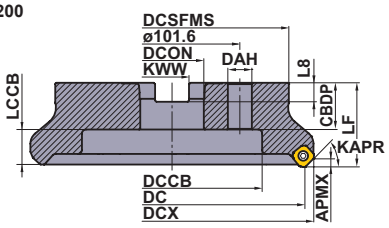
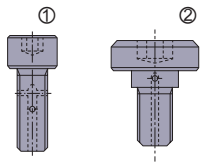


Fig.4

ø200



Right hand tool holder shown.

DC	Set Bolt	Geometry	
ϕ40	HSC08025H	①	① ② 
ϕ50	HSC10030H		
ϕ63	HSC10030H		
ϕ80	HSC12035H		
ϕ100	MBA16033H	②	
ϕ125	MBA20040H		
ϕ160	–	–	With Air / coolant through.
ϕ200	–		

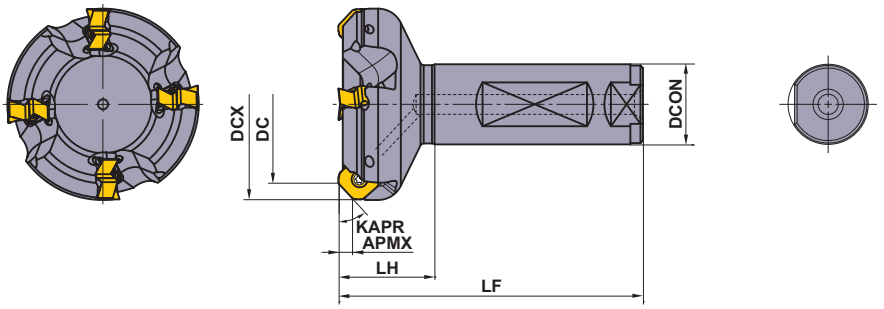
ARBOR TYPE MOUNTING DIMENSIONS

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
16	40	**WSX445-040A03AR**	18	9	14	25	37	8.4	5.6	1
16	40	**WSX445-040A04AR**	18	9	14	25	37	8.4	5.6	1
22	50	**WSX445-050A03AR**	20	11	17	27	47	10.4	6.3	1
22	50	**WSX445-050A04AR**	20	11	17	27	47	10.4	6.3	1
22	50	**WSX445-050A05AR**	20	11	17	27	47	10.4	6.3	1
22	63	**WSX445-063A04AR**	20	11	17	27	50	10.4	6.3	1
22	63	**WSX445-063A05AR**	20	11	17	27	50	10.4	6.3	1
22	63	**WSX445-063A06AR**	20	11	17	27	50	10.4	6.3	1
27	80	**WSX445-080A04AR**	23	13	20	34	56	12.4	7	1
27	80	**WSX445-080A06AR**	23	13	13	34	56	12.4	7	1
27	80	**WSX445-080A08AR**	23	13	20	34	56	12.4	7	1
32	100	**WSX445-100B05AR**	26	26	45	32	78	14.4	8	2
32	100	**WSX445-100B07AR**	26	26	45	32	78	14.4	8	2
32	100	**WSX445-100B10AR**	26	26	45	32	78	14.4	8	2
40	125	**WSX445-125B06AR**	28	30	56	40	89	16.4	9	2
40	125	**WSX445-125B08AR**	28	30	56	40	89	16.4	9	2
40	125	**WSX445-125B12AR**	28	30	56	40	89	16.4	9	2
40	160	**WSX445-160C07NR**	40	–	56	–	100	16.4	9	3
40	160	**WSX445-160C10NR**	40	–	56	–	100	16.4	9	3
40	160	**WSX445-160C16NR**	40	–	56	–	100	16.4	9	3
60	200	**WSX445-200C08NR**	32	–	135	–	160	25.7	14.22	4
60	200	**WSX445-200C12NR**	32	–	135	–	160	25.7	14.22	4
60	200	**WSX445-200C20NR**	32	–	135	–	160	25.7	14.22	4

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
27	80	**WSX445-080A04AL**	23	13	20	34	56	12.4	7	1
32	100	**WSX445-100B05AL**	26	26	45	32	78	14.4	8	2
40	125	**WSX445-125B06AL**	28	30	56	40	89	16.4	9	2
40	160	**WSX445-160C07NL**	40	–	56	–	100	16.4	9	3



Right hand tool holder only.

■SHANK TYPE

(inch)

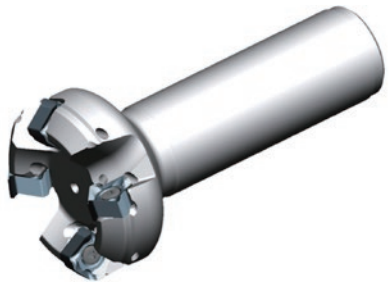
Type	Order Number	Stock R	∗1 Coolant Thru	Number of Teeth	DC	DCX	LF	DCON	LH	WT (lbs)	APMX
Coarse Pitch	**WSX445UR2403FA20M**	●	Y	3	1.500	2.005	4.750	1.250	1.500	1.698	.197
	WSX445UR3203FA20M	●	Y	3	2.000	2.506	4.750	1.250	1.500	2.050	.197
	WSX445UR4004FA20M	●	Y	4	2.500	3.006	4.750	1.250	1.500	2.469	.197
	WSX445UR4804FA20M	●	Y	4	3.000	3.506	4.750	1.250	1.500	2.976	.197
Fine Pitch	**WSX445UR2404FA20M**	●	Y	4	1.500	2.005	4.750	1.250	1.500	1.631	.197
	WSX445UR3204FA20M	●	Y	4	2.000	2.506	4.750	1.250	1.500	1.984	.197
	WSX445UR4005FA20M	●	Y	5	2.500	3.006	4.750	1.250	1.500	2.381	.197
	WSX445UR4806FA20M	●	Y	6	3.000	3.506	4.750	1.250	1.500	2.844	.197

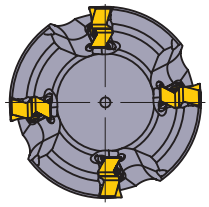
∗1 Y=Yes, N=No

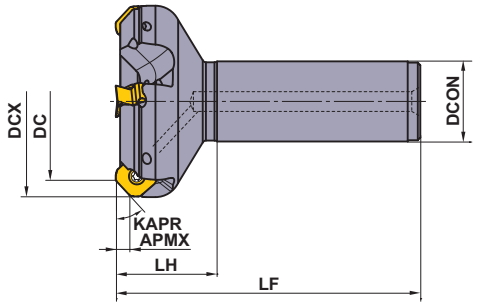
SPARE PARTS

Arbor Type	 ∗ Clamp Screw	 Wrench (Insert)
WSX445	TPS4R	TIP15W

∗ Clamp Torque (lbf-in) : TPS4R=31







Right hand tool holder only.

Metric Standard

■STRAIGHT SHANK TYPE

(mm)

Type	Order Number	Stock R	✶1 Coolant Thru	Number of Teeth	DC	DCX	LF	DCON	LH	WT (kg)	APMX
Coarse Pitch	**WSX445R4003SA32M**	★	Y	3	40	52.8	125	32	40	0.84	5
	WSX445R5003SA32M	★	Y	3	50	62.9	125	32	40	0.98	5
	WSX445R6304SA32M	★	Y	4	63	75.9	125	32	40	1.18	5
	WSX445R8004SA32M	★	Y	4	80	92.9	125	32	40	1.51	5
Fine Pitch	**WSX445R4004SA32M**	★	Y	4	40	52.8	125	32	40	0.81	5
	WSX445R5004SA32M	★	Y	4	50	62.9	125	32	40	0.95	5
	WSX445R6305SA32M	★	Y	5	63	75.9	125	32	40	1.15	5
	WSX445R8006SA32M	★	Y	6	80	92.9	125	32	40	1.45	5

✶1 Y=Yes, N=No

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

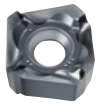
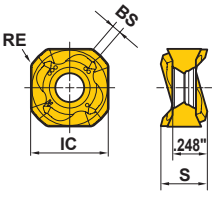
INSERTS WITH BREAKER

(inch)

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat Resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting
✣ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp

Shape	Order Number	Class	Hand	Edge Preparation	Coated									Cermet	Carbide		IC	S	BS	RE	Geometry
					MC5020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP20RT	MX3030	TF15						
	**SNGU140812ANFR-L**	G	R	F											●		.551	.331	.059	.047	
	SNGU140812ANER-L	G	R	E	●	●	●	●	●	●	●	●	●	●			.551	.331	.059	.047	
	SNGU140812ANER-M	G	R	E	●	●	●	●	●	●	●	●	●	●			.551	.331	.059	.047	
	SNMU140812ANER-M	M	R	E	●	●	●	●	●	●	●	●	●	●			.551	.331	.059	.047	
	SNMU140812ANER-R	M	R	E	●	●	●					●	●				.551	.331	.059	.047	
	SNMU140812ANER-H	M	R	E	●	●	●					●	●				.551	.331	.059	.047	
	SNGU140812ANFL-L	G	L	F											●		.551	.331	.059	.047	
	SNGU140812ANEL-L	G	L	E	●	●	●					●		●			.551	.331	.059	.047	
	SNGU140812ANEL-M	G	L	E	●	●	●					●		●			.551	.331	.059	.047	
	SNMU140812ANEL-M	M	L	E	●	●	●					●		●			.551	.331	.059	.047	
	SNMU140812ANEL-R	M	L	E	●	●	●					●					.551	.331	.059	.047	

Right hand insert shown.

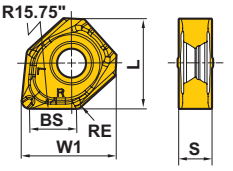
WIPER INSERTS

(inch)

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
S	Heat resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting
✣ : Unstable Cutting

Edge Preparation : **E :** Round

Shape	Order Number	Class	Edge Preparation	Coated			Cermet	L	W1	S	BS	RE	Geometry
				MC5020	MP6120	VP15TF	MX3020						
	**WNGU1406ANEN8C-M**	G	E	●	●	●	●	.664	.664	.236	.315	.039	

■ Instructions for Use of Wiper Inserts

Fig.1

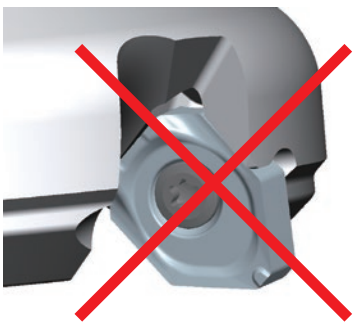


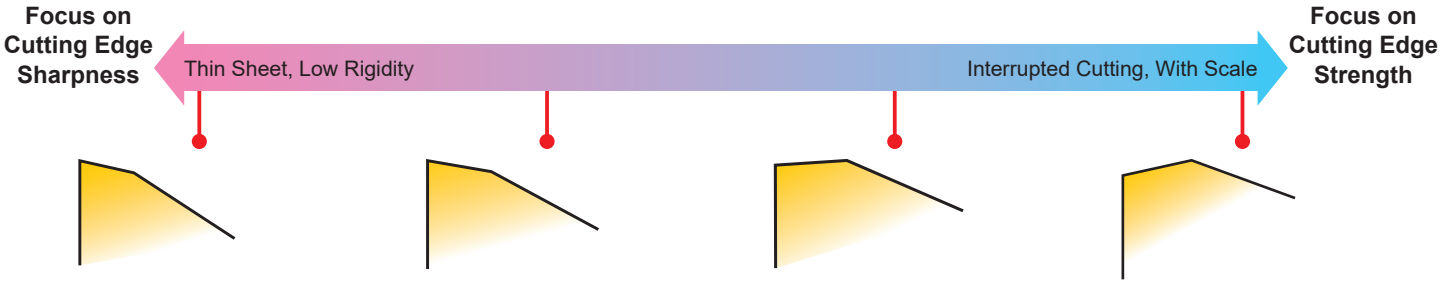
Fig.2

Wiper inserts for WSX445 are two-cornered. Please set as shown in Fig.1.
Excellent surface finish can be achieved with one wiper.
Set more than 2 wiper inserts, equally spaced, when the feed per revolution is larger than .315 IPR.

● : **USA Stock**
<10 inserts in one case>

Breaker System

Breaker Series for Varied Cutting Conditions



L Breaker

Focus on cutting edge sharpness
Low resistance type

- For machining difficult-to-cut materials
- For when the machine or the workpiece rigidity is low

M Breaker

1st Recommendation
All-around

- For general cutting

R Breaker

For unstable applications
Reinforced edge type

- For interrupted cutting

H Breaker

For demanding applications
Reinforced edge type

- For heavy interrupted cutting

Workpiece Material	Cutting Conditions		
	Light Cutting	General Cutting	Heavy Cutting
P	L	M	R, H
M	L	M	
K	L	M	R, H
N	L		
S	L	M	
H		M	R, H

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting Condition

Workpiece Material		Hardness	1st Recommendation	2nd Recommendation	**vc** (SFM)	Finish Cutting	
						fz (IPT)	**ap**
P						L Breaker	
	Mild Steel	≤180HB	MP6120	VP15TF	820 (655—985)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	785 (620—950)	.006 (.004—.008)	≤.039
			MX3030	—	590 (425—755)	.006 (.004—.008)	≤.039
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	720 (560—885)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	655 (490—820)	.006 (.004—.008)	≤.039
			MX3030	—	490 (395—590)	.006 (.004—.008)	≤.039
	Alloy Tool Steel	≤ 350HB (Annealing)	MP6120	VP15TF	720 (560—885)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	655 (490—820)	.006 (.004—.008)	≤.039
			MX3030	—	490 (395—590)	.006 (.004—.008)	≤.039
	Pre-Hardened Steel	35—45HRC	MP6120	VP15TF	460 (330—590)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	395 (295—490)	.006 (.004—.008)	≤.039
M						L Breaker	
	Austenitic Stainless Steel	≤200HB	MP7130	VP15TF	655 (490—820)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	655 (490—820)	.006 (.004—.008)	≤.039
			MX3030	—	425 (330—590)	.006 (.004—.008)	≤.039
	Austenitic Stainless Steel	>200HB	MP7130	VP15TF	560 (395—720)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	560 (395—720)	.006 (.004—.008)	≤.039
	Duplex Stainless Steel	≤ 280HB	MP7130	VP15TF	525 (360—690)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	525 (360—690)	.006 (.004—.008)	≤.039
	Precipitation Hardening Stainless Steel	< 450HB	MP7130	VP15TF	490 (330—655)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	490 (330—655)	.006 (.004—.008)	≤.039
K						L Breaker	
	Gray Cast Iron	≤350MPa	MC5020	—	720 (655—885)	.006 (.004—.008)	≤.039
			VP15TF	—	590 (425—820)	.006 (.004—.008)	≤.039
			VP20RT	—	560 (395—785)	.006 (.004—.008)	≤.039
			MX3030	—	490 (395—590)	.006 (.004—.008)	≤.039
	Ductile Cast Iron	≤450MPa	MC5020	—	655 (590—820)	.006 (.004—.008)	≤.039
			VP15TF	VP20RT	525 (360—785)	.006 (.004—.008)	≤.039
	Ductile Cast Iron	≤800MPa	MC5020	—	655 (590—820)	.006 (.004—.008)	≤.039
			VP15TF	—	525 (360—785)	.006 (.004—.008)	≤.039
			VP20RT	—	490 (330—655)	.006 (.004—.008)	≤.039
H						M Breaker	
	Hardened Steel	40—55HRC	VP15TF	—	165 (100—230)	.002 (.002—.004)	≤.039
	Hardened Steel	55—62HRC	VP15TF	—	130 (65—165)	.002 (.002—.004)	≤.039

Note 1) Refer to the table above and set the cutting conditions to match the application.
Note 2) Wet cutting is recommended, when focusing on the surface finish. (Life is lower than dry cutting.)

(inch)

	Light Cutting		Medium Cutting		Rough Cutting		Heavy Cutting	
	fz (IPT)	**ap**	**fz** (IPT)	**ap**	**fz** (IPT)	**ap**	**fz** (IPT)	**ap**
	L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	L,M Breaker		M Breaker					
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	–	–	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
	M,R Breaker		R,H Breaker					
	.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–
	.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting Condition

	Workpiece Material	Hardness	1st Recommendation	2nd Recommendation	vc (SFM)	Finish Cutting fz (IPT)	Finish Cutting ap
P						L Breaker	
	Mild Steel	≤ 180HB	MP6120	VP15TF	490 (330—655)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	490 (330—655)	.006 (.004—.008)	≤.039
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	395 (260—525)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	395 (260—525)	.006 (.004—.008)	≤.039
	Alloy Tool Steel	≤ 350HB (Annealing)	MP6120	VP15TF	395 (260—525)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	395 (260—525)	.006 (.004—.008)	≤.039
	Pre-Hardened Steel	35—45HRC	MP6120	VP15TF	330 (260—395)	.006 (.004—.008)	≤.039
			MP6130	VP20RT	330 (260—395)	.006 (.004—.008)	≤.039
M						L Breaker	
	Austenitic Stainless Steel	≤ 200HB	MP7130	VP15TF	425 (260—590)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	425 (260—590)	.006 (.004—.008)	≤.039
	Austenitic Stainless Steel	> 200HB	MP7130	VP15TF	330 (260—490)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	330 (260—490)	.006 (.004—.008)	≤.039
	Duplex Stainless Steel	≤ 280HB	MP7130	VP15TF	330 (260—490)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	330 (260—490)	.006 (.004—.008)	≤.039
	Precipitation Hardening Stainless Steel	< 450HB	MP7130	VP15TF	295 (165—460)	.006 (.004—.008)	≤.039
			MP7140	VP20RT	295 (165—460)	.006 (.004—.008)	≤.039
K						L Breaker	
	Gray Cast Iron	≤350MPa	MC5020	—	590 (525—655)	.006 (.004—.008)	≤.039
			VP15TF	VP20RT	425 (330—525)	.006 (.004—.008)	≤.039
	Ductile Cast Iron	≤450MPa	MC5020	—	590 (525—655)	.006 (.004—.008)	≤.039
			VP15TF	VP20RT	425 (330—525)	.006 (.004—.008)	≤.039
	Ductile Cast Iron	≤ 800MPa	MC5020	—	590 (525—655)	.006 (.004—.008)	≤.039
			VP15TF	VP20RT	360 (260—460)	.006 (.004—.008)	≤.039
N						L Breaker	
	Aluminum Alloys	—	TF15	—	1640 (655—3280)	.006 (.004—.008)	≤.039
S						L Breaker	
	Titanium Alloys	—	MP9120	VP15TF	165 (130—195)	.002 (.002—.004)	≤.039
			MP9130	VP20RT	165 (130—195)	.002 (.002—.004)	≤.039
	Heat Resistant Alloys	—	MP9120	VP15TF	130 (65—165)	.002 (.002—.004)	≤.039
			MP9130	VP20RT	130 (65—165)	.002 (.002—.004)	≤.039

Note 1) Refer to the table above and set the cutting conditions to match the application.
Note 2) Wet cutting is recommended, when focusing on the surface finish. (Life is lower than dry cutting.)

(inch)

Light Cutting		Medium Cutting		Rough Cutting		Heavy Cutting	
fz (IPT)	**ap**	**fz** (IPT)	**ap**	**fz** (IPT)	**ap**	**fz** (IPT)	**ap**
L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
L,M Breaker		M Breaker					
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	–	–	–	–
L,M Breaker		M Breaker		M,R Breaker		R,H Breaker	
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
.006 (.004–.008)	≤.079	.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
L Breaker		L Breaker		L Breaker		L Breaker	
.006 (.004–.008)	≤.079	.008 (.006–.010)	≤.118	.008 (.006–.010)	≤.157	.010 (.008–.012)	≤.197
L,M Breaker		M Breaker					
.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–
.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–
.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–
.002 (.002–.004)	≤.059	.004 (.002–.006)	≤.079	–	–	–	–

FACE MILLING
<GENERAL CUTTING>

45° KAPR

ASX445

P M K N S H

Fig.1
ø2"
ø2.5"

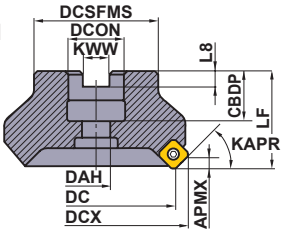


Fig.2
ø3"
ø4"
ø5"
ø6"

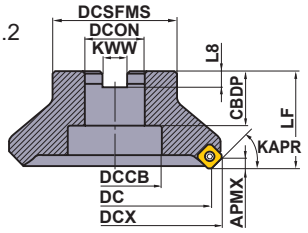
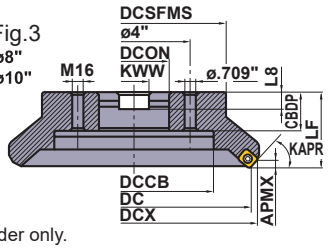


Fig.3
ø8"
ø10"

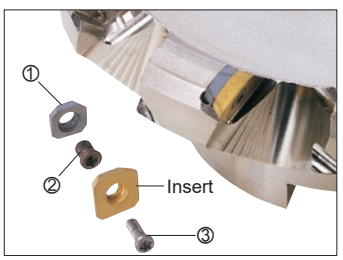


Right hand tool holder only.

■ ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	DCX	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8	APMX (inch)	WT (lbs)	Fig.
Coarse Pitch	ASX445R2504	●	4	2.500	3.009	1.575	.750	.748	.415	—	1.969	.313	.187	.236	1.5	1
	ASX445R0304C	●	4	3.000	3.520	1.969	1.000	1.024	—	1.496	2.205	.375	.219	.236	2.4	2
	ASX445R0405E	●	5	4.000	4.518	1.969	1.500	1.378	—	2.362	3.150	.625	.375	.236	4.0	2
	ASX445R0506E	●	6	5.000	5.513	2.480	1.500	1.378	—	2.362	3.150	.625	.375	.236	6.6	2
	ASX445R0607E	●	7	6.000	6.511	2.480	1.500	1.378	—	2.362	3.937	.625	.375	.236	10.4	2
	ASX445R0808M	●	8	8.000	8.509	2.480	2.500	1.378	—	5.512	6.890	1.000	.560	.236	17.4	3
	ASX445R1010M	●	10	10.000	10.508	2.480	2.500	1.378	—	7.087	8.661	1.000	.560	.236	28.6	3
Fine Pitch	ASX445R0204	●	4	2.000	2.513	1.575	.750	.748	.415	—	1.772	.313	.187	.236	.9	1
	ASX445R2505	●	5	2.500	3.009	1.575	.750	.748	.415	—	1.969	.313	.187	.236	1.5	1
	ASX445R0306C	●	6	3.000	3.520	1.969	1.000	1.024	—	1.496	2.205	.375	.219	.236	2.2	2
	ASX445R0407E	●	7	4.000	4.518	1.969	1.500	1.378	—	2.362	3.150	.625	.375	.236	3.7	2
	ASX445R0508E	●	8	5.000	5.513	2.480	1.500	1.378	—	2.362	3.150	.625	.375	.236	6.2	2
	ASX445R0610E	●	10	6.000	6.511	2.480	1.500	1.378	—	2.362	3.937	.625	.375	.236	10.1	2
	ASX445R0812M	●	12	8.000	8.509	2.480	2.500	1.378	—	5.512	6.890	1.000	.560	.236	17.0	3
	ASX445R1014M	●	14	10.000	10.508	2.480	2.500	1.378	—	7.087	8.661	1.000	.560	.236	28.2	3
Extra Fine Pitch	ASX445R0205	●	5	2.000	2.513	1.575	.750	.748	.415	—	1.772	.313	.187	.236	.9	1
	ASX445R0308C	●	8	3.000	3.520	1.969	1.000	1.024	—	1.496	2.205	.375	.219	.236	2.2	2
	ASX445R0410E	●	10	4.000	4.518	1.969	1.500	1.378	—	2.362	3.150	.625	.375	.236	3.8	2
	ASX445R0512E	●	12	5.000	5.513	2.480	1.500	1.378	—	2.362	3.150	.625	.375	.236	6.4	2
	ASX445R0616E	●	16	6.000	6.511	2.480	1.500	1.378	—	2.362	3.937	.625	.375	.236	10.3	2
	ASX445R0820M	●	20	8.000	8.509	2.480	2.500	1.378	—	5.512	6.890	1.000	.560	.236	17.2	3
	ASX445R1024M	●	24	10.000	10.508	2.480	2.500	1.378	—	7.087	8.661	1.000	.560	.236	28.4	3

Note 1) Set bolt not included.



SPARE PARTS

Tool Holder Number	① Shim	② Shim Screw *	③ Insert Screw *	Wrench (Insert)	Wrench (Shim)
ASX445 Type	STASX445N	WCS503507H	TPS35	TIP15T	HKY35R

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

Metric Standard

For inch arbors

Fig.1

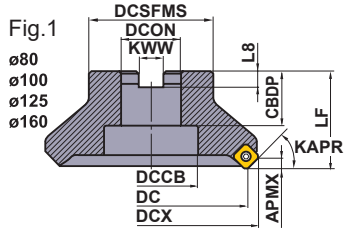


Fig.2

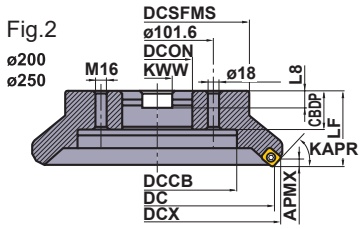
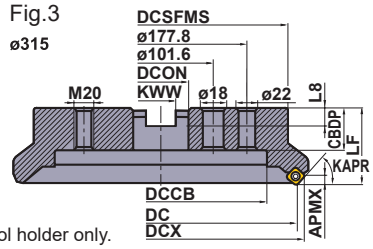


Fig.3



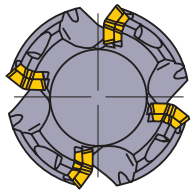
Right hand tool holder only.

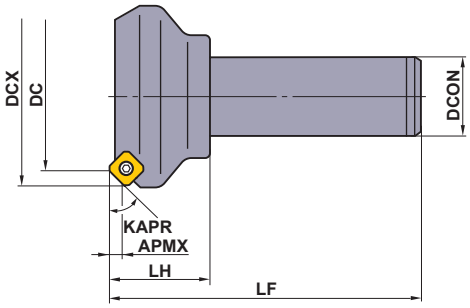
■ ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	DC	DCX	LF	DCON	CBDP	DCCB	DCSFMS	KWW	L8	APMX (mm)	WT (kg)	Fig.
				Dimensions (mm) [inch]											
Coarse Pitch	ASX445R08004C	★	4	80	93.2	50	25.4 [1.0"]	26	38	56	9.5	6	6	1.1	1
	ASX445R10005D	★	5	100	113.2	50	31.75 [1.25"]	32	45	70	12.7	8	6	1.8	1
	ASX445R12506E	★	6	125	138.0	63	38.1 [1.5"]	35	60	80	15.9	10	6	2.9	1
	ASX445R16007F	★	7	160	173.0	63	50.8 [2.0"]	38	80	100	19.1	11	6	4.7	1
	ASX445R20008K	★	8	200	212.9	63	47.625 [1.875"]	35	140	175	25.4	14.22	6	7.9	2
	ASX445R25010K	★	10	250	262.9	63	47.625 [1.875"]	35	180	220	25.4	14.22	6	12.9	2
	ASX445R31514P	★	14	315	327.9	63	47.625 [1.875"]	40	245	285	25.4	14.22	6	22.4	3
Fine Pitch	ASX445R08006C	★	6	80	93.2	50	25.4 [1.0"]	26	38	56	9.5	6	6	1.0	1
	ASX445R10007D	★	7	100	113.2	50	31.75 [1.25"]	32	45	70	12.7	8	6	1.7	1
	ASX445R12508E	★	8	125	138.0	63	38.1 [1.5"]	35	60	80	15.9	10	6	2.8	1
	ASX445R16010F	★	10	160	173.0	63	50.8 [2.0"]	38	80	100	19.1	11	6	4.6	1
	ASX445R20012K	★	12	200	212.9	63	47.625 [1.875"]	35	140	175	25.4	14.22	6	7.8	2
	ASX445R25014K	★	14	250	262.9	63	47.625 [1.875"]	35	180	220	25.4	14.22	6	12.8	2
	ASX445R31518P	★	18	315	327.9	63	47.625 [1.875"]	40	245	285	25.4	14.22	6	22.2	3
Extra Fine Pitch	ASX445R08008C	★	8	80	93.2	50	25.4 [1.0"]	26	38	56	9.5	6	6	1.1	1
	ASX445R10010D	★	10	100	113.2	50	31.75 [1.25"]	32	45	70	12.7	8	6	1.8	1
	ASX445R12512E	★	12	125	138.0	63	38.1 [1.5"]	35	60	80	15.9	10	6	2.9	1
	ASX445R16016F	★	16	160	173.0	63	50.8 [2.0"]	38	80	100	19.1	11	6	4.7	1
	ASX445R20020K	★	20	200	212.9	63	47.625 [1.875"]	35	140	175	25.4	14.22	6	7.8	2
	ASX445R25024K	★	24	250	262.9	63	47.625 [1.875"]	35	180	220	25.4	14.22	6	12.8	2
	ASX445R31528P	★	28	315	327.9	63	47.625 [1.875"]	40	245	285	25.4	14.22	6	21.8	3

Note 1) Set bolt not included.

Metric Standard





Right hand tool holder only.

■ SHANK TYPE

Order Number	Stock R	Number of Teeth	DC	DCX	LF	DCON	LH	APMX (mm)
			Dimensions (mm)					
ASX445R503S32	★	3	50	63.0	125	32	40	6
ASX445R634S32	★	4	63	75.9	125	32	40	6
ASX445R804S32	★	4	80	93.2	125	32	40	6

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Metric Standard

For metric arbors

ø50, ø63

Over ø80

Fig.1
ø50
ø63

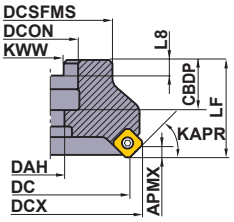


Fig.2
ø80
ø100

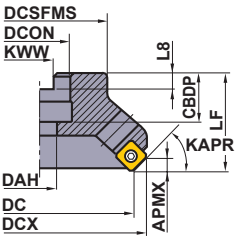


Fig.3
ø125

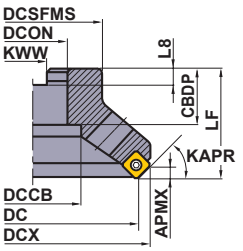


Fig.4
ø160

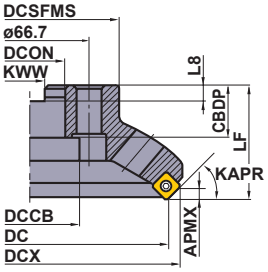
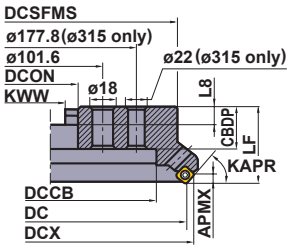


Fig.5
ø200
ø250
ø315



Right hand tool holder only.

■ ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	DCX	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8	APMX (mm)	WT (kg)	Fig.
Coarse Pitch	**ASX445-050A03R**	★	3	50	63.0	40	22	20	11	17	45	10.4	6.3	6	0.5	1
	ASX445-063A04R	★	4	63	75.9	40	22	20	11	17	50	10.4	6.3	6	0.7	1
	ASX445-080A04R	★	4	80	93.2	50	27	23	13	37.84	56	12.4	7	6	1.0	2
	ASX445-100A05R	★	5	100	113.2	50	32	26	17	56.92	70	14.4	8	6	1.6	2
	ASX445-125B06R	★	6	125	138.0	63	40	32	–	56	80	16.4	9	6	2.4	3
	ASX445-160C07R	★	7	160	173.0	63	40	29	–	56	100	16.4	9	6	3.9	4
	ASX445-200C08R	★	8	200	212.9	63	60	32	–	135	155	25.7	14.22	6	6.7	5
	ASX445-250C10R	★	10	250	262.9	63	60	32	–	174	200	25.7	14.22	6	10.5	5
	ASX445-315C14R	★	14	315	327.9	80	60	57	–	256.8	285	25.7	14.22	6	22.4	5
Fine Pitch	**ASX445-050A04R**	★	4	50	63.0	40	22	20	11	17	45	10.4	6.3	6	0.4	1
	ASX445-063A05R	★	5	63	75.9	40	22	20	11	17	50	10.4	6.3	6	0.6	1
	ASX445-080A06R	★	6	80	93.2	50	27	23	13	37.84	56	12.4	7	6	0.9	2
	ASX445-100A07R	★	7	100	113.2	50	32	26	17	56.92	70	14.4	8	6	1.5	2
	ASX445-125B08R	★	8	125	138.0	63	40	32	–	56	80	16.4	9	6	2.3	3
	ASX445-160C10R	★	10	160	173.0	63	40	29	–	56	100	16.4	9	6	3.6	4
	ASX445-200C12R	★	12	200	212.9	63	60	32	–	135	155	25.7	14.22	6	5.8	5
	ASX445-250C14R	★	14	250	262.9	63	60	32	–	174	200	25.7	14.22	6	10.6	5
	ASX445-315C18R	★	18	315	327.9	80	60	57	–	256.8	285	25.7	14.22	6	22.2	5
Extra Fine Pitch	**ASX445-050A05R**	★	5	50	63.0	40	22	20	11	17	45	10.4	6.3	6	0.4	1
	ASX445-063A06R	★	6	63	75.9	40	22	20	11	17	50	10.4	6.3	6	0.6	1
	ASX445-080A08R	★	8	80	93.2	50	27	23	13	37.84	56	12.4	7	6	0.9	2
	ASX445-100A10R	★	10	100	113.2	50	32	26	17	56.92	70	14.4	8	6	1.5	2
	ASX445-125B12R	★	12	125	138.0	63	40	32	–	56	80	16.4	9	6	2.3	3
	ASX445-160C16R	★	16	160	173.0	63	40	29	–	56	100	16.4	9	6	3.6	4
	ASX445-200C20R	★	20	200	212.9	63	60	32	–	135	155	25.7	14.22	6	6.5	5
	ASX445-250C24R	★	24	250	262.9	63	60	32	–	174	200	25.7	14.22	6	10.3	5
	ASX445-315C28R	★	28	315	327.9	80	60	57	–	256.8	285	25.7	14.22	6	21.8	5

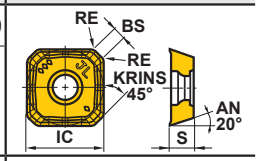
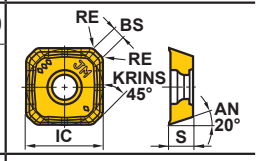
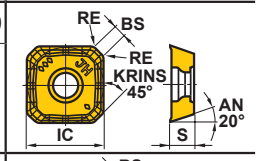
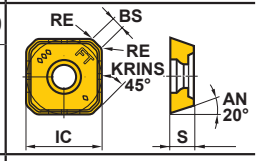
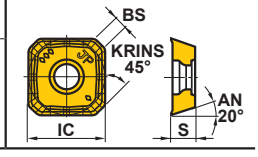
Note 1) Set bolt not included.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS WITH BREAKER

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat resistant Alloys, Titanium Alloys	
H	Hardened Steel	

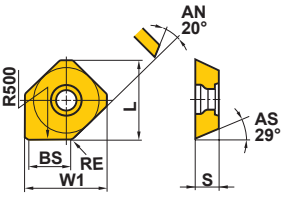
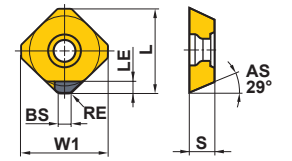
Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting
✠ : Unstable Cutting
Edge Preparation :
E : Round **F :** Sharp
S : Chamfer + Hone

Application	Shape	Order Number	Class	Edge Preparation	Coated											Cermet		Carbide		Dimensions (inch)				Geometry
					F7010	F7030	MC5020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT	NX4545		HTi10		IC	S	BS	RE	
Finish–Light Cutting	**JL** Breaker	**SEET13T3AGEN-JL**	E	E		●		●	●	●	●	●	●	●	●	●				.528	.156	.075	.059	
Light–Rough Cutting	**JM** Breaker	**SEMT13T3AGSN-JM**	M	S	●	●	●	●	●	●	●	●	●	●	●	●				.528	.156	.075	.059	
Medium–Heavy Cutting	**JH** Breaker	**SEMT13T3AGSN-JH**	M	S		●	●	●	●	●	●	●	●	●	●					.528	.156	.075	.059	
Roughing For Cast Iron	**FT** Breaker	**SEMT13T3AGSN-FT**	M	S			●													.528	.156	.075	.059	
For Aluminum Alloys	**JP** Breaker	**SEGT13T3AGFN-JP**	G	F														●		.528	.156	.087	—	

■ Instructions for using JP breaker handling

Note 1) The JP breaker has sharp cutting edge. Please wear gloves when installing to prevent.
Note 2) During machining of aluminum alloy, chip welding can occur that can cause fracturing of the insert.
Note 3) Wet cutting is recommended.

WIPER INSERTS

Workpiece Material			Coated		Cermet		Coated Cermet		Carbide		PCD		Dimensions(inch)						Geometry
Shape	Order Number	Class	Edge Preparation	MC5020	VP15TF	NX2525		VP25N		HTI05T		MD220	L	LE	W1	S	BS	RE	
	WEEW13T3AGER8C	E	E	●	●					●			.654	–	.649	.156	.295	.059	
	WEEW13T3AGTR8C	E	T			●		●					.654	–	.649	.156	.295	.059	
	NP-WEEW13T3AGFR3C	E	F									●	.654	.071	.649	.156	.118	.059	

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp
T : Chamfer

*Wiper inserts are single-cornered.
*PCD grade MD220 is for aluminum alloy.

■Instructions for use of wiper inserts

Fig.1

Fig.2

Note 1) These wiper inserts are single-cornered.
Note 2) Install the insert so that the cutting edge is located as shown in Fig. 1.
Do not install the wiper insert as shown in Fig. 2. (The insert may be damaged by a too heavy cutting load.)
Note 3) Recommended depth of cutting is ap=.008"-.020". (Be aware of the cutting load if the depth of cut is over the recommendation.)
Note 4) The major cutting edge of a wiper insert is set more inside than a general tooth.
This is to prevent heavy loads on the wiper insert. (To prevent fracture set the feed under .008 inch/t.)
Note 5) Excellent finished surface can be obtained with one wiper insert.
Note 6) When the feed per revolution is larger than the width of the wiper edge, install 2 or more wiper inserts equally inside the cutting body.

RECOMMENDED CUTTING CONDITIONS WHEN USING A WIPER INSERT

Workpiece Material	Grade	Recommended Cutting Speed (SFM)
P	VP25N	655 (260–820)
	VP15TF	590 (260–820)
M	VP15TF	390–885
K	MC5020	425–820
	VP15TF	
S	VP15TF	65–165
H	VP15TF	130–260
N	MD220	2130 (985–3280)

●Recommended depth of cut (ap) is .008"-.020" and feed per tooth (fz) is up to .008 inch/t.

● : USA Stock
<PCD wiper inserts are available in 1 piece in one case>

RECOMMENDED CUTTING CONDITIONS

Workpiece Material		Hardness	Grade	Cutting Speed (SFM)	Finish—Light Cutting		Light—Rough Cutting		Medium—Heavy Cutting	
					Feed per Tooth (IPT)	Breaker	Feed per Tooth (IPT)	Breaker	Feed per Tooth (IPT)	Breaker
P	Mild Steel	≤180HB	**F7030**	920 (690—1150)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6120 VP15TF	820 (655—985)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6130	800 (620—950)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			VP30RT	755 (590—920)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			NX4545	590 (425—755)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
	Carbon Steel Alloy Steel	180—280HB	**F7030**	820 (655—985)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6120 VP15TF	720 (560—885)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6130	600 (480—740)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			VP30RT	490 (395—590)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
			NX4545	490 (390—590)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
		280—350HB	**F7030**	590 (425—755)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6120 VP15TF	460 (330—590)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP6130	400 (300—490)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			VP30RT	330 (260—395)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
			NX4545	330 (260—390)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
M	Stainless Steel	≤270HB	**MP7130 VP15TF**	720 (560—885)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			MP7140 VP30RT	655 (490—820)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
			NX4545	490 (395—590)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	**MC5020**	655 (400—820)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH FT**
			VP15TF NX4545	590 (425—826)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH**
		Tensile Strength ≥450MPa	**MC5020**	360 (260—490)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	.012 (.008—.016)	**JH FT**
N	Aluminum Alloys	—	**HTi10**	2130 (1000—3300)	.006 (.004—.008)	**JP**	.008 (.004—.012)	**JP**	.012 (.008—.016)	**JP**
S	Titanium Alloys	—	**MP9120 VP15TF**	165 (130—195)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
			MP9130	140 (100—180)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
	Heat Resistant Alloys	—	**MP9120 VP15TF**	130 (65—165)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
			MP9130	110 (55—140)	.006 (.004—.008)	**JL**	.008 (.004—.012)	**JM**	—	—
H	Hardened Steel	40—55HRC	**VP15TF**	260 (195—330)	.004 (.002—.006)	**JL**	.006 (.004—.008)	**JM**	.008 (.004—.012)	**JH**

FACE MILLING
<GENERAL CUTTING>

AHX440S/475S/640S

Selection Reference Table (Cutting Edge Count and Cutting Conditions)

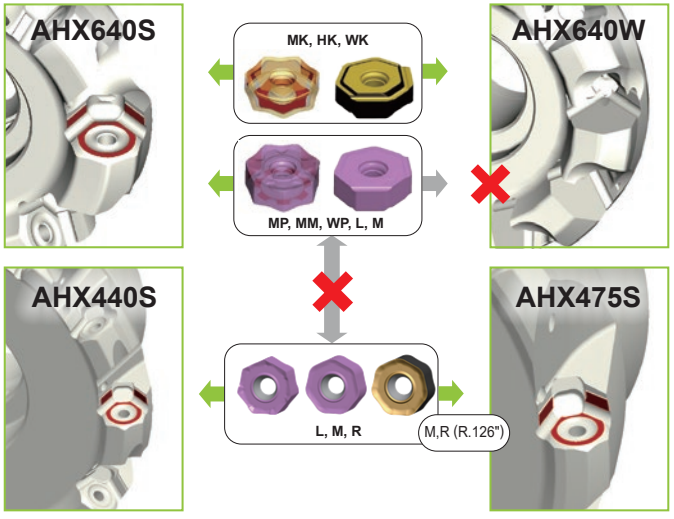
(inch)

DC	Type	Number of Teeth	AHX440S General Cutting			AHX475S High Feed Machining			AHX640S General Cutting		
			Stock	fr (IPR)	APMX	Stock	fr (IPR)	APMX	Stock	fr (IPR)	APMX
1.500" 40 mm	Fine Pitch	3	●	.024 — .047	.118						
	Extra Fine Pitch	4	●	.031 — .063	.118						
2.000" 50 mm"	Fine Pitch	4	●	.031 — .063	.118	●	.094 — .157	.063			
	Extra Fine Pitch	5	●	.039 — .079	.118	●	.118 — .197	.063			
	Super Extra Fine Pitch	6	●	.047 — .094	.118						
2.500" 63 mm	Coarse Pitch	4							●	.031 — .063	.236
	Fine Pitch	5	●	.039 — .079	.118	●	.118 — .197	.063	●	.039 — .079	.236
	Extra Fine Pitch	6	●	.047 — .094	.118	●	.142 — .236	.063			
	Super Extra Fine Pitch	8	●	.063 — .126	.118						
3.000" 80 mm"	Coarse Pitch	4							●	.031 — .063	.236
	Fine Pitch	6	●	.047 — .094	.118	●	.142 — .236	.063	●	.047 — .094	.236
	Extra Fine Pitch	8	●	.063 — .126	.118	●	.189 — .315	.063			
	Super Extra Fine Pitch	10	●	.079 — .157	.118						
4.000" 100 mm"	Coarse Pitch	5							●	.039 — .079	.236
	Fine Pitch	7	●	.055 — .110	.118	●	.165 — .276	.063	●	.055 — .110	.236
	Extra Fine Pitch	9				●	.213 — .354	.063			
		10	●	.079 — .157	.118						
	Super Extra Fine Pitch	12	●	.094 — .189	.118						
5.000" 125 mm	Coarse Pitch	6							●	.047 — .094	.236
	Fine Pitch	8	●	.063 — .126	.118	●	.189 — .315	.063	●	.063 — .126	.236
	Extra Fine Pitch	10				●	.236 — .394	.063			
		12	●	.094 — .189	.118						
	Super Extra Fine Pitch	14	●	.110 — .220	.118						
6.000" 160 mm	Coarse Pitch	7							●	.055 — .110	.236
	Fine Pitch	10	●	.079 — .157	.118	●	.236 — .394	.063	●	.079 — .157	.236
	Extra Fine Pitch	12				●	.283 — .472	.063			
		14	●	.110 — .220	.118						
	Super Extra Fine Pitch	16	●	.126 — .252	.118						
8.000" 200 mm	Coarse Pitch	8							●	.063 — .126	.236
	Fine Pitch	12							●	.094 — .189	.236

Note 1) fr: Feed rate per revolution (AHX475S: the feed rate per cutter (fz) will be limited by the cutting width ae. Please refer to page K073 for details.)
Note 2) APMX: Maximum depths of cut (AHX440S: the maximum depths of cut will vary depending on the breaker)
Note 3) The depths of cut and feed rate are identical to the recommended conditions for carbon steel and alloy steel.

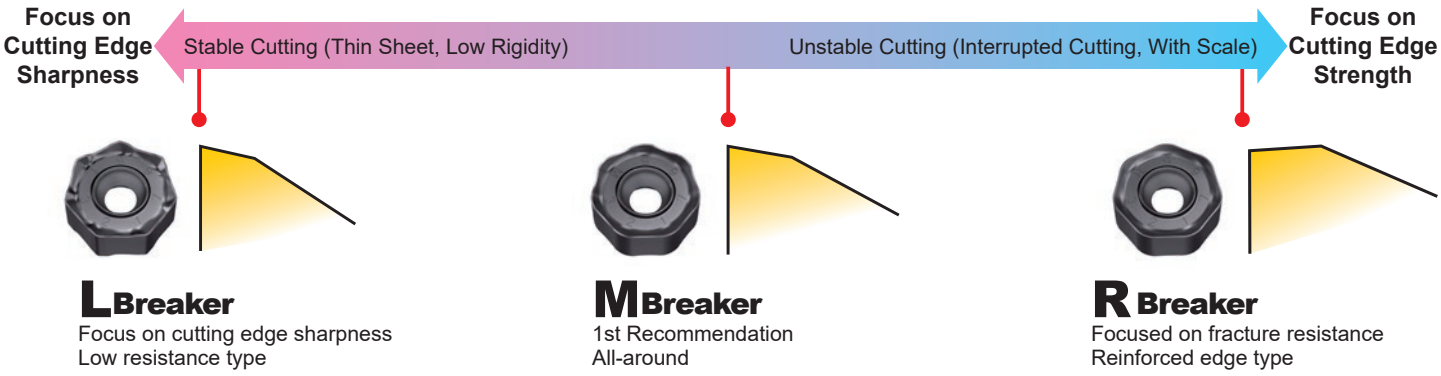
Compatibility with Inserts for AHX Series

The RE = .126 inch insert for use with AHX440S can be mounted on AHX475S.
All inserts for use with AHX640 can be mounted on AHX640S (note, however, that the set height will differ).
The inserts for mounting on AHX640W are the MK, HK, and WK breakers for casting.



Breaker System

Breaker Series for Varied Cutting Conditions



L Breaker
Focus on cutting edge sharpness
Low resistance type

M Breaker
1st Recommendation
All-around

R Breaker
Focused on fracture resistance
Reinforced edge type

Workpiece Material	Cutting Conditions		
	Stable Cutting	General Cutting	Unstable Cutting
P	AHX440S: L (With Wiper); M (R.031") (With Wiper); M (R.126") (Not with Wiper, Shared with AHX475); R (Not with Wiper, Shared with AHX475)		
	AHX640S: M; MP		
M	AHX440S: L (With Wiper); M (R.031") (With Wiper); M (R.126") (Not with Wiper); R (Not with Wiper)		
	AHX640S: MM		
K	AHX440S: L (With Wiper); M (R.031") (With Wiper); M (R.126") (Not with Wiper, Shared with AHX475); R (Not with Wiper, Shared with AHX475)		
	AHX640S: MK; HK		

Wiper Insert of AHX640S

Based on the number of inserts and the cutting conditions, use of wiper inserts can improve overall surface finishes.

P

WP + combination with **MP**
Right-hand 2 corners, left-hand 2 corners.

K

WK + combination with **MK**
Right-hand 2 corners, left-hand 2 corners.

FACE MILLING
<GENERAL CUTTING>

50° KAPR

AHX440S

P M K N S H

Fig. 1
ø1.500"
ø2.000"
ø2.500"
ø3.000"

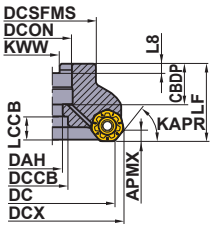
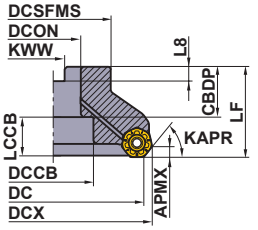
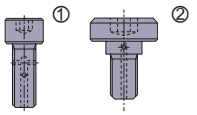


Fig. 2
ø4.000"
ø5.000"
ø6.000"



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ1.500	HSCU25011H	①
ϕ2.000	HSCU37513H	
ϕ2.500	HSCU50014H	
ϕ3.000		
ϕ4.000	MBAU75016H	②
ϕ5.000		
ϕ6.000		



With Air / coolant through.

DC=Inch size, DCON=Inch size (inch)

DC	Order Number	Stock	*1 Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(lbs)	*2 APMX
1.500	**AHX440SUR1503SA**	●	Y	3	1.750	1.829	.500	1	.7	.118, .138
	AHX440SUR1504SA	●	Y	4	1.750	1.829	.500	1	.6	.118, .138
2.000	**AHX440SUR0204AA**	●	Y	4	1.750	2.329	.750	1	1.0	.118, .138
	AHX440SUR0205AA	●	Y	5	1.750	2.329	.750	1	1.0	.118, .138
	AHX440SUR0206AA	●	Y	6	1.750	2.329	.750	1	.9	.118, .138
2.500	**AHX440SUR2505CA**	●	Y	5	2.000	2.829	1.000	1	1.8	.118, .138
	AHX440SUR2506CA	●	Y	6	2.000	2.829	1.000	1	1.7	.118, .138
	AHX440SUR2508CA	●	Y	8	2.000	2.829	1.000	1	1.6	.118, .138
3.000	**AHX440SUR0306CA**	●	Y	6	2.000	3.329	1.000	1	2.3	.118, .138
	AHX440SUR0308CA	●	Y	8	2.000	3.329	1.000	1	2.2	.118, .138
	AHX440SUR0310CA	●	Y	10	2.000	3.328	1.000	1	2.1	.118, .138
4.000	**AHX440SUR0407EA**	●	Y	7	2.500	4.329	1.500	2	5.1	.118, .138
	AHX440SUR0410EA	●	Y	10	2.500	4.329	1.500	2	5.0	.118, .138
	AHX440SUR0412EA	●	Y	12	2.500	4.329	1.500	2	4.9	.118, .138
5.000	**AHX440SUR0508EA**	●	Y	8	2.500	5.329	1.500	2	8.1	.118, .138
	AHX440SUR0512EA	●	Y	12	2.500	5.329	1.500	2	7.9	.118, .138
	AHX440SUR0514EA	●	Y	14	2.500	5.329	1.500	2	7.8	.118, .138
6.000	**AHX440SUR0610EA**	●	Y	10	2.500	6.329	1.500	2	10.3	.118, .138
	AHX440SUR0614EA	●	Y	14	2.500	6.329	1.500	2	10.1	.118, .138
	AHX440SUR0616EA	●	Y	16	2.500	6.329	1.500	2	10.1	.118, .138

*1 Y=Yes
*2 For NNMU130508ZER-L, APMX max = .118, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = .138
Note 1) The above "APMX" will vary depending on the insert chip breaker.
Note 2) The cutter body includes a set bolt for an arbor.

Metric Standard

For inch arbors

Fig. 1
ø80

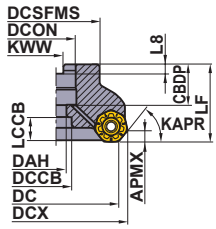
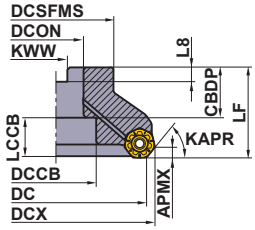


Fig. 2
ø100
ø125
ø160



Right hand tool holder only.

DC=mm size, DCON=Inch size (mm)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	∗2 APMX
80	**AHX440SR08006CA**	★	Y	6	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
	AHX440SR08008CA	★	Y	8	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
	AHX440SR08010CA	★	Y	10	50	88.4	25.4 [1.0"]	1	1.1	3.0, 3.5
100	**AHX440SR10007DA**	★	Y	7	50	108.4	31.75 [1.25"]	2	1.6	3.0, 3.5
	AHX440SR10010DA	★	Y	10	50	108.4	31.75 [1.25"]	2	1.6	3.0, 3.5
	AHX440SR10012DA	★	Y	12	50	108.3	31.75 [1.25"]	2	1.6	3.0, 3.5
125	**AHX440SR12508EA**	★	Y	8	63	133.4	38.1 [1.50"]	2	3.0	3.0, 3.5
	AHX440SR12512EA	★	Y	12	63	133.4	38.1 [1.50"]	2	3.0	3.0, 3.5
	AHX440SR12514EA	★	Y	14	63	133.3	38.1 [1.50"]	2	2.9	3.0, 3.5
160	**AHX440SR16010FA**	★	Y	10	63	168.4	50.8 [2.0"]	2	4.8	3.0, 3.5
	AHX440SR16014FA	★	Y	14	63	168.4	50.8 [2.0"]	2	4.6	3.0, 3.5
	AHX440SR16016FA	★	Y	16	63	168.4	50.8 [2.0"]	2	4.7	3.0, 3.5

∗1 Y=Yes
∗2 For NNMU130508ZER-L, APMX max = 3.0, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = 3.5
Note 1) Set bolt not included.
Note 2) The above "APMX" will vary depending on the insert chip breaker.

SPARE PARTS

Tool Holder Number	∗ 	
	Clamp Screw	Wrench (Insert)
AHX440S	TS35R	TKY15T

∗ Clamp Torque (lbf-in) : TS35R=31

ISO13399	**➢ K003**
MOUNTING DIMENSION	**➢ K082, K084**
SPARE PARTS	**➢ M001**
TECHNICAL DATA	**➢ N001**

Metric Standard

For metric arbors

Fig. 1
ø40
ø50
ø63
ø80

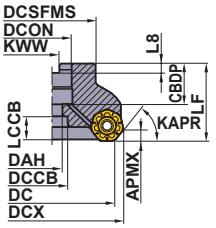


Fig. 2
ø100
ø125

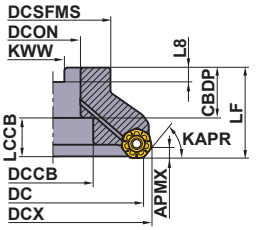
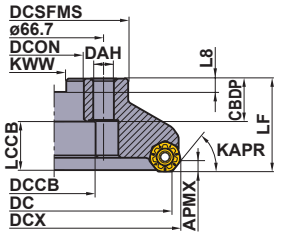


Fig. 3
ø160



Right hand tool holder only.

DC=mm size, DCON=mm size

(mm)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	∗2 APMX
40	**AHX440S-040A03AR**	★	Y	3	40	48.4	16	1	0.3	3.0, 3.5
	AHX440S-040A04AR	★	Y	4	40	48.4	16	1	0.2	3.0, 3.5
50	**AHX440S-050A04AR**	★	Y	4	40	58.4	22	1	0.4	3.0, 3.5
	AHX440S-050A05AR	★	Y	5	40	58.4	22	1	0.4	3.0, 3.5
	AHX440S-050A06AR	★	Y	6	40	58.4	22	1	0.4	3.0, 3.5
63	**AHX440S-063A05AR**	★	Y	5	40	71.4	22	1	0.6	3.0, 3.5
	AHX440S-063A06AR	★	Y	6	40	71.4	22	1	0.6	3.0, 3.5
	AHX440S-063A08AR	★	Y	8	40	71.4	22	1	0.5	3.0, 3.5
80	**AHX440S-080A06AR**	★	Y	6	50	88.4	27	1	1.1	3.0, 3.5
	AHX440S-080A08AR	★	Y	8	50	88.4	27	1	1.1	3.0, 3.5
	AHX440S-080A10AR	★	Y	10	50	88.4	27	1	1.1	3.0, 3.5
100	**AHX440S-100B07AR**	★	Y	7	50	108.4	32	2	1.6	3.0, 3.5
	AHX440S-100B10AR	★	Y	10	50	108.4	32	2	1.6	3.0, 3.5
	AHX440S-100B12AR	★	Y	12	50	108.3	32	2	1.6	3.0, 3.5
125	**AHX440S-125B08AR**	★	Y	8	63	133.4	40	2	3.0	3.0, 3.5
	AHX440S-125B12AR	★	Y	12	63	133.4	40	2	3.0	3.0, 3.5
	AHX440S-125B14AR	★	Y	14	63	133.3	40	2	2.9	3.0, 3.5
160	**AHX440S-160C10NR**	★	N	10	63	168.4	40	3	4.8	3.0, 3.5
	AHX440S-160C14NR	★	N	14	63	168.4	40	3	4.6	3.0, 3.5
	AHX440S-160C16NR	★	N	16	63	168.4	40	3	4.7	3.0, 3.5

∗1 Y=Yes N=No

∗2 For NNMU130508ZER-L, APMX max = 3.0, for NNMU130508ZEN-M, NNMU130532ZEN-M & NNMU130532ZEN-R, APMX max = 3.5

Note 1) Set bolt not included.

Note 2) The above "APMX" will vary depending on the insert chip breaker.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

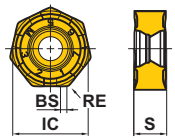
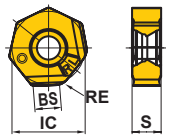
MOUNTING DIMENSION ➢ K084

INSERTS

Workpiece Material			MP6120	MP6130	MP7130	MP7140	MC5020	VP15TF
	P	Steel	◐	✣				◐
	M	Stainless Steel			◔	✣		◔
	K	Cast Iron					◐	◐
	H	Hardened Steel						◐

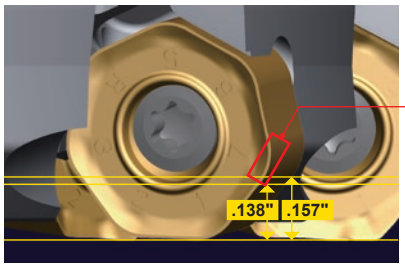
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated MP6120	Coated MP6130	Coated MP7130	Coated MP7140	Coated MC5020	Coated VP15TF	Dimensions (inch) IC	RE	BS	S	APMX	Geometry
Stable Cutting		**NNMU130508ZER-L**	M	E	●	●	●	●	●	★	.528	.031	.039	.227	.118	
General Cutting		**NNMU130508ZEN-M**	M	E	●	●	●	●	●	★	.528	.031	.039	.219	*.138	
		NNMU130532ZEN-M	M	E	●	●	●	●	●	★	.528	.126	—	.219	*.138	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	●	●	★	.528	.126	—	.215	*.157	
Finish Cutting	 Wiper	**WNEU1305ZEN4C-M**	E	E	●				●	●	.528	.106	.157	.201	.020	

BS RE IC S

* When not using the Wiper, APMX = .138 inch



Corner R on Opposite Side

If using corner R on the opposite side, APMX = .157 inch
If not using the opposite corner, APMX = .138 inch

■Instructions for Use of Wiper Inserts

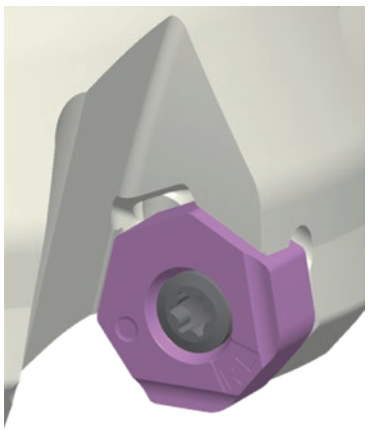


Fig.1

Fig.2

Note 1) The specifications for these wipers are right hand body 2 corners and left hand body 2 corners. Refer to Figure 1.
Note 2) Satisfactory finish surface can be achieved with one wiper insert.
However, if the feed rate per revolution will be equal to or greater than the width of the wiper edge, it is recommended to install the second and further wiper inserts spaced evenly within the cutting body.

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Workpiece Material	Hardness	Grade	vc (SFM)	fz (IPT)	ap
P	Mild Steel	≤180HB	**MP6120,VP15TF**	820 (655—985)	.012 (.008—.016)	≤.118
			MP6130	785 (620—950)	.012 (.008—.016)	≤.118
	Carbon Steel,Alloy Steel	180—280HB	**MP6120,VP15TF**	720 (560—885)	.012 (.008—.016)	≤.118
			MP6130	655 (490—820)	.012 (.008—.016)	≤.118
	Carbon Steel,Alloy Steel	280—350HB	**MP6120,VP15TF**	460 (330—590)	.012 (.008—.016)	≤.118
			MP6130	395 (295—490)	.012 (.008—.016)	≤.118
	Alloy Tool Steel	≤350HB (Annealing)	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.039
			MP6130	395 (295—490)	.006 (.004—.008)	≤.039
	Pre-hardened Steel	35—45HRC	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.039
			MP6130	395 (295—490)	.006 (.004—.008)	≤.039
M	Austenitic Stainless Steel	≤200HB	**MP7130,VP15TF**	655 (490—820)	.008 (.004—.012)	≤.118
			MP7140	590 (395—755)	.008 (.004—.012)	≤.118
		> 200HB	**MP7130,VP15TF**	490 (330—655)	.008 (.004—.012)	≤.118
			MP7140	425 (260—590)	.008 (.004—.012)	≤.118
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7130,VP15TF**	655 (490—820)	.008 (.004—.012)	≤.118
			MP7140	590 (395—755)	.008 (.004—.012)	≤.118
		> 200HB	**MP7130,VP15TF**	490 (330—655)	.008 (.004—.012)	≤.118
			MP7140	425 (260—590)	.008 (.004—.012)	≤.118
	Two-phase Stainless Steel	≤280HB	**MP7130,VP15TF**	460 (330—590)	.006 (.002—.010)	≤.118
			MP7140	395 (260—525)	.006 (.002—.010)	≤.118
	Precipitation Hardening Stainless Steel	< 450HB	**MP7130,VP15TF**	425 (330—525)	.006 (.002—.010)	≤.118
			MP7140	360 (260—460)	.006 (.002—.010)	≤.118
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	720 (490—985)	.012 (.008—.016)	≤.118
			VP15TF	590 (425—755)	.012 (.008—.016)	≤.118
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	655 (490—820)	.008 (.004—.012)	≤.118
			VP15TF	560 (395—720)	.008 (.004—.012)	≤.118
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	560 (490—655)	.008 (.004—.012)	≤.118
			VP15TF	460 (330—590)	.008 (.004—.012)	≤.118
H	Hardened Steel	40—55HRC	**VP15TF**	260 (195—330)	.006 (.004—.008)	≤.039

Wet Cutting

(inch)

	Workpiece Material	Hardness	Grade	vc (SFM)	fz (IPT)	ap
M	Austenitic Stainless Steel	≤200HB	**MP7130,VP15TF**	410 (330—490)	.006 (.004—.008)	≤.118
			MP7140	330 (260—460)	.045 (.004—.008)	≤.118
		> 200HB	**MP7130,VP15TF**	330 (245—410)	.006 (.004—.008)	≤.118
			MP7140	260 (180—345)	.006 (.004—.008)	≤.118
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7130,VP15TF**	410 (330—490)	.006 (.004—.008)	≤.118
			MP7140	330 (260—460)	.006 (.004—.008)	≤.118
		> 200HB	**MP7130,VP15TF**	330 (245—410)	.006 (.004—.008)	≤.118
			MP7140	260 (180—345)	.006 (.004—.008)	≤.118
	Two-phase Stainless Steel	≤280HB	**MP7130,VP15TF**	260 (195—330)	.004 (.002—.006)	≤.118
			MP7140	195 (130—260)	.004 (.002—.006)	≤.118
	Precipitation Hardening Stainless Steel	< 450HB	**MP7130,VP15TF**	230 (165—295)	.004 (.002—.006)	≤.118
			MP7140	165 (100—230)	.004 (.002—.006)	≤.118

Note 1) Refer to the above table and set up cutting conditions according to cutting applications.
Note 2) When placing emphasis on surface finish quality, wet cutting is recommended. (tool life is lowered as compared to dry cutting)
Note 3) The recommended depth of cut differs according to insert geometry.
Note 4) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.
Note 5) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)

Cutting Conditions with Wiper Insert

(inch)

	Workpiece Material	Hardness	Grade	vc (SFM)	fz (IPT)	ap
P	Mild Steel	≤180HB	**MP6120,VP15TF**	820 (655—985)	.012 (.008—.016)	≤.020
	Carbon Steel,Alloy Steel	180—280HB	**MP6120,VP15TF**	720 (560—885)	.012 (.008—.016)	≤.020
		280—350HB	**MP6120,VP15TF**	460 (330—590)	.012 (.008—.016)	≤.020
	Alloy Tool Steel	≤350HB (Annealing)	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.020
	Pre-hardened Steel	35—45HRC	**MP6120,VP15TF**	460 (330—590)	.006 (.004—.008)	≤.020
M	Austenitic Stainless Steel	≤200HB	**VP15TF**	410 (330—490)	.006 (.004—.008)	≤.020
		> 200HB	**VP15TF**	330 (245—410)	.006 (.004—.008)	≤.020
	Ferritic and Maltensitic Stainless Steel	≤200HB	**VP15TF**	410 (330—490)	.006 (.004—.008)	≤.020
		> 200HB	**VP15TF**	330 (245—410)	.006 (.004—.008)	≤.020
	Two-phase Stainless Steel	≤280HB	**VP15TF**	260 (195—330)	.004 (.002—.006)	≤.020
	Precipitation Hardening Stainless Steel	< 450HB	**VP15TF**	230 (165—295)	.004 (.002—.006)	≤.020
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	1050 (820—1310)	.012 (.008—.016)	≤.020
			VP15TF	720 (490—985)	.012 (.008—.016)	≤.020
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	820 (655—985)	.008 (.004—.012)	≤.020
			VP15TF	655 (490—820)	.008 (.004—.012)	≤.020
		Tensile Strength ≤800MPa	**MC5020**	720 (655—820)	.008 (.004—.012)	≤.020
			VP15TF	560 (490—655)	.008 (.004—.012)	≤.020
H	Hardened Steel	40—55HRC	**VP15TF**	260 (195—330)	.006 (.004—.008)	≤.020

Note 1) Refer to the above table and set up cutting conditions according to cutting applications.
Note 2) When placing emphasis on surface finish quality, wet cutting is recommended. (tool life is lowered as compared to dry cutting)
Note 3) The recommended depth of cut differs according to insert geometry.
Note 4) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.
Note 5) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)

OPTIONAL PARTS

(inch)

Tool Holder Number	Set Bolt		Fig.	a	b	c	d	e	f	g	Geometry
	With Coolant Hole	Without Coolant Hole									
	Order Number	Order Number									
AHX440S-040A○○AR	HSC08025H	HSC08025	1	.512	M8×1.25	1.299	.315	.197	–	–	
AHX440S-050A○○AR	HSC10030H	HSC10030	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX440S-063A○○AR	HSC10030H	HSC10030	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX440S-080A○○AR	HSC12035H	HSC12035	1	.709	M12×1.75	1.850	.472	.394	–	–	
AHX440S-100B○○AR	MBA16033H	–	2	1.575	M16×2	1.693	.394	.551	.236	.906	
AHX440S-125B○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440S-160C○○NR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440SR080○○CA	HSC12035H	HSC12035	1	.709	M12×1.75	1.850	.472	.394	–	–	
AHX440SR100○○DA	MBA16033H	–	2	1.575	M16×2	1.693	.394	.551	.236	.906	
AHX440SR125○○EA	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX440SR160○○FA	MBA24045H	–	2	2.559	M24×3	2.323	.551	.669	.394	1.457	

Fig.1

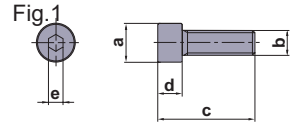
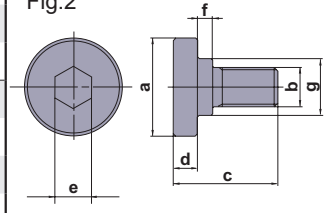


Fig.2



Note 1) Please purchase the appropriate set bolt after confirming the reference dimensions.
The items with an order number listed under the Set Bolt columns are also sold by Mitsubishi Materials.
Note 2) Internal coolant is necessary with the set bolt.

FACE MILLING

<HIGH FEED CUTTING FOR CAST IRON>

15° KAPR

F

AHX475S

P | M | K | N | S | H

Fig.1

ø2.000"
ø2.500"
ø3.000"
ø4.000"

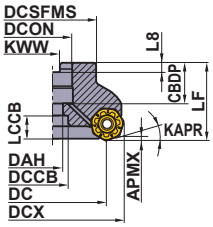
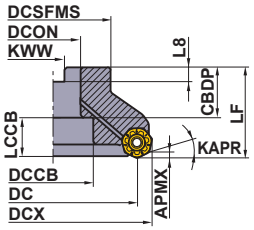


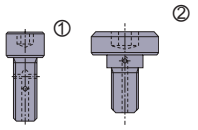
Fig.2

ø5.000"
ø6.000"



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ2.000	HSCU37513H	①
ϕ2.500	HSCU50014H	①
ϕ3.000	HSCU50014H	①
ϕ4.000	MBAU75016H	②
ϕ5.000	MBAU75016H	②
ϕ6.000	MBAU75016H	②



With Air / coolant through.

DC = inch size, DCON = Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(lbs)	APMX
2.000	**AHX475SUR0204AA**	●	Y	4	2.000	2.616	.750	1	1.5	.063
	AHX475SUR0205AA	●	Y	5	2.000	2.616	.750	1	1.4	.063
2.500	**AHX475SUR2505CA**	●	Y	5	2.000	3.116	1.000	1	2.2	.063
	AHX475SUR2506CA	●	Y	6	2.000	3.116	1.000	1	2.2	.063
3.000	**AHX475SUR0306CA**	●	Y	6	2.000	3.614	1.000	1	3.2	.063
	AHX475SUR0308CA	●	Y	8	2.000	3.614	1.000	1	3.1	.063
	AHX475SUR0306DA	●	Y	6	2.500	3.614	1.250	1	4.1	.063
	AHX475SUR0308DA	●	Y	8	2.500	3.614	1.250	1	4.0	.063
4.000	**AHX475SUR0407EA**	●	Y	7	2.500	4.616	1.500	1	7.0	.063
	AHX475SUR0409EA	●	Y	9	2.500	4.616	1.500	1	6.9	.063
5.000	**AHX475SUR0508EA**	●	Y	8	2.500	5.616	1.500	2	8.8	.063
	AHX475SUR0510EA	●	Y	10	2.500	5.616	1.500	2	8.8	.063
6.000	**AHX475SUR0610FA**	●	Y	10	2.500	6.616	2.000	2	12.4	.063
	AHX475SUR0612FA	●	Y	12	2.500	6.616	2.000	2	12.5	.063

* Y=Yes

Note 1) The cutter body includes a set bolt for an arbor.

Fig.1

ø50
ø63
ø80
ø100

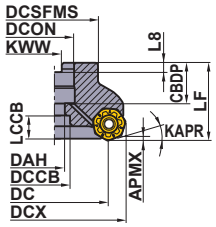
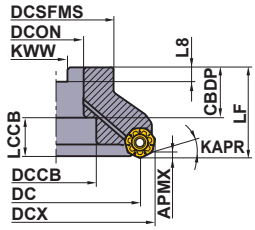


Fig.2

ø125
ø160



Right hand tool holder only.

Metric Standard

For inch arbors

DC = mm size, DCON = Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX475SR08006DA**	★	Y	6	63	95.6	31.75 [1.25"]	1	2.0	1.6
	AHX475SR08008DA	★	Y	8	63	95.6	31.75 [1.25"]	1	2.0	1.6
100	**AHX475SR10007DA**	★	Y	7	63	115.6	31.75 [1.25"]	1	3.2	1.6
	AHX475SR10009DA	★	Y	9	63	115.6	31.75 [1.25"]	1	3.2	1.6
125	**AHX475SR12508EA**	★	Y	8	63	140.6	38.1 [1.50"]	2	4.0	1.6
	AHX475SR12510EA	★	Y	10	63	140.6	38.1 [1.50"]	2	4.0	1.6
160	**AHX475SR16010FA**	★	Y	10	63	175.6	50.8 [2.0"]	2	5.5	1.6
	AHX475SR16012FA	★	Y	12	63	175.6	50.8 [2.0"]	2	5.5	1.6

* Y=Yes

Note 1) Set bolt not included.

Metric Standard

For metric arbors

DC = mm size, DCON = mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	APMX
50	**AHX475S-050A04AR**	★	Y	4	50	65.7	22	1	0.6	1.6
	AHX475S-050A05AR	★	Y	5	50	65.7	22	1	0.6	1.6
63	**AHX475S-063A05AR**	★	Y	5	50	78.7	22	1	1.0	1.6
	AHX475S-063A06AR	★	Y	6	50	78.7	22	1	1.0	1.6
80	**AHX475S-080A06AR**	★	Y	6	50	95.6	27	1	1.6	1.6
	AHX475S-080A08AR	★	Y	8	50	95.6	27	1	1.6	1.6
100	**AHX475S-100A07AR**	★	Y	7	63	115.6	32	1	3.3	1.6
	AHX475S-100A09AR	★	Y	9	63	115.6	32	1	3.3	1.6
125	**AHX475S-125B08AR**	★	Y	8	63	140.6	40	2	4.0	1.6
	AHX475S-125B10AR	★	Y	10	63	140.6	40	2	4.0	1.6
160	**AHX475S-160B10AR**	★	Y	10	63	175.6	40	2	6.0	1.6
	AHX475S-160B12AR	★	Y	12	63	175.6	40	2	6.0	1.6

* Y=Yes

Note 1) Set bolt not included.

ISO13399	➢ K003
MOUNTING DIMENSION	➢ K082, K084
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

SPARE PARTS

Tool Holder Number	 * Clamp Screw	 Wrench (Insert)
AHX475S	TS35R	TKY15T

* Clamp Torque (lbf-in) : TS35R=31

OPTIONAL PARTS

(inch)

Tool Holder Number	Set Bolt		Fig.	Reference Dimensions							Geometry
	With Coolant Hole	Without Coolant Hole		a	b	c	d	e	f	g	
	Order Number	Order Number									
AHX475S-050A○○AR	HSC10030H	HSC10030	1	.630	M10×1.5	1.575	.394	.236	–	–	Fig.1
AHX475S-063A○○AR	HSC10030H	HSC10030	1	.630	M10×1.5	1.575	.394	.236	–	–	
AHX475S-080A○○AR	HSC12035H	HSC12035	1	.709	M12×1.75	2.244	.472	.394	–	–	
AHX475S-100B○○AR	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475S-125B○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	Fig.2
AHX475S-160B○○AR	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX475SR080○○DA	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475SR100○○DA	HSC16040H	–	1	.945	M16×2	2.205	.630	.551	–	–	
AHX475SR125○○EA	MBA20040H	–	2	1.969	M20×2.5	2.126	.551	.669	.236	1.063	
AHX475SR160○○FA	MBA24045H	–	2	2.559	M24×3	2.323	.551	.669	.394	1.457	

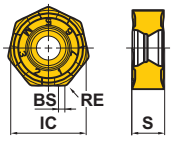
Note 1) Please purchase the appropriate set bolt after confirming the reference dimensions.
The items with an order number listed under the Set Bolt columns are also sold by Mitsubishi Materials.
Note 2) Internal coolant is necessary with the set bolt.

INSERTS

(mm)

Workpiece Material			P	K	M	S	H
	P	Steel	◐	✣		◐	
	K	Cast Iron			◐	◐	
	H	Hardened Steel				◐	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Edge Preparation : E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated						Dimensions (mm)					Geometry
					MP6120	MP6130	MC5020	VP15TF			IC	RE	BS	S	APMX	
General Cutting		**NNMU130532ZEN-M**	M	E	●	●	●	★			.528	.126	–	.219	.063	
Unstable Cutting		**NNMU130532ZEN-R**	M	E	●	●	●	★			.528	.126	–	.215	.063	

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Workpiece Material	Hardness	Grade	Breaker	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	≤180HB	**MP6120**	**R**	490 (330—655)	.024	≤.063	≤0.5DC
			MP6120	**R**	490 (330—655)	.031	≤.063	0.5—0.8DC
			MP6120	**M**	490 (330—655)	.039	≤.063	0.8—1DC
			MP6130	**R**	425 (260—590)	.024	≤.063	≤0.5DC
			MP6130	**R**	425 (260—590)	.031	≤.063	0.5—0.8DC
			MP6130	**M**	425 (260—590)	.039	≤.063	0.8—1DC
	Carbon Steel,Alloy Steel	180—280HB	**MP6120**	**R**	425 (260—590)	.024	≤.063	≤0.5DC
			MP6120	**R**	425 (260—590)	.031	≤.063	0.5—0.8DC
			MP6120	**M**	425 (260—590)	.039	≤.063	0.8—1DC
			MP6130	**R**	360 (195—525)	.024	≤.063	≤0.5DC
			MP6130	**R**	360 (195—525)	.031	≤.063	0.5—0.8DC
			MP6130	**M**	360 (195—525)	.039	≤.063	0.8—1DC
	Carbon Steel,Alloy Steel	280—350HB	**MP6120**	**R**	330 (165—490)	.020	≤.063	≤0.5DC
			MP6120	**R**	330 (165—490)	.024	≤.063	0.5—0.8DC
			MP6120	**R**	330 (165—490)	.028	≤.063	0.8—1DC
			MP6130	**R**	260 (100—425)	.020	≤.063	≤0.5DC
			MP6130	**R**	260 (100—425)	.024	≤.063	0.5—0.8DC
			MP6130	**R**	260 (100—425)	.028	≤.063	0.8—1DC
	Alloy Tool Steel	≤350HB (Annealing)	**MP6120**	**R**	330 (165—490)	.020	≤.063	≤0.5DC
			MP6120	**R**	330 (165—490)	.024	≤.063	0.5—0.8DC
			MP6120	**R**	330 (165—490)	.028	≤.063	0.8—1DC
			MP6130	**R**	260 (100—395)	.020	≤.063	≤0.5DC
			MP6130	**R**	260 (100—395)	.024	≤.063	0.5—0.8DC
			MP6130	**R**	260 (100—395)	.028	≤.063	0.8—1DC
	Pre-hardened Steel	35—45HRC	**MP6120**	**R**	330 (230—425)	.020	≤.063	≤0.5DC
			MP6120	**R**	330 (230—425)	.024	≤.063	0.5—0.8DC
			MP6120	**R**	330 (230—425)	.028	≤.063	0.8—1DC
			MP6130	**R**	260 (165—360)	.020	≤.063	≤0.5DC
			MP6130	**R**	260 (165—360)	.024	≤.063	0.5—0.8DC
			MP6130	**R**	260 (165—360)	.028	≤.063	0.8—1DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**R**	490 (330—655)	.024	≤.063	≤0.5DC
			MC5020	**R**	490 (330—655)	.031	≤.063	0.5—0.8DC
			MC5020	**M**	490 (330—655)	.039	≤.063	0.8—1DC
			VP15TF	**M**	395 (260—525)	.024	≤.063	≤0.5DC
			VP15TF	**M**	395 (260—525)	.031	≤.063	0.5—0.8DC
			VP15TF	**M**	395 (260—525)	.039	≤.063	0.8—1DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**R**	490 (330—655)	.024	≤.063	≤0.5DC
			MC5020	**R**	490 (330—655)	.031	≤.063	0.5—0.8DC
			MC5020	**M**	490 (330—655)	.039	≤.063	0.8—1DC
			VP15TF	**R**	395 (260—525)	.024	≤.063	≤0.5DC
			VP15TF	**R**	395 (260—525)	.031	≤.063	0.5—0.8DC
			VP15TF	**M**	395 (260—525)	.039	≤.063	0.8—1DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**R**	490 (330—655)	.020	≤.063	≤0.5DC
			MC5020	**R**	490 (330—655)	.024	≤.063	0.5—0.8DC
			MC5020	**R**	490 (330—655)	.028	≤.063	0.8—1DC
			VP15TF	**R**	395 (260—525)	.020	≤.063	≤0.5DC
			VP15TF	**R**	395 (260—525)	.024	≤.063	0.5—0.8DC
			VP15TF	**R**	395 (260—525)	.028	≤.063	0.8—1DC
H	Hardened Steel	40—55HRC	**VP15TF**	**R**	230 (165—295)	.016	≤.063	≤0.5DC
			VP15TF	**R**	230 (165—295)	.020	≤.063	0.5—0.8DC
			VP15TF	**R**	230 (165—295)	.024	≤.063	0.8—1DC

Note 1) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

FACE MILLING
<GENERAL CUTTING>

50° KAPR

AHX640S

P M K N S H

Fig. 1
ø2.500"
ø3.000"

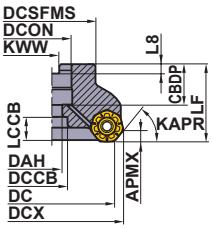


Fig. 2
ø4.000"
ø5.000"
ø6.000"

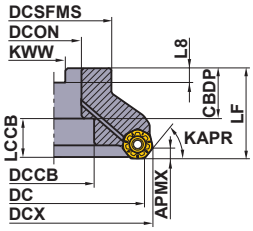
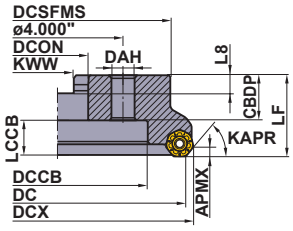
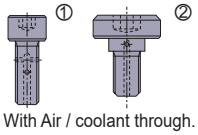


Fig. 3
ø8.000"



Right hand tool holder shown.

DC	Set Bolt	Geometry	
ϕ2.500	HSCU37513H	①	
ϕ3.000	HSCU62516H		
ϕ4.000	HSCU75016H		
ϕ5.000	MBAU75016H	②	
ϕ6.000	MBAU100016H		
ϕ8.000	—	—	

With Air / coolant through.

DC=Inch size, DCON=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(lbs)	APMX
2.500	**AHX640SUR2504AA**	●	Y	4	R	2.000	2.994	.750	1	2.0	.236
	AHX640SUL2504AA	□	Y	4	L	2.000	2.994	.750	1	2.0	.236
	AHX640SUR2505AA	●	Y	5	R	2.000	2.994	.750	1	1.8	.236
	AHX640SUL2505AA	□	Y	5	L	2.000	2.994	.750	1	1.8	.236
3.000	**AHX640SUR0304DA**	●	Y	4	R	2.500	3.494	1.250	1	3.7	.236
	AHX640SUL0304DA	□	Y	4	L	2.500	3.494	1.250	1	3.7	.236
	AHX640SUR0306DA	●	Y	6	R	2.500	3.494	1.250	1	3.5	.236
	AHX640SUL0306DA	□	Y	6	L	2.500	3.494	1.250	1	3.5	.236
4.000	**AHX640SUR0405EA**	●	Y	5	R	2.500	4.494	1.500	2	6.4	.236
	AHX640SUL0405EA	□	Y	5	L	2.500	4.494	1.500	2	6.4	.236
	AHX640SUR0407EA	●	Y	7	R	2.500	4.494	1.500	2	6.4	.236
	AHX640SUL0407EA	□	Y	7	L	2.500	4.494	1.500	2	6.4	.236

* Y=Yes

Note 1) The cutter body includes a set bolt for an arbor.

Note 2) The above "APMX" will vary depending on the breaker insert.

Fig. 1
ø2.500"
ø3.000"

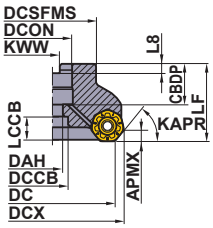


Fig. 2
ø4.000"
ø5.000"
ø6.000"

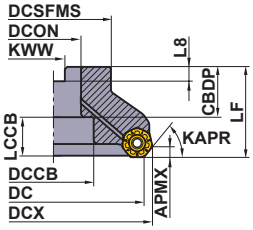
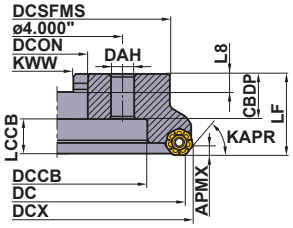
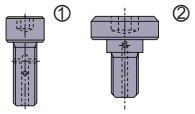


Fig. 3
ø8.000"



Right hand tool holder shown.

DC	Set Bolt	Geometry
ϕ2.500	HSCU37513H	①
ϕ3.000	HSCU62516H	
ϕ4.000	HSCU75016H	
ϕ5.000	MBAU75016H	②
ϕ6.000	MBAU100016H	
ϕ8.000	—	—



With Air / coolant through.

DC=Inch size, DCON=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(lbs)	APMX
5.000	**AHX640SUR0506EA**	●	Y	6	R	2.500	5.494	1.500	2	8.2	.236
	AHX640SUL0506EA	□	Y	6	L	2.500	5.494	1.500	2	8.2	.236
	AHX640SUR0508EA	●	Y	8	R	2.500	5.494	1.500	2	7.9	.236
	AHX640SUL0508EA	□	Y	8	L	2.500	5.494	1.500	2	7.9	.236
6.000	**AHX640SUR0607FA**	●	Y	7	R	2.500	6.494	2.000	2	11.7	.236
	AHX640SUL0607FA	□	Y	7	L	2.500	6.494	2.000	2	11.7	.236
	AHX640SUR0610FA	●	Y	10	R	2.500	6.494	2.000	2	11.2	.236
	AHX640SUL0610FA	□	Y	10	L	2.500	6.494	2.000	2	11.2	.236
8.000	**AHX640SUR0808MN**	●	N	8	R	2.500	8.494	2.500	3	18.5	.236
	AHX640SUL0808MN	□	N	8	L	2.500	8.494	2.500	3	18.5	.236
	AHX640SUR0812MN	●	N	12	R	2.500	8.494	2.500	3	18.3	.236
	AHX640SUL0812MN	□	N	12	L	2.500	8.494	2.500	3	18.3	.236

* Y=Yes, N=No

Note 1) The cutter body includes a set bolt for an arbor.

SPARE PARTS

Tool Holder Number	* 	
	Clamp Screw	Wrench (Insert)
AHX640S	CS5015060T	TKY20T

* Clamp Torque (lbf-in) : CS5015060T=44

ISO13399	➢ K003
MOUNTING DIMENSION	➢ K082
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

Metric Standard

For inch arbors

Fig. 1
ø63
ø80

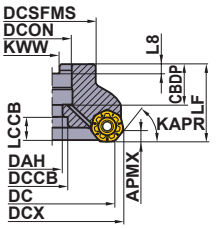


Fig. 2
ø100
ø125
ø160

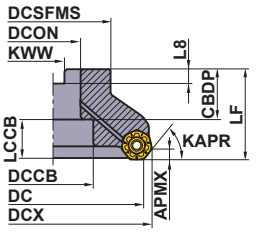
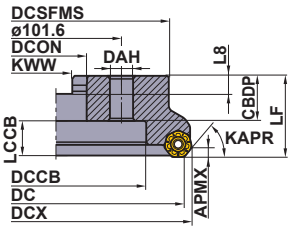
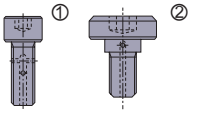


Fig. 3
ø200



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63	HSC10030H	①
ϕ80	HSC12035H	
ϕ100	MBA16033H	②
ϕ125	MBA20040H	
ϕ160	MBA24045H	
ϕ200	—	—



With Air / coolant through.

DC=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640SR08004CA**	★	Y	4	50	92.55	25.4 [1.0"]	1	1.1	6
	AHX640SR08006CA	★	Y	6	50	92.55	25.4 [1.0"]	1	1.0	6
100	**AHX640SR10005DA**	★	Y	5	50	112.55	31.75 [1.25"]	2	1.7	6
	AHX640SR10007DA	★	Y	7	50	112.55	31.75 [1.25"]	2	1.5	6
125	**AHX640SR12506EA**	★	Y	6	63	137.55	38.1 [1.50"]	2	3.0	6
	AHX640SR12508EA	★	Y	8	63	137.55	38.1 [1.50"]	2	2.9	6
160	**AHX640SR16007FA**	★	Y	7	63	172.55	50.8 [2.0"]	2	4.9	6
	AHX640SR16010FA	★	Y	10	63	172.55	50.8 [2.0"]	2	4.7	6
200	**AHX640SR20008KN**	★	N	8	63	212.55	47.625 [1.875"]	3	8.2	6
	AHX640SR20012KN	★	N	12	63	212.55	47.625 [1.875"]	3	7.9	6

* Y=Yes, N=No

Note 1) Set bolt not included.

SPARE PARTS

Tool Holder Number	* 	
	Clamp Screw	Wrench (Insert)
AHX640S	CS5015060T	TKY20T

* Clamp Torque (lbf-in) : CS5015060T=44

Metric Standard

For metric arbors

Fig. 1
ø63
ø80

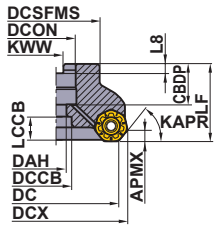


Fig. 2
ø100
ø125

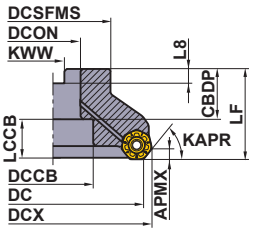


Fig. 3
ø160

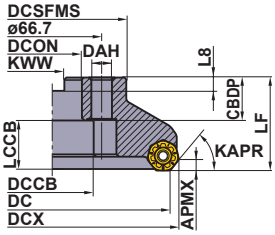
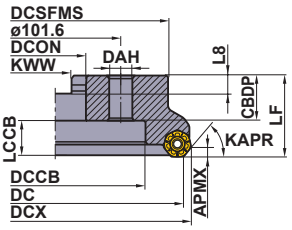
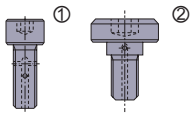


Fig. 4
ø200



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63	HSC10030H	①
ϕ80	HSC12035H	
ϕ100	MBA16033H	②
ϕ125	MBA20040H	
ϕ160	—	—
ϕ200	—	—



With Air / coolant through.

DC=mm size, DCON=mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	LF	DCX	DCON	Fig.	WT(kg)	APMX
63	**AHX640S-063A04AR**	★	Y	4	50	75.55	22	1	0.7	6
	AHX640S-063A05AR	★	Y	5	50	75.55	22	1	0.6	6
80	**AHX640S-080A04AR**	★	Y	4	50	92.55	27	1	1.1	6
	AHX640S-080A06AR	★	Y	6	50	92.55	27	1	1.0	6
100	**AHX640S-100B05AR**	★	Y	5	50	112.55	32	2	1.7	6
	AHX640S-100B07AR	★	Y	7	50	112.55	32	2	1.6	6
125	**AHX640S-125B06AR**	★	Y	6	63	137.55	40	2	3.1	6
	AHX640S-125B08AR	★	Y	8	63	137.55	40	2	3.0	6
160	**AHX640S-160C07NR**	★	N	7	63	172.55	40	3	5.4	6
	AHX640S-160C10NR	★	N	10	63	172.55	40	3	5.2	6
200	**AHX640S-200C08NR**	★	N	8	63	212.55	60	4	7.8	6
	AHX640S-200C12NR	★	N	12	63	212.55	60	4	7.5	6

* Y=Yes, N=No

Note 1) Set bolt not included.

SPARE PARTS

Tool Holder Number	* Clamp Screw	Wrench (Insert)
AHX640S	CS5015060T	TKY20T

* Clamp Torque (lbf-in) : CS5015060T=44

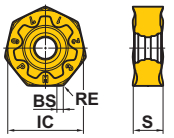
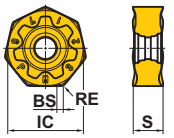
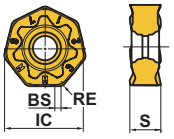
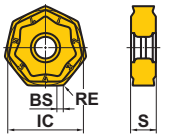
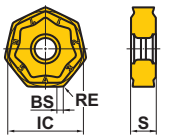
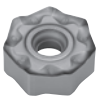
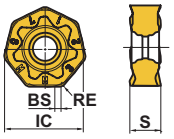
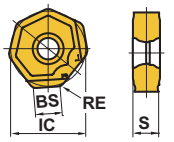
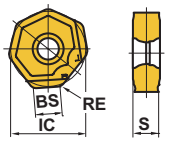
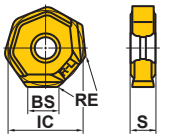
ISO13399	➢ K003
MOUNTING DIMENSION	➢ K084
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

INSERTS

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round

Application	Shape	Order Number	Class	Edge Preparation	Coated								Dimensions (inch)					Geometry
					MP6120	MP6130	MP7030	MP9120	MP9130	MC5020	VP15TF	VP20RT	IC	RE	BS	S	APMX	
For Steel General Cutting		**NNMU200708ZEN-M**	M	E	●	●							.787	.031	.039	.315	.236	
For Steel General Cutting		**NNMU200708ZEN-MP**	M	E							●		.787	.031	.039	.315	.236	
For Stainless Steel		**NNMU200712ZER-MM**	M	E			●						.787	.047	.039	.315	.236	
For Cast Iron General Cutting		**NNMU200608ZEN-MK**	M	E						●	●	●	.787	.031	.039	.258	.236	
For Cast Iron Strong Cutting Edge Type		**NNMU200608ZEN-HK**	M	E						●	●	●	.787	.031	.039	.258	.236	
For Titanium Alloys and Heat Resistant Alloys		**NNMU200712ZER-L**	M	E				●	●				.787	.047	.039	.315	.236	
For Steel	 Wiper	**WNEU2007ZEN7C-M**	E	E	●								.787	.031	.283	.272	.020	
General Cutting	 Wiper	**WNEU2007ZEN7C-WP**	E	E							●		.787	.031	.280	.272	.020	
For Cast Iron	 Wiper	**WNEU2006ZEN7C-WK**	E	E						●			.787	.031	.291	.258	.020	

Note 1) The height of cutter when setting MK, HK inserts are different from when setting MP, MM inserts.

● : USA Stock
<10 inserts in one case>

■ Instructions for use of wiper inserts

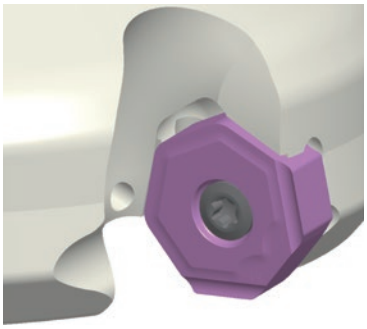


Fig.1

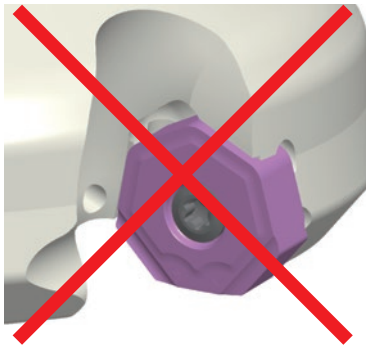


Fig.2

Note 1) The specifications for these wipers are right hand body 2 corners and left hand body 2 corners. Refer to Figure 1.
Note 2) A satisfactory finish surface can be achieved with one wiper insert.
However, if the feed rate per revolution will be equal to or greater than the width of the wiper edge, it is recommended to install the second and further wiper inserts spaced evenly within the cutting body.

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Workpiece Material	Hardness	Grade	Breaker	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	≤180HB	**MP6120**	**M**	820 (655—985)	.012 (.008—.016)	≤.197	≤0.8DC
			VP15TF	**MP**	820 (655—985)	.012 (.008—.016)	≤.197	≤0.8DC
			MP6130	**M**	720 (560—885)	.016 (.012—.020)	≤.197	≤0.8DC
	Carbon Steel,Alloy Steel	180—280HB	**MP6120**	**M**	720 (560—885)	.012 (.008—.016)	≤.197	≤0.8DC
			VP15TF	**MP**	720 (560—885)	.012 (.008—.016)	≤.197	≤0.8DC
			MP6130	**M**	620 (460—785)	.016 (.012—.020)	≤.197	≤0.8DC
	Carbon Steel,Alloy Steel	280—350HB	**MP6120**	**M**	460 (330—590)	.012 (.008—.016)	≤.197	≤0.8DC
			VP15TF	**MP**	460 (330—590)	.012 (.008—.016)	≤.197	≤0.8DC
			MP6130	**M**	360 (230—490)	.016 (.012—.020)	≤.197	≤0.8DC
	Alloy Tool Steel	≤350HB (Annealing)	**MP6120**	**M**	460 (330—590)	.006 (.004—.008)	≤.118	≤0.8DC
			VP15TF	**MP**	460 (330—590)	.006 (.004—.008)	≤.118	≤0.8DC
			MP6130	**M**	360 (230—490)	.010 (.008—.012)	≤.118	≤0.8DC
	Pre-hardened Steel	35—45HRC	**MP6120**	**M**	460 (330—590)	.006 (.004—.008)	≤.118	≤0.8DC
			VP15TF	**MP**	460 (330—590)	.006 (.004—.008)	≤.197	≤0.8DC
			MP6130	**M**	360 (230—490)	.010 (.008—.012)	≤.118	≤0.8DC
M	Austenitic Stainless Steel	≤200HB	**MP7030**	**MM**	655 (490—820)	.008 (.004—.012)	≤.197	≤0.8DC
	Austenitic Stainless Steel	> 200HB	**MP7030**	**MM**	490 (330—655)	.008 (.004—.012)	≤.197	≤0.8DC
	Two-phase Stainless Steel	≤280HB	**MP7030**	**MM**	460 (330—590)	.006 (.002—.010)	≤.197	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7030**	**MM**	655 (490—820)	.008 (.004—.012)	≤.197	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	> 200HB	**MP7030**	**MM**	490 (330—655)	.008 (.004—.012)	≤.197	≤0.8DC
	Precipitation Hardening Stainless Steel	< 450HB	**MP7030**	**MM**	425 (330—525)	.006 (.002—.010)	≤.197	≤0.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**MK,HK**	720 (490—985)	.012 (.008—.016)	≤.197	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	590 (425—755)	.012 (.008—.016)	≤.197	≤0.8DC
			VP15TF	**MP**	590 (425—755)	.012 (.008—.016)	≤.197	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**MK,HK**	655 (490—820)	.008 (.004—.012)	≤.197	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	560 (395—720)	.008 (.004—.012)	≤.197	≤0.8DC
			VP15TF	**MP**	560 (395—720)	.008 (.004—.012)	≤.197	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**MK,HK**	560 (490—655)	.008 (.004—.012)	≤.197	≤0.8DC
			VP15TF,VP20RT	**MK,HK**	460 (330—590)	.008 (.004—.012)	≤.197	≤0.8DC
			VP15TF	**MP**	460 (330—590)	.008 (.004—.012)	≤.197	≤0.8DC
H	Hardened Steel	40—55HRC	**VP15TF**	**MP**	260 (195—330)	.006 (.004—.008)	≤.118	≤0.8DC

Note1) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)
Note2) We recommend wet cutting with internal coolant for titanium alloy and heat resistant alloy,
Note3) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

Wet Cutting

(inch)

	Workpiece Material	Hardness	Breaker	Grade	vc (SFM)	fz (IPT)	ap	ae
M	Austenitic Stainless Steel	≤200HB	**MP7030**	**MM**	410 (330—490)	.006 (.004—.008)	≤.197	≤0.8DC
	Austenitic Stainless Steel	> 200HB	**MP7030**	**MM**	330 (245—410)	.006 (.004—.008)	≤.197	≤0.8DC
	Two-phase Stainless Steel	≤280HB	**MP7030**	**MM**	260 (195—330)	.004 (.002—.006)	≤.197	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	≤200HB	**MP7030**	**MM**	410 (330—490)	.006 (.004—.008)	≤.197	≤0.8DC
	Ferritic and Maltensitic Stainless Steel	> 200HB	**MP7030**	**MM**	330 (245—410)	.006 (.004—.008)	≤.197	≤0.8DC
	Precipitation Hardening Stainless Steel	< 450HB	**MP7030**	**MM**	230 (165—295)	.004 (.002—.006)	≤.197	≤0.8DC
S	Titanium Alloys	—	**MP7030**	**MM**	130 (65—165)	.006 (.004—.008)	≤.118	≤0.6DC
		—	**MP9120**	**L**	195 (165—230)	.004 (.002—.006)	≤.118	≤0.6DC
		—	**MP9130**	**L**	130 (65—165)	.006 (.004—.008)	≤.118	≤0.6DC
	Heat Resistant Alloys	—	**MP7030**	**MM**	130 (65—165)	.006 (.004—.008)	≤.118	≤0.6DC
		—	**MP9120**	**L**	195 (165—230)	.004 (.002—.006)	≤.118	≤0.6DC
		—	**MP9130**	**L**	130 (65—165)	.006 (.004—.008)	≤.118	≤0.6DC

Note1) Recommended wet cutting for good surface finishing of stainless steel. (Tool life is short compared to wet cutting.)
Note2) We recommend wet cutting with internal coolant for titanium alloy and heat resistant alloy.
Note3) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.

Cutting Conditions with Wiper Insert

(inch)

	Workpiece Material	Hardness	Main Insert	Grade	Wiper Insert	Grade	vc (SFM)	fz (IPT)	ap	ae
P	Mild Steel	≤180HB	**VP15TF**	**MP**	**VP15TF**	**WP**	820 (655—985)	.012 (.008—.016)	≤.0197	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	820 (655—985)	.012 (.008—.016)	≤.0197	≤0.8DC
	Carbon Steel,Alloy Steel	180—280HB	**VP15TF**	**MP**	**VP15TF**	**WP**	720 (560—885)	.012 (.008—.016)	≤.0197	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	720 (560—885)	.012 (.008—.016)	≤.0197	≤0.8DC
	Carbon Steel,Alloy Steel	280—350HB	**VP15TF**	**MP**	**VP15TF**	**WP**	460 (330—590)	.012 (.008—.016)	≤.0197	≤0.8DC
			MP6120	**M**	**MP6120**	**M**	460 (330—590)	.012 (.008—.016)	≤.0197	≤0.8DC
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	1050 (820—1310)	.012 (.008—.016)	≤.0197	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	720 (490—985)	.012 (.008—.016)	≤.0197	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤450MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	820 (655—985)	.008 (.004—.012)	≤.0197	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	655 (490—820)	.008 (.004—.012)	≤.0197	≤0.8DC
	Ductile Cast Ilon	Tensile Strength ≤800MPa	**MC5020**	**MK,HK**	**MC5020**	**WK**	720 (655—820)	.008 (.004—.012)	≤.0197	≤0.8DC
			VP15TF	**MP**	**VP15TF**	**WP**	560 (490—655)	.008 (.004—.012)	≤.0197	≤0.8DC
S	Heat Resistant Alloys	—	**VP15TF**	**MP**	**VP15TF**	**WP**	130 (65—165)	.006 (.004—.008)	≤.0197	≤0.8DC
H	Hardened Steel	40—55HRC	**VP15TF**	**MP**	**VP15TF**	**WP**	260 (195—330)	.006 (.004—.008)	≤.0197	≤0.8DC

Note 1) When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30%.
Note 2) Please use WP geometry insert in combination with MP or M geometry inserts, and use WK geometry insert in combination with MK or HK geometry inserts

AHX440S, AHX475S, AHX640S Mounting Dimension

Fig. 1

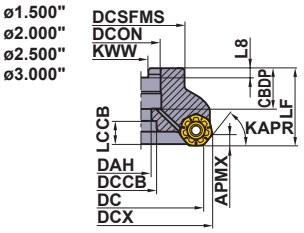


Fig. 2

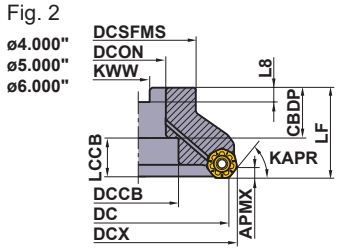
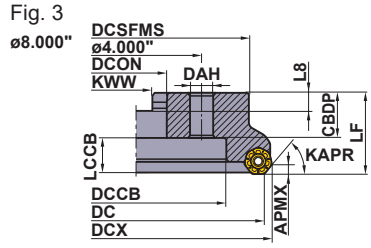


Fig. 3



Right hand tool holder shown.

(inch)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
.500	1.500	**AHX440SUR1503SA**	.630	.276	.433	.602	1.44	.250	.156	1
.500	1.500	**AHX440SUR1504SA**	.630	.276	.433	.602	1.44	.250	.156	1
.750	2.000	**AHX440SUR0204AA**	.748	.413	.630	.642	1.75	.313	.187	1
.750	2.000	**AHX440SUR0205AA**	.748	.413	.630	.642	1.75	.313	.187	1
.750	2.000	**AHX440SUR0206AA**	.748	.413	.630	.642	1.75	.313	.187	1
.750	2.000	**AHX475SUR0204AA**	.748	.413	.630	.609	1.88	.313	.187	4
.750	2.000	**AHX475SUR0205AA**	.748	.413	.630	.609	1.88	.313	.187	4
.750	2.500	**AHX640SUL2504AA**	.748	.413	.630	.591	1.75	.313	.187	1
.750	2.500	**AHX640SUL2505AA**	.748	.413	.630	.591	1.75	.313	.187	1
.750	2.500	**AHX640SUR2504AA**	.748	.413	.630	.591	1.75	.313	.187	1
.750	2.500	**AHX640SUR2505AA**	.748	.413	.630	.591	1.75	.313	.187	1
1.000	2.500	**AHX440SUR2505CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	2.500	**AHX440SUR2506CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	2.500	**AHX440SUR2508CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	2.500	**AHX475SUR2505CA**	.945	.539	.787	.688	2.38	.375	.219	4
1.000	2.500	**AHX475SUR2506CA**	.945	.539	.787	.688	2.38	.375	.219	4
1.000	3.000	**AHX440SUR0306CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	3.000	**AHX440SUR0308CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	3.000	**AHX440SUR0310CA**	.945	.539	.787	.695	2.19	.375	.219	1
1.000	3.000	**AHX475SUR0306CA**	.945	.539	.787	.688	2.75	.375	.219	4
1.000	3.000	**AHX475SUR0308CA**	.945	.539	.787	.688	2.75	.375	.219	4
1.250	3.000	**AHX475SUR0306DA**	1.260	.669	1.024	.794	2.88	.500	.281	4
1.250	3.000	**AHX475SUR0308DA**	1.260	.669	1.024	.794	2.88	.500	.281	4
1.250	3.000	**AHX640SUL0304DA**	1.260	.669	1.024	.776	2.88	.500	.281	1
1.250	3.000	**AHX640SUL0306DA**	1.260	.669	1.024	.776	2.88	.500	.281	1
1.250	3.000	**AHX640SUR0304DA**	1.260	.669	1.024	.776	2.88	.500	.281	1
1.250	3.000	**AHX640SUR0306DA**	1.260	.669	1.024	.776	2.88	.500	.281	1
1.500	4.000	**AHX440SUR0407EA**	1.417	—	1.500	.801	3.50	.625	.375	2
1.500	4.000	**AHX440SUR0410EA**	1.417	—	1.500	.801	3.50	.625	.375	2

Fig.4

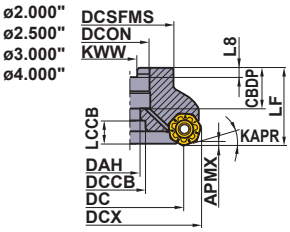
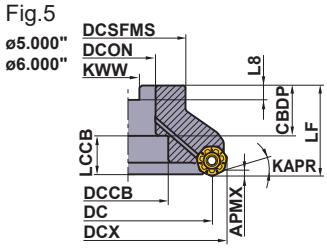


Fig.5



Right hand tool holder only.

(inch)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.500	4.000	**AHX440SUR0412EA**	1.417	—	1.500	.801	3.50	.625	.375	2
1.500	4.000	**AHX475SUR0407EA**	1.181	.787	1.181	.952	3.75	.625	.375	4
1.500	4.000	**AHX475SUR0409EA**	1.181	.787	1.181	.952	3.75	.625	.375	4
1.500	4.000	**AHX640SUL0405EA**	1.181	—	.787	.933	3.81	.625	.375	2
1.500	4.000	**AHX640SUL0407EA**	1.181	—	.787	.933	3.81	.625	.375	2
1.500	4.000	**AHX640SUR0405EA**	1.181	—	.787	.933	3.81	.625	.375	2
1.500	4.000	**AHX640SUR0407EA**	1.181	—	.787	.933	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0508EA**	1.417	—	1.500	.801	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0512EA**	1.417	—	1.500	.801	3.81	.625	.375	2
1.500	5.000	**AHX440SUR0514EA**	1.417	—	1.500	.801	3.81	.625	.375	2
1.500	5.000	**AHX475SUR0508EA**	1.417	—	1.500	.794	3.81	.625	.375	5
1.500	5.000	**AHX475SUR0510EA**	1.417	—	1.500	.794	3.81	.625	.375	5
1.500	5.000	**AHX640SUL0506EA**	1.575	—	2.205	.855	3.81	.625	.375	2
1.500	5.000	**AHX640SUL0508EA**	1.575	—	2.205	.855	3.81	.625	.375	2
1.500	5.000	**AHX640SUR0506EA**	1.575	—	2.205	.855	3.81	.625	.375	2
1.500	5.000	**AHX640SUR0508EA**	1.575	—	2.205	.855	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0610EA**	1.417	—	1.500	.801	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0614EA**	1.417	—	1.500	.801	3.81	.625	.375	2
1.500	6.000	**AHX440SUR0616EA**	1.417	—	1.500	.801	3.81	.625	.375	2
2.000	6.000	**AHX475SUR0610FA**	1.417	—	3.228	.755	4.88	.750	.437	5
2.000	6.000	**AHX475SUR0612FA**	1.417	—	3.228	.755	4.88	.750	.437	5
2.000	6.000	**AHX640SUL0607FA**	1.693	—	3.228	.737	4.88	.750	.437	2
2.000	6.000	**AHX640SUL0610FA**	1.693	—	3.228	.737	4.88	.750	.437	2
2.000	6.000	**AHX640SUR0607FA**	1.693	—	3.228	.737	4.88	.750	.437	2
2.000	6.000	**AHX640SUR0610FA**	1.693	—	3.228	.737	4.88	.750	.437	2
2.500	8.000	**AHX640SUL0808MN**	1.378	—	5.512	1.052	6.89	1.000	.560	3
2.500	8.000	**AHX640SUL0812MN**	1.378	—	5.512	1.052	6.89	1.000	.560	3
2.500	8.000	**AHX640SUR0808MN**	1.378	—	5.512	1.052	6.89	1.000	.560	3
2.500	8.000	**AHX640SUR0812MN**	1.378	—	5.512	1.052	6.89	1.000	.560	3

AHX440S, AHX475S, AHX640S Mounting Dimension

Fig. 1

ø40
ø50
ø63
ø80

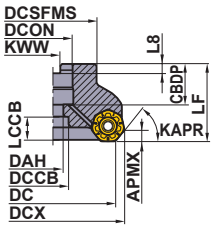


Fig. 2

ø100
ø125
ø160

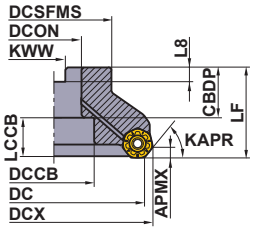
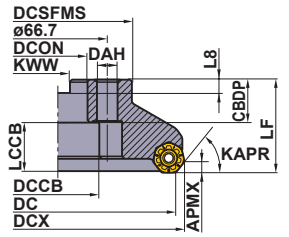


Fig. 3

ø160



Right hand tool holder only.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
16	40	**AHX440S-040A03AR**	18	9	14	13.9	37	8.4	5.6	1
16	40	**AHX440S-040A04AR**	18	9	14	13.9	37	8.4	5.6	1
22	50	**AHX440S-050A04AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX440S-050A05AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX440S-050A06AR**	20	11	17	11.9	47	10.4	6.3	1
22	50	**AHX475S-050A04AR**	20	11	17	16.7	47	10.4	6.3	5
22	50	**AHX475S-050A05AR**	20	11	17	16.7	47	10.4	6.3	5
22	63	**AHX440S-063A05AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX440S-063A06AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX440S-063A08AR**	20	11	17	11.9	50	10.4	6.3	1
22	63	**AHX475S-063A05AR**	20	11	17	16.7	60	10.4	6.3	5
22	63	**AHX475S-063A06AR**	20	11	17	16.7	60	10.4	6.3	5
22	63	**AHX640S-063A04AR**	20	11	17	16.2	50	10.4	6.3	1
22	63	**AHX640S-063A05AR**	20	11	17	16.2	50	10.4	6.3	1
25.4	80	**AHX440SR08006CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX440SR08008CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX440SR08010CA**	26	13	20	14.9	56	9.5	6	1
25.4	80	**AHX640SR08004CA**	26	13	20	14.2	56	9.5	6	1
25.4	80	**AHX640SR08006CA**	26	13	20	14.2	56	9.5	6	1
27	80	**AHX440S-080A06AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX440S-080A08AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX440S-080A10AR**	23	13	20	14.9	56	12.4	7	1
27	80	**AHX475S-080A06AR**	23	13	20	14.7	76	12.4	7	5
27	80	**AHX475S-080A08AR**	23	13	20	14.7	76	12.4	7	5
27	80	**AHX640S-080A04AR**	23	13	20	15.2	56	12.4	7	1
27	80	**AHX640S-080A06AR**	23	13	20	15.2	56	12.4	7	1
31.75	80	**AHX475SR08006DA**	32	17	26	19.7	76	12.7	8	5
31.75	80	**AHX475SR08008DA**	32	17	26	19.7	76	12.7	8	5
31.75	100	**AHX440SR10007DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX440SR10010DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX440SR10012DA**	37	—	45	11.9	70	12.7	8	2
31.75	100	**AHX475SR10007DA**	32	17	26	19.7	96	12.7	8	5
31.75	100	**AHX475SR10009DA**	32	17	26	19.7	96	12.7	8	5
31.75	100	**AHX640SR10005DA**	35	—	45	13.2	70	12.7	8	2
31.75	100	**AHX640SR10007DA**	35	—	45	13.2	70	12.7	8	2
32	100	**AHX440S-100B07AR**	32	—	45	16.9	78	14.4	8	2
32	100	**AHX440S-100B10AR**	32	—	45	16.9	78	14.4	8	2
32	100	**AHX440S-100B12AR**	32	—	45	16.9	78	14.4	8	2

Fig. 4
ø200

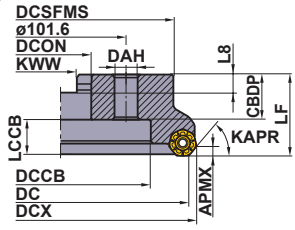


Fig.5
ø50
ø63
ø80
ø100

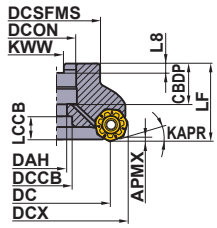
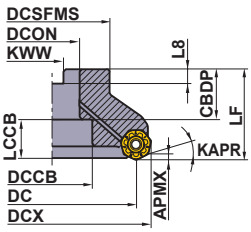


Fig.6
ø125
ø160



Right hand tool holder only.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
32	100	**AHX475S-100A07AR**	26	17	26	25.7	96	14.4	8	5
32	100	**AHX475S-100A09AR**	26	17	26	25.7	96	14.4	8	5
32	100	**AHX640S-100B05AR**	32	—	45	16.2	78	14.4	8	2
32	100	**AHX640S-100B07AR**	32	—	45	16.2	78	14.4	8	2
38.1	125	**AHX440SR12508EA**	42	—	56	19.9	80	15.9	10	2
38.1	125	**AHX440SR12512EA**	42	—	56	19.9	80	15.9	10	2
38.1	125	**AHX440SR12514EA**	42	—	56	19.9	80	15.9	10	2
38.1	125	**AHX475SR12508EA**	42	—	56	19.7	100	15.9	10	6
38.1	125	**AHX475SR12510EA**	42	—	56	19.7	100	15.9	10	6
38.1	125	**AHX640SR12506EA**	42	—	56	19.2	80	15.9	10	2
38.1	125	**AHX640SR12508EA**	42	—	56	19.2	80	15.9	10	2
40	125	**AHX440S-125B08AR**	40	—	56	21.9	89	16.4	9	2
40	125	**AHX440S-125B12AR**	40	—	56	21.9	89	16.4	9	2
40	125	**AHX440S-125B14AR**	40	—	56	21.9	89	16.4	9	2
40	125	**AHX475S-125B08AR**	40	—	56	21.7	100	16.4	9	6
40	125	**AHX475S-125B10AR**	40	—	56	21.7	100	16.4	9	6
40	125	**AHX640S-125B06AR**	42	—	56	19.2	89	16.4	9	2
40	125	**AHX640S-125B08AR**	42	—	56	19.2	89	16.4	9	2
40	160	**AHX440S-160C10NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX440S-160C14NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX440S-160C16NR**	40	14	56	21.9	100	16.4	9	3
40	160	**AHX475S-160B10AR**	40	—	56	21.7	100	16.4	9	6
40	160	**AHX475S-160B12AR**	40	—	56	21.7	100	16.4	9	6
40	160	**AHX640S-160C07NR**	29	14	56	32.2	120	16.4	9	3
40	160	**AHX640S-160C10NR**	29	14	56	32.2	120	16.4	9	3
47.625	200	**AHX640SR20008KN**	35	18	140	26.2	175	25.4	14.22	4
47.625	200	**AHX640SR20012KN**	35	18	140	26.2	175	25.4	14.22	4
50.8	160	**AHX440SR16010FA**	45	—	72	16.9	100	19.1	11	2
50.8	160	**AHX440SR16014FA**	45	—	72	16.9	100	19.1	11	2
50.8	160	**AHX440SR16016FA**	45	—	72	16.9	100	19.1	11	2
50.8	160	**AHX475SR16010FA**	45	—	72	16.7	100	19.1	11	6
50.8	160	**AHX475SR16012FA**	45	—	72	16.7	100	19.1	11	6
50.8	160	**AHX640SR16007FA**	43	—	72	18.2	100	19.1	11	2
50.8	160	**AHX640SR16010FA**	43	—	72	18.2	100	19.1	11	2
60	200	**AHX640S-200C08NR**	32	18	140	29.2	175	25.7	14.22	4
60	200	**AHX640S-200C12NR**	32	18	140	29.2	175	25.7	14.22	4

FACE MILLING

<HIGH FEED CUTTING FOR CAST IRON>

50° KAPR

AHX640W

P M K N S H

Fig.1
ø3.000"
ø4.000"

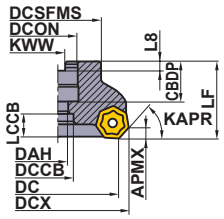


Fig.2
ø5.000"
ø6.000"

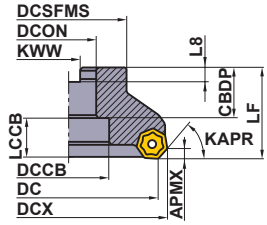


Fig.3
ø8.000"
ø10.000"

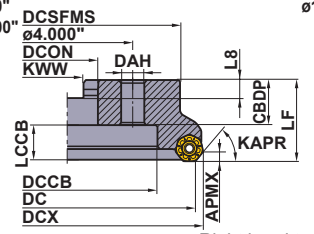
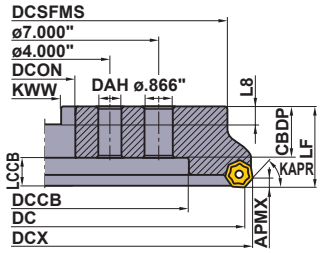


Fig.4
ø12.000"



Right hand tool holder shown.

DC=Inch size, DCON=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(lbs)	APMX
3.000	**AHX640WR0308D**	●	N	8	R	2.500	3.494	1.250	1	4.2	.236
	AHX640WL0308D	□	N	8	L	2.500	3.494	1.250	1	4.2	.236
	AHX640WR0310D	●	N	10	R	2.500	3.494	1.250	1	4.2	.236
	AHX640WL0310D	□	N	10	L	2.500	3.494	1.250	1	4.2	.236
4.000	**AHX640WR0410E**	●	N	10	R	2.500	4.494	1.500	1	7.3	.236
	AHX640WL0410E	□	N	10	L	2.500	4.494	1.500	1	7.3	.236
	AHX640WR0414E	●	N	14	R	2.500	4.494	1.500	1	7.3	.236
	AHX640WL0414E	□	N	14	L	2.500	4.494	1.500	1	7.3	.236
5.000	**AHX640WR0512E**	●	N	12	R	2.500	5.494	1.500	2	8.8	.236
	AHX640WL0512E	□	N	12	L	2.500	5.494	1.500	2	8.8	.236
	AHX640WR0518E	●	N	18	R	2.500	5.494	1.500	2	8.8	.236
	AHX640WL0518E	□	N	18	L	2.500	5.494	1.500	2	8.8	.236
6.000	**AHX640WR0614F**	●	N	14	R	2.500	6.494	2.000	2	12.6	.236
	AHX640WL0614F	□	N	14	L	2.500	6.494	2.000	2	12.6	.236
	AHX640WR0620F	●	N	20	R	2.500	6.494	2.000	2	12.6	.236
	AHX640WL0620F	□	N	20	L	2.500	6.494	2.000	2	12.6	.236

* N=No

Note 1) Set bolt not included.

Fig.1
ø3.000"
ø4.000"

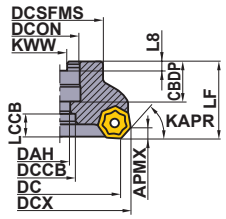


Fig.2
ø5.000"
ø6.000"

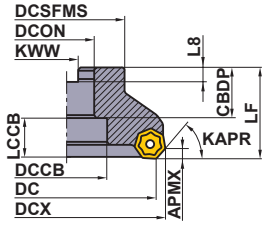


Fig.3
ø8.000"
ø10.000"

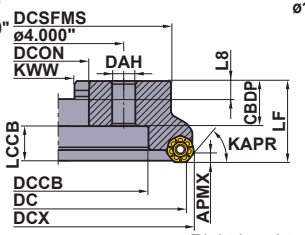
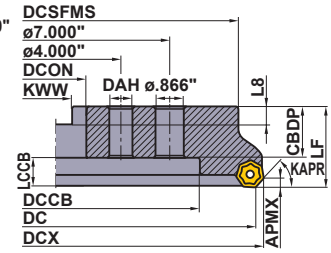


Fig.4
ø12.000"



Right hand tool holder shown.

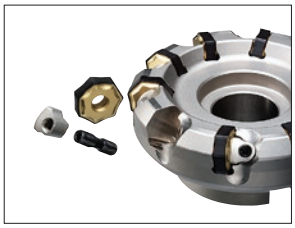
DC=Inch size, DCON=Inch size

(inch)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(lbs)	APMX
8.000	**AHX640WR0820M**	●	N	20	R	2.500	8.494	2.500	3	19.6	.236
	AHX640WL0820M	□	N	20	L	2.500	8.494	2.500	3	19.6	.236
	AHX640WR0828M	●	N	28	R	2.500	8.494	2.500	3	19.6	.236
	AHX640WL0828M	□	N	28	L	2.500	8.494	2.500	3	19.6	.236
10.000	**AHX640WR1024M**	●	N	24	R	2.500	10.494	2.500	3	32.0	.236
	AHX640WL1024M	□	N	24	L	2.500	10.494	2.500	3	32.0	.236
	AHX640WR1036M	●	N	36	R	2.500	10.494	2.500	3	32.0	.236
	AHX640WL1036M	□	N	36	L	2.500	10.494	2.500	3	32.0	.236
12.000	**AHX640WR1228M**	●	N	28	R	2.500	12.494	2.500	4	49.2	.236
	AHX640WL1228M	□	N	28	L	2.500	12.494	2.500	4	49.2	.236
	AHX640WR1242M	●	N	42	R	2.500	12.494	2.500	4	49.2	.236
	AHX640WL1242M	□	N	42	L	2.500	12.494	2.500	4	49.2	.236

* N=No

Note 1) Set bolt not included.



SPARE PARTS

Tool Holder Number	 Wedge	*  Clamp Screw	 Wrench
AHX640W Type	CWAHX640WN	LS0622T	TKY15T

* Clamp Torque (lbf-in) : LS0622T=53

ISO13399	➤ K003
MOUNTING DIMENSION	➤ K092
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

Metric Standard

For inch arbors

Fig.1
ø80

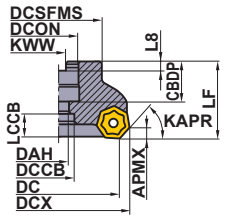


Fig.2
ø100
ø125
ø160

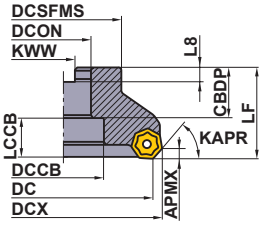


Fig.3
ø200
ø250

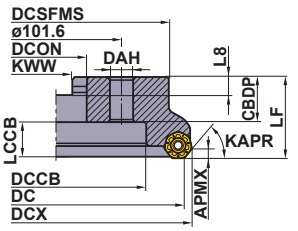
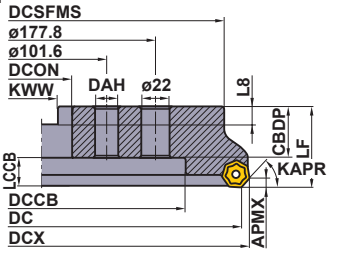


Fig.4
ø315



Right hand tool holder shown.

DC=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640WR08008C**	★	N	8	R	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WL08008C	★	N	8	L	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WR08010C	★	N	10	R	50	92.6	25.4 [1.0"]	1	1.5	6
	AHX640WL08010C	★	N	10	L	50	92.6	25.4 [1.0"]	1	1.5	6
100	**AHX640WR10010D**	★	N	10	R	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WL10010D	★	N	10	L	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WR10014D	★	N	14	R	50	112.6	31.75 [1.25"]	2	2.1	6
	AHX640WL10014D	★	N	14	L	50	112.6	31.75 [1.25"]	2	2.1	6
125	**AHX640WR12512E**	★	N	12	R	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WL12512E	★	N	12	L	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WR12518E	★	N	18	R	63	137.6	38.1 [1.50"]	2	3.5	6
	AHX640WL12518E	★	N	18	L	63	137.6	38.1 [1.50"]	2	3.5	6
160	**AHX640WR16016F**	★	N	16	R	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WL16016F	★	N	16	L	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WR16022F	★	N	22	R	63	172.6	50.8 [2.0"]	2	5.6	6
	AHX640WL16022F	★	N	22	L	63	172.6	50.8 [2.0"]	2	5.6	6
200	**AHX640WR20020K**	★	N	20	R	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WL20020K	★	N	20	L	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WR20028K	★	N	28	R	63	212.6	47.625 [1.875"]	3	9.0	6
	AHX640WL20028K	★	N	28	L	63	212.6	47.625 [1.875"]	3	9.0	6
250	**AHX640WR25024K**	★	N	24	R	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WL25024K	★	N	24	L	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WR25036K	★	N	36	R	63	262.6	47.625 [1.875"]	3	14.4	6
	AHX640WL25036K	★	N	36	L	63	262.6	47.625 [1.875"]	3	14.4	6
315	**AHX640WR31528P**	★	N	28	R	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WL31528P	★	N	28	L	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WR31544P	★	N	44	R	63	327.6	47.625 [1.875"]	4	23.8	6
	AHX640WL31544P	★	N	44	L	63	327.6	47.625 [1.875"]	4	23.8	6

★ N=No

Note 1) Set bolt not included.

Metric Standard

For metric arbors

Fig.1
ø80

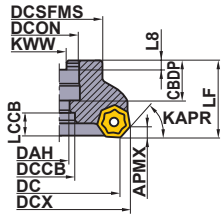


Fig.2
ø100
ø125

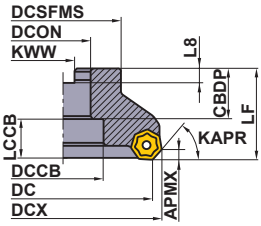


Fig.3
ø160

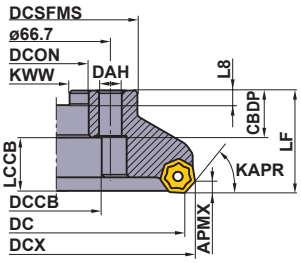


Fig.4
ø200
ø250

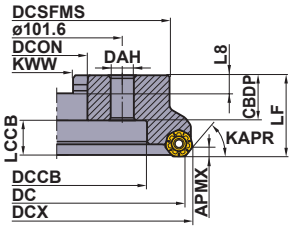
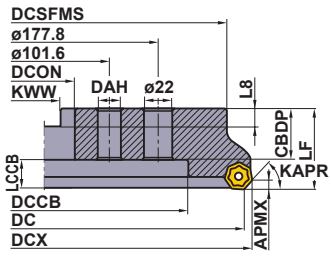


Fig.5
ø315



Right hand tool holder shown.

DC=mm size, DCON=mm size

(mm)

DC	Order Number	Stock	* Coolant Thru	Number of Teeth	Type	LF	DCX	DCON	Fig.	WT(kg)	APMX
80	**AHX640W-080A08R**	★	N	8	R	50	92.6	27	1	1.5	6
	AHX640W-080A08L	★	N	8	L	50	92.6	27	1	1.5	6
	AHX640W-080A10R	★	N	10	R	50	92.6	27	1	1.5	6
	AHX640W-080A10L	★	N	10	L	50	92.6	27	1	1.5	6
100	**AHX640W-100B10R**	★	N	10	R	50	112.6	32	2	2.1	6
	AHX640W-100B10L	★	N	10	L	50	112.6	32	2	2.1	6
	AHX640W-100B14R	★	N	14	R	50	112.6	32	2	2.1	6
	AHX640W-100B14L	★	N	14	L	50	112.6	32	2	2.1	6
125	**AHX640W-125B12R**	★	N	12	R	63	137.6	40	2	3.1	6
	AHX640W-125B12L	★	N	12	L	63	137.6	40	2	3.1	6
	AHX640W-125B18R	★	N	18	R	63	137.6	40	2	3.1	6
	AHX640W-125B18L	★	N	18	L	63	137.6	40	2	3.1	6
160	**AHX640W-160C16R**	★	N	16	R	63	172.6	40	3	5.6	6
	AHX640W-160C16L	★	N	16	L	63	172.6	40	3	5.6	6
	AHX640W-160C22R	★	N	22	R	63	172.6	40	3	5.6	6
	AHX640W-160C22L	★	N	22	L	63	172.6	40	3	5.6	6
200	**AHX640W-200C20R**	★	N	20	R	63	212.6	60	4	8.0	6
	AHX640W-200C20L	★	N	20	L	63	212.6	60	4	8.0	6
	AHX640W-200C28R	★	N	28	R	63	212.6	60	4	8.0	6
	AHX640W-200C28L	★	N	28	L	63	212.6	60	4	8.0	6
250	**AHX640W-250C24R**	★	N	24	R	63	262.6	60	4	12.6	6
	AHX640W-250C24L	★	N	24	L	63	262.6	60	4	12.6	6
	AHX640W-250C36R	★	N	36	R	63	262.6	60	4	12.6	6
	AHX640W-250C36L	★	N	36	L	63	262.6	60	4	12.6	6
315	**AHX640W-315C28R**	★	N	28	R	80	327.6	60	5	31.5	6
	AHX640W-315C28L	★	N	28	L	80	327.6	60	5	31.5	6
	AHX640W-315C44R	★	N	44	R	80	327.6	60	5	31.5	6
	AHX640W-315C44L	★	N	44	L	80	327.6	60	5	31.5	6

* N=No

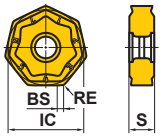
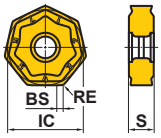
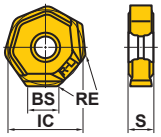
Note 1) Set bolt not included.

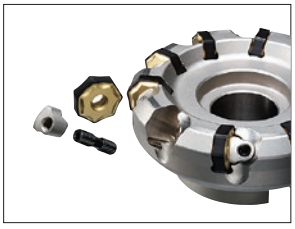
ISO13399	➤ K003
MOUNTING DIMENSION	➤ K093
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

INSERTS

Workpiece Material	K	Cast Iron

Cutting Conditions (Guide) : ● : Stable Cutting ◔ : General Cutting ✱ : Unstable Cutting
Edge Preparation : E : Round

Shape	Order Number	Class	Edge Preparation	Coated			Dimensions(inch)					Geometry
				MC5020	VP15TF	VP20RT	IC	RE	BS	S	APMX	
 General Cutting	**NNMU200608ZEN-MK**	M	E	●	●	●	.787	.031	.039	.258	.236	
 Strong Cutting Edge Type	**NNMU200608ZEN-HK**	M	E	●	●	●	.787	.031	.039	.258	.236	
 Wiper	**WNEU2006ZEN7C-WK**	E	E	●			.787	.031	.291	.258	.020	



SPARE PARTS

Tool Holder Number	 Wedge	 * Clamp Screw	 Wrench
AHX640W	CWAHX640WN	LS0622T	TKY15T

* Clamp Torque (lbf-in) : LS0622T=53

● : USA Stock
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

■ Dry·Wet Cutting

(inch)

Workpiece Material		Tensile Strength	Grade	vc (SFM)	fz (IPT)
K	Gray Cast Iron	≤350MPa	MC5020	720 (490—985)	.012 (.008—.016)
			VP15TF VP20RT	590 (425—755)	.012 (.008—.016)
	Ductile Cast Iron	≤450MPa	MC5020	655 (490—820)	.008 (.004—.012)
			VP15TF VP20RT	560 (395—720)	.008 (.004—.012)
		≤800MPa	MC5020	560 (490—655)	.008 (.004—.012)
			VP15TF VP20RT	460 (330—590)	.008 (.004—.012)

■ Finishing (Use of Wiper Inserts)

(inch)

Workpiece Material		Grade	ap	vc (SFM)	fz (IPT)
K	Gray Cast Iron	MC5020	<.0197	1050 (820—1310)	.008 (.004—.012)
			.0197—.118	855 (655—1150)	
	Ductile Cast Iron		<.0197	855 (655—1150)	
			.0197—.118	720 (655—820)	

*In the case of IPR > .236 IPR, it is possible to use 2 or 3 wiper inserts for finish machining.

Note 1) With reference to the above examples, adjust the cutting conditions according to the use environment.
Note 2) Tool life when wet cutting is short compared to dry cutting.

AHX640W Mounting Dimension

Fig.1

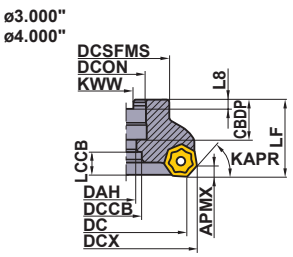


Fig.2

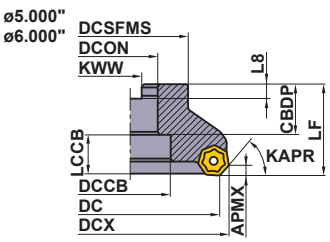


Fig.3

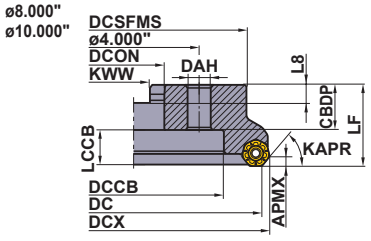
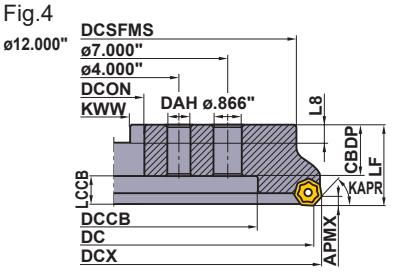


Fig.4



Right hand tool holder shown.

(inch)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.250	3.000	**AHX640WL0308D**	1.260	.669	1.024	.800	2.87	.500	.281	1
1.250	3.000	**AHX640WL0310D**	1.260	.669	1.024	.800	2.87	.500	.281	1
1.250	3.000	**AHX640WR0308D**	1.260	.669	1.024	.800	2.87	.500	.281	1
1.250	3.000	**AHX640WR0310D**	1.260	.669	1.024	.800	2.87	.500	.281	1
1.500	4.000	**AHX640WL0410E**	1.181	.787	1.181	.879	3.80	.625	.375	1
1.500	4.000	**AHX640WL0414E**	1.181	.787	1.181	.879	3.80	.625	.375	1
1.500	4.000	**AHX640WR0410E**	1.181	.787	1.181	.879	3.80	.625	.375	1
1.500	4.000	**AHX640WR0414E**	1.181	.787	1.181	.879	3.80	.625	.375	1
1.500	5.000	**AHX640WL0512E**	1.378	—	2.362	1.076	3.80	.625	.375	2
1.500	5.000	**AHX640WL0518E**	1.378	—	2.362	1.076	3.80	.625	.375	2
1.500	5.000	**AHX640WR0512E**	1.378	—	2.362	1.076	3.80	.625	.375	2
1.500	5.000	**AHX640WR0518E**	1.378	—	2.362	1.076	3.80	.625	.375	2
2.000	6.000	**AHX640WL0614F**	1.496	—	3.150	.958	4.72	.750	.437	2
2.000	6.000	**AHX640WL0620F**	1.496	—	3.150	.958	4.72	.750	.437	2
2.000	6.000	**AHX640WR0614F**	1.496	—	3.150	.958	4.72	.750	.437	2
2.000	6.000	**AHX640WR0620F**	1.496	—	3.150	.958	4.72	.750	.437	2
2.500	8.000	**AHX640WL0820M**	1.378	—	5.512	1.076	6.89	1.000	.560	3
2.500	8.000	**AHX640WL0828M**	1.378	—	5.512	1.076	6.89	1.000	.560	3
2.500	8.000	**AHX640WR0820M**	1.378	—	5.512	1.076	6.89	1.000	.560	3
2.500	8.000	**AHX640WR0828M**	1.378	—	5.512	1.076	6.89	1.000	.560	3
2.500	10.000	**AHX640WL1024M**	1.378	—	7.087	1.076	8.66	1.000	.560	3
2.500	10.000	**AHX640WL1036M**	1.378	—	7.087	1.076	8.66	1.000	.560	3
2.500	10.000	**AHX640WR1024M**	1.378	—	7.087	1.076	8.66	1.000	.560	3
2.500	10.000	**AHX640WR1036M**	1.378	—	7.087	1.076	8.66	1.000	.560	3
2.500	12.000	**AHX640WL1228M**	1.575	—	9.646	.879	11.22	1.000	.560	4
2.500	12.000	**AHX640WL1242M**	1.575	—	9.646	.879	11.22	1.000	.560	4
2.500	12.000	**AHX640WR1228M**	1.575	—	9.646	.879	11.22	1.000	.560	4
2.500	12.000	**AHX640WR1242M**	1.575	—	9.646	.879	11.22	1.000	.560	4

AHX640W Mounting Dimension

Fig.1

ø80

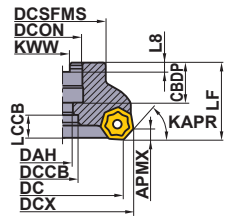


Fig.2

ø100
ø125
ø160

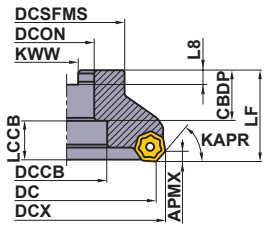


Fig.3

ø160

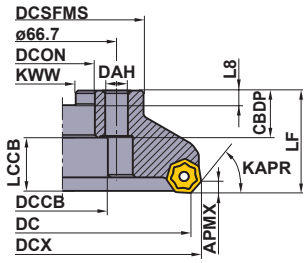


Fig.4

ø200
ø250

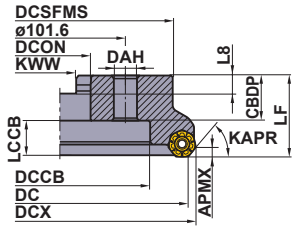
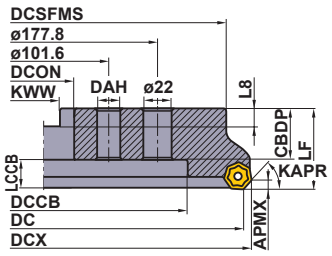


Fig.5

ø315



Right hand tool holder shown.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
25.4	80	**AHX640WL08008C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WL08010C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WR08008C**	26	13	20	14.8	56	9.5	6	1
25.4	80	**AHX640WR08010C**	26	13	20	14.8	56	9.5	6	1
27	80	**AHX640W-080A08L**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A08R**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A10L**	23	13	20	14.8	56	12.4	7	1
27	80	**AHX640W-080A10R**	23	13	20	14.8	56	12.4	7	1
31.75	100	**AHX640WL10010D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WL10014D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WR10010D**	32	—	45	16.8	70	12.7	8	2
31.75	100	**AHX640WR10014D**	32	—	45	16.8	70	12.7	8	2
32	100	**AHX640W-100B10L**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B10R**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B14L**	32	—	45	16.8	70	14.4	8	2
32	100	**AHX640W-100B14R**	32	—	45	16.8	70	14.4	8	2
38.1	125	**AHX640WL12512E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WL12518E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WR12512E**	35	—	56	26.8	80	15.9	10	2
38.1	125	**AHX640WR12518E**	35	—	56	26.8	80	15.9	10	2
40	125	**AHX640W-125B12L**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B12R**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B18L**	32	—	56	29.8	80	16.4	9	2
40	125	**AHX640W-125B18R**	32	—	56	29.8	80	16.4	9	2
40	160	**AHX640W-160C16L**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C16R**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C22L**	29	14	56	32.8	100	16.4	9	3
40	160	**AHX640W-160C22R**	29	14	56	32.8	100	16.4	9	3

AHX640W Mounting Dimension

Fig.1

ø80

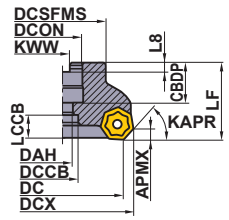


Fig.2

ø100
ø125
ø160

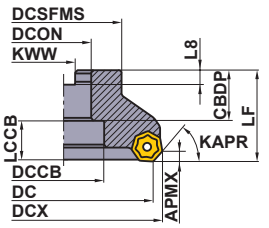


Fig.3

ø160

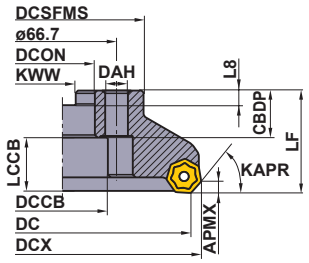


Fig.4

ø200
ø250

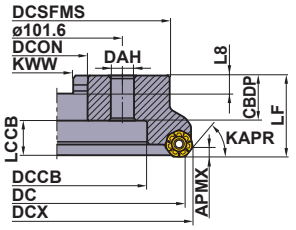
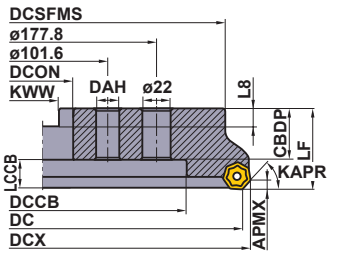


Fig.5

ø315



Right hand tool holder shown.

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
47.625	200	**AHX640WL20020K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WL20028K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WR20020K**	35	18	140	26.8	175	25.4	14.22	4
47.625	200	**AHX640WR20028K**	35	18	140	26.8	175	25.4	14.22	4
47.625	250	**AHX640WL25024K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WL25036K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WR25024K**	35	18	180	26.8	220	25.4	14.22	4
47.625	250	**AHX640WR25036K**	35	18	180	26.8	220	25.4	14.22	4
47.625	315	**AHX640WL31528P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WL31544P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WR31528P**	40	18	225	21.8	285	25.4	14.22	5
47.625	315	**AHX640WR31544P**	40	18	225	21.8	285	25.4	14.22	5
50.8	160	**AHX640WL16016F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WL16022F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WR16016F**	38	—	72	23.8	100	19.1	11	2
50.8	160	**AHX640WR16022F**	38	—	72	23.8	100	19.1	11	2
60	200	**AHX640W-200C20L**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C20R**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C28L**	32	18	135	29.8	155	25.7	14	4
60	200	**AHX640W-200C28R**	32	18	135	29.8	155	25.7	14	4
60	250	**AHX640W-250C24L**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C24R**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C36L**	32	18	180	29.8	200	25.7	14	4
60	250	**AHX640W-250C36R**	32	18	180	29.8	200	25.7	14	4
60	315	**AHX640W-315C28L**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C28R**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C44L**	57	18	225	21.8	285	25.7	14	5
60	315	**AHX640W-315C44R**	57	18	225	21.8	285	25.7	14	5

FACE MILLING
<HIGH EFFICIENCY CUTTING FOR CAST IRON>

45° KAPR

AOX445

P M **K** N S H

Fig.1
ø63

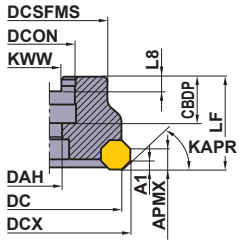
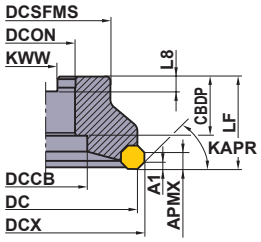


Fig.2
ø80
ø100
ø125
ø160



Metric Standard

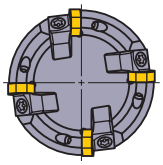
■ ARBOR TYPE

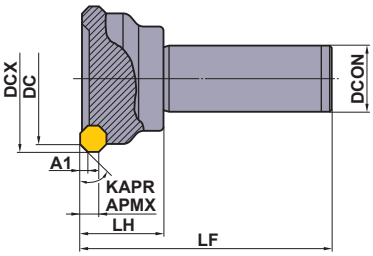
Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) [inch] DC	DCX	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8	WT (kg)	Max. Depth of Cut (mm) A1	APMX	Max. Spindle Speed (min^{-1})	Fig.
Coarse Pitch	AOX445-063A04R	★	4	63	70.75	40	22	20	11	—	50	10.4	6.3	0.6	3	8	12000	1
	AOX445R08006C	★	6	80	87.73	50	25.4 [1.0"]	26	—	38	60	9.5	6	1.2	3	8	11000	2
	AOX445R10008D	★	8	100	107.73	50	31.75 [1.25"]	32	—	45	70	12.7	8	1.8	3	8	9300	2
	AOX445R12510E	★	10	125	132.71	63	38.1 [1.5"]	35	—	60	80	15.9	10	3.0	3	8	8300	2
	AOX445R16012F	★	12	160	167.71	63	50.8 [2.0"]	38	—	80	100	19.1	11	4.9	3	8	7200	2

Note 1) When machining with a depth of cut of over 3 mm, 16 corners cannot be used.

Metric Standard



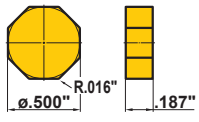


■ SHANK TYPE

Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	DCX	LF	DCON	LH	WT (kg)	Max. Depth of Cut (mm) A1	APMX	Max. Spindle Speed (min^{-1})
Coarse Pitch	AOX445R503S32	★	3	50	57.75	125	32	40	1.1	3	8	13000
	AOX445R634S32	★	4	63	70.75	125	32	40	1.4	3	8	12000

INSERTS

Order Number	Class	CBN BC5030	Geometry
SL-ONEN120404ASN	E	★	

SPARE PARTS

Tool Holder Number	Wedge	Clamp Screw *	Wrench
AOX445	CWAOX445N	LS15T	TKY25T

* Clamp Torque (lbf-in) : LS15T=71

RECOMMENDED CUTTING CONDITIONS

Workpiece Material		Tensile Strength	Grade	Cutting Speed (SFM)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	BC5030	3280 (2625—4920)	.004 (.002—.006)
		250—350 MPa			

★ : Stocked in Japan
<1 insert in one case for CBN>

FACE MILLING
<HIGH FEED FINISHING>

90° KAPR F

FMAX

P M K N S H

Fig.1
ø3.000"
ø4.000"

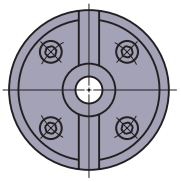
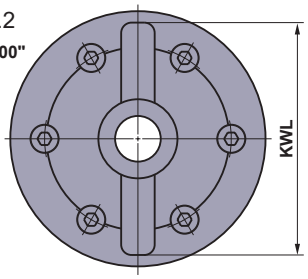
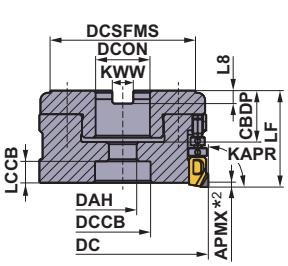
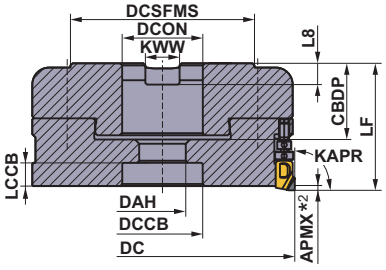


Fig.2
ø5.000"







■ ARBOR TYPE

DC=inch size, DCON=Inch size

Right hand tool holder only.

(inch)

DC	Order Number	Stock	*1 Coolant Thru	Number of Teeth	LF	DCON	WT (lbs)	RPMX (min-1)	Fig.
3.000	**FMAXUR0310C**	●	Y	10	1.772	1.000	2.2	24500	1
3.000	**FMAXUR0314C**	●	Y	14	1.772	1.000	2.1	24500	1
4.000	**FMAXUR0412D**	●	Y	12	1.969	1.250	4.2	22000	1
4.000	**FMAXUR0418D**	●	Y	18	1.969	1.250	4.1	22000	1
5.000	**FMAXUR0516E**	●	Y	16	2.362	1.500	7.6	19600	2
5.000	**FMAXUR0524E**	●	Y	24	2.362	1.500	7.5	19600	2

*1 Y=Yes

*2 For the maximum depth of cut (**APMX**), please refer to recommended cutting conditions (**ap**).

Note 1) The maximum depth of cut for should be .079 inch or less for ultra high efficiency machining with table feed (**vf** ≥ 787 IPM).

MOUNTING DIMENSIONS

(inch)

DCON	DC	Tool Holder Type	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	KWL	Fig.
1.000	3.000	**FMAXUR03**	.945	.539	1.024	.433	2.677	.375	.219	—	1
1.250	4.000	**FMAXUR04**	1.260	.669	1.260	.394	3.465	.500	.281	—	1
1.500	5.000	**FMAXUR05**	1.417	.787	1.496	.472	3.465	.625	.375	4.409	2

SPARE PARTS

(inch)

DC	Tool Holder Type	Insert Clamp Screw *	Micro Adjustment Nut	Large Adjustment Screw	Cutter Set Bolt	Wrench T10	Wrench ø.098"
							
3.000	**FMAXUR03**	TSS04505S	KSN3	KSS2	HSCXU50012H	TKY10T	RKY25S
4.000	**FMAXUR04**	TSS04505S	KSN3	KSS2	HSCXU62514H	TKY10T	RKY25S
5.000	**FMAXUR05**	TSS04505S	KSN3	KSS2	HSCXU75017H	TKY10T	RKY25S

* Clamp Torque (lbf-in) : TSS04505S=31

Note 1) Please refer to the instruction manual included in the cutter body for how to locate the insert and adjust the run-out and the balance.

Note 2) The cutter body includes a set bolt for an arbor.

FMAX

For Compact and Smaller Machining Centers

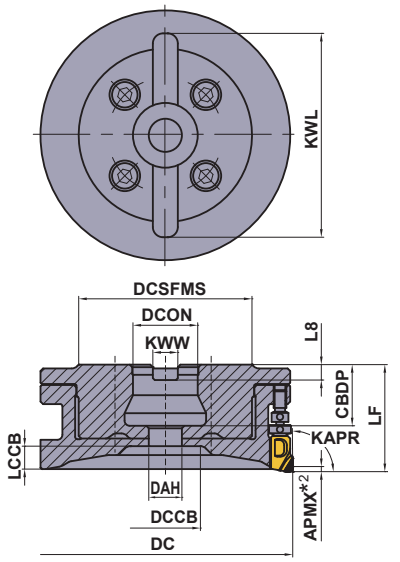
P | M | **K** | **N** | S | H

Metric Standard

For Inch Arbors

Fig.1

ø100
ø125



Right hand tool holder only.

■ARBOR TYPE

DC=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	LF	DCON	WT (kg)	RPMX (min-1)	Fig.
100	**FMAXR10010CLW**	★	Y	10	42	25.4	1.06	22000	1
100	**FMAXR10016CLW**	★	Y	16	42	25.4	1.11	22000	1
125	**FMAXR12514CLW**	★	Y	14	42	25.4	1.44	19600	1
125	**FMAXR12520CLW**	★	Y	20	42	25.4	1.48	19600	1

∗1 Y=Yes

∗2 For the maximum depth of cut (**APMX**), please refer to recommended cutting conditions (**ap**).

Note 1) The maximum depth of cut for should be 2 mm or less for ultra high efficiency machining with table feed (**vf** ≥ 20000 mm/min).

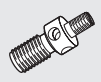
MOUNTING DIMENSIONS

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	KWL	Fig.
25.4	100	**FMAXR10010CLW**	24	13	27	9	68	9.5	6	80	1
25.4	100	**FMAXR10016CLW**	24	13	27	9	68	9.5	6	80	1
25.4	125	**FMAXR12514CLW**	24	13	52	9	68	9.5	6	80	1
25.4	125	**FMAXR12520CLW**	24	13	52	9	68	9.5	6	80	1

SPARE PARTS

(mm)

Insert Clamp Screw *	Micro Adjustment Nut	Large Adjustment Screw	Cutter Set Bolt	Wrench T10	Wrench ø2.5
					
TSS04505S	KSN3	KSS2	HSCX12030H	TKY10T	RKY25S

∗ Clamp Torque (lbf-in) : TSS04505S = 31

Note 1) Please refer to the instruction manual included in the cutter body for how to locate the insert and adjust the run-out and the balance.

Note 2) The cutter body includes a set bolt for an arbor.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

FMAX-40/50/63

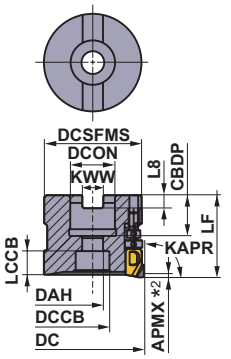
P M **K** **N** S H

Metric Standard

For Metric Arbors

Fig.1

ø40
ø50
ø63



Right hand tool holder only.

■ARBOR TYPE

DC=mm size, DCON=mm size

(mm)

DC	Order Number	Stock	∗1 Coolant Thru	Number of Teeth	LF	DCON	WT (kg)	RPMX (min^{-1})	Fig.
40	**FMAX-040A04R**	★	Y	4	40	16	0.24	30000	1
40	**FMAX-040A06R**	★	Y	6	40	16	0.23	30000	1
50	**FMAX-050A08R**	★	Y	8	40	22	0.37	30000	1
50	**FMAX-050A10R**	★	Y	10	40	22	0.35	30000	1
63	**FMAX-063A10R**	★	Y	10	40	22	0.67	27000	1
63	**FMAX-063A12R**	★	Y	12	40	22	0.66	27000	1

∗1 Y=Yes

∗2 For the maximum depth of cut (**APMX**), please refer to recommended cutting conditions (**ap**).

Note 1) The maximum depth of cut for should be 2 mm or less for ultra high efficiency machining with table feed (**vf** ≥ 20000 mm/min).

MOUNTING DIMENSIONS

(mm)

DCON	DC	Tool Holder Type	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	KWL	Fig.
16	40	**FMAX-040**	18	9	14	10	37	8.4	5.6	—	1
22	50	**FMAX-050**	20	11	17	12	47	10.4	6.3	—	1
22	63	**FMAX-063**	20	11	17	12	60	10.4	6.3	—	1

SPARE PARTS

(mm)

DC	Tool Holder Type	Insert Clamp Screw ∗	Micro Adjustment Nut	Cutter Set Bolt	Wrench T10	Wrench ø2.5
						
40	**FMAX-040**	TSS04505S	KSN3	HSC08030H	TKY10T	RKY25S
50	**FMAX-050**	TSS04505S	KSN3	HSC10030H	TKY10T	RKY25S
63	**FMAX-063**	TSS04505S	KSN3	HSC10030H	TKY10T	RKY25S

∗ Clamp Torque (lbf-in) : TSS04505S = 31

Note 1) Please refer to the instruction manual included in the cutter body for how to locate the insert and adjust the run-out and the balance.

Note 2) The cutter body includes a set bolt for an arbor.

FMAX

P M **K** **N** S H

Metric Standard

For Inch Arbors

Fig.1
ø80

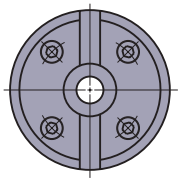
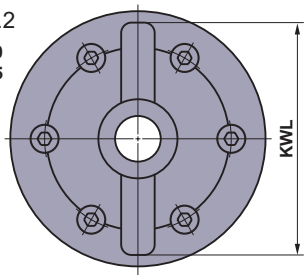
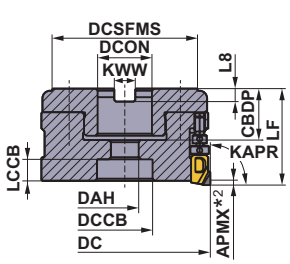
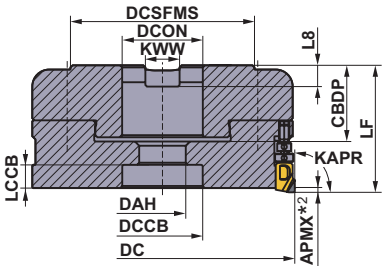


Fig.2
ø100
ø125







Right hand tool holder only.

■ARBOR TYPE

DC=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock	*1 Coolant Thru	Number of Teeth	LF	DCON	WT (kg)	RPMX (min^{-1})	Fig.
80	**FMAXR08010C**	★	Y	10	45	25.4 [1.00"]	1.11	24500	1
80	**FMAXR08014C**	★	Y	14	45	25.4 [1.00"]	1.09	24500	1
100	**FMAXR10012D**	★	Y	12	50	31.75 [1.25"]	1.85	22000	2
100	**FMAXR10018D**	★	Y	18	50	31.75 [1.25"]	1.81	22000	2
125	**FMAXR12516E**	★	Y	16	60	38.1 [1.50"]	3.33	19600	2
125	**FMAXR12524E**	★	Y	24	60	38.1 [1.50"]	3.27	19600	2
NEW 160	**FMAXR16016D**	★	Y	16	63	31.75	3.30	10000	1
NEW 160	**FMAXR16024D**	★	Y	24	63	31.75	3.39	10000	1

*1 Y=Yes

*2 For the maximum depth of cut (**APMX**), please refer to recommended cutting conditions (**ap**).

Note 1) The maximum depth of cut for should be 2mm or less for ultra high efficiency machining with table feed (**vf** ≥ 20000mm/min).

MOUNTING DIMENSIONS

(mm)

DCON	DC	Order Number	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	KWL	Fig.
25.4	80	**FMAXR08010C**	24	13	26	11	68	9.5	6	—	1
25.4	80	**FMAXR08014C**	24	13	26	11	68	9.5	6	—	1
31.75	100	**FMAXR10012D**	32	17	32	10	79	12.7	8	90	2
31.75	100	**FMAXR10018D**	32	17	32	10	79	12.7	8	90	2
38.1	125	**FMAXR12516E**	36	22	38	12	88	15.9	10	112	2
38.1	125	**FMAXR12524E**	36	22	38	12	88	15.9	10	112	2
31.75	160	**FMAXR16016D**	38	17	53	10	75	12.7	8	—	1
31.75	160	**FMAXR16024D**	38	17	53	10	75	12.7	8	—	1

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

SPARE PARTS

(mm)

DC	Tool Holder Type	Insert Clamp* Screw	Micro Adjustment Nut	Large Adjustment Screw	Cutter Set Bolt	Wrench T10	Wrench ø2.5
							
80	**FMAXR080**	TSS04505S	KSN3	KSS2	HSCX12030H	TKY10T	RKY25S
100	**FMAXR100**	TSS04505S	KSN3	KSS2	HSCX16035H	TKY10T	RKY25S
125	**FMAXR125**	TSS04505S	KSN3	KSS2	HSCX20035H	TKY10T	RKY25S
160	**FMAXR160**	TSS04505S	KSN3	KSS2	HSCX16045H	TKY10T	RKY25S

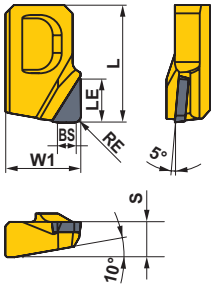
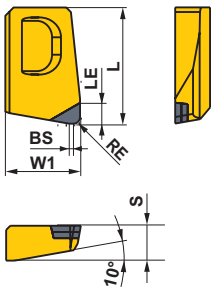
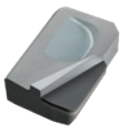
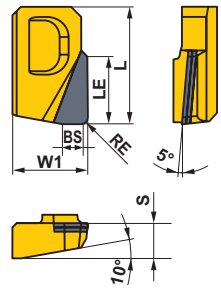
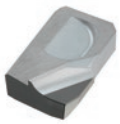
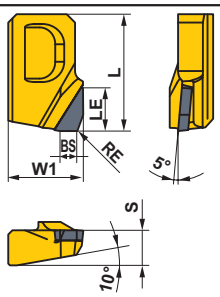
* Clamp Torque (lbf-in) : TSS04505S = 31

Note 1) Please refer to the instruction manual included in the cutter body for how to locate the insert and adjust the run-out and the balance.

Note 2) The cutter body includes a set bolt for an arbor.

INSERTS

(inch)

Workpiece Material			MD220	MD2030	MB4120	Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting						
	K	Cast Iron	◐	◐	◐							
	N	Non-ferrous Metal										
Shape	Order Number					L	LE	W1	S	BS	RE	Geometry
For Aluminum Alloys  General Purpose	**GOER1404PXFR2**		●	●		.551	.197	.354	.165	.079	.016	
	GOER1408PXFR2		●	●		.551	.197	.354	.165	.079	.031	
For Gray Cast Iron NEW  General Purpose	**NP-GOEN1404PXSR05**				●	.551	.098	.354	.165	.020	.016	
	NP-GOEN1408PXSR05				●	.551	.098	.354	.165	.020	.031	
For Aluminum Alloys  Long Edge	**GOER1408PXFR2-8**		●			.551	.315	.354	.165	.079	.031	
For Aluminum Alloys  Burr Prevention	**GOER1401ZXFR2**		●			.551	.197"	.354	.165	.079	.004	

For Aluminum Alloys : Sharp Edge
For Gray Cast Iron : Chamfered and Rounded (0.13mmx15°+R0.01)

Note 1) If general purpose inserts (RE = .016", .031"), burr prevention inserts and long edge inserts are used together, they will not be able to sufficiently display their full performance. Inserts of the same shape should be used according to the application.
Note 2) The cutting diameter will change depending on the shape.
Be particularly careful when cutting near vertical walls, since there is a possibility of interference with the holder.
Note 3) The long edge inserts corresponds to the gate remainder and can not be used for constant depth cutting.

● : USA Stock
<PCD inserts are available with 1 piece in one case.>

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting

(inch)

Workpiece Material		Properties	Grade	Cutting Speed **vc** (SFM)	Depth of Cut		Feed per Tooth **fz** (IPT)	Cutting Mode
					ae	**ap**		
K	Gray Cast Iron	Tensile Strength ≤350MPa	**MB4120**	3280 (2295—4265)	≤ 0.8 DC	≤ .020	.003 (.002—.006)	Dry
N	Aluminum Alloys	Content Si < 5%	**MD2030 MD220**	8200 (6560—9840)	≤ 0.2 DC	≤ .118 (.020—.118)	.003 (.002—.008)	Wet
					≤ 0.5 DC	≤ .098 (.020—.098)		
					≤ 0.8 DC	≤ .079 (.020—.079)		
		Content 5% ≤ Si ≤ 10%	**MD2030 MD220**	8200 (6560—9840)	≤ 0.2 DC	≤ .118 (.020—.118)	.003 (.002—.008)	Wet
					≤ 0.5 DC	≤ .098 (.020—.098)		
					≤ 0.8 DC	≤ .079 (.020—.079)		
		Content 10% < Si < 15%	**MD220 MD2030**	1970 (1310—2625)	≤ 0.2 DC	≤ .118 (.020—.118)	.003 (.002—.008)	Wet
					≤ 0.5 DC	≤ .098 (.020—.098)		
					≤ 0.8 DC	≤ .079 (.020—.079)		
		Content Si ≥ 15%	**MD220 MD2030**	1970 (1310—2625)	≤ 0.2 DC	≤ .118 (.020—.118)	.003 (.002—.008)	Wet
					≤ 0.5 DC	≤ .098 (.020—.098)		
					≤ 0.8 DC	≤ .079 (.020—.079)		

Note 1) Please adjust the depth of cut **ap** depending on the width of cut **ae**.

Note 2) When using the long edge insert, please select the conditions depending on depths of cut (**ap**) excluding the length of the gate.

FACE MILLING

<HIGH EFFICIENCY CUTTING FOR CAST IRON>

84° KAPR

F R

WSF406W NEW

P M K N S H

Metric Standard

Fig.1

ø80

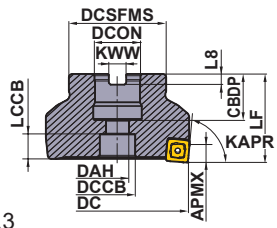


Fig.2

ø100
ø125
ø160

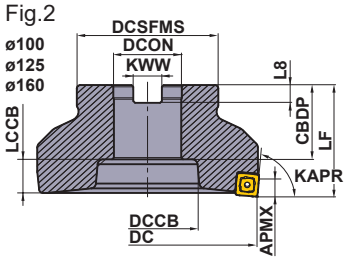
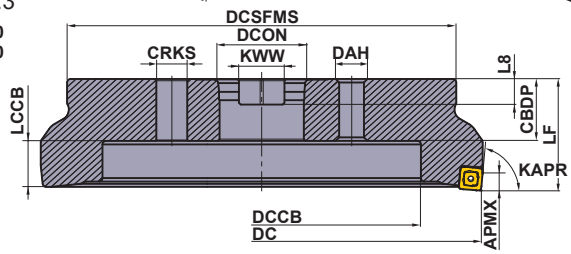


Fig.3

ø200
ø250



Right hand tool holder only.

■ARBOR TYPE

DCON=inch size

(mm)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.
80	**WSF406WR08006CN**	★	6	50	25.4	1.2	7.0	7,800	1
80	**WSF406WR08009CN**	★	9	50	25.4	1.2	7.0	7,800	1
100	**WSF406WR10008DN**	★	8	50	31.75	1.7	7.0	7,000	2
100	**WSF406WR10012DN**	★	12	50	31.75	1.7	7.0	7,000	2
125	**WSF406WR12510EN**	★	10	63	38.1	3.3	7.0	6,250	2
125	**WSF406WR12516EN**	★	16	63	38.1	3.2	7.0	6,250	2
160	**WSF406WR16014FN**	★	14	63	50.8	5	7.0	5,500	2
160	**WSF406WR16020FN**	★	20	63	50.8	4.9	7.0	5,500	2
200	**WSF406WR20016KN**	★	16	63	47.625	8.6	7.0	4,900	3
200	**WSF406WR20024KN**	★	24	63	47.625	8.5	7.0	4,900	3
250	**WSF406WR25022KN**	★	22	63	47.625	14	7.0	4,400	3
250	**WSF406WR25032KN**	★	32	63	47.625	13.9	7.0	4,400	3

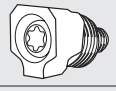
Note1) A set bolt for the arbor is not supplied with the body. Please refer to page K104 to find the correct type of set bolt to order.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	CRKS	LCCB	DCSFMS	KWW	L8	Fig.
80	**WSF406WR080**	25.4	34	13	20	—	14	55	9.5	6	1
100	**WSF406WR100**	31.75	32	—	46	—	16	70	12.7	8	2
125	**WSF406WR125**	38.1	42	—	56	—	19	80	15.9	10	2
160	**WSF406WR160**	50.8	45	—	80	—	16	100	19.1	11	2
200	**WSF406WR200**	47.625	35	18	140	M16	26	175	25.4	14.22	3
250	**WSF406WR250**	47.625	35	18	180	M16	26	220	25.4	14.22	3

SPARE PARTS

Tool Holder Type		 *		
	Wedge	Clamp Screw	Wrench	Adjustable Run-Out System
WSF406W	CWSF406N	LS0622T	TKY15T	ADW04

* Clamp Torque (lbf-in) : LS0622T = 53

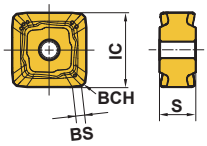
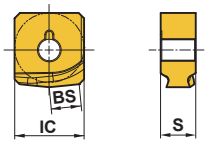
ISO13399	➤ K003
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

INSERTS

(inch)

Workpiece Material	K	Cast Iron

Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Edge Preparation : E : Round

Shape	Order Number	Class	Edge Preparation	Coated MC520	IC	S	BS	BCH	Geometry
	**SNMU1206C05ZNER-M**	M	E	★	.500	.244	.063	.020	
 Wiper	**WNGU1206ZNER5C-M**	G	E	★	.484	.244	.205	–	

How to Use Wiper Insert for Best Results

- The WSF406W can obtain a good surface finish when using a standard insert due to the adjustable run-out system, but by using a wiper insert an excellent surface finish can be achieved without having to set a high accuracy face run-out. When a wiper insert is mounted, aim to set the standard insert run-out accuracy to within .0016 inch.
- Just one wiper insert is enough to achieve excellent finished surfaces.
  However, if the feed per revolution is greater than .197 IPR, attach two or more wiper inserts so that they are evenly spaced in the cutter body and set the run-out accuracy between multiple wiper inserts to within .0001 inch before use.

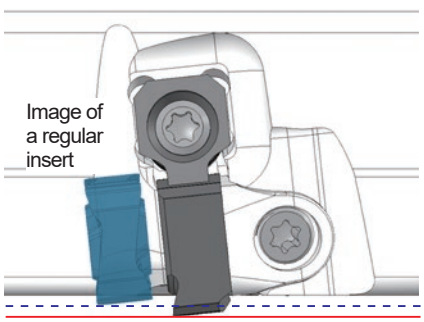


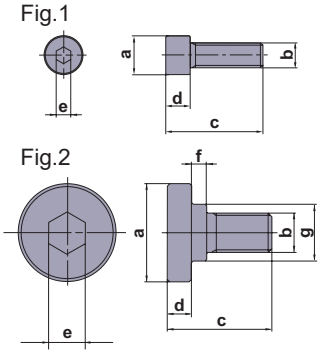
Image diagram

Regular insert cutting edge
Wiper insert cutting edge
Overhand amount should be within .0028 inch

OPTIONAL PARTS

(mm)

Tool Holder Type	Set Bolt Order Number	Fig.	a	b	c	d	e	f	g	Geometry
WSF406WR080	HSC12035	1	18	M12×1.75	47	12	10	–	–	Fig.1
WSF406WR100	–	2	40	M16×2	43	10	14	6	23	
WSF406WR125	–	2	50	M20×2.5	54	14	17	6	27	
WSF406WR160	–	2	65	M24×3	59	14	17	10	37	
WSF406WR200	–	1	24	M16×2	61-	16	14	–	–	Fig.2
WSF406WR250	–	1	24	M16×2	61-	16	14	–	–	



Note 1) Please purchase the appropriate set bolt after confirming the reference dimensions. The items with an order number listed under the Set Bolt columns are also sold by Mitsubishi Materials

★ : Stocked in Japan
<10 inserts in one case>

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

(inch)

	Workpiece Material	Properties	Cutting Conditions	Depth of Cut **ap**	Cutting Speed **vc** (SFM)	Feed per Tooth **fz** (IPT)	Width of Cut **ae**
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	ap≤.020	985(820—1150)	.005(.003—.008)	≤.8DC
				ap≤.079	820(690—985)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	720(620—850)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	655(590—755)	.004(.003—.006)	≤.8DC
			◕	ap≤.020	820(690—985)	.005(.003—.008)	≤.8DC
				ap≤.079	720(620—850)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	655(590—755)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	590(525—690)	.004(.003—.006)	≤.8DC
			✠	ap≤.020	720(620—850)	.005(.003—.008)	≤.8DC
				ap≤.079	655(590—755)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	590(525—690)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	490(330—590)	.004(.003—.006)	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	ap≤.020	755(655—820)	.005(.003—.008)	≤.8DC
				ap≤.079	655(560—755)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	590(490—690)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	525(425—620)	.004(.003—.006)	≤.8DC
			◕	ap≤.020	655(560—755)	.005(.003—.008)	≤.8DC
				ap≤.079	590(490—690)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	525(425—620)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	460(360—560)	.004(.003—.006)	≤.8DC
			✠	ap≤.020	590(490—655)	.005(.003—.008)	≤.8DC
				ap≤.079	525(425—620)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	460(360—560)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	395(295—490)	.004(.003—.006)	≤.8DC
	Ductile Cast Iron	Tensile Strength ≤800MPa	●	ap≤.020	755(655—820)	.005(.003—.008)	≤.8DC
				ap≤.079	655(560—755)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	590(490—690)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	525(425—620)	.004(.003—.006)	≤.8DC
			◕	ap≤.020	655(560—755)	.005(.003—.008)	≤.8DC
				ap≤.079	590(490—690)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	525(425—620)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	460(360—560)	.004(.003—.006)	≤.8DC
			✠	ap≤.020	590(490—690)	.005(.003—.008)	≤.8DC
				ap≤.079	525(425—620)	.006(.004—.010)	≤.8DC
				.079 <ap≤.157	460(360—560)	.005(.004—.008)	≤.8DC
				.157 <ap≤.298	395(295—490)	.004(.003—.006)	≤.8DC

Note 1) Set the cutting conditions according to the usage written on the table above.
Note 2) When using a wiper insert, the cutting conditions for the finishing area are ap≤.020 inch.

SHOULDER MILLING
<STRONG EDGE TYPE FOR CAST IRON>

90° KAPR

VOX400

P M **K** N S H

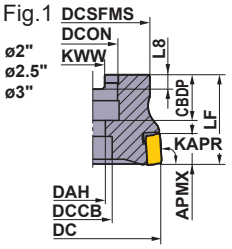
Fig.1


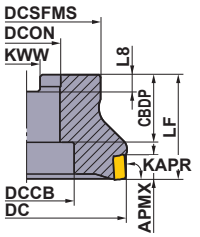
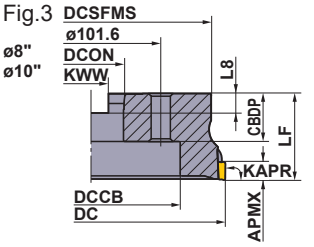
Fig.2


Fig.3


■ ARBOR TYPE

Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8	WT (lbs)	APMX (inch)	Fig.
Coarse Pitch	**VOX400UR0203C**	●	3	2.000	2.000	1.000	1.339	.539	.787	1.93	.375	.219	.8	.394	1
	VOX400UR2504C	●	4	2.500	2.000	1.000	1.339	.539	.787	2.19	.375	.219	1.7	.394	1
	VOX400UR0304C	●	4	3.000	2.000	1.000	1.339	.539	.787	2.19	.375	.219	2.2	.394	1
	VOX400UR0406E	●	6	4.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	4.3	.394	2
	VOX400UR0508E	●	8	5.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	6.0	.394	2
	VOX400UR0610F	●	10	6.000	2.500	2.000	1.024	—	3.228	4.88	.750	.437	10.2	.394	2
	VOX400UR0812M	●	12	8.000	2.500	2.500	1.378	—	5.512	6.89	1.000	.560	17.6	.394	3
	VOX400UR1016M	●	16	10.000	2.500	2.500	1.378	—	7.078	8.66	1.000	.560	29.4	.394	3
Fine Pitch	**VOX400UR0205C**	●	5	2.000	2.000	1.000	1.339	.539	.787	1.93	.375	.219	.8	.394	1
	VOX400UR2506C	●	6	2.500	2.000	1.000	1.339	.539	.787	2.19	.375	.219	1.7	.394	1
	VOX400UR0308C	●	8	3.000	2.000	1.000	1.339	.539	.787	2.19	.375	.219	2.2	.394	1
	VOX400UR0410E	●	10	4.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	4.3	.394	2
	VOX400UR0512E	●	12	5.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	6.0	.394	2
	VOX400UR0616F	●	16	6.000	2.500	2.000	1.024	—	3.228	4.88	.750	.437	10.2	.394	2
	VOX400UR0820M	●	20	8.000	2.500	2.500	1.378	—	5.512	6.89	1.000	.560	17.6	.394	3
	VOX400UR1024M	●	24	10.000	2.500	2.500	1.378	—	7.078	8.66	1.000	.560	29.4	.394	3
Extra Fine Pitch	**VOX400UR2508C**	●	8	2.500	2.000	1.000	1.024	.539	.787	2.19	.375	.219	1.5	.394	1
	VOX400UR0310C	●	10	3.000	2.000	1.000	1.024	.539	.787	2.19	.375	.219	2.0	.394	1
	VOX400UR0412E	●	12	4.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	4.1	.394	2
	VOX400UR0516E	●	16	5.000	2.000	1.500	1.024	—	2.205	3.81	.625	.375	5.6	.394	2
	VOX400UR0620F	●	20	6.000	2.500	2.000	1.024	—	3.228	4.88	.750	.437	9.8	.394	2
	VOX400UR0826M	●	26	8.000	2.500	2.500	1.378	—	5.512	6.89	1.000	.560	17.1	.394	3
	VOX400UR1034M	●	34	10.000	2.500	2.500	1.378	—	7.087	8.66	1.000	.560	28.7	.394	3

Note 1) Set bolt not included.

● : USA Stock ★ : Stocked in Japan

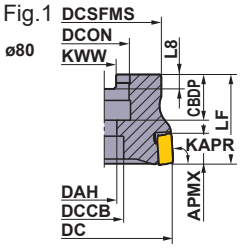
Fig.1


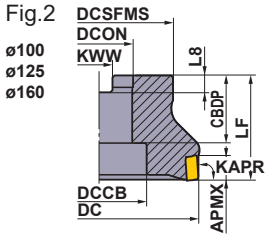
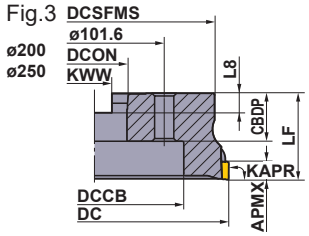
Fig.2


Fig.3


Right hand tool holder only.

Metric Standard

For inch arbors

■ ARBOR TYPE

Type	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]										WT (kg)	APMX (mm)	Fig.
		R		DC	LF	DCON		CBDP	DAH	DCCB	DCSFMS	KWW	L8			
Coarse Pitch	**VOX400R08004C**	★	4	80	50	25.4	[1.0"]	26	13	20	55	9.5	6	1.0	10	1
	VOX400R10006D	★	6	100	50	31.75	[1.25"]	32	—	45	70	12.7	8	1.5	10	2
	VOX400R12508E	★	8	125	63	38.1	[1.5"]	40	—	60	80	15.9	10	2.7	10	2
	VOX400R16010F	★	10	160	63	50.8	[2.0"]	43	—	80	120	19.1	11	5.3	10	2
	VOX400R20012K	★	12	200	63	47.625	[1.875"]	35	—	130	175	25.4	14.22	8.5	10	3
	VOX400R25016K	★	16	250	63	47.625	[1.875"]	35	—	180	220	25.4	14.22	13.3	10	3
Fine Pitch	**VOX400R08008C**	★	8	80	50	25.4	[1.0"]	26	13	20	55	9.5	6	1.0	10	1
	VOX400R10010D	★	10	100	50	31.75	[1.25"]	32	—	45	70	12.7	8	1.5	10	2
	VOX400R12512E	★	12	125	63	38.1	[1.5"]	40	—	60	80	15.9	10	2.7	10	2
	VOX400R16016F	★	16	160	63	50.8	[2.0"]	43	—	80	120	19.1	11	5.3	10	2
	VOX400R20020K	★	20	200	63	47.625	[1.875"]	35	—	130	175	25.4	14.22	8.5	10	3
	VOX400R25024K	★	24	250	63	47.625	[1.875"]	35	—	180	220	25.4	14.22	13.3	10	3
Extra Fine Pitch	**VOX400R08010C**	★	10	80	50	25.4	[1.0"]	26	13	20	55	9.5	6	1.0	10	1
	VOX400R10012D	★	12	100	50	31.75	[1.25"]	32	—	45	70	12.7	8	1.4	10	2
	VOX400R12516E	★	16	125	63	38.1	[1.5"]	40	—	60	80	15.9	10	2.6	10	2
	VOX400R16020F	★	20	160	63	50.8	[2.0"]	43	—	80	120	19.1	11	5.1	10	2
	VOX400R20026K	★	26	200	63	47.625	[1.875"]	35	—	130	175	25.4	14.22	8.2	10	3
	VOX400R25034K	★	34	250	63	47.625	[1.875"]	35	—	180	220	25.4	14.22	13.0	10	3

Note 1) Set bolt not included.

SPARE PARTS

Tool Holder Number	 *	
	Clamp Screw	Wrench
VOX400	CS401160T	TKY15T

* Clamp Torque (lbf-in) : CS401160T=31

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Metric Standard

For metric arbors

Fig.1

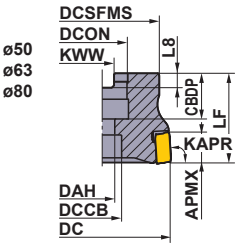
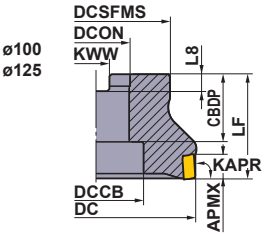
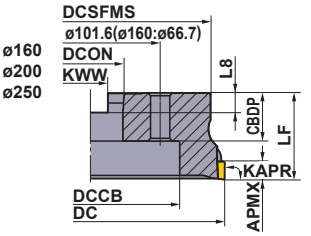


Fig.2



Right hand tool holder only.

Fig.3



■ ARBOR TYPE

Type	Order Number	Stock	Number of Teeth	Dimensions (mm)									WT (kg)	APMX (mm)	Fig.
		R		DC	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8			
Coarse Pitch	**VOX400-050A03R**	★	3	50	40	22	20	11	17	41	10.4	6.3	0.3	10	1
	VOX400-063A04R	★	4	63	40	22	20	11	17	50	10.4	6.3	0.6	10	1
	VOX400-080A04R	★	4	80	50	27	23	13	20	56	12.4	7	1	10	1
	VOX400-100B06R	★	6	100	50	32	32	—	45	78	14.4	8	1.7	10	2
	VOX400-125B08R	★	8	125	63	40	32	—	56	89	16.4	9	3	10	2
	VOX400-160C10R	★	10	160	63	40	29	—	56	120	16.4	9	5.4	10	3
	VOX400-200C12R	★	12	200	63	60	32	—	130	175	25.7	14.22	8.1	10	3
	VOX400-250C16R	★	16	250	63	60	32	—	180	210	25.7	14.22	11.8	10	3
Fine Pitch	**VOX400-050A05R**	★	5	50	40	22	20	11	17	41	10.4	6.3	0.3	10	1
	VOX400-063A06R	★	6	63	40	22	20	11	17	50	10.4	6.3	0.6	10	1
	VOX400-080A08R	★	8	80	50	27	23	13	20	56	12.4	7	1	10	1
	VOX400-100B10R	★	10	100	50	32	32	—	45	78	14.4	8	1.7	10	2
	VOX400-125B12R	★	12	125	63	40	32	—	56	89	16.4	9	3	10	2
	VOX400-160C16R	★	16	160	63	40	29	—	56	120	16.4	9	5.4	10	3
	VOX400-200C20R	★	20	200	63	60	32	—	130	175	25.7	14.22	8.1	10	3
	VOX400-250C24R	★	24	250	63	60	32	—	180	210	25.7	14.22	11.8	10	3
Extra Fine Pitch	**VOX400-063A08R**	★	8	63	40	22	20	11	17	50	10.4	6.3	0.5	10	1
	VOX400-080A10R	★	10	80	50	27	23	13	20	56	12.4	7	1.0	10	1
	VOX400-100B12R	★	12	100	50	32	32	—	45	78	14.4	8	1.6	10	2
	VOX400-125B16R	★	16	125	63	40	32	—	56	89	16.4	9	2.8	10	2
	VOX400-160C20R	★	20	160	63	40	29	—	56	120	16.4	9	5.2	10	3
	VOX400-200C26R	★	26	200	63	60	32	—	130	175	25.7	14.22	7.9	10	3
	VOX400-250C34R	★	34	250	63	60	32	—	180	210	25.7	14.22	11.5	10	3

Note 1) Set bolt not included.

SPARE PARTS

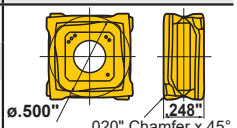
Tool Holder Number	 *	
	Clamp Screw	Wrench
VOX400	CS401160T	TKY15T

* Clamp Torque (lbf-in) : CS401160T=31

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

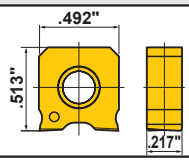
INSERTS

Workpiece Material	K	Cast Iron			Cutting Conditions (Guide) : ●: Stable Cutting ◔: General Cutting ✣: Unstable Cutting

Shape	Order Number	Class	Edge Preparation	Coated MC5020	Coated VP15TF	Geometry
	**SONX1206PER**	N	E	●	●	 ø.500" .248" .020" Chamfer x 45° Right hand insert shown.
	SONX1206PEL	N	E		★	

WIPER INSERTS

Workpiece Material	K	Cast Iron			Cutting Conditions (Guide) : ●: Stable Cutting ◔: General Cutting ✣: Unstable Cutting

Shape	Order Number	Class	Edge Preparation	Coated VP15TF	Geometry
	**WOEX1206PER5C**	E	E	●	 .492" .513" .217"

Note 1) Left hand insert used for special products. (Ex. Side cutter, Left hand cutter)
Note 2) SONX12 features 8 usable corners with high strength cutting edge.

RECOMMENDED CUTTING CONDITIONS

■ VOX400 (Standard pitch)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ2"–ϕ10"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤DC	≤.394	.008(.004－.012)

■ VOX400 (Fine pitch)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ2.5"			ϕ3"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.8DC	≤.394	.012(.008－.016)	≤0.6DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.8DC	≤.394	.012(.008－.016)	≤0.6DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.8DC	≤.394	.008(.004－.012)	≤0.6DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.8DC	≤.394	.008(.004－.012)	≤0.6DC	≤.394	.008(.004－.012)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ4"			ϕ5"		
					Radial depth of cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.5DC	≤.394	.012(.008－.016)	≤0.4DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.5DC	≤.394	.012(.008－.016)	≤0.4DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.5DC	≤.394	.008(.004－.012)	≤0.4DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.5DC	≤.394	.008(.004－.012)	≤0.4DC	≤.394	.008(.004－.012)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ6"			ϕ8", ϕ10"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.3DC	≤.394	.012(.008－.016)	≤0.2DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.3DC	≤.394	.012(.008－.016)	≤0.2DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.3DC	≤.394	.008(.004－.012)	≤0.2DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.3DC	≤.394	.008(.004－.012)	≤0.2DC	≤.394	.008(.004－.012)

Note 1) DC is cutter diameter.
Note 2) When using wiper insert, please reduce the feed per tooth to half the normal rate.

■ VOX400 (Extra fine pitch)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ2.5"			ϕ3"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.6DC	≤.394	.012(.008－.016)	≤0.5DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.6DC	≤.394	.012(.008－.016)	≤0.5DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.6DC	≤.394	.008(.004－.012)	≤0.5DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.6DC	≤.394	.008(.004－.012)	≤0.5DC	≤.394	.008(.004－.012)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ4"			ϕ5"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.4DC	≤.394	.012(.008－.016)	≤0.3DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.4DC	≤.394	.012(.008－.016)	≤0.3DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.4DC	≤.394	.008(.004－.012)	≤0.3DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.4DC	≤.394	.008(.004－.012)	≤0.3DC	≤.394	.008(.004－.012)

Workpiece Material		Tensile Strength	Insert Grade	Cutting Speed (SFM)	ϕ6"			ϕ8", ϕ10"		
					Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)	Radial Depth of Cut ae (mm)	Depth of Cut ap (inch)	Feed per Tooth (IPT)
K	Gray Cast Iron	≤200MPa	**MC5020**	985(820－1150)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
			VP15TF	820(655－985)	≤DC	≤.394	.016(.012－.020)	≤DC	≤.394	.016(.012－.020)
		≤350MPa	**MC5020**	720(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
			VP15TF	655(490－985)	≤DC	≤.394	.012(.008－.016)	≤DC	≤.394	.012(.008－.016)
	Ductile Cast Iron	≤450MPa	**MC5020**	655(490－820)	≤0.25DC	≤.394	.012(.008－.016)	≤0.15DC	≤.394	.012(.008－.016)
			VP15TF	555(490－655)	≤0.25DC	≤.394	.012(.008－.016)	≤0.15DC	≤.394	.012(.008－.016)
		≤800MPa	**MC5020**	555(490－655)	≤0.25DC	≤.394	.008(.004－.012)	≤0.15DC	≤.394	.008(.004－.012)
			VP15TF	490(330－655)	≤0.25DC	≤.394	.008(.004－.012)	≤0.15DC	≤.394	.008(.004－.012)

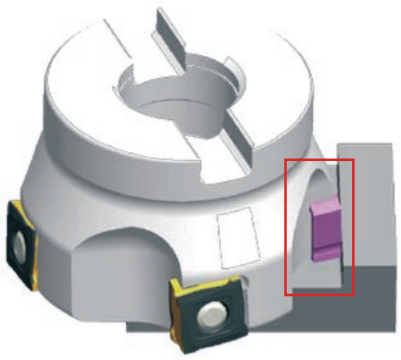
Note 1) DC is cutter diameter.

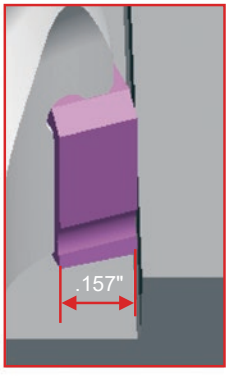
Note 2) When using wiper insert, please reduce the feed per tooth to half the normal rate.

■ Usable cutting edge width of wiper inserts

The width of the wiper insert itself is .217 inch, however the actual functioning cutting edge width after installation to the body is .177 inch, as shown in the diagram.

With one wiper insert, it is possible to machine up to fr=.157 inch feed per revolution. When exceeding fr=.157 inch, use two or more wiper inserts. Note that there is a possibility to exceed fr=.157 inch when using a holder with more than 24 inserts.





SHOULDER MILLING
<GENERAL CUTTING>

90° KAPR

WWX200 NEW

P M K N S H

Fig.1
ø1.500"
ø2.000"

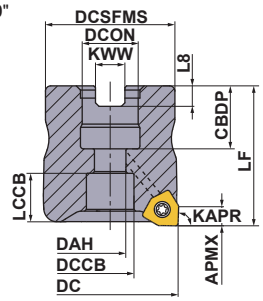
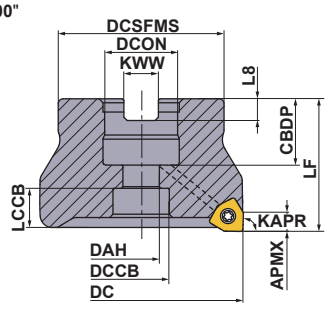


Fig.2
ø2.500"
ø3.000"



Right hand tool holder only.

■ARBOR TYPE

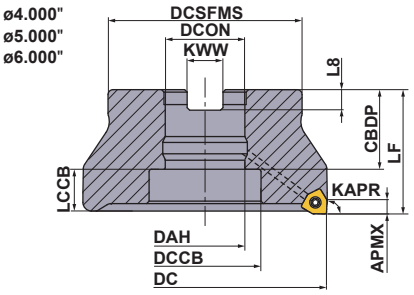
DCON = inch size (inch)

DC	Order Number	Stock R	* Coolant Thru	Number of Teeth	Pitch	LF	DCON	WT (lbs)	APMX	RPMX (min^{-1})	Fig.
1.500	**WWX200UR1.5003SA**	●	Y	3	Coarse	1.750	.500	.6	.197	21600	1
1.500	**WWX200UR1.5004SA**	●	Y	4	Fine	1.750	.500	.5	.197	21600	1
2.000	**WWX200UR2.0004AA**	●	Y	4	Coarse	1.750	.750	.9	.197	18600	1
2.000	**WWX200UR2.0005AA**	●	Y	5	Fine	1.750	.750	.9	.197	18600	1
2.000	**WWX200UR2.0006AA**	●	Y	6	Extra Fine	1.750	.750	.9	.197	18600	1
2.500	**WWX200UR2.5005CA**	●	Y	5	Coarse	2.000	1.000	1.7	.197	16000	2
2.500	**WWX200UR2.5006CA**	●	Y	6	Fine	2.000	1.000	1.6	.197	16000	2
2.500	**WWX200UR2.5007CA**	●	Y	7	Extra Fine	2.000	1.000	1.6	.197	16000	2
3.000	**WWX200UR3.0005CA**	●	Y	5	Coarse	2.000	1.000	2.2	.197	13600	2
3.000	**WWX200UR3.0007CA**	●	Y	7	Fine	2.000	1.000	2.2	.197	13600	2
3.000	**WWX200UR3.0009CA**	●	Y	9	Extra Fine	2.000	1.000	2.1	.197	13600	2
4.000	**WWX200UR4.0006EA**	●	Y	6	Coarse	2.500	1.500	5.1	.197	11700	3
4.000	**WWX200UR4.0008EA**	●	Y	8	Fine	2.500	1.500	5.0	.197	11700	3
4.000	**WWX200UR4.0011EA**	●	Y	11	Extra Fine	2.500	1.500	4.9	.197	11700	3
5.000	**WWX200UR5.0007EA**	●	Y	7	Coarse	2.500	1.500	7.8	.197	10100	3
5.000	**WWX200UR5.0011EA**	●	Y	11	Fine	2.500	1.500	7.6	.197	10100	3
5.000	**WWX200UR5.0014EA**	●	Y	14	Extra Fine	2.500	1.500	7.6	.197	10100	3
6.000	**WWX200UR6.0009EA**	●	N	9	Coarse	2.500	1.500	10.0	.197	8600	3
6.000	**WWX200UR6.0012EA**	●	N	12	Fine	2.500	1.500	9.8	.197	8600	3
6.000	**WWX200UR6.0016EA**	●	N	16	Extra Fine	2.500	1.500	9.8	.197	8600	3

* Y=Yes, N=No

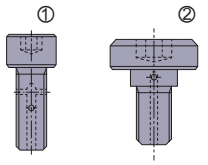
● : USA Stock

Fig.3



Right hand tool holder only.

DC	Set Bolt	Geometry
1.500	HSCU25011H	①
2.000	HSCU37513H	
2.500	HSCU50014H	
3.000	HSCU50014H	
4.000	MBAU75016H	②
5.000	MBAU75016H	
6.000	MBAU75016H	



With Air / coolant through.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.500	**WWX200UR1.5003SA**	.500	.630	.276	.433	.680	1.438	.250	.156	1
1.500	**WWX200UR1.5004SA**	.500	.630	.276	.433	.680	1.438	.250	.156	1
2.000	**WWX200UR2.0004AA**	.750	.748	.413	.630	.561	1.750	.313	.187	1
2.000	**WWX200UR2.0005AA**	.750	.748	.413	.630	.561	1.750	.313	.187	1
2.000	**WWX200UR2.0006AA**	.750	.748	.413	.630	.561	1.750	.313	.187	1
2.500	**WWX200UR2.5005CA**	1.000	.945	.539	.787	.680	2.188	.375	.219	2
2.500	**WWX200UR2.5006CA**	1.000	.945	.539	.787	.680	2.188	.375	.219	2
2.500	**WWX200UR2.5007CA**	1.000	.945	.539	.787	.680	2.188	.375	.219	2
3.000	**WWX200UR3.0005CA**	1.000	.945	.539	.787	.693	2.188	.375	.219	2
3.000	**WWX200UR3.0007CA**	1.000	.945	.539	.787	.693	2.188	.375	.219	2
3.000	**WWX200UR3.0009CA**	1.000	.945	.539	.787	.693	2.188	.375	.219	2
4.000	**WWX200UR4.0006EA**	1.500	1.654	1.500	2.205	.800	3.500	.625	.375	3
4.000	**WWX200UR4.0008EA**	1.500	1.654	1.500	2.205	.800	3.500	.625	.375	3
4.000	**WWX200UR4.0011EA**	1.500	1.654	1.500	2.205	.800	3.500	.625	.375	3
5.000	**WWX200UR5.0007EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3
5.000	**WWX200UR5.0011EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3
5.000	**WWX200UR5.0014EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3
6.000	**WWX200UR6.0009EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3
6.000	**WWX200UR6.0012EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3
6.000	**WWX200UR6.0016EA**	1.500	1.654	1.500	2.205	.800	3.813	.625	.375	3

SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX400	TPS3R	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3R = 17.7

ISO13399 ➤ K003
CUTTING CONDITIONS ➤ K130
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1

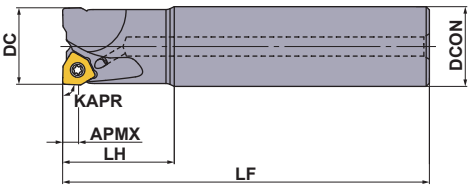


Fig.3

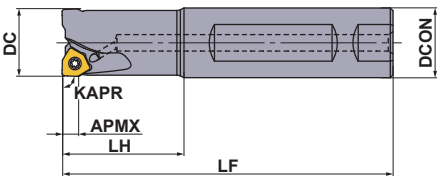


Fig.2

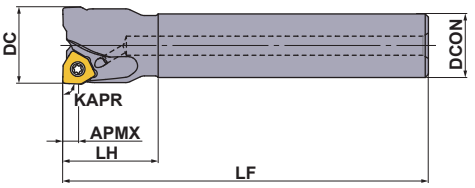
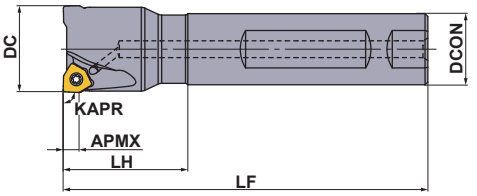


Fig.4



Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Pitch	LF	DCON	LH	WT (lbs)	APMX	RPMX (min^{-1})	Fig.
1.000	**WWX200UR1602FA16S**	●	2	Coarse	4.750	1.000	1.750	.9	.197	29600	3
1.000	**WWX200UR1602SA16L**	●	2	Coarse	8.500	1.000	2.500	1.7	.197	29600	1
1.125	**WWX200UR1802SA16L**	●	2	Coarse	8.500	1.000	1.750	1.8	.197	27400	2
1.250	**WWX200UR2002FA16S**	●	2	Coarse	5.125	1.000	1.750	1.1	.197	25100	4
1.250	**WWX200UR2003FA16S**	●	3	Fine	5.125	1.000	1.750	1.1	.197	25100	4
1.250	**WWX200UR2003SA16L**	●	3	Coarse	9.000	1.000	1.750	1.9	.197	25100	2
1.250	**WWX200UR2002FA20S**	●	2	Coarse	5.125	1.250	2.000	1.5	.197	25100	3
1.250	**WWX200UR2003FA20S**	●	3	Fine	5.125	1.250	2.000	1.5	.197	25100	3
1.250	**WWX200UR2003SA20L**	●	3	Coarse	9.000	1.250	3.000	2.8	.197	25100	1
1.500	**WWX200UR2403FA20S**	●	3	Coarse	5.125	1.250	2.000	1.7	.197	21600	4
1.500	**WWX200UR2404FA20S**	●	4	Fine	5.125	1.250	2.000	1.7	.197	21600	4
1.500	**WWX200UR2404SA20L**	●	4	Fine	9.000	1.250	2.000	3.0	.197	21600	2

SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX400	TPS3R	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3R = 17.7

● : USA Stock ★ : Stocked in Japan

Fig.1

ø40
ø50

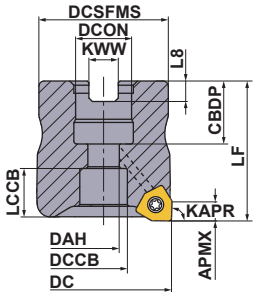
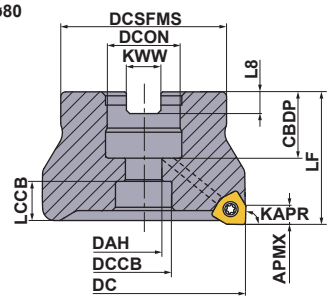


Fig.2

ø63
ø80



Right hand tool holder only.

Metric Standard

■ARBOR TYPE

DCON = inch size

(mm)

DC	Order Number	Stock R	* Coolant Thru	Number of Teeth	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.
80	**WWX200R08005CA**	★	Y	5	50	25.4	1.1	5.0	13600	2
80	**WWX200R08007CA**	★	Y	7	50	25.4	1.1	5.0	13600	2
80	**WWX200R08009CA**	★	Y	9	50	25.4	1.0	5.0	13600	2
100	**WWX200R10006DA**	★	Y	6	50	31.75	1.6	5.0	11700	3
100	**WWX200R10008DA**	★	Y	8	50	31.75	1.5	5.0	11700	3
100	**WWX200R10011DA**	★	Y	11	50	31.75	1.5	5.0	11700	3
125	**WWX200R12507EA**	★	Y	7	63	38.1	2.8	5.0	10100	3
125	**WWX200R12511EA**	★	Y	11	63	38.1	2.8	5.0	10100	3
125	**WWX200R12514EA**	★	Y	14	63	38.1	2.8	5.0	10100	3
160	**WWX200R16009FA**	★	Y	9	63	50.8	4.6	5.0	8600	3
160	**WWX200R16012FA**	★	Y	12	63	50.8	4.5	5.0	8600	3
160	**WWX200R16016FA**	★	Y	16	63	50.8	4.5	5.0	8600	3

* Y=Yes, N=No

Note1) A set bolt to the arbor is not supplied with the body. Please refer to page K117, when ordering.

Note2) Please use a set bolt of the FMA type on the cutter body from 80 to 160 in diameter(DC).

ISO13399 ➤ K003
MOUNTING DIMENSION ➤ K117
CUTTING CONDITIONS ➤ K130
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.3
ø100
ø125
ø160

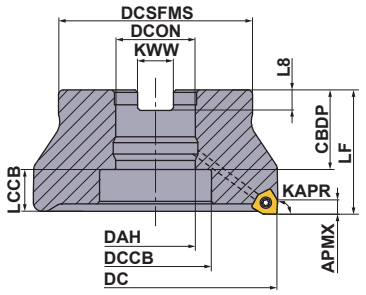
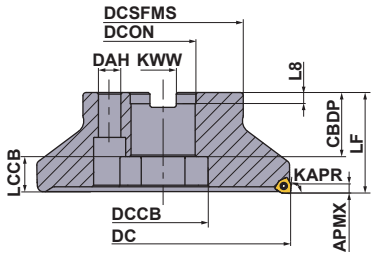


Fig.4
ø160



Right hand tool holder only.

Metric Standard

■ARBOR TYPE

DCON=mm size

(mm)

DC	Order Number	Stock R	Coolant Thru *	Number of Teeth	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.
40	**WWX200-040A03AR**	★	Y	3	40	16	0.2	5.0	21600	1
40	**WWX200-040A04AR**	★	Y	4	40	16	0.2	5.0	21600	1
50	**WWX200-050A04AR**	★	Y	4	40	22	0.4	5.0	18600	1
50	**WWX200-050A05AR**	★	Y	5	40	22	0.4	5.0	18600	1
50	**WWX200-050A06AR**	★	Y	6	40	22	0.3	5.0	18600	1
63	**WWX200-063A05AR**	★	Y	5	40	22	0.5	5.0	16000	2
63	**WWX200-063A06AR**	★	Y	6	40	22	0.5	5.0	16000	2
63	**WWX200-063A07AR**	★	Y	7	40	22	0.5	5.0	16000	2
80	**WWX200-080A05AR**	★	Y	5	50	27	1.1	5.0	13600	2
80	**WWX200-080A07AR**	★	Y	7	50	27	1.0	5.0	13600	2
80	**WWX200-080A09AR**	★	Y	9	50	27	1.0	5.0	13600	2
100	**WWX200-100B06AR**	★	Y	6	50	32	1.7	5.0	11700	3
100	**WWX200-100B08AR**	★	Y	8	50	32	1.7	5.0	11700	3
100	**WWX200-100B11AR**	★	Y	11	50	32	1.7	5.0	11700	3
125	**WWX200-125B07AR**	★	Y	7	63	40	3.1	5.0	10100	3
125	**WWX200-125B11AR**	★	Y	11	63	40	3.0	5.0	10100	3
125	**WWX200-125B14AR**	★	Y	14	63	40	3.0	5.0	10100	3
160	**WWX200-160C09NR**	★	N	9	63	40	4.6	5.0	8600	4
160	**WWX200-160C12NR**	★	N	12	63	40	4.6	5.0	8600	4
160	**WWX200-160C16NR**	★	N	16	63	40	4.6	5.0	8600	4

* Y=Yes, N=No

Note1) A set bolt to the arbor is not supplied with the body. Please refer to page K117, when ordering.

Note2) Please use a set bolt of the FMC type on the cutter body from 40 to 100 in diameter(DC).

Note3) Please use a set bolt of the FMA type on the cutter body from 125 to 160 in diameter(DC).

SPARE PARTS

(mm)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX200	TPS3R	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3R = 17.7

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
40	**WWX200-040A03AR**	16	18	9	13.6	13.8	37	8.4	5.6	1
40	**WWX200-040A04AR**	16	18	9	13.6	13.8	37	8.4	5.6	1
50	**WWX200-050A04AR**	22	20	11	17	11.8	47	10.4	6.3	1
50	**WWX200-050A05AR**	22	20	11	17	11.8	47	10.4	6.3	1
50	**WWX200-050A06AR**	22	20	11	17	11.8	47	10.4	6.3	1
63	**WWX200-063A05AR**	22	20	11	17	11.8	50	10.4	6.3	2
63	**WWX200-063A06AR**	22	20	11	17	11.8	50	10.4	6.3	2
63	**WWX200-063A07AR**	22	20	11	17	11.8	50	10.4	6.3	2
80	**WWX200R08005CA**	25.4	26	13	20	11.8	56	9.5	6	2
80	**WWX200R08007CA**	25.4	26	13	20	11.8	56	9.5	6	2
80	**WWX200R08009CA**	25.4	26	13	20	11.8	56	9.5	6	2
80	**WWX200-080A05AR**	27	23	13	20	11.8	56	12.4	7	2
80	**WWX200-080A07AR**	27	23	13	20	11.8	56	12.4	7	2
80	**WWX200-080A09AR**	27	23	13	20	11.8	56	12.4	7	2
100	**WWX200R10006DA**	31.75	37	31.75	45	16.8	70	12.7	8	3
100	**WWX200R10008DA**	31.75	37	31.75	45	16.8	70	12.7	8	3
100	**WWX200R10011DA**	31.75	37	31.75	45	16.8	70	12.7	8	3
100	**WWX200-100B06AR**	32	26	32	45	16.8	78	14.4	8	3
100	**WWX200-100B08AR**	32	26	32	45	16.8	78	14.4	8	3
100	**WWX200-100B11AR**	32	26	32	45	16.8	78	14.4	8	3
125	**WWX200R12507EA**	38.1	42	38.1	56	21.8	80	15.9	10	3
125	**WWX200R12511EA**	38.1	42	38.1	56	21.8	80	15.9	10	3
125	**WWX200R12514EA**	38.1	42	38.1	56	21.8	80	15.9	10	3
125	**WWX200-125B07AR**	40	35	42	56	21.8	89	16.4	9	3
125	**WWX200-125B11AR**	40	35	42	56	21.8	89	16.4	9	3
125	**WWX200-125B14AR**	40	35	42	56	21.8	89	16.4	9	3
160	**WWX200-160C09NR**	40	40	–	56	21.8	100	16.4	9	4
160	**WWX200-160C12NR**	40	40	–	56	21.8	100	16.4	9	4
160	**WWX200-160C16NR**	40	40	–	56	21.8	100	16.4	9	4
160	**WWX200R16009FA**	50.8	45	50.8	72	21.8	100	19.1	11	3
160	**WWX200R16012FA**	50.8	45	50.8	72	21.8	100	19.1	11	3
160	**WWX200R16016FA**	50.8	45	50.8	72	21.8	100	19.1	11	3

OPTIONAL PARTS

(mm)

Tool Holder Type	Set Bolt		Fig.	Reference Dimensions							Geometry
	With Coolant Hole	Without Coolant Hole		a	b	c	d	e	f	g	
	Order Number	Order Number									
WWX200R080○○CA	HSC12035H	HSC12035	1	18	M12x1.75	47	12	10	–	–	Fig.1
WWX200R100○○DA	MBA16033H	–	2	40	M16x2	43	10	14	6	23	
WWX200R125○○EA	MBA20040H	–	2	50	M20x2.5	54	14	17	6	27	
WWX200R160○○FA	MBA24045H	–	2	65	M24x3	59	14	17	10	37	
WWX200-040A○○AR	HSC08025H	–	1	13	M8x1.25	33	8	5	–	–	Fig.2
WWX200-050A○○AR	HSC10030H	HSC10035	1	16	M10x1.5	40(45)	10	6	–	–	
WWX200-063A○○AR	HSC10030H	HSC10035	1	16	M10x1.5	40(45)	10	6	–	–	
WWX200-080A○○AR	HSC12035H	HSC12035	1	18	M12x1.75	47	12	10	–	–	
WWX200-100B○○AR	MBA16033H	–	2	40	M16x2	43	10	14	6	23	
WWX200-125B○○AR	MBA20040H	–	2	50	M20x2.5	54	14	17	6	27	
WWX200-160C○○NR	No Coolant Hole	–	2	50	M20x2.5	54	14	17	6	27	

Note 1) Please purchase the appropriate set bolt after confirming the reference dimensions. The items with an order number listed under the Set Bolt columns are also sold by Mitsubishi Materials.

Note 2) Internal coolant is necessary with the set bolt.

ISO13399	➤ K003	SPARE PARTS	➤ M001
CUTTING CONDITIONS	➤ K130	TECHNICAL DATA	➤ N001

Fig.1

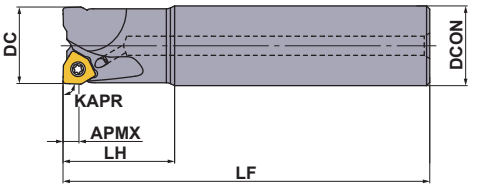
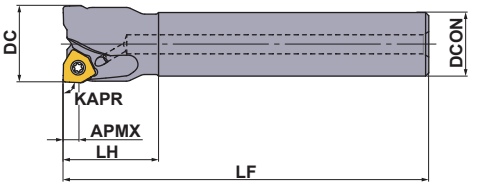


Fig.2



Right hand tool holder only.

Metric Standard

■SHANK TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	LH	WT (kg)	APMX	RPMX (min^{-1})	Fig.
25	**WWX200R2502SA20S**	★	2	115	20	30	0.3	5	29600	2
25	**WWX200R2502SA25S**	★	2	115	25	35	0.4	5	29600	1
25	**WWX200R2502SA25L**	★	2	170	25	70	0.6	5	29600	1
28	**WWX200R2802SA25S**	★	2	115	25	35	0.4	5	27400	2
28	**WWX200R2802SA25L**	★	2	170	25	35	0.6	5	27400	2
30	**WWX200R3002SA25S**	★	2	125	25	35	0.5	5	26200	2
32	**WWX200R3202SA32S**	★	2	125	32	45	0.7	5	26200	1
32	**WWX200R3203SA32S**	★	3	125	32	45	0.7	5	26200	1
32	**WWX200R3203SA32L**	★	3	190	32	90	1.0	5	26200	1
35	**WWX200R3503SA32L**	★	3	190	32	45	1.1	5	25100	2
40	**WWX200R4003SA32S**	★	3	125	32	45	0.8	5	21600	2
40	**WWX200R4004SA32S**	★	4	125	32	45	0.8	5	21600	2
50	**WWX200R5004SA32S**	★	4	125	32	45	0.9	5	18600	2
50	**WWX200R5005SA32S**	★	5	125	32	45	0.9	5	18600	2
50	**WWX200R5006SA32S**	★	6	125	32	45	0.9	5	18600	2

SPARE PARTS

(mm)

Tool Holder Type	* 		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX200	TPS3R	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3R = 17.7

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

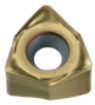
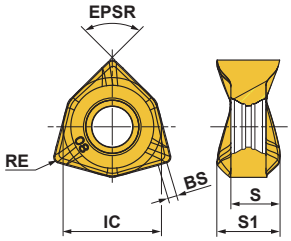
INSERTS

(inch)

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp Edge

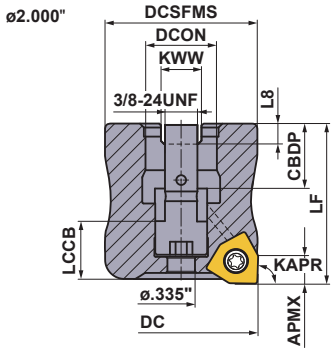
Shape	Order Number	Class	Edge Preparation	Coated								IC	S	S1	BS	RE	Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF							
	**6NMU0906040PNER-M**	M	E	●	●	●	●	●	●	●		.354	.209	.240	.063	.016	
	6NMU0906080PNER-M	M	E	●	●	●	●	●	●	●		.354	.209	.240	.047	.031	
	6NMU0906080PNER-R	M	E	●	●	●		●	●	●		.354	.209	.240	.047	.031	

SHOULDER MILLING
<GENERAL CUTTING>

90° KAPR

WWX400 2.000" NEW

P M K N S H



Right hand tool holder only.
The set bolt is built in.
Allen wrench (1/4 inch Hex Key size) is used to tighten the set bolt.

■ARBOR TYPE

DCON = inch size, With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Pitch	LF	DCON	WT (lbs)	APMX	RMPX	RPMX (min^{-1})
2.000	**WWX400UR2.0003AA**	●	3	Coarse	2.125	.750	1.1	.323	.4°	5000
2.000	**WWX400UR2.0004AA**	●	4	Fine	2.125	.750	1.1	.323	.4°	5000

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) The milling cutter has a built-in set bolt. The set bolt cannot be replaced.
Therefore, absolutely do not disassemble the milling cutter.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	LCCB	DCSFMS	KWW	L8
2.000	**WWX400UR2.0003AA**	.750	.858	.787	1.750	.313	.187
2.000	**WWX400UR2.0004AA**	.750	.858	.787	1.750	.313	.187

SPARE PARTS

(inch)

Tool Holder Type	Clamp Screw *	Wrench (Insert)	Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

● : USA Stock

WWX400 NEW

P M K N S H

Fig.1

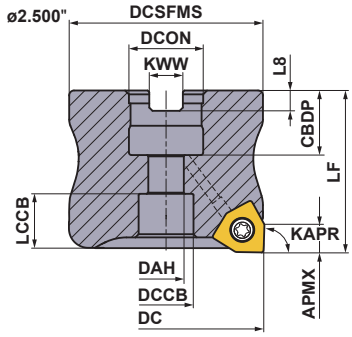
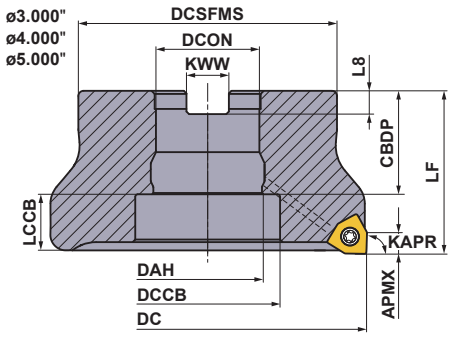


Fig.2



Right hand tool holder only.

■ARBOR TYPE

DCON = inch size (inch)

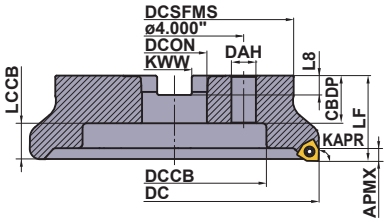
DC	Order Number	Stock R	Coolant Thru *	Number of Teeth	Pitch	LF	DCON	WT (lbs)	APMX	RMPX	RPMX (min^{-1})	Fig.
2.500	**WWX400UR2.5003CA**	●	Y	3	Coarse	2.000	1.000	1.6	.323	.26°	14000	1
2.500	**WWX400UR2.5004CA**	●	Y	4	Fine	2.000	1.000	1.5	.323	.26°	14000	1
2.500	**WWX400UR2.5005CA**	●	Y	5	Extra Fine	2.000	1.000	1.5	.323	.26°	14000	1
3.000	**WWX400UR3.0004CA**	●	Y	4	Coarse	2.000	1.000	2.1	.323	.16°	12600	2
3.000	**WWX400UR3.0005CA**	●	Y	5	Fine	2.000	1.000	2.1	.323	.16°	12600	2
3.000	**WWX400UR3.0007CA**	●	Y	7	Extra Fine	2.000	1.000	1.9	.323	.16°	12600	2
4.000	**WWX400UR4.0005EA**	●	Y	5	Coarse	2.500	1.500	4.9	.323	—	10700	2
4.000	**WWX400UR4.0007EA**	●	Y	7	Fine	2.500	1.500	4.8	.323	—	10700	2
4.000	**WWX400UR4.0009EA**	●	Y	9	Extra Fine	2.500	1.500	4.7	.323	—	10700	2
5.000	**WWX400UR5.0006EA**	●	Y	6	Coarse	2.500	1.500	7.6	.323	—	9400	2
5.000	**WWX400UR5.0008EA**	●	Y	8	Fine	2.500	1.500	7.5	.323	—	9400	2
5.000	**WWX400UR5.0012EA**	●	Y	12	Extra Fine	2.500	1.500	7.3	.323	—	9400	2
6.000	**WWX400UR6.0008EA**	●	Y	8	Coarse	2.500	1.500	9.9	.323	—	8500	2
6.000	**WWX400UR6.0010EA**	●	Y	10	Fine	2.500	1.500	9.8	.323	—	8500	2
6.000	**WWX400UR6.0014EA**	●	Y	14	Extra Fine	2.500	1.500	9.7	.323	—	8500	2
8.000	**WWX400UR8.0010MN**	●	N	10	Coarse	2.500	2.500	17.3	.323	—	7200	3
8.000	**WWX400UR8.0012MN**	●	N	12	Fine	2.500	2.500	17.2	.323	—	7200	3
8.000	**WWX400UR8.0016MN**	●	N	16	Extra Fine	2.500	2.500	17	.323	—	7200	3
10.000	**WWX400UR10.0012MN**	●	N	12	Coarse	2.500	2.500	29.3	.323	—	6400	3
10.000	**WWX400UR10.0014MN**	●	N	14	Fine	2.500	2.500	29.3	.323	—	6400	3
10.000	**WWX400UR10.0018MN**	●	N	18	Extra Fine	2.500	2.500	29	.323	—	6400	3

* Y=Yes, N=No

ISO13399 ➤ K003
MOUNTING DIMENSION ➤ K122
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

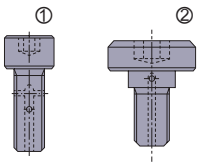
Fig.3

ø8.000"
ø10.000"



Right hand tool holder only.

DC	Set Bolt	Geometry
2.500	HSCU50014H	①
3.000	HSCU50014H	
4.000	MBAU75016H	②
5.000	MBAU75016H	
6.000	MBAU75016H	
8.000	—	—
10.000	—	



With Air / coolant through.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
2.500	**WWX400UR2.5003CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	1
2.500	**WWX400UR2.5004CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	1
2.500	**WWX400UR2.5005CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	1
3.000	**WWX400UR3.0004CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	2
3.000	**WWX400UR3.0005CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	2
3.000	**WWX400UR3.0007CA**	1.000	.945	.539	.787	.670	2.190	.375	.219	2
4.000	**WWX400UR4.0005EA**	1.500	1.654	1.500	2.205	.776	3.500	.625	.375	2
4.000	**WWX400UR4.0007EA**	1.500	1.654	1.500	2.205	.776	3.500	.625	.375	2
4.000	**WWX400UR4.0009EA**	1.500	1.654	1.500	2.205	.776	3.500	.625	.375	2
5.000	**WWX400UR5.0006EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
5.000	**WWX400UR5.0008EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
5.000	**WWX400UR5.0012EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
6.000	**WWX400UR6.0008EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
6.000	**WWX400UR6.0010EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
6.000	**WWX400UR6.0014EA**	1.500	1.654	1.500	2.205	.776	3.813	.625	.375	2
8.000	**WWX400UR8.0010MN**	2.500	1.378	.709	5.512	1.052	6.890	1.000	.560	3
8.000	**WWX400UR8.0012MN**	2.500	1.378	.709	5.512	1.052	6.890	1.000	.560	3
8.000	**WWX400UR8.0016MN**	2.500	1.378	.709	5.512	1.052	6.890	1.000	.560	3
10.000	**WWX400UR10.0012MN**	2.500	1.378	.709	7.087	1.052	8.661	1.000	.560	3
10.000	**WWX400UR10.0014MN**	2.500	1.378	.709	7.087	1.052	8.661	1.000	.560	3
10.000	**WWX400UR10.0018MN**	2.500	1.378	.709	7.087	1.052	8.661	1.000	.560	3

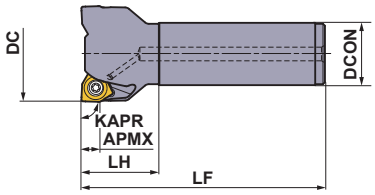
SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

● : **USA Stock**



Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Pitch	LF	DCON	LH	WT (lbs)	APMX	RMPX	RPMX (min^{-1})
2.000	**WWX400UR3203FA20M**	●	3	Coarse	4.750	1.250	1.500	1.7	.323	.4°	15800
2.000	**WWX400UR3204FA20M**	●	4	Fine	4.750	1.250	1.500	1.7	.323	.4°	15800
2.500	**WWX400UR4003FA20M**	●	3	Coarse	4.750	1.250	1.500	2.1	.323	.26°	14000
2.500	**WWX400UR4004FA20M**	●	4	Fine	4.750	1.250	1.500	2	.323	.26°	14000
2.500	**WWX400UR4005FA20M**	●	5	Extra Fine	4.750	1.250	1.500	2	.323	.26°	14000
3.000	**WWX400UR4804FA20M**	●	4	Coarse	4.750	1.250	1.500	2.5	.323	.16°	12600
3.000	**WWX400UR4805FA20M**	●	5	Fine	4.750	1.250	1.500	2.4	.323	.16°	12600
3.000	**WWX400UR4807FA20M**	●	7	Extra Fine	4.750	1.250	1.500	2.3	.323	.16°	12600

SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

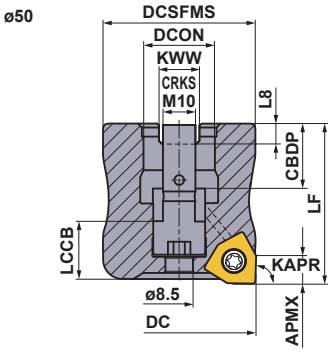
* Clamp Torque (lbf-in) : TS5R = 44

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

WWX400 50 NEW

P M K N S H

Metric Standard



Right hand tool holder only.
The set bolt is built in.
Allen wrench (7 mm Hex Key size) is used to tighten the set bolt.

■ARBOR TYPE

DCON=mm size, With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Pitch	LF	DCON	WT (kg)	APMX	RMPX	RPMX (min^{-1})
50	**WWX400-050A03AR**	★	3	Coarse	55	22	0.5	8.2	0.4°	5000
50	**WWX400-050A04AR**	★	4	Fine	55	22	0.5	8.2	0.4°	5000

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) The milling cutter has a built-in set bolt. The set bolt cannot be replaced.
Therefore, absolutely do not disassemble the milling cutter.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	LCCB	DCSFMS	KWW	L8
50	**WWX400-050A03AR**	22	20	12.2	47	10.4	6.3
50	**WWX400-050A04AR**	22	20	12.2	47	10.4	6.3

SPARE PARTS

(mm)

Tool Holder Type	 * Clamp Screw	 Wrench (Insert)	 Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

★ : **Stocked in Japan**

WWX400 NEW

P M K N S H

Fig.1

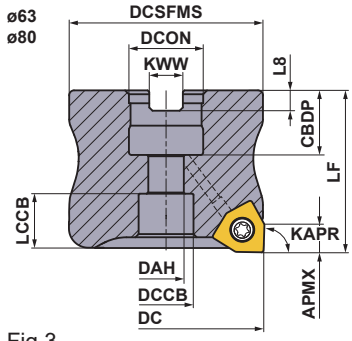


Fig.2

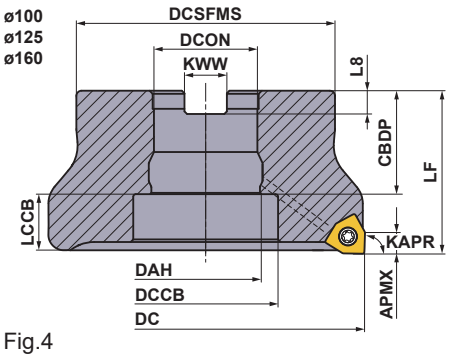


Fig.3

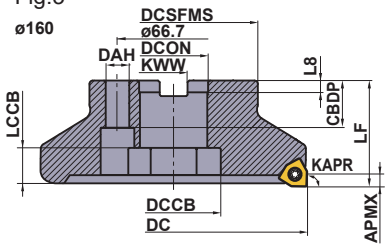
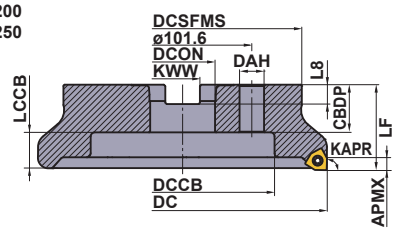


Fig.4



Metric Standard

■ARBOR TYPE

DCON=inch size

Right hand tool holder only.

(mm)

DC	Order Number	Stock R	Coolant Thru *	Number of Teeth	Pitch	LF	DCON	WT (kg)	APMX	RMPX	RPMX (min^{-1})	Fig.
80	**WWX400R08004CA**	★	Y	4	Coarse	50	25.4	1.0	8.2	0.16°	12200	1
80	**WWX400R08005CA**	★	Y	5	Fine	50	25.4	1.0	8.2	0.16°	12200	1
80	**WWX400R08007CA**	★	Y	7	Extra Fine	50	25.4	0.9	8.2	0.16°	12200	1
100	**WWX400R10005DA**	★	Y	5	Coarse	50	31.75	1.4	8.2	—	10700	2
100	**WWX400R10007DA**	★	Y	7	Fine	50	31.75	1.4	8.2	—	10700	2
100	**WWX400R10009DA**	★	Y	9	Extra Fine	50	31.75	1.3	8.2	—	10700	2
125	**WWX400R12506EA**	★	Y	6	Coarse	63	38.1	2.8	8.2	—	9500	2
125	**WWX400R12508EA**	★	Y	8	Fine	63	38.1	2.8	8.2	—	9500	2
125	**WWX400R12512EA**	★	Y	12	Extra Fine	63	38.1	2.7	8.2	—	9500	2
160	**WWX400R16008FA**	★	Y	8	Coarse	63	50.8	4.5	8.2	—	8300	2
160	**WWX400R16010FA**	★	Y	10	Fine	63	50.8	4.4	8.2	—	8300	2
160	**WWX400R16014FA**	★	Y	14	Extra Fine	63	50.8	4.3	8.2	—	8300	2
200	**WWX400R20010KN**	★	N	10	Coarse	63	47.625	8.1	8.2	—	7300	4
200	**WWX400R20012KN**	★	N	12	Fine	63	47.625	8.1	8.2	—	7300	4
200	**WWX400R20016KN**	★	N	16	Extra Fine	63	47.625	8.0	8.2	—	7300	4
250	**WWX400R25012KN**	★	N	12	Coarse	63	47.625	12.1	8.2	—	6400	4
250	**WWX400R25014KN**	★	N	14	Fine	63	47.625	12.1	8.2	—	6400	4
250	**WWX400R25018KN**	★	N	18	Extra Fine	63	47.625	12.0	8.2	—	6400	4

* Y=Yes, N=No

Note1) A set bolt to the arbor is not supplied with the body. Please refer to page K126, when ordering.

Note2) Please use a set bolt of the FMA type on the cutter body from 80 to 250 in diameter(DC).

SPARE PARTS

(mm)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

ISO13399	➤ K003	SPARE PARTS	➤ M001
MOUNTING DIMENSION	➤ K127	TECHNICAL DATA	➤ N001

Metric Standard

■ARBOR TYPE

DCON=mm size (mm)

DC	Order Number	Stock R	Coolant Thru *	Number of Teeth	Pitch	LF	DCON	WT (kg)	APMX	RMPX	RPMX (min^{-1})	Fig.
63	**WWX400-063A03AR**	★	Y	3	Coarse	40	22	0.5	8.2	0.26°	14100	1
63	**WWX400-063A04AR**	★	Y	4	Fine	40	22	0.5	8.2	0.26°	14100	1
63	**WWX400-063A05AR**	★	Y	5	Extra Fine	40	22	0.5	8.2	0.26°	14100	1
80	**WWX400-080A04AR**	★	Y	4	Coarse	50	27	1.0	8.2	0.16°	12200	1
80	**WWX400-080A05AR**	★	Y	5	Fine	50	27	1.0	8.2	0.16°	12200	1
80	**WWX400-080A07AR**	★	Y	7	Extra Fine	50	27	0.9	8.2	0.16°	12200	1
100	**WWX400-100B05AR**	★	Y	5	Coarse	50	32	1.6	8.2	—	10700	2
100	**WWX400-100B07AR**	★	Y	7	Fine	50	32	1.5	8.2	—	10700	2
100	**WWX400-100B09AR**	★	Y	9	Extra Fine	50	32	1.5	8.2	—	10700	2
125	**WWX400-125B06AR**	★	Y	6	Coarse	63	40	3.0	8.2	—	9500	2
125	**WWX400-125B08AR**	★	Y	8	Fine	63	40	3.0	8.2	—	9500	2
125	**WWX400-125B12AR**	★	Y	12	Extra Fine	63	40	2.9	8.2	—	9500	2
160	**WWX400-160C08NR**	★	N	8	Coarse	63	40	4.5	8.2	—	8300	3
160	**WWX400-160C10NR**	★	N	10	Fine	63	40	4.4	8.2	—	8300	3
160	**WWX400-160C14NR**	★	N	14	Extra Fine	63	40	4.4	8.2	—	8300	3
200	**WWX400-200C10NR**	★	N	10	Coarse	63	60	6.7	8.2	—	7300	4
200	**WWX400-200C12NR**	★	N	12	Fine	63	60	6.7	8.2	—	7300	4
200	**WWX400-200C16NR**	★	N	16	Extra Fine	63	60	6.6	8.2	—	7300	4
250	**WWX400-250C12NR**	★	N	12	Coarse	63	60	11.5	8.2	—	6400	4
250	**WWX400-250C14NR**	★	N	14	Fine	63	60	11.5	8.2	—	6400	4
250	**WWX400-250C18NR**	★	N	18	Extra Fine	63	60	11.4	8.2	—	6400	4

* Y=Yes, N=No

Note1) A set bolt to the arbor is not supplied with the body. Please refer to page K126, when ordering.

Note2) Please use a set bolt of the FMC type on the cutter body from 63 to 100 in diameter(DC).

Note3) Please use a set bolt of the FMA type on the cutter body from 125 to 250 in diameter(DC).

OPTIONAL PARTS

(mm)

Tool Holder Type	Set Bolt: With Coolant Hole Order Number	Set Bolt: Without Coolant Hole Order Number	Fig.	Reference Dimensions a	b	c	d	e	f	g	Geometry
WWX400R080○○CA	HSC12035H	HSC12035	1	18	M12×1.75	47	12	10	–	–	Fig.1
WWX400R100○○DA	MBA16033H	–	2	40	M16×2	43	10	14	6	23	
WWX400R125○○EA	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
WWX400R160○○FA	MBA24045H	–	2	65	M24×3	59	14	17	10	37	
WWX400R200○○KN	–	–	1	24	M16×2	61-	16	14	–	–	
WWX400R250○○KN	–	–	1	24	M16×2	61-	16	14	–	–	
WWX400-063A○○AR	HSC10030H	HSC10035	1	16	M10×1.5	40	10	6	–	–	Fig.2
WWX400-080A○○AR	HSC12035H	HSC12035	1	18	M12×1.75	47	12	10	–	–	
WWX400-100B○○AR	MBA16033H	–	2	40	M16×2	43	10	14	6	23	
WWX400-125B○○AR	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
WWX400-160C○○NR	MBA20040H	–	2	50	M20×2.5	54	14	17	6	27	
WWX400-200C○○NR	–	–	1	24	M16×2	61-	16	14	–	–	
WWX400-250C○○NR	–	–	1	24	M16×2	61-	16	14	–	–	

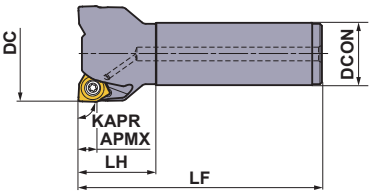
Note 1) Internal coolant is necessary with the set bolt.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
63	**WWX400-063A03AR**	22	20	11	17	11.2	50	10.4	6.3	1
63	**WWX400-063A04AR**	22	20	11	17	11.2	50	10.4	6.3	1
63	**WWX400-063A05AR**	22	20	11	17	11.2	50	10.4	6.3	1
80	**WWX400R08004CA**	25.4	26	13	20	14.2	56	9.5	6	1
80	**WWX400R08005CA**	25.4	26	13	20	14.2	56	9.5	6	1
80	**WWX400R08007CA**	25.4	26	13	20	14.2	56	9.5	6	1
80	**WWX400-080A04AR**	27	23	13	20	14.2	56	12.4	7	1
80	**WWX400-080A05AR**	27	23	13	20	14.2	56	12.4	7	1
80	**WWX400-080A07AR**	27	23	13	20	14.2	56	12.4	7	1
100	**WWX400R10005DA**	31.75	37	31.75	45	11.2	70	12.7	8	2
100	**WWX400R10007DA**	31.75	37	31.75	45	11.2	70	12.7	8	2
100	**WWX400R10009DA**	31.75	37	31.75	45	11.2	70	12.7	8	2
100	**WWX400-100B05AR**	32	32	32	45	16.2	78	14.4	8	2
100	**WWX400-100B07AR**	32	32	32	45	16.2	78	14.4	8	2
100	**WWX400-100B09AR**	32	32	32	45	16.2	78	14.4	8	2
125	**WWX400R12506EA**	38.1	42	38.1	56	19.2	80	15.9	10	2
125	**WWX400R12508EA**	38.1	42	38.1	56	19.2	80	15.9	10	2
125	**WWX400R12512EA**	38.1	42	38.1	56	19.2	80	15.9	10	2
125	**WWX400-125B06AR**	40	40	40	56	21.2	89	16.4	9	2
125	**WWX400-125B08AR**	40	40	40	56	21.2	89	16.4	9	2
125	**WWX400-125B12AR**	40	40	40	56	21.2	89	16.4	9	2
160	**WWX400-160C08NR**	40	40	14	56	21.2	100	16.4	9	3
160	**WWX400-160C10NR**	40	40	14	56	21.2	100	16.4	9	3
160	**WWX400-160C14NR**	40	40	14	56	21.2	100	16.4	9	3
160	**WWX400R16008FA**	50.8	45	50.8	72	16.2	100	19.1	11	2
160	**WWX400R16010FA**	50.8	45	50.8	72	16.2	100	19.1	11	2
160	**WWX400R16014FA**	50.8	45	50.8	72	16.2	100	19.1	11	2
200	**WWX400R20010KN**	47.625	35	18	135	26.2	175	25.4	14.22	4
200	**WWX400R20012KN**	47.625	35	18	135	26.2	175	25.4	14.22	4
200	**WWX400R20016KN**	47.625	35	18	135	26.2	175	25.4	14.22	4
200	**WWX400-200C10NR**	60	32	18	135	29.2	160	25.7	14.22	4
200	**WWX400-200C12NR**	60	32	18	135	29.2	160	25.7	14.22	4
200	**WWX400-200C16NR**	60	32	18	135	29.2	160	25.7	14.22	4
250	**WWX400R25012KN**	47.625	35	18	180	26.2	210	25.4	14.22	4
250	**WWX400R25014KN**	47.625	35	18	180	26.2	210	25.4	14.22	4
250	**WWX400R25018KN**	47.625	35	18	180	26.2	210	25.4	14.22	4
250	**WWX400-250C12NR**	60	32	18	180	29.2	210	25.7	14.22	4
250	**WWX400-250C14NR**	60	32	18	180	29.2	210	25.7	14.22	4
250	**WWX400-250C18NR**	60	32	18	180	29.2	210	25.7	14.22	4

ISO13399 ➢ K003
SPARE PARTS ➢ M001
TECHNICAL DATA ➢ N001



Right hand tool holder only.

Metric Standard

■SHANK TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Pitch	LF	DCON	LH	WT (kg)	APMX	RMPX	RPMX (min^{-1})
50	**WWX400R5003SA32M**	★	3	Coarse	125	32	40	0.8	8.2	0.4°	16000
50	**WWX400R5004SA32M**	★	4	Fine	125	32	40	0.8	8.2	0.4°	16000
63	**WWX400R6303SA32M**	★	3	Coarse	125	32	40	1.0	8.2	0.26°	14100
63	**WWX400R6304SA32M**	★	4	Fine	125	32	40	1.0	8.2	0.26°	14100
63	**WWX400R6305SA32M**	★	5	Extra Fine	125	32	40	1.0	8.2	0.26°	14100
80	**WWX400R8004SA32M**	★	4	Coarse	125	32	40	1.3	8.2	0.16°	12200
80	**WWX400R8005SA32M**	★	5	Fine	125	32	40	1.3	8.2	0.16°	12200
80	**WWX400R8007SA32M**	★	7	Extra Fine	125	32	40	1.2	8.2	0.16°	12200

SPARE PARTS

(mm)

Tool Holder Type	 * Clamp Screw	 Wrench (Insert)	 Anti-seize Lubricant
WWX400	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

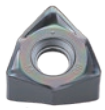
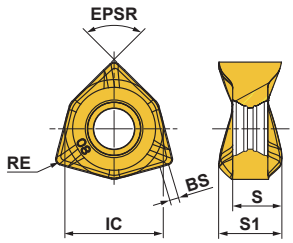
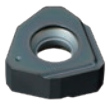
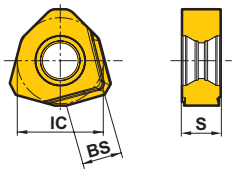
INSERTS

(inch)

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metals
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp Edge

Shape	Order Number	Class	Edge Preparation	Coated							Carbide		IC	S	S1	BS	RE	Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF		TF15						
	6NGU1409040PNER-L	G	E	●	●	●	●	●	●	●			.551	.276	.354	.067	.016	
	6NGU1409080PNER-L	G	E	●	●	●	●	●	●	●			.551	.276	.354	.051	.031	
	6NGU1409040PNFR-L	G	F									●	.551	.276	.354	.067	.016	
	6NGU1409080PNFR-L	G	F									●	.551	.276	.354	.051	.031	
	6NGU1409040PNER-M	G	E	★	●	★	●	●	★	★			.551	.276	.354	.067	.016	
	6NGU1409080PNER-M	G	E	★	●	●	●	●	★	★			.551	.276	.354	.051	.031	
	6NMU1409040PNER-M	M	E	●	●	●	●	●	●	●			.551	.276	.354	.067	.016	
	6NMU1409080PNER-M	M	E	●	●	●	●	●	●	●			.551	.276	.354	.051	.031	
	6NMU1409160PNER-M	M	E	●	●	●	●	●	●	●			.551	.276	.354	.002	.063	
	6NMU1409200PNER-M	M	E	●	●	●	●	●	●	●			.551	.276	.354	.002	.079	
	6NMU1409080PNER-R	M	E	●	●	●		●	●	●			.551	.276	.354	.051	.031	
	6NMU1409160PNER-R	M	E	★	★	★		★	●	●			.551	.276	.354	.002	.063	
	6NMU1409200PNER-R	M	E	★	★	★		★	●	●			.551	.276	.354	.002	.079	
 Wiper	2NGU1406ZNER6C-M	G	E	●	●					●			.551	.248	—	.256	—	

■ Instructions for Use of Wiper Inserts

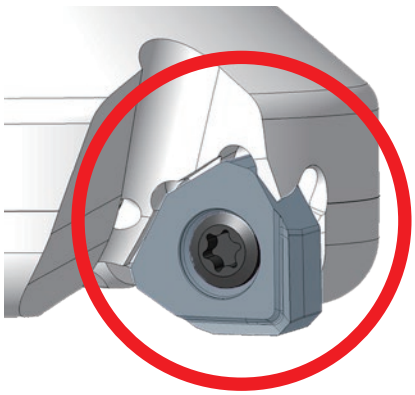


Fig.1

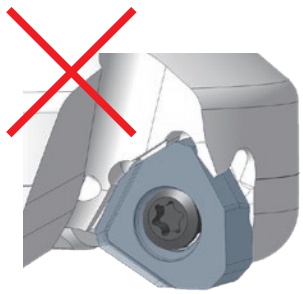


Fig.2

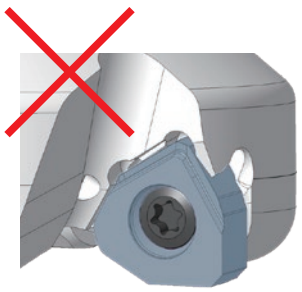


Fig.3

Wiper inserts for WWX400 are two-cornered. Please set as shown in Fig.1.
Excellent surface finish can be achieved with one wiper.
Set more than 2 wiper inserts, equally spaced, when the feed per revolution is larger than .256 IPR.
When choosing a wiper insert select a general grade that is similar to the ideal cutting conditions.

ISO13399	➢ K003
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

WWX200/400

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

Cutting Speed

(inch)

	Workpiece Material	Properties	Cutting Conditions	Grade	Width of Cut **ae** .5DC≥	Width of Cut **ae** .8DC≥	Width of Cut **ae** DC(Slot)
					Cutting Speed **vc** (SFM)		
P	Mild Steel	Hardness ≤180HB	●	MP6120	785(655–920)	720(590–850)	655(525–785)
			◐	MP6130	755(620–885)	690(560–820)	620(490–755)
			✲	MP6130,VP15TF	690(560–820)	620(490–755)	560(425–690)
	Carbon Steel Alloy Steel	Hardness 180–280HB	●	MP6120	690(560–820)	620(490–755)	560(425–690)
			◐	MP6130	655(525–785)	590(460–720)	525(395–655)
			✲	MP6130,VP15TF	590(460–720)	525(395–655)	460(330–590)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280–350HB ≤350HB (Annealing)	●	MP6120	655(525–785)	590(460–720)	525(395–655)
			◐	MP6130	620(490–755)	560(425–690)	490(360–620)
			✲	MP6130,VP15TF	560(425–690)	490(360–620)	425(295–560)
	Pre-hardened Steel	Hardness 35–45HRC	●	MP6120	460(395–525)	–	–
			◐	MP6130	395(330–460)	–	–
			✲	MP6130,VP15TF	360(295–425)	–	–
M	Austenitic Stainless Steel	Hardness ≤200HB	●	MP7130	590(525–655)	525(460–590)	–
			◐	MP7130,VP15TF	560(490–620)	490(425–560)	–
			✲	MP7130,VP15TF	490(425–560)	425(360–490)	–
	Austenitic Stainless Steel	Hardness >200HB	●	MP7130	560(490–620)	490(425–560)	–
			◐	MP7130,VP15TF	525(460–590)	460(395–525)	–
			✲	MP7130,VP15TF	460(395–525)	395(330–460)	–
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	●	MP7130	590(525–655)	525(460–590)	–
			◐	MP7130,VP15TF	560(490–620)	490(425–560)	–
			✲	MP7130,VP15TF	490(425–560)	425(360–490)	–
	Duplex Stainless Steel	Hardness ≤280HB	●	MP7130	525(460–590)	460(395–525)	–
			◐	MP7130,VP15TF	490(425–560)	425(360–490)	–
			✲	MP7130,VP15TF	425(360–490)	360(295–425)	–
	Precipitation Hardening Stainless Steel	Hardness <450HB	●	MP7130	460(395–525)	–	–
			◐	MP7130,VP15TF	425(360–490)	–	–
			✲	MP7130,VP15TF	360(295–425)	–	–
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	MC5020	820(690–950)	755(620–885)	690(560–820)
			◐	MC5020	785(655–920)	720(590–850)	655(525–785)
			◐	VP15TF	785(655–920)	720(590–850)	–
			✲	MC5020,VP15TF	720(590–850)	655(525–785)	590(460–720)
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	MC5020	720(590–525)	655(525–785)	590(460–720)
			◐	MC5020	690(560–820)	620(490–755)	560(425–690)
			◐	VP15TF	690(560–820)	620(490–755)	–
			✲	MC5020,VP15TF	620(490–755)	560(425–690)	490(360–620)
	Ductile Cast Iron	Tensile Strength ≤800MPa	●	MC5020	590(460–720)	525(395–655)	460(330–590)
			◐	MC5020	560(425–690)	490(360–620)	425(295–560)
			◐	VP15TF	560(425–690)	490(360–620)	–
			✲	MC5020,VP15TF	490(360–620)	425(295–560)	360(230–490)
H	Hardened Steel	Hardness 40–55HRC	● ◐	VP15TF	165(100–230)	–	–
			◐	MP6120	130(100–230)	–	–

Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When large vibration occurs, reduce the cutting conditions.
Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.
Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✣ : Unstable Cutting

■ Wet Cutting
Cutting Speed

(inch)

	Workpiece Material	Properties	Cutting Conditions	Grade	Width of Cut **ae** .5DC≥	Width of Cut **ae** .8DC≥	Width of Cut **ae** DC(Slot)
					Cutting Speed **vc** (SFM)		
P	Mild Steel	Hardness ≤180HB	●	MP6120	490(460—525)	425(395—460)	395(360—425)
			◔	MP6130	460(425—490)	395(360—425)	360(330—395)
			✣	MP6130,VP15TF	395(360—425)	330(295—360)	295(260—330)
	Carbon Steel Alloy Steel	Hardness 180—280HB	●	MP6120	490(460—525)	425(395—460)	395(360—425)
			◔	MP6130	460(425—490)	395(360—425)	360(330—395)
			✣	MP6130,VP15TF	395(360—425)	330(295—360)	295(260—330)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280—350HB ≤350HB (Annealing)	●	MP6120	460(425—490)	395(360—425)	360(330—395)
			◔	MP6130	425(395—460)	360(330—395)	330(295—360)
			✣	MP6130,VP15TF	360(330—395)	295(260—330)	260(230—295)
	Pre-hardened Steel	Hardness 35—45HRC	●	MP6120	360(330—395)	—	—
			◔	MP6130	330(295—360)	—	—
			✣	MP6130,VP15TF	260(230—295)	—	—
M	Austenitic Stainless Steel	Hardness ≤200HB	●	MP7130	425(395—460)	360(330—395)	—
			◔	MP7130,VP15TF	395(360—425)	330(295—360)	—
			✣	MP7130,VP15TF	330(295—360)	260(230—295)	—
	Austenitic Stainless Steel	Hardness >200HB	●	MP7130	425(395—460)	360(330—395)	—
			◔	MP7130,VP15TF	395(360—425)	330(295—360)	—
			✣	MP7130,VP15TF	330(295—360)	260(230—295)	—
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	●	MP7130	425(395—460)	360(330—395)	—
			◔	MP7130,VP15TF	395(360—425)	330(295—360)	—
			✣	MP7130,VP15TF	330(295—360)	260(230—295)	—
	Duplex Stainless Steel	Hardness ≤280HB	●	MP7130	395(360—425)	330(295—360)	—
			◔	MP7130,VP15TF	360(330—395)	295(260—330)	—
			✣	MP7130,VP15TF	295(260—330)	230(195—260)	—
	Precipitation Hardening Stainless Steel	Hardness <450HB	●	MP7130	395(360—425)	—	—
			◔	MP7130,VP15TF	360(330—395)	—	—
			✣	MP7130,VP15TF	295(260—330)	—	—
K	Gray Cast Iron	Tensile Strength ≤350MPa	●	MC5020	560(490—620)	490(425—560)	425(360—490)
			◔	MC5020	525(460—590)	460(395—525)	395(330—460)
			◔	VP15TF	525(460—590)	460(395—525)	—
			✣	MC5020,VP15TF	460(395—525)	395(330—460)	330(260—395)
	Ductile Cast Iron	Tensile Strength ≤450MPa	●	MC5020	560(490—620)	490(425—560)	425(360—490)
			◔	MC5020	525(460—590)	460(395—525)	395(330—460)
			◔	VP15TF	525(460—590)	460(395—525)	—
			✣	MC5020,VP15TF	460(395—525)	395(330—460)	330(260—395)
	Ductile Cast Iron	Tensile Strength ≤800MPa	●	MC5020	525(490—560)	460(425—490)	395(360—425)
			◔	MC5020	490(460—525)	425(395—460)	360(330—395)
			◔	VP15TF	490(460—525)	425(395—460)	—
			✣	MC5020,VP15TF	425(395—460)	360(330—395)	295(260—330)
N	Aluminum Alloys	Content Si<5%	●	TF15	1640(985—2950)	1640(985—2950)	1640(985—2950)
			◔	TF15	1640(985—2950)	1640(985—2950)	1640(985—2950)
			✣	TF15	1310(655—2625)	1310(655—2625)	1310(655—2625)
S	Titanium Alloys	—	●	MP9120	260(195—330)	—	—
			◔	MP9120	230(165—295)	—	—
			✣	MP9130	195(130—260)	—	—
	Heat Resistant Alloys	—	●	MP9120	195(165—230)	—	—
			◔	MP9120	165(100—195)	—	—
			✣	MP9130	130(65—130)	—	—
H	Hardened Steel	Hardness 40—55HRC	●	VP15TF	165(100—230)	—	—
			◔	MP6120	130(100—230)	—	—

Note 1) To dischage chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When large vibration occurs, reduce the cutting conditions.
Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.
Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

WWX200

RECOMMENDED CUTTING CONDITIONS

Depth of Cut / Feed per Tooth

	Workpiece Material	Properties	Cutting Conditions	Grade	Width of Cut **ae** .5DC≥ Breaker	**ap**	**fz** (IPT)
P	Mild Steel	Hardness ≤180HB	●	MP6120	M	≤.118	.005(.004–.006)
			◐	MP6130	M	≤.118	.005(.004–.006)
			◐		R	≤.118	.006(.004–.008)
			✣	MP6130,VP15TF	R	≤.118	.005(.004–.006)
	Carbon Steel Alloy Steel	Hardness 180–280HB	●	MP6120	M	≤.118	.005(.004–.006)
			◐	MP6130	M	≤.118	.005(.004–.006)
			◐		R	≤.118	.006(.004–.008)
			✣	MP6130,VP15TF	R	≤.118	.005(.004–.006)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280–350HB ≤350HB (Annealing)	●	MP6120	M	≤.118	.005(.004–.006)
			◐	MP6130	M	≤.118	.005(.004–.006)
			◐		R	≤.118	.006(.004–.008)
			✣	MP6130,VP15TF	R	≤.118	.005(.004–.006)
	Pre-hardened Steel	Hardness 35–45HRC	●	MP6120	M	≤.078	.005(.004–.006)
			◐	MP6130	M	≤.078	.005(.004–.006)
			◐		R	≤.078	.006(.004–.008)
			✣	MP6130,VP15TF	R	≤.078	.005(.004–.006)
M	Austenitic Stainless Steel	Hardness ≤200HB	● ◐	MP7130	M	≤.118	.005(.004–.006)
			◐	VP15TF	M	≤.118	.006(.004–.008)
			✣	MP7130,VP15TF	M	≤.118	.005(.004–.006)
	Austenitic Stainless Steel	Hardness >200HB	●	MP7130	M	≤.078	.005(.004–.006)
			●		M	≤.118	.005(.004–.006)
			◐		M	≤.078	.005(.004–.006)
			◐		M	≤.118	.005(.004–.006)
			◐	VP15TF	M	≤.078	.006(.004–.008)
			◐		M	≤.118	.006(.004–.008)
			✣	MP7130,VP15TF	M	≤.078	.005(.004–.006)
			✣		M	≤.118	.005(.004–.006)
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	● ◐	MP7130	M	≤.118	.005(.004–.006)
			◐	VP15TF	M	≤.118	.006(.004–.008)
			✣	MP7130,VP15TF	M	≤.118	.005(.004–.006)
	Duplex Stainless Steel	Hardness ≤280HB	● ◐	MP7130	M	≤.078	.005(.004–.006)
			● ◐		M	≤.118	.005(.004–.006)
			◐	VP15TF	M	≤.078	.006(.004–.008)
			◐		M	≤.118	.006(.004–.008)
			✣	MP7130,VP15TF	M	≤.078	.005(.004–.006)
			✣		M	≤.118	.005(.004–.006)
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ◐	MP7130	M	≤.078	.005(.004–.006)
			◐	VP15TF	M	≤.078	.006(.004–.008)
			✣	MP7130,VP15TF	M	≤.078	.005(.004–.006)
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ◐	MC5020	M	≤.118	.005(.004–.006)
			◐	VP15TF	R	≤.118	.006(.004–.008)
			✣	MC5020,VP15TF	R	≤.118	.005(.004–.006)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ◐	MC5020	M	≤.118	.005(.004–.006)
			◐	VP15TF	R	≤.118	.006(.004–.008)
			✣	MC5020,VP15TF	R	≤.118	.005(.004–.006)
S	Titanium Alloys	–	● ◐	MP9120	M	≤.078	.004(.002–.005)
			✣	MP9130	M	≤.078	.004(.002–.005)
	Heat Resistant Alloys	–	● ◐	MP9120	M	≤.078	.004(.002–.005)
			✣	MP9130	M	≤.078	.004(.002–.005)
H	Hardened Steel	Hardness 40–55HRC	●	VP15TF	M	≤.078	.002(.002–.004)
			◐	VP15TF,MP6120	R	≤.078	.002(.002–.004)

Note 1) To dischage chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When large vibration occurs, reduce the cutting conditions.
Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.
Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

(inch)

Width of Cut **ae**						
.8DC≥			DC(Slot)			Cutting Mode
Breaker	**ap**	**fz** (IPT)	Breaker	**ap**	**fz** (IPT)	
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
R	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
R	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
R	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
R	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
R	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
R	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry, Wet
M	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry
M	≤.118	.005(.004–.006)	–	–	–	Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry
M	≤.118	.005(.004–.006)	–	–	–	Wet
M	≤.118	.006(.004–.008)	–	–	–	Dry
M	≤.118	.006(.004–.008)	–	–	–	Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry
M	≤.118	.005(.004–.006)	–	–	–	Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry, Wet
M	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	–	–	–	Dry
M	≤.118	.005(.004–.006)	–	–	–	Wet
M	≤.118	.006(.004–.008)	–	–	–	Dry
M	≤.118	.006(.004–.008)	–	–	–	Wet
M	≤.118	.006(.004–.008)	–	–	–	Dry
M	≤.118	.005(.004–.006)	–	–	–	Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
R	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
R	≤.118	.005(.004–.006)	R	≤.078	.005(.004–.006)	Dry, Wet
M	≤.118	.005(.004–.006)	M	≤.078	.005(.004–.006)	Dry, Wet
R	≤.118	.006(.004–.008)	–	–	–	Dry, Wet
R	≤.118	.005(.004–.006)	R	≤.078	.005(.004–.006)	Dry, Wet
	–	–	–	–	–	Wet
–	–	–	–	–	–	Wet
–	–	–	–	–	–	Wet
–	–	–	–	–	–	Wet
–	–	–	–	–	–	Dry, Wet
–	–	–	–	–	–	Dry, Wet

WWX400

RECOMMENDED CUTTING CONDITIONS

Depth of Cut / Feed per Tooth

	Workpiece Material	Properties	Cutting Conditions	Grade	Width of Cut **ae** .5DC≥ Breaker	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	●	MP6120	L,M	≤.157	.005(.004–.006)
			●	MP6130	L,M	≤.157	.005(.004–.006)
			●		M,R	≤.157	.006(.004–.008)
			✱	MP6130,VP15TF	M,R	≤.157	.005(.004–.006)
	Carbon Steel Alloy Steel	Hardness 180–280HB	●	MP6120	L,M	≤.157	.005(.004–.006)
			●	MP6130	L,M	≤.157	.005(.004–.006)
			●		M,R	≤.157	.006(.004–.008)
			✱	MP6130,VP15TF	M,R	≤.157	.005(.004–.006)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280–350HB ≤350HB (Annealing)	●	MP6120	L,M	≤.118	.005(.004–.006)
			●	MP6130	L,M	≤.118	.005(.004–.006)
			●		M,R	≤.118	.006(.004–.008)
			✱	MP6130,VP15TF	M,R	≤.118	.005(.004–.006)
	Pre-hardened Steel	Hardness 35–45HRC	●	MP6120	L,M	≤.079	.005(.004–.006)
			●	MP6130	L,M	≤.079	.005(.004–.006)
			●		M,R	≤.079	.006(.004–.008)
			✱	MP6130,VP15TF	M,R	≤.079	.005(.004–.006)
M	Austenitic Stainless Steel	Hardness ≤200HB	● ●	MP7130	L,M	≤.157	.005(.004–.006)
			●	VP15TF	M	≤.157	.006(.004–.008)
			✱	MP7130,VP15TF	M	≤.157	.005(.004–.006)
	Austenitic Stainless Steel	Hardness >200HB	●	MP7130	L,M	≤.157	.005(.004–.006)
			●	MP7130	L,M	≤.118	.005(.004–.006)
			●	VP15TF	M	≤.118	.006(.004–.008)
			✱	MP7130,VP15TF	M	≤.118	.005(.004–.006)
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	● ●	MP7130	L,M	≤.157	.005(.004–.006)
			●	VP15TF	M	≤.157	.006(.004–.008)
			✱	MP7130,VP15TF	M	≤.118	.005(.004–.006)
	Duplex Stainless Steel	Hardness ≤280HB	● ●	MP7130	L,M	≤.118	.005(.004–.006)
			● ●	MP7130	L,M	≤.157	.005(.004–.006)
			●	VP15TF	M	≤.118	.006(.004–.008)
			●	VP15TF	M	≤.157	.006(.004–.008)
			✱	MP7130,VP15TF	M	≤.118	.005(.004–.006)
			✱	MP7130,VP15TF	M	≤.157	.005(.004–.006)
	Precipitation Hardening Stainless Steel	Hardness <450HB	●	MP7130	L,M	≤.079	.005(.004–.006)
			●	MP7130	L,M	≤.079	.005(.004–.006)
			●	VP15TF	M	≤.079	.006(.004–.008)
			✱	MP7130,VP15TF	M	≤.079	.005(.004–.006)
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ●	MC5020	L,M	≤.157	.005(.004–.006)
			●	VP15TF	M,R	≤.157	.006(.004–.008)
			✱	MC5020,VP15TF	M,R	≤.157	.005(.004–.006)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ●	MC5020	L,M	≤.157	.005(.004–.006)
			●	VP15TF	M,R	≤.157	.006(.004–.008)
			✱	MC5020,VP15TF	M,R	≤.157	.005(.004–.006)
N	Aluminum Alloys	Content Si<5%	● ● ✱	TF15	L	≤.157	.005(.004–.006)
S	Titanium Alloys	–	● ●	MP9120	L,M	≤.079	.004(.002–.005)
			✱	MP9130	L,M	≤.079	.004(.002–.005)
	Heat Resistant Alloys	–	● ●	MP9120	L,M	≤.079	.004(.002–.005)
			✱	MP9130	L,M	≤.079	.004(.002–.005)
H	Hardened Steel	Hardness 40–55HRC	●	VP15TF	M	≤.079	.002(.002–.004)
			●	VP15TF	M,R	≤.079	.002(.002–.004)

Note 1) Refer to the above table and set up cutting conditions according to cutting applications.

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

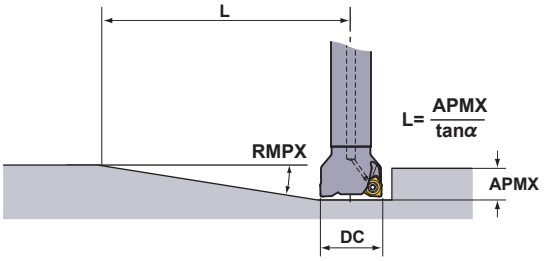
(inch)

Width of Cut **ae**						Cutting Mode
.8DC≥			DC(Slot)			
Breaker	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Breaker	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
M,R	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M,R	≤.118	.005(.004—.006)	M	≤.079	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
M,R	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M,R	≤.118	.005(.004—.006)	M	≤.079	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.118	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
M,R	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M,R	≤.118	.005(.004—.006)	M	≤.079	.005(.004—.006)	Dry, Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
M	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
M	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
M	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M	≤.118	.005(.004—.006)	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	—	—	—	Dry
L,M	≤.118	.005(.004—.006)	—	—	—	Wet
M	≤.118	.006(.004—.008)	—	—	—	Dry
M	≤.118	.006(.004—.008)	—	—	—	Wet
M	≤.118	.006(.004—.008)	—	—	—	Dry
M	≤.118	.005(.004—.006)	—	—	—	Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
M,R	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M,R	≤.118	.005(.004—.006)	M,R	≤.079	.005(.004—.006)	Dry, Wet
L,M	≤.118	.005(.004—.006)	L,M	≤.079	.005(.004—.006)	Dry, Wet
M,R	≤.118	.006(.004—.008)	—	—	—	Dry, Wet
M,R	≤.118	.005(.004—.006)	M,R	≤.079	.005(.004—.006)	Dry, Wet
L	≤.118	.005(.004—.006)	L	≤.079	.005(.004—.006)	Wet
—	—	—	—	—	—	Wet
—	—	—	—	—	—	Wet
—	—	—	—	—	—	Wet
—	—	—	—	—	—	Wet
—	—	—	—	—	—	Dry, Wet
—	—	—	—	—	—	Dry, Wet

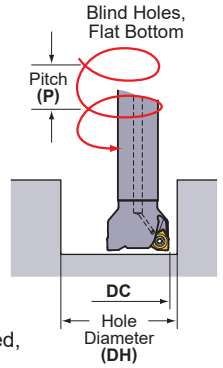
WWX400

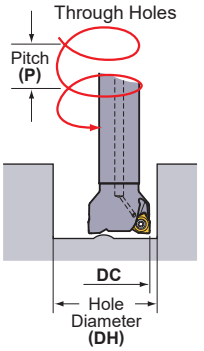
Ramping / Helical Milling

● **Ramping**



● **Helical Milling**





Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

(inch)

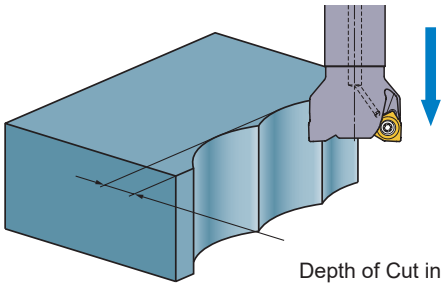
DC		RE	APMX	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
inch	mm			Maximum Ramping Angle **RMPX**	Minimum * Distance **L**	Maximum Hole Diameter **DH max.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**
1.969	50	.016	.315	.40°	46.260	3.878	.042	3.748	.039	3.248	.028
1.969	50	.031	.315	.40°	46.260	3.846	.041	3.748	.039	3.248	.028
2.000	—	.016	.315	.40°	46.260	3.929	.042	3.811	.040	3.295	.028
2.000	—	.031	.315	.40°	46.260	3.898	.042	3.811	.040	3.295	.028
2.480	63	.016	.315	.26°	71.142	4.902	.035	4.772	.033	4.276	.024
2.480	63	.031	.315	.26°	71.142	4.870	.034	4.772	.033	4.276	.024
2.500	—	.016	.315	.26°	71.142	4.929	.035	4.811	.033	4.299	.026
2.500	—	.031	.315	.26°	71.142	4.898	.034	4.811	.033	4.299	.026
3.000	—	.016	.315	.16°	115.591	5.929	.026	5.811	.025	5.299	.020
3.000	—	.031	.315	.16°	115.591	5.898	.026	5.811	.025	5.299	.020
3.150	80	.016	.315	.16°	115.591	6.240	.027	6.110	.026	5.614	.020
3.150	80	.031	.315	.16°	115.591	6.209	.027	6.114	.026	5.614	.020

*Shows the distance until a maximum depth of cut of .315" is achieved at the maximum ramping angle L (= .315"/tan α).
Note 1) When ramping and helical milling, it is recommended to reduce the feed per tooth.
Note 2) When ramping and helical milling, long continuous chips may be scattered so please be careful.
Note 3) WWX200 cannot be used for ramping or helical machining.

<Helical Milling>
To obtain a flat bottom surface when helical milling, it requires to remove "the uncut part" in the center of the workpiece material at a final pass.
When helical milling, make sure that the depth of cut per helical pass doesn't exceed the maximum depth of cut (**APMX**).

WWX400/200

● **Plunging**



Depth of Cut in the Radius Direction : **ae** = WWX200 .197 inch
WWX400 .315 inch

SHOULDER MILLING
<GENERAL CUTTING>

90° KAPR

ASX400

P M K N S H

Fig.1
ø2"
ø2.5"

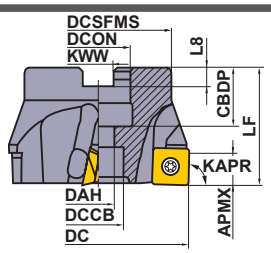


Fig.2
ø3"
ø4"
ø5"
ø6"

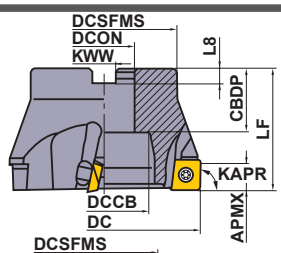
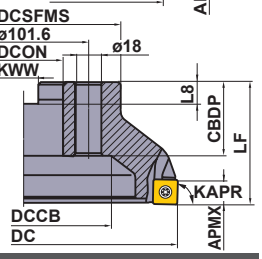


Fig.3
ø8"
ø10"



Right hand tool holder only.

■ ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	LF	DCON	CBDP	DAH	DCCB	KWW	L8	APMX (inch)	WT (lbs)	Fig.
Coarse Pitch	**ASX400R0203**	●	3	2.000	1.575	.750	.748	.415	—	.313	.187	.394	.8	1
	ASX400R2504	●	4	2.500	1.575	.750	.748	.415	—	.313	.187	.394	1.1	1
	ASX400R0304C	●	4	3.000	1.969	1.000	1.024	—	1.496	.375	.219	.394	2.2	2
	ASX400R0405E	●	5	4.000	1.969	1.500	1.378	—	2.362	.625	.375	.394	3.3	2
	ASX400R0506E	●	6	5.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	5.5	2
	ASX400R0608E	●	8	6.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	8.8	2
	ASX400R0810M	●	10	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	.394	15.0	3
	ASX400R1012M	●	12	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	.394	26.0	3
Fine Pitch	**ASX400R0204**	●	4	2.000	1.575	.750	.748	.415	—	.313	.187	.394	.8	1
	ASX400R2505	●	5	2.500	1.575	.750	.748	.415	—	.313	.187	.394	1.1	1
	ASX400R0306C	●	6	3.000	1.969	1.000	1.024	—	1.496	.375	.219	.394	2.2	2
	ASX400R0407E	●	7	4.000	1.969	1.500	1.378	—	2.362	.625	.375	.394	3.3	2
	ASX400R0508E	●	8	5.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	5.5	2
	ASX400R0612E	●	12	6.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	8.8	2
	ASX400R0816M	●	16	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	.394	15.0	3
	ASX400R1018M	●	18	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	.394	26.0	3
Extra Fine Pitch	**ASX400R0205**	●	5	2.000	1.575	.750	.748	.415	—	.313	.187	.394	.8	1
	ASX400R2506	●	6	2.500	1.575	.750	.748	.415	—	.313	.187	.394	1.1	1
	ASX400R0308C	●	8	3.000	1.969	1.000	1.024	—	1.496	.375	.219	.394	2.2	2
	ASX400R0410E	●	10	4.000	1.969	1.500	1.378	—	2.362	.625	.375	.394	3.3	2
	ASX400R0512E	●	12	5.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	5.5	2
	ASX400R0615E	●	15	6.000	2.480	1.500	1.378	—	2.362	.625	.375	.394	8.8	2
	ASX400R0819M	●	19	8.000	2.480	2.500	1.378	—	5.315	1.000	.560	.394	15.0	3
	ASX400R1022M	●	22	10.000	2.480	2.500	1.378	—	7.087	1.000	.560	.394	26.0	3

Note 1) Set bolt not included.

● : USA Stock ★ : Stocked in Japan

Metric Standard

For inch arbors

Fig.1
ø80
ø100
ø125
ø160

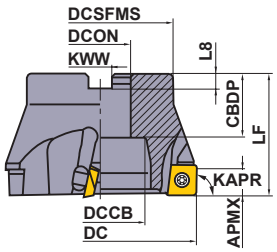
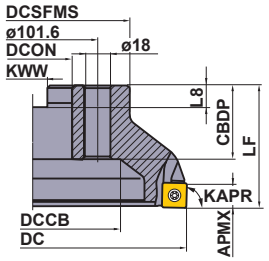


Fig.2
ø200
ø250

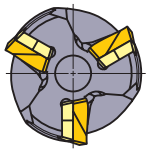


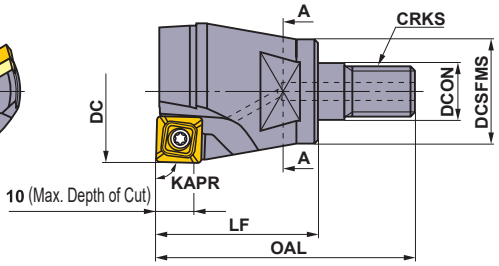
Right hand tool holder only.

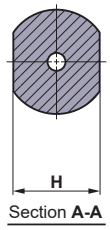
■ ARBOR TYPE

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) [inch] DC	LF	DCON	CBDP	DCCB	DCSFMS	KWW	L8	APMX (mm)	WT (kg)	Fig.
Coarse Pitch	**ASX400R08004C**	★	4	80	50	25.4 [1.0"]	26	38	60	9.5	6	10	1.0	1
	ASX400R10005D	★	5	100	50	31.75 [1.25"]	32	45	70	12.7	8	10	1.5	1
	ASX400R12506E	★	6	125	63	38.1 [1.5"]	35	60	80	15.9	10	10	2.5	1
	ASX400R16008F	★	8	160	63	50.8 [2.0"]	38	90	100	19.1	11	10	4.0	1
	ASX400R20010K	★	10	200	63	47.625 [1.875"]	35	135	160	25.4	14.22	10	7.0	2
	ASX400R25012K	★	12	250	63	47.625 [1.875"]	35	180	210	25.4	14.22	10	12.0	2
Fine Pitch	**ASX400R08006C**	★	6	80	50	25.4 [1.0"]	26	38	60	9.5	6	10	1.0	1
	ASX400R10007D	★	7	100	50	31.75 [1.25"]	32	45	70	12.7	8	10	1.5	1
	ASX400R12508E	★	8	125	63	38.1 [1.5"]	35	60	80	15.9	10	10	2.5	1
	ASX400R16012F	★	12	160	63	50.8 [2.0"]	38	90	100	19.1	11	10	4.0	1
	ASX400R20016K	★	16	200	63	47.625 [1.875"]	35	135	160	25.4	14.22	10	7.0	2
	ASX400R25018K	★	18	250	63	47.625 [1.875"]	35	180	210	25.4	14.22	10	12.0	2

Note 1) Set bolt not included.







Metric Standard

■ SCREW-IN TYPE

Right hand tool holder only.

Order Number	Stock R	Coolant Thru *3	Number of Teeth	Dimensions (mm) DC	DCON	DCSFMS	OAL	LF	H	CRKS *2	WT (kg)	Shim	Shim Screw *1	Insert Screw *1	Wrench (Insert)	Wrench (Shim)
ASX400R322AM1640	★	Y	2	32	17	29	63	40	24	M16	0.3	—	WCS503507H	TPS35	TIP15T	HKY35R
ASX400R403AM1645	★	Y	3	40	17	29	68	45	24	M16	0.3	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R

*1 Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31
*2 Clamp Torque of the Head (lbf-ft) : M16=66.7
*3 Y=Yes

ISO13399	➤ K003
SCREW-IN HOLDERS	➤ K382
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

Metric Standard

For metric arbors

Fig.1 ø50 ø63

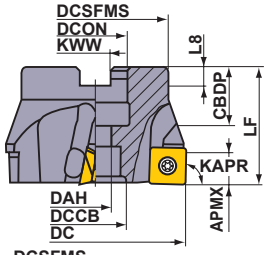


Fig.2 ø80 ø100 ø125

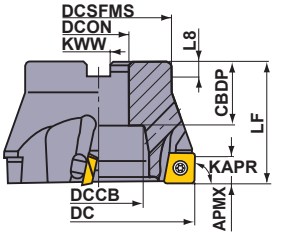


Fig.3 ø160

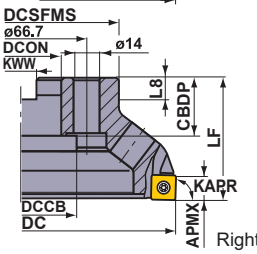
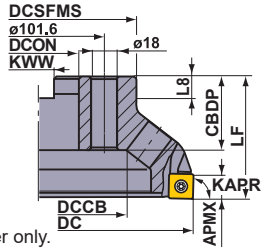


Fig.4 ø200 ø250



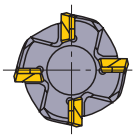
■ ARBOR TYPE

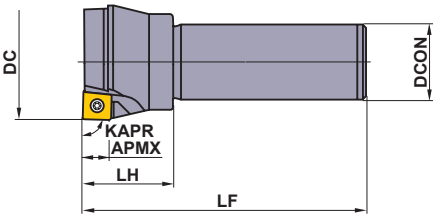
Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	LF	DCON	CBDP	DAH	DCCB	DCSFMS	KWW	L8	APMX (mm)	WT (kg)	Fig.
Coarse Pitch	ASX400-050A03R	★	3	50	40	22	20	11	—	41	10.4	6.3	10	0.3	1
	ASX400-063A04R	★	4	63	40	22	20	11	—	50	10.4	6.3	10	0.5	1
	ASX400-080B04R	★	4	80	50	27	29	—	38	60	12.4	7	10	0.9	2
	ASX400-100B05R	★	5	100	50	32	32	—	45	70	14.4	8	10	1.4	2
	ASX400-125B06R	★	6	125	63	40	32	—	60	80	16.4	9	10	2.3	2
	ASX400-160C08R	★	8	160	63	40	29	—	56	100	16.4	9	10	3.6	3
	ASX400-200C10R	★	10	200	63	60	32	—	135	160	25.7	14.22	10	6.3	4
	ASX400-250C12R	★	12	250	63	60	32	—	180	210	25.7	14.22	10	10.8	4
Fine Pitch	ASX400-050A04R	★	4	50	40	22	20	11	—	41	10.4	6.3	10	0.3	1
	ASX400-063A05R	★	5	63	40	22	20	11	—	50	10.4	6.3	10	0.5	1
	ASX400-080B06R	★	6	80	50	27	29	—	38	60	12.4	7	10	0.9	2
	ASX400-100B07R	★	7	100	50	32	32	—	45	70	14.4	8	10	1.4	2
	ASX400-125B08R	★	8	125	63	40	32	—	60	80	16.4	9	10	2.2	2
	ASX400-160C12R	★	12	160	63	40	29	—	56	100	16.4	9	10	3.5	3
	ASX400-200C16R	★	16	200	63	60	32	—	135	160	25.7	14.22	10	6.2	4
	ASX400-250C18R	★	18	250	63	60	32	—	180	210	25.7	14.22	10	10.7	4
Extra Fine Pitch	ASX400-050A05R	★	5	50	40	22	20	11	—	41	10.4	6.3	10	0.3	1
	ASX400-063A06R	★	6	63	40	22	20	11	—	50	10.4	6.3	10	0.5	1
	ASX400-080B08R	★	8	80	50	27	29	—	38	60	12.4	7	10	0.9	2
	ASX400-100B10R	★	10	100	50	32	32	—	45	70	14.4	8	10	1.4	2
	ASX400-125B12R	★	12	125	63	40	32	—	60	80	16.4	9	10	2.1	2
	ASX400-160C15R	★	15	160	63	40	29	—	56	100	16.4	9	10	3.4	3
	ASX400-200C19R	★	19	200	63	60	32	—	135	160	25.7	14.22	10	6.2	4
	ASX400-250C22R	★	22	250	63	60	32	—	180	210	25.7	14.22	10	10.5	4

Note 1) Set bolt not included.

Metric Standard





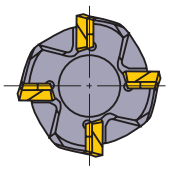
■ SHANK TYPE

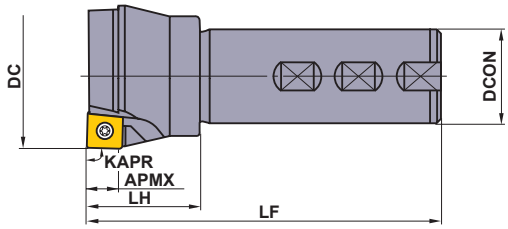
Right hand tool holder only.

Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	LF	DCON	LH	APMX	Shim	Shim Screw *	Insert Screw *	Wrench (Insert)	Wrench (Shim)	Insert
Coarse Pitch	ASX400R403S32	★	3	40	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	SO□T12T3□□ PE□R-□□
	ASX400R503S32	★	3	50	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	
	ASX400R634S32	★	4	63	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	
	ASX400R804S32	★	4	80	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	
Fine Pitch	ASX400R504S32	★	4	50	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	SO□T12T3□□ PE□R-□□
	ASX400R635S32	★	5	63	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	
	ASX400R806S32	★	6	80	125	32	40	10	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

● : USA Stock ★ : Stocked in Japan





Right hand tool holder only.

■ WELDON SHANK TYPE

Order Number	Stock	Number of Teeth	Dimensions (inch)					Shim	Shim Screw *	Insert Screw *	Wrench (Insert)	Wrench (Shim)	Insert
	R		DC	LF	DCON	LH	APMX	Shim	Shim Screw	Insert Screw	Wrench (Insert)	Wrench (Shim)	Insert
ASX400R202W20	●	2	1.250	4.750	1.250	1.500	.394	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	SO□T12T3□□ PE□R-□□
ASX400R243W20	●	3	1.500	4.750	1.250	1.500	.394	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	
ASX400R324W20	●	4	2.000	4.750	1.250	1.575	.394	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

SPARE PARTS

Tool Holder Number	Shim	Shim Screw *	Insert Screw *	Wrench (Insert)	Wrench (Shim)	Insert
ASX400R Type	STASX400N	WCS503507H	TPS35	TIP15T	HKY35R	SO□T12T3□□ PE□R-□□

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

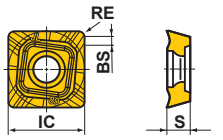
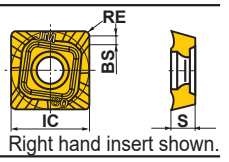
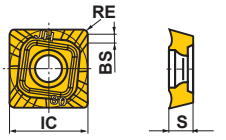
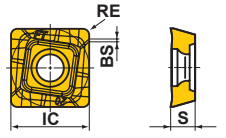
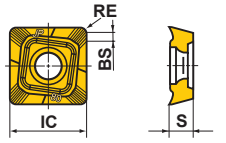
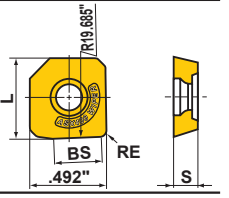
ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting
✣ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp **T** : Chamfer

Application	Shape	Order Number	Class	Edge Preparation	Coated											Cermet		Carbide		Dimensions (inch)					Geometry
					F7010	F7030	MC5020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT	NX4545	NX2525	HTi10	HTi05T	L	IC	S	BS	RE	
Finish–Light Cutting	**JL** Breaker	**SOET12T308PEER-JL**	E	E		●		●	●	●	●	●	●	●	●	●				–	.500	.156	.055	.031	
Light–Rough Cutting	**JM** Breaker	**SOMT12T308PEER-JM**	M	E	●	●	●	●	●	●	●	●	●	●	●	●				–	.500	.156	.055	.031	
		SOMT12T308PEEL-JM	M	E										★						–	.500	.156	.055	.031	Right hand insert shown.
Medium–Heavy Cutting	**JH** Breaker	**SOMT12T308PEER-JH**	M	E		●	●	●	●	●	●	●	●	●	●					–	.500	.156	.055	.031	
Heavy Interrupted Cutting	**FT** Breaker	**SOMT12T320PEER-FT**	M	E			●	●				●	●	●						–	.500	.156	.020	.079	
For Aluminum Alloys	**JP** Breaker	**SOGT12T308PEFR-JP**	G	F														●		–	.500	.156	.055	.031	
Wiper		**WOEW12T308PEER8C**	E	E															●	.520	–	.156	.315	.031	
		WOEW12T308PETR8C	E	T													●			.520	–	.156	.315	.031	

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

Workpiece Material		Hardness	Grade	Cutting Speed (SFM)	Finish—Light Cutting		Light—Rough Cutting		Medium—Heavy Cutting	
					Feed per Tooth (inch/tooth)	Breaker	Feed per Tooth (inch/tooth)	Breaker	Feed per Tooth (inch/tooth)	Breaker
P	Mild Steel	≤180HB	**F7030**	920 (690—1150)	.007 (.003—.011)	**JL**	.008 (.004—.012)	**JM**	.010 (.008—.014)	**JH**
			MP6120 VP15TF	820 (655—985)	.007 (.003—.011)	**JL**	.008 (.004—.012)	**JM**	.010 (.004—.014)	**JH**
			MP6130	780 (652—950)	.007 (.003—.011)	**JL**	.008 (.004—.012)	**JM**	.010 (.004—.014)	**JH**
			VP30RT	755 (590—920)	.007 (.003—.011)	**JL**	.008 (.004—.012)	**JM**	.010 (.004—.014)	**JH**
			NX4545	590 (425—755)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	—	—
	Carbon Steel Alloy Steel	180—280HB	**F7030**	820 (655—985)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	.008 (.004—.012)	**JH**
			MP6120 VP15TF	720 (560—885)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	.008 (.004—.012)	**JH**
			MP6130	600 (480—740)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	.008 (.004—.012)	**JH**
			VP30RT	490 (395—590)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	—	—
			NX4545	490 (390—590)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	—	—
		280—350HB	**F7030**	590 (425—755)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	.007 (.004—.011)	**JH**
			MP6120 VP15TF	460 (330—590)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	.007 (.004—.011)	**JH**
			MP6130	510 (290—560)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	.007 (.004—.011)	**JH**
			VP30RT	390 (260—525)	.005 (.002—.008)	**JL**	.006 (.004—.010)	**JM**	.007 (.004—.011)	**JH**
			NX4545	330 (260—395)	.004 (.002—.006)	**JL**	.005 (.004—.008)	**JM**	—	—
M	Stainless Steel	≤270HB	**MP7130 VP15TF**	720 (560—885)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	.008 (.004—.012)	**JH**
			MP7140 VP30RT	490 (395—590)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	—	—
			NX4545	490 (390—590)	.006 (.003—.009)	**JL**	.007 (.004—.011)	**JM**	—	—
K	Cast Iron Ductile Cast Iron	Tensile Strength ≤450MPa	**MC5020**	655 (490—820)	—	—	.008 (.004—.012)	**JM**	.010 (.004—.014)	**JH FT**
			VP15TF NX4545	590 (425—820)	.007 (.004—.011)	**JL**	.008 (.004—.012)	**JM**	.010 (.004—.014)	**JH**
N	Aluminum Alloys	—	**HTi10**	2130 (1000—3300)	.006 (.004—.008)	**JP**	.008 (.004—.012)	**JP**	.012 (.008—.016)	**JP**
S	Titanium Alloys	—	**MP9120 VP15TF**	165 (130—195)	.005 (.002—.008)	**JL**	.006 (.003—.009)	**JM**	—	—
			MP9130	140 (100—180)	.005 (.002—.008)	**JL**	.006 (.003—.009)	**JM**	—	—
	Heat Resistant Alloys	—	**MP9120 VP15TF**	130 (65—165)	.004 (.002—.006)	**JL**	.005 (.003—.008)	**JM**	—	—
			MP9130	110 (55—140)	.004 (.002—.006)	**JL**	.005 (.003—.008)	**JM**	—	—
H	Hardened Steel	40—55HRC	**VP15TF**	200 (120—280)	.003 (.002—.005)	**JL**	.004 (.002—.006)	**JM**	.005 (.003—.007)	**JH**

INSTRUCTIONS FOR USING INSERTS

■ INSTRUCTIONS FOR USE OF THE JP BREAKER

- The JP breaker has sharp cutting edges. Wear gloves when handling.
- When machining aluminum alloy, welding to the cutting edge tends to occur, often leading to insert failure. To prevent this, wet cutting is recommended.

■ INSTRUCTIONS FOR USE OF WIPER INSERTS

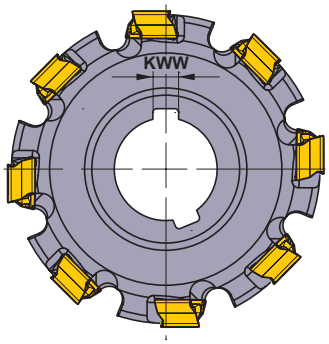
- Wiper inserts for the ASX400 are single-cornered.
- When installing the wiper insert, place the insert so that the small chamfer is located as shown.

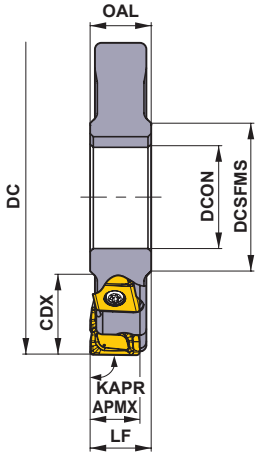
SIDE CUTTER

90° KAPR

VAS400

P M K N S H





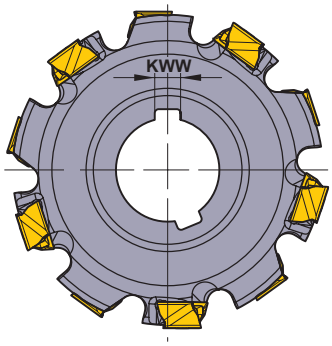
■HALF SIDE

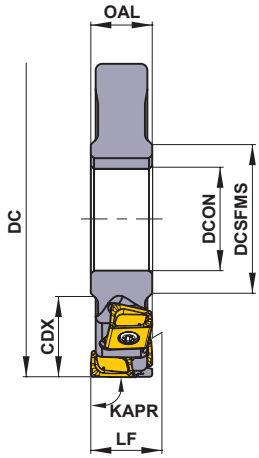
Max. Depth of Cut **APMX** : RE<.118" .480"
RE≥.118" .449"

(inch)

DC	Order Number	Hand	Stock	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
4.000	**VAS400UA041010L0.75D**	L	□	10	.750	1.040	1.250	1.750	.750	.318	LNGU13
4.000	**VAS400UA041010R0.75D**	R	□	10	.750	1.040	1.250	1.750	.750	.318	LNGU13
4.000	**VAS400UA041010L1.00D**	L	□	10	1.000	1.040	1.250	1.750	1.000	.318	LNGU13
4.000	**VAS400UA041010R1.00D**	R	□	10	1.000	1.040	1.250	1.750	1.000	.318	LNGU13
5.000	**VAS400UA051212L0.75E**	L	□	12	.750	1.380	1.500	2.120	.750	.385	LNGU13
5.000	**VAS400UA051212R0.75E**	R	□	12	.750	1.380	1.500	2.120	.750	.385	LNGU13
5.000	**VAS400UA051212L1.00E**	L	□	12	1.000	1.380	1.500	2.120	1.000	.385	LNGU13
5.000	**VAS400UA051212R1.00E**	R	□	12	1.000	1.380	1.500	2.120	1.000	.385	LNGU13
6.000	**VAS400UA061414L0.75E**	L	□	14	.750	1.890	1.500	2.120	.750	.385	LNGU13
6.000	**VAS400UA061414R0.75E**	R	□	14	.750	1.890	1.500	2.120	.750	.385	LNGU13
6.000	**VAS400UA061414L1.00E**	L	□	14	1.000	1.890	1.500	2.120	1.000	.385	LNGU13
6.000	**VAS400UA061414R1.00E**	R	□	14	1.000	1.890	1.500	2.120	1.000	.385	LNGU13
8.000	**VAS400UA082020L0.75F**	L	□	20	.750	2.560	2.000	2.750	.750	.510	LNGU13
8.000	**VAS400UA082020R0.75F**	R	□	20	.750	2.560	2.000	2.750	.750	.510	LNGU13
8.000	**VAS400UA082020L1.00F**	L	□	20	1.000	2.560	2.000	2.750	1.000	.510	LNGU13
8.000	**VAS400UA082020R1.00F**	R	□	20	1.000	2.560	2.000	2.750	1.000	.510	LNGU13

● : USA Stock □ : Made to Order





■FULL SIDE

(inch)

DC	Order Number	Stock	Effective No. of Teeth	Total No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
4.000	**VAS400UA041005N0.75D**	●	5	10	.750	1.040	1.250	1.750	.750	.318	LNGU13
4.000	**VAS400UA041005N1.00D**	●	5	10	1.000	1.040	1.250	1.750	1.000	.318	LNGU13
5.000	**VAS400UA051206N0.75E**	●	6	12	.750	1.380	1.500	2.120	.750	.385	LNGU13
5.000	**VAS400UA051206N1.00E**	●	6	12	1.000	1.380	1.500	2.120	1.000	.385	LNGU13
6.000	**VAS400UA061407N0.75E**	●	7	14	.750	1.890	1.500	2.120	.750	.385	LNGU13
6.000	**VAS400UA061407N1.00E**	●	7	14	1.000	1.890	1.500	2.120	1.000	.385	LNGU13
8.000	**VAS400UA082010N0.75F**	●	10	20	.750	2.560	2.000	2.750	.750	.510	LNGU13
8.000	**VAS400UA082010N1.00F**	●	10	20	1.000	2.560	2.000	2.750	1.000	.510	LNGU13

SPARE PARTS

Arbor Type	 *	
	Clamp Screw	Wrench (Insert)
VAS400UA	TS405	TKY15T

* Clamp Torque (lbf-in) : TS405=31

ISO13399 ➤ K003
CUTTING CONDITIONS ➤ K151
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

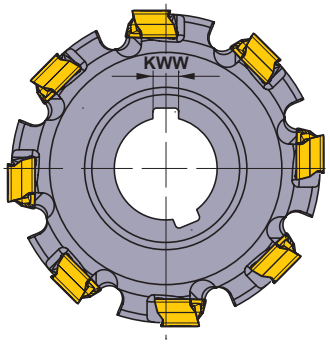
SIDE CUTTER

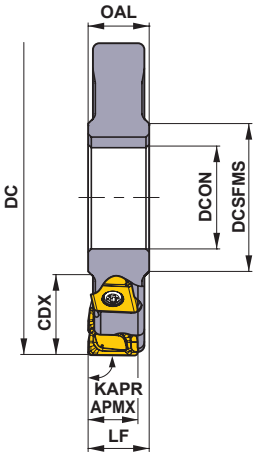
90° KAPR

VAS400 Engineering Specials

P M K N S H

Metric Standard



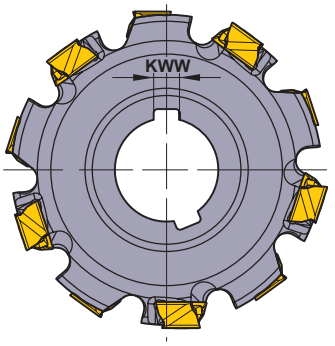


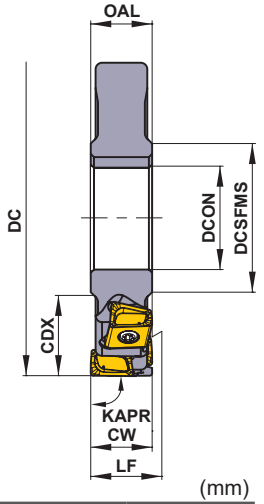
Max. Cutting Diameter **DC** : ø400 mm
Max. Depth of Cut **APMX** : RE<3.0 mm 12.2 mm
RE≥3.0 mm 11.4 mm

■ HALF SIDE

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
80	8	≥18	20	27	40	≥18	7	LNGU13
100	10	≥18	27	32	46	≥18	8	LNGU13
125	12	≥18	35	40	55	≥18	10	LNGU13
160	14	≥18	52.5	40	55	≥18	10	LNGU13





■ FULL SIDE

Largest Width **CW** : 100 mm
Max. Cutting Diameter **DC** : ø400 mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF *1	CW *2	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
80	4	8	≥18	18 – 24	20	27	40	≥18	7	LNGU13
100	5	10	≥18	18 – 24	27	32	46	≥18	8	LNGU13
125	6	12	≥18	18 – 24	35	40	55	≥18	10	LNGU13
160	7	14	≥18	18 – 24	52.5	40	55	≥18	10	LNGU13

*1 In case of adjustment piece specification. **LF** : ≥24

*2 **CW** of RE<3.0 mm is 24 mm, and RE≤3.0 mm is 22.8 mm. Multilevel designs available for **CW** over each sizes.

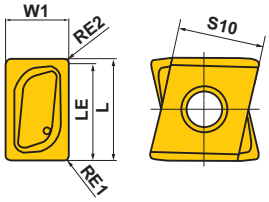
Note 1) Please contact us for details of any geometry.

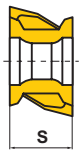
INSERTS

Workpiece Material		
P	Steel	
K	Cast Iron	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Edge Preparation :
E : Round

Shape	Order Number	Hand	Class	Edge Preparation	Coated			Dimensions (inch)							Geometry
					MP6120	VP15TF		L	LE	S	S10	RE1	RE2	W1	
Low Resistance Type **M** Breaker	**LNGU130804PNER-M**	R	G	E		●		.512	.480	.315	.433	.016	.031	.315	
	LNGU130804PNEL-M	L	G	E		●		.512	.480	.315	.433	.016	.031	.315	
	LNGU130808PNER-M	R	G	E		●		.512	.480	.315	.433	.031	.031	.315	
	LNGU130808PNEL-M	L	G	E		●		.512	.480	.315	.433	.031	.031	.315	
	LNGU130812PNER-M	R	G	E		●		.512	.480	.315	.433	.047	.031	.315	
	LNGU130812PNEL-M	L	G	E		●		.512	.480	.315	.433	.047	.031	.315	
	LNGU130816PNER-M	R	G	E		●		.512	.480	.315	.433	.063	.031	.315	
	LNGU130816PNEL-M	L	G	E		●		.512	.480	.315	.433	.063	.031	.315	
	LNGU130820PNER-M	R	G	E		●		.512	.480	.315	.433	.079	.031	.315	
	LNGU130820PNEL-M	L	G	E		●		.512	.480	.315	.433	.079	.031	.315	
	LNGU130824PNER-M	R	G	E		●		.512	.480	.315	.433	.094	.031	.315	
	LNGU130824PNEL-M	L	G	E		●		.512	.480	.315	.433	.094	.031	.315	
	LNGU130830PNER-M	R	G	E		●		.512	.449	.315	.433	.118	.063	.315	
	LNGU130830PNEL-M	L	G	E		●		.512	.449	.315	.433	.118	.063	.315	
	LNGU130840PNER-M	R	G	E		●		.512	.449	.315	.433	.157	.063	.315	
	LNGU130840PNEL-M	L	G	E		●		.512	.449	.315	.433	.157	.063	.315	
	LNGU130850PNER-M	R	G	E		●		.512	.449	.315	.433	.197	.063	.315	
	LNGU130850PNEL-M	L	G	E		●		.512	.449	.315	.433	.197	.063	.315	
Strong Cutting Edge Type **R** Breaker	**LNGU130804PNER-R**	R	G	E	●	●		.512	.480	.315	.433	.016	.031	.315	
	LNGU130804PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.016	.031	.315	
	LNGU130808PNER-R	R	G	E	●	●		.512	.480	.315	.433	.031	.031	.315	
	LNGU130808PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.031	.031	.315	
	LNGU130812PNER-R	R	G	E	●	●		.512	.480	.315	.433	.047	.031	.315	
	LNGU130812PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.047	.031	.315	
	LNGU130816PNER-R	R	G	E	●	●		.512	.480	.315	.433	.063	.031	.315	
	LNGU130816PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.063	.031	.315	
	LNGU130820PNER-R	R	G	E	●	●		.512	.480	.315	.433	.079	.031	.315	
	LNGU130820PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.079	.031	.315	
	LNGU130824PNER-R	R	G	E	●	●		.512	.480	.315	.433	.094	.031	.315	
	LNGU130824PNEL-R	L	G	E	●	●		.512	.480	.315	.433	.094	.031	.315	
	LNGU130830PNER-R	R	G	E	●	●		.512	.449	.315	.433	.118	.063	.315	
	LNGU130830PNEL-R	L	G	E	●	●		.512	.449	.315	.433	.118	.063	.315	
	LNGU130840PNER-R	R	G	E	●	●		.512	.449	.315	.433	.157	.063	.315	
	LNGU130840PNEL-R	L	G	E	●	●		.512	.449	.315	.433	.157	.063	.315	
	LNGU130850PNER-R	R	G	E	●	●		.512	.449	.315	.433	.197	.063	.315	
	LNGU130850PNEL-R	L	G	E	●	●		.512	.449	.315	.433	.197	.063	.315	





Right hand insert shown.

● : USA Stock
<10 inserts in one case>

ISO13399 ➤ K003
CUTTING CONDITIONS ➤ K151
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

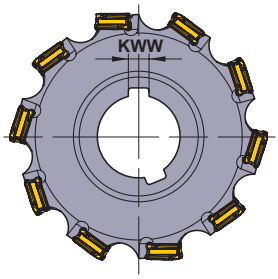
SIDE CUTTER

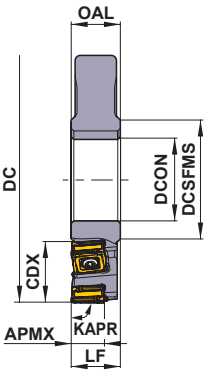
90° KAPR

VOS400 Engineering Specials

P M **K** N S H

Metric Standard



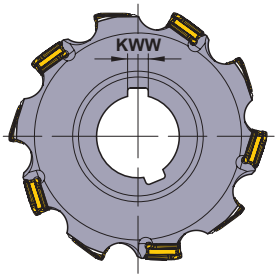


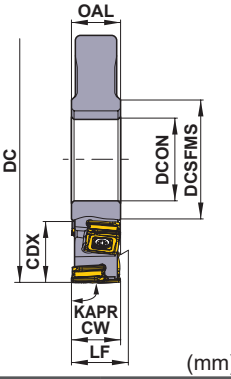
■ HALF SIDE

Max. Cutting Diameter **DC** : ø400 mm

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	APMX
80	8	≥16	20	27	40	≥16.8	7	10
100	10	≥16	27	32	46	≥16.8	8	10
125	12	≥16	35	40	55	≥16.8	10	10
160	14	≥16	52.5	40	55	≥16.8	10	10





■ FULL SIDE

Largest Width **CW** : 100 mm
Max. Cutting Diameter **DC** : ø400 mm

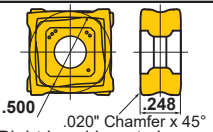
(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF	CW	CDX	DCON	DCSFMS	OAL	KWW
80	4	8	≥16	16 – 20	20	27	40	≥16	7
100	5	10	≥16	16 – 20	27	32	46	≥16	8
125	6	12	≥16	16 – 20	35	40	55	≥16	10
160	7	14	≥16	16 – 20	52.5	40	55	≥16	10

Note 1) Multilevel designs available for CW over 20 mm.
Note 2) Please contact us for detail of any geometry.

INSERT

(inch)

Shape	Order Number	Hand	Class	Edge Preparation	Coated VP15TF	Geometry
	**SONX1206PER**	R	N	E	●	
	SONX1206PEL	L	N	E	★	

Right hand insert shown.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

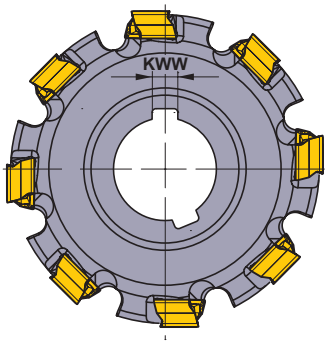
SIDE CUTTER

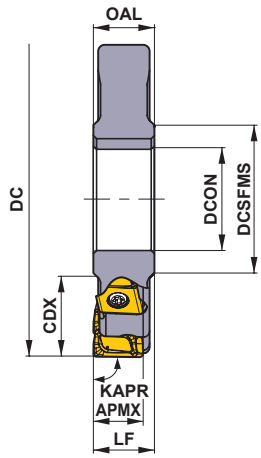
90° KAPR

VAS500 Engineering Specials

P | M | K | N | S | H

Metric Standard





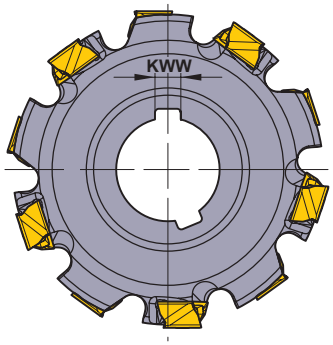
Max. Cutting Diameter **DC** : ø660 mm
Max. Depth of Cut **APMX** : RE<3.0 mm 16.2 mm
RE≥3.0 mm 15.4 mm

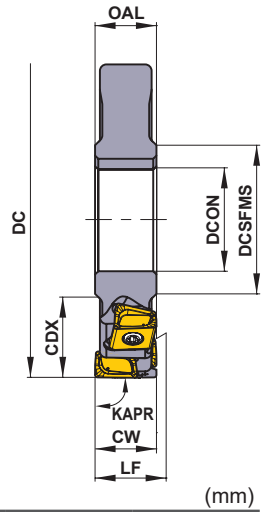
■ HALF SIDE

(mm)

DC	No. of Teeth	LF *	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
100	8	≥23	27	32	46	≥23	8	LNGU17
125	10	≥23	35	40	55	≥23	10	LNGU17
160	12	≥23	52.5	40	55	≥23	10	LNGU17
200	16	≥23	65	50	70	≥23	12	LNGU17

* In case of adjustment piece specification. **LF** : ≥29





■ FULL SIDE

Largest Width **CW** : 100 mm
Max. Cutting Diameter **DC** : ø660 mm

(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF *1	CW *2	CDX	DCON	DCSFMS	OAL	KWW	Insert Type
100	4	8	≥23	23 – 32	27	32	46	≥23	8	LNGU17
125	5	10	≥23	23 – 32	35	40	55	≥23	10	LNGU17
160	6	12	≥23	23 – 32	52.5	40	55	≥23	10	LNGU17
200	8	16	≥23	23 – 32	65	50	70	≥23	12	LNGU17

*1 In case of adjustment piece specification. **LF** : ≥29

*2 **CW** of RE<3.0 mm is 32 mm, and RE≤3.0 mm is 30.8 mm.

Note 1) Please contact us for details of any geometry.

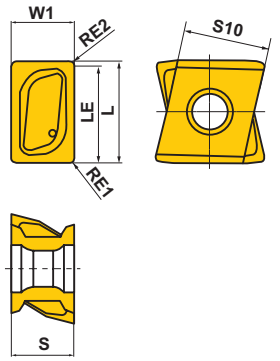
ISO13399	➤ K003	SPARE PARTS	➤ M001
CUTTING CONDITIONS	➤ K151	TECHNICAL DATA	➤ N001

INSERTS

Workpiece Material		
	P	Steel
	K	Cast Iron

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Edge Preparation :
E : Round

Shape	Order Number	Hand	Class	Edge Preparation	Coated		Dimensions (mm)							Geometry
					MP6120	VP15TF	L	LE	S	S10	RE1	RE2	W1	
Strong Cutting Edge Type **R** Breaker	**LNGU171004PNER-R**	R	G	E	★	★	17	16.2	10	13	0.4	0.8	10	
	LNGU171004PNEL-R	L	G	E	★	★	17	16.2	10	13	0.4	0.8	10	
	LNGU171008PNER-R	R	G	E	★	★	17	16.2	10	13	0.8	0.8	10	
	LNGU171008PNEL-R	L	G	E	★	★	17	16.2	10	13	0.8	0.8	10	
	LNGU171012PNER-R	R	G	E	★	★	17	16.2	10	13	1.2	0.8	10	
	LNGU171012PNEL-R	L	G	E	★	★	17	16.2	10	13	1.2	0.8	10	
	LNGU171016PNER-R	R	G	E	★	★	17	16.2	10	13	1.6	0.8	10	
	LNGU171016PNEL-R	L	G	E	★	★	17	16.2	10	13	1.6	0.8	10	
	LNGU171020PNER-R	R	G	E	★	★	17	16.2	10	13	2	0.8	10	
	LNGU171020PNEL-R	L	G	E	★	★	17	16.2	10	13	2	0.8	10	
	LNGU171024PNER-R	R	G	E	★	★	17	16.2	10	13	2.4	0.8	10	
	LNGU171024PNEL-R	L	G	E	★	★	17	16.2	10	13	2.4	0.8	10	
	LNGU171030PNER-R	R	G	E	★	★	17	15.4	10	13	3	1.6	10	
	LNGU171030PNEL-R	L	G	E	★	★	17	15.4	10	13	3	1.6	10	
	LNGU171040PNER-R	R	G	E	★	★	17	15.4	10	13	4	1.6	10	
	LNGU171040PNEL-R	L	G	E	★	★	17	15.4	10	13	4	1.6	10	
	LNGU171050PNER-R	R	G	E	★	★	17	15.4	10	13	5	1.6	10	
	LNGU171050PNEL-R	L	G	E	★	★	17	15.4	10	13	5	1.6	10	
	LNGU171060PNER-R	R	G	E	★	★	17	15.4	10	13	6	1.6	10	
	LNGU171060PNEL-R	L	G	E	★	★	17	15.4	10	13	6	1.6	10	
	LNGU171070PNER-R	R	G	E	★	★	17	15.4	10	13	7	1.6	10	
	LNGU171070PNEL-R	L	G	E	★	★	17	15.4	10	13	7	1.6	10	



Right hand insert shown.

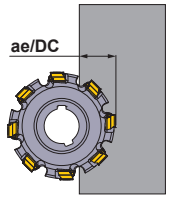
★ : Stocked in Japan
<10 inserts in one case>

VAS400/500

RECOMMENDED CUTTING CONDITIONS (Dry Cutting)

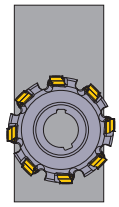
Shoulder Milling

(inch)

	Workpiece Material	Properties	Insert Grade	**vc** (SFM)	Depth of Cut **ap**	Width of Cut **ae/DC**	Feed per Tooth **fz** (IPT)	Cutting Mode
P	Mild Steel	Hardness ≤180HB	MP6120 VP15TF	490(425—590)	≤APMX	<10%	.004(.003—.006)	
				490(425—590)	≤APMX	<30%	.004(.003—.006)	
				490(425—590)	≤APMX	≤50%	.004(.003—.006)	
	Carbon Steel Alloy Steel	Hardness 180—280HB	MP6120 VP15TF	490(425—590)	≤.079	≤50%	.005(.003—.008)	
				490(425—590)	≤.157	<10%	.005(.003—.008)	
				490(425—590)	≤.157	≤50%	.004(.003—.006)	
				490(425—590)	≤APMX	<10%	.004(.003—.006)	
				490(425—590)	≤APMX	≤50%	.004(.003—.005)	
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP15TF	490(425—590)	≤.079	≤50%	.005(.003—.008)	
				490(425—590)	≤.157	<10%	.005(.003—.008)	
				490(425—590)	≤.157	≤50%	.004(.003—.006)	
				490(425—590)	≤APMX	<10%	.004(.003—.006)	
				490(425—590)	≤APMX	≤50%	.004(.003—.005)	
	Ductile Cast Iron	Tensile Strength ≤450MPa	VP15TF	425(360—525)	≤.079	≤50%	.005(.003—.008)	
				425(360—525)	≤.157	<10%	.005(.003—.008)	
				425(360—525)	≤.157	≤50%	.004(.003—.006)	
				425(360—525)	≤APMX	<10%	.004(.003—.006)	
				425(360—525)	≤APMX	≤50%	.004(.003—.005)	
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP15TF	425(360—525)	≤.079	≤50%	.005(.003—.008)	
				425(360—525)	≤.157	<10%	.005(.003—.008)	
				425(360—525)	≤.157	≤50%	.004(.003—.006)	
				425(360—525)	≤APMX	<10%	.004(.003—.006)	
				425(360—525)	≤APMX	≤50%	.004(.003—.005)	

Face Milling (Center Cutting)

(inch)

	Workpiece Material	Properties	Insert Grade	**vc** (SFM)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Cutting Mode
P	Mild Steel	Hardness ≤180HB	MP6120 VP15TF	490(425—590)	≤APMX	.004(.003—.006)	
	Carbon Steel Alloy Steel	Hardness 180—280HB	MP6120 VP15TF	490(425—590)	≤.079	.005(.003—.008)	
				490(425—590)	≤.157	.004(.003—.006)	
				490(425—590)	≤APMX	.004(.003—.005)	
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP15TF	490(425—590)	≤.079	.005(.003—.008)	
				490(425—590)	≤.157	.004(.003—.006)	
				490(425—590)	≤APMX	.004(.003—.005)	
	Ductile Cast Iron	Tensile Strength ≤450MPa	VP15TF	490(425—590)	≤.079	.005(.003—.008)	
				490(425—590)	≤.157	.004(.003—.006)	
				490(425—590)	≤APMX	.004(.003—.005)	
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP15TF	425(360—525)	≤.079	.005(.003—.008)	
				425(360—525)	≤.157	.004(.003—.006)	
				425(360—525)	≤APMX	.004(.003—.005)	

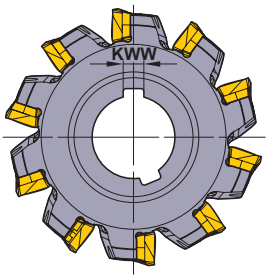
SIDE CUTTER

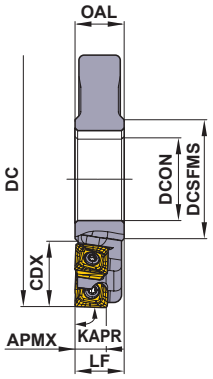
90° KAPR

ASX400 Engineering Specials

P M K N S H

Metric Standard



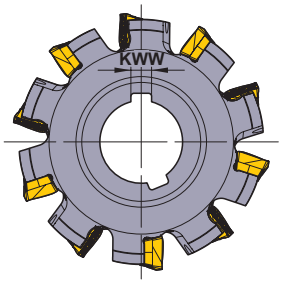


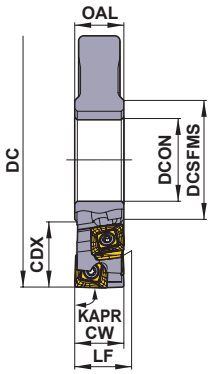
Max. Cutting Diameter **DC** : ø400 mm

■ HALF SIDE

(mm)

DC	No. of Teeth	LF	CDX	DCON	DCSFMS	OAL	KWW	APMX
80	8	≥16	20	27	40	≥16.8	7	10
100	10	≥16	27	32	46	≥16.8	8	10
125	12	≥16	35	40	55	≥16.8	10	10
160	14	≥16	52.5	40	55	≥16.8	10	10





Largest Width **CW** : 100 mm
Max. Cutting Diameter **DC** : ø400 mm

■ FULL SIDE

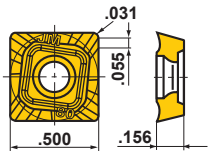
(mm)

DC	Effective No. of Teeth	Total No. of Teeth	LF	CW	CDX	DCON	DCSFMS	OAL	KWW
80	4	8	≥16	16 – 20	20	27	40	≥16	7
100	5	10	≥16	16 – 20	27	32	46	≥16	8
125	6	12	≥16	16 – 20	35	40	55	≥16	10
160	7	14	≥16	16 – 20	52.5	40	55	≥16	10

Note 1) Multilevel designs available for CW over 20 mm.
Note 2) Please contact us for detail of any geometry.

INSERT

(inch)

Shape	Order Number	Hand	Class	Edge Preparation	Coated VP15TF		Geometry
	SOMT12T308PEER-JM	R	M	E	●		
	SOMT12T308PEEL-JM	L	M	E	★		

Right hand insert shown.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

MULTI-FUNCTIONAL MILLING

90° KAPR

APX3000

P M K N S H

Fig.1

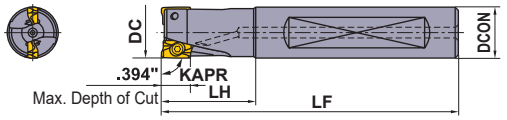


Fig.2

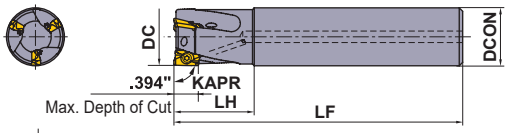


Fig.3

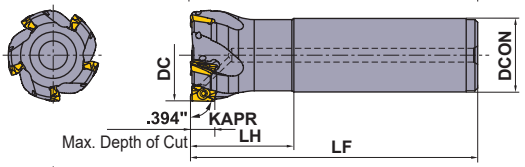
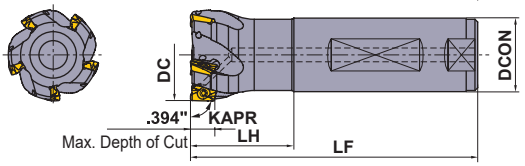


Fig.4



■ SHANK TYPE

With Air / coolant through.

Right hand tool holder only.

Type		RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions(inch) DC	DCON	LF	LH	RMPX	Fig.	* Insert Screw	Wrench	Anti-seize Lubricant
Standard	A Holders	.008 | .079	APX3000UR081FA10SA	●	1	.500	.625	3.250	1.120	6°	1	TPS25	TIP07F	MK1KS
			APX3000UR081SA08SA	●	1	.500	.500	3.250	1.120	6°	2	TPS25	TIP07F	MK1KS
			APX3000UR102FA10SA	●	2	.625	.625	3.625	1.190	11.5°	1	TPS25	TIP07F	MK1KS
			APX3000UR102SA10SA	●	2	.625	.625	3.625	1.190	11.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR122FA12SA	●	2	.750	.750	4.375	1.380	7.5°	1	TPS25	TIP07F	MK1KS
			APX3000UR122SA12SA	●	2	.750	.750	4.375	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR123FA12SA	●	3	.750	.750	4.375	1.380	7.5°	1	TPS25	TIP07F	MK1KS
			APX3000UR123SA12SA	●	3	.750	.750	4.375	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR163FA12SA	●	3	1.000	.750	4.375	1.570	4.5°	4	TPS25−1	TIP07F	MK1KS
			APX3000UR163SA12SA	●	3	1.000	.750	4.375	1.570	4.5°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR164FA12SA	●	4	1.000	.750	4.375	1.570	4.5°	4	TPS25−1	TIP07F	MK1KS
			APX3000UR164SA12SA	●	4	1.000	.750	4.375	1.570	4.5°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR163FA16SA	●	3	1.000	1.000	4.750	1.570	4.5°	1	TPS25−1	TIP07F	MK1KS
			APX3000UR163SA16SA	●	3	1.000	1.000	4.750	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR164FA16SA	●	4	1.000	1.000	4.750	1.570	4.5°	1	TPS25−1	TIP07F	MK1KS
			APX3000UR164SA16SA	●	4	1.000	1.000	4.750	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR205FA20SA	●	5	1.250	1.250	5.125	1.970	3.1°	1	TPS25−1	TIP07F	MK1KS
			APX3000UR205SA20SA	●	5	1.250	1.250	5.125	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR246FA20SA	●	6	1.500	1.250	5.125	1.970	2.3°	4	TPS25−1	TIP07F	MK1KS
			APX3000UR246SA20SA	●	6	1.500	1.250	5.125	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS
	B Holders	.094 | .126	APX3000UR081SA08SB	●	1	.500	.500	3.250	1.120	6°	2	TPS25	TIP07F	MK1KS
			APX3000UR102SA10SB	●	2	.625	.625	3.625	1.190	11.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR122SA12SB	●	2	.750	.750	4.375	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR123SA12SB	●	3	.750	.750	4.375	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR163SA12SB	●	3	1.000	.750	4.375	1.570	4.5°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR164SA12SB	●	4	1.000	.750	4.375	1.570	4.5°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR163SA16SB	●	3	1.000	1.000	4.750	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR164SA16SB	●	4	1.000	1.000	4.750	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR205SA20SB	●	5	1.250	1.250	5.125	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR246SA20SB	●	6	1.500	1.250	5.125	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS

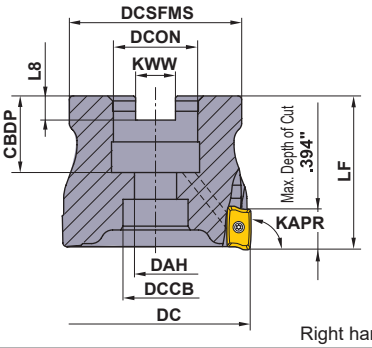
* Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9

 ● : USA Stock

Type		RE (inch)	Order Number	Stock	Number of Teeth	Dimensions(inch)				RMPX	Fig.	* Insert Screw	Wrench	Anti-seize Lubricant
				R		DC	DCON	LF	LH					
Long	A Holders	.008 I .079	**APX3000UR122SA12LA**	●	2	.750	.750	7.250	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR162SA16LA	●	2	1.000	1.000	8.500	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR163SA16LA	●	3	1.000	1.000	8.500	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR203SA20LA	●	3	1.250	1.250	9.000	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR204SA20LA	●	4	1.250	1.250	9.000	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR243SA20LA	●	3	1.500	1.250	9.000	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR244SA20LA	●	4	1.500	1.250	9.000	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS
	B Holders	.094 I .126	**APX3000UR122SA12LB**	●	2	.750	.750	7.250	1.380	7.5°	2	TPS25	TIP07F	MK1KS
			APX3000UR162SA16LB	●	2	1.000	1.000	8.500	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR163SA16LB	●	3	1.000	1.000	8.500	1.570	4.5°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR203SA20LB	●	3	1.250	1.250	9.000	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR204SA20LB	●	4	1.250	1.250	9.000	1.970	3.1°	2	TPS25−1	TIP07F	MK1KS
			APX3000UR243SA20LB	●	3	1.500	1.250	9.000	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS
			APX3000UR244SA20LB	●	4	1.500	1.250	9.000	1.970	2.3°	3	TPS25−1	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9

ISO13399 ➤ K003
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



■ ARBOR TYPE

With Air / coolant through.

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (inch)									RMPX	*			
			R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB		Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
A Holders	.008 I .079	**APX3000R1504A**	●	4	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.4°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R1505A	●	5	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.4°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R1506A	●	6	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.4°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R0205A	●	5	2.000	1.575	.750	.748	.415	1.811	.313	.187	.600	1.6°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R0207A	●	7	2.000	1.575	.750	.748	.415	1.811	.313	.187	.600	1.6°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R2506A	●	6	2.500	1.969	1.000	1.024	.539	2.360	.375	.219	.787	1.3°	TPS25−1	TIP07F	MK1KS	HSCU50014H
		APX3000R0306A	●	6	3.000	1.969	1.000	1.024	.539	2.756	.375	.219	.787	1.0°	TPS25−1	TIP07F	MK1KS	HSCU50014H
		APX3000R0309A	●	9	3.000	1.969	1.000	1.024	.539	2.756	.375	.219	.787	1.0°	TPS25−1	TIP07F	MK1KS	HSCU50014H
B Holders	.094 I .126	**APX3000R1504B**	●	4	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.5°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R1505B	●	5	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.5°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R1506B	●	6	1.500	1.575	.750	.748	.415	1.320	.313	.187	.600	2.5°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R0205B	●	5	2.000	1.575	.750	.748	.415	1.811	.313	.187	.600	1.6°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R0207B	●	7	2.000	1.575	.750	.748	.415	1.811	.313	.187	.600	1.6°	TPS25−1	TIP07F	MK1KS	HSCU37513H
		APX3000R2506B	●	6	2.500	1.969	1.000	1.024	.539	2.360	.375	.219	.787	1.3°	TPS25−1	TIP07F	MK1KS	HSCU50014H
		APX3000R0306B	●	6	3.000	1.969	1.000	1.024	.539	2.756	.375	.219	.787	1.0°	TPS25−1	TIP07F	MK1KS	HSCU50014H
		APX3000R0309B	●	9	3.000	1.969	1.000	1.024	.539	2.756	.375	.219	.787	1.0°	TPS25−1	TIP07F	MK1KS	HSCU50014H

* Clamp Torque (lbf-in) : TPS25−1=8.9

Note 1) The cutter body includes a set bolt for an arbor.

■ Combination of Holder and Insert Corner Radius

Holder	A Holder							B Holder		
	APX3000○○○○○○○○○A							APX3000○○○○○○○○○B		
Insert Corner Radius (RE)	.008"	.016"	.031"	.039"	.047"	.063"	.079"	.094"	.118"	.126"

Fig.1

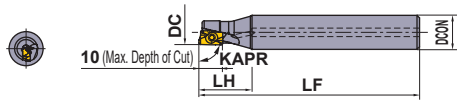


Fig.2

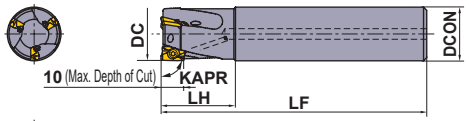
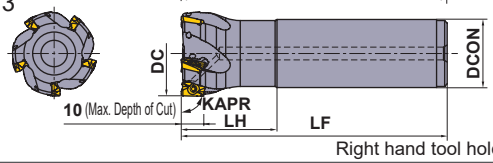


Fig.3



Metric Standard

■ STRAIGHT SHANK TYPE (A Holders)

With Air / coolant through.

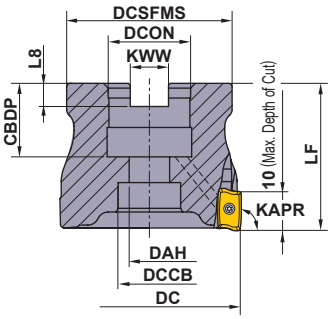
Right hand tool holder only.

Type	RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	DCON	LF	LH	RMPX	Fig.	* Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
Standard	.008 – .079	APX3000R121SA16SA	★	1	12	16	85	25	6.0°	1	TPS25	TIP07F	MK1KS	AO□T1236
		APX3000R141SA16SA	★	1	14	16	85	25	6.0°	1	TPS25	TIP07F	MK1KS	
		APX3000R162SA16SA	★	2	16	16	85	25	11.3°	2	TPS25	TIP07F	MK1KS	
		APX3000R182SA16SA	★	2	18	16	85	25	8.6°	3	TPS25	TIP07F	MK1KS	
		APX3000R202SA20SA	★	2	20	20	100	30	6.9°	2	TPS25	TIP07F	MK1KS	
		APX3000R203SA20SA	★	3	20	20	100	30	6.9°	2	TPS25	TIP07F	MK1KS	
		APX3000R223SA20SA	★	3	22	20	115	30	5.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R252SA25SA	★	2	25	25	115	35	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R253SA25SA	★	3	25	25	115	35	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R254SA25SA	★	4	25	25	115	35	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R284SA25SA	★	4	28	25	115	35	3.8°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R304SA32SA	★	4	30	32	125	45	3.4°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R323SA32SA	★	3	32	32	125	45	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R324SA32SA	★	4	32	32	125	45	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R325SA32SA	★	5	32	32	125	45	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R403SA32SA	★	3	40	32	125	45	2.2°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R405SA32SA	★	5	40	32	125	45	2.2°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R406SA32SA	★	6	40	32	125	45	2.2°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R507SA32SA	★	7	50	32	125	45	1.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R638SA32SA	★	8	63	32	125	45	1.3°	3	TPS25−1	TIP07F	MK1KS	
Long	.008 – .079	APX3000R182SA16LA	★	2	18	16	120	25	8.6°	3	TPS25	TIP07F	MK1KS	
		APX3000R202SA20LA	★	2	20	20	150	60	6.9°	2	TPS25	TIP07F	MK1KS	
		APX3000R222SA20LA	★	2	22	20	150	30	5.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R252SA25LA	★	2	25	25	170	70	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R253SA25LA	★	3	25	25	170	70	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R282SA25LA	★	2	28	25	170	35	3.8°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R283SA25LA	★	3	28	25	170	35	3.8°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R322SA32LA	★	2	32	32	190	90	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R323SA32LA	★	3	32	32	190	90	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R352SA32LA	★	2	35	32	190	45	2.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R353SA32LA	★	3	35	32	190	45	2.7°	3	TPS25−1	TIP07F	MK1KS	
Extra Long	.008 – .079	APX3000R182SA16ELA	★	2	18	16	180	25	8.6°	3	TPS25	TIP07F	MK1KS	
		APX3000R202SA20ELA	★	2	20	20	200	70	6.9°	2	TPS25	TIP07F	MK1KS	
		APX3000R222SA20ELA	★	2	22	20	200	30	5.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R252SA25ELA	★	2	25	25	220	80	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R253SA25ELA	★	3	25	25	220	80	4.6°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R282SA25ELA	★	2	28	25	220	35	3.8°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R283SA25ELA	★	3	28	25	220	35	3.8°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R322SA32ELA	★	2	32	32	260	100	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R323SA32ELA	★	3	32	32	260	100	3.1°	2	TPS25−1	TIP07F	MK1KS	
		APX3000R352SA32ELA	★	2	35	32	260	45	2.7°	3	TPS25−1	TIP07F	MK1KS	
		APX3000R353SA32ELA	★	3	35	32	260	45	2.7°	3	TPS25−1	TIP07F	MK1KS	

* Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9

Note 1) When using inserts with corner radius RE≥.094"(2.4 mm), B-Holders are required as shown on page K161.

ISO13399 ➤ K003
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Metric Standard

For Metric Arbors

■ ARBOR TYPE (A Holders)

With Air / coolant through.

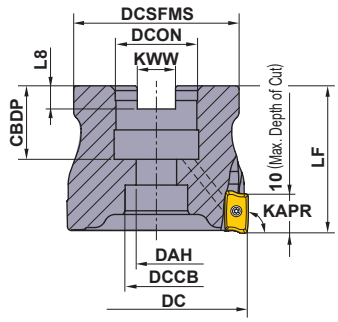
Right hand tool holder only.

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)									RMPX	* Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB					
.008 I .079	APX3000-032A05RA	★	5	32	40	16	18	9	30	8.4	5.6	14	3.1°	TPS25−1	TIP07F	MK1KS	HSC08030H
	APX3000-040A06RA	★	6	40	40	16	18	9	34	8.4	5.6	14	2.2°	TPS25−1	TIP07F	MK1KS	HSC08030H
	APX3000-050A07RA	★	7	50	40	22	20	11	45	10.4	6.3	17	1.7°	TPS25−1	TIP07F	MK1KS	HSC10030H
	APX3000-063A08RA	★	8	63	40	22	20	11	55	10.4	6.3	17	1.3°	TPS25−1	TIP07F	MK1KS	HSC10030H
	APX3000-080A09RA	★	9	80	50	27	23	13	70	12.4	7	20	1.0°	TPS25−1	TIP07F	MK1KS	HSC12035H
	APX3000-100A11RA	★	11	100	63	32	26	17	80	14.4	8	26	0.8°	TPS25−1	TIP07F	MK1KS	HSC16040H

★ Clamp Torque (lbf-in) : TPS25−1=8.9

Note 1) When using inserts with corner radius RE≥.094"(2.4 mm), B-Holders are required as shown on page K161.

Note 2) Set bolt not included.



Metric Standard

For Inch Arbors

■ ARBOR TYPE (A Holders)

With Air / coolant through.

Right hand tool holder only.

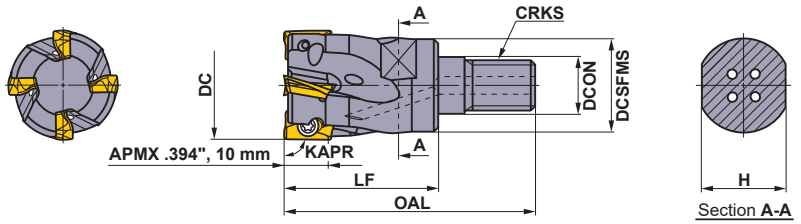
RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]								RMPX	*			
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8 DCCB		Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
.008 | .079	**APX3000R08009CA**	★	9	80	50	25.4 [1.0"]	26	13	70	9.5	6 20	1.0°	TPS25−1	TIP07F	MK1KS	HSC12035H
	APX3000R10011DA	★	11	100	63	31.75 [1.25"]	32	17	80	12.7	8 26	0.8°	TPS25−1	TIP07F	MK1KS	HSC16040H

* Clamp Torque (lbf-in) : TPS25−1=8.9

Note 1) When using inserts with corner radius RE≥.094"(2.4 mm), B-Holders are required as shown on page K161.

Note 2) Set bolt not included.

ISO13399 ➤ K003
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



■ SCREW-IN TYPE

With Air / coolant through.

Right hand tool holder only.

DC	Order Number	Stock	Number of Teeth	Dimensions (inch)						WT	*1			
				LF	OAL	DCON	DCSFMS	H	CRKS*2	(lbs)	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.625	**APX3000UR102AM08A30**	●	2	1.181	1.890	.335	.512	.394	M8	.2	TPS25	TIP07F	MK1KS	AO□T1236
.750	**APX3000UR122AM10A30**	●	2	1.181	1.929	.413	.709	.551	M10	.2	TPS25	TIP07F	MK1KS	AO□T1236
.750	**APX3000UR123AM10A30**	●	3	1.181	1.929	.413	.709	.551	M10	.2	TPS25	TIP07F	MK1KS	AO□T1236
.875	**APX3000UR142AM10A30**	●	2	1.181	1.929	.413	.709	.551	M10	.2	TPS25-1	TIP07F	MK1KS	AO□T1236
.875	**APX3000UR143AM10A30**	●	3	1.181	1.929	.413	.709	.551	M10	.2	TPS25-1	TIP07F	MK1KS	AO□T1236
1.000	**APX3000UR163AM12A35**	●	3	1.378	2.244	.492	.827	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.000	**APX3000UR164AM12A35**	●	4	1.378	2.244	.492	.827	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.125	**APX3000UR184AM12A35**	●	4	1.378	2.244	.492	.827	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.250	**APX3000UR205AM16A40**	●	5	1.575	2.480	.669	1.142	.945	M16	.7	TPS25-1	TIP07F	MK1KS	AO□T1236
1.375	**APX3000UR225AM16A40**	●	5	1.575	2.480	.669	1.142	.945	M16	.7	TPS25-1	TIP07F	MK1KS	AO□T1236

*1 Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9
*2 Clamp Torque of the Head (lbf-ft) : M8=17.1, M10=33.8, M12=59.2, M16=66.7

Metric Standard

■ SCREW-IN TYPE

With Air / coolant through.

DC	Order Number	Stock	Number of Teeth	Dimensions (mm)						WT	*1			
				LF	OAL	DCON	DCSFMS	H	CRKS*2	(kg)	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
16	**APX3000R162M08A30**	★	2	30	48	8.5	13	10	M8	0.1	TPS25	TIP07F	MK1KS	AO□T1236
18	**APX3000R182M08A30**	★	2	30	48	8.5	13	10	M8	0.1	TPS25	TIP07F	MK1KS	AO□T1236
20	**APX3000R203M10A30**	★	3	30	49	10.5	18	14	M10	0.1	TPS25	TIP07F	MK1KS	AO□T1236
22	**APX3000R223M10A30**	★	3	30	49	10.5	18	14	M10	0.1	TPS25-1	TIP07F	MK1KS	AO□T1236
25	**APX3000R254M12A35**	★	4	35	57	12.5	21	19	M12	0.2	TPS25-1	TIP07F	MK1KS	AO□T1236
28	**APX3000R284M12A35**	★	4	35	57	12.5	21	19	M12	0.2	TPS25-1	TIP07F	MK1KS	AO□T1236
30	**APX3000R304M16A40**	★	4	40	63	17	29	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
32	**APX3000R325M16A40**	★	5	40	63	17	29	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
35	**APX3000R355M16A40**	★	5	40	63	17	29	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
40	**APX3000R406M16A40**	★	6	40	63	17	29	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236

*1 Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9
*2 Clamp Torque of the Head (lbf-ft) : M8=17.1, M10=33.8, M12=59.2, M16=66.7

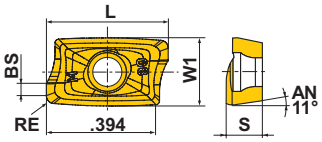
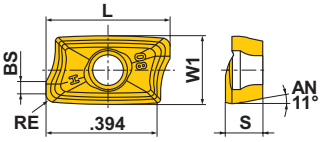
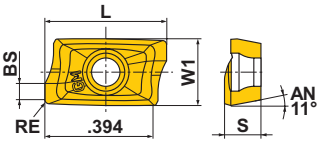
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metal
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✠ : Unstable Cutting

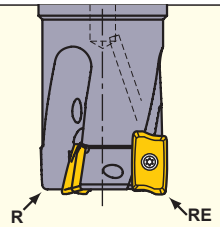
Edge Preparation :
E : Round **F :** Sharp Edge

Shape	Order Number	Class	Edge Preparation	Coated								Carbide		Dimensions (inch)					Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF	VP20RT	TF15		L	W1	S	BS	RE	
General **M** Breaker	**AOMT123602PEER-M**	M	E		●	●	●	●	●	●	●			.472	.260	.142	.071	.008	
	AOMT123604PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.063	.016	
	AOMT123608PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.047	.031	
	AOMT123610PEER-M	M	E		●	●	●	●	●	★	★			.472	.260	.142	.039	.039	
	**AOMT123612PEER-M**	M	E		●	●	●	●	●	●	●			.472	.260	.142	.031	.047	
	AOMT123616PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.016	.063	
	AOMT123620PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.016	.079	
	AOMT123624PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.016	.094	
	AOMT123630PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.016	.118	
	AOMT123632PEER-M	M	E		●	●	●	●	●	●	●			.472	.260	.142	.016	.126	
Strong Cutting Edge Type **H** Breaker	**AOMT123604PEER-H**	M	E	●	●	●	●	●	●	●	●			.472	.260	.142	.063	.016	
	AOMT123608PEER-H	M	E	●	●	●	●	●	●	●	●			.472	.260	.142	.047	.031	
	**AOMT123616PEER-H**	M	E	●	●	●	●	●	●	●	●			.472	.260	.142	.016	.063	
For Machining of Aluminum Alloys **GM** Breaker	**AOGT123602PEFR-GM**	G	F									●		.472	.260	.142	.071	.008	
	AOGT123604PEFR-GM	G	F									●		.472	.260	.142	.063	.016	
	**AOGT123608PEFR-GM**	G	F									●		.472	.260	.142	.047	.031	

Note 1) For large R inserts
APX offers various nose radii for inserts, however one holder can not secure every insert radius.
We offer A-Holders that properly secures up to .079" radius.
We offer B-Holders that secures .094", .118" and .126" radius, only for popular inch sizes.
Customers may modify holders as below, so that larger nose radii can be secured.

Note on Use of Inserts with Large Corner Radii

When using inserts with corner radius RE≥R.094", please machine the holder with a radius form as shown on the right table.



RE	R
.094"	.106" (B-Holder)
.118"	
.126"	

R : Holder End Radius
RE : Insert Corner Radius

Or additional B-Holders are available as non stock, produced to order only.
"Order numbers"; Please add "B" to the end of the order number of A-Holders.
Ex) APX3000R160M08A30→APX3000R162M08A30B

ISO13399	➤ K003	OPERATION GUIDANCE	➤ K181
SCREW-IN HOLDERS	➤ K382	SPARE PARTS	➤ M001
		TECHNICAL DATA	➤ N001

RECOMMENDED CUTTING CONDITIONS

■ CUTTING SPEED

(inch)

Workpiece Material		Properties	Insert Grade Priority 1st	Insert Grade Priority 2nd	Chip Breaker		Cutting Width **ae** ≤.25DC	.25–.5DC	.5–.75DC	DC (Slot)
							Cutting Speed **vc** (SFM)			
P	Mild Steel	≤180HB	MP6120	VP15TF	M	H	755(590–885)	720(560–850)	590(460–690)	590(460–690)
			MP6130	VP20RT	M	H	655(490–785)	620(460–755)	490(360–590)	490(370–600)
	Carbon Steel Alloy Steel	180–350HB	MP6120	VP15TF	M	H	590(460–690)	560(425–655)	460(360–525)	460(360–525)
			MP6130	VP20RT	M	H	490(360–590)	460(330–560)	360(260–425)	360(260–425)
M	Stainless Steel	≤270HB	MP7130	VP20RT	M	H	590(460–690)	560(425–655)	460(360–525)	460(360–525)
K	Gray Cast Iron	≤350MPa	MC5020	VP15TF	H		820(655–985)	785(620–950)	690(525–850)	460(360–525)
	Ductile Cast Iron	≤800MPa	MC5020	VP15TF	H		425(330–490)	395(295–460)	330(260–395)	330(260–395)
N	Aluminum Alloys	–	TF15		GM		1640(655–3280)	1640(655–3280)	1640(655–3280)	1640(655–3280)
S	Titanium Alloys	≤350HB	MP9120	VP15TF	M	H	165(130–230)			165(130–230)
			MP9130	VP20RT	M	H	130(100–195)			130(100–195)
	Heat Resistant Alloys	–	MP9120	VP15TF	M	H	130(100–195)			130(100–195)
			MP9130	VP20RT	M	H	100(65–130)			100(65–130)
H	Hardened Steel	40–55HRC	VP15TF		H		295(230–330)	280(195–330)	230(165–260)	230(165–260)

■ DEPTH OF CUT / FEED PER TOOTH

(inch)

Workpiece Material		Properties	Cutting Width **ae**	DC ϕ.500"–ϕ.625"(ϕ12–ϕ16 mm) Depth of Cut **ap**	DC ϕ.500"–ϕ.625"(ϕ12–ϕ16 mm) Feed per Tooth **fz** (IPT)	DC ϕ.750"–ϕ1.000"(ϕ20–ϕ25 mm) Depth of Cut **ap**	DC ϕ.750"–ϕ1.000"(ϕ20–ϕ25 mm) Feed per Tooth **fz** (IPT)	DC ϕ1.250"–ϕ3.000"(ϕ28–ϕ100 mm) Depth of Cut **ap**	DC ϕ1.250"–ϕ3.000"(ϕ28–ϕ100 mm) Feed per Tooth **fz** (IPT)
P	Mild Steel Carbon Steel Alloy Steel	≤180HB 180–350HB	≤.25DC	≤.157	.006	≤.197	.010	≤.197	.008
				.157–.276	.004	.197–.276	.008	.197–.276	.006
						.276–.335	.006	.276–.335	.004
						.335–.394	.004	.335–.394	.003
			.25–.5DC	≤.079	.006	≤.118	.010	≤.118	.008
				.078–.197	.004	.118–.217	.008	.118–.217	.006
						.217–.315	.006	.217–.315	.004
						.315–.394	.004	.315–.394	.003
			.5–.75DC	≤.157	.004	≤.157	.006	≤.118	.004
						.157–.394	.004	.118–.276	.003
			DC (Slot)	≤.118	.004	≤.157	.004	≤.118	.004
						.157–.276	.003	.118–.197	.003
M	Stainless Steel	≤270HB	≤.25DC	≤.157	.006	≤.197	.008	≤.197	.008
				.157–.276	.004	.197–.276	.006	.197–.276	.006
						.276–.335	.004	.276–.335	.004
						.335–.394	.003	.335–.394	.004
			.25–.5DC	≤.079	.006	≤.118	.008	≤.118	.008
				.078–.197	.004	.118–.217	.006	.118–.217	.006
						.217–.315	.004	.217–.315	.004
						.315–.394	.003	.315–.394	.003
			.5–.75DC	≤.157	.004	≤.157	.004	≤.118	.004
						.157–.394	.003	.118–.276	.003
			DC (Slot)	≤.157	.004	≤.157	.004	≤.118	.004
						.157–.276	.003	.118–.197	.003
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	≤.157	.006	≤.197	.010	≤.197	.008
				.157–.276	.004	.197–.276	.008	.197–.276	.006
						.276–.335	.006	.276–.335	.004
						.335–.394	.004	.335–.394	.003
			.25–.5DC	≤.079	.006	≤.118	.010	≤.118	.008
				.079–.197	.004	.118–.217	.008	.118–.217	.006
						.217–.315	.006	.217–.315	.004
						.315–.394	.004	.315–.394	.003
			.5–.75DC	≤.157	.004	≤.157	.006	≤.118	.004
						.157–.394	.004	.118–.276	.003
			DC (Slot)	≤.118	.004	≤.157	.004	≤.118	.004
						.157–.276	.003	.118–.197	.003
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.25DC	≤.157	.004	≤.197	.008	≤.197	.008
				.157–.276	.003	.197–.276	.006	.197–.276	.006
						.276–.335	.004	.276–.335	.004
						.335–.394	.003	.335–.394	.003
			.25–.5DC	≤.079	.004	≤.118	.008	≤.118	.008
				.079–197	.003	.118–.217	.006	.118–.217	.006
						.217–.315	.004	.217–.315	.004
						.315–.394	.003	.315–.394	.003
			.5–.75DC	≤.157	.003	≤.157	.004	≤.118	.004
						.315–.394	.003	.118–.276	.003
			DC (Slot)	≤.118	.003	≤.157	.004	≤.118	.004
						.157–.276	.003	.118–.197	.003

■ CUTTING CONDITIONS FOR SLOT MILLING

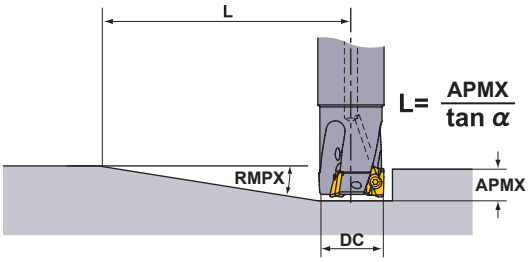
(inch)

Workpiece Material		Properties	Cutting Width **ae**	DC					
				ϕ.500"–ϕ.625"(ϕ12–ϕ16 mm)		**ϕ.750"–ϕ1.000"(ϕ20–ϕ25 mm)**		**ϕ1.250"–ϕ3.000"(ϕ28–ϕ100 mm)**	
				Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
N	Aluminum Alloys	–	≤.25DC	≤.157	.006	≤.157	.010	≤.157	.008
				.157–.276	.004	.157–.276	.006	.157–.276	.004
			.25–.5DC	≤.157	.004	≤.157	.008	≤.157	.008
				.157–.276	.004	.157–.276	.004	.157–.276	.004
			.5–.75DC	≤.197	.004	≤.197	.006	≤.197	.004
			DC (Slot)	≤.197	.004	≤.197	.008	≤.197	.006
S	Titanium Alloys	≤350HB	≤.25DC	≤.157	.006	≤.157	.006	≤.157	.004
				.157–.276	.004	.157–.276	.004	.157–.276	.003
			.25–.5DC	≤.118	.002	≤.118	.002	≤.118	.002
	Heat Resistant Alloys	–	.5–.75DC	≤.079	.004	≤.079	.002	≤.079	.002
			DC (Slot)	≤.039	.002	≤.039	.002	≤.039	.002
H	Hardened Steel	40–55HRC	≤.25DC	≤.157	.004	≤.197	.006	≤.197	.006
				.157–.276	.003	.197–.276	.004	.197–.276	.004
						.276–.335	.003		
			.25–.5DC	≤.079	.004	≤.118	.006	≤.118	.006
				.079–.197	.003	.118–.217	.004		
			.5–.75DC	≤.157	.003	≤.157	.003	≤.118	.003
			DC (Slot)	≤.118	.003	≤.157	.003	≤.118	.003

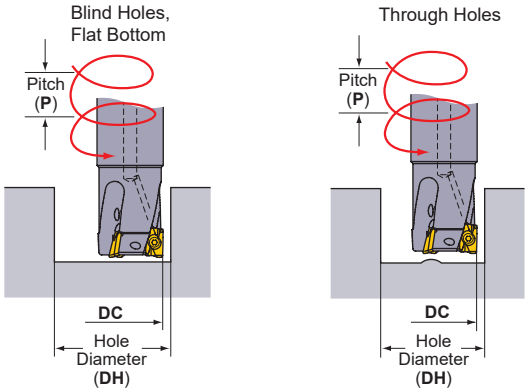
Note 1) These cutting conditions are a guide to the standard shank type and the arbor type.
Please make adjustments according to the machining conditions.
Note 2) Vibration is liable to occur in certain cases. Please reduce the depth of cut and / or reduce cutting conditions in the following cases.
• When using the long shank type and extra long shank type.
• When using long tool overhang with the standard or arbor type.
• When the application has poor clamping rigidity or when using a low rigidity machine.
Note 3) In case of coarse and fine pitch cutters, the coarse pitch type is recommended to prevent vibration.
Note 4) For heavy interrupted and unstable cutting, the H breaker is first recommendation.

■ RAMPING/HELICAL MILLING

● **Ramping**



● **Helical Milling**



Refer to the table below when using .031 inch radius for maximum ramping angle, pitch and minimum/maximum hole diameter. Use cutting conditions for slot milling to calculate speed and feed when ramping / helical milling.

Cutting Edge Diameter **DC** (inch)	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
	Maximum Ramping Angle **RMPX**	Minimum Distance *1 **L** (inch)	Maximum Hole Diameter *2 **DH max.** (inch)	Maximum Pitch **P max.** (inch)	Minimum Hole Diameter **DH min.** (inch)	Maximum Pitch **P max.** (inch)	Minimum Hole Diameter **DH min.** (inch)	Maximum Pitch **P max.** (inch)
.500	6.0°	3.8	0.92	.09	.87	.07	.63	.020
.625	11.5°	1.9	1.17	.35	1.1	.27	.79	.079
.750	7.5°	3.0	1.42	.19	1.35	.17	1.03	.079
1.000	4.5°	5.0	1.92	.23	1.85	.19	1.58	.079
1.250	3.1°	7.3	2.42	.17	2.35	.15	2.05	.079
1.500	2.3°	9.8	2.92	.15	2.85	.13	2.56	.079
2.000	1.6°	14.1	3.92	.07	3.85	.07	3.55	.079
2.500	1.3°	17.4	4.92	.07	4.85	.07	4.56	.079
3.000	1.0°	22.6	5.92	.07	5.85	.07	5.52	.079

*1 L(=.394"/tanα). Cutters' moving distance until depth of cut reaches .394" at a maximum ramping angle.
*2 In case corner radius of .031". Other than that, find with the below formula.
{(cutting edge diameter DC) - (corner radius) - .008"} x 2
Note 1) When machining highly ductile materials with ramping angles above, chips could be continuous.
In this case, decrease the ramping angle or feed per tooth.

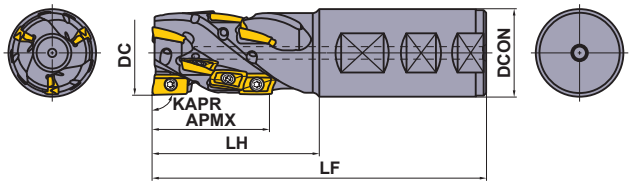
DEEP SHOULDER MILLING

90° KAPR

APX3000

LONG CUTTING EDGE

P M K N S H



■SHANK TYPE (A Holders)

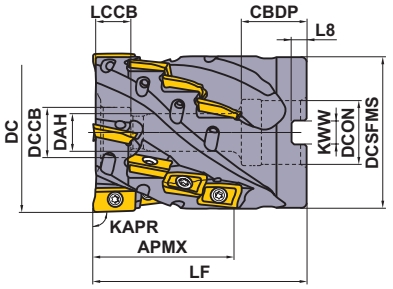
Right hand tool holder only.

RE	Order Number	Stock R	Coolant Thru	Number of Flutes	Total	Dimensions (inch) DC	DCON	LF	LH	APMX	* Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.008 I .079	APX3KUR121FN12S11A04	●	N	1	4	.750	.750	5.000	1.750	1.102	TPS25	TIP07F	MK1KS	AO□T1236
	APX3KUR162FA16S11A06	●	Y	2	6	1.000	1.000	5.000	1.750	1.102	TPS25-1	TIP07F	MK1KS	
	APX3KUR162FA16M14A08	●	Y	2	8	1.000	1.000	5.250	2.000	1.456	TPS25-1	TIP07F	MK1KS	
	APX3KUR202FA20S14A08	●	Y	2	8	1.250	1.250	5.250	2.000	1.456	TPS25-1	TIP07F	MK1KS	
	APX3KUR202FA20M18A10	●	Y	2	10	1.250	1.250	5.750	2.500	1.811	TPS25-1	TIP07F	MK1KS	
	APX3KUR243FA24S18A15	●	Y	3	15	1.500	1.500	5.750	2.500	1.811	TPS25-1	TIP07F	MK1KS	
	APX3KUR243FA24M21A18	●	Y	3	18	1.500	1.500	6.000	2.750	2.165	TPS25-1	TIP07F	MK1KS	

Y=Yes, N=No ✶ Clamp Torque (lbf-in) : TPS25=8.9, TPS25-1=8.9

Note 1) When using inserts with corner radius RE≥.094", machining of the holder is required as shown on page K161.

Note 2) Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting). Insert RE .008" and .016" can also be used.



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ2.000"	HSCUF37520	

■SHELL TYPE (A Holders)

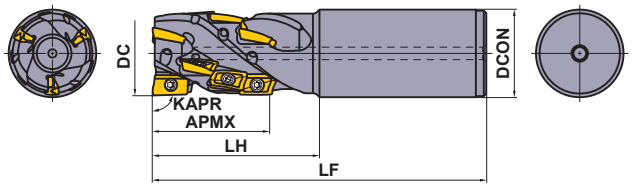
With Air / coolant through.

RE	Order Number	Stock R	Number of Flutes	Total	Dimensions (inch) DC	LF	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	APMX	* Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.008 I .079	APX3KUR2.0004AA18A20	●	4	20	2.000	2.500	.750	.750	.395	.630	.457	1.936	.313	.187	1.811	TPS25-1	TIP07F	MK1KS	AO□T1236

✶ Clamp Torque (lbf-in) : TPS25-1 = 8.9

Note 1) When using inserts with corner radius RE≥.094", machining of the holder is required as shown on page K161.

Note 2) Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting). Insert RE .008" and .016" can also be used.



Metric Standard

■SHANK TYPE (A Holders)

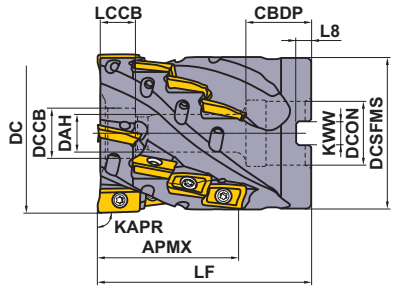
Right hand tool holder only.

RE (inch)	Order Number	Stock R	Coolant Thru	Number of Flutes	Total	Dimensions (mm) DC	DCON	LF	LH	APMX	* Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.008 I .079	APX3KR2004SN20S028A	★	N	1	4	20	20	125	45	28	TPS25	TIP07F	MK1KS	AO□T1236
	APX3KR2506SA25S028A	★	Y	2	6	25	25	125	45	28	TPS25-1	TIP07F	MK1KS	
	APX3KR2508SA25M037A	★	Y	2	8	25	25	130	50	37	TPS25-1	TIP07F	MK1KS	
	APX3KR3208SA32S037A	★	Y	2	8	32	32	130	50	37	TPS25-1	TIP07F	MK1KS	
	APX3KR3210SA32M046A	★	Y	2	10	32	32	140	60	46	TPS25-1	TIP07F	MK1KS	
	APX3KR3212SA32S037A	★	Y	3	12	32	32	130	50	37	TPS25-1	TIP07F	MK1KS	
	APX3KR3215SA32M046A	★	Y	3	15	32	32	140	60	46	TPS25-1	TIP07F	MK1KS	
	APX3KR4015SA42S046A	★	Y	3	15	40	42	140	60	46	TPS25-1	TIP07F	MK1KS	
	APX3KR4018SA42M055A	★	Y	3	18	40	42	150	70	55	TPS25-1	TIP07F	MK1KS	

Y=Yes, N=No ★ Clamp Torque (lbf-in) : TPS25=8.9, TPS25-1=8.9

Note 1) When using inserts with corner radius RE≥ .094", machining of the holder is required as shown on page K161.

Note 2) Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting). Insert RE .008" and .016" can also be used.



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ40mm	HSC08040	
ϕ50mm	HSC10445	

The bore diameter (DCON) is equivalent to a metric size.

Metric Standard For Metric Arbors

■SHELL TYPE (A Holders)

With Air / coolant through.

RE (inch)	Order Number	Stock R	Number of Flutes	Total	Dimensions (mm) DC	LF	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	APMX	* Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.008 I .079	APX3K-040A16A037RA	★	4	16	40	50	16	18	9	14	9.9	38.5	8.4	5.6	37	TPS25-1	TIP07F	MK1KS	AO□T1236
	APX3K-050A20A046RA	★	4	20	50	60	22	20	11	17	11.9	48.4	10.4	6.3	46	TPS25-1	TIP07F	MK1KS	

★ Clamp Torque (lbf-in) : TPS25-1 = 8.9

Note 1) When using inserts with corner radius RE≥ .094", machining of the holder is required as shown on page K161.

Note 2) Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting). Insert RE .008" and .016" can also be used.

ISO13399 ➤ K003
INSERTS ➤ K161
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

RECOMMENDED CUTTING CONDITIONS

■ Cutting Speed

(inch)

	Workpiece Material	Insert				Cutting Width **ae**		
		Grade Priority		Chip Breaker		≤.25DC	.25—.75DC	DC (Slot)
		1st	2nd			Cutting Speed **vc** (SFM)		
P	Mild Steel	MP6120	VP15TF	M	H	590(460—720)	490(360—590)	395(330—460)
		MP6130	VP20RT	M	H	525(395—655)	425(330—525)	330(260—395)
	Carbon Steel Alloy Steel, Alloy Tool Steel	MP6120	VP15TF	M	H	490(330—655)	395(295—490)	330(260—395)
		MP6130	VP20RT	M	H	425(295—560)	295(230—360)	260(195—330)
	Pre-hardened Steel	MP6120	VP15TF	M	H	395(260—525)	330(230—425)	295(165—395)
		MP6130	VP20RT	M	H	330(230—425)	295(195—395)	230(165—330)
M	Stainless Steel	MP7130		M		490(395—590)	395(330—460)	330(260—395)
K	Gray Cast Iron	MC5020		H		655(490—820)	590(490—690)	
		VP15TF		M	H	590(395—785)	490(330—655)	330(195—460)
	Ductile Cast Iron	VP15TF		M	H	525(395—655)	460(330—590)	260(195—330)
N	Aluminum Alloys	TF15	MP9120	GM	M	1310(655—2625)	1310(655—2625)	1310(655—2625)
S	Titanium Alloys	MP9130		M		130(100—195)		130(100—195)
		MP9120		M		165(130—230)		165(130—230)
	Heat Resistant Alloys	MP9120	VP15TF	M	H	130(100—195)		130(100—195)
		MP9130	VP20RT	M	H	100(65—130)		100(65—130)

■ Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Cutting Width **ae**	DC					
				ø.750"(ø20mm)		ø1.000"(ø25mm)		ø1.250"–ø2.000"(ø32mm–ø50mm)	
				Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
P	Mild Steel	≤180HB	≤0.25DC	≤1.102	.006	≤1.457	.007	≤2.165	.008
			0.25-0.75DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
	Carbon Steel Alloy Steel	180–280HB	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
	Alloy Tool Steel	≤350HB (Annealing)	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
	Pre-hardened Steel	35–45HRC	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
M	Ferritic and Martensitic Stainless Steel	–	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
	Duplex Stainless Steel	≤280HB	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
	Precipitation Hardening Stainless Steel	<450HB	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤0.25DC	≤1.102	.006	≤1.457	.007	≤2.165	.008
			0.25-0.75DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			DC (Slot)	≤.709	.004	≤.709	.004	≤.709	.004
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤0.25DC	≤1.102	.005	≤1.457	.006	≤2.165	.007
			0.25-0.75DC	≤1.102	.004	≤1.457	.005	≤2.165	.006
			DC (Slot)	≤.709	.003	≤.709	.003	≤.709	.003
N	Aluminum Alloys	–	≤0.25DC	≤1.102	.006	≤1.457	.007	≤2.165	.008
			0.25-0.75DC			≤.354	.007	≤.354	.008
			DC (Slot)			≤.354	.007	≤.354	.008
S	Titanium Alloys	≤350HB	≤0.25DC	≤1.102	.004	≤1.457	.004	≤2.165	.004
			0.25-0.75DC						
			DC (Slot)	≤.709	.002	≤.709	.002	≤.709	.002
	Heat Resistant Alloys	–	≤0.25DC	≤1.102	.003	≤1.457	.003	≤2.165	.003
			0.25-0.75DC						
			DC (Slot)	≤.709	.002	≤.709	.002	≤.709	.002

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece materials, where no vibration occurred. Please adjust processing conditions if the vibration is generated.

MULTI-FUNCTIONAL MILLING

90° KAPR

APX4000

P M K N S H

Fig.1

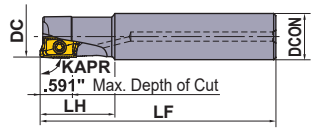


Fig.2

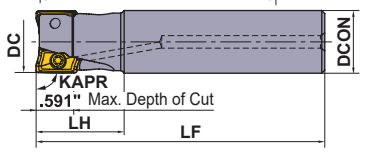


Fig.3

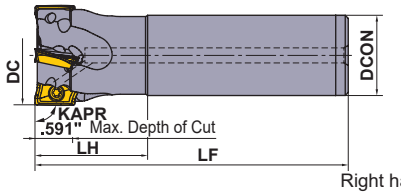


Fig.4

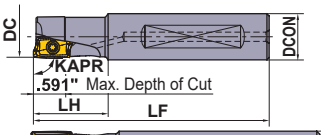


Fig.5

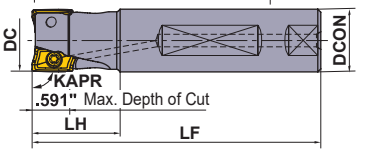
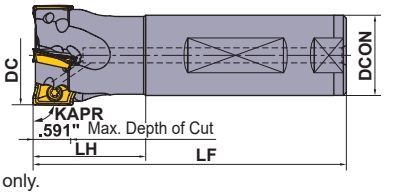


Fig.6



■ SHANK TYPE

With Air / coolant through.

Right hand tool holder only.

•APX4000UR○○○SA○○ = Ground shank : See figure 1, 2 and 3.

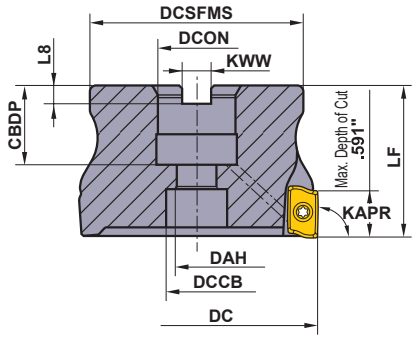
•APX4000UR○○○FA○○ = Flat shank : See figure 4 and 5.

Type		RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	DCON	LF	LH	RMPX	Fig.	* Insert Screw	Wrench	Anti-seize Lubricant
Standard	A Holders	.016 I .079	APX4000UR121FA12SA	●	1	.750	.750	4.000	1.250	14°	4	TPS4S	TIP15W	MK1KS
			APX4000UR121SA12SA	●	1	.750	.750	4.000	1.250	14°	1	TPS4S	TIP15W	MK1KS
			APX4000UR162SA12SA	●	2	1.000	.750	4.000	1.250	11°	3	TPS4	TIP15W	MK1KS
			APX4000UR162FA16SA	●	2	1.000	1.000	4.500	1.250	11°	4	TPS4	TIP15W	MK1KS
			APX4000UR162SA16SA	●	2	1.000	1.000	4.500	1.250	11°	2	TPS4	TIP15W	MK1KS
			APX4000UR202FA20SA	●	2	1.250	1.250	5.000	1.750	7°	5	TPS4	TIP15W	MK1KS
			APX4000UR202SA20SA	●	2	1.250	1.250	5.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR203FA20SA	●	3	1.250	1.250	5.000	1.750	7°	5	TPS4	TIP15W	MK1KS
			APX4000UR203SA20SA	●	3	1.250	1.250	5.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR243FA20SA	●	3	1.500	1.250	5.000	1.750	7°	6	TPS43	TIP15W	MK1KS
			APX4000UR243SA20SA	●	3	1.500	1.250	5.000	1.750	7°	3	TPS43	TIP15W	MK1KS
			APX4000UR244FA20SA	●	4	1.500	1.250	5.000	1.750	7°	6	TPS43	TIP15W	MK1KS
			APX4000UR244SA20SA	●	4	1.500	1.250	5.000	1.750	7°	3	TPS43	TIP15W	MK1KS
	B Holders	.126 I .157	APX4000UR121FA12SB	●	1	.750	.750	4.000	1.250	14°	4	TPS4S	TIP15W	MK1KS
			APX4000UR162FA16SB	●	2	1.000	1.000	4.500	1.250	11°	5	TPS4	TIP15W	MK1KS
			APX4000UR202FA20SB	●	2	1.250	1.250	5.000	1.750	7°	5	TPS4	TIP15W	MK1KS
			APX4000UR203FA20SB	●	3	1.250	1.250	5.000	1.750	7°	5	TPS4	TIP15W	MK1KS
			APX4000UR243FA20SB	●	3	1.500	1.250	5.000	1.750	7°	6	TPS43	TIP15W	MK1KS
			APX4000UR244FA20SB	●	4	1.500	1.250	5.000	1.750	7°	6	TPS43	TIP15W	MK1KS
Long	A Holders	.016 I .079	APX4000UR162SA16LA	●	2	1.000	1.000	8.500	1.250	11°	2	TPS4	TIP15W	MK1KS
			APX4000UR202SA20LA	●	2	1.250	1.250	9.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR203SA20LA	●	3	1.250	1.250	9.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR243SA24LA	●	3	1.500	1.500	9.000	1.750	7°	2	TPS43	TIP15W	MK1KS
			APX4000UR244SA24LA	●	4	1.500	1.500	9.000	1.750	7°	2	TPS43	TIP15W	MK1KS
			APX4000UR243SA24ELA	●	3	1.500	1.500	14.000	1.750	7°	2	TPS43	TIP15W	MK1KS
	B Holders	.126 I .157	APX4000UR162SA16LB	●	2	1.000	1.000	8.500	1.250	11°	2	TPS4	TIP15W	MK1KS
			APX4000UR202SA20LB	●	2	1.250	1.250	9.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR203SA20LB	●	3	1.250	1.250	9.000	1.750	7°	2	TPS4	TIP15W	MK1KS
			APX4000UR243SA24LB	●	3	1.500	1.500	9.000	1.750	7°	2	TPS43	TIP15W	MK1KS
			APX4000UR244SA24LB	●	4	1.500	1.500	9.000	1.750	7°	2	TPS43	TIP15W	MK1KS
			APX4000UR243SA24ELB	●	3	1.500	1.500	14.000	1.750	7°	2	TPS43	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS4=35.6, TPS4S=31, TPS43=35.6

Note 1) When using inserts with corner radius RE≥.126"(3.2 mm), B-Holders or C-Holders are required as shown on page K175.

● : USA Stock



■ ARBOR TYPE

With Air / coolant through.

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (inch)									RMPX	*			
			R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB		Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
A Holders	.016 I .079	APX4000UR0204A	●	4	2.000	1.625	.750	.748	.415	1.875	.313	.187	.600	4°	TPS43	TIP15W	MK1KS	HSCU37513H
		APX4000UR0205A	●	5	2.000	1.625	.750	.748	.415	1.875	.313	.187	.600	4°	TPS43	TIP15W	MK1KS	HSCU37513H
		APX4000UR2505CA	●	5	2.500	2.000	1.000	1.024	.539	2.375	.375	.219	.787	2°	TPS43	TIP15W	MK1KS	HSCU50014H
		APX4000UR0306DA	●	6	3.000	2.500	1.250	1.260	.669	2.874	.500	.281	1.024	2°	TPS43	TIP15W	MK1KS	HSCU62516H
		APX4000UR0307DA	●	7	3.000	2.500	1.250	1.260	.669	2.874	.500	.281	1.024	2°	TPS43	TIP15W	MK1KS	HSCU62516H
		APX4000UR0408EA	●	8	4.000	2.500	1.500	1.181	.787	3.799	.625	.375	1.181	1.5°	TPS43	TIP15W	MK1KS	HSCU75016H
B Holders	.126 I .157	APX4000UR0204B	●	4	2.000	1.625	.750	.748	.415	1.875	.313	.187	.600	4°	TPS43	TIP15W	MK1KS	HSCU37513H
		APX4000UR0205B	●	5	2.000	1.625	.750	.748	.415	1.875	.313	.187	.600	4°	TPS43	TIP15W	MK1KS	HSCU37513H
		APX4000UR2505CB	●	5	2.500	2.000	1.000	1.024	.539	2.375	.375	.219	.787	2°	TPS43	TIP15W	MK1KS	HSCU50014H
		APX4000UR0306DB	●	6	3.000	2.500	1.250	1.260	.669	2.874	.500	.281	1.024	2°	TPS43	TIP15W	MK1KS	HSCU62516H
		APX4000UR0307DB	●	7	3.000	2.500	1.250	1.260	.669	2.874	.500	.281	1.024	2°	TPS43	TIP15W	MK1KS	HSCU62516H
		APX4000UR0408EB	●	8	4.000	2.500	1.500	1.181	.787	3.799	.625	.375	1.181	1.5°	TPS43	TIP15W	MK1KS	HSCU75016H

* Clamp Torque (lbf-in) : TPS43=35.6

Note 1) When using inserts with corner radius RE≥.197"(5.0 mm), C-Holders are required as shown on page K175.

Note 2) The cutter body includes a set bolt for an arbor.

■ Combination of Holder and Insert Corner Radius

Holder	A Holder						B Holder		C Holder	
	APX4000UR○○○○○○A						APX4000UR○○○○○○B		APX4000UR○○○○○○C	
Insert Corner Radius (RE)	.016"	.031"	.039"	.047"	.063"	.079"	.126"	.157"	.197"	.250"

ISO13399 ➢ K003
OPERATION GUIDANCE ➢ K181
SPARE PARTS ➢ M001
TECHNICAL DATA ➢ N001

Fig.1

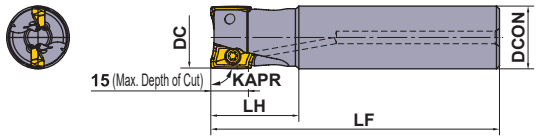
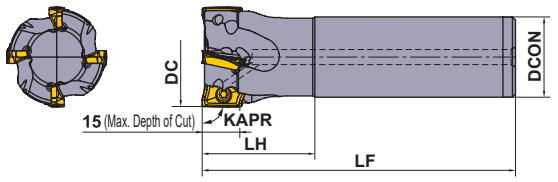


Fig.2



Metric Standard

■ STRAIGHT SHANK TYPE (A Holders)

With Air / coolant through.

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)				RMPX	Fig.	*			
			R		DC	DCON	LF	LH			Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
Long	.016 I .079	**APX4000R252SA25SA**	★	2	25	25	115	35	11°	1	TPS4	TIP15W	MK1KS	
		APX4000R322SA32SA	★	2	32	32	125	45	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R323SA32SA	★	3	32	32	125	45	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R403SA32SA	★	3	40	32	125	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R404SA32SA	★	4	40	32	125	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R504SA32SA	★	4	50	32	125	45	4°	2	TPS43	TIP15W	MK1KS	
		APX4000R505SA32SA	★	5	50	32	125	45	4°	2	TPS43	TIP15W	MK1KS	
		APX4000R634SA32SA	★	4	63	32	125	45	3°	2	TPS43	TIP15W	MK1KS	
		APX4000R636SA32SA	★	6	63	32	125	45	3°	2	TPS43	TIP15W	MK1KS	
		APX4000R252SA25LA	★	2	25	25	170	35	11°	1	TPS4	TIP15W	MK1KS	
		APX4000R282SA25LA	★	2	28	25	170	35	9°	2	TPS4	TIP15W	MK1KS	
		APX4000R322SA32LA	★	2	32	32	190	45	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R323SA32LA	★	3	32	32	190	45	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R352SA32LA	★	2	35	32	190	45	6°	2	TPS4	TIP15W	MK1KS	AOMT1848
		APX4000R353SA32LA	★	3	35	32	190	45	6°	2	TPS4	TIP15W	MK1KS	
		APX4000R402SA32LA	★	2	40	32	190	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R403SA32LA	★	3	40	32	190	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R404SA32LA	★	4	40	32	190	45	6°	2	TPS43	TIP15W	MK1KS	
Extra Long	.016 I .079	**APX4000R252SA25ELA**	★	2	25	25	220	80	11°	1	TPS4	TIP15W	MK1KS	
		APX4000R282SA25ELA	★	2	28	25	220	35	9°	2	TPS4	TIP15W	MK1KS	
		APX4000R322SA32ELA	★	2	32	32	260	100	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R323SA32ELA	★	3	32	32	260	100	7°	1	TPS4	TIP15W	MK1KS	
		APX4000R352SA32ELA	★	2	35	32	260	45	6°	2	TPS4	TIP15W	MK1KS	
		APX4000R353SA32ELA	★	3	35	32	260	45	6°	2	TPS4	TIP15W	MK1KS	
		APX4000R402SA32ELA	★	2	40	32	260	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R403SA32ELA	★	3	40	32	260	45	6°	2	TPS43	TIP15W	MK1KS	
		APX4000R404SA32ELA	★	4	40	32	260	45	6°	2	TPS43	TIP15W	MK1KS	

* Clamp Torque (lbf-in) : TPS4=35.6, TPS43=35.6

Note 1) When using inserts with corner radius RE≥.126" (3.2 mm), B-Holders or C-Holders are required as shown on K175.

Fig.1

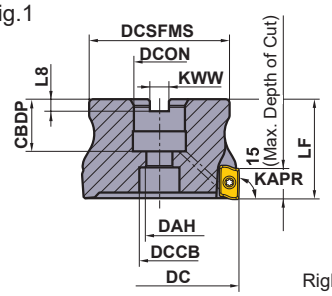
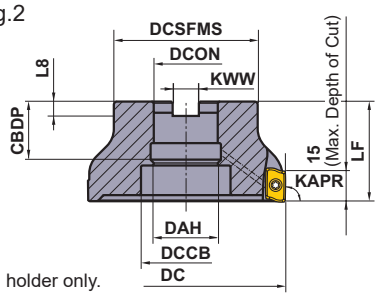


Fig.2



Right hand tool holder only.

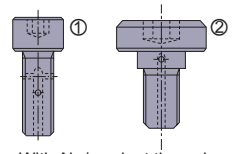
Metric Standard

For Inch Arbors

■ ARBOR TYPE (A Holders)

With Air / coolant through.

Cutter Diameter DC	Set Bolt	Geometry
ϕ80	HSC12035H	①
ϕ100	HSC16040H	
ϕ125	MBA20040H	②
ϕ160	MBA24045H	



With Air / coolant through.

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]									WT	RMPX	Fig.	*			
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB	(kg)			Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.016 | .079	**APX4000R08007CA**	★	7	80	50	25.4 [1.0"]	26	13	70	9.5	6	20	1.2	2°	1	TPS43	TIP15W	MK1KS	AOMT1848
	APX4000R10008DA	★	8	100	63	31.75 [1.25"]	32	17	80	12.7	8	26	2.1	1.5°	1	TPS43	TIP15W	MK1KS	
	APX4000R12509EA	★	9	125	63	38.1 [1.5"]	40	40	100	15.9	10	56	3.3	1°	2	TPS43	TIP15W	MK1KS	
	APX4000R16010FA	★	10	160	63	50.8 [2.0"]	40	53	100	19.1	11	72	4.8	1°	2	TPS43	TIP15W	MK1KS	

* Clamp Torque (lbf-in) : TPS43=35.6

Note 1) When using inserts with corner radius RE≥.126"(3.2 mm), B-Holders or C-Holders are required as shown on K175.

Note 2) Set bolt not included.

ISO13399 ➤ K003
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1

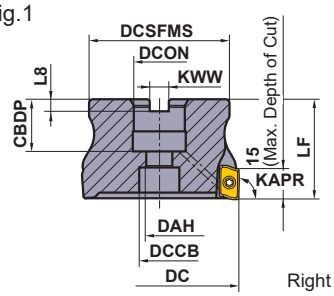
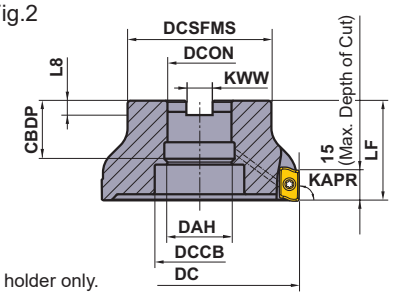


Fig.2

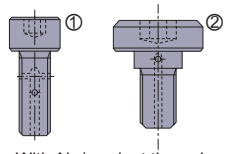


Right hand tool holder only.

Metric Standard

For Metric Arbors

Cutter Diameter DC	Set Bolt	Geometry
ϕ40	HSC08030H	①
ϕ50, ϕ63	HSC10030H	①
ϕ80	HSC12035H	①
ϕ100	HSC16040H	①
ϕ125	MBA20040H	②
ϕ160	MBA20040H	②



With Air / coolant through.

■ ARBOR TYPE (A Holders)

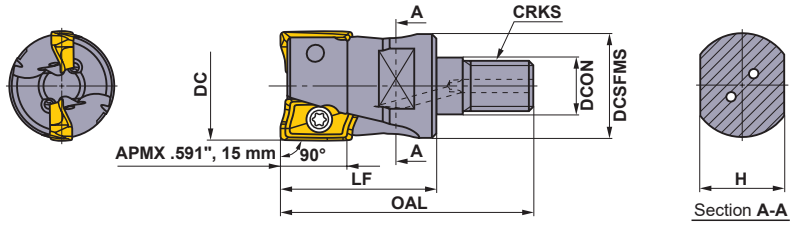
With Air / coolant through.

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)									WT	RMPX	Fig.	*			
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB	(kg)			Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.016 I .079	APX4000-040A04RA	★	4	40	40	16	18	9	34	8.4	5.6	14	0.2	6°	1	TPS43	TIP15W	MK1KS	AOMT1848
	APX4000-050A05RA	★	5	50	40	22	20	11	45	10.4	6.3	17	0.3	4°	1	TPS43	TIP15W	MK1KS	
	APX4000-063A06RA	★	6	63	40	22	20	11	50	10.4	6.3	17	0.5	3°	1	TPS43	TIP15W	MK1KS	
	APX4000-080A07RA	★	7	80	50	27	23	13	60	12.4	7	20	1.2	2°	1	TPS43	TIP15W	MK1KS	
	APX4000-100A08RA	★	8	100	50	32	25	17	70	14.4	8	27	2.1	1.5°	1	TPS43	TIP15W	MK1KS	
	APX4000-125A09RA	★	9	125	63	40	40	42	90	16.4	9	56	3.3	1°	2	TPS43	TIP15W	MK1KS	
	APX4000-160A10RA	★	10	160	63	40	40	42	100	16.4	9	72	4.8	1°	2	TPS43	TIP15W	MK1KS	

* Clamp Torque (lbf-in) : TPS43=35.6

Note 1) When using inserts with corner radius RE≥.126"(3.2 mm), B-Holders or C-Holders are required as shown on page K175.

Note 2) Set bolt not included.



■ SCREW-IN TYPE

With Air / coolant through.

Right hand tool holder only.

DC	Order Number	Stock	Number of Teeth	Dimensions (inch)						WT	*1			
				LF	OAL	DCON	DCSFMS	H	CRKS*2	(lbs)	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
1.000	**APX4000UR162AM12A35**	●	2	1.378	2.244	.492	.925	.748	M12	.4	TPS4	TIP15W	MK1KS	AOMT1848
1.125	**APX4000UR182AM12A35**	●	2	1.378	2.244	.492	.925	.748	M12	.4	TPS4	TIP15W	MK1KS	AOMT1848
1.250	**APX4000UR203AM16A40**	●	3	1.575	2.480	.669	1.122	.945	M16	.7	TPS4	TIP15W	MK1KS	AOMT1848
1.375	**APX4000UR223AM16A40**	●	3	1.575	2.480	.669	1.122	.945	M16	.7	TPS4	TIP15W	MK1KS	AOMT1848

*1 Clamp Torque (lbf-in) : TPS4=35.6, TPS43=35.6
*2 Clamp Torque of the Head (lbf-ft) : M12=59.2, M16=66.7

Metric Standard

■ SCREW-IN TYPE

With Air / coolant through.

DC	Order Number	Stock	Number of Teeth	Dimensions (mm)						WT	*1			
				LF	OAL	DCON	DCSFMS	H	CRKS*2	(kg)	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
25	**APX4000R252M12A35**	★	2	35	57	12.5	23.5	19	M12	0.2	TPS4	TIP15W	MK1KS	AOMT1848
28	**APX4000R282M12A35**	★	2	35	57	12.5	23.5	19	M12	0.2	TPS4	TIP15W	MK1KS	AOMT1848
32	**APX4000R322M16A40**	★	2	40	63	17	28.5	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
32	**APX4000R323M16A40**	★	3	40	63	17	28.5	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
35	**APX4000R352M16A40**	★	2	40	63	17	28.5	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
35	**APX4000R353M16A40**	★	3	40	63	17	28.5	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
40	**APX4000R403M16A40**	★	3	40	63	17	28.5	24	M16	0.3	TPS43	TIP15W	MK1KS	AOMT1848
40	**APX4000R404M16A40**	★	4	40	63	17	28.5	24	M16	0.3	TPS43	TIP15W	MK1KS	AOMT1848

*1 Clamp Torque (lbf-in) : TPS4=35.6, TPS43=35.6
*2 Clamp Torque of the Head (lbf-ft) : M12=59.2, M16=66.7

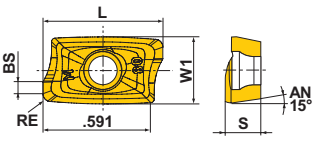
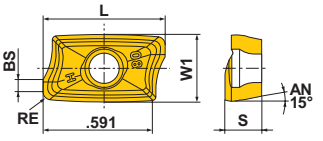
ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

Workpiece Material			MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF	VP20RT
	P	Steel		◐	✣				◐	✣
	M	Stainless Steel				◔			◔	✣
	K	Cast Iron	◐						✣	✣
	S	Heat Resistant Alloys, Titanium Alloys					◐	✣	◐	✣
	H	Hardened Steel							◔	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp Edge

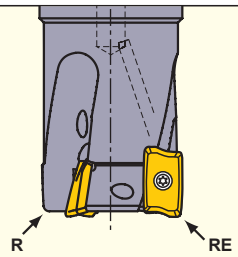
Shape	Order Number	Class	Edge Preparation	Coated								Dimensions (inch)					Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF	VP20RT	L	W1	S	BS	RE	
General **M** Breaker	**AOMT184804PEER-M**	M	E		●	●	●	●	●	●	●	.709	.354	.189	.071	.016	
	AOMT184808PEER-M	M	E		●	●	●	●	●	●	●	.709	.354	.189	.055	.031	
	AOMT184810PEER-M	M	E		●			●	●	★		.709	.354	.189	.039	.039	
	**AOMT184812PEER-M**	M	E		●			●	●	●		.709	.354	.189	.031	.047	
	AOMT184816PEER-M	M	E		●	●	●	●	●	●	●	.709	.354	.189	.016	.063	
	AOMT184820PEER-M	M	E		●			●	●	★		.709	.354	.189	.016	.079	
Strong Cutting Edge Type **H** Breaker	**AOMT184804PEER-H**	M	E	●	●	●	●	●	●	●	●	.709	.354	.189	.071	.016	
	AOMT184808PEER-H	M	E	●	●	●	●	●	●	●	●	.709	.354	.189	.055	.031	
	AOMT184816PEER-H	M	E	●	●	●	●	●	●	●	●	.709	.354	.189	.016	.063	
	**AOMT184832PEER-H**	M	E			●	●				●	.709	.354	.189	.016	.126	
	AOMT184840PEER-H	M	E			●	●				●	.709	.354	.189	.016	.157	
	AOMT184850PEER-H	M	E			●	●				●	.709	.354	.189	—	.197	
	AOMT184864PEER-H	M	E			●	●				●	.709	.354	.189	—	.250	

Note 1) For large R inserts
APX offers various nose radii for inserts, however one holder can not secure every insert radius.
We offer A-Holders that properly secures up to .079" radius.
We offer B-Holders that secures .126" and .157" radius, only for popular inch sizes.
Customers may modify holders as below, so that larger nose radii can be secured.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Note on Use of Inserts with Large Corner Radii

When using inserts with corner radius RE≥R.126", please machine the holder with a radius form as shown on the right table.



RE	R
.126"	.098" B-Holders
.157"	
.197"	.197" C-Holders
.250"	

R : Holder End Radius
RE : Insert Corner Radius

Or additional B-Holders and C-Holders are available as non stock, produced to order only.
"Order numbers"; Please replace the last letter "A" of A-Holders to "B" or "C".
In case of screw-in holders, please add "B" or "C" to the end of the order number of A-Holders.
Ex) APX4000R08007CA→APX4000R08007CC
APX4000R252M12A35→APX4000R252M12A35C

RECOMMENDED CUTTING CONDITIONS

■ Cutting Speed

(inch)

Workpiece Material		Properties	Insert				Cutting Width **ae**			
			Grade Priority		Chip Breaker		≤.25DC	.25—.5DC	.5—.75DC	DC (Slot)
			1st	2nd			Cutting Speed **vc** (SFM)			
P	Mild Steel	≤180HB	MP6120	VP15TF	M	H	755(590—885)	720(560—850)	590(460—690)	590(460—690)
			MP6130	VP20RT	M	H	655(490—785)	620(460—755)	490(360—590)	490(360—590)
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	M	H	590(460—690)	560(430—655)	460(360—525)	460(360—590)
			MP6130	VP20RT	M	H	490(360—590)	460(330—560)	360(260—425)	360(260—425)
M	Stainless Steel	≤270HB	MP7130	VP20RT	M	H	590(460—690)	560(425—655)	460(360—525)	460(360—525)
K	Gray Cast Iron	≤350MPa	MC5020	VP15TF	H		820(655—985)	785(620—950)	690(525—850)	460(360—525)
	Ductile Cast Iron	≤800MPa	MC5020	VP15TF	H		425(330—490)	395(295—460)	330(260—395)	330(260—395)
S	Titanium Alloys	≤350HB	MP9120	VP15TF	H	M	165(130—230)			165(130—230)
			MP9130	VP20RT	H	M	130(100—195)			130(100—195)
	Heat Resistant Alloys	—	MP9120	VP15TF	H	M	130(100—195)			130(100—195)
			MP9130	VP20RT	H	M	100(65—130)			100(65—130)
H	Hardened Steel	40—55HRC	VP15TF		H		295(230—330)	280(195—330)	230(165—260)	230(165—260)

RECOMMENDED CUTTING CONDITIONS

■ Depth of Cut / Feed per Tooth

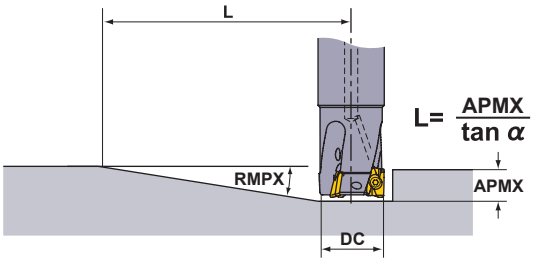
(inch)

	Workpiece Material	Properties	Cutting Width **ae**	Depth of Cut **ap**	Feed per Tooth **fz** (IPT) DC		
					ϕ.750"–ϕ1.500"(ϕ25–ϕ40 mm)	ϕ2.000"–ϕ3.000"(ϕ50–ϕ80 mm)	ϕ4.000"(ϕ100–ϕ160 mm)
P	Mild Steel Carbon Steel Alloy Steel	≤180HB	≤.5DC	≤.197	.012	.012	.010
				.197–.295	.010	.010	.008
				.295–.394	.008	.008	.006
				.394–.492	.006	.006	.004
				.492–.591	.004	.004	.003
		180–350HB	.5–.75DC	≤.197	.008	.008	.006
				.295–.394	.006	.006	.004
				.394–.591	.004	.004	.003
			DC (Slot)	≤.197	.006	.006	.006
				.197–.295	.004	.004	.004
				.295–.394	.003	.003	.003
M	Stainless Steel	≤270HB	≤.5DC	≤.197	.012	.010	.010
				.197–.295	.010	.008	.008
				.295–.394	.008	.006	.006
				.394–.492	.006	.004	.004
				.492–.591	.004	.003	.003
			.5–.75DC	≤.197	.008	.006	.006
				.295–.394	.006	.004	.004
				.394–.591	.004	.003	.003
			DC (Slot)	≤.197	.006	.006	.006
				.197–.295	.004	.004	.004
				.295–.394	.003	.003	.003
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.5DC	≤.197	.012	.012	.010
				.197–.295	.010	.010	.008
				.295–.394	.008	.008	.006
				.394–.492	.006	.006	.004
				.492–.591	.004	.004	.003
			.5–.75DC	≤.197	.008	.008	.006
				.197–.394	.006	.006	.004
				.394–.591	.004	.004	.003
			DC (Slot)	≤.197	.006	.006	.006
				.197–.295	.004	.004	.004
				.295–.394	.003	.003	.003
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.5DC	≤.197	.010	.010	.010
				.197–.295	.008	.008	.008
				.295–.394	.006	.006	.006
				.394–.492	.004	.004	.004
				.492–.591	.003	.003	.003
			.5–.75DC	≤.197	.008	.008	.006
				.197–.394	.006	.006	.004
				.394–.591	.004	.004	.003
			DC (Slot)	≤.197	.006	.006	.006
				.197–.295	.004	.004	.004
				.295–.394	.003	.003	.003
S	Titanium Alloys	≤350HB	≤.25DC	≤.197	.006	.004	.004
				.197–.295	.004	.002	.002
				.295–.394	.002	–	–
			DC (Slot)	≤.197	.002	.002	.002
	Heat Resistant Alloys	–	≤.25DC	≤.079	.004	.002	.002
			DC (Slot)	≤.039	.002	.002	.002
H	Hardened Steel	40–55HRC	≤.25DC	≤.197	.006	.006	.006
				.197–.295	.004	.004	.004
				.295–.394	.003	.003	.003
			.25–.5DC	≤.197	.004	.004	.004
				.197–.295	.003	.003	.003
			.5–.75DC	≤.197	.003	.003	.003
			DC (Slot)	≤.197	.003	.003	.003

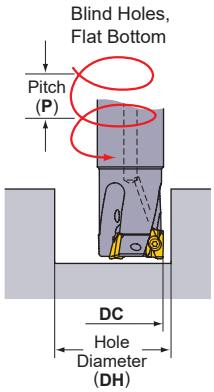
Note 1) These cutting conditions are a guide to the standard shank type and the arbor type.
Please make adjustments according to the machining conditions.
Note 2) Vibration is liable to occur in certain cases. Please reduce the depth of cut and / or reduce cutting conditions in the following cases.
• When using the long shank type and extra long shank type.
• When using long tool overhang with the standard or arbor type.
• When the application has poor clamping rigidity or when using a low rigidity machine.
Note 3) In case of coarse and fine pitch cutters, the coarse pitch type is recommended to prevent vibration.
Note 4) For heavy interrupted and unstable cutting, the H breaker is first recommendation.

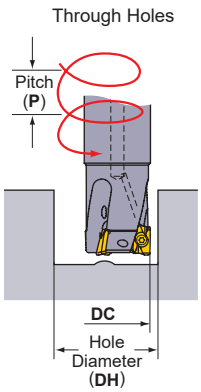
■ Ramping / Helical Milling

● **Ramping**



● **Helical Milling**





Refer to the table below when using .031 inch radius for maximum ramping angle, pitch and minimum/maximum hole diameter. Use cutting conditions for slot milling to calculate speed and feed when ramping / helical milling.

Cutting Edge Diameter **DC** (inch)	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
	Maximum Ramping Angle **RMPX**	Minimum Distance *1 **L** (inch)	Maximum Hole Diameter *2 **DH max.** (inch)	Maximum Pitch **P max.** (inch)	Minimum Hole Diameter **DH min.** (inch)	Maximum Pitch **P max.** (inch)	Minimum Hole Diameter **DH min.** (inch)	Maximum Pitch **P max.** (inch)
.750	14°	2.7	1.42	.51	1.31	.43	.80	.019
1.000	11°	3.4	1.92	.55	1.81	.47	1.30	.157
1.250	7°	5.4	2.42	.43	2.31	.39	1.80	.196
1.500	7°	5.4	2.92	.51	2.81	.47	2.30	.275
2.000	4°	9.4	3.92	.39	3.81	.39	3.30	.275
2.500	2°	18.8	4.92	.23	4.81	.23	4.30	.157
3.000	2°	18.8	5.92	.31	5.81	.27	5.30	.236
4.000	1.5°	25.1	7.92	.31	7.81	.27	7.30	.236

*1 L(=.591"/tanα). Cutters' moving distance until depth of cut reaches .591" at a maximum ramping angle.
*2 In case corner radius of .031". Other than that, find with the below formula.
{(cutting edge diameter DC) - (corner radius) - .008"} x 2
Note 1) When machining highly ductile materials with ramping angles above, chips could be continuous.
In this case, decrease the ramping angle or feed per tooth.

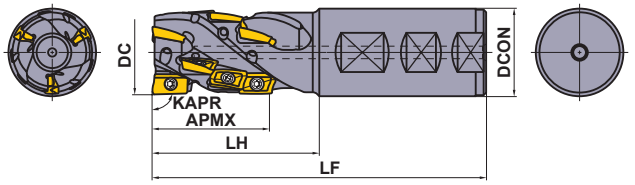
DEEP SHOULDER MILLING

90° KAPR

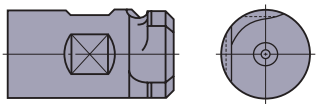
APX4000

LONG CUTTING EDGE

P M K N S H



*1 Combination Type



■SHANK TYPE (A Holders)

With Air / coolant through.

Right hand tool holder only.

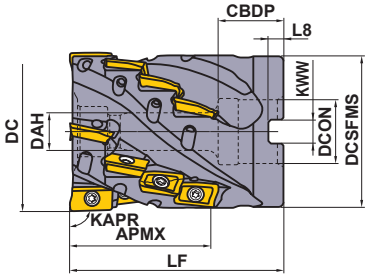
Order Number	Stock	Number of Flutes	Total	Dimensions (inch)					*2			
	R			DC	DCON	LF	LH	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4KUR2408WA24S35A	●	2	8	1.500	1.500	6.500	3.250	2.200	TPS43	TIP15W	MK1KS	AOMT1848
APX4KUR2412WA24S35A	●	3	12	1.500	1.500	6.500	3.250	2.200	TPS43	TIP15W	MK1KS	
*1 APX4KUR3212WA32S35A	●	3	12	2.000	2.000	6.500	3.250	2.200	TPS43	TIP15W	MK1KS	
*1 APX4KUR3218WA32M53A	●	3	18	2.000	2.000	7.750	4.500	3.300	TPS43	TIP15W	MK1KS	

*2 Clamp Torque (lbf-in) : TPS43=35.4

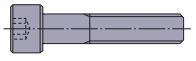
Note 1) When using inserts with corner radius RE≥.126" on the bottom, B-Holders or C-Holders are required as shown on page K175.

Note 2) Only corner radius RE .016" and .031" can be used for the peripheral cutting edges expect the bottom cutting edge (the end cuttting edge).

Note 3) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ2.000"	HSCUF37520	
ϕ2.500"	HSCUF50028	

■SHELL TYPE (A Holders)

With Air / coolant through.

Order Number	Stock	Number of Flutes	Total	Dimensions (inch)									*			
	R			DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4KUR0209A16A	●	3	9	2.000	2.500	.750	1.063	.415	1.918	.313	.187	1.650	TPS43	TIP15W	MK1KS	AOMT1848
APX4KUR2516CA22A	●	4	16	2.500	3.500	1.000	1.339	.539	2.409	.375	.219	2.200	TPS43	TIP15W	MK1KS	

* Clamp Torque (lbf-in) : TPS43=35.4

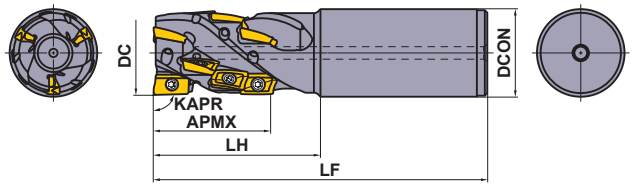
Note 1) When using inserts with corner radius Re≥.126" on the bottom, B-Holders or C-Holders are required as shown on page K175.

Note 2) Only corner radius Re .016" and .031" can be used for the peripheral cutting edges expect the bottom cutting edge (the end cuttting edge).

Note 3) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

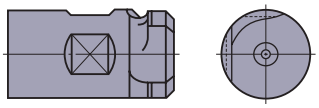
Note 4) In case of internal coolant supply, please use a face mill arbor with through coolant channels; Regular center-thru or side-thru arbors can't be used.

Note 5) The cutter body includes a non-coolant through set bolt for an arbor.



Metric Standard

∗1 Combination Type



■SHANK TYPE (A Holders)

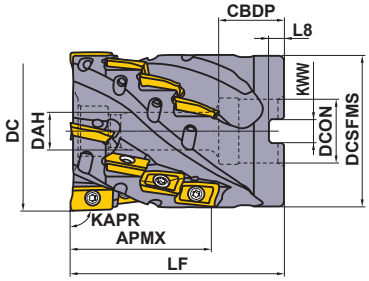
With Air / coolant through.

Right hand tool holder only.

Order Number	Stock	Number of Flutes	Total	Dimensions (mm) [inch]					∗2			
	R			DC	DCON	LF	LH	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4KR4008SA42S056A	★	2	8	40	42	160	80	56	TPS43	TIP15W	MK1KS	AOMT1848
APX4KR4012SA42S056A	★	3	12	40	42	160	80	56	TPS43	TIP15W	MK1KS	
∗1 APX4KR5012WA508S056A	★	3	12	50	50.8 [2.0"]	160	80	56	TPS43	TIP15W	MK1KS	
∗1 APX4KR5018WA508M084A	★	3	18	50	50.8 [2.0"]	190	110	84	TPS43	TIP15W	MK1KS	

∗2 Clamp Torque (lbf-in) : TPS43=35.4

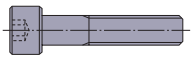
Note 1) When using inserts with corner radius RE≥.126" on the bottom, B-Holders or C-Holders are required as shown on page K175.
Note 2) Only corner radius RE .016" and .031" can be used for the peripheral cutting edges except the bottom cutting edge (the end cuttting edge).
Note 3) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.



Metric Standard

For Inch Arbors

Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ50 mm	HSC10050	
ϕ63 mm	HSC12070	

The bore diameter (DCON) is equivalent to a metric size.

■SHELL TYPE (A Holders)

With Air / coolant through.

Order Number	Stock	Number of Flutes	Total	Dimensions (mm) [inch]									∗			
	R			DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4KR06316CA056A	★	4	16	63	85	25.4 [1.0"]	26	13	60.7	9.5	6	56	TPS43	TIP15W	MK1KS	AOMT1848

∗ Clamp Torque (lbf-in) : TPS43=35.4

Metric Standard

For Metric Arbors

■SHELL TYPE (A Holders)

With Air / coolant through.

Order Number	Stock	Number of Flutes	Total	Dimensions (mm)									∗			
	R			DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4K-050A09A042RA	★	3	9	50	65	22	22	11	48	10.4	6.3	42	TPS43	TIP15W	MK1KS	AOMT1848
APX4K-063A16A056RA	★	4	16	63	85	27	28	13	60.7	12.4	7	56	TPS43	TIP15W	MK1KS	

∗ Clamp Torque (lbf-in) : TPS43=35.4

Note 1) When using inserts with corner radius RE≥.126" on the bottom, B-Holders or C-Holders are required as shown on page K175.
Note 2) Only corner radius RE .016" and .031" can be used for the peripheral cutting edges except the bottom cutting edge (the end cuttting edge).
Note 3) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 4) In case of internal coolant supply, please use a face mill arbor with through coolant channels; Regular center-thru or side-thru arbors can't be used.
Note 5) Set bolt not included.

ISO13399 ➤ K003
INSERTS ➤ K174
OPERATION GUIDANCE ➤ K181
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

RECOMMENDED CUTTING CONDITIONS

■ Cutting Speed

(inch)

Workpiece Material		Properties	Insert Grade Priority 1st	Insert Grade Priority 2nd	Chip Breaker		Cutting Width **ae** ≤.15DC	Cutting Width **ae** .15—.3DC	Cutting Width **ae** DC (Slot)
							Cutting Speed **vc** (SFM)		
P	Mild Steel	≤180HB	MP6120	VP15TF	M	H	655(525—820)	525(395—655)	460(395—525)
			MP6130	VP20RT	M	H	560(425—720)	425(295—560)	360(295—425)
	Carbon Steel Alloy Steel	180—350HB	MP6120	VP15TF	M	H	525(395—655)	395(330—460)	330(260—395)
			MP6130	VP20RT	M	H	425(295—560)	295(230—360)	230(165—295)
M	Stainless Steel	≤270HB	MP7130	VP15TF	M	H	525(395—655)	395(330—460)	330(260—395)
K	Gray Cast Iron	≤350MPa	MC5020	VP15TF	H		755(590—920)	620(460—785)	620(460—785)
	Ductile Cast Iron	≤800MPa	MC5020	VP15TF	H		620(460—720)	560(395—720)	560(395—720)
S	Titanium Alloys	≤350HB	MP9120	VP15TF	H	M	165(130—230)		165(130—230)
			MP9130	VP20RT	H	M	130(100—195)		130(100—195)
	Heat Resistant Alloys	—	MP9120	VP15TF	H	M	130(100—195)		130(100—195)
			MP9130	VP20RT	H	M	100(65—130)		100(65—130)

■ Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Cutting Width **ae**	Depth of Cut **ap**	Feed per Tooth **fz** (IPT) DC ϕ1.5"(Max.ap=2.2") ϕ2.0"(Max.ap=1.65") ϕ40(Max.ap=56 mm(2.205") ϕ50 (Max.ap=42 mm(1.654")	Feed per Tooth **fz** (IPT) DC ϕ2.0"(Max.ap=2.2") ϕ2.5"(Max.ap=2.2") ϕ50(Max.ap=56 mm(2.205") ϕ63 (Max.ap=56 mm(2.205")	Feed per Tooth **fz** (IPT) DC ϕ2.0"(Max.ap=3.3") ϕ50(Max.ap=84 mm(3.307")
P	Mild Steel	≤180HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.787	.008	.008	.006
				.787—1.969	.006	.006	
	Carbon Steel Alloy Steel	180—350HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.787	.006	.006	.004
				.787—1.969	.004	.004	
M	Stainless Steel	≤270HB	≤.3DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.394	.004	.004	.003
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.15DC	≤.394	.012	.012	.010
				.394—1.969	.010	.010	.008
				1.969—3.150			.006
			.15—.3DC	≤.394	.010	.010	.008
				.394—1.969	.008	.008	.006
				1.969—3.150			.004
			DC (Slot)	≤.394	.010	.010	.008
				.394—1.969	.008	.008	.006
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.15DC	≤.787	.010	.010	.008
				.787—1.969	.008	.008	.006
				1.969—3.150			.004
			.15—.3DC	≤.787	.008	.008	.006
				.787—1.969	.006	.006	.004
				1.969—3.150			.003
			DC (Slot)	≤.394	.006	.006	.004
				.394—1.969	.004	.004	
S	Titanium Alloys	≤350HB	≤.15DC	≤.787	.004	.004	
				.787—1.969	.004	.004	
			DC (Slot)	≤1.969	.003	.003	
	Heat Resistant Alloys	—	≤.15DC	≤.394	.003	.003	
			DC (Slot)	≤.787	.002	.002	

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece material, where no vibration occurred.
Please adjust processing conditions if the vibration is generated.

OPERATIONAL GUIDANCE

- Use only specified inserts and parts.
- Clamp the inserts at a specified torque of only.
- The maximum spindle speeds **RPMX** are shown in Table 1. Ensure that the cutter operates under the maximum spindle speed **RPMX**.
  The maximum spindle speeds **RPMX** for safety purposes are determined in accordance with ISO15641 (Milling Cutters for high speed machining–Safety requirements).

(Table 1) Maximum Spindle Speed RPMX

Cutting Edge Diameter **DC**	ϕ.500"	ϕ.625"	ϕ.750"	ϕ1.000"	ϕ1.250"	ϕ1.500"	ϕ2.000"	ϕ2.500"	ϕ3.000"	ϕ4.000"
Max. Spindle Speed **RPMX** (min^{-1})	9900	19000	16000	12000	9500	7600	6000	4800	3800	3100

Cutting Edge Diameter **DC**(mm)	ø12	ø14	ø16	ø18	ø20	ø22	ø25	ø28	ø30
Max. Spindle Speed **RPMX** (min^{-1})	—	—	19000	17000	15000	14000	12000	11000	10000

Cutting Edge Diameter **DC**(mm)	ø32	ø35	ø40	ø50	ø63	ø80	ø100	ø125	ø160
Max. Spindle Speed **RPMX** (min^{-1})	9500	9000	7500	6000	5000	3500	3000	2500	1500

MULTI-FUNCTIONAL MILLING

90° KAPR

VPX200

P M K N S H

Fig.1

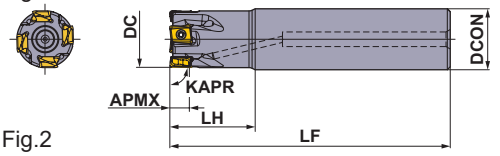


Fig.2

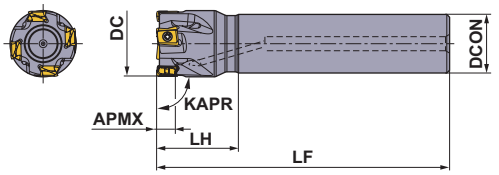


Fig.3

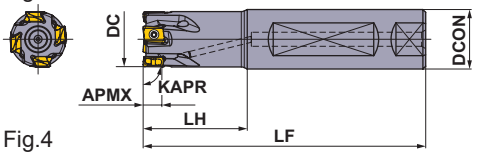
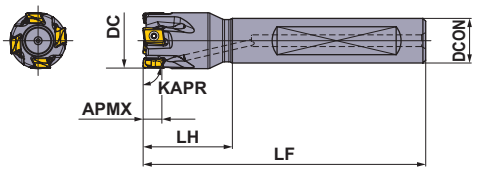


Fig.4



■SHANK TYPE

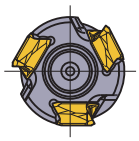
With Air / coolant through.

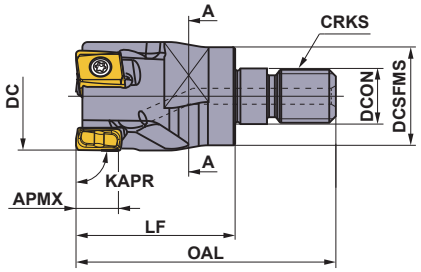
Right hand tool holder only.

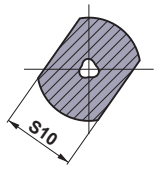
(inch)

DC	Order Number	Stock R	Number of Teeth	DCON	LF	LH	APMX	RMPX	RPMX (min^{-1})	WT (lbs)	Fig.	Insert Type
.625	**VPX200UR1002FA10S**	●	2	.625	3.625	1.250	.315	1.87°	38100	.3	3	LOGU09
.625	**VPX200UR1002SA10S**	●	2	.625	3.625	1.250	.315	1.87°	38100	.3	1	LOGU09
.625	**VPX200UR1002SA10L**	●	2	.625	6.000	1.500	.315	1.87°	38100	.5	1	LOGU09
.750	**VPX200UR1202FA10S**	●	2	.625	4.375	1.250	.315	1.43°	34200	.3	4	LOGU09
.750	**VPX200UR1202SA10S**	●	2	.625	4.375	1.250	.315	1.43°	34200	.4	2	LOGU09
.750	**VPX200UR1203FA10S**	●	3	.625	4.375	1.250	.315	1.43°	34200	.3	4	LOGU09
.750	**VPX200UR1203SA10S**	●	3	.625	4.375	1.250	.315	1.43°	34200	.3	2	LOGU09
.750	**VPX200UR1202FA12S**	●	2	.750	4.375	1.500	.315	1.43°	34200	.4	3	LOGU09
.750	**VPX200UR1202SA12S**	●	2	.750	4.375	1.500	.315	1.43°	34200	.5	1	LOGU09
.750	**VPX200UR1203FA12S**	●	3	.750	4.375	1.500	.315	1.43°	34200	.4	3	LOGU09
.750	**VPX200UR1203SA12S**	●	3	.750	4.375	1.500	.315	1.43°	34200	.5	1	LOGU09
.750	**VPX200UR1202SA12L**	●	2	.750	7.250	2.000	.315	1.43°	34200	.8	1	LOGU09
.875	**VPX200UR1402SA12L**	●	2	.750	7.250	1.500	.315	1.14°	31200	.8	2	LOGU09
1.000	**VPX200UR1603FA12S**	●	3	.750	4.750	1.500	.315	.95°	28800	.6	4	LOGU09
1.000	**VPX200UR1603SA12S**	●	3	.750	4.750	1.500	.315	.95°	28800	.6	2	LOGU09
1.000	**VPX200UR1604FA12S**	●	4	.750	4.750	1.500	.315	.95°	28800	.6	4	LOGU09
1.000	**VPX200UR1604SA12S**	●	4	.750	4.750	1.500	.315	.95°	28800	.6	2	LOGU09
1.000	**VPX200UR1603SA12L**	●	3	.750	8.500	1.500	.315	.95°	28800	1.0	2	LOGU09
1.000	**VPX200UR1603FA16S**	●	3	1.000	4.750	1.750	.315	.95°	28800	.9	3	LOGU09
1.000	**VPX200UR1603SA16S**	●	3	1.000	4.750	1.750	.315	.95°	28800	.9	1	LOGU09
1.000	**VPX200UR1604FA16S**	●	4	1.000	4.750	1.750	.315	.95°	28800	.9	3	LOGU09
1.000	**VPX200UR1604SA16S**	●	4	1.000	4.750	1.750	.315	.95°	28800	.9	1	LOGU09
1.000	**VPX200UR1603SA16L**	●	3	1.000	8.500	2.500	.315	.95°	28800	1.7	1	LOGU09
1.125	**VPX200UR1803SA16L**	●	3	1.000	8.500	1.750	.315	.82°	26800	1.8	2	LOGU09
1.250	**VPX200UR2003FA16S**	●	3	1.000	5.125	1.750	.315	.71°	25200	1.1	4	LOGU09
1.250	**VPX200UR2003SA16S**	●	3	1.000	5.125	1.750	.315	.71°	25200	1.1	2	LOGU09
1.250	**VPX200UR2005FA16S**	●	5	1.000	5.125	1.750	.315	.71°	25200	1.1	4	LOGU09
1.250	**VPX200UR2005SA16S**	●	5	1.000	5.125	1.750	.315	.71°	25200	1.1	2	LOGU09
1.250	**VPX200UR2003SA16L**	●	3	1.000	9.000	1.750	.315	.71°	25200	1.9	2	LOGU09
1.250	**VPX200UR2003FA20S**	●	3	1.250	5.125	2.000	.315	.71°	25200	1.5	3	LOGU09
1.250	**VPX200UR2003SA20S**	●	3	1.250	5.125	2.000	.315	.71°	25200	1.6	1	LOGU09
1.250	**VPX200UR2004FA20S**	●	4	1.250	5.125	2.000	.315	.71°	25200	1.5	3	LOGU09
1.250	**VPX200UR2004SA20S**	●	4	1.250	5.125	2.000	.315	.71°	25200	1.6	1	LOGU09
1.250	**VPX200UR2005FA20S**	●	5	1.250	5.125	2.000	.315	.71°	25200	1.5	3	LOGU09
1.250	**VPX200UR2005SA20S**	●	5	1.250	5.125	2.000	.315	.71°	25200	1.6	1	LOGU09
1.250	**VPX200UR2003SA20L**	●	3	1.250	9.000	3.000	.315	.71°	25200	2.8	1	LOGU09
1.500	**VPX200UR2404FA20S**	●	4	1.250	5.125	2.000	.315	.57°	22600	1.7	4	LOGU09
1.500	**VPX200UR2404SA20S**	●	4	1.250	5.125	2.000	.315	.57°	22600	1.8	2	LOGU09
1.500	**VPX200UR2406FA20S**	●	6	1.250	5.125	2.000	.315	.57°	22600	1.7	4	LOGU09
1.500	**VPX200UR2406SA20S**	●	6	1.250	5.125	2.000	.315	.57°	22600	1.7	2	LOGU09
1.500	**VPX200UR2404SA20L**	●	4	1.250	9.000	2.000	.315	.57°	22600	3.1	2	LOGU09

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.







A-A Section

Right hand tool holder only.

■ SCREW-IN TYPE

With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (lbs)	APMX	RMPX	Insert Type
.625	**VPX200UR1002AM0830**	●	2	.335	.571	1.890	1.181	.394	M08	.1	.315	1.87°	LOGU09
.750	**VPX200UR1202AM1030**	●	2	.413	.728	1.929	1.181	.551	M10	.1	.315	1.43°	LOGU09
.750	**VPX200UR1203AM1030**	●	3	.413	.728	1.929	1.181	.551	M10	.1	.315	1.43°	LOGU09
.875	**VPX200UR1402AM1030**	●	2	.413	.728	1.929	1.181	.551	M10	.2	.315	1.14°	LOGU09
.875	**VPX200UR1403AM1030**	●	3	.413	.728	1.929	1.181	.551	M10	.1	.315	1.14°	LOGU09
1.000	**VPX200UR1603AM1235**	●	3	.492	.925	2.244	1.378	.748	M12	.2	.315	.95°	LOGU09
1.000	**VPX200UR1604AM1235**	●	4	.492	.925	2.244	1.378	.748	M12	.2	.315	.95°	LOGU09
1.125	**VPX200UR1803AM1235**	●	3	.492	.925	2.244	1.378	.748	M12	.3	.315	.82°	LOGU09
1.125	**VPX200UR1804AM1235**	●	4	.492	.925	2.244	1.378	.748	M12	.3	.315	.82°	LOGU09
1.250	**VPX200UR2003AM1640**	●	3	.669	1.122	2.480	1.575	.945	M16	.5	.315	.71°	LOGU09
1.250	**VPX200UR2004AM1640**	●	4	.669	1.122	2.480	1.575	.945	M16	.5	.315	.71°	LOGU09
1.250	**VPX200UR2005AM1640**	●	5	.669	1.122	2.480	1.575	.945	M16	.5	.315	.71°	LOGU09
1.375	**VPX200UR2203AM1640**	●	3	.669	1.122	2.480	1.575	.945	M16	.5	.315	.64°	LOGU09
1.375	**VPX200UR2205AM1640**	●	5	.669	1.122	2.480	1.575	.945	M16	.5	.315	.64°	LOGU09
1.500	**VPX200UR2404AM1640**	●	4	.669	1.122	2.480	1.575	.945	M16	.6	.315	.57°	LOGU09
1.500	**VPX200UR2406AM1640**	●	6	.669	1.122	2.480	1.575	.945	M16	.6	.315	.57°	LOGU09

Note 1) For screw-in type arbors, refer to page K382.

SPARE PARTS

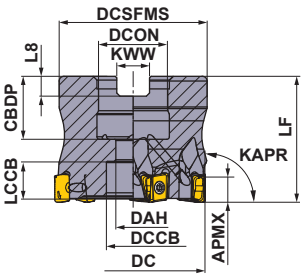
(inch)

DC	Tool Holder Type	* Clamp Screw	Wrench	Anti-seize Lubricant
.625	**VPX200UR10**	TPS27F1	TIP07F	MK1KS
.750	**VPX200UR12**	TPS27F1	TIP07F	MK1KS
.875	**VPX200UR14**	TPS27F2	TIP07F	MK1KS
1.000	**VPX200UR16**	TPS27F2	TIP07F	MK1KS
1.125	**VPX200UR18**	TPS27F2	TIP07F	MK1KS
1.250	**VPX200UR20**	TPS27F2	TIP07F	MK1KS
1.375	**VPX200UR22**	TPS27F2	TIP07F	MK1KS
1.500	**VPX200UR24**	TPS27F2	TIP07F	MK1KS

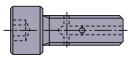
* Clamp Torque (lbf-in) : TPS27F1 = 8.9,TPS27F2 = 8.9

ISO13399	➢ K003
INSERTS	➢ K192

SCREW-IN HOLDERS	➢ K382
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001



Right hand tool holder only.

DCON	Set Bolt	Geometry
ϕ.500"	HSCU25011H	
ϕ.750"	HSCU37513H	
ϕ1.000"	HSCU50014H	
		With Air / coolant through.

■ARBOR TYPE

With Air / coolant through.

DC=inch size, DCON=Inch size

(inch)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	WT (lbs)	APMX	RMPX	RPMX (min^{-1})	Insert Type
1.250	**VPX200UR1.2503SA**	●	3	1.375	.500	.120	.315	.72°	25200	LOGU09
1.250	**VPX200UR1.2505SA**	●	5	1.375	.500	.120	.315	.72°	25200	LOGU09
1.500	**VPX200UR1.5004SA**	●	4	1.750	.500	.260	.315	.57°	22600	LOGU09
1.500	**VPX200UR1.5006SA**	●	6	1.750	.500	.250	.315	.57°	22600	LOGU09
1.500	**VPX200UR1.5004AA**	●	4	1.750	.750	.220	.315	.57°	22600	LOGU09
1.500	**VPX200UR1.5006AA**	●	6	1.750	.750	.210	.315	.57°	22600	LOGU09
2.000	**VPX200UR2.0005AA**	●	5	1.750	.750	.410	.315	.41°	19000	LOGU09
2.000	**VPX200UR2.0007AA**	●	7	1.750	.750	.410	.315	.41°	19000	LOGU09
2.500	**VPX200UR2.5006CA**	●	6	2.000	1.000	.740	.315	.32°	16700	LOGU09
2.500	**VPX200UR2.5009CA**	●	9	2.000	1.000	.740	.315	.32°	16700	LOGU09

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
1.250	**VPX200UR1.2503SA**	.500	.630	.276	.433	.304	1.125	.250	.156
1.250	**VPX200UR1.2505SA**	.500	.630	.276	.433	.304	1.125	.250	.156
1.500	**VPX200UR1.5004SA**	.500	.630	.276	.433	.679	1.438	.250	.156
1.500	**VPX200UR1.5006SA**	.500	.630	.276	.433	.679	1.438	.250	.156
1.500	**VPX200UR1.5004AA**	.750	.748	.413	.630	.561	1.438	.313	.187
1.500	**VPX200UR1.5006AA**	.750	.748	.413	.630	.561	1.438	.313	.187
2.000	**VPX200UR2.0005AA**	.750	.748	.413	.630	.561	1.750	.313	.187
2.000	**VPX200UR2.0007AA**	.750	.748	.413	.630	.561	1.750	.313	.187
2.500	**VPX200UR2.5006CA**	1.000	.945	.539	.787	.693	2.188	.375	.219
2.500	**VPX200UR2.5009CA**	1.000	.945	.539	.787	.693	2.188	.375	.219

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX200	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F2 = 8.9

Fig.1

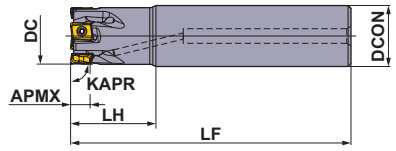
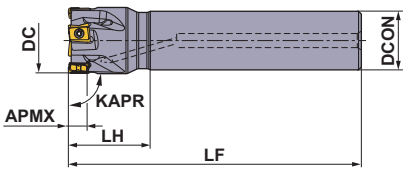


Fig.2



Right hand tool holder only.

Metric Standard

■SHANK TYPE

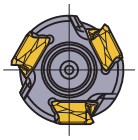
With Air / coolant through.

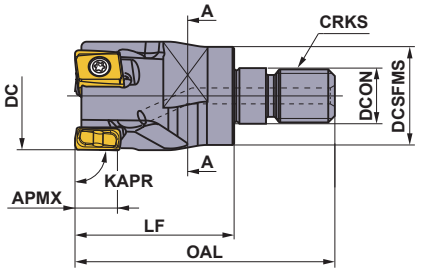
(mm)

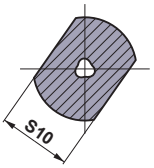
DC	Order Number	Stock R	Number of Teeth	DCON	LF	LH	APMX	RMPX	RPMX (min^{-1})	WT (kg)	Fig.	Insert Type
16	**VPX200R1602SA16S**	★	2	16	85	25	8	1.85°	37900	0.11	1	LOGU09
18	**VPX200R1802SA16S**	★	2	16	85	25	8	1.56°	35300	0.12	2	LOGU09
18	**VPX200R1802SA16L**	★	2	16	120	25	8	1.56°	35300	0.17	2	LOGU09
20	**VPX200R2002SA16S**	★	2	16	100	25	8	1.35°	33200	0.14	2	LOGU09
20	**VPX200R2003SA16S**	★	3	16	100	25	8	1.35°	33200	0.14	2	LOGU09
20	**VPX200R2002SA20S**	★	2	20	100	30	8	1.35°	33200	0.21	1	LOGU09
20	**VPX200R2003SA20S**	★	3	20	100	30	8	1.35°	33200	0.21	1	LOGU09
20	**VPX200R2002SA20L**	★	2	20	150	60	8	1.35°	33200	0.32	1	LOGU09
22	**VPX200R2202SA20S**	★	2	20	115	30	8	1.16°	31400	0.26	2	LOGU09
22	**VPX200R2203SA20S**	★	3	20	115	30	8	1.16°	31400	0.25	2	LOGU09
22	**VPX200R2202SA20L**	★	2	20	150	30	8	1.16°	31400	0.34	2	LOGU09
25	**VPX200R2503SA20S**	★	3	20	115	30	8	0.97°	29000	0.26	2	LOGU09
25	**VPX200R2504SA20S**	★	4	20	115	30	8	0.97°	29000	0.26	2	LOGU09
25	**VPX200R2503SA25S**	★	3	25	115	35	8	0.97°	29000	0.39	1	LOGU09
25	**VPX200R2504SA25S**	★	4	25	115	35	8	0.97°	29000	0.39	1	LOGU09
25	**VPX200R2503SA25L**	★	3	25	170	70	8	0.97°	29000	0.57	1	LOGU09
28	**VPX200R2803SA25S**	★	3	25	115	35	8	0.84°	27200	0.41	2	LOGU09
28	**VPX200R2804SA25S**	★	4	25	115	35	8	0.84°	27200	0.41	2	LOGU09
28	**VPX200R2803SA25L**	★	3	25	170	35	8	0.84°	27200	0.61	2	LOGU09
30	**VPX200R3003SA25S**	★	3	25	125	35	8	0.77°	26000	0.46	2	LOGU09
30	**VPX200R3004SA25S**	★	4	25	125	35	8	0.77°	26000	0.46	2	LOGU09
32	**VPX200R3203SA32S**	★	3	32	125	45	8	0.71°	25100	0.70	1	LOGU09
32	**VPX200R3204SA32S**	★	4	32	125	45	8	0.71°	25100	0.70	1	LOGU09
32	**VPX200R3205SA32S**	★	5	32	125	45	8	0.71°	25100	0.70	1	LOGU09
32	**VPX200R3203SA32L**	★	3	32	190	90	8	0.71°	25100	1.06	1	LOGU09
35	**VPX200R3503SA32L**	★	3	32	190	45	8	0.63°	23800	1.14	2	LOGU09
40	**VPX200R4004SA32S**	★	4	32	125	45	8	0.54°	22000	0.81	2	LOGU09
40	**VPX200R4006SA32S**	★	6	32	125	45	8	0.54°	22000	0.80	2	LOGU09
50	**VPX200R5005SA32S**	★	5	32	125	45	8	0.42°	19200	0.91	2	LOGU09
50	**VPX200R5007SA32S**	★	7	32	125	45	8	0.42°	19200	0.91	2	LOGU09

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

ISO13399 ➤ K003
INSERTS ➤ K192
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001







A-A Section

Right hand tool holder only.

Metric Standard

■ SCREW-IN TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (kg)	APMX	RMPX	Insert Type
16	**VPX200R1602AM0830**	★	2	8.5	14.5	48	30	10	M08	0.03	8	1.85°	LOGU09
18	**VPX200R1802AM0830**	★	2	8.5	14.5	48	30	10	M08	0.04	8	1.56°	LOGU09
20	**VPX200R2002AM1030**	★	2	10.5	18.5	49	30	14	M10	0.06	8	1.35°	LOGU09
20	**VPX200R2003AM1030**	★	3	10.5	18.5	49	30	14	M10	0.06	8	1.35°	LOGU09
22	**VPX200R2202AM1030**	★	2	10.5	18.5	49	30	14	M10	0.06	8	1.16°	LOGU09
22	**VPX200R2203AM1030**	★	3	10.5	18.5	49	30	14	M10	0.06	8	1.16°	LOGU09
25	**VPX200R2503AM1235**	★	3	12.5	23.5	57	35	19	M12	0.11	8	0.97°	LOGU09
25	**VPX200R2504AM1235**	★	4	12.5	23.5	57	35	19	M12	0.11	8	0.97°	LOGU09
32	**VPX200R3203AM1640**	★	3	17.0	28.5	63	40	24	M16	0.21	8	0.71°	LOGU09
32	**VPX200R3204AM1640**	★	4	17.0	28.5	63	40	24	M16	0.21	8	0.71°	LOGU09
32	**VPX200R3205AM1640**	★	5	17.0	28.5	63	40	24	M16	0.21	8	0.71°	LOGU09
35	**VPX200R3503AM1640**	★	3	17.0	28.5	63	40	24	M16	0.24	8	0.63°	LOGU09
35	**VPX200R3505AM1640**	★	5	17.0	28.5	63	40	24	M16	0.23	8	0.63°	LOGU09
40	**VPX200R4004AM1640**	★	4	17.0	28.5	63	40	24	M16	0.26	8	0.54°	LOGU09
40	**VPX200R4006AM1640**	★	6	17.0	28.5	63	40	24	M16	0.26	8	0.54°	LOGU09

Note 1) For screw-in type arbors, refer to page K382.

SPARE PARTS

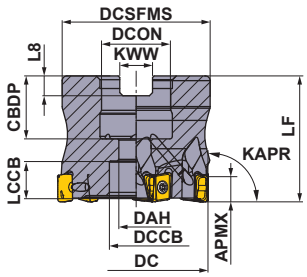
(mm)

DC	Tool Holder Type	* Clamp Screw	Wrench	Anti-seize Lubricant
16	**VPX200R16**	TPS27F1	TIP07F	MK1KS
18	**VPX200R18**	TPS27F1	TIP07F	MK1KS
20	**VPX200R20**	TPS27F1	TIP07F	MK1KS
22	**VPX200R22**	TPS27F2	TIP07F	MK1KS
25	**VPX200R25**	TPS27F2	TIP07F	MK1KS
28	**VPX200R28**	TPS27F2	TIP07F	MK1KS
30	**VPX200R30**	TPS27F2	TIP07F	MK1KS
32	**VPX200R32**	TPS27F2	TIP07F	MK1KS
35	**VPX200R35**	TPS27F2	TIP07F	MK1KS
40	**VPX200R40**	TPS27F2	TIP07F	MK1KS
50	**VPX200R50**	TPS27F2	TIP07F	MK1KS

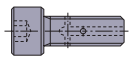
* Clamp Torque (lbf-in) : TPS27F1 = 8.9,TPS27F2 = 8.9

Metric Standard

For Metric Arbors



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ32, ϕ40	HSC08025H	
ϕ50, ϕ63	HSC10030H	With Air / coolant through.

■ARBOR TYPE

With Air / coolant through.

DC=mm size, DCON=mm size (mm)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	RMPX	RPMX (min^{-1})	Insert Type
32	**VPX200-032A03AR**	★	3	35	16	0.11	8	0.71°	25100	LOGU09
32	**VPX200-032A05AR**	★	5	35	16	0.11	8	0.71°	25100	LOGU09
40	**VPX200-040A04AR**	★	4	40	16	0.23	8	0.54°	22000	LOGU09
40	**VPX200-040A06AR**	★	6	40	16	0.22	8	0.54°	22000	LOGU09
50	**VPX200-050A05AR**	★	5	40	22	0.36	8	0.42°	19200	LOGU09
50	**VPX200-050A07AR**	★	7	40	22	0.36	8	0.42°	19200	LOGU09
63	**VPX200-063A06AR**	★	6	40	22	0.66	8	0.32°	16700	LOGU09
63	**VPX200-063A09AR**	★	9	40	22	0.66	8	0.32°	16700	LOGU09

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
32	**VPX200-032A03AR**	16	18	9	14	8	30	8.4	5.6
32	**VPX200-032A05AR**	16	18	9	14	8	30	8.4	5.6
40	**VPX200-040A04AR**	16	18	9	14	13	37	8.4	5.6
40	**VPX200-040A06AR**	16	18	9	14	13	37	8.4	5.6
50	**VPX200-050A05AR**	22	20	11	17	11	47	10.4	6.3
50	**VPX200-050A07AR**	22	20	11	17	11	47	10.4	6.3
63	**VPX200-063A06AR**	22	20	11	17	11	60	10.4	6.3
63	**VPX200-063A09AR**	22	20	11	17	11	60	10.4	6.3

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX200	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F2 = 8.9

ISO13399	➤ K003	SCREW-IN HOLDERS	➤ K382
INSERTS	➤ K192	SPARE PARTS	➤ M001
		TECHNICAL DATA	➤ N001

DEEP SHOULDER MILLING

VPX200

NEW

LONG CUTTING EDGE

P M K N S H

Fig.1

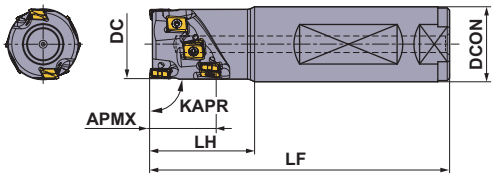
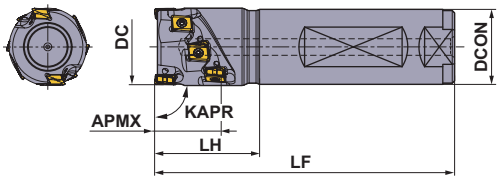


Fig.2



Right hand tool holder only.

■SHANK TYPE

KAPR= 90°
With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Total	DCON	LF	LH	APMX	RMPX	WT (lbs)	Fig.	Insert Type *
.875	**VPX200UR142FA12S0504**	●	2	4	.750	4.375	1.250	.551	1.14°	.485	2	LOGU09
1.000	**VPX200UR162FA16S0806**	●	2	6	1.000	4.750	1.500	.827	0.95°	.904	1	LOGU09
1.000	**VPX200UR162FA16S1108**	●	2	8	1.000	5.000	1.750	1.102	0.95°	.926	1	LOGU09
1.125	**VPX200UR182FA16S0806**	●	2	6	1.000	4.750	1.500	.827	0.82°	.948	2	LOGU09
1.125	**VPX200UR182FA16S1108**	●	2	8	1.000	5.000	1.750	1.102	0.82°	.992	2	LOGU09
1.250	**VPX200UR202FA20S1108**	●	2	8	1.250	5.000	1.750	1.102	0.71°	1.455	1	LOGU09
1.250	**VPX200UR203FA20S1112**	●	3	12	1.250	5.000	1.750	1.102	0.71°	1.433	1	LOGU09
1.250	**VPX200UR202FA20S1310**	●	2	10	1.250	5.250	2.000	1.378	0.71°	1.499	1	LOGU09
1.250	**VPX200UR203FA20S1315**	●	3	15	1.250	5.250	2.000	1.378	0.71°	1.477	1	LOGU09
1.375	**VPX200UR222FA20S1108**	●	2	8	1.250	5.000	1.750	1.102	0.64°	1.543	2	LOGU09
1.375	**VPX200UR223FA20S1112**	●	3	12	1.250	5.000	1.750	1.102	0.64°	1.587	2	LOGU09
1.375	**VPX200UR222FA20S1310**	●	2	10	1.250	5.250	2.000	1.378	0.64°	1.543	2	LOGU09
1.375	**VPX200UR223FA20S1315**	●	3	15	1.250	5.250	2.000	1.378	0.64°	1.587	2	LOGU09
1.500	**VPX200UR243FA20S1315**	●	3	15	1.250	5.250	2.000	1.378	0.57°	1.676	2	LOGU09
1.500	**VPX200UR244FA20S1320**	●	4	20	1.250	5.250	2.000	1.378	0.57°	1.676	2	LOGU09
1.500	**VPX200UR243FA20S1618**	●	3	18	1.250	5.500	2.250	1.654	0.57°	1.764	2	LOGU09
1.500	**VPX200UR244FA20S1624**	●	4	24	1.250	5.500	2.250	1.654	0.57°	1.742	2	LOGU09

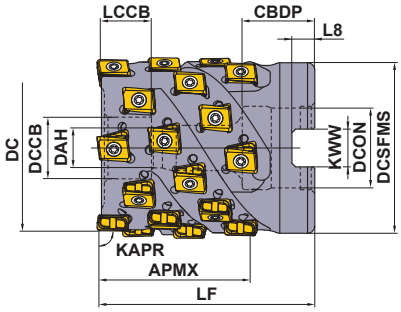
* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

SPARE PARTS

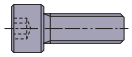
(inch)

DC	Tool Holder Type	*  Clamp Screw	 Wrench	 Anti-seize Lubricant
.875	**VPX200UR14**	TPS27F2	TIP07F	MK1KS
1.000	**VPX200UR16**	TPS27F2	TIP07F	MK1KS
1.125	**VPX200UR16**	TPS27F2	TIP07F	MK1KS
1.250	**VPX200UR20**	TPS27F2	TIP07F	MK1KS
1.375	**VPX200UR22**	TPS27F2	TIP07F	MK1KS
1.500	**VPX200UR24**	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F2 = 8.9



Right hand tool holder only.

DC	APMX	Set Bolt	Geometry
1.250	1.378	HSCUF25020	
1.500	1.654	HSCUF25020	
2.000	1.654	HSCUF37520	

■SHELL TYPE

DCON = inch size, With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Total	LF	DCON	WT (kg)	APMX	RMPX	Insert Type *
1.250	**VPX200UR1.2502AA1310**	●	2	10	2.250	.500	.529	1.378	0.72°	LOGU09
1.250	**VPX200UR1.2503AA1315**	●	3	15	2.250	.500	.485	1.378	0.72°	LOGU09
1.500	**VPX200UR1.5003AA1618**	●	3	18	2.375	.500	.728	1.654	0.57°	LOGU09
1.500	**VPX200UR1.5004AA1624**	●	4	24	2.375	.500	.705	1.654	0.57°	LOGU09
2.000	**VPX200UR2.0004AA1624**	●	4	24	2.375	.750	1.279	1.654	0.41°	LOGU09
2.000	**VPX200UR2.0005AA1630**	●	5	30	2.375	.750	1.257	1.654	0.41°	LOGU09

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
1.250	**VPX200UR1.2502AA1310**	.500	.630	.276	.433	.313	1.438	.250	.156
1.250	**VPX200UR1.2503AA1315**	.500	.630	.276	.433	.313	1.438	.250	.156
1.500	**VPX200UR1.5003AA1618**	.500	.630	.276	.433	.320	1.438	.250	.156
1.500	**VPX200UR1.5004AA1624**	.500	.630	.276	.433	.320	1.438	.250	.156
2.000	**VPX200UR2.0004AA1624**	.750	.748	.413	.630	.438	1.750	.313	.187
2.000	**VPX200UR2.0005AA1630**	.750	.748	.413	.630	.438	1.750	.313	.187

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX200	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F2 = 8.9

ISO13399	➢ K003
CUTTING CONDITIONS	➢ K205
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

Fig.1

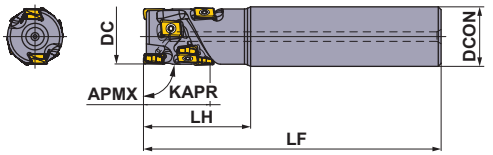
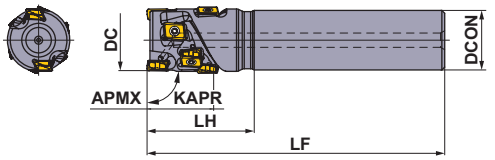


Fig.2



Right hand tool holder only.

Metric Standard

■SHANK TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Total	DCON	LF	LH	APMX	RMPX	WT (kg)	Fig.	Insert Type
20	**VPX200R202SA20S01404**	★	2	4	20	100	30	14	1.35°	0.21	1	LOGU09
22	**VPX200R222SA20S01404**	★	2	4	20	115	30	14	1.16°	0.26	2	LOGU09
25	**VPX200R252SA25S02106**	★	2	6	25	115	35	21	0.97°	0.39	1	LOGU09
25	**VPX200R252SA25S02808**	★	2	8	25	125	45	28	0.97°	0.41	1	LOGU09
28	**VPX200R282SA25S02106**	★	2	6	25	115	35	21	0.84°	0.40	2	LOGU09
28	**VPX200R282SA25S02808**	★	2	8	25	125	45	28	0.84°	0.43	2	LOGU09
32	**VPX200R322SA32S02808**	★	2	8	32	125	45	28	0.71°	0.68	1	LOGU09
32	**VPX200R323SA32S02812**	★	3	12	32	125	45	28	0.71°	0.67	1	LOGU09
32	**VPX200R322SA32S03510**	★	2	10	32	130	50	35	0.71°	0.70	1	LOGU09
32	**VPX200R323SA32S03515**	★	3	15	32	130	50	35	0.71°	0.68	1	LOGU09
35	**VPX200R352SA32S02808**	★	2	8	32	125	45	28	0.63°	0.72	2	LOGU09
35	**VPX200R353SA32S02812**	★	3	12	32	125	45	28	0.63°	0.71	2	LOGU09
35	**VPX200R352SA32S03510**	★	2	10	32	130	50	35	0.63°	0.74	2	LOGU09
35	**VPX200R353SA32S03515**	★	3	15	32	130	50	35	0.63°	0.73	2	LOGU09
40	**VPX200R403SA32S03515**	★	3	15	32	130	50	35	0.54°	0.81	2	LOGU09
40	**VPX200R404SA32S03520**	★	4	20	32	130	50	35	0.54°	0.80	2	LOGU09
40	**VPX200R403SA32S04218**	★	3	18	32	140	60	42	0.54°	0.88	2	LOGU09
40	**VPX200R404SA32S04224**	★	4	24	32	140	60	42	0.54°	0.86	2	LOGU09

SPARE PARTS

(mm)

DC	Tool Holder Type	* 		
		Clamp Screw	Wrench	Anti-seize Lubricant
20	**VPX200R20**	TPS27F1	TIP07F	MK1KS
22	**VPX200R22**	TPS27F2	TIP07F	MK1KS
25	**VPX200R25**	TPS27F2	TIP07F	MK1KS
28	**VPX200R28**	TPS27F2	TIP07F	MK1KS
32	**VPX200R32**	TPS27F2	TIP07F	MK1KS
35	**VPX200R35**	TPS27F2	TIP07F	MK1KS
40	**VPX200R40**	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F1 = 8.9,TPS27F2 = 8.9

Fig.1

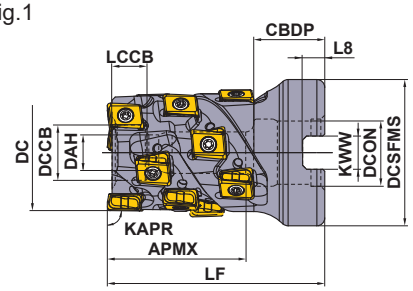
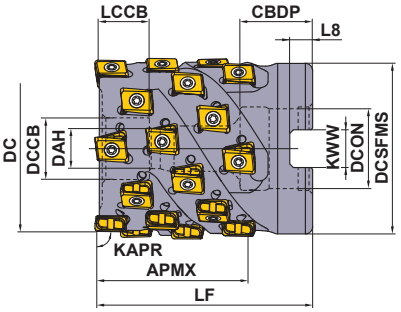
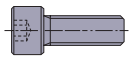


Fig.2



Right hand tool holder only.

DC	APMX	Set Bolt	Geometry
ϕ32	35	HSC08045	
ϕ40	42	HSC08050	
ϕ50	42	HSC10045	

Metric Standard

■SHELL TYPE

DCON = mm size, With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Total	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type *
32	**VPX200-032A02A035R10**	★	2	10	55	16	0.22	35	0.71°	1	LOGU09
32	**VPX200-032A03A035R15**	★	3	15	55	16	0.20	35	0.71°	1	LOGU09
40	**VPX200-040A03A042R18**	★	3	18	60	16	0.34	42	0.54°	2	LOGU09
40	**VPX200-040A04A042R24**	★	4	24	60	16	0.33	42	0.54°	2	LOGU09
50	**VPX200-050A04A042R24**	★	4	24	60	22	0.55	42	0.42°	2	LOGU09
50	**VPX200-050A05A042R30**	★	5	30	60	22	0.54	42	0.42°	2	LOGU09

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
32	**VPX200-032A02A035R10**	16	18	9	14	8	37	8.4	5.6
32	**VPX200-032A03A035R15**	16	18	9	14	8	37	8.4	5.6
40	**VPX200-040A03A042R18**	16	18	9	14	8	37	8.4	5.6
40	**VPX200-040A04A042R24**	16	18	9	14	8	37	8.4	5.6
50	**VPX200-050A04A042R24**	22	20	11	17	13	47	10.4	6.3
50	**VPX200-050A05A042R30**	22	20	11	17	13	47	10.4	6.3

SPARE PARTS

Tool Holder Type	 * Clamp Screw	 Wrench	 Anti-seize Lubricant
VPX200	TPS27F2	TIP07F	MK1KS

* Clamp Torque (lbf-in) : TPS27F2 = 8.9

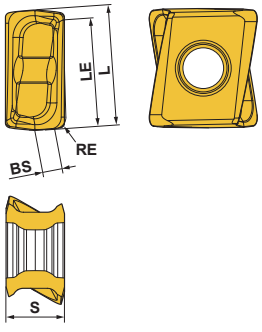
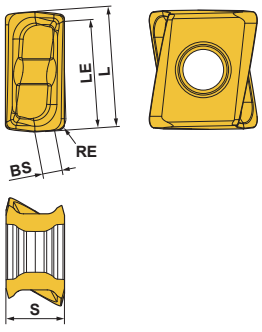
ISO13399	➢ K003
CUTTING CONDITIONS	➢ K205
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp

Shape	Order Number	Class	Edge Preparation	Coated							Carbide		Dimensions(inch)					Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF		TF15	L	RE	LE	S	BS	
Low Cutting Resistance Type **L Breaker**	**LOGU0904020PNER-L**	G	E	●	●	●	●	●	●	●			.343	.008	.299	.169	.067	
	LOGU0904040PNER-L	G	E	●	●	●	●	●	●	●			.343	.016	.299	.169	.063	
	LOGU0904080PNER-L	G	E	●	●	●	●	●	●	●			.343	.031	.299	.169	.047	
	LOGU0904100PNER-L	G	E	●	●	●	●	●	●	●			.343	.039	.299	.169	.039	
	LOGU0904120PNER-L	G	E	●	●	●	●	●	●	●			.343	.047	.299	.169	.035	
	**LOGU0904160PNER-L**	G	E	●	●	●	●	●	●	●			.343	.063	.299	.169	.020	
	LOGU0904020PNFR-L	G	F									●	.343	.008	.299	.169	.067	
	LOGU0904040PNFR-L	G	F									●	.343	.016	.299	.169	.063	
	LOGU0904080PNFR-L	G	F									●	.343	.031	.299	.169	.047	
	LOGU0904100PNFR-L	G	F									●	.343	.039	.299	.169	.039	
	LOGU0904120PNFR-L	G	F									●	.343	.047	.299	.169	.035	
	LOGU0904160PNFR-L	G	F									●	.343	.063	.299	.169	.020	Right hand insert only.
General Use **M Breaker**	**LOGU0904020PNER-M**	G	E	●	●	●	●	●	●	●			.343	.008	.299	.169	.067	
	LOGU0904040PNER-M	G	E	●	●	●	●	●	●	●			.343	.016	.299	.169	.063	
	LOGU0904080PNER-M	G	E	●	●	●	●	●	●	●			.343	.031	.299	.169	.047	
	LOGU0904100PNER-M	G	E	●	●	●	●	●	●	●			.343	.039	.299	.169	.039	
	LOGU0904120PNER-M	G	E	●	●	●	●	●	●	●			.343	.047	.299	.169	.035	
	**LOGU0904160PNER-M**	G	E	●	●	●	●	●	●	●			.343	.063	.299	.169	.020	
	LOGU0904020PNFR-M	G	F									●	.343	.008	.299	.169	.067	
	LOGU0904040PNFR-M	G	F									●	.343	.016	.299	.169	.063	
	LOGU0904080PNFR-M	G	F									●	.343	.031	.299	.169	.047	
	LOGU0904100PNFR-M	G	F									●	.343	.039	.299	.169	.039	
	LOGU0904120PNFR-M	G	F									●	.343	.047	.299	.169	.035	
	LOGU0904160PNFR-M	G	F									●	.343	.063	.299	.169	.020	Right hand insert only.

● : USA Stock
<10 inserts in one case>

MULTI-FUNCTIONAL MILLING

90° KAPR

VPX300

P M K N S H

Fig.1

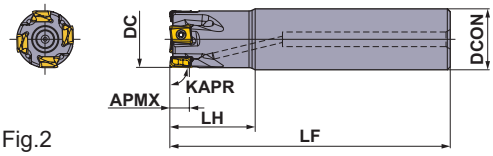


Fig.2

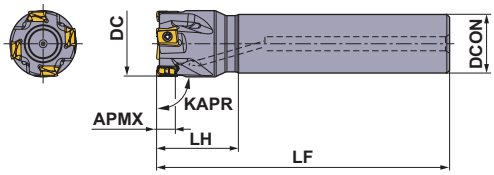


Fig.3

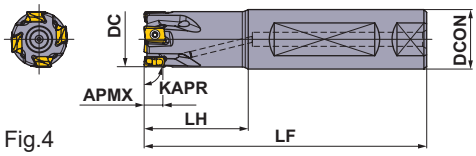
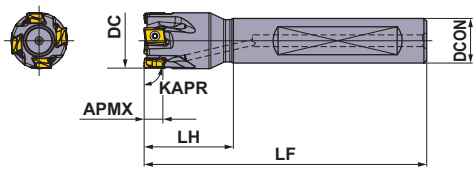


Fig.4



■SHANK TYPE

With Air / coolant through.

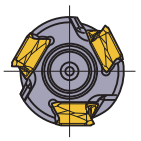
Right hand tool holder only.

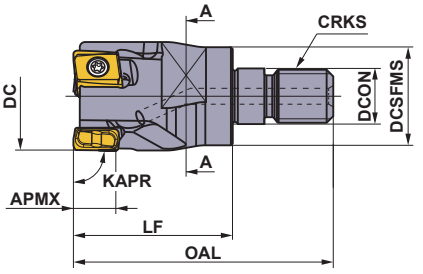
(inch)

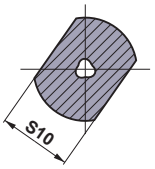
DC	Order Number	Stock R	Number of Teeth	DCON	LF	LH	APMX	RMPX	RPMX (min^{-1})	WT (lbs)	Fig.	Insert Type
1.000	**VPX300UR1602FA16S**	●	2	1.000	4.750	1.750	.433	2.07°	23900	.8	3	LOGU12
1.000	**VPX300UR1602SA16S**	●	2	1.000	4.750	1.750	.433	2.07°	23900	.9	1	LOGU12
1.000	**VPX300UR1602SA16L**	●	2	1.000	8.500	2.500	.433	2.07°	23900	1.7	1	LOGU12
1.125	**VPX300UR1802SA16L**	●	2	1.000	8.500	1.750	.433	1.73°	22200	1.9	2	LOGU12
1.250	**VPX300UR2002FA16S**	●	2	1.000	5.125	1.750	.433	1.49°	20700	1.1	4	LOGU12
1.250	**VPX300UR2002SA16S**	●	2	1.000	5.125	1.750	.433	1.49°	20700	1.1	2	LOGU12
1.250	**VPX300UR2003FA16S**	●	3	1.000	5.125	1.750	.433	1.49°	20700	1.1	4	LOGU12
1.250	**VPX300UR2003SA16S**	●	3	1.000	5.125	1.750	.433	1.49°	20700	1.1	2	LOGU12
1.250	**VPX300UR2003SA16L**	●	3	1.000	9.000	1.750	.433	1.49°	20700	1.9	2	LOGU12
1.250	**VPX300UR2002FA20S**	●	2	1.250	5.125	2.000	.433	1.49°	20700	1.5	3	LOGU12
1.250	**VPX300UR2002SA20S**	●	2	1.250	5.125	2.000	.433	1.49°	20700	1.5	1	LOGU12
1.250	**VPX300UR2003FA20S**	●	3	1.250	5.125	2.000	.433	1.49°	20700	1.5	3	LOGU12
1.250	**VPX300UR2003SA20S**	●	3	1.250	5.125	2.000	.433	1.49°	20700	1.5	1	LOGU12
1.250	**VPX300UR2003SA20L**	●	3	1.250	9.000	3.000	.433	1.49°	20700	2.8	1	LOGU12
1.500	**VPX300UR2402FA20S**	●	2	1.250	5.125	2.000	.433	1.13°	18500	1.7	4	LOGU12
1.500	**VPX300UR2402SA20S**	●	2	1.250	5.125	2.000	.433	1.13°	18500	1.7	2	LOGU12
1.500	**VPX300UR2403FA20S**	●	3	1.250	5.125	2.000	.433	1.13°	18500	1.7	4	LOGU12
1.500	**VPX300UR2403SA20S**	●	3	1.250	5.125	2.000	.433	1.13°	18500	1.7	2	LOGU12
1.500	**VPX300UR2403SA20L**	●	3	1.250	9.000	2.000	.433	1.13°	18500	3.0	2	LOGU12

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

ISO13399 ➤ K003
INSERTS ➤ K203
CUTTING CONDITIONS ➤ K205
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001







A-A Section

Right hand tool holder only.

■ SCREW-IN TYPE

With Air / coolant through.

(inch)

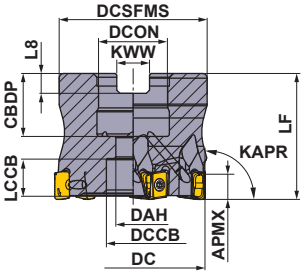
DC	Order Number	Stock R	Number of Teeth	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (lbs)	APMX	RMPX	Insert Type
1.000	**VPX300UR1602AM1235**	●	2	.492	.925	2.244	1.378	.748	M12	.2	.433	2.07°	LOGU12
1.125	**VPX300UR1802AM1235**	●	2	.492	.925	2.244	1.378	.748	M12	.3	.433	1.73°	LOGU12
1.250	**VPX300UR2002AM1640**	●	2	.669	1.122	2.480	1.575	.945	M16	.4	.433	1.49°	LOGU12
1.250	**VPX300UR2003AM1640**	●	3	.669	1.122	2.480	1.575	.945	M16	.4	.433	1.49°	LOGU12
1.375	**VPX300UR2202AM1640**	●	2	.669	1.122	2.480	1.575	.945	M16	.5	.433	1.28°	LOGU12
1.375	**VPX300UR2203AM1640**	●	3	.669	1.122	2.480	1.575	.945	M16	.5	.433	1.28°	LOGU12
1.500	**VPX300UR2403AM1640**	●	3	.669	1.122	2.480	1.575	.945	M16	.5	.433	1.13°	LOGU12
1.500	**VPX300UR2404AM1640**	●	4	.669	1.122	2.480	1.575	.945	M16	.5	.433	1.13°	LOGU12

Note 1) For screw-in type arbors, refer to page K382.

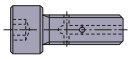
SPARE PARTS

Tool Holder Type	 * Clamp Screw	 Wrench	 Anti-seize Lubricant
VPX300	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6



Right hand tool holder only.

DCON	Set Bolt	Geometry
ϕ.500"	HSCU25011H	
ϕ.750"	HSCU37513H	
ϕ1.000"	HSCU50014H	
		With Air / coolant through.

■ARBOR TYPE

With Air / coolant through.

DC=inch size, DCON=Inch size

(inch)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	WT (lbs)	APMX	RMPX	RPMX (min^{-1})	Insert Type
1.500	**VPX300UR1.5003SA**	●	3	1.750	.500	.240	.433	1.13°	18500	LOGU12
1.500	**VPX300UR1.5004SA**	●	4	1.750	.500	.240	.433	1.13°	18500	LOGU12
2.000	**VPX300UR2.0004AA**	●	4	1.750	.750	.400	.433	.78°	15400	LOGU12
2.000	**VPX300UR2.0006AA**	●	6	1.750	.750	.390	.433	.78°	15400	LOGU12
2.500	**VPX300UR2.5006CA**	●	6	2.000	1.000	.700	.433	.59°	13400	LOGU12
2.500	**VPX300UR2.5008CA**	●	8	2.000	1.000	.720	.433	.59°	13400	LOGU12
3.000	**VPX300UR3.0007CA**	●	7	2.000	1.000	.940	.433	.48°	11900	LOGU12
3.000	**VPX300UR3.0010CA**	●	10	2.000	1.000	.950	.433	.48°	11900	LOGU12

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
1.500	**VPX300UR1.5003SA**	.500	.630	.276	.433	.663	1.438	.250	.156
1.500	**VPX300UR1.5004SA**	.500	.630	.276	.433	.663	1.438	.250	.156
2.000	**VPX300UR2.0004AA**	.750	.748	.413	.630	.545	1.750	.313	.187
2.000	**VPX300UR2.0006AA**	.750	.748	.413	.630	.545	1.750	.313	.187
2.500	**VPX300UR2.5006CA**	1.000	.945	.539	.787	.677	2.188	.375	.219
2.500	**VPX300UR2.5008CA**	1.000	.945	.539	.787	.677	2.188	.375	.219
3.000	**VPX300UR3.0007CA**	1.000	.945	.539	.787	.677	2.188	.375	.219
3.000	**VPX300UR3.0010CA**	1.000	.945	.539	.787	.677	2.188	.375	.219

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX300	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6

ISO13399	➢ K003	SCREW-IN HOLDERS	➢ K382
INSERTS	➢ K203	SPARE PARTS	➢ M001
CUTTING CONDITIONS	➢ K205	TECHNICAL DATA	➢ N001

Fig.1

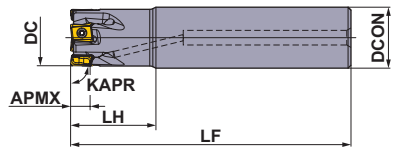
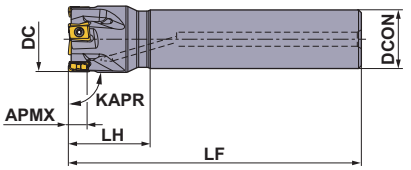


Fig.2



Right hand tool holder only.

Metric Standard

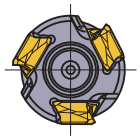
■SHANK TYPE

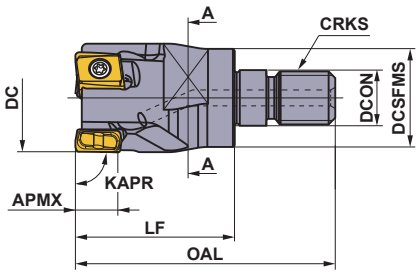
With Air / coolant through.

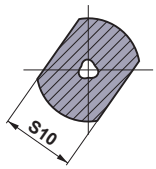
(mm)

DC	Order Number	Stock R	Number of Teeth	DCON	LF	LH	APMX	RMPX	RPMX (min^{-1})	WT (kg)	Fig.	Insert Type
25	**VPX300R2502SA25S**	★	2	25	115	35	11	2.13°	24100	0.38	1	LOGU12
25	**VPX300R2502SA25L**	★	2	25	170	70	11	2.13°	24100	0.56	1	LOGU12
28	**VPX300R2802SA25S**	★	2	25	115	35	11	1.77°	22500	0.40	2	LOGU12
28	**VPX300R2802SA25L**	★	2	25	170	35	11	1.77°	22500	0.60	2	LOGU12
30	**VPX300R3002SA25S**	★	2	25	125	35	11	1.61°	21500	0.45	2	LOGU12
30	**VPX300R3003SA25S**	★	3	25	125	35	11	1.61°	21500	0.44	2	LOGU12
32	**VPX300R3202SA32S**	★	2	32	125	45	11	1.47°	20600	0.69	1	LOGU12
32	**VPX300R3203SA32S**	★	3	32	125	45	11	1.47°	20600	0.68	1	LOGU12
32	**VPX300R3203SA32L**	★	3	32	190	90	11	1.47°	20600	1.04	1	LOGU12
35	**VPX300R3503SA32L**	★	3	32	190	45	11	1.28°	19500	1.10	2	LOGU12
40	**VPX300R4003SA32S**	★	3	32	125	45	11	1.06°	17900	0.76	2	LOGU12
40	**VPX300R4004SA32S**	★	4	32	125	45	11	1.06°	17900	0.76	2	LOGU12
50	**VPX300R5004SA32S**	★	4	32	125	45	11	0.79°	15500	0.89	2	LOGU12
50	**VPX300R5006SA32S**	★	6	32	125	45	11	0.79°	15500	0.88	2	LOGU12

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.







A-A Section

Metric Standard

Right hand tool holder only.

■ SCREW-IN TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (kg)	APMX	RMPX	Insert Type
25	**VPX300R2502AM1235**	★	2	12.5	23.5	57	35	19	M12	0.10	11	2.13°	LOGU12
28	**VPX300R2802AM1235**	★	2	12.5	23.5	57	35	19	M12	0.12	11	1.77°	LOGU12
32	**VPX300R3202AM1640**	★	2	17.0	28.5	63	40	24	M16	0.20	11	1.47°	LOGU12
32	**VPX300R3203AM1640**	★	3	17.0	28.5	63	40	24	M16	0.19	11	1.47°	LOGU12
35	**VPX300R3502AM1640**	★	2	17.0	28.5	63	40	24	M16	0.22	11	1.28°	LOGU12
35	**VPX300R3503AM1640**	★	3	17.0	28.5	63	40	24	M16	0.22	11	1.28°	LOGU12
40	**VPX300R4003AM1640**	★	3	17.0	28.5	63	40	24	M16	0.26	11	1.06°	LOGU12
40	**VPX300R4004AM1640**	★	4	17.0	28.5	63	40	24	M16	0.26	11	1.06°	LOGU12

Note 1) For screw-in type arbors, refer to page K382.

SPARE PARTS

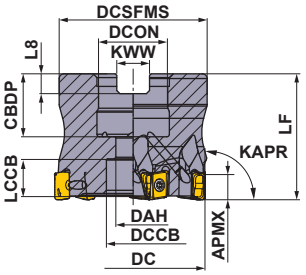
Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX300	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6

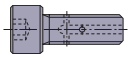
ISO13399	➢ K003	SCREW-IN HOLDERS	➢ K382
INSERTS	➢ K203	SPARE PARTS	➢ M001
CUTTING CONDITIONS	➢ K205	TECHNICAL DATA	➢ N001

Metric Standard

For Metric Arbors



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ40	HSC08025H	
ϕ50, ϕ63	HSC10030H	
ϕ80	HSC12035H	
		With Air / coolant through.

■ARBOR TYPE

With Air / coolant through.

DC=mm size, DCON=mm size, DCON=Inch size

(mm)

DC	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	RMPX	RPMX (min^{-1})	Insert Type
40	**VPX300-040A03AR**	★	3	40	16.0	0.21	11	1.06°	17900	LOGU12
40	**VPX300-040A04AR**	★	4	40	16.0	0.21	11	1.06°	17900	LOGU12
50	**VPX300-050A04AR**	★	4	40	22.0	0.34	11	0.79°	15500	LOGU12
50	**VPX300-050A06AR**	★	6	40	22.0	0.33	11	0.79°	15500	LOGU12
63	**VPX300-063A06AR**	★	6	40	22.0	0.61	11	0.60°	13400	LOGU12
63	**VPX300-063A08AR**	★	8	40	22.0	0.62	11	0.60°	13400	LOGU12
80	**VPX300R08007CA**	★	7	50	25.4[1.0"]	1.00	11	0.45°	11500	LOGU12
80	**VPX300R08010CA**	★	10	50	25.4[1.0"]	1.00	11	0.45°	11500	LOGU12
80	**VPX300-080A07AR**	★	7	50	27.0	0.99	11	0.45°	11500	LOGU12
80	**VPX300-080A10AR**	★	10	50	27.0	0.99	11	0.45°	11500	LOGU12

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
40	**VPX300-040A03AR**	16.0	18	9	14	12.4	37	8.4	5.6
40	**VPX300-040A04AR**	16.0	18	9	14	12.4	37	8.4	5.6
50	**VPX300-050A04AR**	22.0	20	11	17	10.4	47	10.4	6.3
50	**VPX300-050A06AR**	22.0	20	11	17	10.4	47	10.4	6.3
63	**VPX300-063A06AR**	22.0	20	11	17	10.4	60	10.4	6.3
63	**VPX300-063A08AR**	22.0	20	11	17	10.4	60	10.4	6.3
80	**VPX300R08007CA**	25.4[1.0"]	26	13	20	13.4	56	9.5	6.0
80	**VPX300R08010CA**	25.4[1.0"]	26	13	20	13.4	56	9.5	6.0
80	**VPX300-080A07AR**	27.0	23	13	20	13.4	56	12.4	7.0
80	**VPX300-080A10AR**	27.0	23	13	20	13.4	56	12.4	7.0

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX300	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6

● : USA Stock ★ : Stocked in Japan

INSERTS ➢ K203

DEEP SHOULDER MILLING

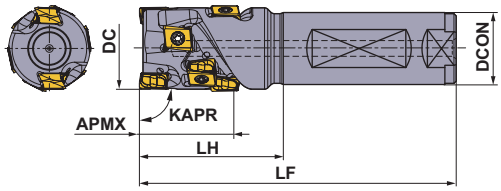
90° KAPR

VPX300

NEW

LONG CUTTING EDGE

P M K N S H



Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Total	DCON	LF	LH	APMX	RMPX	WT (lbs)	Insert Type *
1.500	**VPX300UR242FA20S0804**	●	2	4	1.250	5.000	1.750	.827	1.13°	1.609	LOGU12
1.500	**VPX300UR242FA20S1206**	●	2	6	1.250	5.250	2.000	1.220	1.13°	1.653	LOGU12
1.500	**VPX300UR242FA20S1608**	●	2	8	1.250	5.500	2.500	1.654	1.13°	1.698	LOGU12

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

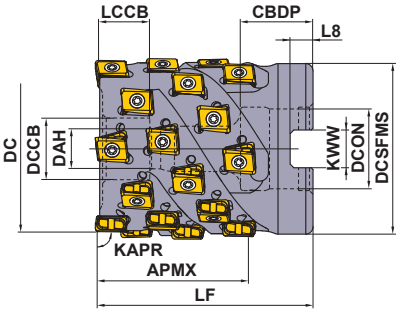
SPARE PARTS

(inch)

DC	Tool Holder Type	*		
		Clamp Screw	Wrench	Anti-seize Lubricant
1.500	**VPX200UR24**	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6

ISO13399 ➤ K003
CUTTING CONDITIONS ➤ K205
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.

Order Number	APMX	Set Bolt	Geometry
VPX300UR1.5002AA1206	1.220	HSCUF25015	
VPX300UR1.5002AA1608	1.654	HSCUF25020	
VPX300UR2.0003AA1209	1.220	HSCUF37518	
VPX300UR2.0003AA1612	1.654	HSCUF37520	
VPX300UR2.0003AA2015	2.047	HSCUF37525	
VPX300UR2.5004AA1616	1.654	HSCUF50020	
VPX300UR2.5004AA2020	2.047	HSCUF50023	
VPX300UR3.0005AA2025	2.047	HSCUF62525	
VPX300UR3.0005AA2835	2.874	HSCUF62530	

■SHELL TYPE

DCON=inch size, With Air / coolant through.

(inch)

DC	Order Number	Stock R	Number of Teeth	Total	LF	DCON	WT (lbs)	APMX	RMPX	Insert Type *
1.500	**VPX300UR1.5002AA1206**	●	2	6	2.000	.500	.573	1.220	1.13°	LOGU12
1.500	**VPX300UR1.5002AA1608**	●	2	8	2.375	.500	.661	1.654	1.13°	LOGU12
2.000	**VPX300UR2.0003AA1209**	●	3	9	2.250	.750	1.146	1.220	0.78°	LOGU12
2.000	**VPX300UR2.0003AA1612**	●	3	12	2.500	.750	1.213	1.654	0.78°	LOGU12
2.000	**VPX300UR2.0003AA2015**	●	3	15	3.000	.750	1.477	2.047	0.78°	LOGU12
2.500	**VPX300UR2.5004AA1616**	●	4	16	2.750	1.000	2.337	1.654	0.59°	LOGU12
2.500	**VPX300UR2.5004AA2020**	●	4	20	3.000	1.000	2.513	2.047	0.59°	LOGU12
3.000	**VPX300UR3.0005AA2025**	●	5	25	3.250	1.250	4.034	2.047	0.48°	LOGU12
3.000	**VPX300UR3.0005AA2835**	●	5	35	3.750	1.250	4.497	2.874	0.48°	LOGU12

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

MOUNTING DIMENSIONS

(inch)

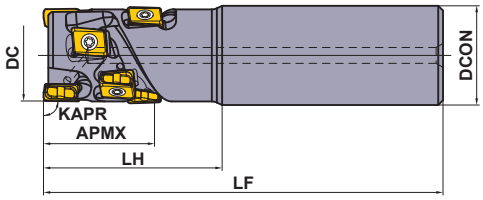
DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
1.500	**VPX300UR1.5002AA1206**	.500	.630	.276	.433	.362	1.438	.250	.156
1.500	**VPX300UR1.5002AA1608**	.500	.630	.276	.433	.344	1.438	.250	.156
2.000	**VPX300UR2.0003AA1209**	.750	.748	.413	.630	.455	1.750	.313	.187
2.000	**VPX300UR2.0003AA1612**	.750	.748	.413	.630	.469	1.750	.313	.187
2.000	**VPX300UR2.0003AA2015**	.750	.748	.413	.630	.457	1.750	.313	.187
2.500	**VPX300UR2.5004AA1616**	1.000	.945	.539	.787	.600	2.375	.375	.219
2.500	**VPX300UR2.5004AA2020**	1.000	.945	.539	.787	.614	2.375	.375	.219
3.000	**VPX300UR3.0005AA2025**	1.250	1.260	.669	1.024	.707	2.875	.500	.281
3.000	**VPX300UR3.0005AA2835**	1.250	1.260	.669	1.024	.695	2.875	.500	.281

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench	Anti-seize Lubricant
VPX300	TPS40F1	TIP15W	MK1KS

* Clamp Torque (lbf-in) : TPS40F1 = 26.6

● : USA Stock ★ : Stocked in Japan



Right hand tool holder only.

Metric Standard

■SHANK TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Total	DCON	LF	LH	APMX	RMPX	WT (kg)	Insert Type *
40	**VPX300R402SA32S02104**	★	2	4	32	125	45	21	1.06°	0.78	LOGU12
40	**VPX300R402SA32S03106**	★	2	6	32	130	50	31	1.06°	0.79	LOGU12
40	**VPX300R402SA32S04208**	★	2	8	32	140	60	42	1.06°	0.84	LOGU12

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

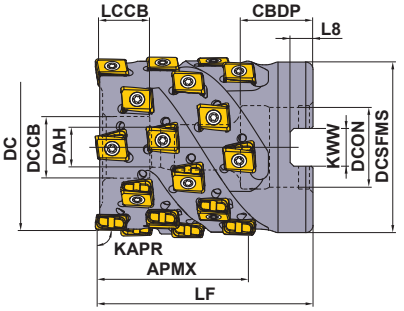
SPARE PARTS

(mm)

DC	Tool Holder Type	*		
		Clamp Screw	Wrench	Anti-seize Lubricant
40	**VPX300R40**	TPS40F1	TIP15W	MK1KS

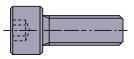
* Clamp Torque (lbf-in) : TPS40F1 = 31.0

ISO13399 ➤ K003
CUTTING CONDITIONS ➤ K205
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Metric Standard

Right hand tool holder only.

Order Number	APMX	Set Bolt	Geometry
VPX300-040A02A031	31	HSC08040	
VPX300-040A02A042	42	HSC08050	
VPX300-050A03A031	31	HSC10040	
VPX300-050A03A042	42	HSC10050	
VPX300-050A03A052	52	HSC10060	
VPX300-063A04A042	42	HSC12050	
VPX300-063A04A052	52	HSC12060	
VPX300-080A05A052	52	HSC12060	
VPX300-080A05A063	63	HSC12070	
VPX300R08005CA052	52	HSC16055	
VPX300R08005CA063	63	HSC16065	

■SHELL TYPE

DCON=mm size, With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Total	LF	DCON	WT (kg)	APMX	RMPX	Insert Type *
40	**VPX300-040A02A031R06**	★	2	6	50	16	0.26	31	1.06°	LOGU12
40	**VPX300-040A02A042R08**	★	2	8	60	16	0.31	42	1.06°	LOGU12
50	**VPX300-050A03A031R09**	★	3	9	55	22	0.47	31	0.79°	LOGU12
50	**VPX300-050A03A042R12**	★	3	12	65	22	0.55	42	0.79°	LOGU12
50	**VPX300-050A03A052R15**	★	3	15	75	22	0.63	52	0.79°	LOGU12
63	**VPX300-063A04A042R16**	★	4	16	65	27	0.92	42	0.6°	LOGU12
63	**VPX300-063A04A052R20**	★	4	20	75	27	1.06	52	0.6°	LOGU12
80	**VPX300-080A05A052R25**	★	5	25	75	27	1.94	52	0.45°	LOGU12
80	**VPX300-080A05A063R30**	★	5	30	85	27	2.20	63	0.45°	LOGU12

DCON=inch size, With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Teeth	Total	LF	DCON	WT (kg)	APMX	RMPX	Insert Type *
80	**VPX300R08005CA05225**	★	5	25	75	31.75	1.81	52	0.45°	LOGU12
80	**VPX300R08005CA06330**	★	5	30	85	31.75	2.06	63	0.45°	LOGU12

* Corner radius RE .031" is recommended for the peripheral cutting edges except the bottom cutting edge (end cutting).
Insert RE .008" and .016" can also be used for the peripheral cutting edges.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
40	**VPX300-040A02A031R06**	16	18	9	14	8.4	37	8.4	5.6
40	**VPX300-040A02A042R08**	16	18	9	14	8.4	37	8.4	5.6
50	**VPX300-050A03A031R09**	22	20	11	17	12.4	47	10.4	6.3
50	**VPX300-050A03A042R12**	22	20	11	17	12.4	47	10.4	6.3
50	**VPX300-050A03A052R15**	22	20	11	17	12.4	47	10.4	6.3
63	**VPX300-063A04A042R16**	27	23	13	20	12.4	76	12.4	7.0
63	**VPX300-063A04A052R20**	27	23	13	20	12.4	76	12.4	7.0
80	**VPX300-080A05A052R25**	27	23	13	20	12.4	76	12.4	7.0
80	**VPX300-080A05A063R30**	27	23	13	20	12.4	76	12.4	7.0
80	**VPX300R08005CA05225**	31.75	32	17	26	17.4	76	12.7	8.0
80	**VPX300R08005CA06330**	31.75	32	17	26	17.4	76	12.7	8.0

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

■ INSERTS

(inch)

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metals
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round **F :** Sharp Edge

Shape	Order Number	Class	Edge Preparation	Coated							Carbide		L	RE	LE	S	BS	Geometry
				MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF		TF15						
Low Cutting Resistance L Breaker	**LOGU1207020PNER-L**	G	E	●	●	●	★	★	★	★			.488	.008	.445	.276	.118	
	LOGU1207040PNER-L	G	E	●	●	●	●	●	★	●			.488	.016	.445	.276	.110	
	LOGU1207080PNER-L	G	E	●	●	●	●	●	●	●			.488	.031	.445	.276	.102	
	LOGU1207100PNER-L	G	E	●	★	★	★	★	★	★			.488	.039	.445	.276	.098	
	LOGU1207120PNER-L	G	E	●	●	★	★	★	★	★			.488	.047	.445	.276	.094	
	LOGU1207160PNER-L	G	E	●	●	●	●	●	●	●			.488	.063	.445	.276	.071	
	LOGU1207200PNER-L	G	E	●	★	★	★	★	★	★			.488	.079	.445	.276	.055	
	LOGU1207240PNER-L	G	E	●	★	★	★	★	★	★			.488	.094	.445	.276	.047	
	LOGU1207300PNER-L	G	E	●	★	★	★	★	★	★			.488	.118	.445	.276	.024	
	LOGU1207320PNER-L	G	E	●	●	●	★	★	★	★			.488	.126	.445	.276	.016	
	LOGU1207020PNFR-L	G	F									★	.488	.008	.445	.276	.118	
	LOGU1207040PNFR-L	G	F									●	.488	.016	.445	.276	.110	
	LOGU1207080PNFR-L	G	F									●	.488	.031	.445	.276	.102	
	LOGU1207100PNFR-L	G	F									★	.488	.039	.445	.276	.098	
	LOGU1207120PNFR-L	G	F									★	.488	.047	.445	.276	.094	
	LOGU1207160PNFR-L	G	F									●	.488	.063	.445	.276	.071	
	LOGU1207200PNFR-L	G	F									★	.488	.079	.445	.276	.055	
	LOGU1207240PNFR-L	G	F									★	.488	.094	.445	.276	.047	
	LOGU1207300PNFR-L	G	F									★	.488	.118	.445	.276	.024	
	LOGU1207320PNFR-L	G	F									★	.488	.126	.445	.276	.016	Right hand insert only.
General Use M Breaker	**LOGU1207020PNER-M**	G	E	●	●	●	●	●	●	●			.488	.008	.445	.276	.118	
	LOGU1207040PNER-M	G	E	●	●	●	●	●	●	●			.488	.016	.445	.276	.110	
	LOGU1207080PNER-M	G	E	●	●	●	●	●	●	●			.488	.031	.445	.276	.094	
	LOGU1207100PNER-M	G	E	●	●	●	●	●	●	●			.488	.039	.445	.276	.091	
	LOGU1207120PNER-M	G	E	●	●	●	●	●	●	●			.488	.047	.445	.276	.083	
	LOGU1207160PNER-M	G	E	●	●	●	●	●	●	●			.488	.063	.445	.276	.067	
	LOGU1207200PNER-M	G	E	●	●	●	●	●	●	●			.488	.079	.445	.276	.055	
	LOGU1207240PNER-M	G	E	●	●	●	●	●	●	●			.488	.094	.445	.276	.039	
	LOGU1207300PNER-M	G	E	●	●	●	●	●	●	●			.488	.118	.445	.276	.020	
	LOGU1207320PNER-M	G	E	●	●	●	●	●	●	●			.488	.126	.445	.276	.012	
	LOGU1207020PNFR-M	G	F									●	.488	.008	.445	.276	.118	
	LOGU1207040PNFR-M	G	F									●	.488	.016	.445	.276	.110	
	LOGU1207080PNFR-M	G	F									●	.488	.031	.445	.276	.094	
	LOGU1207100PNFR-M	G	F									●	.488	.039	.445	.276	.091	
	LOGU1207120PNFR-M	G	F									●	.488	.047	.445	.276	.083	
	LOGU1207160PNFR-M	G	F									●	.488	.063	.445	.276	.067	
	LOGU1207200PNFR-M	G	F									●	.488	.079	.445	.276	.055	
	LOGU1207240PNFR-M	G	F									●	.488	.094	.445	.276	.039	
	LOGU1207300PNFR-M	G	F									●	.488	.118	.445	.276	.020	
	LOGU1207320PNFR-M	G	F									●	.488	.126	.445	.276	.012	Right hand insert only.

VPX200

CHIP BREAKER RECOMMENDATION

■ Chip Breaker Selection Table

Workpiece Material		Properties	Cutting Conditions	Chip Breaker		Grade	
				1st Recommended	2nd Recommended	1st Recommended	2nd Recommended
P	Mild Steel	Hardness ≤180HB	● ◐	L	M	MP6120	VP15TF
			✣	M	L	MP6130	–
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180-350HB ≤350HB (Annealing)	●	L	M	MP6120	VP15TF
			◐	M	L	MP6120	VP15TF
			✣	M	L	MP6130	–
	Pre-hardened Steel	Hardness 35—45HRC	● ◐	M	L	MP6120	VP15TF
			✣	M	L	MP6130	–
M	Austenitic Stainless Steel	Hardness ≤280HB	● ◐	L	M	MP7130	VP15TF
			✣	M	L	MP7130	–
		Hardness >200HB	● ◐	L	M	MP7130	VP15TF
			✣	M	L	MP7130	–
	Duplex Stainless Steel	Hardness ≤280HB	● ◐	L	M	MP7130	VP15TF
			✣	M	L	MP7130	–
	Ferritic and Martensitic Stainless Steel	–	● ◐	L	M	MP7130	VP15TF
			✣	M	L	MP7130	–
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ◐	L	M	MP7130	VP15TF
			✣	M	L	MP7130	–
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ◐	M	L	MC5020	VP15TF
			✣	M	L	VP15TF	–
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ◐	M	L	MC5020	VP15TF
			✣	M	L	VP15TF	–
N	Aluminum Alloys	Content Si<5%	● ◐	L	M	TF15	–
			✣	M	L	TF15	–
S	Titanium Alloys (Ti-6Al-4V,etc.)	–	● ◐	L	M	MP9120	VP15TF
			✣	M	L	MP9130	–
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr,etc.)	–	● ◐	L	M	MP9120	VP15TF
			✣	M	L	MP9130	–
	Heat Resistant Alloys	–	● ◐	M	L	MP9120	VP15TF
			✣	M	L	MP9130	–
H	Hardened Steel	Hardness 40—55HRC	● ◐ ✣	M	–	VP15TF	–

VPX200/VPX300

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✲ : Unstable Cutting

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

Cutting Speed

(inch)

	Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Width **ae** ≤.25DC	.25—.5DC	.5—.75DC	DC(Slot)
					Cutting Speed **vc** (SFM)			
P	Mild Steel	Hardness ≤180HB	● ◔	MP6120,VP15TF	755 (590—885)	720 (560—850)	590 (460—690)	590 (460—690)
			✲	MP6130	655 (490—785)	620 (460—755)	490 (360—590)	490 (360—590)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—350HB ≤350HB (Annealing)	● ◔	MP6120,VP15TF	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—525)
			✲	MP6130	490 (360—590)	460 (330—560)	360 (260—425)	360 (260—425)
	Pre-hardened Steel	Hardness 35—45HRC	● ◔	MP6120,VP15TF	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
			✲	MP6130	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
M	Austenitic Stainless Steel	Hardness ≤200HB	● ◔ ✲	MP7130,VP15TF	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—525)
		Hardness >200HB	● ◔ ✲	MP7130,VP15TF	490 (360—590)	460 (330—525)	360 (260—425)	360 (260—425)
	Duplex Stainless Steel	Hardness ≤280HB	● ◔ ✲	MP7130,VP15TF	460 (360—560)	425 (295—490)	330 (230—395)	330 (230—395)
	Ferritic and Martensitic Stainless Steel	—	● ◔ ✲	MP7130,VP15TF	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—525)
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ◔ ✲	MP7130,VP15TF	425 (330—525)	395 (260—460)	295 (195—360)	295 (195—360)
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ◔	MC5020	820 (655—985)	785 (620—950)	690 (525—850)	690 (525—850)
			● ◔ ✲	VP15TF	655 (490—820)	620 (460—785)	525 (360—690)	525 (360—690)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ◔	MC5020	590 (490—655)	560 (460—620)	490 (395—560)	490 (395—560)
			● ◔ ✲	VP15TF	425 (330—490)	395 (295—460)	330 (260—395)	330 (260—395)
N	Aluminum Alloys	Content Si<5%	● ◔ ✲	TF15	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)
H	Hardened Steel	Hardness 40—55HRC	● ◔ ✲	VP15TF	295 (230—330)	280 (195—330)	230 (165—260)	230 (165—260)

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø.625-ø.750(ø16 mm-ø18 mm) Depth of Cut **ap**	ø.625-ø.750(ø16 mm-ø18 mm) Feed per Tooth **fz** (IPT)	ø.875-ø1.000(ø20 mm-ø25 mm) Depth of Cut **ap**	ø.875-ø1.000(ø20 mm-ø25 mm) Feed per Tooth **fz** (IPT)	ø1.125-ø2.500(ø28 mm-ø63 mm) Depth of Cut **ap**	ø1.125-ø2.500(ø28 mm-ø63 mm) Feed per Tooth **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ● ✲	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.008
			.5—.75DC	● ● ✲	≤.157	.003—.005	≤.236	.003—.005	≤.236	.004—.006
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.005
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—280HB	≤.25DC	● ● ✲	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.008
			.5—.75DC	● ● ✲	≤.157	.003—.005	≤.236	.003—.005	≤.236	.004—.006
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.005
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280—350HB ≤350HB (Annealing)	≤.25DC	● ● ✲	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.008
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ● ✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ● ✲	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.008
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ● ✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
M	Austenitic Stainless Steel	—	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Ferritic and Martensitic Stainless Steel	—	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.006
				✲	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
				✲	≤.157	.002—.003	≤.236	.002—.003	≤.236	.002—.003
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

(inch)

	Workpiece Material	Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø.625-ø.750(ø16 mm-ø18 mm) Depth of Cut **ap**	ø.625-ø.750(ø16 mm-ø18 mm) Feed per Tooth **fz** (IPT)	ø.875-ø1.000(ø20 mm-ø25 mm) Depth of Cut **ap**	ø.875-ø1.000(ø20 mm-ø25 mm) Feed per Tooth **fz** (IPT)	ø1.125-ø2.500(ø28 mm-ø63 mm) Depth of Cut **ap**	ø1.125-ø2.500(ø28 mm-ø63 mm) Feed per Tooth **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ◐	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.004—.008
			.25—.5DC	● ◐	≤.197	.003—.005	≤.315	.003—.006	≤.315	.004—.008
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ◐	≤.157	.003—.005	≤.236	.003—.005	≤.236	.004—.006
				✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.003—.004
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.25DC	● ◐	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.25—.5DC	● ◐	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ◐	≤.157	.003—.005	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
N	Aluminum Alloys	Content Si< 5%	≤.25DC	● ◐	≤.236	.004—.008	≤.315	.004—.010	≤.315	.004—.010
				✲	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
			.25—.5DC	● ◐	≤.197	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.5—.75DC	● ◐	≤.157	.003—.005	≤.236	.002—.006	≤.236	.003—.006
				✲	≤.157	.002—.004	≤.236	.002—.006	≤.236	.003—.006
			DC(Slot)	● ◐	≤.079	.002—.004	≤.157	.002—.006	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.005	≤.157	.003—.005
H	Hardened Steel	Hardness 40—55HRC	≤.25DC	● ◐	≤.157	.003—.006	≤.157	.003—.006	≤.157	.003—.006
				✲	≤.157	.003—.005	≤.157	.003—.005	≤.157	.003—.005
			.25—.5DC	● ◐	≤.118	.003—.005	≤.118	.003—.005	≤.118	.003—.005
				✲	≤.118	.002—.004	≤.118	.003—.004	≤.118	.002—.004
			.5—.75DC	● ◐	≤.079	.002—.004	≤.079	.003—.004	≤.079	.002—.004
				✲	≤.079	.002—.003	≤.079	.002—.003	≤.079	.002—.003
			DC(Slot)	● ◐	≤.039	.002—.004	≤.039	.002—.004	≤.039	.002—.004
				✲	≤.039	.002—.003	≤.039	.002—.003	≤.039	.002—.003

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting

Cutting Speed

(inch)

	Workpiece Material	Properties	Cutting Conditions	Grade	Cutting Width **ae** ≤.25DC	.25—.5DC	.5—.75DC	DC(Slot)
					Cutting Speed **vc** (SFM)			
P	Mild Steel	Hardness ≤180HB	● ●	MP6120	460 (330—620)	425 (295—590)	330 (230—395)	330 (230—395)
			● ●	VP15TF				
			✤	MP6130				
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—350HB ≤350HB (Annealing)	● ●	MP6120	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
			● ●	VP15TF				
			✤	MP6130				
	Pre-hardened Steel	Hardness 35—45HRC	● ●	MP6120	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
			● ●	VP15TF				
			✤	MP6130				
M	Austenitic Stainless Steel	Hardness ≤200HB	● ● ✤	MP7130	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
			● ●	VP15TF				
		Hardness >200HB	● ● ✤	MP7130	330 (260—425)	295 (230—360)	230 (165—330)	230 (165—330)
			● ●	VP15TF				
	Duplex Stainless Steel	Hardness ≤280HB	● ● ✤	MP7130	330 (260—425)	295 (230—395)	230 (165—330)	230 (165—330)
			● ●	VP15TF				
	Ferritic and Martensitic Stainless Steel	—	● ● ✤	MP7130	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
			● ●	VP15TF				
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ● ✤	MP7130	295 (230—395)	260 (195—360)	195 (130—295)	195 (130—295)
			● ●	VP15TF				
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ●	MC5020	590 (525—720)	560 (490—690)	490 (425—620)	490 (425—620)
			● ● ✤	VP15TF	425 (330—490)	395 (295—460)	330 (260—395)	330 (260—395)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ●	MC5020	525 (460—590)	490 (425—560)	425 (360—490)	425 (360—490)
			● ● ✤	VP15TF	360 (260—460)	330 (230—425)	260 (195—395)	260 (195—395)
N	Aluminum Alloys	Content Si<5%	● ● ✤	TF15	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)
S	Titanium Alloys (Ti-6Al-4V,etc.)	—	● ●	MP9120	165 (130—230)	165 (130—230)	165 (130—230)	165 (130—230)
			● ●	VP15TF	165 (130—230)	165 (130—230)	165 (130—230)	165 (130—230)
			✤	MP9130	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr,etc.)	—	● ●	MP9120	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
			● ●	VP15TF	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
			✤	MP9130	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
	Heat Resistant Alloys	—	● ●	MP9120	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
			● ●	VP15TF	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
			✤	MP9130	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
H	Hardened Steel	Hardness 40—55HRC	● ● ✤	VP15TF	295 (230—330)	280 (195—330)	230 (165—260)	230 (165—260)

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.

Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.

Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)

Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø.625-ø.750(ø16 mm-ø18 mm)		ø.875-ø1.000(ø20 mm-ø25 mm)		ø1.125-ø2.500(ø28 mm-ø63 mm)	
					Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ◐ ✣	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
			.25—.5DC	● ◐ ✣	≤.197	.004—.006	≤.315	.004—.006	≤.315	.004—.008
			.5—.75DC	● ◐ ✣	≤.157	.003—.005	≤.236	.003—.005	≤.236	.004—.006
			DC(Slot)	● ◐ ✣	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.005
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—280HB	≤.25DC	● ◐ ✣	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
			.25—.5DC	● ◐ ✣	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.008
			.5—.75DC	● ◐ ✣	≤.157	.003—.005	≤.236	.003—.005	≤.236	.004—.006
			DC(Slot)	● ◐ ✣	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.005
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280—350HB ≤350HB (Annealing)	≤.25DC	● ◐ ✣	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.008
			.25—.5DC	● ◐ ✣	≤.197	.003—.005	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ◐ ✣	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ◐ ✣	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ◐ ✣	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.008
			.25—.5DC	● ◐ ✣	≤.197	.003—.005	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ◐ ✣	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ◐ ✣	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
M	Austenitic Stainless Steel	—	≤.25DC	○ ◐	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✣	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	○ ◐	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.006
				✣	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	○ ◐	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✣	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	○ ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✣	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	○ ◐	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✣	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	○ ◐	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.005
				✣	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	○ ◐	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✣	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	○ ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✣	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Ferritic and Martensitic Stainless Steel	—	≤.25DC	○ ◐	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✣	≤.236	.003—.005	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	○ ◐	≤.197	.003—.005	≤.315	.003—.006	≤.315	.003—.006
				✣	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	○ ◐	≤.157	.002—.004	≤.236	.003—.005	≤.236	.003—.005
				✣	≤.157	.002—.003	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	○ ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✣	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	○ ◐	≤.236	.004—.006	≤.315	.004—.006	≤.315	.004—.006
				✣	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	○ ◐	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
				✣	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	○ ◐	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
				✣	≤.157	.002—.003	≤.236	.002—.003	≤.236	.002—.003
			DC(Slot)	○ ◐	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✣	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting

Depth of Cut / Feed per Tooth

(inch)

	Workpiece Material	Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø.625-ø.750(ø16 mm-ø18 mm) Depth of Cut **ap**	ø.625-ø.750(ø16 mm-ø18 mm) Feed per Tooth **fz** (IPT)	ø.875-ø1.000(ø20 mm-ø25 mm) Depth of Cut **ap**	ø.875-ø1.000(ø20 mm-ø25 mm) Feed per Tooth **fz** (IPT)	ø1.125-ø2.500(ø28 mm-ø63 mm) Depth of Cut **ap**	ø1.125-ø2.500(ø28 mm-ø63 mm) Feed per Tooth **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.004—.008
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.006	≤.315	.004—.008
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.002—.004	≤.236	.004—.006
				✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.004
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.003—.005	≤.236	.003—.005	≤.236	.002—.004
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
N	Aluminum Alloys	Content Si< 5%	≤.25DC	● ●	≤.236	.004—.008	≤.315	.004—.010	≤.315	.004—.010
				✲	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
			.25—.5DC	● ●	≤.197	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.002—.006	≤.236	.003—.006
				✲	≤.157	.002—.004	≤.236	.002—.006	≤.236	.003—.006
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.006	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.005	≤.157	.003—.005
S	Titanium Alloys (Ti-6Al-4V,etc.)	—	≤.25DC	● ● ✲	≤.236	.003—.006	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr,etc.)	—	≤.25DC	● ● ✲	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Heat Resistant Alloys	—	≤.25DC	● ● ✲	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
H	Hardened Steel	Hardness 40—55HRC	≤.25DC	● ●	≤.157	.003—.006	≤.157	.003—.006	≤.157	.003—.006
				✲	≤.157	.003—.005	≤.157	.003—.005	≤.157	.003—.005
			.25—.5DC	● ●	≤.118	.003—.005	≤.118	.003—.005	≤.118	.003—.005
				✲	≤.118	.002—.004	≤.118	.002—.004	≤.118	.002—.004
			.5—.75DC	● ●	≤.079	.002—.004	≤.079	.002—.004	≤.079	.002—.004
				✲	≤.079	.002—.004	≤.079	.002—.004	≤.079	.002—.004
			DC(Slot)	● ●	≤.039	.002—.004	≤.039	.002—.004	≤.039	.002—.004
				✲	≤.039	.002—.004	≤.039	.002—.004	≤.039	.002—.004

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.

Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.

Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)

Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX300

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✲ : Unstable Cutting

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

Cutting Speed

(inch)

	Workpiece Material	Properties	Cutting Conditions	Insert Grade	Insert Chip Breaker	Cutting Width **ae** ≤.25DC	.25—.5DC	.5—.75DC	DC(Slot)
						Cutting Speed **vc** (SFM)			
P	Mild Steel	Hardness ≤180HB	● ◔	MP6120 VP15TF	M	755 (590—885)	720 (560—850)	590 (460—690)	590 (460—690)
			✲	MP6130	M	655 (490—785)	620 (560—850)	490 (360—590)	490 (360—590)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—350HB ≤350HB (Annealing)	● ◔	MP6120 VP15TF	M	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—590)
			✲	MP6130	M	490 (360—590)	460 (330—560)	360 (260—425)	360 (260—425)
	Pre-hardened Steel	Hardness 35—45HRC	● ◔	MP6120 VP15TF	M	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
			✲	MP6130	M	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
M	Austenitic Stainless Steel	Hardness ≤200HB	● ◔ ✲	MP7130 VP15TF	M	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—525)
		Hardness >200HB	● ◔ ✲	MP7130 VP15TF	M	490 (360—590)	460 (330—525)	360 (260—425)	360 (260—425)
	Duplex Stainless Steel	Hardness ≤280HB	● ◔ ✲	MP7130 VP15TF	M	460 (360—560)	425 (295—490)	330 (230—395)	330 (230—395)
	Ferritic and Martensitic Stainless Steel	—	● ◔ ✲	MP7130 VP15TF	M	590 (460—690)	560 (425—655)	460 (360—525)	460 (360—525)
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ◔ ✲	MP7130 VP15TF	M	425 (330—525)	395 (260—460)	295 (195—360)	295 (195—360)
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ◔	MC5020	M	820 (655—985)	785 (620—950)	690 (525—850)	690 (525—850)
			● ◔ ✲	VP15TF	M	655 (490—820)	620 (460—785)	525 (360—690)	525 (360—690)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ◔	MC5020	M	590 (490—655)	560 (460—620)	490 (395—560)	490 (395—560)
			● ◔ ✲	VP15TF	M	425 (330—490)	395 (295—460)	330 (260—395)	330 (260—395)
N	Aluminum Alloys	Content Si<5%	● ◔ ✲	TF15	M	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)
H	Hardened Steel	Hardness 40—55HRC	● ◔ ✲	VP15TF	M	295 (230—330)	280 (195—330)	230 (165—260)	230 (165—260)

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX300

RECOMMENDED CUTTING CONDITIONS

■ Dry Cutting

Depth of Cut / Feed per Tooth

(inch)

	Workpiece Material	Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø1.000 (ø25 mm) Depth of Cut **ap**	ø1.000 (ø25 mm) Feed per Tooth. **fz** (IPT)	ø1.125—ø3.000 (ø28 mm-ø80 mm) Depth of Cut **ap**	ø1.125—ø3.000 (ø28 mm-ø80 mm) Feed per Tooth. **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ● ✲	≤.433	.004—.008	≤.433	.004—.012
			.25—.5DC	● ● ✲	≤.433	.004—.006	≤.433	.004—.010
			.5—.75DC	● ● ✲	≤.315	.003—.005	≤.315	.004—.008
			DC(Slot)	● ● ✲	≤.197	.002—.004	≤.197	.003—.006
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—280HB	≤.25DC	● ● ✲	≤.433	.004—.008	≤.433	.004—.012
			.25—.5DC	● ● ✲	≤.433	.004—.006	≤.433	.004—.010
			.5—.75DC	● ● ✲	≤.315	.003—.005	≤.315	.004—.008
			DC(Slot)	● ● ✲	≤.197	.002—.004	≤.197	.003—.006
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280—350HB ≤350HB (Annealing)	≤.25DC	● ● ✲	≤.433	.004—.006	≤.433	.004—.010
			.25—.5DC	● ● ✲	≤.433	.003—.005	≤.433	.004—.008
			.5—.75DC	● ● ✲	≤.315	.002—.004	≤.315	.004—.006
			DC(Slot)	● ● ✲	≤.197	.002—.004	≤.197	.003—.005
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ● ✲	≤.433	.004—.006	≤.433	.004—.010
			.25—.5DC	● ● ✲	≤.433	.003—.005	≤.433	.004—.008
			.5—.75DC	● ● ✲	≤.315	.002—.004	≤.315	.004—.006
			DC(Slot)	● ● ✲	≤.197	.002—.004	≤.197	.003—.005
M	Austenitic Stainless Steel	—	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.006	≤.433	.003—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.006	≤.433	.003—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Ferritic and Martensitic Stainless Steel	—	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.006	≤.433	.003—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	○ ◔	≤.433	.004—.006	≤.433	.004—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.25—.5DC	○ ◔	≤.433	.003—.005	≤.433	.003—.005
				✲	≤.433	.003—.005	≤.433	.002—.004
			.5—.75DC	○ ◔	≤.315	.002—.004	≤.315	.002—.004
				✲	≤.315	.002—.003	≤.315	.002—.003
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

(inch)

Workpiece Material		Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø1.000 (ø25 mm) Depth of Cut **ap**	ø1.000 (ø25 mm) Feed per Tooth. **fz** (IPT)	ø1.125—ø3.000 (ø28 mm-ø80 mm) Depth of Cut **ap**	ø1.125—ø3.000 (ø28 mm-ø80 mm) Feed per Tooth. **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ◐	≤.433	.004—.008	≤.433	.004—.012
				✠	≤.433	.003—.006	≤.433	.004—.010
			.25—.5DC	● ◐	≤.433	.003—.006	≤.433	.004—.010
				✠	≤.433	.003—.005	≤.433	.004—.008
			.5—.75DC	● ◐	≤.315	.003—.005	≤.315	.004—.008
				✠	≤.315	.002—.004	≤.315	.003—.006
			DC(Slot)	● ◐	≤.197	.002—.004	≤.197	.003—.006
				✠	≤.197	.002—.003	≤.197	.003—.005
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.25DC	● ◐	≤.433	.004—.008	≤.433	.004—.010
				✠	≤.433	.004—.006	≤.433	.004—.008
			.25—.5DC	● ◐	≤.433	.004—.006	≤.433	.004—.008
				✠	≤.433	.003—.005	≤.433	.004—.006
			.5—.75DC	● ◐	≤.315	.003—.005	≤.315	.004—.006
				✠	≤.315	.003—.005	≤.315	.003—.005
			DC(Slot)	● ◐	≤.197	.002—.004	≤.197	.003—.005
				✠	≤.197	.002—.003	≤.197	.002—.004
N	Aluminum Alloys	Content Si< 5%	≤.25DC	● ◐	≤.433	.004—.010	≤.433	.004—.010
				✠	≤.433	.004—.008	≤.433	.004—.008
			.25—.5DC	● ◐	≤.433	.004—.008	≤.433	.004—.008
				✠	≤.433	.004—.006	≤.433	.004—.006
			.5—.75DC	● ◐	≤.315	.002—.006	≤.315	.003—.006
				✠	≤.315	.002—.006	≤.315	.003—.006
			DC(Slot)	● ◐	≤.197	.002—.006	≤.197	.003—.006
				✠	≤.197	.002—.006	≤.197	.003—.005
H	Hardened Steel	Hardness 40—55HRC	≤.25DC	● ◐	≤.197	.003—.006	≤.197	.003—.006
				✠	≤.197	.003—.005	≤.197	.003—.005
			.25—.5DC	● ◐	≤.157	.003—.005	≤.157	.003—.005
				✠	≤.157	.002—.004	≤.157	.002—.004
			.5—.75DC	● ◐	≤.118	.002—.004	≤.118	.002—.004
				✠	≤.118	.002—.003	≤.118	.002—.003
			DC(Slot)	● ◐	≤.079	.002—.004	≤.079	.002—.004
				✠	≤.079	.002—.003	≤.079	.002—.003

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX300

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting

Cutting Speed

(inch)

Workpiece Material		Properties	Cutting Conditions	Insert Grade	Insert Chip Breaker	Cutting Width **ae** ≤.25DC	.25—.5DC	.5—.75DC	DC(Slot)
						Cutting Speed **vc** (SFM)			
P	Mild Steel	Hardness ≤180HB	● ●	MP6120	M	460 (330—620)	425 (295—590)	330 (230—395)	330 (230—395)
			● ●	VP15TF	M	460 (330—620)	425 (295—590)	330 (230—395)	330 (230—395)
			✤	MP6130	M	460 (330—620)	425 (295—590)	330 (230—395)	330 (230—395)
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—350HB ≤350HB (Annealing)	● ●	MP6120	M	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
			● ●	VP15TF	M	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
			✤	MP6130	M	395 (295—460)	360 (260—425)	330 (230—395)	330 (230—395)
	Pre-hardened Steel	Hardness 35—45HRC	● ●	MP6120	M	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
			● ●	VP15TF	M	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
			✤	MP6130	M	330 (260—395)	295 (230—360)	260 (195—330)	260 (195—330)
M	Austenitic Stainless Steel	Hardness ≤200HB	● ● ✤	MP7130	M	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
			● ●	VP15TF	M	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
		Hardness >200HB	● ● ✤	MP7130	M	330 (260—425)	295 (230—395)	230 (165—330)	230 (165—330)
			● ●	VP15TF	M	330 (260—425)	295 (230—395)	230 (165—330)	230 (165—330)
	Duplex Stainless Steel	Hardness ≤280HB	● ● ✤	MP7130	M	330 (260—425)	295 (230—395)	230 (165—330)	230 (165—330)
			● ●	VP15TF	M	330 (260—425)	295 (230—395)	230 (165—330)	230 (165—330)
	Ferritic and Martensitic Stainless Steel	—	● ● ✤	MP7130	M	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
			● ●	VP15TF	M	395 (330—490)	360 (295—460)	295 (230—395)	295 (230—395)
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ● ✤	MP7130	M	295 (230—395)	260 (195—360)	195 (130—295)	195 (130—295)
			● ●	VP15TF	M	295 (230—395)	260 (195—360)	195 (130—295)	195 (130—295)
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ●	MC5020	M	590 (525—720)	560 (490—690)	490 (425—620)	490 (425—620)
			● ● ✤	VP15TF	M	425 (330—490)	395 (295—460)	330 (260—395)	330 (260—395)
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ●	MC5020	M	525 (460—590)	490 (425—560)	425 (360—490)	425 (360—490)
			● ● ✤	VP15TF	M	360 (260—460)	330 (230—425)	260 (195—395)	260 (195—395)
N	Aluminum Alloys	Content Si<5%	● ● ✤	TF15	M	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)	1970 (1310—3280)
S	Titanium Alloys (Ti-6Al-4V,etc.)	—	● ●	MP9120	M	165 (130—230)	165 (130—230)	165 (130—230)	165 (130—230)
			● ●	VP15TF	M	165 (130—230)	165 (130—230)	165 (130—230)	165 (130—230)
			✤	MP9130	M	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr,etc.)	—	● ●	MP9120	M	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
			● ●	VP15TF	M	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
			✤	MP9130	M	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
	Heat Resistant Alloys	—	● ●	MP9120	M	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
			● ●	VP15TF	M	130 (100—195)	130 (100—195)	130 (100—195)	130 (100—195)
			✤	MP9130	M	100 (65—130)	100 (65—130)	100 (65—130)	100 (65—130)
H	Hardened Steel	Hardness 40—55HRC	● ● ✤	VP15TF	M	295 (230—330)	280 (195—330)	230 (165—260)	230 (165—260)

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.

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Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✲ : Unstable Cutting

Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC**			
					ø1.000 (ø25 mm)		**ø1.125—ø3.000 (ø28 mm-ø80 mm)**	
					Depth of Cut **ap**	Feed per Tooth. **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth. **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ◔ ✲	≤.433	.004—.008	≤.433	.004—.012
			.25—.5DC	● ◔ ✲	≤.433	.004—.006	≤.433	.004—.010
			.5—.75DC	● ◔ ✲	≤.315	.003—.005	≤.315	.004—.008
			DC(Slot)	● ◔ ✲	≤.197	.002—.004	≤.197	.003—.006
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 180—280HB	≤.25DC	● ◔ ✲	≤.433	.004—.008	≤.433	.004—.012
			.25—.5DC	● ◔ ✲	≤.433	.004—.006	≤.433	.004—.010
			.5—.75DC	● ◔ ✲	≤.315	.003—.005	≤.315	.004—.008
			DC(Slot)	● ◔ ✲	≤.197	.002—.004	≤.197	.003—.006
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280—350HB ≤350HB (Annealing)	≤.25DC	● ◔ ✲	≤.433	.004—.006	≤.433	.004—.010
			.25—.5DC	● ◔ ✲	≤.433	.003—.005	≤.433	.004—.008
			.5—.75DC	● ◔ ✲	≤.315	.002—.004	≤.315	.004—.006
			DC(Slot)	● ◔ ✲	≤.197	.002—.004	≤.197	.003—.005
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ◔ ✲	≤.433	.004—.006	≤.433	.004—.010
			.25—.5DC	● ◔ ✲	≤.433	.003—.005	≤.433	.004—.008
			.5—.75DC	● ◔ ✲	≤.315	.002—.004	≤.315	.004—.006
			DC(Slot)	● ◔ ✲	≤.197	.002—.004	≤.197	.003—.005
M	Austenitic Stainless Steel	—	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.005	≤.433	.003—.006
				✲	≤.433	.002—.004	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.002—.004	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.006	≤.433	.003—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Ferritic and Martensitic Stainless Steel	—	≤.25DC	○ ◔	≤.433	.004—.008	≤.433	.004—.008
				✲	≤.433	.003—.006	≤.433	.003—.006
			.25—.5DC	○ ◔	≤.433	.003—.006	≤.433	.003—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.003—.005	≤.315	.003—.005
				✲	≤.315	.002—.004	≤.315	.002—.004
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	○ ◔	≤.433	.004—.006	≤.433	.004—.006
				✲	≤.433	.003—.005	≤.433	.003—.005
			.25—.5DC	○ ◔	≤.433	.003—.005	≤.433	.003—.005
				✲	≤.433	.003—.005	≤.433	.003—.005
			.5—.75DC	○ ◔	≤.315	.002—.004	≤.315	.002—.004
				✲	≤.315	.002—.003	≤.315	.002—.003
			DC(Slot)	○ ◔	≤.197	.002—.004	≤.197	.002—.004
				✲	≤.197	.002—.003	≤.197	.002—.003

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX300

RECOMMENDED CUTTING CONDITIONS

■ Wet Cutting

Depth of Cut / Feed per Tooth

(inch)

	Workpiece Material	Properties	Cutting Width **ae**	Cutting Conditions	Cutter Diameter **DC** ø.625-ø.750(ø16mm-ø18mm) Depth of Cut **ap**	ø.625-ø.750(ø16mm-ø18mm) Feed per Tooth **fz** (IPT)	ø.875-ø1.000(ø20mm-ø25mm) Depth of Cut **ap**	ø.875-ø1.000(ø20mm-ø25mm) Feed per Tooth **fz** (IPT)	ø1.125-ø2.500(ø28mm-ø63mm) Depth of Cut **ap**	ø1.125-ø2.500(ø28mm-ø63mm) Feed per Tooth **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.010
				✲	≤.236	.003—.005	≤.315	.003—.006	≤.315	.004—.008
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.003—.006	≤.315	.004—.008
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.004—.006
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.002—.004	≤.236	.004—.006
				✲	≤.157	.003—.005	≤.236	.002—.004	≤.236	.003—.005
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.004
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.25DC	● ●	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.236	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.25—.5DC	● ●	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
				✲	≤.197	.002—.004	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.003—.005	≤.236	.003—.005
				✲	≤.157	.003—.005	≤.236	.003—.005	≤.236	.002—.004
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
				✲	≤.079	.002—.003	≤.157	.002—.003	≤.157	.002—.003
N	Aluminum Alloys	Content Si<5%	≤.25DC	● ●	≤.236	.004—.008	≤.315	.004—.010	≤.315	.004—.010
				✲	≤.236	.004—.006	≤.315	.004—.008	≤.315	.004—.008
			.25—.5DC	● ●	≤.197	.004—.006	≤.315	.004—.008	≤.315	.004—.008
				✲	≤.197	.003—.005	≤.315	.004—.006	≤.315	.004—.006
			.5—.75DC	● ●	≤.157	.003—.005	≤.236	.002—.006	≤.236	.003—.006
				✲	≤.157	.002—.004	≤.236	.002—.006	≤.236	.003—.006
			DC(Slot)	● ●	≤.079	.002—.004	≤.157	.002—.006	≤.157	.003—.006
				✲	≤.079	.002—.003	≤.157	.002—.005	≤.157	.003—.005
S	Titanium Alloys (Ti-6Al-4V,etc.)	—	≤.25DC	● ● ✲	≤.236	.003—.006	≤.315	.003—.006	≤.315	.003—.006
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr,etc.)	—	≤.25DC	● ● ✲	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
	Heat Resistant Alloys	—	≤.25DC	● ● ✲	≤.236	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.25—.5DC	● ● ✲	≤.197	.003—.005	≤.315	.003—.005	≤.315	.003—.005
			.5—.75DC	● ● ✲	≤.157	.002—.004	≤.236	.002—.004	≤.236	.002—.004
			DC(Slot)	● ● ✲	≤.079	.002—.004	≤.157	.002—.004	≤.157	.002—.004
H	Hardened Steel	Hardness 40—55HRC	≤.25DC	● ●	≤.157	.003—.006	≤.157	.003—.006	≤.157	.003—.006
				✲	≤.157	.003—.005	≤.157	.003—.005	≤.157	.003—.005
			.25—.5DC	● ●	≤.118	.003—.005	≤.118	.003—.005	≤.118	.003—.005
				✲	≤.118	.002—.004	≤.118	.002—.004	≤.118	.002—.004
			.5—.75DC	● ●	≤.079	.002—.004	≤.079	.002—.004	≤.079	.002—.004
				✲	≤.079	.002—.004	≤.079	.002—.004	≤.079	.002—.004
			DC(Slot)	● ●	≤.039	.002—.004	≤.039	.002—.004	≤.039	.002—.004
				✲	≤.039	.002—.004	≤.039	.002—.004	≤.039	.002—.004

Note 1) These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.

Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
- When tool overhang is long (using a long shank, screw-in type, etc.)
- Rigidity of machine, workpiece material or attachment of workpiece material is low
- Corner radius during pocket milling

Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.

Note 4) Wet cutting is recommended, when focusing on the surface finish. (Tool life is shorter than for dry cutting.)

Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200/300
DEEP SHOULDER MILLING

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✲ : Unstable Cutting

RECOMMENDED CUTTING CONDITIONS

Cutting Speed

(inch)

Workpiece Material		Properties	Cutting Conditions	Grade	Width of Cut **ae** ≤.25DC	.25—.5DC	.5—.75DC	DC(Slot)	Cutting Mode
					Cutting Speed **vc** (SFM)				
P	Mild Steel	Hardness ≤180HB	● ◔	MP6120,VP15TF	460(330—620)	425(295—590)	330(230—395)	330(230—395)	Dry, Wet
			✲	MP6130	460(330—620)	425(295—590)	330(230—395)	330(230—395)	Dry, Wet
	Carbon Steel Alloy Steel	Hardness 180—350HB	● ◔	MP6120,VP15TF	395(295—460)	360(260—425)	330(230—395)	330(230—395)	Dry, Wet
			✲	MP6130	395(295—460)	360(260—425)	330(230—395)	330(230—395)	Dry, Wet
	Pre-hardened Steel	Hardness 180—350HB	● ◔	MP6120,VP15TF	330(260—395)	295(230—360)	260(195—330)	260(195—330)	Dry, Wet
			✲	MP6130	330(260—395)	295(230—360)	260(195—330)	260(195—330)	Dry, Wet
M	Austenitic Stainless Steel	Hardness ≤200HB	● ◔	MP7130,VP15TF	395(330—490)	360(295—460)	295(230—395)	295(230—395)	Dry, Wet
			✲	MP7130	395(330—490)	360(295—460)	295(230—395)	295(230—395)	Dry, Wet
		Hardness >200HB	● ◔	MP7130,VP15TF	330(260—425)	295(230—395)	230(165—330)	230(165—330)	Dry, Wet
			✲	MP7130	330(260—425)	295(230—395)	230(165—330)	230(165—330)	Dry, Wet
	Ferritic and Martensitic Stainless Steel	—	● ◔	MP7130,VP15TF	395(330—490)	360(295—460)	295(230—395)	295(230—395)	Dry, Wet
			✲	MP7130	395(330—490)	360(295—460)	295(230—395)	295(230—395)	Dry, Wet
	Duplex Stainless Steel	Hardness ≤280HB	● ◔	MP7130,VP15TF	330(260—425)	295(230—395)	230(165—330)	230(165—330)	Dry, Wet
			✲	MP7130	330(260—425)	295(230—395)	230(165—330)	230(165—330)	Dry, Wet
	Precipitation Hardening Stainless Steel	Hardness <450HB	● ◔	MP7130,VP15TF	295(230—395)	260(195—360)	195(130—295)	195(130—295)	Dry, Wet
			✲	MP7130	295(230—395)	260(195—360)	195(130—295)	195(130—295)	Dry, Wet
K	Gray Cast Iron	Tensile Strength ≤350MPa	● ◔	MC5020	590(525—720)	560(490—690)	490(425—620)	490(425—620)	Dry, Wet
			◔ ✲	VP15TF	425(330—490)	395(295—460)	330(260—395)	330(260—395)	Dry, Wet
	Ductile Cast Iron	Tensile Strength ≤800MPa	● ◔	MC5020	525(460—590)	490(425—560)	425(360—490)	425(360—490)	Dry, Wet
			◔ ✲	VP15TF	360(260—460)	330(230—425)	260(195—395)	260(195—395)	Dry, Wet
N	Aluminum Alloys	Content Si<5%	● ◔ ✲	TF15	1970(1310—3280)	1970(1310—3280)	1970(1310—3280)	1970(1310—3280)	Dry, Wet
S	Titanium Alloys (Ti-6Al-4V etc.)	—	● ◔	MP9120	165(130—230)	165(130—230)	165(130—230)	165(130—230)	Wet
			●	VP15TF	165(130—230)	165(130—230)	165(130—230)	165(130—230)	Wet
			◔ ✲	MP9130	165(130—230)	165(130—230)	165(130—230)	165(130—230)	Wet
	Titanium Alloys (Ti-6Al-5V-5Mo-3Cr etc.)	—	● ◔	MP9120	100(65—130)	100(65—130)	100(65—130)	100(65—130)	Wet
			●	VP15TF	100(65—130)	100(65—130)	100(65—130)	100(65—130)	Wet
			◔ ✲	MP9130	100(65—130)	100(65—130)	100(65—130)	100(65—130)	Wet
	Heat Resistant Alloys	—	● ◔	MP9120	130(100—195)	130(100—195)	130(100—195)	130(100—195)	Wet
			●	VP15TF	130(100—195)	130(100—195)	130(100—195)	130(100—195)	Wet
			◔ ✲	MP9130	130(100—195)	130(100—195)	130(100—195)	130(100—195)	Wet

Note 1) If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
· When tool overhang is long
· Rigidity of machine, workpiece material or attachment of workpiece material is low
· Corner radius during pocket milling
Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Service life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200
DEEP SHOULDER MILLING

RECOMMENDED CUTTING CONDITIONS

Depth of Cut / Feed per Tooth

(inch)

	Workpiece Material	Properties	Width of Cut **ae**	Cutting Conditions	DC			
					ø20—ø28mm, ø.875—ø1.125"		ø32—ø50mm, ø1.250—ø1.500"	
					Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ● ✲	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ● ✲	≤.315	.004(.003—.005)	≤1.102	.005(.004—.006)
			.5—.75DC	● ● ✲	≤.236	.004(.003—.005)	≤.551	.004(.003—.005)
			DC(Slot)	● ● ✲	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
	Carbon Steel Alloy Steel	Hardness 180—280HB	≤.25DC	● ● ✲	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ● ✲	≤.315	.004(.003—.005)	≤1.102	.005(.004—.006)
			.5—.75DC	● ● ✲	≤.236	.004(.003—.005)	≤.551	.004(.003—.005)
			DC(Slot)	● ● ✲	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
	Carbon Steel Alloy Steel	Hardness 280—350HB	≤.25DC	● ● ✲	≤.551	.005(.004—.006)	≤APMX	.005(.004—.006)
			.25—.5DC	● ● ✲	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
			.5—.75DC	● ● ✲	≤.236	.004(.003—.005)	≤.551	.003(.002—.004)
			DC(Slot)	● ● ✲	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ● ✲	≤.551	.005(.004—.006)	≤APMX	.005(.004—.006)
			.25—.5DC	● ● ✲	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
			.5—.75DC	● ● ✲	≤.236	.004(.003—.005)	≤.551	.003(.002—.004)
			DC(Slot)	● ● ✲	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
M	Austenitic Stainless Steel	—	≤.25DC	○ ◔	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
				✲	≤.551	.004(.003—.005)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤.315	.004(.003—.005)	≤1.102	.005(.003—.006)
				✲	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	○ ◔	≤.236	.003(.002—.004)	≤.551	.004(.003—.005)
				✲	≤.236	.003(.002—.003)	≤.551	.003(.002—.004)
			DC(Slot)	○ ◔	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✲	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	≤.25DC	○ ◔	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
				✲	≤.551	.004(.003—.005)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤.315	.004(.003—.005)	≤1.102	.005(.003—.006)
				✲	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	○ ◔	≤.236	.003(.002—.004)	≤.551	.004(.003—.005)
				✲	≤.236	.003(.002—.003)	≤.551	.003(.002—.004)
			DC(Slot)	○ ◔	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✲	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	○ ◔	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
				✲	≤.551	.004(.003—.005)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤.315	.004(.003—.005)	≤1.102	.005(.003—.006)
				✲	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	○ ◔	≤.236	.003(.002—.004)	≤.551	.004(.003—.005)
				✲	≤.236	.003(.002—.003)	≤.551	.003(.002—.004)
			DC(Slot)	○ ◔	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✲	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	○ ◔	≤.551	.005(.004—.006)	≤APMX	.005(.004—.006)
				✲	≤.551	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	○ ◔	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
				✲	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	○ ◔	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
				✲	≤.236	.003(.002—.003)	≤.551	.003(.002—.003)
			DC(Slot)	○ ◔	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✲	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

(inch)

	Workpiece Material	Properties	Width of Cut **ae**	Cutting Conditions	DC			
					ø20—ø28mm, ø.875—ø1.125"		**ø32—ø50mm, ø1.250—ø1.500"**	
					Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ◐	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
				✠	≤.551	.004(.003—.005)	≤APMX	.005(.003—.006)
			.25—.5DC	● ◐	≤.315	.004(.003—.005)	≤1.102	.005(.003—.006)
				✠	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	● ◐	≤.236	.004(.003—.005)	≤.551	.004(.003—.005)
				✠	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
			DC(Slot)	● ◐	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✠	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)
	Ductile Cast Iron	—	≤.25DC	● ◐	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
				✠	≤.551	.004(.003—.005)	≤APMX	.005(.004—.006)
			.25—.5DC	● ◐	≤.315	.004(.003—.005)	≤1.102	.005(.004—.006)
				✠	≤.315	.003(.002—.004)	≤1.102	.004(.003—.005)
			.5—.75DC	● ◐	≤.236	.004(.003—.005)	≤.551	.004(.003—.005)
				✠	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
			DC(Slot)	● ◐	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
				✠	≤.157	.003(.002—.003)	≤.157	.003(.002—.003)
N	Aluminum Alloys	Content Si<5%	≤.25DC	● ◐	≤.551	.006(.004—.008)	≤APMX	.007(.004—.010)
				✠	≤.551	.005(.004—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ◐	≤.315	.005(.004—.006)	≤1.102	.006(.004—.008)
				✠	≤.315	.004(.003—.005)	≤1.102	.005(.004—.006)
			.5—.75DC	● ◐	≤.236	.004(.003—.005)	≤.551	.004(.002—.006)
				✠	≤.236	.003(.002—.004)	≤.551	.004(.002—.006)
			DC(Slot)	● ◐	≤.157	.003(.002—.004)	≤.157	.004(.002—.006)
				✠	≤.157	.003(.002—.003)	≤.157	.004(.002—.005)
S	Titanium Alloys (Ti-6Al-4V etc.)	—	≤.25DC	● ◐ ✠	≤.551	.005(.003—.006)	≤APMX	.005(.003—.006)
			.25—.5DC	● ◐ ✠	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
			.5—.75DC	● ◐ ✠	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
			DC(Slot)	● ◐ ✠	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr etc.)	—	≤.25DC	● ◐ ✠	≤.551	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	● ◐ ✠	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
			.5—.75DC	● ◐ ✠	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
			DC(Slot)	● ◐ ✠	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)
	Heat Resistant Alloys	—	≤.25DC	● ◐ ✠	≤.551	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	● ◐ ✠	≤.315	.004(.003—.005)	≤1.102	.004(.003—.005)
			.5—.75DC	● ◐ ✠	≤.236	.003(.002—.004)	≤.551	.003(.002—.004)
			DC(Slot)	● ◐ ✠	≤.157	.003(.002—.004)	≤.157	.003(.002—.004)

Note 1) If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
· When tool overhang is long
· Rigidity of machine, workpiece material or attachment of workpiece material is low
· Corner radius during pocket milling
Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Service life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX300
DEEP SHOULDER MILLING

RECOMMENDED CUTTING CONDITIONS

Depth of Cut / Feed per Tooth

(inch)

Workpiece Material		Properties	Width of Cut **ae**	Cutting Conditions	DC			
					ø40mm, ø.1.500"		ø50—ø80mm, ø2.000—ø3.000"	
					Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
P	Mild Steel	Hardness ≤180HB	≤.25DC	● ● ✲	≤APMX	.006(.004—.008)	≤APMX	.007(.004—.010)
			.25—.5DC	● ● ✲	≤APMX	.005(.004—.006)	≤1.220	.006(.004—.008)
			.5—.75DC	● ● ✲	≤.827	.004(.003—.005)	≤.827	.005(.004—.006)
			DC(Slot)	● ● ✲	≤.197	.003(.002—.004)	≤.197	.004(.003—.005)
	Carbon Steel Alloy Steel	Hardness 180—280HB	≤.25DC	● ● ✲	≤APMX	.006(.004—.008)	≤APMX	.007(.004—.010)
			.25—.5DC	● ● ✲	≤APMX	.005(.004—.006)	≤1.220	.006(.004—.008)
			.5—.75DC	● ● ✲	≤.827	.004(.003—.005)	≤.827	.005(.004—.006)
			DC(Slot)	● ● ✲	≤.197	.003(.002—.004)	≤.197	.004(.003—.005)
	Carbon Steel Alloy Steel	Hardness 280—350HB	≤.25DC	● ● ✲	≤APMX	.005(.004—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ● ✲	≤APMX	.004(.003—.005)	≤1.220	.005(.004—.006)
			.5—.75DC	● ● ✲	≤.827	.003(.002—.004)	≤.827	.004(.003—.005)
			DC(Slot)	● ● ✲	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
	Pre-hardened Steel	Hardness 35—45HRC	≤.25DC	● ● ✲	≤APMX	.005(.004—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ● ✲	≤APMX	.004(.003—.005)	≤1.220	.005(.004—.006)
			.5—.75DC	● ● ✲	≤.827	.003(.002—.004)	≤.827	.004(.003—.005)
			DC(Slot)	● ● ✲	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
M	Austenitic Stainless Steel	—	≤.25DC	○ ◔	≤APMX	.006(.004—.008)	≤APMX	.006(.004—.008)
				✲	≤APMX	.005(.003—.006)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤APMX	.005(.003—.006)	≤1.220	.005(.003—.006)
				✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	○ ◔	≤.827	.004(.003—.005)	≤.827	.004(.003—.005)
				✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	○ ◔	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.003)
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	≤.25DC	○ ◔	≤APMX	.006(.004—.008)	≤APMX	.006(.004—.008)
				✲	≤APMX	.005(.003—.006)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤APMX	.005(.003—.006)	≤1.220	.005(.003—.006)
				✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	○ ◔	≤.827	.004(.003—.005)	≤.827	.004(.003—.005)
				✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	○ ◔	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.003)
	Duplex Stainless Steel	Hardness ≤280HB	≤.25DC	○ ◔	≤APMX	.006(.004—.008)	≤APMX	.006(.004—.008)
				✲	≤APMX	.005(.003—.006)	≤APMX	.005(.003—.006)
			.25—.5DC	○ ◔	≤APMX	.005(.003—.006)	≤1.220	.005(.003—.006)
				✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	○ ◔	≤.827	.004(.003—.005)	≤.827	.004(.003—.005)
				✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	○ ◔	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.003)
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.25DC	○ ◔	≤APMX	.005(.004—.006)	≤APMX	.005(.004—.006)
				✲	≤APMX	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	○ ◔	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
				✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	○ ◔	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
				✲	≤.827	.003(.002—.003)	≤.827	.003(.002—.003)
			DC(Slot)	○ ◔	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.003)

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting

(inch)

	Workpiece Material	Properties	Width of Cut **ae**	Cutting Conditions	DC			
					ø40mm, ø.1.500"		**ø50—ø80mm, ø2.000—ø3.000"**	
					Depth of Cut **ap**	Feed per Tooth **fz** (IPT)	Depth of Cut **ap**	Feed per Tooth **fz** (IPT)
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.25DC	● ◐	≤APMX	.006(.004—.008)	≤APMX	.007(.004—.010)
				✲	≤APMX	.005(.003—.006)	≤APMX	.006(.004—.008)
			.25—.5DC	● ◐	≤APMX	.005(.003—.006)	≤1.220	.006(.004—.008)
				✲	≤APMX	.004(.003—.005)	≤1.220	.005(.004—.006)
			.5—.75DC	● ◐	≤.827	.004(.003—.005)	≤.827	.005(.004—.006)
				✲	≤.827	.003(.002—.004)	≤.827	.004(.003—.005)
			DC(Slot)	● ◐	≤.197	.003(.002—.004)	≤.197	.005(.003—.006)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.004)
	Ductile Cast Iron	—	≤.25DC	● ◐	≤APMX	.006(.004—.008)	≤APMX	.006(.004—.008)
				✲	≤APMX	.005(.004—.006)	≤APMX	.005(.004—.006)
			.25—.5DC	● ◐	≤APMX	.005(.004—.006)	≤1.220	.005(.004—.006)
				✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	● ◐	≤.827	.004(.003—.005)	≤.827	.004(.003—.005)
				✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	● ◐	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
				✲	≤.197	.003(.002—.003)	≤.197	.003(.002—.003)
N	Aluminum Alloys	Content Si<5%	≤.25DC	● ◐	≤APMX	.007(.004—.010)	≤APMX	.007(.004—.010)
				✲	≤APMX	.006(.004—.008)	≤APMX	.006(.004—.008)
			.25—.5DC	● ◐	≤APMX	.006(.004—.008)	≤1.220	.006(.004—.008)
				✲	≤APMX	.005(.004—.006)	≤1.220	.005(.004—.006)
			.5—.75DC	● ◐	≤.827	.004(.002—.006)	≤.827	.005(.003—.006)
				✲	≤.827	.004(.002—.006)	≤.827	.005(.003—.006)
			DC(Slot)	● ◐	≤.197	.004(.002—.006)	≤.197	.005(.003—.006)
				✲	≤.197	.004(.002—.005)	≤.197	.004(.003—.005)
S	Titanium Alloys (Ti-6Al-4V etc.)	—	≤.25DC	● ◐ ✲	≤APMX	.005(.003—.006)	≤APMX	.005(.003—.006)
			.25—.5DC	● ◐ ✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	● ◐ ✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	● ◐ ✲	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
	Titanium Alloys (Ti-5Al-5V-5Mo-3Cr etc.)	—	≤.25DC	● ◐ ✲	≤APMX	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	● ◐ ✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	● ◐ ✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	● ◐ ✲	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)
	Heat Resistant Alloys	—	≤.25DC	● ◐ ✲	≤APMX	.004(.003—.005)	≤APMX	.004(.003—.005)
			.25—.5DC	● ◐ ✲	≤APMX	.004(.003—.005)	≤1.220	.004(.003—.005)
			.5—.75DC	● ◐ ✲	≤.827	.003(.002—.004)	≤.827	.003(.002—.004)
			DC(Slot)	● ◐ ✲	≤.197	.003(.002—.004)	≤.197	.003(.002—.004)

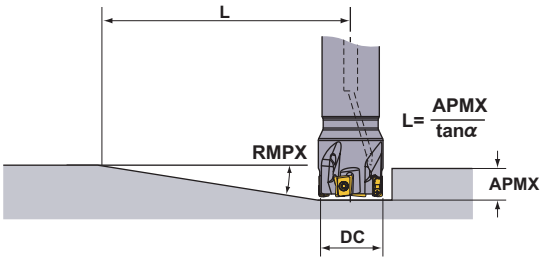
Note 1) If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
Note 2) Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
· When tool overhang is long
· Rigidity of machine, workpiece material or attachment of workpiece material is low
· Corner radius during pocket milling
Note 3) A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is .5 DC or more.
Note 4) Wet cutting is recommended, when focusing on the surface finish. (Service life is shorter than for dry cutting.)
Note 5) When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please change out the clamp screw periodically.

VPX200 Including long types for deep cutting

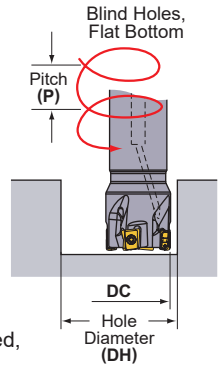
RECOMMENDED CUTTING CONDITIONS

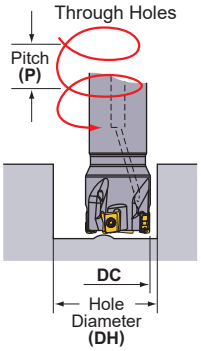
Ramping / Helical Milling

● Ramping



● Helical Milling





Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

(inch)

Cutting Edge Diameter **DC**	**RE**	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
		Maximum Ramping Angle **RMPX**	Minimum * Distance **L**	Maximum Hole Diameter **DH max.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**
.625	.008	1.87°	9.7	1.213	.060	1.072	.046	.942	.032
	.016	1.87°	9.7	1.197	.059	1.073	.046	.942	.032
	.031	1.87°	9.7	1.165	.055	1.073	.046	.942	.032
	.039	1.87°	9.7	1.150	.054	1.073	.046	.942	.032
	.047	1.87°	9.7	1.134	.052	1.073	.046	.942	.032
	.063	1.87°	9.7	1.102	.049	1.073	.046	.942	.032
.750	.008	1.43°	12.6	1.463	.056	1.323	.045	1.187	.034
	.016	1.43°	12.6	1.447	.055	1.323	.045	1.187	.034
	.031	1.43°	12.6	1.415	.052	1.323	.045	1.187	.034
	.039	1.43°	12.6	1.400	.051	1.323	.045	1.187	.034
	.047	1.43°	12.6	1.384	.050	1.323	.045	1.187	.034
	.063	1.43°	12.6	1.352	.047	1.323	.045	1.187	.034
.875	.008	1.14°	15.9	1.713	.052	1.574	.044	1.435	.035
	.016	1.14°	15.9	1.697	.051	1.574	.044	1.435	.035
	.031	1.14°	15.9	1.665	.049	1.574	.044	1.435	.035
	.039	1.14°	15.9	1.650	.048	1.574	.044	1.435	.035
	.047	1.14°	15.9	1.634	.047	1.574	.044	1.435	.035
	.063	1.14°	15.9	1.602	.045	1.575	.044	1.435	.035
1.000	.008	0.95°	19.0	1.963	.050	1.824	.043	1.685	.036
	.016	0.95°	19.0	1.947	.049	1.824	.043	1.685	.036
	.031	0.95°	19.0	1.915	.048	1.824	.043	1.685	.036
	.039	0.95°	19.0	1.900	.047	1.824	.043	1.685	.036
	.047	0.95°	19.0	1.884	.046	1.824	.043	1.685	.036
	.063	0.95°	19.0	1.852	.044	1.825	.043	1.685	.036
1.125	.008	0.82°	22.0	2.213	.049	2.074	.043	1.935	.036
	.016	0.82°	22.0	2.197	.048	2.074	.043	1.935	.036
	.031	0.82°	22.0	2.165	.047	2.074	.043	1.935	.036
	.039	0.82°	22.0	2.150	.046	2.074	.043	1.935	.036
	.047	0.82°	22.0	2.134	.045	2.074	.043	1.935	.036
	.063	0.82°	22.0	2.102	.044	2.075	.043	1.935	.036
1.250	.008	0.71°	25.4	2.463	.047	2.320	.042	2.183	.036
	.016	0.71°	25.4	2.447	.047	2.320	.042	2.183	.036
	.031	0.71°	25.4	2.415	.045	2.320	.042	2.183	.036
	.039	0.71°	25.4	2.400	.045	2.320	.042	2.183	.036
	.047	0.71°	25.4	2.384	.044	2.320	.042	2.183	.036
	.063	0.71°	25.4	2.352	.043	2.321	.042	2.183	.036

Note 1) When machining a highly ductile workpiece material with the ramping angles in the table above, chips may be elongated.
* Shows the distance until a maximum depth of cut of .315" is achieved at the maximum ramping angle L (= .315"/tan α).

(inch)

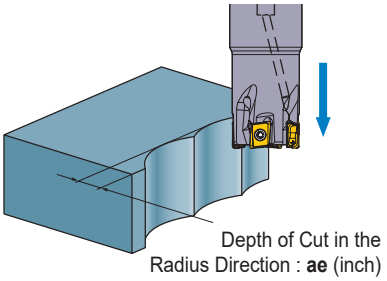
Cutting Edge Diameter **DC**	**RE**	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
		Maximum Ramping Angle **RMPX**	Minimum * Distance **L**	Maximum Hole Diameter **DH max.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**
1.375	.008	0.64°	28.2	2.713	.047	2.574	.042	2.435	.037
	.016	0.64°	28.2	2.697	.046	2.574	.042	2.435	.037
	.031	0.64°	28.2	2.665	.045	2.574	.042	2.435	.037
	.039	0.64°	28.2	2.650	.045	2.574	.042	2.435	.037
	.047	0.64°	28.2	2.634	.044	2.574	.042	2.435	.037
	.063	0.64°	28.2	2.602	.043	2.574	.042	2.435	.037
1.500	.008	0.57°	31.7	2.963	.046	2.820	.041	2.683	.037
	.016	0.57°	31.7	2.947	.045	2.820	.041	2.683	.037
	.031	0.57°	31.7	2.915	.044	2.820	.041	2.683	.037
	.039	0.57°	31.7	2.900	.044	2.820	.041	2.683	.037
	.047	0.57°	31.7	2.884	.043	2.820	.041	2.683	.037
	.063	0.57°	31.7	2.852	.042	2.821	.041	2.683	.037
2.000	.008	0.41°	44.0	3.963	.044	3.820	.041	3.683	.038
	.016	0.41°	44.0	3.947	.044	3.820	.041	3.683	.038
	.031	0.41°	44.0	3.915	.043	3.820	.041	3.683	.038
	.039	0.41°	44.0	3.900	.043	3.820	.041	3.683	.038
	.047	0.41°	44.0	3.884	.042	3.820	.041	3.683	.038
	.063	0.41°	44.0	3.852	.042	3.820	.041	3.683	.038
2.500	.008	0.32°	56.4	4.963	.043	4.820	.041	4.683	.038
	.016	0.32°	56.4	4.947	.043	4.820	.041	4.683	.038
	.031	0.32°	56.4	4.915	.042	4.820	.041	4.683	.038
	.039	0.32°	56.4	4.900	.042	4.820	.041	4.683	.038
	.047	0.32°	56.4	4.884	.042	4.820	.041	4.683	.038
	.063	0.32°	56.4	4.852	.041	4.820	.041	4.683	.038

Note 1) When machining a highly ductile workpiece material with the ramping angles in the table above, chips may be elongated.
* Shows the distance until a maximum depth of cut of .315" is achieved at the maximum ramping angle L (= .315"/tan α).

For Plunging and Drilling

See the tables to the right for cutting conditions. Follow the cutting conditions for slot milling regarding feed per tooth and cutting speed.

● Plunging

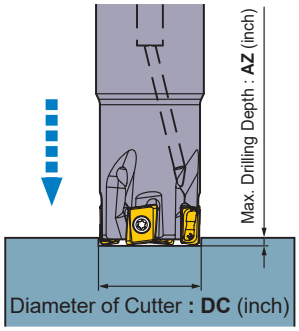


(inch)

DC	ae max.
.625	.154
.750	.154
.875	.157
1.000	.157
1.125	.157
1.250	.157
1.375	.157
1.500	.157
2.000	.157
2.500	.157

Note 1) No step feed necessary.

● Drilling



(inch)

DC	AZ max.
.625	.012
.750	.012
.875	.012
1.000	.012
1.125	.012
1.250	.012
1.375	.012
1.500	.012
2.000	.012
2.500	.012

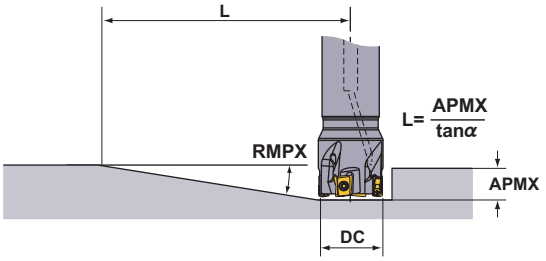
Note 1) Exercise due caution as chips scatter easily.
Note 2) Use compressed air to eliminate chips
(or coolant for when machining aluminum alloy).

VPX300 Including long types for deep cutting

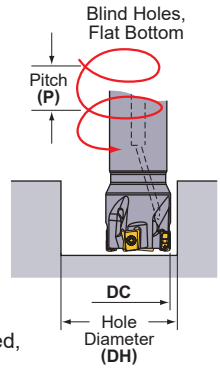
RECOMMENDED CUTTING CONDITIONS

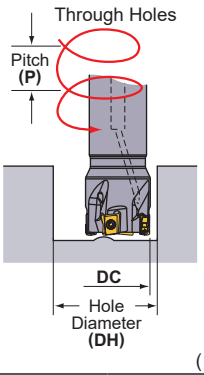
Ramping / Helical Milling

● Ramping



● Helical Milling





Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

(inch)

Cutting Edge Diameter DC	RE	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
		Maximum Ramping Angle RMPX	Minimum * Distance L	Maximum Hole Diameter DH max.	Maximum Pitch P max.	Minimum Hole Diameter DH min.	Maximum Pitch P max.	Minimum Hole Diameter DH min.	Maximum Pitch P max.
1.000	.008	2.07°	12.0	1.963	.109	1.713	.081	1.483	.055
	.016	2.07°	12.0	1.947	.108	1.713	.081	1.483	.055
	.031	2.07°	12.0	1.915	.104	1.713	.081	1.483	.055
	.039	2.07°	12.0	1.900	.102	1.713	.081	1.483	.055
	.047	2.07°	12.0	1.884	.100	1.713	.081	1.483	.055
	.063	2.07°	12.0	1.852	.097	1.713	.081	1.483	.055
	.079	2.07°	12.0	1.821	.093	1.713	.081	1.483	.055
	.094	2.07°	12.0	1.789	.090	1.713	.081	1.483	.055
	.118	2.07°	12.0	1.742	.084	1.713	.081	1.483	.055
	.126	2.07°	12.0	1.726	.082	1.713	.081	1.483	.055
1.125	.008	1.73°	14.4	2.213	.103	1.963	.080	1.726	.057
	.016	1.73°	14.4	2.197	.102	1.963	.080	1.726	.057
	.031	1.73°	14.4	2.165	.099	1.963	.080	1.726	.057
	.039	1.73°	14.4	2.150	.097	1.963	.080	1.726	.057
	.047	1.73°	14.4	2.134	.096	1.963	.080	1.726	.057
	.063	1.73°	14.4	2.102	.093	1.963	.080	1.726	.057
	.079	1.73°	14.4	2.071	.090	1.963	.080	1.726	.057
	.094	1.73°	14.4	2.039	.087	1.963	.080	1.726	.057
	.118	1.73°	14.4	1.992	.082	1.963	.080	1.726	.057
	.126	1.73°	14.4	1.976	.081	1.963	.079	1.726	.057
1.250	.008	1.49°	16.7	2.463	.099	2.214	.079	1.973	.059
	.016	1.49°	16.7	2.447	.098	2.214	.079	1.973	.059
	.031	1.49°	16.7	2.415	.095	2.214	.079	1.973	.059
	.039	1.49°	16.7	2.400	.094	2.214	.079	1.973	.059
	.047	1.49°	16.7	2.384	.093	2.214	.079	1.973	.059
	.063	1.49°	16.7	2.352	.090	2.214	.079	1.973	.059
	.079	1.49°	16.7	2.321	.088	2.214	.079	1.973	.059
	.094	1.49°	16.7	2.289	.085	2.214	.079	1.973	.059
	.118	1.49°	16.7	2.242	.081	2.214	.079	1.973	.059
	.126	1.49°	16.7	2.226	.080	2.214	.079	1.973	.059
1.375	.008	1.28°	19.4	2.713	.094	2.465	.076	2.221	.059
	.016	1.28°	19.4	2.697	.093	2.465	.076	2.221	.059
	.031	1.28°	19.4	2.665	.091	2.465	.076	2.221	.059
	.039	1.28°	19.4	2.650	.089	2.465	.076	2.221	.059
	.047	1.28°	19.4	2.634	.088	2.465	.076	2.221	.059
	.063	1.28°	19.4	2.602	.086	2.465	.076	2.221	.059
	.079	1.28°	19.4	2.571	.084	2.465	.076	2.221	.059
	.094	1.28°	19.4	2.539	.082	2.465	.076	2.221	.059
	.118	1.28°	19.4	2.492	.078	2.465	.077	2.221	.059
	.126	1.28°	19.4	2.476	.077	2.465	.077	2.221	.059

Note 1) When machining a highly ductile workpiece material with the ramping angles in the table above, chips may be elongated.
* Shows the distance until a maximum depth of cut of .433" is achieved at the maximum ramping angle L (= .433"/tan α).

(inch)

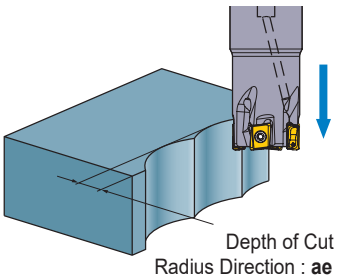
Cutting Edge Diameter **DC**	**RE**	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
		Maximum Ramping Angle **RMPX**	Minimum * Distance **L**	Maximum Hole Diameter **DH max.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**	Minimum Hole Diameter **DH min.**	Maximum Pitch **P max.**
1.500	.008	1.13°	22.0	2.963	.091	2.711	.075	2.469	.060
	.016	1.13°	22.0	2.947	.090	2.711	.075	2.469	.060
	.031	1.13°	22.0	2.915	.088	2.711	.075	2.469	.060
	.039	1.13°	22.0	2.900	.087	2.711	.075	2.469	.060
	.047	1.13°	22.0	2.884	.086	2.711	.075	2.469	.060
	.063	1.13°	22.0	2.852	.084	2.711	.075	2.469	.060
	.079	1.13°	22.0	2.821	.082	2.711	.075	2.469	.060
	.094	1.13°	22.0	2.789	.080	2.711	.075	2.469	.060
	.118	1.13°	22.0	2.742	.077	2.711	.075	2.469	.060
	.126	1.13°	22.0	2.726	.076	2.711	.075	2.469	.060
2.000	.008	0.78°	31.8	3.963	.084	3.711	.073	3.469	.063
	.016	0.78°	31.8	3.947	.083	3.711	.073	3.469	.063
	.031	0.78°	31.8	3.915	.082	3.711	.073	3.469	.063
	.039	0.78°	31.8	3.900	.081	3.711	.073	3.469	.063
	.047	0.78°	31.8	3.884	.081	3.711	.073	3.469	.063
	.063	0.78°	31.8	3.852	.079	3.711	.073	3.469	.063
	.079	0.78°	31.8	3.821	.078	3.711	.073	3.469	.063
	.094	0.78°	31.8	3.789	.077	3.711	.073	3.469	.063
	.118	0.78°	31.8	3.742	.075	3.711	.073	3.469	.063
	.126	0.78°	31.8	3.726	.074	3.711	.073	3.469	.063
2.500	.008	0.59°	42.1	4.963	.080	4.711	.072	4.469	.064
	.016	0.59°	42.1	4.947	.079	4.711	.072	4.469	.064
	.031	0.59°	42.1	4.915	.078	4.711	.072	4.469	.064
	.039	0.59°	42.1	4.900	.078	4.711	.072	4.469	.064
	.047	0.59°	42.1	4.884	.077	4.711	.072	4.469	.064
	.063	0.59°	42.1	4.852	.076	4.711	.072	4.469	.064
	.079	0.59°	42.1	4.821	.075	4.711	.072	4.469	.064
	.094	0.59°	42.1	4.789	.074	4.711	.072	4.469	.064
	.118	0.59°	42.1	4.742	.073	4.711	.072	4.469	.064
	.126	0.59°	42.1	4.726	.072	4.711	.072	4.469	.064
3.000	.008	0.48°	51.7	5.955	.078	5.711	.071	5.469	.065
	.016	0.48°	51.7	5.939	.077	5.711	.071	5.469	.065
	.031	0.48°	51.7	5.907	.077	5.711	.071	5.469	.065
	.039	0.48°	51.7	5.892	.076	5.711	.071	5.469	.065
	.047	0.48°	51.7	5.876	.076	5.711	.071	5.469	.065
	.063	0.48°	51.7	5.844	.075	5.711	.071	5.469	.065
	.079	0.48°	51.7	5.813	.074	5.711	.071	5.469	.065
	.094	0.48°	51.7	5.781	.073	5.711	.071	5.469	.065
	.118	0.48°	51.7	5.734	.072	5.711	.071	5.469	.065
	.126	0.48°	51.7	5.718	.072	5.711	.071	5.469	.065

Note 1) When machining a highly ductile workpiece material with the ramping angles in the table above, chips may be elongated.
* Shows the distance until a maximum depth of cut of .433" is achieved at the maximum ramping angle L (= .433"/tan α).

For Plunging and Drilling

See the tables to the right for cutting conditions. Follow the cutting conditions for slot milling regarding feed per tooth and cutting speed.

● Plunging

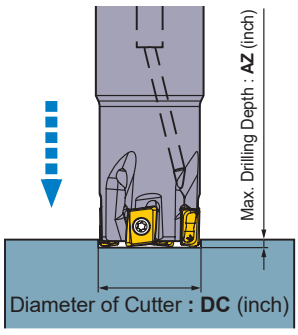


(inch)

DC	ae max.
1.000	.256
1.125	.260
1.250	.260
1.375	.260
1.500	.264
2.000	.264
2.500	.264
3.000	.264

Note 1) No step feed necessary.

● Drilling



(inch)

DC	AZ max.
1.000	.022
1.125	.022
1.250	.022
1.375	.022
1.500	.022
2.000	.022
2.500	.022
3.000	.022

Note 1) Exercise due caution as chips scatter easily.
Note 2) Use compressed air to eliminate chips (or coolant for when machining aluminum alloy).

MULTI FUNCTIONAL MILLING

<ALUMINUM ALLOY TO DIFFICULT-TO-CUT MATERIAL CUTTING>

90° KAPR

AXD4000

P M K N S H

Fig. 1

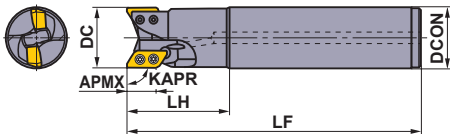
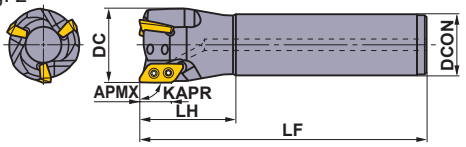


Fig. 2



Right hand tool holder only.

■ SHANK TYPE

With Air / coolant through.

(inch)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	LH	DCON	WT (lbs)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
1.000	A Type	.016-.125	**AXD4000UR162SA12SA**	●	2	6.000	2.000	.750	.6	.610	49000	2	XDGX1750
1.000	B Type	.157-.197	**AXD4000UR162SA12SB**	●	2	6.000	2.000	.750	.6	.583	49000	2	XDGX1750
1.000	A Type	.016-.125	**AXD4000UR162SA16SA**	●	2	6.000	2.000	1.000	1.1	.610	49000	1	XDGX1750
1.000	B Type	.157-.197	**AXD4000UR162SA16SB**	●	2	6.000	2.000	1.000	1.1	.583	49000	1	XDGX1750
1.000	A Type	.016-.125	**AXD4000UR162SA16LA**	●	2	8.500	3.000	1.000	1.6	.610	49000	1	XDGX1750
1.000	B Type	.157-.197	**AXD4000UR162SA16LB**	●	2	8.500	3.000	1.000	1.6	.583	49000	1	XDGX1750
1.250	A Type	.016-.125	**AXD4000UR202SA20SA**	●	2	6.000	2.000	1.250	1.8	.610	48000	1	XDGX1750
1.250	B Type	.157-.197	**AXD4000UR202SA20SB**	●	2	6.000	2.000	1.250	1.8	.583	48000	1	XDGX1750
1.250	A Type	.016-.125	**AXD4000UR202SA20LA**	●	2	9.000	3.500	1.250	2.7	.610	48000	1	XDGX1750
1.250	B Type	.157-.197	**AXD4000UR202SA20LB**	●	2	9.000	3.500	1.250	2.7	.583	48000	1	XDGX1750
1.500	A Type	.016-.125	**AXD4000UR243SA20SA**	●	3	6.000	2.000	1.250	1.9	.610	41000	2	XDGX1750
1.500	B Type	.157-.197	**AXD4000UR243SA20SB**	●	3	6.000	2.000	1.250	1.9	.583	41000	2	XDGX1750
1.500	A Type	.016-.125	**AXD4000UR243SA20LA**	●	3	9.000	2.000	1.250	2.9	.610	41000	2	XDGX1750
1.500	B Type	.157-.197	**AXD4000UR243SA20LB**	●	3	9.000	2.000	1.250	2.9	.583	41000	2	XDGX1750

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating this tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .063" and above, as corner radius increases the LF and LH dimension decreases.

SPARE PARTS

(inch)

*		
		
Clamp Screw	Wrench	Anti-seize Lubricant
TS3SB	TKY08D	MK1KS

* Clamp Torque (lbf-in) : TS3SB=13

Fig. 1

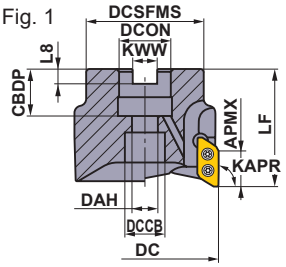
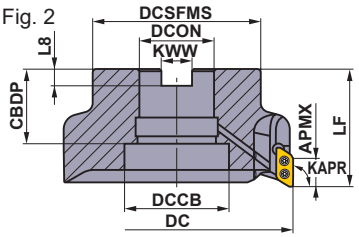
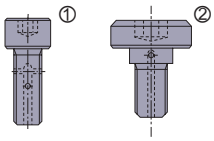


Fig. 2



Right hand tool holder only.

DC	DCON	Set Bolt	Geometry
1.500	.500	HSCU25014H	①
2.000	.750	HSCU37513H	
2.500, 3.000	1.000	HSCU50014H	
3.000	1.250	HSCU62516H	
4.000	1.500	HSCU75016H	
5.000	1.500	MBAU75016H	② With Air / coolant through.



■ ARBOR TYPE

(inch)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (ibs)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
1.500	A Type	.016-.125	**AXD4000UR1502A**	●	2	2.000	.500	.6	.610	41000	1	XDGX1750
1.500	B Type	.157-.197	**AXD4000UR1502B**	□	2	2.000	.500	.6	.583	41000	1	XDGX1750
1.500	A Type	.016-.125	**AXD4000UR1503A**	●	3	2.000	.500	.6	.610	41000	1	XDGX1750
1.500	B Type	.157-.197	**AXD4000UR1503B**	●	3	2.000	.500	.6	.583	41000	1	XDGX1750
2.000	A Type	.016-.125	**AXD4000UR0202A**	●	2	2.000	.750	.9	.610	35000	1	XDGX1750
2.000	B Type	.157-.197	**AXD4000UR0202B**	□	2	2.000	.750	.9	.583	35000	1	XDGX1750
2.000	A Type	.016-.125	**AXD4000UR0203A**	●	3	2.000	.750	.9	.610	35000	1	XDGX1750
2.000	B Type	.157-.197	**AXD4000UR0203B**	□	3	2.000	.750	.9	.583	35000	1	XDGX1750
2.000	A Type	.016-.125	**AXD4000UR0204A**	●	4	2.000	.750	.9	.610	35000	1	XDGX1750
2.000	B Type	.157-.197	**AXD4000UR0204B**	●	4	2.000	.750	.9	.583	35000	1	XDGX1750
2.500	A Type	.016-.125	**AXD4000UR2504CA**	●	4	2.000	1.000	1.4	.610	30000	1	XDGX1750
2.500	B Type	.157-.197	**AXD4000UR2504CB**	□	4	2.000	1.000	1.4	.583	30000	1	XDGX1750
3.000	A Type	.016-.125	**AXD4000UR0303CA**	●	3	2.000	1.000	1.9	.610	27000	1	XDGX1750
3.000	B Type	.157-.197	**AXD4000UR0303CB**	●	3	2.000	1.000	1.9	.583	27000	1	XDGX1750
3.000	A Type	.016-.125	**AXD4000UR0305CA**	●	5	2.000	1.000	1.8	.610	27000	1	XDGX1750
3.000	B Type	.157-.197	**AXD4000UR0305CB**	●	5	2.000	1.000	1.8	.583	27000	1	XDGX1750
3.000	A Type	.016-.125	**AXD4000UR0303DA**	●	3	2.500	1.250	2.9	.610	27000	1	XDGX1750
3.000	B Type	.157-.197	**AXD4000UR0303DB**	□	3	2.500	1.250	2.9	.583	27000	1	XDGX1750
3.000	A Type	.016-.125	**AXD4000UR0305DA**	●	5	2.500	1.250	2.9	.610	27000	1	XDGX1750
3.000	B Type	.157-.197	**AXD4000UR0305DB**	●	5	2.500	1.250	2.9	.583	27000	1	XDGX1750
4.000	A Type	.016-.125	**AXD4000UR0404EA**	●	4	2.500	1.500	5.5	.610	23000	1	XDGX1750
4.000	B Type	.157-.197	**AXD4000UR0404EB**	□	4	2.500	1.500	5.5	.583	23000	1	XDGX1750
4.000	A Type	.016-.125	**AXD4000UR0406EA**	●	6	2.500	1.500	5.5	.610	23000	1	XDGX1750
4.000	B Type	.157-.197	**AXD4000UR0406EB**	□	6	2.500	1.500	5.5	.583	23000	1	XDGX1750
5.000	A Type	.016-.125	**AXD4000UR0505EA**	●	5	2.500	1.500	6.7	.610	20000	2	XDGX1750
5.000	B Type	.157-.197	**AXD4000UR0505EB**	□	5	2.500	1.500	6.7	.583	20000	2	XDGX1750
5.000	A Type	.016-.125	**AXD4000UR0507EA**	●	7	2.500	1.500	6.7	.610	20000	2	XDGX1750
5.000	B Type	.157-.197	**AXD4000UR0507EB**	□	7	2.500	1.500	6.7	.583	20000	2	XDGX1750

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating this tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .063" and above, as corner radius increases the LF dimension decreases.
Note 4) The cutter body includes a set bolt for an arbor.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

MOUNTING DIMENSIONS

(inch)

DC	Tool Holder Type	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.500	**AXD4000UR150_A**	.500	.630	.276	.433	.500	1.440	.250	.156	1
1.500	**AXD4000UR150_B**	.500	.630	.276	.433	.465	1.440	.250	.156	1
2.000	**AXD4000UR020_A**	.750	.748	.413	.433	.582	1.750	.313	.187	1
2.000	**AXD4000UR020_B**	.750	.748	.413	.433	.548	1.750	.313	.187	1
2.500	**AXD4000UR25_CA**	1.000	.984	.539	.787	.622	2.190	.375	.219	1
2.500	**AXD4000UR25_CB**	1.000	.984	.539	.787	.587	2.190	.375	.219	1
3.000	**AXD4000UR03_CA**	1.000	.945	.539	.787	.661	2.190	.375	.219	1
3.000	**AXD4000UR03_CB**	1.000	.945	.539	.787	.627	2.190	.375	.219	1
3.000	**AXD4000UR03_DA**	1.250	1.260	.669	1.024	.767	2.880	.500	.281	1
3.000	**AXD4000UR03_DB**	1.250	1.260	.669	1.024	.733	2.880	.500	.281	1
4.000	**AXD4000UR04_EA**	1.500	1.181	.787	1.181	.925	3.810	.625	.375	1
4.000	**AXD4000UR04_EB**	1.500	1.181	.787	1.181	.891	3.810	.625	.375	1
5.000	**AXD4000UR05_EA**	1.500	1.575	—	2.205	.846	3.810	.625	.375	2
5.000	**AXD4000UR05_EB**	1.500	1.575	—	2.205	.812	3.810	.625	.375	2

SPARE PARTS

(inch)

* 		
Clamp Screw	Wrench	Anti-seize Lubricant
TS3SB	TKY08D	MK1KS

* Clamp Torque (lbf-in) : TS3SB=13

Fig. 1

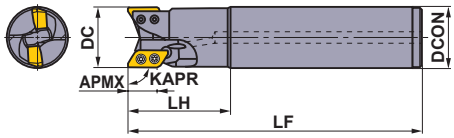
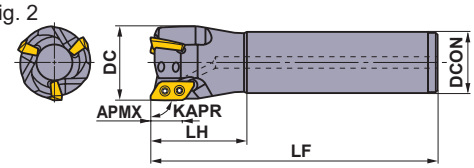


Fig. 2



Metric Standard

SHANK TYPE

With Air / coolant through.

Right hand tool holder only.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	LH	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
20	A Type	0.4-3.2	**AXD4000R201SA20SA**	★	1	110	35	20	0.22	15.5	15000	1	XDGX1750
20	B Type	4.0-5.0	**AXD4000R201SA20SB**	★	1	110	35	20	0.22	14.8	15000	1	XDGX1750
25	A Type	0.4-3.2	**AXD4000R252SA25SA**	★	2	125	50	25	0.38	15.5	49000	1	XDGX1750
25	B Type	4.0-5.0	**AXD4000R252SA25SB**	★	2	125	50	25	0.38	14.8	49000	1	XDGX1750
25	A Type	0.4-3.2	**AXD4000R252SA25LA**	★	2	170	80	25	0.53	15.5	49000	1	XDGX1750
25	B Type	4.0-5.0	**AXD4000R252SA25LB**	★	2	170	80	25	0.53	14.8	49000	1	XDGX1750
28	A Type	0.4-3.2	**AXD4000R282SA25SA**	★	2	125	50	25	0.41	15.5	48500	2	XDGX1750
28	B Type	4.0-5.0	**AXD4000R282SA25SB**	★	2	125	50	25	0.41	14.8	48500	2	XDGX1750
28	A Type	0.4-3.2	**AXD4000R282SA25ELA**	★	2	220	50	25	0.76	15.5	48500	2	XDGX1750
28	B Type	4.0-5.0	**AXD4000R282SA25ELB**	★	2	220	50	25	0.76	14.8	48500	2	XDGX1750
32	A Type	0.4-3.2	**AXD4000R322SA32SA**	★	2	150	50	32	0.80	15.5	48000	1	XDGX1750
32	B Type	4.0-5.0	**AXD4000R322SA32SB**	★	2	150	50	32	0.80	14.8	48000	1	XDGX1750
32	A Type	0.4-3.2	**AXD4000R322SA32LA**	★	2	200	80	32	1.09	15.5	48000	1	XDGX1750
32	B Type	4.0-5.0	**AXD4000R322SA32LB**	★	2	200	80	32	1.09	14.8	48000	1	XDGX1750
35	A Type	0.4-3.2	**AXD4000R352SA32SA**	★	2	150	50	32	0.84	15.5	45000	2	XDGX1750
35	B Type	4.0-5.0	**AXD4000R352SA32SB**	★	2	150	50	32	0.84	14.8	45000	2	XDGX1750
35	A Type	0.4-3.2	**AXD4000R352SA32ELA**	★	2	250	50	32	1.45	15.5	45000	2	XDGX1750
35	B Type	4.0-5.0	**AXD4000R352SA32ELB**	★	2	250	50	32	1.45	14.8	45000	2	XDGX1750
40	A Type	0.4-3.2	**AXD4000R403SA32SA**	★	3	150	50	32	0.87	15.5	41000	2	XDGX1750
40	B Type	4.0-5.0	**AXD4000R403SA32SB**	★	3	150	50	32	0.87	14.8	41000	2	XDGX1750
40	A Type	0.4-3.2	**AXD4000R403SA42SA**	★	3	170	80	42	1.53	15.5	41000	1	XDGX1750
40	B Type	4.0-5.0	**AXD4000R403SA42SB**	★	3	170	80	42	1.53	14.8	41000	1	XDGX1750
40	A Type	0.4-3.2	**AXD4000R403SA32ELA**	★	3	250	50	32	1.48	15.5	41000	2	XDGX1750
40	B Type	4.0-5.0	**AXD4000R403SA32ELB**	★	3	250	50	32	1.48	14.8	41000	2	XDGX1750

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .063" and above, as corner radius increases the LF and LH dimension decreases.

SPARE PARTS

(mm)

DC	*  Clamp Screw	 Wrench	 Anti-seize Lubricant
20	TS3SBS	TKY08D	MK1KS
>20	TS3SB	TKY08D	MK1KS

* Clamp Torque (lbf-in) : TS3SBS=13, TS3SB=13

★ : Stocked in Japan

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig. 1

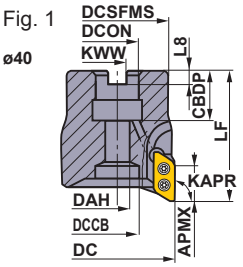


Fig. 2

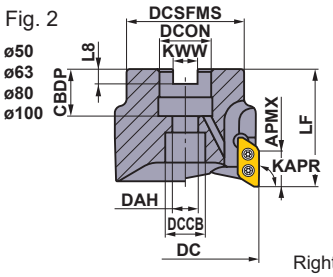
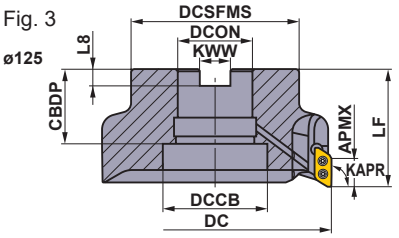


Fig. 3



Right hand tool holder only.

DC		Set Bolt	Geometry	
mm	inch			
ϕ40		HFF08043H	①	① ② ③
ϕ50, ϕ63		HSC10030H	②	
ϕ80	ϕ80	HSC12035H		
ϕ100	ϕ100	HSC16040H		
ϕ125	ϕ125	MBA20040H	③	With Air / coolant through.

Metric Standard

For inch arbors

■ ARBOR TYPE

DCON = inch size, With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
80	A Type	0.4-3.2	**AXD4000R08005CA**	★	5	50	25.4	1.0	15.5	27000	2	XDGX1750
80	B Type	4.0-5.0	**AXD4000R08005CB**	★	5	50	25.4	1.0	14.8	27000	2	XDGX1750
100	A Type	0.4-3.2	**AXD4000R10006DA**	★	6	63	31.75	2.0	15.5	23000	2	XDGX1750
100	B Type	4.0-5.0	**AXD4000R10006DB**	★	6	63	31.75	2.0	14.8	23000	2	XDGX1750
125	A Type	0.4-3.2	**AXD4000R12507EA**	★	7	63	38.1	2.8	15.5	20000	3	XDGX1750
125	B Type	4.0-5.0	**AXD4000R12507EB**	★	7	63	38.1	2.8	14.8	20000	3	XDGX1750

Metric Standard

For metric arbors

DCON = mm size, With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
40	A Type	0.4-3.2	**AXD4000-040A02RA**	★	2	50	16	0.3	15.5	41000	1	XDGX1750
40	B Type	4.0-5.0	**AXD4000-040A02RB**	★	2	50	16	0.3	14.8	41000	1	XDGX1750
40	A Type	0.4-3.2	**AXD4000-040A03RA**	★	3	50	16	0.3	15.5	41000	1	XDGX1750
40	B Type	4.0-5.0	**AXD4000-040A03RB**	★	3	50	16	0.3	14.8	41000	1	XDGX1750
50	A Type	0.4-3.2	**AXD4000-050A02RA**	★	2	50	22	0.4	15.5	35000	2	XDGX1750
50	B Type	4.0-5.0	**AXD4000-050A02RB**	★	2	50	22	0.4	14.8	35000	2	XDGX1750
50	A Type	0.4-3.2	**AXD4000-050A04RA**	★	4	50	22	0.4	15.5	35000	2	XDGX1750
50	B Type	4.0-5.0	**AXD4000-050A04RB**	★	4	50	22	0.4	14.8	35000	2	XDGX1750
63	A Type	0.4-3.2	**AXD4000-063A05RA**	★	5	50	22	0.6	15.5	30000	2	XDGX1750
63	B Type	4.0-5.0	**AXD4000-063A05RB**	★	5	50	22	0.6	14.8	30000	2	XDGX1750
80	A Type	0.4-3.2	**AXD4000-080A05RA**	★	5	50	27	1.0	15.5	27000	2	XDGX1750
80	B Type	4.0-5.0	**AXD4000-080A05RB**	★	5	50	27	1.0	14.8	27000	2	XDGX1750
100	A Type	0.4-3.2	**AXD4000-100A06RA**	★	6	63	32	2.0	15.5	23000	2	XDGX1750
100	B Type	4.0-5.0	**AXD4000-100A06RB**	★	6	63	32	2.0	14.8	23000	2	XDGX1750
125	A Type	0.4-3.2	**AXD4000-125B07RA**	★	7	63	40	2.8	15.5	20000	3	XDGX1750
125	B Type	4.0-5.0	**AXD4000-125B07RB**	★	7	63	40	2.8	14.8	20000	3	XDGX1750

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .063" and above, as corner radius increases the LF dimension decreases.
Note 4) Set bolt not included.

★ : **Stocked in Japan**

MOUNTING DIMENSIONS

(mm)

DC	Tool Holder Type	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
40	**AXD4000-040A**	16	18	8.5	12	10.40	34	8.4	5.6	1
50	**AXD4000-050A**	22	20	11.0	17	15.99	45	10.4	6.3	2
63	**AXD4000-063A**	22	20	11.0	17	19.99	50	10.4	6.3	2
80	**AXD4000R080**	25.4	26	13.0	20	14.49	60	9.5	6.0	2
80	**AXD4000-080A**	27	23	13.0	20	14.49	60	12.4	7.0	2
100	**AXD4000R100**	31.75	32	17.0	26	18.99	70	12.7	8.0	2
100	**AXD4000-100A**	32	26	17.0	26	24.99	78	14.4	8.0	2
125	**AXD4000R125**	38.1	40	—	56	20.99	90	15.9	10.0	3
125	**AXD4000-125B**	40	40	—	56	20.99	90	16.4	9.0	3

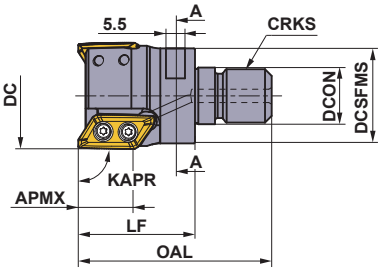
SPARE PARTS

(mm)

* 		
Clamp Screw	Wrench	Anti-seize Lubricant
TS3SB	TKY08D	MK1KS

* Clamp Torque (N • m) : TS3SB=1.5

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.

Metric Standard

NEW

■ SCREW-IN TYPE

With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Insert Type
25	A Type	0.4-3.2	**AXD4000R252AM1228A**	★	2	12.5	23.5	50	28	19	M12	0.06	15.0	49000	XDGX1750
25	B Type	4.0-5.0	**AXD4000R252AM1228B**	★	2	12.5	23.5	50	28	19	M12	0.06	14.8	49000	XDGX1750
28	A Type	0.4-3.2	**AXD4000R282AM1228A**	★	2	12.5	23.5	50	28	19	M12	0.07	15.0	48500	XDGX1750
28	B Type	4.0-5.0	**AXD4000R282AM1228B**	★	2	12.5	23.5	50	28	19	M12	0.07	14.8	48500	XDGX1750
32	A Type	0.4-3.2	**AXD4000R322AM1635A**	★	2	17.0	28.5	58	35	24	M16	0.15	15.0	48000	XDGX1750
32	B Type	4.0-5.0	**AXD4000R322AM1635B**	★	2	17.0	28.5	58	35	24	M16	0.15	14.8	48000	XDGX1750
35	A Type	0.4-3.2	**AXD4000R353AM1635A**	★	3	17.0	28.5	58	35	24	M16	0.15	15.0	41000	XDGX1750
35	B Type	4.0-5.0	**AXD4000R353AM1635B**	★	3	17.0	28.5	58	35	24	M16	0.15	14.8	41000	XDGX1750
40	A Type	0.4-3.2	**AXD4000R403AM1635A**	★	3	17.0	28.5	58	35	24	M16	0.18	15.0	38000	XDGX1750
40	B Type	4.0-5.0	**AXD4000R403AM1635B**	★	3	17.0	28.5	58	35	24	M16	0.18	14.8	38000	XDGX1750

Note 1) For screw-in type arbors, refer to page K382.

Note 2) The maximum allowable revolutions are set to ensure tool and insert stability.
Before operating the tool read the operational guidance on page K256.

★ : **Stocked in Japan**

SPARE PARTS

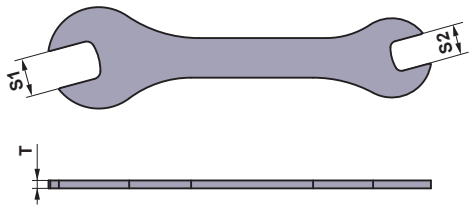
(mm)

 *		
Clamp Screw	Wrench	Anti-seize Lubricant
TS3SB	TKY08D	MK1KS

* Clamp Torque (N • m) : TS3SB=1.5

Parts Sold Separately

Arbor Mounting Spanner



(mm)

Order Number	Dimensions		
	S1 *	S2 *	T
AKY1924050A	24	19	5

* Clamp Torque (N • m) : 19 = 80, 24 = 90

Note 1) Due to the structure of the head, it may not be possible to use a commercially available spanner to attach the arbor. It is recommended to use the dedicated spanner.

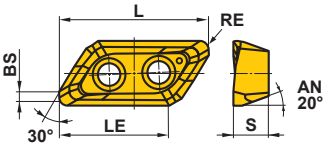
ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

Workpiece Material		
	P	Steel
	N	Aluminum Alloys
	S	Heat resistant Alloys, Titanium Alloys

Cutting Conditions (Guide):
● :Stable Cutting ◐ :General Cutting ✲ :Unstable Cutting
Edge Preparation:
F :Sharp Edge **E** :Round

Shape	Order Number	Class	Edge Preparation	Stock: Coated LC15TF	Stock: Coated MP6120	Stock: Coated MP9120	Stock: Carbide TF15	Dimensions (inch) L	LE	S	BS	RE *	Geometry
Low Cutting Resistance **GL** Breaker	**XDGX175004PDFR-GL**	G	F	★			●	.906	.665	.197	.067	.016	
	XDGX175008PDFR-GL	G	F	★			●	.906	.669	.197	.051	.031	
	XDGX175012PDFR-GL	G	F	★			●	.906	.669	.197	.035	.047	
	XDGX175016PDFR-GL	G	F	★			●	.866	.646	.197	.055	.063	
	XDGX175020PDFR-GL	G	F	★			●	.866	.646	.197	.039	.079	
	XDGX175024PDFR-GL	G	F	★			●	.866	.646	.197	.024	.094	
	XDGX175030PDFR-GL	G	F	★			●	.831	.634	.197	.031	.118	
	XDGX175032PDFR-GL	G	F	★			●	.831	.634	.197	.024	.125	
	XDGX175040PDFR-GL	G	F	★			●	.787	.614	.197	.031	.157	
	XDGX175050PDFR-GL	G	F	★			●	.764	.602	.197	.016	.197	
Strong Cutting Edge Wear Resistant Type **GM** Breaker	**XDGX175004PDFR-GM**	G	F				●	.906	.669	.197	.067	.016	
	XDGX175008PDFR-GM	G	F				●	.906	.669	.197	.051	.031	
	XDGX175012PDFR-GM	G	F				●	.906	.669	.197	.035	.047	
	XDGX175016PDFR-GM	G	F				●	.866	.626	.197	.055	.063	
	XDGX175020PDFR-GM	G	F				●	.866	.626	.197	.039	.079	
	XDGX175024PDFR-GM	G	F				●	.866	.626	.197	.024	.094	
	XDGX175030PDFR-GM	G	F				●	.831	.630	.197	.031	.118	
	XDGX175032PDFR-GM	G	F				●	.831	.630	.197	.024	.125	
	XDGX175040PDFR-GM	G	F				●	.787	.583	.197	.019	.157	
	XDGX175050PDFR-GM	G	F				●	.764	.591	.197	.016	.197	
Strong Cutting Edge **GM** Breaker	**XDGX175004PDER-GM**	G	E		●	●		.906	.669	.197	.067	.016	
	XDGX175008PDER-GM	G	E		●	●		.906	.669	.197	.051	.031	
	XDGX175012PDER-GM	G	E		●	●		.906	.669	.197	.035	.047	
	XDGX175016PDER-GM	G	E		●	●		.866	.626	.197	.055	.063	
	XDGX175020PDER-GM	G	E		●	●		.866	.626	.197	.039	.079	
	XDGX175024PDER-GM	G	E		●	●		.866	.626	.197	.024	.094	
	XDGX175030PDER-GM	G	E		●	●		.831	.630	.197	.031	.118	
	XDGX175032PDER-GM	G	E		●	●		.831	.630	.197	.024	.125	
	XDGX175040PDER-GM	G	E		●	●		.787	.583	.197	.019	.157	
	XDGX175050PDER-GM	G	E		●	●		.764	.591	.197	.016	.197	



* Be aware that the corner R(RE) has a different shape than the machined workpiece R.
When a GM breaker is recommended, stress the dimensional precision of the workpiece shape.

■ HOLDER AND INSERT CORNER RADIUS COMBINATION

Holder	A Type Holder	B Type Holder
	(Inch) AXD4000UR○○○○○○A / AXD4000UR○○○○○○○○A (Metric) AXD4000–○○○○○○○A / AXD4000R○○○○○○○○A	(Inch) AXD4000UR○○○○○B / AXD4000UR○○○○○○○○B (Metric) AXD4000–○○○○○○○B / AXD4000R○○○○○○○○B

Insert Corner Radius (RE)	.016"	.031"	.047"	.063"	.079"	.094"	.118"	.126"	.157"	.197"
	XDGX 175004PD○R-○○	XDGX 175008PD○R-○○	XDGX 175012PD○R-○○	XDGX 175016PD○R-○○	XDGX 175020PD○R-○○	XDGX 175024PD○R-○○	XDGX 175030PD○R-○○	XDGX 175032PD○R-○○	XDGX 175040PD○R-○○	XDGX 175050PD○R-○○

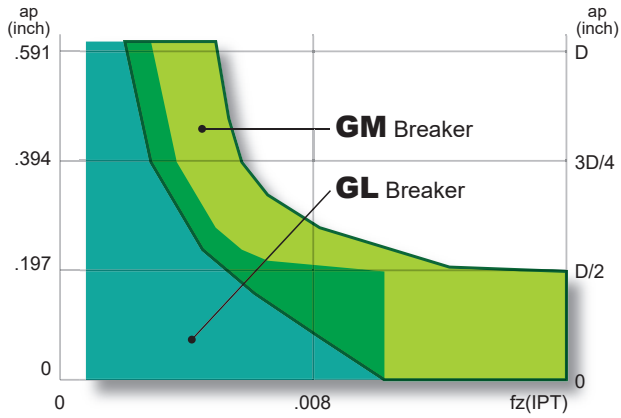
Note 1) Not interchangeable with the corresponding inserts of the A type and B type holders.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

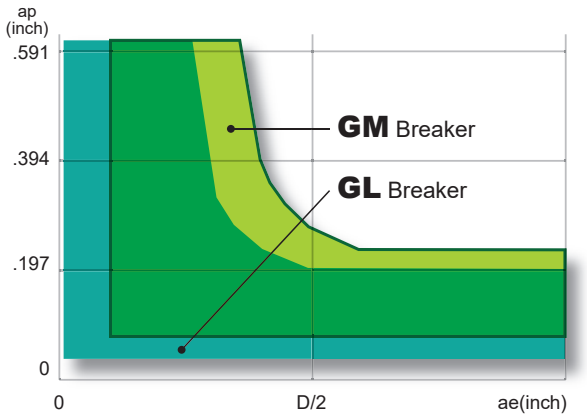
Selection of insert

It is necessary to choose the best insert according to the cutting conditions. Please select an insert from the tables below.
1st recommendation for stable cutting condition is the GL breaker with a strong cutting edge.

Selection of insert according to the feed per tooth and the required cutting depth



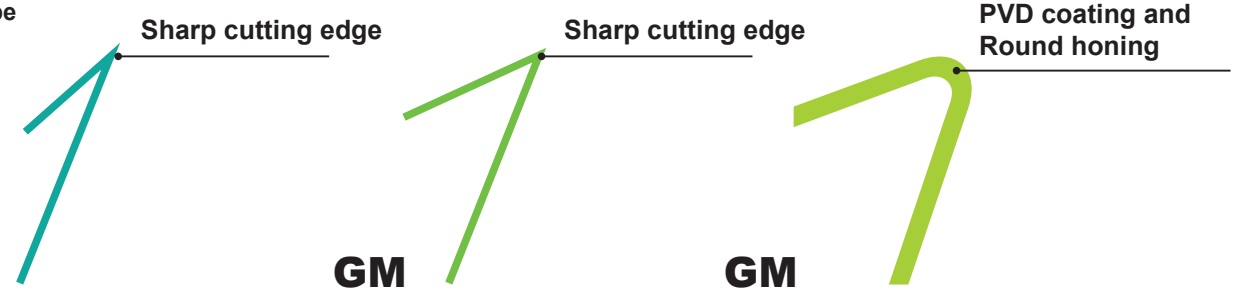
Selection of insert according to the width of cut and the required cutting depth



1st recommendation for machining aluminum alloys is GL breaker.
Under high-load conditions such as deep or high feed cutting, it is advisable to use the GM breaker.

Selection of insert according to cutting edge

Insert type

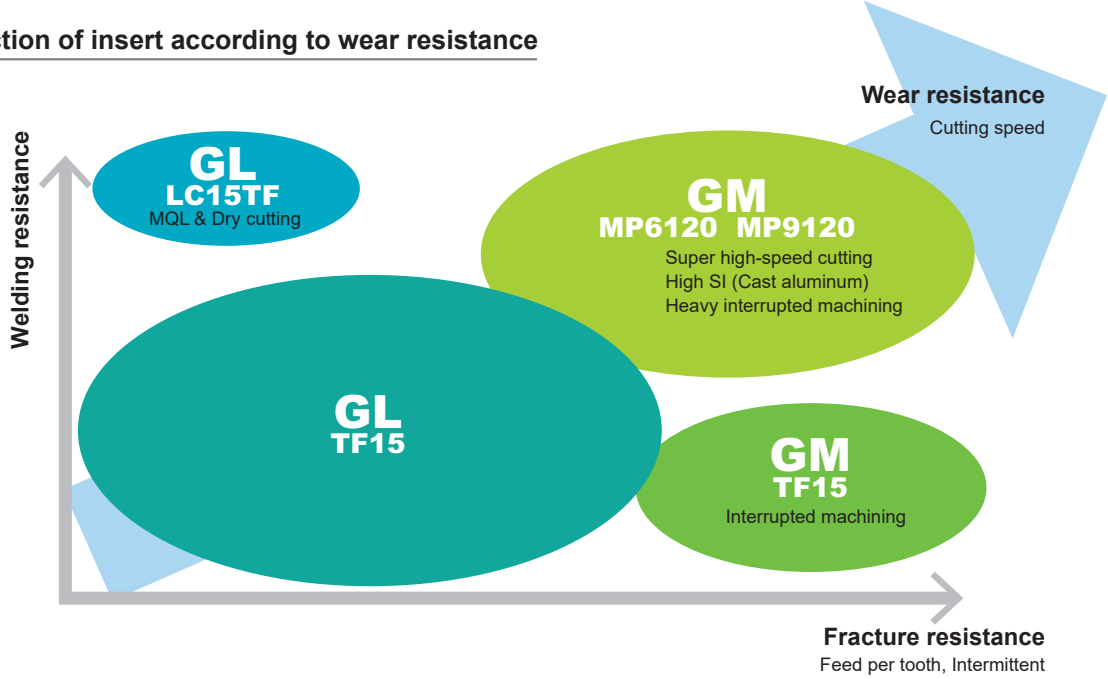


GL
TF15/LC15TF
Low cutting resistance
(LC15TF: Excellent weld resistance)

GM
TF15
Tougher cutting edge

GM
MP9120
Tougher cutting edge & wear resistance
Machining of difficult-to-cut materials & aluminum

Selection of insert according to wear resistance



RECOMMENDED CUTTING CONDITIONS

■Cutting Speed

(inch)

Workpiece Material			Grade	Breaker	vc (SFM)
P	Mild Steel	≤180HB	MP6120	GM	655 (490—720)
	Carbon Steel Alloy Steel	180—280HB	MP6120	GM	655 (490—720)
N	Aluminum Alloys	Si<5%	TF15 LC15TF	GL	3280 (655—9840)
			TF15 MP9120	GM	3280 (655—9840)
		5%≤Si≤10% Si>10%	MP9120	GM	3280 (655—9840)
S	Titanium Alloys	—	MP9120	GM	130 (100—195)

■Feed per Tooth

(inch)

Workpiece Material			Breaker	ae	ap	Feed per Tooth (IPT) Cutting Edge Diameter DC					
						—	1.000"	1.250"	1.500"	2.000"—3.000"	4.000",5.000"
						20 mm	25,28 mm	32,35 mm	40 mm	50—80 mm	100,125 mm
P	Mild Steel	≤180HB	GM	≤ .25 DC	≤ .197	≤ .002	≤ .006	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .394	≤ .002	≤ .005	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .571	≤ .002	≤ .004	≤ .004	≤ .005	≤ .005	—
				≤ .5 DC	≤ .197	≤ .002	≤ .005	≤ .006	≤ .006	≤ .007	≤ .007
					≤ .394	—	≤ .004	≤ .005	≤ .005	≤ .006	≤ .006
					≤ .571	—	≤ .003	≤ .004	≤ .004	≤ .005	—
				≤ .75 DC	≤ .197	≤ .002	≤ .005	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .394	—	≤ .004	≤ .004	≤ .005	≤ .005	≤ .005
				DC (Slot)	≤ .197	≤ .002	≤ .004	≤ .005	≤ .005	≤ .006	≤ .006
	Carbon Steel Alloy Steel	180—280HB	GM	≤ .25 DC	≤ .197	≤ .002	≤ .006	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .394	≤ .002	≤ .005	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .571	≤ .002	≤ .004	≤ .004	≤ .005	≤ .005	—
				≤ .5 DC	≤ .197	≤ .002	≤ .005	≤ .006	≤ .006	≤ .007	≤ .007
					≤ .394	—	≤ .004	≤ .005	≤ .005	≤ .006	≤ .006
					≤ .571	—	≤ .003	≤ .004	≤ .004	≤ .005	—
				≤ .75 DC	≤ .197	≤ .002	≤ .005	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .394	—	≤ .004	≤ .004	≤ .005	≤ .005	≤ .005
				DC (Slot)	≤ .197	≤ .002	≤ .004	≤ .005	≤ .005	≤ .006	≤ .006

Note 1) The above cutting conditions are determined based on high workpiece and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.

Note 2) Note, vibrations may occur in the following conditions.
- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece has poor clamping rigidity or when the machine rigidity or workpiece rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

(inch)

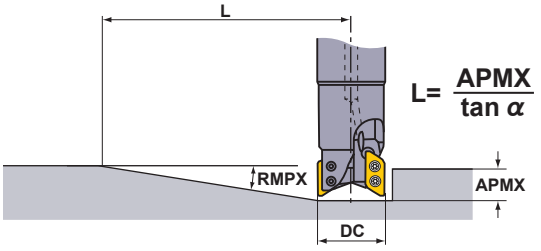
Workpiece Material			Breaker	ae	ap	Feed per Tooth (IPT)					
						Cutting Edge Diameter **DC**					
							1.000"	1.250"	1.500"	2.000"—3.000"	4.000",5.000"
						20 mm	25,28 mm	32,35 mm	40 mm	50—80 mm	100,125 mm
N	Aluminum Alloys	Si<5%	GL	≤ .25 DC	≤ .197	≤ .002	≤ .010	≤ .010	≤ .010	≤ .010	≤ .010
					≤ .394	≤ .002	≤ .008	≤ .008	≤ .008	≤ .008	≤ .008
					≤ .571	≤ .002	≤ .006	≤ .006	≤ .006	≤ .006	≤ .006
				≤ .5 DC	≤ .197	≤ .002	≤ .010	≤ .010	≤ .010	≤ .010	≤ .010
					≤ .394	—	≤ .008	≤ .008	≤ .008	≤ .008	≤ .008
					≤ .571	—	≤ .006	≤ .006	≤ .006	≤ .006	≤ .006
				≤ .75 DC	≤ .197	≤ .002	≤ .010	≤ .010	≤ .010	≤ .010	≤ .010
					≤ .394	—	≤ .008	≤ .008	≤ .008	≤ .008	≤ .008
					≤ .571	—	≤ .006	≤ .006	≤ .006	≤ .006	≤ .006
				DC (Slot)	≤ .197	≤ .002	≤ .010	≤ .010	≤ .010	≤ .010	≤ .010
		Si<5%	GM	≤ .25 DC	≤ .197	≤ .002	≤ .014	≤ .014	≤ .016	≤ .016	≤ .016
					≤ .394	≤ .002	≤ .012	≤ .012	≤ .014	≤ .014	≤ .014
					≤ .571	≤ .002	≤ .010	≤ .010	≤ .012	≤ .012	≤ .012
				≤.5 DC	≤ .197	≤ .002	≤ .014	≤ .014	≤ .014	≤ .016	≤ .016
					≤ .394	—	≤ .012	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .571	—	≤ .008	≤ .010	≤ .010	≤ .012	≤ .012
				≤ .75 DC	≤ .197	≤ .002	≤ .012	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .394	—	≤ .010	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .571	—	≤ .008	≤ .008	≤ .008	≤ .010	≤ .010
				DC (Slot)	≤ .197	≤ .002	≤ .010	≤ .010	≤ .012	≤ .014	≤ .014
		5%≤Si≤10% Si>10%	GM	≤ .25 DC	≤ .197	≤ .002	≤ .014	≤ .014	≤ .016	≤ .016	≤ .016
					≤ .394	≤ .002	≤ .012	≤ .012	≤ .014	≤ .014	≤ .014
					≤ .571	≤ .002	≤ .010	≤ .010	≤ .012	≤ .012	≤ .012
				≤ .5 DC	≤ .197	≤ .002	≤ .014	≤ .014	≤ .014	≤ .016	≤ .016
					≤ .394	—	≤ .012	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .571	—	≤ .008	≤ .010	≤ .010	≤ .012	≤ .012
				≤ .75 DC	≤ .197	≤ .002	≤ .012	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .394	—	≤ .010	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .571	—	≤ .008	≤ .008	≤ .008	≤ .010	≤ .010
				DC (Slot)	≤ .197	≤ .002	≤ .010	≤ .010	≤ .012	≤ .014	≤ .014
S	Titanium Alloys	—	GM	≤ .25 DC	≤ .197	≤ .002	≤ .004	≤ .004	≤ .004	≤ .004	≤ .004
					≤ .394	≤ .002	≤ .004	≤ .004	≤ .004	≤ .004	≤ .004
					≤ .571	≤ .002	≤ .004	≤ .004	≤ .004	≤ .004	≤ .004
				≤ .5 DC	≤ .197	≤ .002	≤ .003	≤ .004	≤ .004	≤ .004	≤ .004
					≤ .394	—	≤ .003	≤ .004	≤ .004	≤ .004	≤ .004
					≤ .571	—	≤ .003	≤ .004	≤ .004	≤ .004	≤ .004
				≤ .75 DC	≤ .197	≤ .002	≤ .002	≤ .003	≤ .004	≤ .004	≤ .004
					≤ .394	—	≤ .002	≤ .003	≤ .004	≤ .004	≤ .004
					≤ .571	—	≤ .002	≤ .003	≤ .004	≤ .004	≤ .004
				DC (Slot)	≤ .197	≤ .002	≤ .002	≤ .002	≤ .002	≤ .002	≤ .002

Note 1) The above cutting conditions are determined based on high workpiece and machine rigidity, where no vibration occurred.
If vibrations occur make adjustments according to the machining conditions.

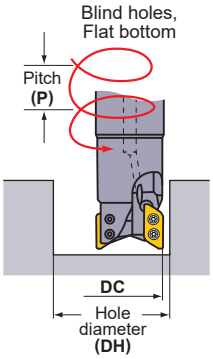
Note 2) Note, vibrations may occur in the following conditions.
- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece has poor clamping rigidity or when the machine rigidity or workpiece rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

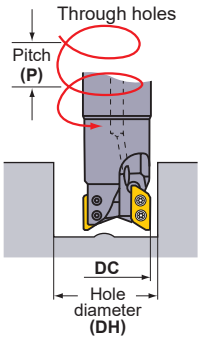
■ Ramping / Helical Cutting (Aluminum Alloy)

● Ramping



● Helical Cutting





(inch)

Type	DC	RE	Ramping		Helical Cutting (Blind Hole, Flat Bottom)				Helical Cutting (Through Hole)	
			RMPX	L *1	DH max.	P max.	DH min.	P max.	DH min.	P max.
A Type	.787 [20 mm]	.016—.047	20.7°	1.65	1.524 *2	.551	1.421	.551	.866	.079
		.063—.094	19.9°	1.69	1.429 *3	.512	1.362	.512	.866	.079
		.118—.125	18.9°	1.81	1.319 *4	.472	1.311	.472	.866	.039
	1.000	.016—.047	22.6°	1.50	1.949 *2	.551	1.832	.551	1.267	.315
		.063—.094	22.1°	1.54	1.854 *3	.512	1.766	.512	1.267	.315
		.118—.125	20.7°	1.65	1.728 *4	.472	1.707	.472	1.267	.315
	1.102 [28 mm]	.016—.047	19.2°	1.77	2.154 *2	.551	2.047	.551	1.417	.315
		.063—.094	18.5°	1.85	2.059 *3	.512	1.984	.512	1.417	.315
		.118—.125	16.7°	2.05	1.949 *4	.472	1.925	.472	1.417	.276
	1.250	.016—.047	15.6°	2.20	2.449 *2	.551	2.331	.551	1.762	.433
		.063—.094	14.9°	2.32	2.354 *3	.512	2.264	.512	1.762	.394
		.118—.125	14.0°	2.48	2.244 *4	.472	2.203	.472	1.762	.394
	1.378 [35 mm]	.016—.047	13.4°	2.60	2.705 *2	.551	2.591	.551	1.969	.433
		.063—.094	12.7°	2.71	2.610 *3	.512	2.531	.512	1.969	.394
		.118—.125	11.8°	2.95	2.500 *4	.472	2.472	.472	1.969	.354
	1.500	.016—.047	13.0°	2.68	2.933 *2	.551	2.827	.551	2.262	.512
		.063—.094	12.3°	2.83	2.839 *3	.512	2.760	.512	2.262	.512
		.118—.125	11.6°	2.99	2.728 *4	.472	2.701	.472	2.262	.472
	2.000	.016—.047	8.7°	4.02	3.933 *2	.551	3.827	.551	3.258	.551
		.063—.094	8.2°	4.25	3.839 *3	.512	3.757	.512	3.257	.512
		.118—.125	7.6°	4.61	3.728 *4	.472	3.696	.472	3.257	.472
	2.500	.016—.047	6.6°	5.28	4.933 *2	.551	4.824	.551	4.259	.551
		.063—.094	6.1°	5.75	4.839 *3	.512	4.756	.512	4.259	.512
		.118—.125	5.7°	6.14	4.728 *4	.472	4.695	.472	4.258	.472
	3.000	.016—.047	5.3°	6.61	5.933 *2	.551	5.824	.551	5.260	.551
		.063—.094	4.9°	7.13	5.839 *3	.512	5.756	.512	5.260	.512
		.118—.125	4.5°	7.76	5.728 *4	.472	5.746	.472	5.259	.472
	4.000	.016—.047	3.8°	9.21	7.933 *2	.551	7.824	.551	7.261	.551
		.063—.094	3.5°	10.00	7.839 *3	.512	7.755	.512	7.261	.512
		.118—.125	3.2°	10.94	7.728 *4	.472	7.694	.472	7.260	.472
	5.000	.016—.047	2.9°	12.05	9.933 *2	.551	9.823	.551	9.261	.551
		.063—.094	2.7°	12.95	9.839 *3	.512	9.755	.512	9.261	.512
		.118—.125	2.5°	14.02	9.728 *4	.472	9.693	.472	9.260	.472

Note 1) Ramping, helical, and drilling are not recommended for machining of steel and titanium alloys.

(inch)

Type	DC	RE	Ramping		Helical Cutting (Blind Hole, Flat Bottom)				Helical Cutting (Through Hole)	
			RMPX	L *1	DH max.	P max.	DH min.	P max.	DH min.	P max.
B Type	.787	.157	17.5°	1.850	1.240	.394	1.252	.394	.866	.039
	[20 mm]	.197	16.6°	2.795	1.161	.236	1.224	.276	.866	.039
	1.000	.157	17.9°	1.81	1.665	.394	1.635	.394	1.269	.236
		.197	14.7°	2.24	1.587	.354	1.596	.354	1.269	.197
	1.102	.157	14.1°	2.323	1.870	.394	1.858	.394	1.417	.236
	[28 mm]	.197	13°	2.559	1.791	.354	1.827	.354	1.417	.197
	1.250	.157	12.9°	2.56	2.165	.394	2.130	.394	1.762	.354
		.197	12.2°	2.72	2.087	.354	2.090	.354	1.762	.315
	1.378	.157	10.8°	3.071	2.421	.394	2.402	.394	1.969	.315
	[35mm]	.197	10.2°	3.268	2.343	.354	2.370	.354	1.969	.315
	1.500	.157	10.7°	3.11	2.650	.394	2.622	.394	2.261	.394
		.197	10.1°	3.31	2.571	.354	2.583	.354	2.261	.354
	2.000	.157	6.9°	4.84	3.650	.394	3.621	.394	3.257	.394
		.197	6.5°	5.12	3.571	.354	3.580	.354	3.256	.354
	2.500	.157	5.1°	6.54	4.650	.394	4.600	.394	4.258	.394
		.197	4.8°	6.97	4.571	.354	4.578	.354	4.257	.354
	3.000	.157	4.1°	8.15	5.650	.394	5.619	.394	5.258	.394
		.197	3.8°	8.78	5.571	.354	5.578	.354	5.258	.354
	4.000	.157	2.9°	11.54	7.650	.394	7.618	.394	7.259	.394
		.197	2.7°	12.36	7.571	.354	7.577	.354	7.258	.354
	5.000	.157	2.2°	15.20	9.650	.394	9.618	.394	9.260	.394
		.197	2.1°	15.91	9.571	.354	9.577	.354	9.259	.354

The recommended ramping or helical cutting feed is .002 IPT or less.

*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows:
L=(maximum depth of cut APMX / tan α). Maximum depth of cut A type is .610", B type is .583".

*2 The maximum diameter when machining a blind hole with a flat face using a corner radius of .047".

*3 The maximum diameter when machining a blind hole with a flat face using a corner radius of .094".

*4 The maximum diameter when machining a blind hole with a flat face using a corner radius of .125".
For other corner radius, use to following formula. {(cutting edge diameter DC) - (corner radius RE) - β} ×2

DC	β
1.0" — 1.25"	.010"
1.5"—5.0"	.018"

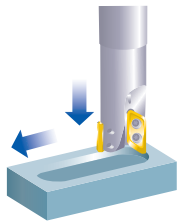
■ Max. Drilling Depth (Aluminum Alloy)

(inch)

Type	RE	Max.Drilling Depth			
		ϕ.787"	ϕ1.000"	ϕ1.250"	ϕ1.500"—ϕ5.000"
A Type	.016—.047	.209	.205	.205	.209
	.063—.094	.189	.181	.185	.189
	.118—.125	.169	.146	.165	.173
B Type	.157	.146	.106	.142	.150
	.197	.134	.091	.130	.138

The recommended drilling feed is .002 IPT or less.

AXD4000 can be effectively used for pocket machining without the need for a prepared hole.



MULTI FUNCTIONAL MILLING

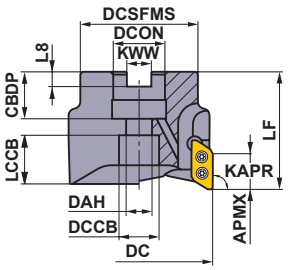
<ALUMINUM ALLOY MATERIAL CUTTING>

90° KAPR

AXD4000A NEW

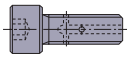
P | M | K | **N** | S | H

ø2.000"



Right hand tool holder only.

(inch)

DC	Set Bolt	Geometry
ϕ2.000"	HSCU37513H	 With Air / coolant through.

■ARBOR TYPE

DCON=inch size, With Air / coolant through.

(inch)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Insert Type
2.000	D	.016-.126	**AXD4000AUR2.0004AAD**	●	4	2.000	.750	.9	.610	34000	XDGX1750
2.000	E	.157-.197	**AXD4000AUR2.0004AAE**	●	4	2.000	.750	.9	.583	34000	XDGX1750

Note 1) The maximum allowable revolutions are set to ensure tool and insert stability.
RPMX (max. rev/min) for holders must also be considered.
Note 2) Tool should be set with balancing quality of G6.3 (ISO1940) or ISO16084, in case over 6000 min^{-1} spindle rotation.
Note 3) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 4) Note for inserts with a corner radius of .063" and above, as corner radius increases the LF dimensions decrease.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
2.000	**AXD4000AUR2.0004AAD**	.750	.748	.413	.630	.560	1.750	.313	.187
2.000	**AXD4000AUR2.0004AAE**	.750	.748	.413	.630	.527	1.750	.313	.187

SPARE PARTS

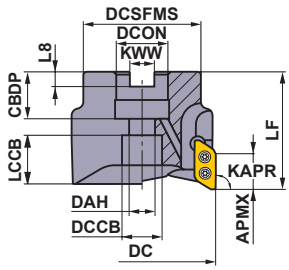
* 		
Clamp Screw	Wrench	Anti-seize Lubricant
TPS3SB	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3SB = 26.6

Note 1) Clamp screw and wrench of AXD4000A are different from AXD4000.

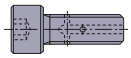
Metric Standard

ø50



Right hand tool holder only.

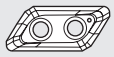
(mm)

DC	Set Bolt	Geometry
ϕ50	HSC10030H	 With Air / coolant through.

■ARBOR TYPE

DCON = inch size, With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	 Insert Type
50	D	0.4—3.2	**AXD4000A-050A04RD**	★	4	50	22	0.4	15.5	34000	XDGX1750
50	E	4.0—5.0	**AXD4000A-050A04RE**	★	4	50	22	0.4	14.8	34000	XDGX1750

Note 1) The maximum allowable revolutions are set to ensure tool and insert stability.
RPMX (max. rev/min) for holders must also be considered.
Note 2) Tool should be set with balancing quality of G6.3 (ISO1940) or ISO16084, in case over 6000 min^{-1} spindle rotation.
Note 3) When using the tool at high spindle speeds, ensure that the tool and chuck are correctly balanced.
Note 4) Note for inserts with a corner radius of .063" and above, as corner radius increases the LF dimensions decrease.

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
50	**AXD4000A-050A04RD**	22	20	11	17	15.4	45	10.4	6.3
50	**AXD4000A-050A04RE**	22	20	11	17	14.6	45	10.4	6.3

SPARE PARTS

 *		
Clamp Screw	Wrench	Anti-seize Lubricant
TPS3SB	TIP10D	MK1KS

* Clamp Torque (lbf-in) : TPS3SB = 26.6

Note 1) Clamp screw and wrench of AXD4000A are different from AXD4000.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

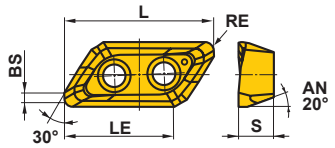
(inch)

Workpiece Material	N	Aluminum Alloys	●	✲			●	✲

Cutting Conditions (Guide):
● :Stable Cutting ◐ :General Cutting ✲ :Unstable Cutting

Edge Preparation:
F :Sharp **E** :Round

Shape	Order Number	Class	Edge Preparation	Stock: Coated LC15TF	Stock: Coated MP9120			Stock: Carbide MT2010	Stock: Carbide TF15	Dimensions L	LE	S	BS	RE*	Geometry
Strong Cutting Edge **GM** Breaker	XDGX175004PDFR-GM	G	F					●	●	.906	.689	.197	.066	.016	
	XDGX175008PDFR-GM	G	F					●	●	.906	.689	.197	.047	.031	
	XDGX175012PDFR-GM	G	F					●	●	.906	.689	.197	.035	.047	
	XDGX175016PDFR-GM	G	F					●	●	.866	.689	.197	.054	.063	
	XDGX175020PDFR-GM	G	F					●	●	.866	.689	.197	.033	.079	
	XDGX175024PDFR-GM	G	F					●	●	.866	.689	.197	.017	.094	
	XDGX175030PDFR-GM	G	F					●	●	.831	.689	.197	.023	.118	
	XDGX175032PDFR-GM	G	F					●	●	.831	.689	.197	.015	.126	
	XDGX175040PDFR-GM	G	F					●	●	.787	.689	.197	.020	.157	
	XDGX175050PDFR-GM	G	F					●	●	.764	.689	.197	.014	.197	
Strong Cutting Edge Fracture Resistance Type **GM** Breaker	XDGX175004PDER-GM	G	E		●					.906	.689	.197	.066	.016	
	XDGX175008PDER-GM	G	E		●					.906	.689	.197	.047	.031	
	XDGX175012PDER-GM	G	E		●					.906	.689	.197	.035	.047	
	XDGX175016PDER-GM	G	E		●					.866	.689	.197	.054	.063	
	XDGX175020PDER-GM	G	E		●					.866	.689	.197	.033	.079	
	XDGX175024PDER-GM	G	E		●					.866	.689	.197	.017	.094	
	XDGX175030PDER-GM	G	E		●					.831	.689	.197	.023	.118	
	XDGX175032PDER-GM	G	E		●					.831	.689	.197	.015	.126	
	XDGX175040PDER-GM	G	E		●					.787	.689	.197	.020	.157	
	XDGX175050PDER-GM	G	E		●					.764	.689	.197	.014	.197	
Low Cutting Resistance **GL** Breaker	XDGX175004PDFR-GL	G	F	★					●	.906	.689	.197	.067	.016	
	XDGX175008PDFR-GL	G	F	★					●	.906	.689	.197	.052	.031	
	XDGX175012PDFR-GL	G	F	★					●	.906	.689	.197	.037	.047	
	XDGX175016PDFR-GL	G	F	★					●	.866	.689	.197	.056	.063	
	XDGX175020PDFR-GL	G	F	★					●	.866	.689	.197	.041	.079	
	XDGX175024PDFR-GL	G	F	★					●	.866	.689	.197	.026	.094	
	XDGX175030PDFR-GL	G	F	★					●	.831	.689	.197	.033	.118	
	XDGX175032PDFR-GL	G	F	★					●	.831	.689	.197	.026	.126	
	XDGX175040PDFR-GL	G	F	★					●	.787	.689	.197	.033	.157	
	XDGX175050PDFR-GL	G	F	★					●	.764	.689	.197	.016	.197	



* The insert nose R differs from radius form which is remains on workpiece material after machining due to the effects of the axial rake angle at the time of setting.
GM breaker is recommended if stress the dimensional precision of the workpiece shape.

■ HOLDER AND INSERT CORNER RADIUS COMBINATION

Holder	D Type Holder								E Type Holder	
	AXD4000AUR2.0004AAD, AXD4000A–050A04RD								AXD40000AUR2.0004AAE AXD4000A–050A04RE	
Insert Corner Radius (RE)	R.016"	R.031"	R.047"	R.063"	R.079"	R.094"	R.118"	R.126"	R.157"	R.197"
	XDGX 175004PD R-	XDGX 175008PD R-	XDGX 175012PD R-	XDGX 175016PD R-	XDGX 175020PD R-	XDGX 175024PD R-	XDGX 175030PD R-	XDGX 175032PD R-	XDGX 175040PD R-	XDGX 175050PD R-

Note 1) Other combinations of holder and insert corner R are not acceptable.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Inserts to be used with the AXD4000A ,which include clamping screws, must be ordered via Kit-order numbers referenced below.

INSERT KIT

Package contents of insert kit (10 inserts and 20 clamp screws)

Workpiece Material	N	Aluminum Alloys	◔	✣			◔	✣		Cutting Conditions (Guide): ● :Stable Cutting ◔ :General Cutting ✣ :Unstable Cutting

Shape	Order Number	Stock						Inserts		Clamp Screw		Use
		Coated				Carbide						
		LC15TF	MP9120			MT2010	TF15	Order Number	Pieces	Order Number	Pieces	
Strong Cutting Edge **GM** Breaker 	**K-XDGX175004PDFR-GM**					□	□	XDGX175004PDFR-GM	10	TPS3SB	20	First Recommendation High Speed, High Efficiency and High Load Machining
	K-XDGX175008PDFR-GM					□	□	XDGX175008PDFR-GM	10	TPS3SB	20	
	K-XDGX175012PDFR-GM					□	□	XDGX175012PDFR-GM	10	TPS3SB	20	
	K-XDGX175016PDFR-GM					□	□	XDGX175016PDFR-GM	10	TPS3SB	20	
	K-XDGX175020PDFR-GM					□	□	XDGX175020PDFR-GM	10	TPS3SB	20	
	K-XDGX175024PDFR-GM					□	□	XDGX175024PDFR-GM	10	TPS3SB	20	
	K-XDGX175030PDFR-GM					□	□	XDGX175030PDFR-GM	10	TPS3SB	20	
	K-XDGX175032PDFR-GM					□	□	XDGX175032PDFR-GM	10	TPS3SB	20	
	K-XDGX175040PDFR-GM					□	□	XDGX175040PDFR-GM	10	TPS3SB	20	
	K-XDGX175050PDFR-GM					□	□	XDGX175050PDFR-GM	10	TPS3SB	20	
Strong Cutting Edge Fracture Resistance Type **GM** Breaker 	**K-XDGX175004PDER-GM**		□					XDGX175004PDER-GM	10	TPS3SB	20	
	K-XDGX175008PDER-GM		□					XDGX175008PDER-GM	10	TPS3SB	20	
	K-XDGX175012PDER-GM		□					XDGX175012PDER-GM	10	TPS3SB	20	
	K-XDGX175016PDER-GM		□					XDGX175016PDER-GM	10	TPS3SB	20	
	K-XDGX175020PDER-GM		□					XDGX175020PDER-GM	10	TPS3SB	20	
	K-XDGX175024PDER-GM		□					XDGX175024PDER-GM	10	TPS3SB	20	
	K-XDGX175030PDER-GM		□					XDGX175030PDER-GM	10	TPS3SB	20	
	K-XDGX175032PDER-GM		□					XDGX175032PDER-GM	10	TPS3SB	20	
	K-XDGX175040PDER-GM		□					XDGX175040PDER-GM	10	TPS3SB	20	
	K-XDGX175050PDER-GM		□					XDGX175050PDER-GM	10	TPS3SB	20	
Low Cutting Resistance **GL** Breaker 	**K-XDGX175004PDFR-GL**	□					□	XDGX175004PDFR-GL	10	TPS3SB	20	General Machining
	K-XDGX175008PDFR-GL	□					□	XDGX175008PDFR-GL	10	TPS3SB	20	
	K-XDGX175012PDFR-GL	□					□	XDGX175012PDFR-GL	10	TPS3SB	20	
	K-XDGX175016PDFR-GL	□					□	XDGX175016PDFR-GL	10	TPS3SB	20	
	K-XDGX175020PDFR-GL	□					□	XDGX175020PDFR-GL	10	TPS3SB	20	
	K-XDGX175024PDFR-GL	□					□	XDGX175024PDFR-GL	10	TPS3SB	20	
	K-XDGX175030PDFR-GL	□					□	XDGX175030PDFR-GL	10	TPS3SB	20	
	K-XDGX175032PDFR-GL	□					□	XDGX175032PDFR-GL	10	TPS3SB	20	
	K-XDGX175040PDFR-GL	□					□	XDGX175040PDFR-GL	10	TPS3SB	20	
	K-XDGX175050PDFR-GL	□					□	XDGX175050PDFR-GL	10	TPS3SB	20	

For safety reasons, clamping screws must be replaced at the same time as inserts.

Note 1) Use the GM type insert when using with a high-speed, high-power spindle machine that is the ideal choice for AXD4000A (spindle RPM of 20000 min^{-1} or more, motor power of 80 kw or more).

Note 2) Clamp screw and wrench of AXD4000A are different from AXD4000.

Note 3) For insert dimensions, refer to page K242.

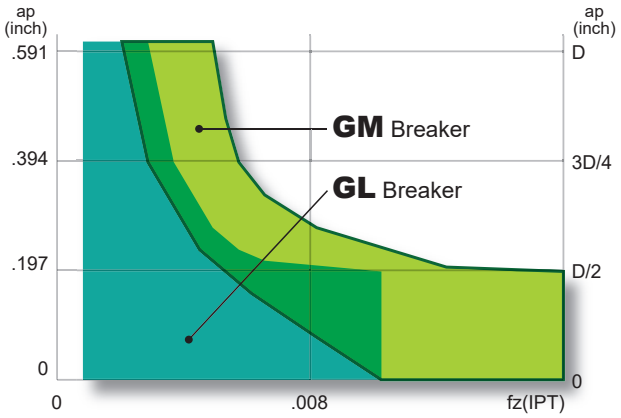
□ : Non stock, produced to order only.

Please order in the ① insert kit order number and ② insert grades.

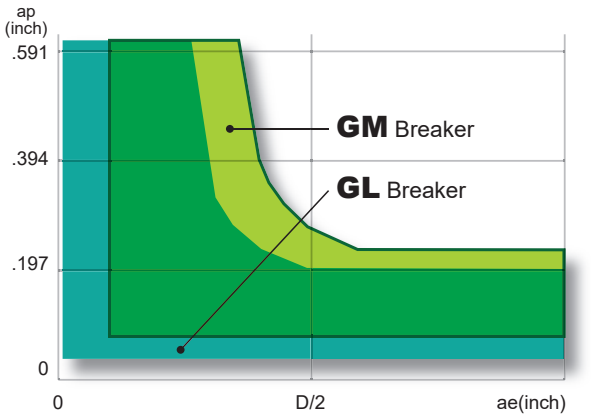
Selection of insert

It is necessary to choose the best insert according to the cutting conditions. Please select an insert from the tables below. The first recommendation for efficient, high load machining with a high-speed spindle is the GM breaker with a strong cutting edge.

Selection of insert according to the feed per tooth and the required cutting depth

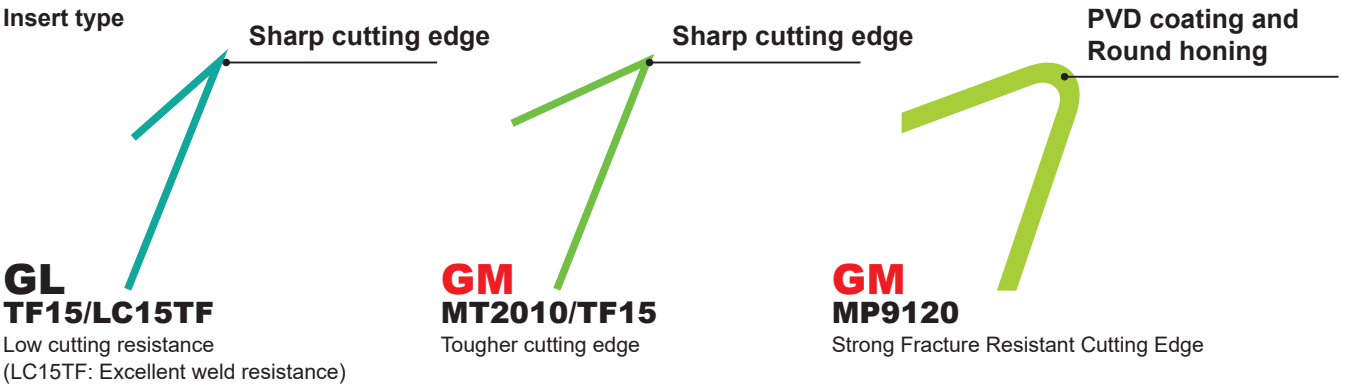


Selection of insert according to the width of cut and the required cutting depth

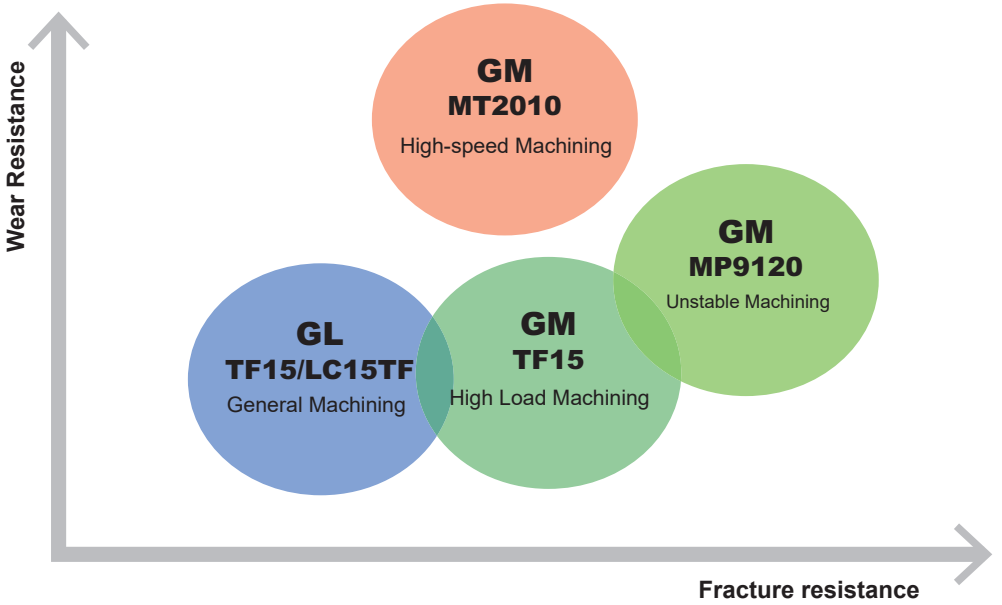


1st recommendation for machining aluminum alloys is GL breaker.
Under high-load conditions such as deep or high feed cutting, it is advisable to use the GM breaker.

Selection of insert according to cutting edge



Selection of insert according to wear resistance



RECOMMENDED CUTTING CONDITIONS

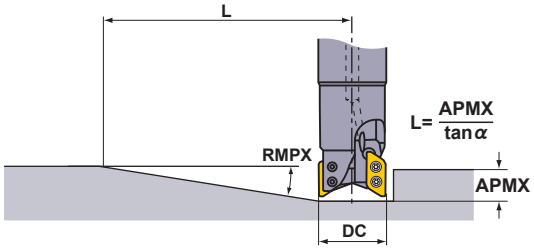
(inch)

	Workpiece Material	Properties	Grade	Breaker	Cutting Speed **vc** (SFM)	Cutting Width **ae**	Depth of Cut **ap**	Feed per Tooth (IPT)
N	Aluminum Alloys	Content Si<5%	MT2010 TF15 MP9120	**GM**	13120(6560—16500)	≤.5 DC	≤ .197	≤ .014
							≤ .394	≤ .012
							≤ .571	≤ .010
						≤.75 DC	≤ .197	≤ .012
							≤ .394	≤ .010
							≤ .571	≤ .008
						DC (Slot)	≤ .197	≤ .012
			TF15 LC15TF	**GL**	13120(6560—16500)	≤.75 DC	≤ .197	≤ .008
							≤ .394	≤ .006
							≤ .571	≤ .004
						DC (Slot)	≤ .197	≤ .008

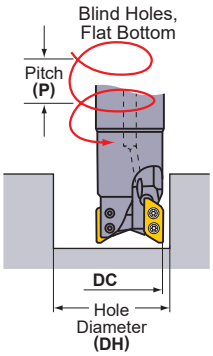
Note 1) The above cutting conditions are determined based on high workpiece materials and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.
Note 2) Note, vibrations may occur in the following conditions.
- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece materials has poor clamping rigidity or when the machine rigidity or workpiece materials rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

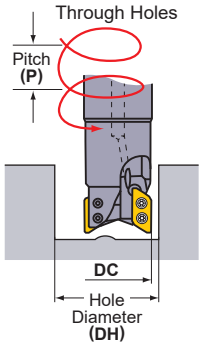
■ Ramping / Helical Milling / Drilling

● **Ramping**



● **Helical Milling**





Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

(inch)

DC inch	DC mm	Type	Insert Corner R **RE**	Ramping: Max. Ramping Angle **RMPX**	Ramping: Min. Distance *1 **L**	Helical Milling (Blind Hole, Flat Bottom): Max. Hole Diameter **DH max.**	Max. Pitch **P max.**	Min. Hole Diameter **DH min.**	Max. Pitch **P max.**	Helical Milling (Through Hole): Min. Hole Diameter **DH min.**	Max. Pitch **P max.**	Drilling
1.969	50.0	D	.016–.047	8.2°	4.252	3.811 *2	.551	3.756	.551	3.197	.551	.217
			.063–.094	7.6°	4.606	3.717 *3	.512	3.685	.512	3.197	.512	.197
			.118–.126	6.9°	5.079	3.654 *4	.472	3.622	.472	3.197	.472	.177
		E	.157	6.3°	5.314	3.591	.394	3.543	.394	3.197	.394	.154
			.197	5.8°	5.748	3.512	.354	3.496	.354	3.197	.354	.142
2.000	50.8	D	.016–.047	8.7°	4.016	3.874 *2	.551	3.819	.551	3.260	.551	.217
			.063–.094	8.2°	4.252	3.780 *3	.512	3.748	.512	3.260	.512	.197
			.118–.126	7.6°	4.606	3.717 *4	.472	3.685	.472	3.260	.472	.177
		E	.157	6.9°	4.843	3.654	.394	3.606	.394	3.260	.394	.154
			.197	6.5°	5.118	3.575	.354	3.559	.354	3.260	.354	.142

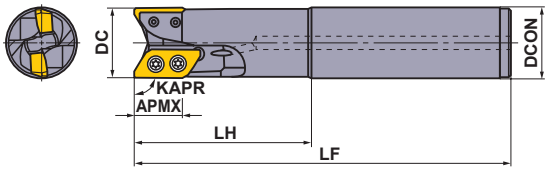
*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows: L= (maximum depth of cut APMX/tan α). Maximum depth of cut D type is .610", E type is .583".
*2 Corner radius of .047". For other corner radii, use the following formula. {(cutting edge diameter DC)—(corner radius RE)– .022"}×2
*3 Corner radius of .094". For other corner radii, use the following formula. {(cutting edge diameter DC)—(corner radius RE)– .022"}×2
*4 Corner radius of .126". For other corner radii, use the following formula. {(cutting edge diameter DC)—(corner radius RE)– .022"}×2
Note 1) The recommended ramping feed is .002 IPT or under.

MULTI FUNCTIONAL MILLING
<CUTTING FOR ALUMINUM ALLOYS>

90° KAPR

AXD7000

P M K N S H



SHANK TYPE

With Air / coolant through.

Right hand tool holder only.

(inch)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	LH	DCON	WT (lbs)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
1.250	A Type	.031-.125	**AXD7000UR202SA20SA**	●	2	6.000	2.000	1.250	.6	.827	41000	1	XDGX2270
1.250	B Type	.157-.197	**AXD7000UR202SA20SB**	●	2	6.000	2.000	1.250	.6	.803	41000	1	XDGX2270
1.500	A Type	.031-.125	**AXD7000UR242SA24SA**	●	2	7.000	3.000	1.500	1.1	.827	36000	1	XDGX2270
1.500	B Type	.157-.197	**AXD7000UR242SA24SB**	●	2	7.000	3.000	1.500	1.1	.803	36000	1	XDGX2270

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .118" and above, as corner radius increases the LF and LH dimension decreases.

Fig.1

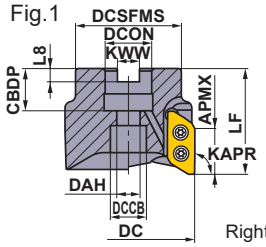
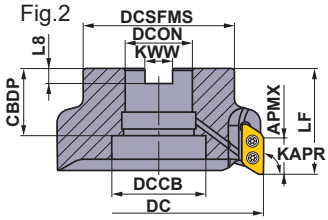


Fig.2



Right hand tool holder only.

DC	DCON	Coolant thru Set Bolt	Geometry
2.000	.750	HSCU37513H	① ②
3.000	1.250	HSCU62516H	①
4.000	1.500	HSCU75016H	①
5.000	1.500	MBAU75016H	②

With Air / coolant through.

■ ARBOR TYPE

(inch)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (ibs)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
2.000	A Type	.031-.125	**AXD7000UR0203A**	●	3	2.000	.750	.9	.827	30000	1	XDGX2270
2.000	B Type	.157-.197	**AXD7000UR0203B**	●	3	2.000	.750	.9	.803	30000	1	XDGX2270
3.000	A Type	.031-.125	**AXD7000UR0303DA**	●	3	2.500	1.250	2.6	.827	23000	1	XDGX2270
3.000	B Type	.157-.197	**AXD7000UR0303DB**	●	3	2.500	1.250	2.6	.803	23000	1	XDGX2270
4.000	A Type	.031-.125	**AXD7000UR0405EA**	●	5	2.500	1.500	5.4	.827	19000	1	XDGX2270
4.000	B Type	.157-.197	**AXD7000UR0405EB**	□	5	2.500	1.500	5.4	.803	19000	1	XDGX2270
5.000	A Type	.031-.125	**AXD7000UR0506EA**	●	6	2.500	1.500	6.6	.827	16000	2	XDGX2270
5.000	B Type	.157-.197	**AXD7000UR0506EB**	□	6	2.500	1.500	6.6	.803	16000	2	XDGX2270

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .118" and above, as corner radius increases the LF dimension decreases.
Note 4) The cutter body includes a set bolt for an arbor.

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
2.000	**AXD7000UR0203A**	.750	.748	.415	.600	.591	1.875	.313	.187	1
2.000	**AXD7000UR0203B**	.750	.748	.415	.600	.055	1.875	.313	.187	1
3.000	**AXD7000UR0303DA**	1.250	1.260	.669	1.024	.080	2.750	.500	.281	1
3.000	**AXD7000UR0303DB**	1.250	1.260	.669	1.024	.076	2.750	.500	.281	1
4.000	**AXD7000UR0405EA**	1.500	1.181	.787	1.181	.914	3.810	.625	.375	1
4.000	**AXD7000UR0405EB**	1.500	1.181	.787	1.181	.835	3.810	.625	.375	1
5.000	**AXD7000UR0506EA**	1.500	1.575	2.205	1.181	.794	3.810	.625	.375	2
5.000	**AXD7000UR0506EB**	1.500	1.575	2.205	1.181	.873	3.810	.625	.375	2

SPARE PARTS

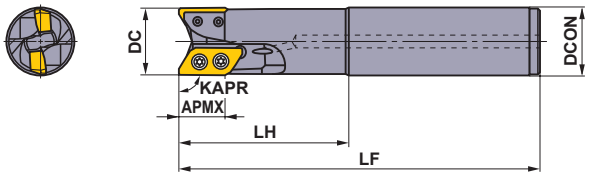
(inch)

DC	* Clamp Screw	Wrench	Anti-seize Lubricant
Shank 1.200	TS4SB	TKY15D	MK1KS
Shank 1.500 and Arbor	TS4SBL	TKY15D	MK1KS

* Clamp Torque (lbf-in) : TS4SB = 31, TS4SBL = 31

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1



Metric Standard

■ SHANK TYPE

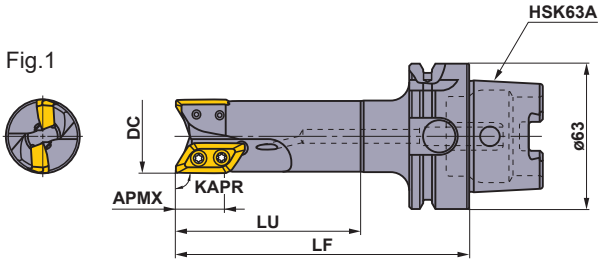
With Air / coolant through.

Right hand tool holder only.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	LH	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
32	A Type	0.8-3.2	**AXD7000R322SA32SA**	★	2	170	80	32	0.85	21.0	41000	1	XDGX2270
32	B Type	4.0-5.0	**AXD7000R322SA32SB**	★	2	170	80	32	0.85	20.4	41000	1	XDGX2270
40	A Type	0.8-3.2	**AXD7000R402SA42SA**	★	2	170	80	42	1.44	21.0	36000	1	XDGX2270
40	B Type	4.0-5.0	**AXD7000R402SA42SB**	★	2	170	80	42	1.44	20.4	36000	1	XDGX2270

Fig.1



Metric Standard

■ HSK63A SHANK TYPE

With Air / coolant through.

Right hand tool holder only.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	LH	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
32	A Type	0.8-3.2	**AXD7000R03202A-H63A**	★	2	127	80	1.06	21.0	41000	1	XDGX2270
40	A Type	0.8-3.2	**AXD7000R04002A-H63A**	★	2	132	85	1.34	21.0	36000	1	XDGX2270
50	A Type	0.8-3.2	**AXD7000R05003A-H63A**	★	3	137	90	2.40	21.0	30000	1	XDGX2270

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for insert with a corner radius of .118" and above, as corner radius increases the LF and LH dimension decreases.

SPARE PARTS

(mm)

DC	* 		
	Clamp Screw	Wrench	Anti-seize Lubricant
32	TS4SB	TKY15D	MK1KS
40, 50	TS4SBL	TKY15D	MK1KS

* Clamp Torque (lbf-in) : TS4SB=31, TS4SBL=31

★ : Stocked in Japan

Fig.1

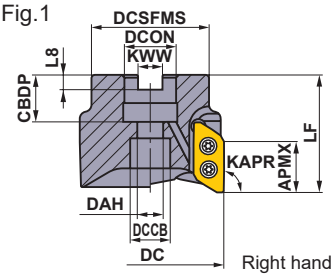
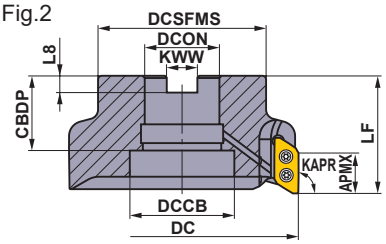
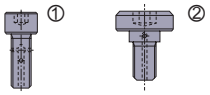


Fig.2



Right hand tool holder only.

DC		Set Bolt	Geometry	
mm	inch			
ϕ50, ϕ63		HSC10030H	①	
ϕ80	ϕ80	HSC12035H		
ϕ100	ϕ100	HSC16040H		
ϕ125	ϕ125	MBA20040H	②	With Air / coolant through.

Metric Standard

For inch arbors

■ ARBOR TYPE

DCON = inch size, With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
80	A Type	0.8-3.2	**AXD7000R08004CA**	★	4	63	25.4	1.2	21.0	23000	1	XDGX2270
80	B Type	4.0-5.0	**AXD7000R08004CB**	★	4	63	25.4	1.2	20.4	23000	1	XDGX2270
100	A Type	0.8-3.2	**AXD7000R10005DA**	★	5	63	31.75	1.8	21.0	19000	1	XDGX2270
100	B Type	4.0-5.0	**AXD7000R10005DB**	★	5	63	31.75	1.8	20.4	19000	1	XDGX2270
125	A Type	0.8-3.2	**AXD7000R12506EA**	★	6	63	38.1	2.7	21.0	16000	2	XDGX2270
125	B Type	4.0-5.0	**AXD7000R12506EB**	★	6	63	38.1	2.7	20.4	16000	2	XDGX2270

Metric Standard

For metric arbors

DCON = mm size, With Air / coolant through.

(mm)

DC	Type	Insert Corner Radius RE	Order Number	Stock R	Number of Teeth	LF	DCON	WT (kg)	APMX	Max. Spindle Speed (min^{-1})	Fig.	Insert Type
50	A Type	0.8-3.2	**AXD7000-050A03RA**	★	3	50	22	0.4	21.0	30000	1	XDGX2270
50	B Type	4.0-5.0	**AXD7000-050A03RB**	★	3	50	22	0.4	20.4	30000	1	XDGX2270
63	A Type	0.8-3.2	**AXD7000-063A03RA**	★	3	50	22	0.5	21.0	25000	1	XDGX2270
63	B Type	4.0-5.0	**AXD7000-063A03RB**	★	3	50	22	0.5	20.4	25000	1	XDGX2270
80	A Type	0.8-3.2	**AXD7000-080A04RA**	★	4	63	27	1.2	21.0	23000	1	XDGX2270
80	B Type	4.0-5.0	**AXD7000-080A04RB**	★	4	63	27	1.2	20.4	23000	1	XDGX2270
100	A Type	0.8-3.2	**AXD7000-100A05RA**	★	5	63	32	1.8	21.0	19000	1	XDGX2270
100	B Type	4.0-5.0	**AXD7000-100A05RB**	★	5	63	32	1.8	20.4	19000	1	XDGX2270
125	A Type	0.8-3.2	**AXD7000-125B06RA**	★	6	63	40	2.7	21.0	16000	2	XDGX2270
125	B Type	4.0-5.0	**AXD7000-125B06RB**	★	6	63	40	2.7	20.4	16000	2	XDGX2270

Note 1) The maximum spindle speeds are set to ensure tool and insert stability.
Before operating the tool read the operation guidance on page K256.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
Note 3) Note for inserts with a corner radius of .118" and above, as corner radius increases the LF dimension decreases.
Note 4) Set bolt not included.

MOUNTING DIMENSIONS

(mm)

DC	Tool Holder Type	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
50	**AXD7000-050A**	22	20	11.0	17	20.72	45	10.4	6.3	1
63	**AXD7000-063A**	22	20	11.0	17	20.72	50	10.4	6.3	1
80	**AXD7000R080**	25.4	26	13.0	20	26.72	63	9.5	6.0	1
80	**AXD7000-080A**	27	23	13.0	20	26.72	63	12.4	7.0	1
100	**AXD7000R100**	31.75	32	17.0	26	18.72	70	12.7	8.0	1
100	**AXD7000-100A**	32	26	17.0	26	24.72	70	14.4	8.0	1
125	**AXD7000R125**	38.1	40	—	56	20.72	90	15.9	10.0	2
125	**AXD7000-125B**	40	40	—	56	20.72	90	16.4	9.0	2

SPARE PARTS

(mm)

* 		
Clamp Screw	Wrench	Anti-seize Lubricant
TS4SBL	TKY15D	MK1KS

* Clamp Torque (N • m) : TS4SBL=3.5

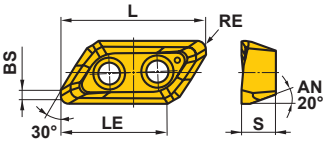
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS

Workpiece Material			LC15TF	MP6120	MP9120	TF15
	P	Steel	✣	◐	✣	◐
	N	Aluminum Alloys	✣		✣	◐
	S	Titanium Alloys			◐	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

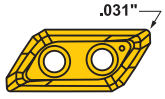
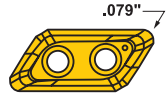
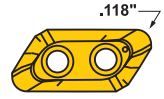
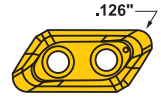
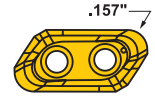
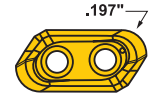
Edge Preparation :
F : Sharp Edge **E** : Round

Shape	Order Number	Class	Edge Preparation	Stock: Coated LC15TF	Stock: Coated MP6120	Stock: Coated MP9120	Stock: Carbide TF15	Dimensions (inch) L	LE	S	BS	RE *	Geometry
	XDGX227008PDFR-GL	G	F	★			●	1.181	.850	.276	.079	.031	
	XDGX227016PDFR-GL	G	F	★			●	1.181	.854	.276	.047	.063	
	XDGX227020PDFR-GL	G	F	★			●	1.181	.854	.276	.031	.079	
	XDGX227024PDFR-GL	G	F	□			●	1.181	.854	.276	.031	.094	
	XDGX227030PDFR-GL	G	F	★			●	1.134	.835	.276	.031	.118	
	XDGX227032PDFR-GL	G	F	★			●	1.134	.835	.276	.024	.125	
	XDGX227040PDFR-GL	G	F	★			●	1.083	.811	.276	.035	.157	
	XDGX227050PDFR-GL	G	F	★			●	1.063	.799	.276	.016	.197	
	XDGX227008PDER-GLA	G	E		●	●		1.181	.854	.276	.079	.031	
	XDGX227016PDER-GLA	G	E		●	●		1.181	.854	.276	.047	.063	
	XDGX227020PDER-GLA	G	E		●	●		1.181	.854	.276	.031	.079	
	XDGX227024PDER-GLA	G	E		●	●		1.181	.854	.276	.031	.094	
	XDGX227030PDER-GLA	G	E		●	●		1.134	.831	.276	.031	.118	
	XDGX227032PDER-GLA	G	E		●	●		1.134	.831	.276	.024	.125	
	XDGX227040PDER-GLA	G	E		●	●		1.083	.803	.276	.035	.157	
	XDGX227050PDER-GLA	G	E		●	●		1.063	.795	.276	.016	.197	

* GLA breaker corner R (RE) is designed with almost the same corner R as the machined corner R of a workpiece.
* Be aware that the corner R(RE) has a different shape than the machined workpiece R.

■ COMBINATION OF HOLDER AND INSERT CORNER RADIUS

Holder	A Type Holder	B Type Holder
	(Inch) AXD7000UR○○○○○○○○A AXD7000UR○○○○○○A AXD7000UR○○○○○A (Metric) AXD7000R○○○○○○○○A AXD7000R○○○○○○A AXD7000R-○○○○○○A AXD7000R○○○○○○-H63A	(Inch) AXD7000UR○○○○○○○○B AXD7000UR○○○○○○B AXD7000UR○○○○○B (Metric) AXD7000R○○○○○○○○B AXD7000R○○○○○○B AXD7000R-○○○○○○B

Insert Corner Radius (RE)	.031"	.063"	.079"	.118"	.126"	.157"	.197"
							
	XDGX 227008PDFR-GL	XDGX 227016PDFR-GL	XDGX 227020PDFR-GL	XDGX 227030PDFR-GL	XDGX 227032PDFR-GL	XDGX 227040PDFR-GL	XDGX 227050PDFR-GL

Note 1) Not interchangeable with the corresponding inserts of the A type and B type holders.

● : USA Stock ★ : Stocked in Japan □ : Made to Order
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

■Cutting Speed

(inch)

Workpiece Material			Grade	Breaker	vc (SFM)
P	Mild Steel	≤180HB	MP6120	GLA	655 (490—720)
	Carbon Steel Alloy Steel	180—280HB	MP6120	GLA	655 (490—720)
N	Aluminum Alloys	Si<5%	LC15TF	GL	3280 (655—9840)
			TF15	GL	3280 (655—9840)
		5%≤Si≤10% Si>10%	LC15TF	GL	3280 (655—9840)
S	Titanium Alloys	—	MP9120	GLA	130 (100—195)

■Feed per Tooth

(inch)

Workpiece Material			Breaker	ae	ap	Feed per Tooth (IPT) Cutting Edge Diameter DC 1.250" 32 mm	1.500" 40 mm	2.000"—3.000" 50—80 mm	4.000",5.000" 100,125 mm
P	Mild Steel	≤180HB	GLA	≤ .25 DC	≤ .197	≤ .007	≤ .008	≤ .008	≤ .008
					≤ .394	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .591	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .987	≤ .004	≤ .005	≤ .005	—
				≤ .5 DC	≤ .197	≤ .007	≤ .008	≤ .008	≤ .008
					≤ .394	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .591	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .987	≤ .004	≤ .005	≤ .005	—
				≤ .75 DC	≤ .197	≤ .006	≤ .006	≤ .007	≤ .007
					≤ .394	≤ .005	≤ .005	≤ .006	≤ .006
					≤ .591	≤ .004	≤ .004	≤ .005	≤ .005
				DC (Slot)	≤ .197	≤ .005	≤ .006	≤ .007	≤ .007
					≤ .394	≤ .004	≤ .005	≤ .006	≤ .006
	Carbon Steel Alloy Steel	180—280HB	GLA	≤ .25 DC	≤ .197	≤ .007	≤ .008	≤ .008	≤ .008
					≤ .394	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .591	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .987	≤ .004	≤ .005	≤ .005	—
				≤ .5 DC	≤ .197	≤ .007	≤ .008	≤ .008	≤ .008
					≤ .394	≤ .006	≤ .007	≤ .007	≤ .007
					≤ .591	≤ .005	≤ .006	≤ .006	≤ .006
					≤ .987	≤ .004	≤ .005	≤ .005	—
				≤ .75 DC	≤ .197	≤ .006	≤ .006	≤ .007	≤ .007
					≤ .394	≤ .005	≤ .005	≤ .006	≤ .006
					≤ .591	≤ .004	≤ .004	≤ .005	≤ .005
				DC (Slot)	≤ .197	≤ .005	≤ .006	≤ .007	≤ .007
					≤ .394	≤ .004	≤ .005	≤ .006	≤ .006

Note 1) The above cutting conditions are determined based on high workpiece material and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.

Note 2) Note, vibrations may occur in the following conditions.

- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece has poor clamping rigidity or when the machine rigidity or workpiece rigidity is low, vibrations can occur easily, if so, reduce the cutting conditions.

■Feed per Tooth

(inch)

Workpiece Material		Breaker	ae	ap	Feed per Tooth (IPT) Cutting Edge Diameter **DC** 1.250" 32 mm	1.500" 40 mm	2.000"—3.000" 50—80 mm	4.000",5.000" 100,125 mm
N	Aluminum Alloys	Si<5%	GL	≤ .25 DC	≤ .197	≤ .014	≤ .016	≤ .016	≤ .016
					≤ .394	≤ .012	≤ .014	≤ .014	≤ .014
					≤ .591	≤ .010	≤ .012	≤ .012	≤ .012
					≤ .987	≤ .008	≤ .010	≤ .010	≤ .010
				≤ .5 DC	≤ .197	≤ .014	≤ .014	≤ .016	≤ .016
					≤ .394	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .591	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .987	≤ .008	≤ .008	≤ .010	≤ .010
				≤ .75 DC	≤ .197	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .394	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .591	≤ .008	≤ .008	≤ .010	≤ .010
					≤ .987	≤ .006	≤ .006	≤ .008	≤ .008
				DC (Slot)	≤ .197	≤ .010	≤ .012	≤ .014	≤ .014
					≤ .394	≤ .008	≤ .010	≤ .012	≤ .012
					≤ .591	≤ .006	≤ .008	≤ .010	≤ .010
					≤ .987	≤ .004	≤ .006	≤ .008	≤ .008
		5%≤Si≤10% Si>10%	GL	≤ .25 DC	≤ .197	≤ .014	≤ .016	≤ .016	≤ .016
					≤ .394	≤ .012	≤ .014	≤ .014	≤ .014
					≤ .591	≤ .010	≤ .012	≤ .012	≤ .012
					≤ .987	≤ .008	≤ .010	≤ .010	≤ .010
				≤ .5 DC	≤ .197	≤ .014	≤ .014	≤ .016	≤ .016
					≤ .394	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .591	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .987	≤ .008	≤ .008	≤ .010	≤ .010
				≤ .75 DC	≤ .197	≤ .012	≤ .012	≤ .014	≤ .014
					≤ .394	≤ .010	≤ .010	≤ .012	≤ .012
					≤ .591	≤ .008	≤ .008	≤ .010	≤ .010
					≤ .987	≤ .006	≤ .006	≤ .008	≤ .008
				DC (Slot)	≤ .197	≤ .010	≤ .012	≤ .014	≤ .014
					≤ .394	≤ .008	≤ .010	≤ .012	≤ .012
					≤ .591	≤ .006	≤ .008	≤ .010	≤ .010
					≤ .987	≤ .004	≤ .006	≤ .008	≤ .008
S	Titanium Alloys	—	GLA	≤ .25 DC	≤ .197	≤ .004	≤ .005	≤ .005	—
					≤ .394	≤ .004	≤ .005	≤ .005	—
					≤ .591	≤ .004	≤ .005	≤ .005	—
					≤ .987	≤ .004	≤ .005	≤ .005	—
				≤ .5 DC	≤ .197	≤ .004	≤ .005	≤ .005	—
					≤ .394	≤ .004	≤ .005	≤ .005	—
					≤ .591	≤ .004	≤ .005	≤ .005	—
					≤ .987	—	≤ .004	≤ .004	—
				≤ .75 DC	≤ .197	≤ .004	≤ .005	≤ .005	—
					≤ .394	≤ .004	≤ .005	≤ .005	—
					≤ .591	≤ .004	≤ .005	≤ .005	—
					≤ .987	—	≤ .004	≤ .004	—
				DC (Slot)	≤ .197	≤ .003	≤ .003	≤ .003	—
					≤ .394	≤ .002	≤ .003	≤ .003	—

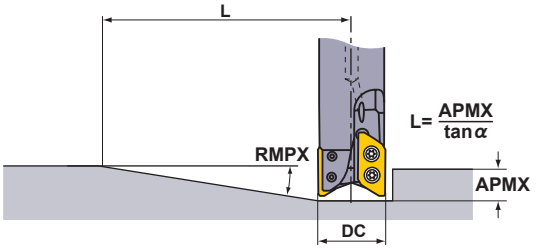
Note 1) The above cutting conditions are determined based on high workpiece material and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.

Note 2) Note, vibrations may occur in the following conditions.

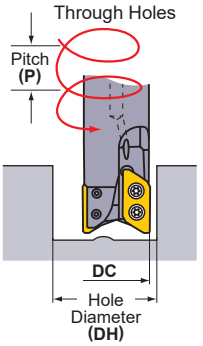
- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece has poor clamping rigidity or when the machine rigidity or workpiece rigidity is low, vibrations can occur easily, if so, reduce the cutting conditions.

■Ramping / Helical Cutting (Aluminum Alloys)

Ramping



Helical Cutting



(inch)

Type	DC	RE	Ramping	
			RMPX	L *1
A Type	1.250	.031—.094	20°	2.272
		.118—.126	19.3°	2.362
	1.500	.031—.094	14.1°	3.292
		.118—.126	13.3°	3.498
	2.000	.031—.094	9.8°	4.788
		.118—.126	9.1°	5.163
	3.000	.031—.094	5.3°	8.915
		.118—.126	4.9°	9.647
	4.000	.031—.094	4.2°	11.262
		.118—.126	3.8°	12.451
	5.000	.031—.094	2.5°	18.941
		.118—.126	2.2°	21.527
B Type	1.250	.157—.197	18°	2.471
	1.500	.157—.197	11°	4.131
	2.000	.157—.197	8°	5.714
	3.000	.157—.197	4°	11.483
	4.000	.157—.197	3°	15.322
	5.000	.157—.197	2°	22.995

(inch)

Type	DC	RE	Helical Cutting	
			DH min.	P max.
A Type	1.250	.031—.094	1.535	.315
		.118—.126	1.535	.315
	1.500	.031—.094	2.047	.394
		.118—.126	2.047	.394
	2.000	.031—.094	3.031	.551
		.118—.126	3.031	.472
	3.000	.031—.094	5.000	.551
		.118—.126	5.000	.512
	4.000	.031—.094	6.969	.669
		.118—.126	6.969	.591
	5.000	.031—.094	9.016	.512
		.118—.126	9.016	.472
B Type	1.250	.157	1.535	.276
		.197	1.535	.276
	1.500	.157	2.047	.315
		.197	2.047	.315
	2.000	.157	3.031	.433
		.197	3.031	.433
	3.000	.157	5.000	.433
		.197	5.000	.433
	4.000	.157	6.969	.472
		.197	6.969	.472
	5.000	.157	9.016	.433
		.197	9.016	.433

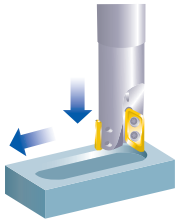
Note 1) The recommended ramping feed is .002 IPT or under.
*1 L (Max. Depth of Cut =.591" / tan α). Cutters' moving distance until depth of cut reaches APMX at a maximum ramping angle.
Maximum depth of cut A type is .827", B type is .803".
*2 The maximum diameter when machining a blind hole with a flat face using a corner radius of .031" for A type and .157" for B type.
Other than that, find with the below formula.
{(cutting edge diameter DC)—(corner radius)—0.3)}×2
*3 The minimum diameter when machining a blind hole with a flat face using a corner radius of .031" for A type and .157" for B type.
Other than that, find with the below formula.
{(cutting edge diameter DC)—(corner radius)—(Width of wiper edge BS)—0.1)}×2

■Max. Drilling Depth (Aluminum Alloys)

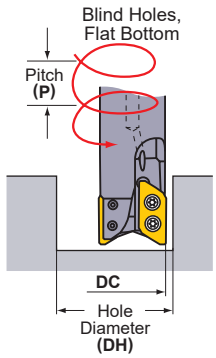
(inch)

Type	RE	Max. Drilling Depth
A Type	.031—.094	.197
	.118, .126	.177
B Type	.157	.157
	.197	.138

AXD7000 can be effectively used for pocket machining without the need for a prepared hole.



Helical Cutting



(inch)

Type	DC	RE	BS	Helical Cutting (Blind Hole, Flat Bottom)			
				DH max. ∗2	P max.	DH min. ∗3	P max.
A Type	1.250"	.031	.079	2.417	.787	2.276	.787
		.063	.047	2.354	.748	2.276	.748
		.079	.031	2.323	.709	2.276	.748
		.094	.016	2.291	.709	2.276	.748
		.118	.031	2.244	.669	2.193	.669
		.125	.024	2.228	.669	2.193	.669
	1.500"	.031	.079	2.902	.787	2.776	.787
		.063	.047	2.839	.748	2.776	.748
		.079	.031	2.807	.709	2.776	.748
		.094	.016	2.776	.709	2.776	.748
		.118	.031	2.728	.669	2.693	.669
		.125	.024	2.713	.669	2.693	.669
	2.000"	.031	.079	3.902	.787	3.768	.787
		.063	.047	3.839	.748	3.768	.748
		.079	.031	3.807	.709	3.768	.748
		.094	.016	3.776	.709	3.768	.748
		.118	.031	3.728	.669	3.768	.669
		.125	.024	3.713	.669	3.687	.669
	3.000"	.031	.079	5.902	.787	5.768	.787
		.063	.047	5.839	.748	5.768	.748
		.079	.031	5.807	.709	5.768	.748
		.094	.016	5.776	.709	5.768	.748
		.118	.031	5.728	.669	5.686	.669
		.125	.024	5.713	.669	5.686	.669
	4.000"	.031	.079	7.902	.787	7.768	.787
		.063	.047	7.839	.748	7.768	.748
		.079	.031	7.807	.709	7.768	.748
		.094	.016	7.776	.709	7.768	.748
		.118	.031	7.728	.669	7.686	.669
		.125	.024	7.713	.669	7.686	.669
	5.000"	.031	.079	9.902	.669	9.767	.630
		.063	.047	9.839	.630	9.767	.630
		.079	.031	9.807	.630	9.767	.630
		.094	.016	9.776	.630	9.767	.630
		.118	.031	9.728	.551	9.685	.551
		.125	.024	9.713	.551	9.685	.551
B Type	1.250"	.157	.035	2.165	.630	2.106	.630
		.197	.016	2.087	.591	2.070	.591
	1.500"	.157	.035	2.650	.630	2.605	.630
		.197	.016	2.571	.591	2.569	.591
	2.000"	.157	.035	3.650	.630	3.599	.630
		.197	.016	3.571	.591	3.563	.591
	3.000"	.157	.035	5.650	.551	5.597	.551
		.197	.016	5.571	.551	5.561	.551
	4.000"	.157	.035	7.650	.591	7.597	.591
		.197	.016	7.571	.591	7.561	.591
	5.000"	.157	.035	9.650	.472	9.597	.472
		.197	.016	9.571	.472	9.560	.472

∗1 L (Max. Depth of Cut =.591" / tan α). Cutters' moving distance until depth of cut reaches APMX at a maximum ramping angle. Maximum depth of cut A type is .827", B type is .803".

∗2 The maximum diameter when machining a blind hole with a flat face using a corner radius of .031" for A type and .157" for B type. Other than that, find with the below formula.
{(cutting edge diameter DC)−(corner radius)−0.3)}×2

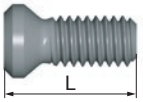
∗3 The minimum diameter when machining a blind hole with a flat face using a corner radius of .031" for A type and .157" for B type. Other than that, find with the below formula.
{(cutting edge diameter DC)−(corner radius)−(Width of wiper edge BS)−0.1)}×2

Note 1) The recommended ramping feed is .002 IPT or under.

OPERATIONAL GUIDANCE

Only use the inserts and parts provided by Mitsubishi Materials with this tool. Use of the correct insert clamp screws is especially important to ensure overall tool safety. Do not use damaged or worn clamp screws.

Type	AXD4000		AXD7000	
Cutting Edge Diameter **DC**(inch)	ø.787"	ø1.000"–ø5.000"	ø1.250"	ø1.500"–ø5.000"
Clamp Screw Number	TS3SBS	TS3SB	TS4SB	TS4SBL
Overall Length **L**(inch)	.256	.315	.353	.413
Clamp Torque (lbf-in)	13	13	31	31



When tightening the clamp screws, follow the order in Figure 1.
The maximum allowable spindle speeds are shown in Table 1.
Ensure that the cutter operates under the maximum allowable spindle speed.
The maximum allowable spindle speeds for safety purposes are determined in accordance with ISO15641 (Milling Cutters for high speed machining–Safety requirements).

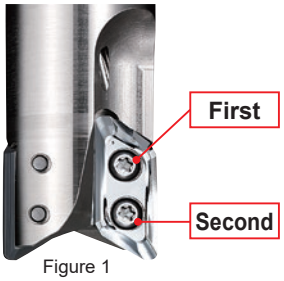


Figure 1

(Table 1) Maximum allowable spindle speed

AXD4000

Cutting Edge Diameter **DC**(inch)	ø.787"	ø1.000"	ø1.250"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Allowable Spindle Speed (min^{-1})	15000	49000	48000	41000	35000	30000	27000	23000	20000

AXD7000

Cutting Edge Diameter **DC**(inch)	ø1.250"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Allowable Spindle Speed (min^{-1})	41000	36000	30000	25000	23000	19000	16000

Even when operating under the maximum allowable spindle speed, if the spindle speed is equal to or higher than the values shown in table 2, it is recommended that the balance quality (with the arbor or milling chuck) conforms to G6.3 or better based on ISO1940. It is also recommended to replace the clamp screws with new ones when changing inserts. Furthermore, ensure to use machines that are provided with safety measures in case of cutter breakage.
∗ The balance quality of the holder (without inserts and clamp screws) is G6.3 or better at 10000 min^{-1}.

(Table 2) Maximum spindle speed when balancing with the arbor or milling chuck has not been achieved

AXD4000

Cutting Edge Diameter **DC**(inch)	ø.787"	ø1.000"	ø1.250"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Spindle Speed (min^{-1})	15000	12000	9500	7600	6000	4800	3800	3000	2400

AXD7000

Cutting Edge Diameter **DC**(inch)	ø1.250"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Spindle Speed (min^{-1})	9500	7600	6000	4800	3800	3000	2400

When setting the spindle speed, take into consideration the maximum allowable spindle speed of the arbor or milling chuck.
Use the specified set bolt when using the arbor type with through coolant.
The inserts have sharp cutting edges and handling them with bare hands may cause injuries. Always wear safety gloves when handling the indexable inserts.

Memo

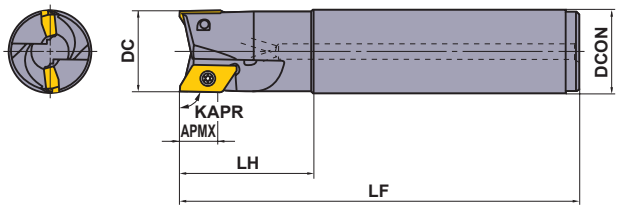
MULTI FUNCTIONAL MILLING

<FOR ALUMINUM ALLOY AND DIFFICULT-TO-CUT MATERIAL CUTTING>

90° KAPR

BXD4000

P M K N S H



STRAIGHT SHANK TYPE

Right hand tool holder only.

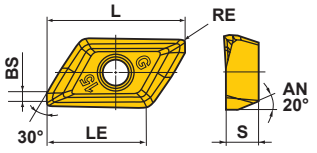
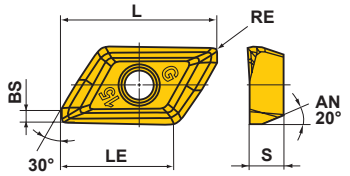
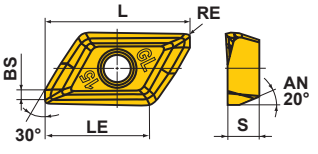
Type	RE	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	LF	DCON	LH	APMX (inch)	RMPX *2	Max. Spindle Speed (min-1) Balance Unknown	G40 *1 Balanced	*1 Insert Screw	Wrench
A Holders	.016 | .125	BXD4000R162SA12S	●	2	1.000	6.000	.750	2.000	.591	20°	12000	38000	TS4SL	TKY15W
		BXD4000R162SA16S	●	2	1.000	6.000	1.000	2.000	.591	20°	12000	38000	TS4SL	TKY15W
		BXD4000R202SA20S	●	2	1.250	6.000	1.250	2.000	.591	13°	9500	33000	TS4SL	TKY15W
		BXD4000R243SA20S	●	3	1.500	6.000	1.250	2.000	.591	10°	7600	29000	TS4SL	TKY15W
B Holders	.157 | .197	BXD4000R162SA12SB	●	2	1.000	6.000	.750	2.000	.591	20°	12000	38000	TS4SL	TKY15W
		BXD4000R162SA16SB	●	2	1.000	6.000	1.000	2.000	.591	20°	12000	38000	TS4SL	TKY15W
		BXD4000R202SA20SB	●	2	1.250	6.000	1.250	2.000	.591	13°	9500	33000	TS4SL	TKY15W
		BXD4000R243SA20SB	●	3	1.500	6.000	1.250	2.000	.591	10°	7600	29000	TS4SL	TKY15W

*1 Clamp Torque (lbf-in) : TS4SL=35 *2 RMPX : Max. Ramping Angle

Note 1) You need to balance the tool and holder together so that it confirms to G40 or higher standards.

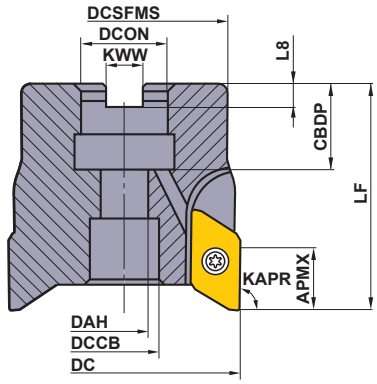
INSERTS WITH BREAKER

Workpiece Material		
P	Steel	● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
M	Stainless Steel	
K	Cast Iron	**Cutting Conditions (Guide) :**
N	Non-Ferrous Metal	**Edge Preparation :**
S	Heat resistant Alloys, Titanium Alloys	**E** : Round **F** : Sharp Edge

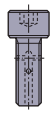
Shape	Order Number	Class	Edge Preparation	Coated VP15TF	Coated LC15TF	Carbide TF15	Dimensions (inch) L	LE	S	BS	RE	Geometry
G breaker	XDGT1550PDFR-G04	G	F		★	●	.866	.610	.197	.059	.016	
	XDGT1550PDFR-G08	G	F		★	●	.866	.610	.197	.043	.031	
	XDGT1550PDFR-G12	G	F		★	★	.866	.610	.197	.028	.047	
	XDGT1550PDFR-G16	G	F		★	●	.866	.614	.197	.016	.063	
	XDGT1550PDFR-G20	G	F		★	●	.854	.614	.197	.008	.079	
	XDGT1550PDFR-G30	G	F		★	●	.787	.583	.197	.024	.118	
	XDGT1550PDFR-G32	G	F		★	●	.787	.583	.197	.016	.126	
	XDGT1550PDFR-G40	G	F		★	●	.748	.567	.197	.020	.157	
	XDGT1550PDFR-G50	G	F		★	●	.709	.551	.197	.016	.197	
	XDGT1550PDER-G04	G	E	●			.866	.610	.197	.059	.016	
	XDGT1550PDER-G08	G	E	●			.866	.610	.197	.043	.031	
	XDGT1550PDER-G12	G	E	★			.866	.610	.197	.028	.047	
	XDGT1550PDER-G16	G	E	●			.866	.614	.197	.016	.063	
	XDGT1550PDER-G20	G	E	●			.854	.614	.197	.008	.079	
	XDGT1550PDER-G30	G	E	●			.787	.583	.197	.024	.118	
	XDGT1550PDER-G32	G	E	●			.787	.583	.197	.016	.126	
	XDGT1550PDER-G40	G	E	●			.748	.567	.197	.020	.157	
	XDGT1550PDER-G50	G	E	●			.709	.551	.197	.016	.197	
Lower Cutting Resistance Type	XDGT1550PDFR-GL04	G	F			●	.866	.610	.197	.059	.016	
	XDGT1550PDFR-GL08	G	F			●	.866	.610	.197	.043	.031	

● : USA Stock ★ : Stocked in Japan

<10 inserts in one case>



DC	Coolant thru Set Bolt
1.5	HSCU25014H
2	HSCU37513H
2.5	HSCU37513H
3	HSCU50014H
4	HSCU75016H



Right hand tool holder only.

■ ARBOR TYPE

Type	RE	Order Number	Stock	Number of Teeth	Dimensions (inch)							APMX	*2 RMPX	Max. Spindle Speed (min^{-1})		*1	
			R		DC	LF	DCON	CBDP	DAH	KWW	L8	(inch)		Balance Unknown	G40 Balanced	Insert Screw	Wrench
A Holders	.016 – .125	**BXD4000R1503**	●	3	1.500	1.969	.500	.630	.276	.250	.156	.591	10°	7600	29000	TS4SL	TKY15W
		BXD4000R0203	●	3	2.000	1.969	.750	.748	.415	.313	.187	.591	7°	6000	24000	TS4SL	TKY15W
		BXD4000R0204	●	4	2.000	1.969	.750	.748	.415	.313	.187	.591	7°	6000	24000	TS4SL	TKY15W
		BXD4000R2504	●	4	2.500	1.969	.750	.748	.415	.313	.187	.591	5°	4800	21000	TS4SL	TKY15W
		BXD4000R0305	●	5	3.000	1.969	1.000	1.024	.539	.375	.219	.591	3°	3800	19000	TS4SL	TKY15W
		BXD4000R0406	●	6	4.000	2.480	1.500	1.181	.787	.625	.375	.591	3°	3000	16000	TS4SL	TKY15W
B Holders	.157 – .197	**BXD4000R1503B**	●	3	1.500	1.969	.500	.630	.276	.250	.156	.591	10°	7600	29000	TS4SL	TKY15W
		BXD4000R0203B	●	3	2.000	1.969	.750	.748	.415	.313	.187	.591	7°	6000	24000	TS4SL	TKY15W
		BXD4000R0204B	●	4	2.000	1.969	.750	.748	.415	.313	.187	.591	7°	6000	24000	TS4SL	TKY15W
		BXD4000R2504B	●	4	2.500	1.969	.750	.748	.415	.313	.187	.591	5°	4800	21000	TS4SL	TKY15W
		BXD4000R0305B	●	5	3.000	1.969	1.000	1.024	.539	.375	.219	.591	3°	3800	19000	TS4SL	TKY15W
		BXD4000R0406B	●	6	4.000	2.480	1.500	1.181	.787	.625	.375	.591	3°	3000	16000	TS4SL	TKY15W

*1 Clamp Torque (lbf-in) : TS4SL=35 *2 RMPX : Max. Ramping Angle
Note 1) You need to balance the tool and holder together so that it confirms to G40 or higher standards.
Note 2) The cutter body includes a set bolt for an arbor.

■ COMBINATION OF HOLDER AND INSERT CORNER RADIUS

Holder	~A Holder							~B Holder	
	BXD4000R○○○○○○○A							BXD4000R○○○○○○○B	
Insert Corner Radius (RE)	.016"	.031"	.047"	.063"	.079"	.118"	.126"	.157"	.197"
	XDGT.....-G04	XDGT.....-G08	XDGT.....-G12	XDGT.....-G16	XDGT.....-G20	XDGT.....-G30	XDGT.....-G32	XDGT.....-G40	XDGT.....-G50

Note 1) Other combinations of holder and insert corner R are not acceptable.

RECOMMENDED CUTTING CONDITIONS

	Workpiece Material	Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (IPT)
P	Mild Steel	≤180HB	**VP15TF**	590 (490—655)	.006 (.004—.008)
	Carbon Steel Alloy Steel	≤280HB	**VP15TF**	490 (390—655)	.006 (.004—.008)
		280—350HB	**VP15TF**	460 (390—525)	.006 (.004—.008)
M	Stainless Steel	≤270HB	**VP15TF**	460 (390—525)	.008 (.004—.012)
N	Aluminum Alloys	—	**TF15**	3280 (655—9840)	.012 (.004—.020)
S	Titanium Alloys	—	**VP15TF**	130 (100—195)	.004 (.004—.012)
	Heat Resistant Alloys	—	**VP15TF**	100 (65—130)	.006 (.004—.008)

- The figure above are the guidelines for conditions of general cutting by a standard type tool.
- The conditions vary depending on machine strength, the length of overhang, and work clamping conditions.
- Please adjust table feed when using long shank type tool.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1
ø40

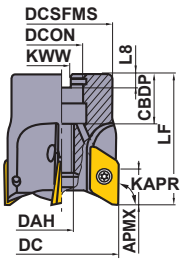


Fig.2
ø50
ø63
ø80
ø100

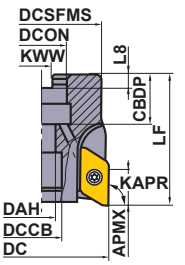
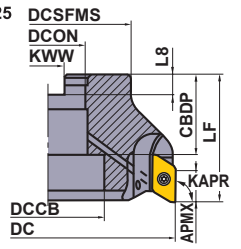
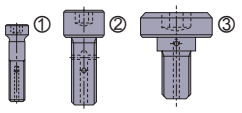


Fig.3
ø125



Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ40	HFF08043H	①
ϕ50, ϕ63	HSC10030H	②
ϕ80	HSC12035H	②
ϕ100	HSC16040H	②
ϕ125	MBA20040H	③



With Air / coolant through.

Metric Standard

For metric arbors

■ ARBOR TYPE

Type	RE	Order Number	Stock	Number of Teeth	Dimensions (mm)									WT	APMX	*2 RMPX	Max. Spindle Speed	Fig.	*1 Insert Screw	Wrench	Insert
			R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB	(kg)	(mm)		(min^{-1})				
A Holders	0.4 – 3.2	BXD4000-040A03RA	★	3	40	50	16	18	8.5	32	8.4	5.6	—	0.3	15	9°	29000	1	TS4SL	TKY15W	XDGT1550 PD○R-G○○
		BXD4000-050A04RA	★	4	50	50	22	20	11	41	10.4	6.3	17	0.4	15	6°	24000	2	TS4SL	TKY15W	
		BXD4000-063A05RA	★	5	63	50	22	20	11	50	10.4	6.3	17	0.7	15	5°	21000	2	TS4SL	TKY15W	
		BXD4000-080A05RA	★	5	80	50	27	23	13	60	12.4	7	20	1.1	15	3°	19000	2	TS4SL	TKY15W	XDGT1550 PD○R-GL○○
		BXD4000-100A06RA	★	6	100	63	32	26	17	70	14.4	8	26	2.0	15	3°	16000	2	TS4SL	TKY15W	
		BXD4000-125B07RA	★	7	125	63	40	40	—	80	16.4	9	56	2.8	15	2°	14000	3	TS4SL	TKY15W	
B Holders	4.0 – 5.0	BXD4000-040A03RB	★	3	40	50	16	18	8.5	32	8.4	5.6	—	0.3	15	9°	29000	1	TS4SL	TKY15W	
		BXD4000-050A04RB	★	4	50	50	22	20	11	41	10.4	6.3	17	0.4	15	6°	24000	2	TS4SL	TKY15W	
		BXD4000-063A05RB	★	5	63	50	22	20	11	50	10.4	6.3	17	0.7	15	5°	21000	2	TS4SL	TKY15W	XDGT1550 PD○R-G○○
		BXD4000-080A05RB	★	5	80	50	27	23	13	60	12.4	7	20	1.1	15	3°	19000	2	TS4SL	TKY15W	
		BXD4000-100A06RB	★	6	100	63	32	26	17	70	14.4	8	26	2.0	15	3°	16000	2	TS4SL	TKY15W	
		BXD4000-125B07RB	★	7	125	63	40	40	—	80	16.4	9	56	2.8	15	2°	14000	3	TS4SL	TKY15W	

*1 Clamp Torque (lbf-in) : TS4SL=35
*2 RMPX : Max. Ramping Angle

Metric Standard

For inch arbors

■ ARBOR TYPE

Type	RE	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]								WT	APMX	*2 RMPX	Max. Spindle Speed	Fig.	*1 Insert Screw	Wrench	Insert
			R		DC	LF	CBDP	L8	DAH	KWW	DCON	DCCB	DCSFMS	(kg)	(mm)		(min^{-1})				
A Holders	0.4 – 3.2	BXD4000R08005CA	★	5	80	50	26	6	13	9.5	25.4 [1.0"]	20	60	1.1	15	3°	19000	2	TS4SL	TKY15W	XDGT1550 PD○R-G○○
		BXD4000R10006DA	★	6	100	63	32	8	17	12.7	31.75 [1.25"]	26	70	2.0	15	3°	16000	2	TS4SL	TKY15W	
		BXD4000R12507EA	★	7	125	63	40	10	—	15.9	38.1 [1.5"]	56	80	2.8	15	2°	14000	3	TS4SL	TKY15W	XDGT1550 PD○R-GL○○
B Holders	4.0 – 5.0	BXD4000R08005CB	★	5	80	50	26	6	13	9.5	25.4 [1.0"]	20	60	1.1	15	3°	19000	2	TS4SL	TKY15W	
		BXD4000R10006DB	★	6	100	63	32	8	17	12.7	31.75 [1.25"]	26	70	2.0	15	3°	16000	2	TS4SL	TKY15W	XDGT1550 PD○R-G○○
		BXD4000R12507EB	★	7	125	50	40	10	—	15.9	38.1 [1.5"]	56	80	2.8	15	2°	14000	3	TS4SL	TKY15W	

*1 Clamp Torque (lbf-in) : TS4SL=35
*2 RMPX : Max. Ramping Angle
Note 1) The maximum spindle speeds stated above are based on ISO15641.
Note 2) When using the tool at high spindle speeds, please pay special attention to the balancing. The whole tool assembly should be balanced according to G6.3 based on ISO1940 quality grades.
Note 3) Set bolt not included.

Fig.1 Straight Shank

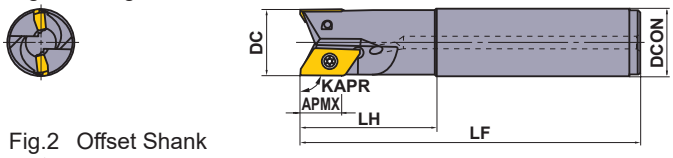
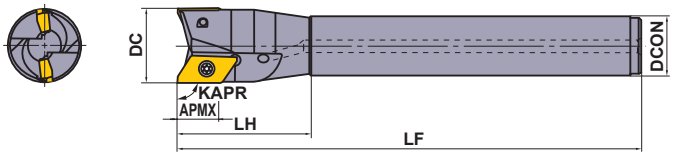


Fig.2 Offset Shank



Metric Standard

■ SHANK TYPE

Right hand tool holder only.

Type	RE	Shank Type	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	APMX	LF	LH	DCON	✶2 RMPX	Max. Spindle Speed (min^{-1})	Fig.	✶1 Insert Screw	Wrench	Insert
A Holders	0.4 — 3.2	Standard	**BXD4000R201SA20SA**	★	1	20	15	110	35	20	28°	15000	1	TS4SL	TKY15W	XDGT1550 PD○R-G○○
			BXD4000R252SA25SA	★	2	25	15	125	50	25	20°	38000	1	TS4SL	TKY15W	
			BXD4000R282SA25SA	★	2	28	15	125	50	25	17°	35000	2	TS4SL	TKY15W	
			BXD4000R322SA32SA	★	2	32	15	150	50	32	13°	33000	1	TS4SL	TKY15W	
			BXD4000R352SA32SA	★	2	35	15	150	50	32	11°	31000	2	TS4SL	TKY15W	
			BXD4000R403SA32SA	★	3	40	15	170	80	32	9°	29000	2	TS4SL	TKY15W	
			BXD4000R403SA42SA	★	3	40	15	170	80	42	9°	29000	1	TS4SL	TKY15W	XDGT1550 PD○R-GL○○
		Long	**BXD4000R252SA25LA**	★	2	25	15	170	80	25	20°	38000	1	TS4SL	TKY15W	
			BXD4000R322SA32LA	★	2	32	15	200	80	32	13°	33000	1	TS4SL	TKY15W	
		Extra Long	**BXD4000R282SA25ELA**	★	2	28	15	220	50	25	17°	35000	2	TS4SL	TKY15W	
			BXD4000R352SA32ELA	★	2	35	15	250	50	32	11°	31000	2	TS4SL	TKY15W	
			BXD4000R403SA32ELA	★	3	40	15	250	65	32	9°	29000	2	TS4SL	TKY15W	
B Holders	4.0 — 5.0	Standard	**BXD4000R201SA20SB**	★	1	20	15	110	35	20	28°	15000	1	TS4SL	TKY15W	XDGT1550 PD○R-G○○
			BXD4000R252SA25SB	★	2	25	15	125	50	25	20°	38000	1	TS4SL	TKY15W	
			BXD4000R282SA25SB	★	2	28	15	125	50	25	17°	35000	2	TS4SL	TKY15W	
			BXD4000R322SA32SB	★	2	32	15	150	50	32	13°	33000	1	TS4SL	TKY15W	
			BXD4000R352SA32SB	★	2	35	15	150	50	32	11°	31000	2	TS4SL	TKY15W	
			BXD4000R403SA32SB	★	3	40	15	170	80	32	9°	29000	2	TS4SL	TKY15W	
			BXD4000R403SA42SB	★	3	40	15	170	80	42	9°	29000	1	TS4SL	TKY15W	
		Long	**BXD4000R252SA25LB**	★	2	25	15	170	80	25	20°	38000	1	TS4SL	TKY15W	
			BXD4000R322SA32LB	★	2	32	15	200	80	32	13°	33000	1	TS4SL	TKY15W	
		Extra Long	**BXD4000R282SA25ELB**	★	2	28	15	220	50	25	17°	35000	2	TS4SL	TKY15W	
			BXD4000R352SA32ELB	★	2	35	15	250	50	32	11°	31000	2	TS4SL	TKY15W	
			BXD4000R403SA32ELB	★	3	40	15	250	65	32	9°	29000	2	TS4SL	TKY15W	

✶1 Clamp Torque (lbf-in) : TS4SL=35 ✶2 RMPX : Max. Ramping Angle

Note 1) You need to balance the tool and holder together so that it confirms to G40 or higher standards.

OPERATIONAL GUIDANCE

Only use the inserts and parts provided by Mitsubishi Materials with this tool. Use of the correct insert clamp screws is especially important to ensure overall tool safety. Do not use damaged or worn clamp screws.

- When tightening the clamp screws, follow the order in Figure 1.
- The maximum allowable spindle speeds are shown in Table 1. Ensure that the cutter operates under the maximum allowable spindle speed.
  The maximum allowable spindle speeds for safety purposes are determined in accordance with ISO15641 (Milling Cutters for high speed machining–Safety requirements).

(Table 1) Maximum allowable spindle speed

Cutting Edge Diameter **DC**(inch)	ø.750"	ø.950"	ø1.100"	ø1.250"	ø1.350"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Allowable Spindle Speed (min^{-1})	15000※	38000	35000	33000	31000	29000	24000	21000	19000	16000	14000

※ø20 mm with one tooth balancing is necessary to adjust sensitively.

- Even when operating under the maximum allowable spindle speed, if the spindle speed is equal to or higher than the values shown in table 2, it is recommended that the balance quality (with the arbor or milling chuck) conforms to G40 or better based on ISO1940. It is also recommended to replace the clamp screws with new ones when changing inserts. Furthermore, ensure to use machines that are provided with safety measures in case of cutter breakage.

✶ The balance quality of the holder (without inserts and clamp screws) is G40 or better at 10000 min^{-1}.

(Table 2) Maximum spindle speed when balancing with the arbor or milling chuck has not been achieved

Cutting Edge Diameter **DC**(inch)	ø.750"	ø.950"	ø1.100"	ø1.250"	ø1.350"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø5.000"
Max. Spindle Speed (min^{-1})	15000	12000	10800	9500	8700	7600	6000	4800	3800	3000	2400

- When setting the spindle speed, take into consideration the maximum allowable spindle speed of the arbor or milling chuck.
- Use the specified set bolt when using the arbor type with through coolant.
- The inserts have sharp cutting edges and handling them with bare hands may cause injuries. Always wear safety gloves when handling the indexable inserts.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

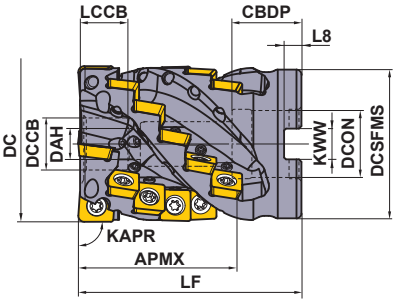
DEEP SHOULDER MILLING
<CUTTING FOR TITANIUM ALLOYS>

90° KAPR

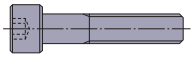
ASPX

NEW

P | M | K | N | **S** | H



Right hand tool holder only.

Cutter Diameter DC	Set Bolt	Geometry
ϕ2.000	HSCUF37523	
ϕ2.500	HSCUF50028	
ϕ3.000	HSCUF62535	

■SHELL TYPE

With Air / coolant through. : Shell type should be combined with a through coolant arbor.

(inch)

DC	Order Number	Stock R	Number of Flutes	Total	LF	DCON	WT (lbs)	APMX
2.000	**ASPX4UR2.0003AA21A15**	●	3	15	3.000	.750	1.1	2.126
2.500	**ASPX4UR2.5004CA25A24**	●	4	24	3.500	1.000	2.2	2.520
3.000	**ASPX4UR3.0005DA29A35**	●	5	35	4.250	1.250	4.4	2.953

MOUNTING DIMENSIONS

(inch)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
2.000	**ASPX4UR2.0003AA21A15**	.750	.748	.395	.716	.677	1.750	.313	.187
2.500	**ASPX4UR2.5004CA25A24**	1.000	.945	.520	.850	.709	2.375	.375	.219
3.000	**ASPX4UR3.0005DA29A35**	1.250	1.260	.645	1.063	.750	2.875	.500	.281

SPARE PARTS

Tool Holder Type	Clamp Screw *	Seal Washer	Wrench	Coolant Nozzle	Number	Anti-seize Lubricant	Number of Insert JPGX	Number of Insert SPGX
ASPX4UR2.000	TS55	WU375-S1	TKY25D	HSD04004H08	18	MK1KS	3	12
ASPX4UR2.500	TS55	WU500-S1	TKY25D	HSD04004H08	28	MK1KS	4	20
ASPX4UR3.000	TS55	WU625-S1	TKY25D	HSD04004H08	40	MK1KS	5	30

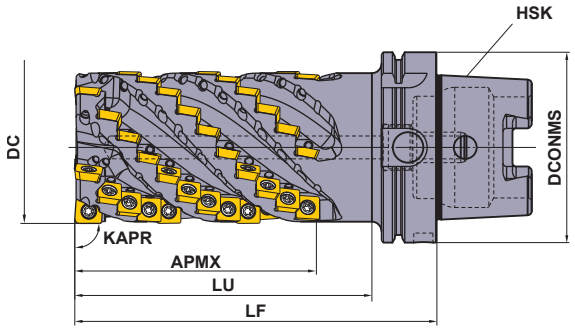
* Clamp Torque (lbf-in) : TS55 = 44.25

	≤140 PSI (≤5.3 gal/min.)	←Standard→	≥720 PSI (≥7.9 gal/min.)	≥1000 PSI (≥13.2 gal/min.)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select the correct nozzle according to the specification.

Note 2) Use HSS04004 (JIS B 1177 flat point M4x4, clamp torque 13.28 lbf-in) to plug the coolant hole.

 ● : USA Stock



The standard type is right-handed (R) only.
The HSK shank type has a built-in movable coolant pipe for installation.

■HSK SHANK TYPE

With Air / coolant through.

(inch)

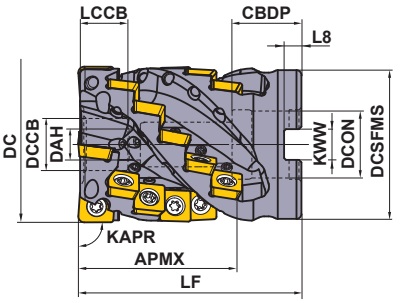
DC	Order Number	Stock R	Number of Flutes	Total	LF	LU	DCONMS	HSK	APMX
3.000	**ASPX4UR485H100A050SA**	●	5	60	7.480	6.142	3.937	HSK-A100	5.000
3.000	**ASPX4UR485H125A050SA**	●	5	60	7.480	6.142	4.921	HSK-A125	5.000

SPARE PARTS

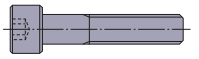
Tool Holder Type	* Clamp Screw	Wrench	Coolant Nozzle	Number	Anti-seize Lubricant	Number of Insert JPGX	Number of Insert SPGX
ASPX4UR485H100A	TS55	TKY25D	HSD04004H08	65	MK1KS	5	55
ASPX4UR485H125A	TS55	TKY25D	HSD04004H08	65	MK1KS	5	55

* Clamp Torque (lbf-in) : TS55 = 44.25

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.

Cutter Diameter DC	Set Bolt	Geometry
ϕ50	HSC10070	
ϕ63	HSC12070	
ϕ80	HSC16080	

Metric Standard

■SHELL TYPE

With Air / coolant through. : Shell type should be combined with a through coolant arbor.

(mm)

DC	Order Number	Stock R	Number of Flutes	Total	LF	DCON	WT (kg)	APMX
50	**ASPX4-050A03A054RA15**	★	3	15	85	22	0.6	54
63	**ASPX4-063A04A064RA24**	★	4	24	90	27	1.0	64
80	**ASPX4-080A05A075RA35**	★	5	35	100	32	2.0	75

MOUNTING DIMENSIONS

(mm)

DC	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8
50	**ASPX4-050A03A054RA15**	22	21	10.5	17	14	47	10.4	6.3
63	**ASPX4-063A04A064RA24**	27	28	12.5	21	19	60	12.4	7
80	**ASPX4-080A05A075RA35**	32	28	16.5	27	20	76	14.4	8

SPARE PARTS

Tool Holder Type	 *						Number of Insert	
	Clamp Screw	Seal Washer	Wrench	Coolant Nozzle	Number	Anti-seize Lubricant	JPGX	SPGX
ASPX4-050A	TS55	W10-S1	TKY25D	HSD04004H08	18	MK1KS	3	12
ASPX4-063A	TS55	W12-S1	TKY25D	HSD04004H08	28	MK1KS	4	20
ASPX4-080A	TS55	W16-S1	TKY25D	HSD04004H08	40	MK1KS	5	30

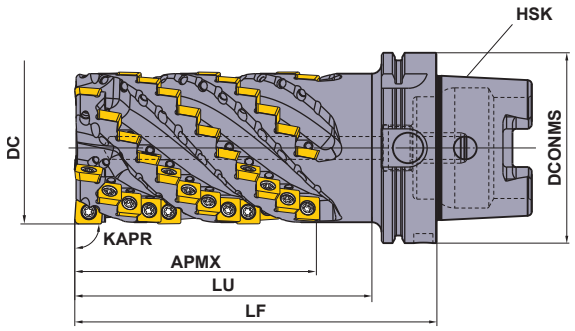
* Clamp Torque (lbf-in) : TS55 = 44.25

	≤1Mpa (≤20 l/min.)	←Standard→	≥5Mpa (≥30 l/min.)	≥7Mpa (≥50 l/min.)	To Plug a Coolant Hole
Nozzle Dia.	ø0.6mm	ø0.8mm	ø1.2mm	ø1.6mm	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select the correct nozzle according to the specification.

Note 2) Use HSS04004 (JIS B 1177 flat point M4x4, clamp torque 13.28 lbf-in) to plug the coolant hole.

★ : **Stocked in Japan**



The standard type is right-handed (R) only.
The HSK shank type has a built-in movable coolant pipe for installation.

Metric Standard

■HSK SHANK TYPE

With Air / coolant through.

(mm)

DC	Order Number	Stock R	Number of Flutes	Total	LF	LU	DCONMS	HSK	APMX
80	**ASPX4R0805H100A127SA**	★	5	60	190	156	100	HSK-A100	127
80	**ASPX4R0805H125A127SA**	★	5	60	190	156	125	HSK-A125	127

SPARE PARTS

Tool Holder Type	* Clamp Screw	Wrench	Coolant Nozzle	Number	Anti-seize Lubricant	Number of Insert JPGX	Number of Insert SPGX
ASPX4R0805H100A	TS55	TKY25D	HSD04004H08	65	MK1KS	5	55
ASPX4R0805H125A	TS55	TKY25D	HSD04004H08	65	MK1KS	5	55

* Clamp Torque (lbf-in) : TS55 = 44.25

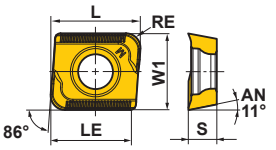
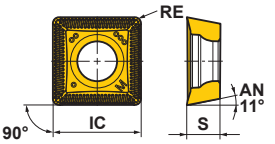
ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

(inch)

Workpiece Material		
S	Heat resistant Alloys, Titanium Alloys	◐

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Edge Preparation :
E : Round

Shape		Order Number	Class	Edge Preparation	Coated MP9140	L	LE	W1	IC	S	RE	Geometry
Bottom	 2 Corner	**JPGX1404080PPER-JM**	G	E	●	.595	.528	.500	—	.189	.031	
		JPGX1404120PPER-JM	G	E	●	.593	.524	.500	—	.189	.047	
		JPGX1404160PPER-JM	G	E	●	.591	.524	.500	—	.189	.063	
		JPGX1404240PPER-JM	G	E	●	.586	.520	.500	—	.189	.094	
		JPGX1404320PPER-JM	G	E	●	.580	.516	.500	—	.189	.126	
		JPGX1404400PPER-JM	G	E	●	.576	.512	.500	—	.189	.157	
		JPGX1404500PPER-JM	G	E	●	.570	.512	.500	—	.189	.197	
		JPGX1404635PPER-JM	G	E	●	.563	.508	.500	—	.189	.250	
Peripheral	 4 Corner	**SPGX1204100PPER-JM**	G	E	●	—	—	—	.500	.189	.039	

RECOMMENDED CUTTING CONDITIONS

(inch)

	Workpiece Material	Cutting Width **ae**	Cutting Speed **vc** (SFM)	Feed per Tooth **fz** (IPT)
S	Ti Alloys Ti-6Al-4V,Ti-6Al-4V-ELI Ti-10V-2Fe-3Al Ti-5Al-5V-5Mo-3Cr etc.	ae≤0.5DC	195(165—260)	.005(.004—.006)
		0.5DC< ae< 0.8DC	165(130—195)	.004(.003—.005)
		ae≥0.8DC	130(165—195)	.003(.002—.004)

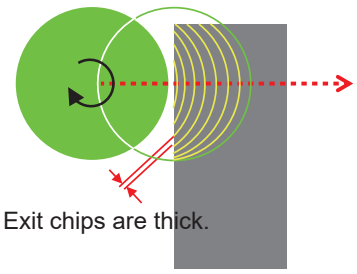
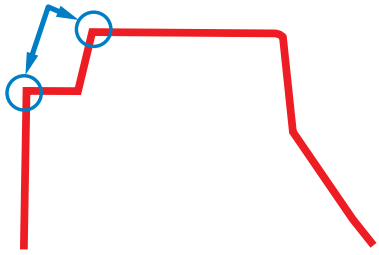
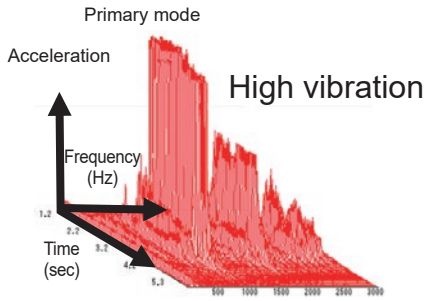
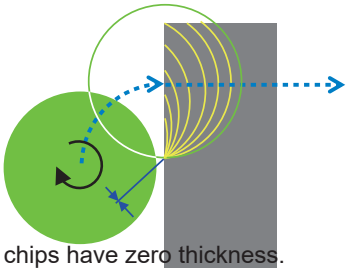
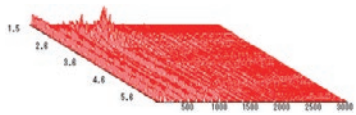
Note 1) The cutting performance depends on machine and clamping rigidity, as well as the supply and pressure of the coolant. Adjust as necessary.
Note 2) Use a machine and spindle size suitable for heavy machining of titanium alloys. (7/24 taper #50 or #60, or high-rigidity HSK-A100 or A125, with an output of 20.1 HP/bhp or higher and torque of 4425 lbf-in or higher for a rotation speed of 500min-1 or less).
Note 3) If chatter and vibration or machine overloading occur, it is recommended to reduce the depth of cut ap.
Note 4) The coolant system combines internal and external lubrication, it is recommended to supply coolant in ample quantities.
Note 5) A gradual roll feed into the workpiece and use of down cutting is recommended. (refer to page K267)

● : USA Stock
(10 inserts in one case)

HOW TO USE

■Positive Effects of a Roll Into Cutting Approach

The roll into cutting approach can control sharp increases in cutting loads and prevent sudden chipping of inserts which is likely to occur at the start of machining.

Approach Method	Cutting Load Simulation	Image of Cutting Vibration Frequency
Direct Approach  	Cutting load increases suddenly. High risk of chipping. 	
Roll Into Cutting Approach  	Cutting load increases smoothly. 	Almost no vibration 

Down cutting is recommended.

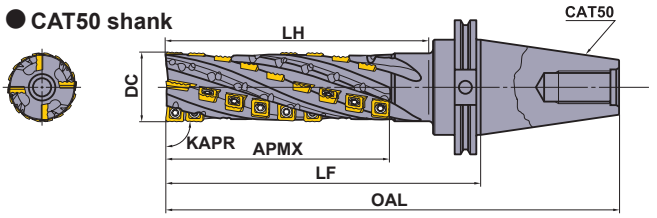
DEEP SHOULDER MILLING

90° KAPR

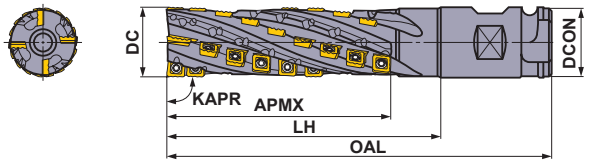
SPX

P M K N S H

● CAT50 shank



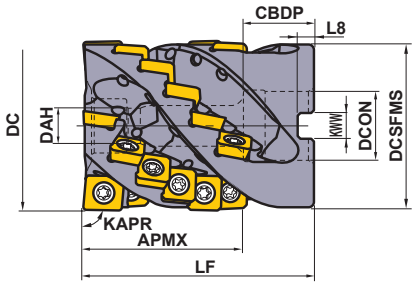
● Straight shank (Combination type)



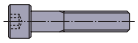
■ SHANK TYPE

Right hand tool holder only.

Type	Order Number	Stock	Number of Flute	Number of Teeth	Dimensions (inch)						Number of Insert		
											Bottom Cutting Edge A	Bottom Cutting Edge B	Peripheral Cutting Edge
				Total	DC	OAL	DCON	LH	LF	APMX	JPMX 190412-○○	MPMX 120412-○○	SPMX 120408-○○
CAT50 Shank	**SPX4R3224CAT50NS**	●	2	24	2.000	11.000	–	–	7.000	4.300	2	2	20
	SPX4R3234CAT50NM	●	2	34	2.000	13.000	–	–	9.000	6.200	2	2	30
Straight Shank (Combination)	**SPX4R05016WNES**	●	2	16	1.969	7.091	2.000	3.937	–	2.835	2	2	12
	SPX4R05024WNS	●	2	24	1.969	8.661	2.000	5.512	–	4.331	2	2	20
	SPX4R05034WNM	●	2	34	1.969	10.630	2.000	7.480	–	6.181	2	2	30



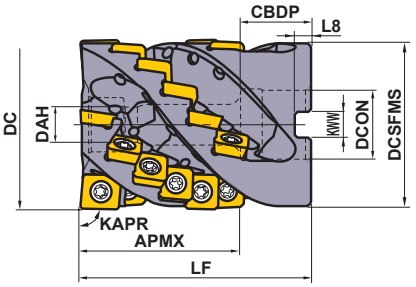
Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ2.500"	HSCUF50028	
ϕ3.000"	HSCUF62528	

■SHELL TYPE

Order Number	Stock	Number of Teeth		Dimensions (inch)									Number of Insert		
													Bottom Cutting Edge A	Bottom Cutting Edge B	Peripheral Cutting Edge
	R	Flutes	Total	DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	JPMX 140412-○○	MPMX 120412-○○	SPMX 120408-○○
SPX4UR2524CA22A	●	4	24	2.500	3.500	1.000	1.339	.539	2.375	.375	.219	2.280	2	2	20
SPX4UR0324DA22A	●	4	24	3.000	3.500	1.250	1.654	.669	2.874	.500	.281	2.280	2	2	20

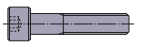
Note 1) In case of internal coolant supply, please use a face mill arbor with through coolant channels; Regular center-thru or side-thru arbors can't be used.
Note 2) The cutter body includes a non-coolant through set bolt for an arbor.



Metric Standard

For inch arbors

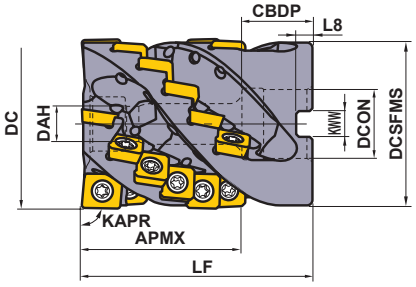
Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63 mm	HSC12070	
ϕ80 mm	HSC16065	

■SHELL TYPE

Order Number	Stock	Number of Teeth		Dimensions (mm) [inch]									Number of Insert		
													Bottom Cutting Edge A	Bottom Cutting Edge B	Peripheral Cutting Edge
	R	Flutes	Total	DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	JPMX 140412-○○	MPMX 120412-○○	SPMX 120408-○○
SPX4R06324CA058A	★	4	24	63	85	25.4 [1.000″]	26	13	60	9.5	6	58	2	2	20
SPX4R08024DA058A	★	4	24	80	85	31.75 [1.250″]	38	17	76.8	12.7	8	58	2	2	20

Note 1) In case of internal coolant supply, please use a face mill arbor with through coolant channels; Regular center-thru or side-thru arbors can't be used.
Note 2) Set bolt not included.

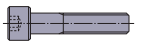


Metric Standard

For metric arbors

The bore diameter (DCON) is equivalent to a metric size.

Right hand tool holder only.

DC	Set Bolt	Geometry
ϕ63 mm	HSC12070	
ϕ80 mm	HSC16065	

■SHELL TYPE

Order Number	Stock	Number of Teeth		Dimensions (mm)									Number of Insert		
													Bottom Cutting Edge A	Bottom Cutting Edge B	Peripheral Cutting Edge
	R	Flutes	Total	DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	JPMX 140412-○○	MPMX 120412-○○	SPMX 120408-○○
SPX4-063A24A058RA	★	4	24	63	85	27	28	13	60	12.4	7	58	2	2	20
SPX4-080A24A058RA	★	4	24	80	85	32	40	17	76.8	14.4	8	58	2	2	20

Note 1) In case of internal coolant supply, please use a face mill arbor with through coolant channels; Regular center-thru or side-thru arbors can't be used.
Note 2) Set bolt not included.

SPARE PARTS

Holder	* Insert Screw	Wrench	Insert		
			Bottom Cutting Edge A	Bottom Cutting Edge B	Peripheral Cutting Edge
SPX	TS55	TKY25D	JPMX190412-WH	MPMX120412-WH	SPMX120408-WH
			JPMX190412-JM	MPMX120412-JM	SPMX120408-JM

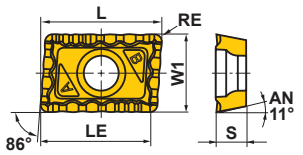
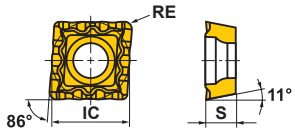
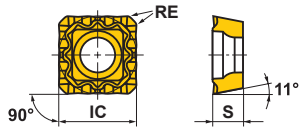
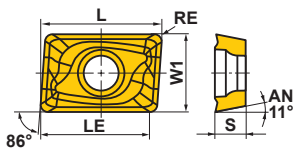
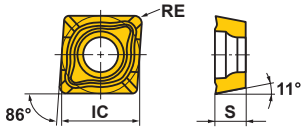
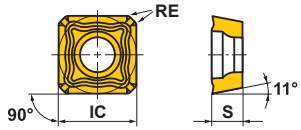
* Clamp Torque (lbf-in) : TS55=66

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
S	Heat resistant Alloys, Titanium Alloys	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

Type		Shape	Order Number	Class	Coated VP15TF	Coated VP20RT	Dimensions (inch) L	LE	W1	IC	S	RE	Geometry
Wavy Cutting Edge Type	Bottom Cutting Edge A		**JPMX190412-WH**	M	●	●	.750	.693	.500	—	.187	.047	
			*** JPMX140412-WH**	M	●	●	.563	.508	.500	—	.187	.047	
	Bottom Cutting Edge B		**MPMX120412-WH**	M	●	●	—	—	—	.500	.187	.047	
	Peripheral Cutting Edge		**SPMX120408-WH**	M	●	●	—	—	—	.500	.187	.031	
Straight Cutting Edge Type	Bottom Cutting Edge A		**JPMX190412-JM**	M	●	●	.750	.693	.500	—	.187	.047	
			*** JPMX140412-JM**	M	●	●	.563	.508	.500	—	.187	.047	
	Bottom Cutting Edge B		**MPMX120412-JM**	M	●	●	—	—	—	.500	.187	.047	
	Peripheral Cutting Edge		**SPMX120408-JM**	M	●	●	—	—	—	.500	.187	.031	

* Only for use with a shell type holder.

RECOMMENDED CUTTING CONDITIONS (Shank Type)

■Cutting Conditions for Shoulder Milling (Number of effective flutes is 2.)

Workpiece Material		Hardness	Insert Grade/Breaker	Cutting Speed **vc** (SFM)	Width of Cut **ae** (inch)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (IPT)
P	Mild Steel	≤180HB	**VP15TF WH**	395 (330—460)	<.197	<4DC	.006—.010
			VP15TF JM	395 (330—460)	<.394	<2DC	.006—.010
	Carbon Steel Alloy Steel	180—350HB	**VP15TF WH**	260 (230—395)	<.197	<4DC	.006—.010
			VP15TF JM	260 (230—395)	<.394	<2DC	.006—.010
	Alloy Tool Steel	≤300HB	**VP15TF WH**	260 (200—330)	<.197	<4DC	.004—.008
			VP15TF JM	260 (200—330)	<.394	<2DC	.004—.008
M	Stainless Steel	≤200HB	**VP20RT WH**	260 (230—395)	<.197	<4DC	.004—.008
			VP20RT JM	260 (230—395)	<.394	<2DC	.004—.008
K	Cast Iron	Tensile Strength ≤350MPa	**VP15TF WH**	330 (260—395)	<.197	<4DC	.006—.016
			VP15TF JM	330 (260—395)	<.197	<4DC	.004—.010
	Ductile Cast Iron	Tensile Strength ≤800MPa	**VP15TF WH**	260 (200—330)	<.197	<4DC	.006—.014
			VP15TF JM	260 (200—330)	<.197	<4DC	.004—.008
S	Titanium Alloys	≤350HB	**VP20RT WH**	130 (115—165)	<.197	<4DC	.003—.005
			VP20RT JM	130 (115—165)	<.394	<2DC	.003—.005

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece material, where no vibration occurred. Please adjust processing conditions if the vibration is generated.

Note 2) For tools with a cutting edge length of 7.87″ or more, please reduce the cutting speed and table feed by 10-20% and the width of cut by 50%.

Note 3) If the cutting angle between the tool and workpiece material exceeds 90º when machining corners ,Reduce the cutting speed and table feed by 10-20% and ae by 50%. Also if possible, set a radius cutting path for corners.

■Cutting Conditions for Slot Milling

Workpiece Material		Hardness	Insert Grade/Breaker	Cutting Speed **vc** (SFM)	Width of Cut **ae** (inch)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (IPT)
P	Mild Steel	≤180HB	**VP15TF WH**	200 (165—395)	DC	<.394	.004—.010
			VP15TF JM	200 (165—395)	DC	<.394	.004—.006
	Carbon Steel Alloy Steel	180—350HB	**VP15TF WH**	200 (165—330)	DC	<.394	.004—.010
			VP15TF JM	200 (165—330)	DC	<.394	.004—.006
	Alloy Tool Steel	≤300HB	**VP15TF WH**	165 (130—260)	DC	<.394	.004—.010
			VP15TF JM	165 (130—260)	DC	<.394	.004—.006
M	Stainless Steel	≤200HB	**VP20RT WH**	200 (165—395)	DC	<.394	.004—.010
			VP20RT JM	200 (165—395)	DC	<.394	.004—.006
K	Cast Iron	Tensile Strength ≤350MPa	**VP15TF WH**	165 (130—260)	DC	<1.969	.006—.010
			VP15TF JM	165 (130—260)	DC	<1.575	.004—.008
	Ductile Cast Iron	Tensile Strength ≤800MPa	**VP15TF WH**	130 (115—260)	DC	<1.575	.006—.010
			VP15TF JM	130 (115—260)	DC	<1.181	.004—.008
S	Titanium Alloys	≤350HB	**VP20RT WH**	115 (100—165)	DC	<.394	.003—.005
			VP20RT JM	115 (100—165)	DC	<.394	.003—.005

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece material, where no vibration occurred. Please adjust processing conditions if the vibration is generated.

RECOMMENDED CUTTING CONDITIONS (Shell Type)

■Cutting Conditions for Shoulder Milling (Number of effective flutes is 4.)

	Workpiece Material	Hardness	Insert Grade/Breaker	Cutting Speed **vc** (SFM)	Width of Cut **ae** (inch)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (IPT)
P	Mild Steel	≤180HB	**VP15TF JM**	395 (330—460)	<.394	<0.5DC	.006—.012
				395 (330—460)	<.394	>0.5DC	.006—.010
	Carbon Steel Alloy Steel	180—350HB	**VP15TF JM**	395 (260—425)	<.394	<0.5DC	.006—.012
				330 (260—395)	<.394	>0.5DC	.006—.010
	Alloy Tool Steel	≤300HB	**VP15TF JM**	330 (200—360)	<.394	<0.5DC	.004—.010
				260 (200—330)	<.394	>0.5DC	.004—.006
M	Stainless Steel	≤200HB	**VP20RT JM**	460 (330—490)	<.394	<0.5DC	.004—.010
				395 (330—460)	<.394	>0.5DC	.004—.008
K	Cast Iron	Tensile Strength ≤350MPa	**VP15TF WH**	395 (260—425)	<.394	<0.5DC	.010—.016
				330 (260—395)	<.394	>0.5DC	.010—.016
			VP15TF JM	395 (260—425)	<.394	<0.5DC	.006—.012
				330 (260—395)	<.394	>0.5DC	.006—.010
	Ductile Cast Iron	Tensile Strength ≤800MPa	**VP15TF WH**	330 (200—360)	<.394	<0.5DC	.008—.014
				260 (200—360)	<.394	>0.5DC	.008—.014
			VP15TF JM	330 (200—395)	<.394	<0.5DC	.006—.012
				260 (200—395)	<.394	>0.5DC	.006—.012
S	Titanium Alloys	≤350HB	**VP20RT JM**	150 (115—165)	<.394	<0.5DC	.003—.004
				150 (115—165)	<.394	>0.5DC	.003—.004

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece material, where no vibration occurred. Please adjust processing conditions if the vibration is generated.

■Cutting Conditions for Slot Milling

	Workpiece Material	Hardness	Insert Grade/Breaker	Cutting Speed **vc** (SFM)	Width of Cut **ae** (inch)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (IPT)
P	Mild Steel	≤180HB	**VP15TF JM**	395 (330—460)	DC	<0.25DC	.006—.010
	Carbon Steel Alloy Steel	180—350HB	**VP15TF JM**	330 (260—395)	DC	<0.25DC	.006—.010
	Alloy Tool Steel	≤300HB	**VP15TF JM**	260 (200—330)	DC	<.394	.004—.008
M	Stainless Steel	≤200HB	**VP20RT JM**	330 (260—460)	DC	<.394	.004—.006
K	Cast Iron	Tensile Strength ≤350MPa	**VP15TF WH**	260 (200—330)	DC	<0.25DC	.004—.010
				200 (165—330)	DC	<0.6DC	.004—.008
			VP15TF JM	260 (200—330)	DC	<0.25DC	.004—.008
				200 (165—330)	DC	<0.6DC	.004—.006
	Ductile Cast Iron	Tensile Strength ≤800MPa	**VP15TF WH**	260 (200—330)	DC	<0.25DC	.004—.010
				200 (165—330)	DC	<0.5DC	.004—.008
			VP15TF JM	260 (200—330)	DC	<0.25DC	.004—.008
				200 (165—330)	DC	<0.5DC	.004—.006
S	Titanium Alloys	≤350HB	**VP20RT JM**	130 (115—165)	DC	<0.25DC	.002—.004

Note 1) The above cutting conditons are determined based on high rigidity machine and workpiece material, where no vibration occurred. Please adjust processing conditions if the vibration is generated.

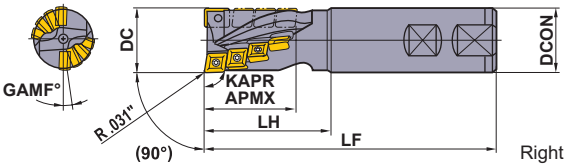
DEEP SHOULDER MILLING

90° KAPR

LER

P M K N S H

Fig.1



DESIGN FEATURES OF LER TYPE END MILL

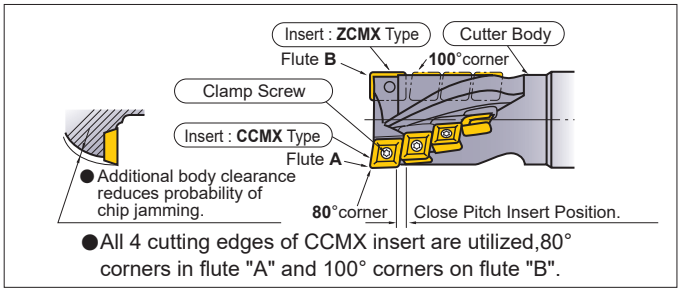
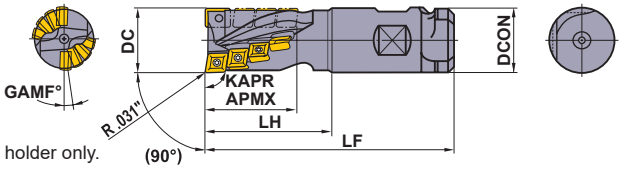


Fig.2 **Combination Shank**



Right hand tool holder only.

Order Number	Stock	Number of Flute	Number of Teeth	Dimensions (inch)						Fig.	*	F D	Insert	
	R			DC	LF	DCON	LH	APMX	GAMF°		Insert Screw	Wrench	Insert	Teeth
LER1606W20	●	2	6	1.000	4.281	1.250	2.000	1.063	8°	1	CS300890T	TKY08F	CCMX083508EN○	5
											CS300890T	TKY08D	ZCMX083508ER○	1
LER2008W20	●	2	8	1.250	4.781	1.250	2.500	1.700	8° 35′	1	CS350990T	TKY10F	CCMX09T308EN○	7
											CS350990T	TKY10D	ZCMX09T308ER○	1
LER2012W20	●	2	12	1.250	5.531	1.250	3.250	2.480	8° 35′	1	CS350990T	TKY10F	CCMX09T308EN○	11
											CS350990T	TKY10D	ZCMX09T308ER○	1
LER2415W24	●	3	15	1.500	5.687	1.500	3.000	2.100	5° 27′	1	CS350990T	TKY10F	CCMX09T308EN○	14
											CS350990T	TKY10D	ZCMX09T308ER○	1
LER3218W32	●	3	18	2.000	6.750	2.000	3.500	2.500	5° 52′	2	CS350990T	TKY10F	CCMX09T308EN○	17
											CS350990T	TKY10D	ZCMX09T308ER○	1

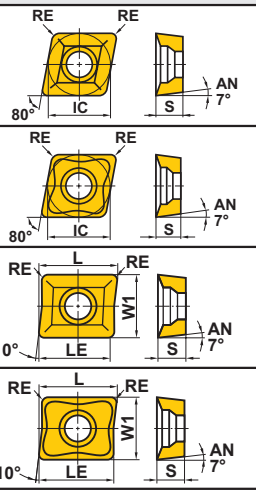
* Clamp Torque (lbf-in) : CS300890T=8.9, CS350990T=22

INSERTS

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape		Order Number	Class	Coated F7030	Coated VP15TF	Coated UP20M	Carbide UTi20T	Dimensions (inch) L	LE	W1	IC	S	RE	Geometry
Peripheral and Bottom Inserts		**CCMX083508ENA**	M	★		●	★	—	—	—	.313	.138	.031	
		CCMX09T308ENA	M	●	●	●	★	—	—	—	.375	.156	.031	
	Strong Cutting Edge Type	* **CCMX09T308ENB**	M	★			★	—	—	—	.375	.156	.031	
Bottom Insert (One Pocket Only)		**ZCMX083508ERA**	M	★			★	.409	.335	.313	—	.137	.031	
		ZCMX09T308ERA	M	●	●	●	★	.472	.433	.375	—	.156	.031	
	Strong Cutting Edge Type	* **ZCMX09T308ERB**	M	★		●	★	.472	.433	.375	—	.156	.031	



* These inserts are for slotting only when chipping occurs with standard inserts. Feed must be reduced 25%.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

ISO13399 ➤ K003

RECOMMENDED CUTTING CONDITIONS

■ Slot Milling

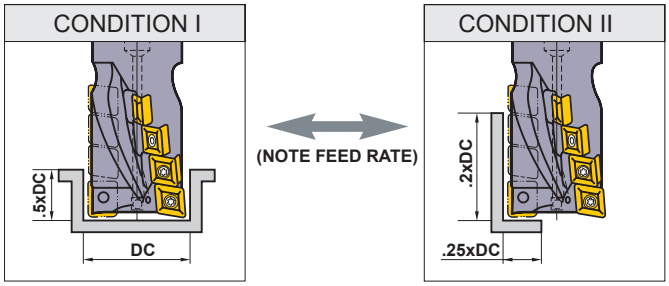
Workpiece Material		Cutting Condition Vs.Tool Diameter					Insert grade
		Spindle Speed / Feed	ϕ1"	ϕ1.25"	ϕ1.5"	ϕ2"	
P	Mild Steel (<160HB)	min^{-1}	2250	1800	1500	1100	VP15TF F7030
		inch/min	7—12	6—10	7—12	6—10	
	Carbon Steel (20HRC)	min^{-1}	2250	1800	1500	1100	
		inch/min	8—14	7—12	8—14	7—12	
	Alloy Steel (30HRC)	min^{-1}	1750	1800	1200	900	
		inch/min	6—10	5—8	6—10	5—8	
M	Stainless Steel (304)	min^{-1}	1900	1500	1250	950	VP15TF
		inch/min	3—5	2.5—4	3—5	2.5—4	
K	Gray Cast Iron (≤450MPA)	min^{-1}	1800	1250	950	650	UTi20T
		inch/min	7—9	7—9	8—10	8—10	

■ Shoulder Milling

Workpiece Material		Cutting Condition Vs.Tool Diameter					Insert grade
		Spindle Speed / Feed	ϕ1"	ϕ1.25"	ϕ1.5"	ϕ2"	
P	Mild Steel (<160HB)	min^{-1}	2250	1800	1500	1100	VP15TF F7030
		inch/min	11—18	9—15	11—18	9—15	
	Carbon Steel (20HRC)	min^{-1}	2250	1800	1500	1100	
		inch/min	12—21	11—18	12—21	11—18	
	Alloy Steel (30HRC)	min^{-1}	1750	1400	1200	900	
		inch/min	9—15	8—12	9—15	8—12	
M	Stainless Steel (304)	min^{-1}	1900	1500	1250	950	VP15TF
		inch/min	7—12	6—10	7—12	6—10	
K	Gray Cast Iron (≤450MPA)	min^{-1}	1800	1250	950	650	UTi20T
		inch/min	8—10	8—10	9.5—11	9.5—11	

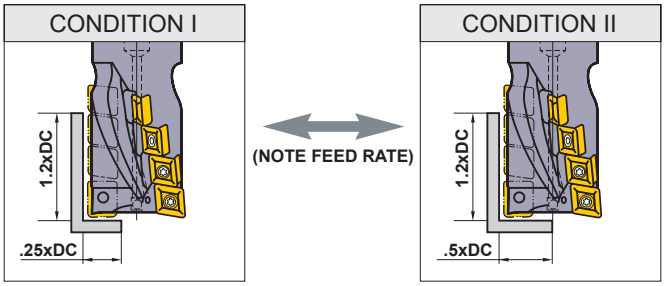
Note 1) These feed rates are for ENA and ERA inserts.
Reduce feed 25% for ENB and ERB inserts.
ENB or ERB inserts not recommended in gummy materials like stainless steel or mild steel.

■ Slot Milling
Forced air is required at cutting edge



- Use higher recommended feed rate under CONDITION I.
- Use lower recommended feed rate under CONDITION II.

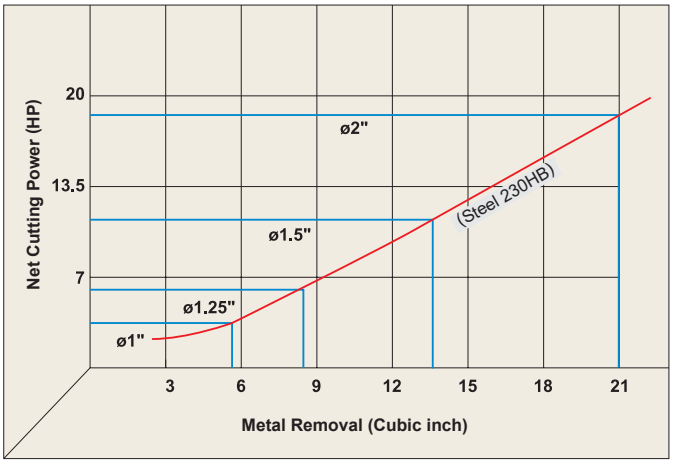
■ Shoulder Milling
Generally down cut is recommended



- Use higher recommended feed rate under CONDITION I.
- Use lower recommended feed rate under CONDITION II.

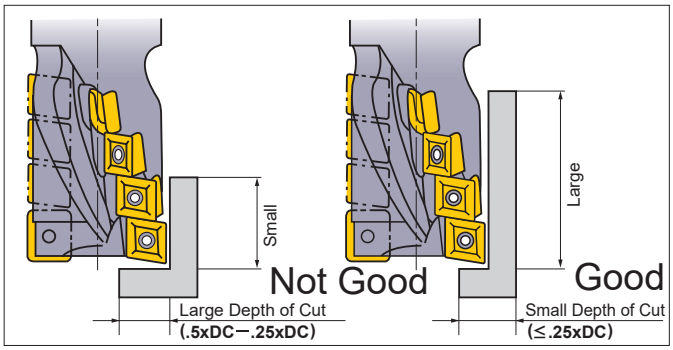
■ Net Cutting Power

- Please use the chart below for reference, please select the conditions that suits the machines power.
- Chip Discharge Q ($inch^3$/min)=Table Feed×Depth of Cut×Cutting Width÷1000



■ For Use of Long Cutting Length Type

- Since the overhang from the milling chuck is long, a large width of cut will cause chattering and tool breakage.
- Keep the width of cut small and the depth of cut in axial direction large. (See the following illustration.)
- For slot milling, keep the table feed at not more than half the value listed in the above table. (Use the standard cutting length type as much as possible.)



K

INDEXABLE MILLING

MULTI FUNCTIONAL MILLING

90° KAPR R

AQX

P M K N S H

Fig.1

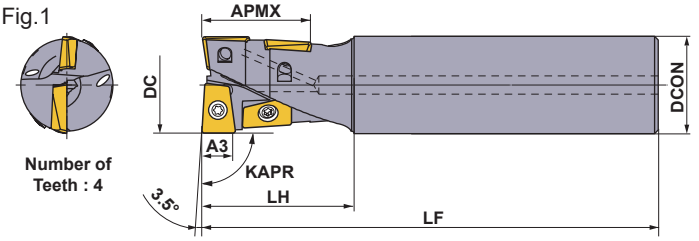


Fig.2

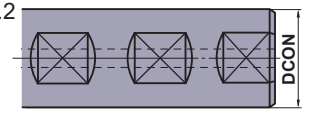
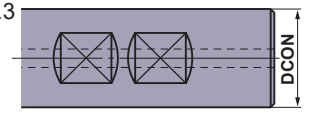


Fig.3



■ STANDARD EDGE TYPE

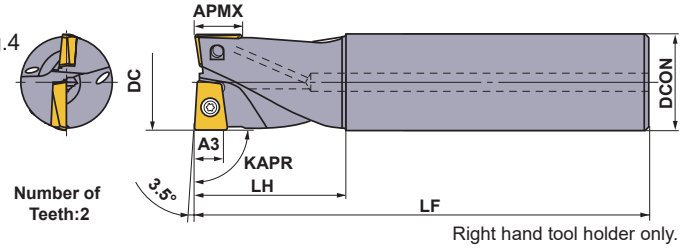
With Air / coolant through.

Right hand tool holder only.

Type	Order Number	Stock	Dimensions (inch)						Fig.	*3 Insert Screw	F D Wrench	Insert
		R	DC	LF	DCON	LH	A3 *1	APMX *2				
Standard	AQXUR124WA12S	●	.750	4.125	.750	1.375	.219	.750	3	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR164WA16S	●	1.000	4.875	1.000	1.625	.281	1.000	2	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR204WA20S	●	1.250	5.250	1.250	2.000	.375	1.250	2	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR244WA20S	●	1.500	5.625	1.250	2.375	.438	1.500	2	TS5	TKY25D	QOG/MT1959R-□□
Long	AQXUR124SA12L	●	.750	7.250	.750	2.375	.219	.750	1	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR134SA12L	●	.797	7.250	.750	1.375	.219	.750	1	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR164SA16L	●	1.000	8.500	1.000	3.000	.281	1.000	1	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR174SA16L	●	1.047	8.500	1.000	1.625	.281	1.000	1	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR204SA20L	●	1.250	9.000	1.250	3.500	.375	1.250	1	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR214SA20L	●	1.297	9.000	1.250	2.000	.375	1.250	1	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR244SA20L	●	1.500	9.500	1.250	2.375	.438	1.500	1	TS5	TKY25D	QOG/MT1959R-□□

*3 Clamp Torque (lbf-in) : TS25=8.9, TS32=8.9, TS407=31, TS5=66

Fig.4



■ SHORT EDGE TYPE

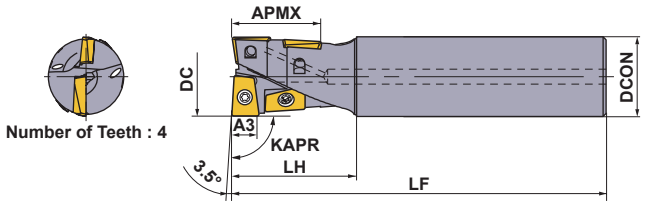
With Air / coolant through.

Right hand tool holder only.

Type	Order Number	Stock	Dimensions (inch)						Fig.	*3 Insert Screw	F D Wrench	Insert
		R	DC	LF	DCON	LH	A3 *1	APMX *2				
Standard	AQXUR102WA10S	●	.625	3.688	.625	1.125	.188	.281	3	TS2A	TKY06F	QOG/MT0830R-□□
	AQXUR122WA12S	●	.750	4.125	.750	1.375	.219	.344	3	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR162WA16S	●	1.000	4.875	1.000	1.625	.281	.469	2	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR202WA20S	●	1.250	5.250	1.250	2.000	.375	.563	2	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR242WA20S	●	1.500	5.625	1.250	2.375	.438	.688	2	TS55	TKY25D	QOG/MT1959R-□□
Long	AQXUR102SA10L	●	.625	6.875	.625	2.000	.188	.281	4	TS2A	TKY06F	QOG/MT0830R-□□
	AQXUR112SA10L	●	.672	6.875	.625	1.125	.188	.281	4	TS2A	TKY06F	QOG/MT0830R-□□
	AQXUR122SA12L	●	.750	7.250	.750	2.375	.219	.344	4	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR132SA12L	●	.797	7.250	.750	1.375	.219	.344	4	TS25	TKY08F	QOG/MT0934R-□□
	AQXUR162SA16L	●	1.000	8.500	1.000	3.000	.281	.469	4	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR172SA16L	●	1.047	8.500	1.000	1.625	.281	.469	4	TS32	TKY08D	QOG/MT1443R-□□
	AQXUR202SA20L	●	1.250	9.000	1.250	3.500	.375	.563	4	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR212SA20L	●	1.297	9.000	1.250	2.000	.375	.563	4	TS407	TKY15D	QOG/MT1651R-□□
	AQXUR242SA20L	●	1.500	9.500	1.250	2.375	.438	.688	4	TS55	TKY25D	QOG/MT1959R-□□

*1 Dimension A3 represents the depth of cut when the cutting edge consists of 2 inserts.
*2 APMX: Maximum depth of cut.
*3 Clamp Torque (lbf-in) : TS2A=4.5, TS25=8.9, TS33=13, TS407=31, TS5=66
Note 1) When exceeding A3 depth of cut, reduce feed rates by 50%(Do not exceed APMX depth of cut). Reference page K282.

● : USA Stock ★ : Stocked in Japan



Metric Standard

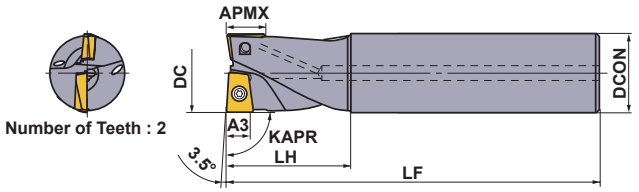
STANDARD EDGE TYPE

Right hand tool holder only.

Type	Order Number	Stock	Coolant Thru *4	Dimensions (mm)						*3 Insert Screw	F D T Wrench	Insert
		R		DC	LF	DCON	LH	A3 *1	APMX *2			
Standard	AQXR164SA16S	★	Y	16	120	16	30	4.5	17.6	TS2A	TKY06F	QOG/MT0830R-G1/M2
	AQXR164SN16S	★	N	16	120	16	30	4.5	17.6	TS2A	TKY06F	
	AQXR174SA16S	★	Y	17	120	16	30	4.5	17.6	TS2A	TKY06F	
	AQXR174SN16S	★	N	17	120	16	30	4.5	17.6	TS2A	TKY06F	
	AQXR204SA20S	★	Y	20	130	20	35	6	22	TS25	TKY08F	QOG/MT1035R-G1/M2
	AQXR204SN20S	★	N	20	130	20	35	6	22	TS25	TKY08F	
	AQXR214SA20S	★	Y	21	130	20	35	6	22	TS25	TKY08F	
	AQXR214SN20S	★	N	21	130	20	35	6	22	TS25	TKY08F	
	AQXR254SA25S	★	Y	25	140	25	40	7.5	27.5	TS33	TKY08D	QOG/MT1342R-G1/M2
	AQXR254SN25S	★	N	25	140	25	40	7.5	27.5	TS33	TKY08D	
	AQXR264SA25S	★	Y	26	140	25	40	7.5	27.5	TS33	TKY08D	
	AQXR264SN25S	★	N	26	140	25	40	7.5	27.5	TS33	TKY08D	
	AQXR324SA32S	★	Y	32	150	32	50	9.5	35.2	TS407	TKY15D	QOG/MT1651R-G1/M2
	AQXR324SN32S	★	N	32	150	32	50	9.5	35.2	TS407	TKY15D	
	AQXR334SA32S	★	Y	33	150	32	50	9.5	35.2	TS407	TKY15D	
	AQXR334SN32S	★	N	33	150	32	50	9.5	35.2	TS407	TKY15D	
	AQXR354SA32S	★	Y	35	150	32	50	11	40	TS407	TKY15D	QOG/MT1856R-G1/M2
	AQXR354SN32S	★	N	35	150	32	50	11	40	TS407	TKY15D	
	AQXR404SA32S	★	Y	40	160	32	60	12	44	TS55	TKY25D	QOG/MT2062R-G1/M2
	AQXR404SN32S	★	N	40	160	32	60	12	44	TS55	TKY25D	
	AQXR504SA42S	★	Y	50	170	42	70	15	55	TS6S	TKY30T	QOG/MT2576R-G1/M2
	AQXR504SN42S	★	N	50	170	42	70	15	55	TS6S	TKY30T	
Long	AQXR164SA16L	★	Y	16	175	16	50	4.5	17.6	TS2A	TKY06F	QOG/MT0830R-G1/M2
	AQXR164SN16L	★	N	16	175	16	50	4.5	17.6	TS2A	TKY06F	
	AQXR174SA16L	★	Y	17	175	16	30	4.5	17.6	TS2A	TKY06F	
	AQXR174SN16L	★	N	17	175	16	30	4.5	17.6	TS2A	TKY06F	
	AQXR204SA20L	★	Y	20	185	20	60	6	22	TS25	TKY08F	QOG/MT1035R-G1/M2
	AQXR204SN20L	★	N	20	185	20	60	6	22	TS25	TKY08F	
	AQXR214SA20L	★	Y	21	185	20	35	6	22	TS25	TKY08F	
	AQXR214SN20L	★	N	21	185	20	35	6	22	TS25	TKY08F	
	AQXR254SA25L	★	Y	25	220	25	75	7.5	27.5	TS33	TKY08D	QOG/MT1342R-G1/M2
	AQXR254SN25L	★	N	25	220	25	75	7.5	27.5	TS33	TKY08D	
	AQXR264SA25L	★	Y	26	220	25	40	7.5	27.5	TS33	TKY08D	
	AQXR264SN25L	★	N	26	220	25	40	7.5	27.5	TS33	TKY08D	
	AQXR324SA32L	★	Y	32	230	32	90	9.5	35.2	TS407	TKY15D	QOG/MT1651R-G1/M2
	AQXR324SN32L	★	N	32	230	32	90	9.5	35.2	TS407	TKY15D	
	AQXR334SA32L	★	Y	33	230	32	50	9.5	35.2	TS407	TKY15D	
	AQXR334SN32L	★	N	33	230	32	50	9.5	35.2	TS407	TKY15D	
	AQXR354SA32L	★	Y	35	230	32	50	11	40	TS407	TKY15D	QOG/MT1856R-G1/M2
	AQXR354SN32L	★	N	35	230	32	50	11	40	TS407	TKY15D	
	AQXR404SA32L	★	Y	40	240	32	60	12	44	TS55	TKY25D	QOG/MT2062R-G1/M2
	AQXR404SN32L	★	N	40	240	32	60	12	44	TS55	TKY25D	
	AQXR504SA42L	★	Y	50	250	42	70	15	55	TS6S	TKY30T	QOG/MT2576R-G1/M2
	AQXR504SN42L	★	N	50	250	42	70	15	55	TS6S	TKY30T	

*1 Dimension A3 represents the depth of cut when the cutting edge consists of 2 inserts.
*2 APMX: Maximum depth of cut.
*3 Clamp Torque (lbf-in) : TS2A=4.5, TS25=8.9, TS33=13, TS407=31, TS55=66, TS6S=76
*4 Y=Yes, N=No

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



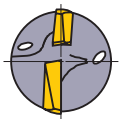
Metric Standard

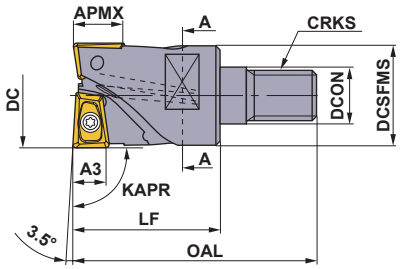
SHORT EDGE TYPE

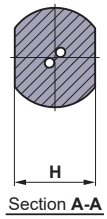
Right hand tool holder only.

Type	Order Number	Stock R	Coolant Thru *4	DC	LF	DCON	LH	A3 *1	APMX *2	Insert Screw *3	Wrench F D T	Insert
Standard	**AQXR162SA16S**	★	Y	16	120	16	30	4.5	7.4	TS2A	TKY06F	QO○T0830R-○○
	AQXR162SN16S	★	N	16	120	16	30	4.5	7.4	TS2A	TKY06F	
	AQXR172SA16S	★	Y	17	120	16	30	4.5	7.4	TS2A	TKY06F	
	AQXR172SN16S	★	N	17	120	16	30	4.5	7.4	TS2A	TKY06F	
	AQXR202SA20S	★	Y	20	130	20	35	6	9.2	TS25	TKY08F	QO○T1035R-○○
	AQXR202SN20S	★	N	20	130	20	35	6	9.2	TS25	TKY08F	
	AQXR212SA20S	★	Y	21	130	20	35	6	9.2	TS25	TKY08F	
	AQXR212SN20S	★	N	21	130	20	35	6	9.2	TS25	TKY08F	
	AQXR252SA25S	★	Y	25	140	25	40	7.5	11.5	TS33	TKY08D	QO○T1342R-○○
	AQXR252SN25S	★	N	25	140	25	40	7.5	11.5	TS33	TKY08D	
	AQXR262SA25S	★	Y	26	140	25	40	7.5	11.5	TS33	TKY08D	
	AQXR262SN25S	★	N	26	140	25	40	7.5	11.5	TS33	TKY08D	
	AQXR322SA32S	★	Y	32	150	32	50	9.5	14.5	TS407	TKY15D	QO○T1651R-○○
	AQXR322SN32S	★	N	32	150	32	50	9.5	14.5	TS407	TKY15D	
	AQXR332SA32S	★	Y	33	150	32	50	9.5	14.5	TS407	TKY15D	
	AQXR332SN32S	★	N	33	150	32	50	9.5	14.5	TS407	TKY15D	
	AQXR352SA32S	★	Y	35	150	32	50	11	16	TS407	TKY15D	QO○T1856R-○○
	AQXR352SN32S	★	N	35	150	32	50	11	16	TS407	TKY15D	
	AQXR402SA32S	★	Y	40	160	32	60	12	18	TS55	TKY25D	QO○T2062R-○○
	AQXR402SN32S	★	N	40	160	32	60	12	18	TS55	TKY25D	
	AQXR502SA42S	★	Y	50	170	42	70	15	23	TS6S	TKY30T	QO○T2576R-○○
	AQXR502SN42S	★	N	50	170	42	70	15	23	TS6S	TKY30T	
Long	**AQXR162SA16L**	★	Y	16	175	16	50	4.5	7.4	TS2A	TKY06F	QO○T0830R-○○
	AQXR162SN16L	★	N	16	175	16	50	4.5	7.4	TS2A	TKY06F	
	AQXR172SA16L	★	Y	17	175	16	30	4.5	7.4	TS2A	TKY06F	
	AQXR172SN16L	★	N	17	175	16	30	4.5	7.4	TS2A	TKY06F	
	AQXR202SA20L	★	Y	20	185	20	60	6	9.2	TS25	TKY08F	QO○T1035R-○○
	AQXR202SN20L	★	N	20	185	20	60	6	9.2	TS25	TKY08F	
	AQXR212SA20L	★	Y	21	185	20	35	6	9.2	TS25	TKY08F	
	AQXR212SN20L	★	N	21	185	20	35	6	9.2	TS25	TKY08F	
	AQXR252SA25L	★	Y	25	220	25	75	7.5	11.5	TS33	TKY08D	QO○T1342R-○○
	AQXR252SN25L	★	N	25	220	25	75	7.5	11.5	TS33	TKY08D	
	AQXR262SA25L	★	Y	26	220	25	40	7.5	11.5	TS33	TKY08D	
	AQXR262SN25L	★	N	26	220	25	40	7.5	11.5	TS33	TKY08D	
	AQXR322SA32L	★	Y	32	230	32	90	9.5	14.5	TS407	TKY15D	QO○T1651R-○○
	AQXR322SN32L	★	N	32	230	32	90	9.5	14.5	TS407	TKY15D	
	AQXR332SA32L	★	Y	33	230	32	50	9.5	14.5	TS407	TKY15D	
	AQXR332SN32L	★	N	33	230	32	50	9.5	14.5	TS407	TKY15D	
	AQXR352SA32L	★	Y	35	230	32	50	11	16	TS407	TKY15D	QO○T1856R-○○
	AQXR352SN32L	★	N	35	230	32	50	11	16	TS407	TKY15D	
	AQXR402SA32L	★	Y	40	240	32	60	12	18	TS55	TKY25D	QO○T2062R-○○
	AQXR402SN32L	★	N	40	240	32	60	12	18	TS55	TKY25D	
	AQXR502SA42L	★	Y	50	250	42	70	15	23	TS6S	TKY30T	QO○T2576R-○○
	AQXR502SN42L	★	N	50	250	42	70	15	23	TS6S	TKY30T	

*1 Dimension A3 represents the depth of cut when the cutting edge consists of 2 inserts.
*2 APMX: Maximum depth of cut.
*3 Clamp Torque (lbf-in) : TS2A=4.5, TS25=8.9, TS33=13, TS407=31, TS55=66, TS6S=76
*4 Y=Yes, N=No







Metric Standard

SCREW-IN TYPE

Right hand tool holder only.

Order Number	Stock	*5 Coolant Thru	Dimensions (mm)									*3	F D	
	R		DC	DCON	DCSFMS	OAL	LF	H	CRKS *4	A3 *1	APMX *2	Insert Screw	Wrench	Insert
AQXR162M08A30	★	Y	16	8.5	14.7	48	30	10	M8	4.5	7.4	TS2A	TKY06F	QO○T0830R-○○
AQXR172M08A30	★	Y	17	8.5	14.5	48	30	10	M8	4.5	7.4	TS2A	TKY06F	
AQXR202M10A30	★	Y	20	10.5	18.6	49	30	14	M10	6	9.2	TS25	TKY08F	QO○T1035R-○○
AQXR212M10A30	★	Y	21	10.5	18.5	49	30	14	M10	6	9.2	TS25	TKY08F	
AQXR252M12A35	★	Y	25	12.5	23.5	57	35	19	M12	7.5	11.5	TS33	TKY08D	QO○T1342R-○○
AQXR262M12A35	★	Y	26	12.5	23.5	57	35	19	M12	7.5	11.5	TS33	TKY08D	
AQXR322M16A40	★	Y	32	17	28.5	63	40	24	M16	9.5	14.5	TS407	TKY15D	QO○T1651R-○○
AQXR332M16A40	★	Y	33	17	28.5	63	40	24	M16	9.5	14.5	TS407	TKY15D	
AQXR352M16A40	★	Y	35	17	28.5	63	40	24	M16	11	16	TS407	TKY15D	QO○T1856R-○○
AQXR402M16A45	★	Y	40	17	28.5	68	45	24	M16	12	18	TS55	TKY25D	QO○T2062R-○○

*1 Dimension A3 represents the depth of cut when the cutting edge consists of 2 inserts.
*2 APMX: Maximum depth of cut.
*3 Clamp Torque (lbf-in) : TS2A=4.5, TS25=8.9, TS33=13, TS407=31, TS55=66
*4 Clamp Torque of the Head (lbf-ft) : M8=17.1, M10=33.8, M12=59.2, M16=66.7
*5 Y=Yes

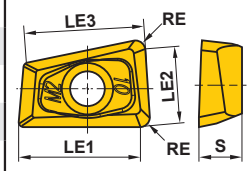
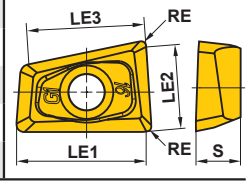
ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Material

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting
✠ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp Edge

Shape	Order Number	End Mill Dia.	Class	Edge Preparation	Coated MP6120	MP6130	MP7130	MP7140	MP9120	VP15TF	VP30RT	Carbide HTi10		LE1	LE2	LE3	S	RE	Geometry
M breaker	**QOMT0830R-M2**	ϕ.625, .672	M	E	●	●	●	●	●	●	●			.287	.173	.287	.120	.031	
	QOMT0934R-M2	ϕ.750, .797	M	E	●	●	●	●	●	●	●			.358	.220	.350	.134	.031	
	QOMT1443R-M2	ϕ1.000, 1.047	M	E	●	●	●	●	●	●	●			.484	.307	.465	.169	.031	
	QOMT1651R-M2	ϕ1.250, 1.297	M	E	●	●	●	●	●	●	●			.606	.390	.575	.200	.031	
	QOMT1959R-M2	ϕ1.500	M	E	●	●	●	●	●	●	●			.728	.472	.681	.232	.031	
G breaker	**QOGT0830R-G1**	ϕ.625, .672	G	E*	●				●	★		●		.287	.173	.287	.120	.016	
	QOGT0934R-G1	ϕ.750, .797	G	E*	●				●			●		.358	.220	.350	.134	.016	
	QOGT1443R-G1	ϕ1.000, 1.047	G	E*	●				●			●		.484	.307	.465	.169	.016	
	QOGT1651R-G1	ϕ1.250, 1.297	G	E*	●				●	★		●		.606	.390	.575	.200	.016	
	QOGT1959R-G1	ϕ1.500	G	E*	●				●			●		.728	.472	.681	.232	.016	

* Grade HTi10 has “F” honing.

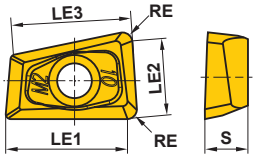
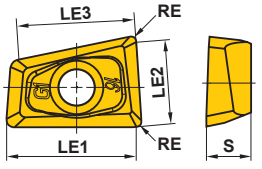
INSERTS

For Metric Standard

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Materials

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✠ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp Edge

Shape	Order Number	End Mill Dia.	Class	Edge Preparation	Coated MP6120	MP6130	MP7130	MP7140	MP9120	VP15TF	VP30RT	Carbide HTi10		LE1	LE2	LE3	S	RE	Geometry
M breaker	**QOMT0830R-M2**	ϕ16,17	M	E	●	●	●	●	●	●	●			7.3	4.4	7.3	3	0.8	
	QOMT1035R-M2	ϕ20,21	M	E	★	★	★	★	★	★	★			9.5	5.9	9.3	3.5	0.8	
	QOMT1342R-M2	ϕ25,26	M	E	★	★	★	★	★	★	★			12	7.6	11.6	4.2	0.8	
	QOMT1651R-M2	ϕ32,33	M	E	●	●	●	●	●	●	●			15.4	9.9	14.6	5.1	0.8	
	QOMT1856R-M2	ϕ35	M	E	★	★	★	★	★	★	★			16.9	10.9	16	5.6	0.8	
	QOMT2062R-M2	ϕ40	M	E	★	★	★	★	★	★	★			19.4	12.6	18.1	6.2	0.8	
	QOMT2576R-M2	ϕ50	M	E	★	★	★	★	★	★	★			24.8	16.1	23.1	7.6	0.8	
G breaker	**QOGT0830R-G1**	ϕ16,17	G	E*	●				●	★		●		7.7	4.9	7.3	3	0.4	
	QOGT1035R-G1	ϕ20,21	G	E*	★				★	★		★		9.9	6.4	9.3	3.5	0.4	
	QOGT1342R-G1	ϕ25,26	G	E*	★				★	★		★		12.4	8.1	11.6	4.2	0.4	
	QOGT1651R-G1	ϕ32,33	G	E*	●				●	★		●		15.8	10.4	14.6	5.1	0.4	
	QOGT1856R-G1	ϕ35	G	E*	★				★	★		★		17.3	11.4	16	5.6	0.4	
	QOGT2062R-G1	ϕ40	G	E*	★				★	★		★		19.8	13.1	18.1	6.2	0.4	
	QOGT2576R-G1	ϕ50	G	E*	★				★	★		★		25.2	16.6	23.1	7.6	0.4	

* Grade HTi10 has “F” honing.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

■ Cutting Speed

(inch)

Workpiece Material		No.	Hardness	Breaker	Cutting Speed for Different Grades **vc** (SFM)		
P					**MP6120**	**VP15TF**	**MP6130**
	Mild Steel	1	≤180HB	**M2/G1**	655 (560—785)	590 (490—720)	525 (425—655)
	Carbon Steel Alloy Steel	2	180—350HB	**M2**	590 (460—720)	525 (395—655)	460 (330—590)
M					**MP7130**	**MP7140**	**VP30RT (VP15TF)**
	Austenitic Stainless Steel	1	≤200HB	**M2/G1**	560 (395—655)	525 (330—590)	490 (395—590)
	Austenitic Stainless Steel	2	>200HB	**M2**			
	Ferritic and Martensitic Stainless Steel	3	≤200HB	**M2**			
	Ferritic and Martensitic Stainless Steel	4	>200HB	**M2**			
K					**VP15TF**		
	Gray Cast Iron	1	≤350MPa	**M2**	590 (490—720)	—	—
	Ductile Cast Iron	2	≤450MPa	**M2**	590 (490—720)	—	—
N					**HTi10**		
	Aluminum Alloys	1	Si<5%	**G1**	1640 (655—2625)	—	—
	Aluminum Alloys	2	5%≤Si≤10%	**G1**	330 (165—985)	—	—
	Aluminum Alloys	3	Si>5%	**G1**	330 (165—985)	—	—
S					**MP9120**		
	Titanium Alloys	1	—	**M2**	165 (100—230)	—	—
H					**VP15TF**		
	Hardened Steel	1	40—55HRC	**M2**	260 (165—395)	—	—

* Wet cutting is recommended for Titanium alloy.

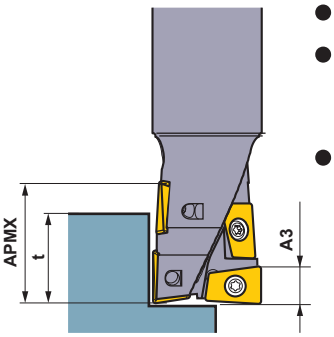
■ Cutting Conditions for Shoulder Milling

(inch)

	Workpiece Material	No.	Hardness	ϕ.625", .672" ϕ16 mm , 17 mm			ϕ.750", .797" ϕ20 mm , 21 mm			ϕ1.000", 1.047" ϕ25 mm , 26 mm		
				ap	ae	fr (IPR)	ap	ae	fr (IPR)	ap	ae	fr (IPR)
P	Mild Steel	1	≤180HB	≤.177	≤.315	.010	≤.236	≤ .394	.012	≤.295	≤ .492	.014
				.177—.472	≤.197	.006	.236—.551	≤ .276	.010	.295— .669	≤ .315	.011
				.472—.669	≤.118	.004	.551—.866	≤ .157	.007	.669—1.063	≤ .197	.008
	Carbon Steel Alloy Steel	2	180—350HB	≤.177	≤.315	.008	≤.236	≤ .394	.010	≤.295	≤ .492	.012
				.177—.472	≤.157	.006	.236—.551	≤ .236	.008	.295— .669	≤ .276	.010
				.472—.669	≤.079	.003	.551—.866	≤ .118	.006	.669—1.063	≤ .157	.007
M	Stainless Steel	1,2,3,4	≤270HB	≤.177	≤.315	.008	≤.236	≤ .394	.010	≤.295	≤ .492	.012
				.177—.472	≤.157	.006	.236—.551	≤ .236	.008	.295— .669	≤ .276	.010
				.472—.669	≤.079	.003	.551—.866	≤ .118	.006	.669—1.063	≤ .157	.007
K	Cast Iron	1,2	≤350MPa	≤.177	≤.315	.010	≤.236	≤ .394	.012	≤.295	≤ .492	.014
				.177—.472	≤.197	.006	.236—.551	≤ .276	.010	.295— .669	≤ .315	.011
				.472—.669	≤.118	.004	.551—.866	≤ .157	.007	.669—1.063	≤ .197	.008
N	Aluminum Alloys	1,2,3	—	≤.177	≤.433	.012	≤.236	≤ .551	.014	≤.295	≤ .492	.016
				.177—.472	≤.315	.008	.236—.551	≤ .394	.012	.295— .669	≤ .276	.013
				.472—.669	≤.197	.006	.551—.866	≤ .236	.009	.669—1.063	≤ .157	.010
S	Titanium Alloys	1	—	≤.177	≤.315	.006	≤.236	≤ .394	.007	≤.295	≤ .689	.008
				.177—.472	≤.157	.004	.236—.551	≤ .236	.006	.295— .669	≤ .492	.007
				.472—.669	≤.079	.002	.551—.866	≤ .118	.004	.669—1.063	≤ .295	.005
H	Hardened Steel	1	40—55HRC	≤.177	≤.197	.006	≤.236	≤ .236	.008	≤.295	≤ .276	.009
				.177—.472	≤.118	.004	.236—.551	≤ .157	.006	.295— .669	≤ .157	.007
				.472—.669	≤.039	.002	.551—.866	≤ .079	.005	.669—1.063	≤ .079	.006

	Workpiece Material	No.	Hardness	ϕ1.250", 1.297" ϕ32 mm , 33mm			ϕ1.500" ϕ40 mm		
				ap	ae	fr (IPR)	ap	ae	fr (IPR)
P	Mild Steel	1	≤180HB	≤ .374	≤.630	.016	≤ .472	≤.787	.020
				.374— .866	≤.433	.013	.472—1.102	≤.512	.016
				.866—1.378	≤.236	.010	1.102—1.732	≤.276	.012
	Carbon Steel Alloy Steel	2	180—350HB	≤ .374	≤.630	.014	≤ .472	≤.787	.016
				.374— .866	≤.394	.011	.472—1.102	≤.472	.013
				.866—1.378	≤.197	.008	1.102—1.732	≤.236	.010
M	Stainless Steel	1,2,3,4	≤270HB	≤ .374	≤.630	.014	≤ .472	≤.787	.016
				.374— .866	≤.394	.011	.472—1.102	≤.472	.013
				.866—1.378	≤.197	.008	1.102—1.732	≤.236	.010
K	Cast Iron	1,2	≤350MPa	≤ .374	≤.630	.016	≤ .472	≤.787	.020
				.374— .866	≤.433	.013	.472—1.102	≤.512	.016
				.866—1.378	≤.236	.010	1.102—1.732	≤.276	.012
N	Aluminum Alloys	1,2,3	—	≤ .374	≤.630	.018	≤ .472	≤.787	.022
				.374— .866	≤.394	.015	.472—1.102	≤.472	.018
				.866—1.378	≤.197	.012	1.102—1.732	≤.236	.014
S	Titanium Alloys	1	—	≤ .374	≤.906	.010	≤ .472	≤1.102	.011
				.374— .866	≤.630	.008	.472—1.102	≤.787	.009
				.866—1.378	≤.394	.006	1.102—1.732	≤.472	.007
H	Hardened Steel	1	40—55HRC	≤ .374	≤.315	.010	≤ .472	≤.394	.012
				.374— .866	≤.197	.008	.472—1.102	≤.236	.009
				.866—1.378	≤.079	.006	1.102—1.732	≤.079	.007

Note 1) Please pay special attention on the depth of cut when using the short edge type.
Note 2) When using the G1-breaker wiht coated grades VP15TF, MP6120 or MP9120, reduce the feed rate by 20%.
Note 3) For more information on "No.", please refer to page K281 for cutting speed.

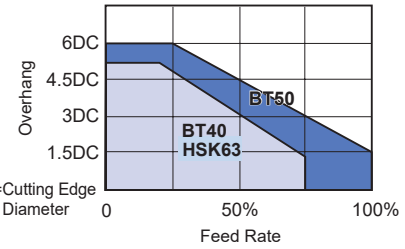


*Figures for A3 and APMX are shown in the table of holder standard.

- A3 is the depth of cut for the full dual blade portion at the end of the cutting edge.
- Beyond the range of A3 where overlapping occurs, there is an area where the cutting edge becomes single bladed, not forming full dual blade configuration.
  As such, please pay special attention to the relationship between depth of cut and feed.
- In general, the edge at the border of cut tends to suffer from damages. At large depth of cut operations, applying the following depth of cut (**t**), at which the edge is full dual bladed at the border of cut, is recommended to prevent damage to the cutting edge.

(inch)

Tool Diameter	Recommended Depth of Cut **t**
ϕ.625, .672	.472—.551
ϕ.750, .797	.551—.669
ϕ1.000, 1.047	.669—.866
ϕ1.250, 1.297	.866—1.102
ϕ1.500	1.102—1.378



- Chatter vibration and other problems tend to occur at operations where overhang length is large and/or machine rigidity is low, resulting in unstable machining.
- Please reduce feed accordingly, using the above chart as a guideline.

■ Cutting Conditions for Slotting

(inch)

Workpiece Material		No.	Hardness	ϕ.625", .672" ϕ16 mm , 17 mm		ϕ.750", .797" ϕ20 mm , 21 mm		ϕ1.000", 1.047" ϕ25 mm , 26 mm	
				ap	fr (IPR)	ap	fr (IPR)	ap	fr (IPR)
P	Mild Steel	1	≤180HB	≤.177	.006	≤.236	.007	≤ .295	.008
				.177—.472	.004	.236—.551	.006	.295— .669	.006
				.472—.669	.003	.551—.866	.004	.669—1.063	.005
	Carbon Steel Alloy Steel	2	180—350HB	≤.177	.006	≤.236	.006	≤ .295	.007
				.177—.472	.004	.236—.551	.005	.295— .669	.006
				.472—.669	.002	.551—.866	.004	.669—1.063	.004
M	Stainless Steel	1,2,3,4	≤270HB	≤.177	.006	≤.236	.006	≤ .295	.007
				.177—.472	.004	.236—.551	.005	.295— .669	.006
				.472—.669	.002	.551—.866	.004	.669—1.063	.004
K	Cast Iron	1,2	≤350MPa	≤.177	.006	≤.236	.007	≤ .295	.008
				.177—.472	.004	.236—.551	.006	.295— .669	.006
				.472—.669	.003	.551—.866	.004	.669—1.063	.005
N	Aluminum Alloys	1,2,3	—	≤.177	.007	≤.236	.008	≤ .295	.009
				.177—.472	.005	.236—.551	.006	.295— .669	.007
				.472—.669	.004	.551—.866	.005	.669—1.063	.006
S	Titanium Alloys	1	—	≤.177	.004	≤.236	.005	≤ .295	.006
				.177—.472	.002	.236—.551	.003	.295— .669	.004
				.472—.669	.001	.551—.866	.002	.669—1.063	.003
H	Hardened Steel	1	40—55HRC	≤.177	.004	≤.236	.005	≤ .295	.006
				.177—.472	.003	.236—.551	.004	.295— .669	.005

Workpiece Material		No.	Hardness	ϕ1.250", 1.297" ϕ32 mm , 33 mm		ϕ1.500" ϕ40 mm	
				ap	fr (IPR)	ap	fr (IPR)
P	Mild Steel	1	≤180HB	≤ .374	.010	≤ .472	.012
				.374— .866	.008	.472—1.102	.010
				.866—1.378	.006	1.102—1.732	.007
	Carbon Steel Alloy Steel	2	180—350HB	≤ .374	.008	≤ .472	.010
				.374— .866	.006	.472—1.102	.008
				.866—1.378	.005	1.102—1.732	.006
M	Stainless Steel	1,2,3,4	≤270HB	≤ .374	.008	≤ .472	.010
				.374— .866	.006	.472—1.102	.008
				.866—1.378	.005	1.102—1.732	.006
K	Cast Iron	1,2	≤350MPa	≤ .374	.010	≤ .472	.012
				.374— .866	.008	.472—1.102	.010
				.866—1.378	.006	1.102—1.732	.007
N	Aluminum Alloys	1,2,3	—	≤ .374	.011	≤ .472	.013
				.374— .866	.009	.472—1.102	.011
				.866—1.378	.006	1.102—1.732	.008
S	Titanium Alloys	1	—	≤ .374	.007	≤ .472	.009
				.374— .866	.005	.472—1.102	.008
				.866—1.378	.004	1.102—1.732	.006
H	Hardened Steel	1	40—55HRC	≤ .374	.006	≤ .472	.007
				.374— .866	.005	.472—1.102	.006

Note 1) Please pay special attention on the depth of cut when using the short edge type.
Note 2) When using the G1-breaker wiht coated grades VP15TF, MP6120 or MP9120, reduce the feed rate by 20%.
Note 3) For more information on "No.", please refer to page K281 for cutting speed.

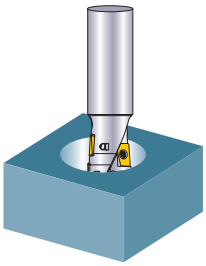
For Helical Milling

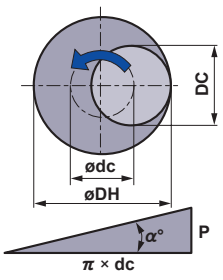
(inch)

Workpiece Material		No.	Hardness	ϕ.625", .672" ϕ16 mm , 17 mm				ϕ.750", .797" ϕ20 mm , 21 mm				ϕ1.000", 1.047" ϕ25 mm , 26 mm			
				DH	APMX	fr (IPR)	P (inch/pass)	DH	APMX	fr (IPR)	P (inch/pass)	DH	APMX	fr (IPR)	P (inch/pass)
P	Mild Steel	1	≤180HB	.787	.315	.006	.017	.945	.394	.007	.017	1.181	.492	.008	.022
				.984	.472	.006	.039	1.181	.591	.006	.043	1.496	.748	.007	.056
				1.142	.630	.005	.056	1.417	.787	.006	.069	1.772	.984	.006	.087
	Carbon Steel Alloy Steel	2	180—350HB	.787	.315	.006	.013	.945	.394	.006	.013	1.181	.492	.007	.016
				.984	.472	.005	.029	1.181	.591	.006	.032	1.496	.748	.006	.042
				1.142	.630	.004	.042	1.417	.787	.005	.052	1.772	.984	.006	.065
M	Stainless Steel	1,2,3,4	≤270HB	.787	.118	.006	.009	.945	.157	.006	.009	1.181	.197	.007	.011
				.984	.197	.005	.019	1.181	.276	.006	.022	1.496	.354	.006	.028
				1.142	.315	.004	.028	1.417	.394	.005	.035	1.772	.492	.006	.043
K	Cast Iron	1,2	≤350MPa	.787	.394	.006	.022	.945	.551	.007	.022	1.181	.709	.008	.027
				.984	.512	.006	.048	1.181	.669	.006	.054	1.496	.827	.007	.070
				1.142	.630	.005	.070	1.417	.787	.006	.086	1.772	.984	.006	.108
N	Aluminum Alloys	1,2,3	—	.787	.394	.007	.017	.945	.551	.008	.017	1.181	.709	.009	.022
				.984	.512	.006	.039	1.181	.669	.007	.043	1.496	.827	.008	.056
				1.142	.630	.006	.056	1.417	.787	.006	.069	1.772	.984	.007	.087
S	Titanium Alloys	1	—	.787	.118	.004	.009	.945	.157	.004	.009	1.181	.197	.005	.011
				.984	.197	.003	.019	1.181	.276	.004	.022	1.496	.354	.004	.028
				1.142	.315	.003	.028	1.417	.394	.003	.035	1.772	.492	.004	.043
H	Hardened Steel	1	40—55HRC	.787	.118	.004	.009	.945	.157	.005	.009	1.181	.197	.006	.011
				.984	.197	.003	.019	1.181	.276	.004	.022	1.496	.354	.005	.028
				1.142	.315	.002	.028	1.417	.394	.003	.035	1.772	.492	.004	.043

Workpiece Material		No.	Hardness	ϕ1.250", 1.297" ϕ32 mm , 33 mm				ϕ1.500" ϕ40 mm			
				DH	APMX	fr (IPR)	P (inch/pass)	DH	APMX	fr (IPR)	P (inch/pass)
P	Mild Steel	1	≤180HB	1.496	.630	.010	.026	1.890	.787	.012	.035
				1.890	.945	.009	.069	2.362	1.181	.010	.086
				2.283	1.260	.008	.112	2.835	1.575	.009	.138
	Carbon Steel Alloy Steel	2	180—350HB	1.496	.630	.008	.019	1.890	.787	.010	.026
				1.890	.945	.007	.052	2.362	1.181	.009	.065
				2.283	1.260	.006	.084	2.835	1.575	.008	.104
M	Stainless Steel	1,2,3,4	≤270HB	1.496	.236	.008	.013	1.890	.315	.010	.017
				1.890	.433	.007	.035	2.362	.551	.009	.043
				2.283	.630	.006	.056	2.835	.787	.008	.069
K	Cast Iron	1,2	≤350MPa	1.496	.866	.010	.032	1.890	1.102	.012	.043
				1.890	1.063	.009	.086	2.362	1.339	.010	.108
				2.283	1.260	.008	.141	2.835	1.575	.009	.173
N	Aluminum Alloys	1,2,3	—	1.496	.866	.011	.026	1.890	1.102	.013	.035
				1.890	1.063	.009	.069	2.362	1.339	.011	.086
				2.283	1.260	.009	.112	2.835	1.575	.009	.138
S	Titanium Alloys	1	—	1.496	.236	.006	.013	1.890	.315	.007	.017
				1.890	.433	.005	.035	2.362	.551	.006	.043
				2.283	.630	.004	.056	2.835	.787	.006	.069
H	Hardened Steel	1	40—55HRC	1.496	.236	.006	.013	1.890	.315	.007	.017
				1.890	.433	.006	.035	2.362	.551	.006	.043
				2.283	.630	.005	.056	2.835	.787	.006	.069

Note 1) Helical grooving is strongly recommended for machining of tempered steel.
Note 2) When using the G1-breaker wiht coated grades VP15TF, MP6120 or MP9120, reduce the feed rate by 20%.
Note 3) For more information on "No.", please refer to page K281 for cutting speed.





● How to calculate the theoretical center of the cutter path.

$$\text{Ø dc (Theoretical center of the tool)} = \text{Ø DH (Desired hole diameter)} - \text{DC (Cutting edge diameter)}$$

● Depth of cut for a pass.

$$P = \pi \times dc \times \tan\alpha^\circ \quad (*\ \alpha^\circ \leq 3^\circ)$$

● Min. machined hole diameter at helical milling : 1.2DC
Max. machined hole diameter at helical milling : 1.8DC

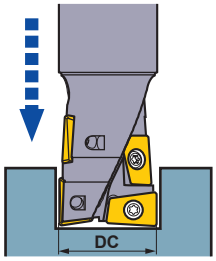
● For chip discharge, please always apply air blow.
(When aluminum cutting, please use coolant.)

● When helical milling, it is recommended to reduce the feed rate by 40%.

● When using the G1-breaker wiht coated grades VP15TF, MP6120 or MP9120, reduce the feed rate by 20%.

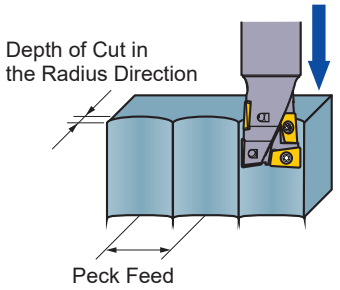
■ For Drilling and Plunging

● Drilling



- The recommended drilling depth is less than .5DC.
- Use step feed when drilling (.010－.020 inch) to ensure that the chips are effectively broken.
- Use internal or external cooling to ensure that the chips disposal is sufficiently achieved.
- The chips generated can discharge in any direction, so ensure that adequate safety precautions are taken.

● Plunging



- The feed for plunging is the same as the feed for drilling.
- No step feed necessary.
- Please refer to the following table for the depth of cut at plunging operations.

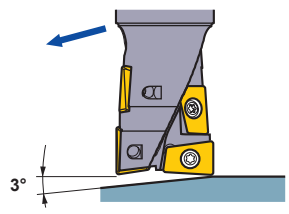
Depth of Cut in the Radius Direction	≤ .4DC
Peck Feed	≤ .5DC

(inch)

Workpiece Material		No.	Hardness	ϕ.625", .672" ϕ16 mm , 17 mm		ϕ.750", .797" ϕ20 mm , 21 mm		ϕ1.000", 1.047" ϕ25 mm , 26 mm		ϕ1.250", 1.297" ϕ32 mm, 33 mm, 35 mm		ϕ1.500" ϕ40 mm	
				fr (IPR)	Step	fr (IPR)	Step	fr (IPR)	Step	fr (IPR)	Step	fr (IPR)	Step
P	Mild Steel	1	≤180HB	.001	.008	.002	.012	.002	.012	.002	.012	.002	.012
	Carbon Steel Alloy Steel	2	180－350HB	.001	.008	.002	.012	.002	.012	.002	.012	.002	.012
M	Stainless Steel	1,2,3,4	≤270HB	.001	.006	.002	.010	.002	.010	.002	.010	.002	.010
K	Gray Cast Iron	1	≤350MPa	.002	.016	.002	.020	.002	.020	.003	.020	.003	.020
N	Aluminum Alloys	1,2,3	–	.002	.008	.002	.012	.002	.012	.003	.012	.003	.012
H	Hardened Steel	1	40－55HRC	.001	.006	.001	.010	.001	.010	.002	.010	.002	.010

Note 1) Helical grooving is strongly recommended for machining of tempered steel.
Note 2) When using the G1-breaker wiht coated grades VP15TF, MP6120 or MP9120, reduce the feed rate by 20%.
Note 3) For more information on "No.", please refer to page K281 for cutting speed.

■ For Ramping



- When machining steel the recommended ramping angle is 3°. If a ramping angle larger than 3° is used, then the chips may not be broken effectively resulting in chips wrapping around the tool.
- When ramping, it is recommended to reduce the feed rate by 40%.

MULTI FUNCTIONAL MILLING

AJX

P M K N S H

Fig.1 **"FA" Flat Shank**

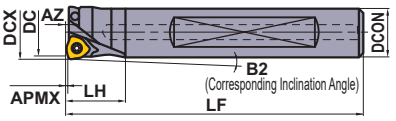


Fig.2

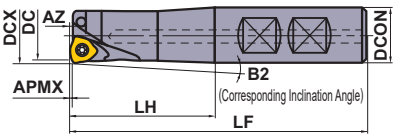


Fig.3

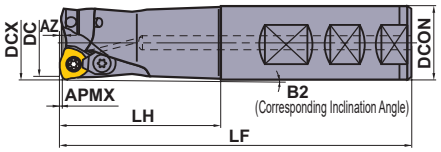
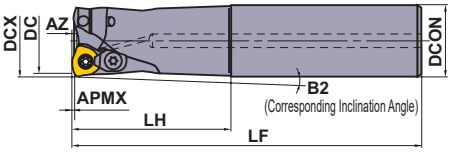


Fig.4



■ SHANK TYPE

Right hand tool holder only.

With Air / coolant through.

(inch)

DCX	Order Number	Stock R	Number of Teeth	LF	DC	LH	DCON	B2	APMX	RMPX	Fig.	Insert Type
.625	**AJXU06R102FA10S**	●	2	3.750	.346	1.250	.625	2.12°	.039	3°	1	JOM□06T2
.625	**AJXU06R102SA10M**	●	2	5.750	.346	1.500	.625	1.75°	.039	3°	4	JOM□06T2
.625	**AJXU06R102SA10L**	●	2	5.750	.346	2.750	.625	0.93°	.039	3°	4	JOM□06T2
.688	**AJXU06R112FA10S**	●	2	3.750	.409	.750	.625	—	.039	2.5°	1	JOM□06T2
.688	**AJXU06R112SA10L**	●	2	5.750	.409	.750	.625	—	.039	2.5°	4	JOM□06T2
.750	**AJXU08R122WA12S**	●	2	4.750	.417	2.000	.750	1.31°	.059	3.5°	2	JOM□0803
.750	**AJXU06R123SA12M**	●	3	7.000	.472	2.375	.750	1.11°	.039	1.7°	4	JOM□06T2
.750	**AJXU08R122SA12L**	●	2	7.000	.417	4.000	.750	0.64°	.059	3.5°	4	JOM□0803
.875	**AJXU08R142FA12S**	●	2	4.750	.535	1.250	.750	—	.059	3°	1	JOM□0803
.875	**AJXU08R142SA12L**	●	2	7.000	.535	1.250	.750	—	.059	3°	4	JOM□0803
1.000	**AJXU09R162WA16S**	●	2	5.625	.602	2.375	1.000	1.1°	.079	4°	3	JDM□09T3
1.000	**AJXU08R163SA16M**	●	3	8.000	.661	2.750	1.000	0.94°	.059	2°	4	JOM□0803
1.000	**AJXU09R162SA16L**	●	2	8.000	.602	4.750	1.000	0.54°	.079	4°	4	JDM□09T3
1.125	**AJXU09R182FA16S**	●	2	5.625	.728	1.625	1.000	—	.079	3°	1	JDM□09T3
1.125	**AJXU09R182SA16L**	●	2	8.000	.728	1.625	1.000	—	.079	3°	4	JDM□09T3
1.250	**AJXU12R202WA20S**	●	2	6.000	.789	2.750	1.250	0.94°	.079	4°	3	JDM□1204
1.250	**AJXU09R203SA20M**	●	3	8.000	.854	3.125	1.250	0.82°	.079	3.3°	4	JDM□09T3
1.250	**AJXU12R202SA20L**	●	2	8.000	.789	4.750	1.250	0.54°	.079	4°	4	JDM□1204
1.500	**AJXU12R243WA20S**	●	3	6.000	1.038	2.000	1.250	—	.079	3°	3	JDM□1204
1.500	**AJXU09R244SA20M**	●	4	10.000	1.114	2.375	1.250	—	.079	2.4°	4	JDM□09T3
1.500	**AJXU12R243SA20L**	●	3	10.000	1.038	2.000	1.250	—	.079	3°	4	JDM□1204
1.500	**AJXU12R243SA24L**	●	3	10.000	1.038	2.750	1.500	0.94°	.079	3°	4	JDM□1204
2.000	**AJXU14R323WA24S**	●	3	6.000	1.534	2.000	1.500	—	.079	4.2°	3	JDM□1405

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

SPARE PARTS

(inch)

Tool Holder Type	 *		 *		F  D
	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench
AJXU06R	TS25	–	–	–	TKY08F
AJXU08R	TS33	–	–	–	TKY08D
AJXU09R	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJXU12R	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJXU14R	TS54	AMS5	AJS5014T25	ASS3	TKY25D

* Clamp Torque (lbf-in) : TS25=8.9, TS33=8.9, TS351=22, TS43=31, TS54=66, AJS3010T10=22, AJS4012T15=31, AJS5014T25=66

Fig.1

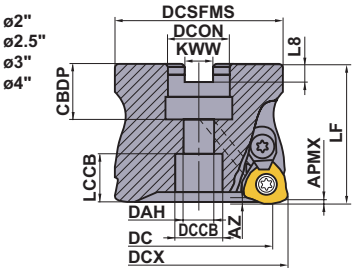
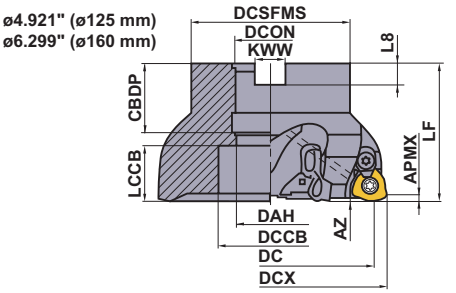


Fig.2



Right hand tool holder only.

(inch)

DCX	Set Bolt	Geometry	
2.000"	HSCU37513H	①	① ② With Air / coolant through.
2.500", 3.000"	HSCU50014H		
4.000"	HSCU75016H		
4.921"	MBAU75016H	②	
6.299"	MBAU100016H		

■ARBOR TYPE

With Air / coolant through.

DCX=inch size, DCON=inch size

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (lbs)	APMX	RMPX	Fig.	Insert Type
2.000	**AJXU12R0203**	●	3	1.539	2.000	.750	.888	.059	2°	1	JDM□1204
2.000	**AJXU12R0204**	●	4	1.539	2.000	.750	.866	.059	2°	1	JDM□1204
2.000	**AJXU09R0205**	●	5	1.606	2.000	.750	.925	.039	1.1°	1	JDM□09T3
2.500	**AJXU14R2503C**	●	3	2.032	2.000	1.000	1.393	.079	2.8°	1	JDM□1405
2.500	**AJXU14R2504C**	●	4	2.032	2.000	1.000	1.338	.079	2.8°	1	JDM□1405
2.500	**AJXU12R2505C**	●	5	2.039	2.000	1.000	1.427	.059	1.5°	1	JDM□1204
3.000	**AJXU14R0304C**	●	4	2.532	2.000	1.000	2.133	.079	1.8°	1	JDM□1405
3.000	**AJXU14R0305C**	●	5	2.532	2.000	1.000	2.078	.079	1.8°	1	JDM□1405
3.000	**AJXU12R0306C**	●	6	2.543	2.000	1.000	2.274	.059	1.2°	1	JDM□1204
4.000	**AJXU14R0405E**	●	5	3.531	2.500	1.500	4.806	.079	1.2°	1	JDM□1405
4.000	**AJXU14R0406E**	●	6	3.531	2.500	1.500	4.981	.079	1.2°	1	JDM□1405
4.000	**AJXU12R0407E**	●	7	3.539	2.500	1.500	5.283	.059	0.8°	1	JDM□1204
4.921	**AJX14RA12505E**	●	5	4.457	2.480	1.500	7.275	.079	0.8°	2	JDM□1405
4.921	**AJX14RA12507E**	●	7	4.457	2.480	1.500	7.275	.079	0.8°	2	JDM□1405
6.299	**AJX14RA16006F**	●	6	5.835	2.480	2.000	11.023	.079	0.5°	2	JDM□1405
6.299	**AJX14RA16008F**	●	8	5.835	2.480	2.000	11.023	.079	0.5°	2	JDM□1405

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

MOUNTING DIMENSIONS

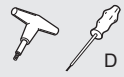
DCX=inch size, DCON=inch size

(inch)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
2.000	**AJXU12R0203**	.750	.748	.415	.600	.633	1.875	.313	.187	1
2.000	**AJXU12R0204**	.750	.748	.415	.600	.633	1.875	.313	.187	1
2.000	**AJXU09R0205**	.750	.748	.415	.600	.634	1.875	.313	.187	1
2.500	**AJXU14R2503C**	1.000	1.024	.539	.787	.628	2.375	.375	.219	1
2.500	**AJXU14R2504C**	1.000	1.024	.539	.787	.628	2.375	.375	.219	1
2.500	**AJXU12R2505C**	1.000	1.024	.539	.787	.633	2.375	.375	.219	1
3.000	**AJXU14R0304C**	1.000	1.024	.539	.787	.628	2.750	.375	.219	1
3.000	**AJXU14R0305C**	1.000	1.024	.539	.787	.628	2.750	.375	.219	1
3.000	**AJXU12R0306C**	1.000	1.024	.539	.787	.630	2.750	.375	.219	1
4.000	**AJXU14R0405E**	1.500	1.181	.787	1.181	.931	3.750	.625	.375	1
4.000	**AJXU14R0406E**	1.500	1.181	.787	1.181	.931	3.750	.625	.375	1
4.000	**AJXU12R0407E**	1.500	1.181	.787	1.181	.936	3.750	.625	.375	1
4.921	**AJX14RA12505E**	1.500	1.575	-	2.205	.872	3.937	.625	.375	2
4.921	**AJX14RA12507E**	1.500	1.575	-	2.205	.872	3.937	.625	.375	2
6.299	**AJX14RA16006F**	2.000	1.693	-	2.835	.754	3.937	.750	.437	2
6.299	**AJX14RA16008F**	2.000	1.693	-	2.835	.754	3.937	.750	.437	2

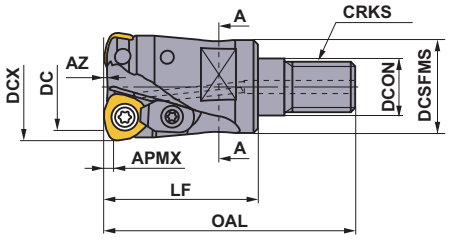
SPARE PARTS

(inch)

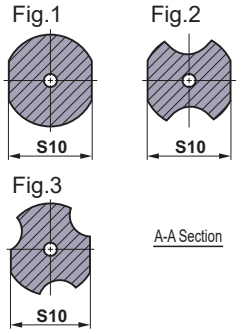
Tool Holder Type	 * Clamp Screw	 Clamp Bridge	 * Clamp Bridge Screw	 Spring	 T D Wrench
AJXU09R	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJXU12R	TS43	AMS4	AJS4012T15	ASS2	TKY15T
AJXU14R	TS54	AMS5	AJS5014T25	ASS3	TKY25T
AJX14R	TS54	AMS5	AJS5014T25	ASS3	TKY25T

* Clamp Torque (lbf-in) : TS351=22, TS43=31, TS54=66, AJS3010T10=22, AJS4012T15=31, AJS5014T25=66

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.



SCREW-IN TYPE

With Air / coolant through.

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	OAL	DCON	DCSFMS	S10	CRKS	WT (lbs)	APMX	RMPX	Fig.	Shank Arbor Type	Insert Type
.625	**AJXU06R102AM0830**	●	2	.346	1.181	1.890	.335	.512	.394	M8	.2	.039	3°	1	SCU10M08	JOM□06T2
.750	**AJXU08R122AM1030**	●	2	.417	1.181	1.929	.413	.709	.551	M10	.2	.059	3.5°	2	SCU12M10	JOM□0803
.750	**AJXU06R123AM1030**	●	3	.472	1.181	1.929	.413	.709	.551	M10	.2	.039	1.7°	3	SCU12M10	JOM□06T2
.875	**AJXU08R142AM1030**	●	2	.535	1.181	1.929	.413	.709	.551	M10	.2	.059	3°	2	SCU12M10	JOM□0803
.875	**AJXU06R143AM1030**	●	3	.595	1.181	1.929	.413	.709	.551	M10	.2	.039	0.7°	3	SCU12M10	JOM□06T2
1.000	**AJXU09R162AM1235**	●	2	.602	1.378	2.244	.492	.827	.748	M12	.4	.079	4°	2	SCU16M12	JDM□09T3
1.000	**AJXU08R163AM1235**	●	3	.661	1.378	2.244	.492	.827	.748	M12	.2	.059	2°	1	SCU16M12	JOM□0803
1.125	**AJXU09R182AM1235**	●	2	.728	1.378	2.244	.492	.827	.748	M12	.4	.079	3°	2	SCU16M12	JDM□09T3
1.125	**AJXU08R183AM1235**	●	3	.784	1.378	2.244	.492	.827	.748	M12	.2	.059	0.5°	1	SCU16M12	JOM□0803
1.250	**AJXU09R203AM1645**	●	3	.854	1.772	2.677	.669	1.142	.945	M16	.4	.079	2.5°	1	SCU20M16	JDM□09T3
1.375	**AJXU09R223AM1645**	●	3	.976	1.772	2.677	.669	1.142	.945	M16	.4	.079	2°	1	SCU20M16	JDM□09T3

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).
Note 2) For screw-in type shank arbors, refer to page K382.

SPARE PARTS

(inch)

Tool Holder Type	* Clamp Screw	Clamp Bridge	* Clamp Bridge Screw	Spring	F D Wrench
AJXU06R	TS25	—	—	—	TKY08F
AJXU08R	TS33	—	—	—	TKY08D
AJXU09R	TS351	AMS3	AJS3010T10	ASS2	TKY10D

* Clamp Torque (lbf-in) : TS25=8.9, TS33=8.9, TS351=22, AJS3010T10=22

Fig.1

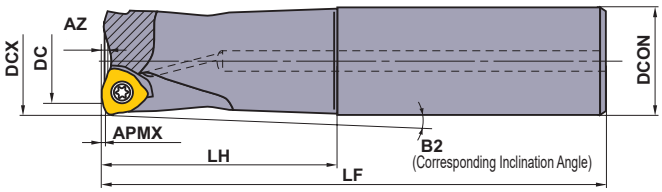


Fig.2

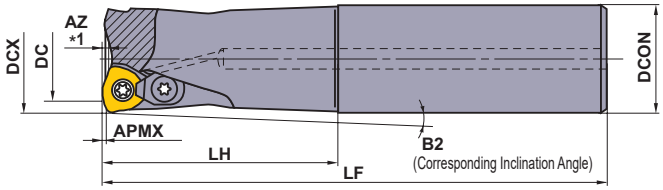
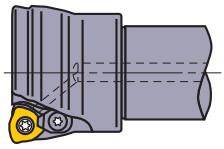


Fig3



Metric Standard

Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(mm)

DCX	Order Number	Stock R	Number of Teeth	LF	DC	LH	DCON	B2	APMX	RMPX	Fig.	Insert Type
16	**AJX06R162SA16SS**	★	2	70	8.9	20	16	3.5°	0.6	3°	1	JOM□06T2
16	**AJX06R162SA16S**	★	2	110	8.9	30	16	2.25°	0.6	3°	1	JOM□06T2
16	**AJX06R162SA16L**	★	2	150	8.9	70	16	0.93°	0.6	3°	1	JOM□06T2
16	**AJX06R162SA16EL**	★	2	200	8.9	100	16	0.64°	0.6	3°	1	JOM□06T2
17	**AJX06R172SA16SS**	★	2	70	9.9	20	16	—	0.6	2.5°	1	JOM□06T2
17	**AJX06R172SA16S**	★	2	110	9.9	20	16	—	0.6	2.5°	1	JOM□06T2
17	**AJX06R172SA16L**	★	2	150	9.9	20	16	—	0.6	2.5°	1	JOM□06T2
17	**AJX06R172SA16EL**	★	2	200	9.9	20	16	—	0.6	2.5°	1	JOM□06T2
20	**AJX08R202SA20S**	★	2	130	11.4	50	20	1.34°	0.9	3.5°	1	JOM□0803
20	**AJX06R203SA20S**	★	3	130	12.9	50	20	1.31°	0.6	1.5°	1	JOM□06T2
20	**AJX08R202SA20L**	★	2	180	11.4	100	20	0.65°	0.9	3.5°	1	JOM□0803
20	**AJX06R203SA20L**	★	3	180	12.9	100	20	0.64°	0.6	1.5°	1	JOM□06T2
20	**AJX08R202SA20EL**	★	2	250	11.4	130	20	0.5°	0.9	3.5°	1	JOM□0803
22	**AJX08R222SA20S**	★	2	130	13.4	30	20	—	0.9	3°	1	JOM□0803
22	**AJX06R223SA20S**	★	3	130	14.9	30	20	—	0.6	1°	1	JOM□06T2
22	**AJX08R222SA20L**	★	2	180	13.4	30	20	—	0.9	3°	1	JOM□0803
22	**AJX06R223SA20L**	★	3	180	14.9	30	20	—	0.6	1°	1	JOM□06T2
22	**AJX08R222SA20EL**	★	2	250	13.4	30	20	—	0.9	3°	1	JOM□0803
25	**AJX09R252SA25S**	★	2	140	14.9	60	25	1.1°	1.2	4°	2	JDM□09T3
25	**AJX08R253SA25S**	★	3	140	16.4	60	25	1.1°	0.9	2°	1	JOM□0803
NEW 25	**AJX06R254SA25S**	★	4	140	17.9	60	25	1.11°	0.6	0.8°	1	JOM□06T2
25	**AJX09R252SA25L**	★	2	200	14.9	120	25	0.54°	1.2	4°	2	JDM□09T3
25	**AJX08R253SA25L**	★	3	200	16.4	120	25	0.54°	0.9	2°	1	JOM□0803
NEW 25	**AJX06R254SA25L**	★	4	200	17.9	120	25	0.54°	0.6	0.8°	1	JOM□06T2
25	**AJX09R252SA25EL**	★	2	300	14.9	180	25	0.36°	1.2	4°	2	JDM□09T3
28	**AJX09R282SA25S**	★	2	140	17.9	40	25	—	1.2	3°	2	JDM□09T3
28	**AJX08R283SA25S**	★	3	140	19.4	40	25	—	0.9	1.7°	1	JOM□0803
NEW 28	**AJX06R284SA25S**	★	4	140	20.9	40	25	—	0.6	0.7°	1	JOM□06T2
28	**AJX09R282SA25L**	★	2	200	17.9	40	25	—	1.2	3°	2	JDM□09T3
28	**AJX08R283SA25L**	★	3	200	19.4	40	25	—	0.9	1.7°	1	JOM□0803
NEW 28	**AJX06R284SA25L**	★	4	200	20.9	40	25	—	0.6	0.7°	1	JOM□06T2
28	**AJX09R282SA25EL**	★	2	300	17.9	40	25	—	1.2	3°	2	JDM□09T3
30	**AJX12R302SA32S**	★	2	150	18.3	70	32	1.82°	1.2	4.5°	2	JDM□1204
30	**AJX09R303SA32S**	★	3	150	20.0	70	32	1.79°	1.2	2.7°	2	JDM□09T3
30	**AJX12R302SA32L**	★	2	200	18.3	120	32	1.04°	1.2	4.5°	2	JDM□1204
30	**AJX09R303SA32L**	★	3	200	20.0	120	32	1.03°	1.2	2.7°	2	JDM□09T3
30	**AJX12R302SA32EL**	★	2	300	18.3	180	32	0.69°	1.2	4.5°	2	JDM□1204

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1

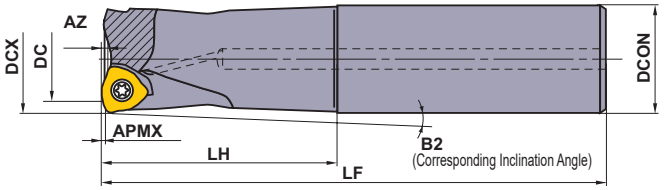


Fig.2

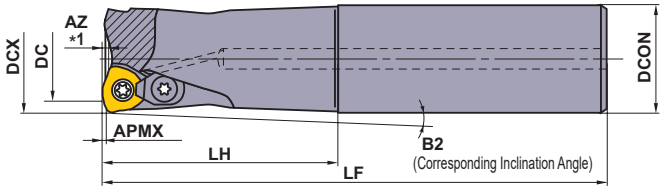
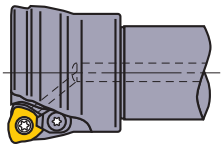


Fig3



Right hand tool holder only.

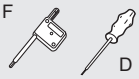
(mm)

	DCX	Order Number	Stock R	Number of Teeth	LF	DC	LH	DCON	B2	APMX	RMPX	Fig.	Insert Type
	32	**AJX12R322SA32S**	★	2	150	20.3	70	32	0.96°	1.2	4°	2	JDM□1204
	32	**AJX09R323SA32S**	★	3	150	21.9	70	32	0.94°	1.2	2.5°	2	JDM□09T3
NEW	32	**AJX08R324SA32S**	★	4	150	23.4	70	32	0.95°	0.9	1.4°	1	JOM□0803
NEW	32	**AJX06R325SA32S**	★	5	150	24.9	70	32	0.94°	0.6	0.5°	1	JOM□06T2
NEW	32	**AJX06R326SA32S**	★	6	150	24.9	70	32	0.94°	0.6	0.5°	1	JOM□06T2
	32	**AJX12R322SA32L**	★	2	200	20.3	120	32	0.55°	1.2	4°	2	JDM□1204
	32	**AJX09R323SA32L**	★	3	200	21.9	120	32	0.54°	1.2	2.5°	2	JDM□09T3
NEW	32	**AJX08R324SA32L**	★	4	200	23.4	120	32	0.55°	0.9	1.4°	1	JOM□0803
NEW	32	**AJX06R325SA32L**	★	5	200	24.9	120	32	0.54°	0.6	0.5°	1	JOM□06T2
	32	**AJX12R322SA32EL**	★	2	300	20.3	180	32	0.36°	1.2	4°	2	JDM□1204
	35	**AJX12R352SA32S**	★	2	150	23.3	50	32	—	1.2	3.5°	2	JDM□1204
	35	**AJX09R353SA32S**	★	3	150	24.9	50	32	—	1.2	2°	2	JDM□09T3
	35	**AJX12R352SA32L**	★	2	200	23.3	50	32	—	1.2	3.5°	2	JDM□1204
	35	**AJX09R353SA32L**	★	3	200	24.9	50	32	—	1.2	2°	2	JDM□09T3
	35	**AJX12R352SA32EL**	★	2	300	23.3	50	32	—	1.2	3.5°	2	JDM□1204
	40	**AJX12R403SA32S**	★	3	150	28.3	50	32	—	1.2	3°	2	JDM□1204
	40	**AJX09R404SA32S**	★	4	150	29.9	50	32	—	1.2	1.5°	2	JDM□09T3
NEW	40	**AJX08R406SA32S**	★	6	150	31.4	50	32	—	0.9	1°	1	JOM□0803
	40	**AJX12R403SA32L**	★	3	250	28.3	50	32	—	1.2	3°	2	JDM□1204
	40	**AJX09R404SA32L**	★	4	250	29.9	50	32	—	1.2	1.5°	2	JDM□09T3
NEW	40	**AJX08R406SA32L**	★	6	250	31.4	50	32	—	0.9	1°	1	JOM□0803
	40	**AJX12R402SA32EL**	★	2	350	28.3	50	32	—	1.2	3°	2	JDM□1204
	40	**AJX12R403SA42S**	★	3	150	28.3	70	42	1.79°	1.2	3°	2	JDM□1204
	40	**AJX09R404SA42S**	★	4	150	29.9	70	42	1.8°	1.2	1.5°	2	JDM□09T3
	40	**AJX12R403SA42L**	★	3	250	28.3	70	42	1.79°	1.2	3°	2	JDM□1204
	40	**AJX09R404SA42L**	★	4	250	29.9	70	42	1.8°	1.2	1.5°	2	JDM□09T3
	40	**AJX12R402SA42EL**	★	2	350	28.3	70	42	1.79°	1.2	3°	2	JDM□1204
	50	**AJX14R503SA42S**	★	3	150	38.2	50	42	—	1.2	4.2°	2	JDM□1405
	50	**AJX14R503SA42L**	★	3	250	38.1	50	42	—	1.2	4.2°	2	JDM□1405
	63	**AJX14R634SA42S**	★	4	150	51.1	50	42	—	1.2	2.8°	3	JDM□1405
	63	**AJX14R634SA42L**	★	4	250	51.1	50	42	—	1.2	2.8°	3	JDM□1405

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

SPARE PARTS

(mm)

Tool Holder Type	 *		 *		 F D
	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench
AJX06R	TS25	–	–	–	TKY08F
AJX08R	TS33	–	–	–	TKY08D
AJX09R	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX12R30	TS407	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R32	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R35	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX12R40	TS43	AMS4	AJS4012T15	ASS2	TKY15D
AJX14R	TS54	AMS5	AJS5014T25	ASS3	TKY25D

* Clamp Torque (lbf-in) : TS25=13, TS33=8.9, TS351=22, TS407=31, TS43=31, TS54=66, AJS3010T10=22, AJS4012T15=31, AJS5014T25=66

Fig.1

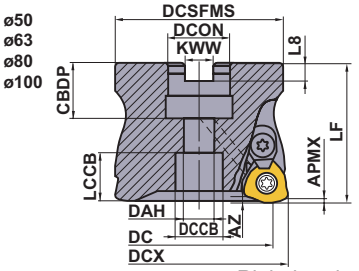
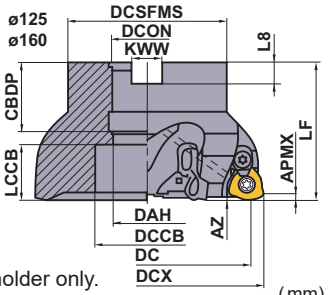


Fig.2



Right hand tool holder only.

(mm)

DCX		Set Bolt	Geometry	
DCON (inch)	DCON (mm)			
ϕ50, ϕ63	ϕ50, ϕ63	HSC10030H	①	① ②
	ϕ80	HSC12035H		
ϕ80, ϕ100	ϕ100	HSC16040H		
ϕ125	ϕ125, ϕ160	MBA20040H	②	With Air / coolant through.
ϕ160		MBA24045H		

Metric Standard

■ARBOR TYPE

With Air / coolant through.

DCX=mm size, DCON=inch size

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
50	**AJX12R05003B**	★	3	38.3	50	22.225	0.4	1.2	2°	1	JDM□1204
50	**AJX12R05004B**	★	4	38.3	50	22.225	0.4	1.2	2°	1	JDM□1204
50	**AJX09R05005B**	★	5	40.0	50	22.225	0.5	1.2	1.1°	1	JDM□09T3
63	**AJX14R06303B**	★	3	51.1	50	22.225	0.7	1.2	2.8°	1	JDM□1405
63	**AJX14R06304B**	★	4	51.1	50	22.225	0.7	1.2	2.8°	1	JDM□1405
63	**AJX12R06305B**	★	5	51.3	50	22.225	0.9	1.2	1.5°	1	JDM□1204
80	**AJX14R08004D**	★	4	68.1	63	31.75	1.3	1.2	1.8°	1	JDM□1405
80	**AJX14R08005D**	★	5	68.1	63	31.75	1.3	1.2	1.8°	1	JDM□1405
80	**AJX12R08006D**	★	6	68.3	63	31.75	1.7	1.2	1.1°	1	JDM□1204
100	**AJX14R10005D**	★	5	88.1	63	31.75	2.4	1.2	1.2°	1	JDM□1405
100	**AJX14R10006D**	★	6	88.1	63	31.75	2.4	1.2	1.2°	1	JDM□1405
100	**AJX12R10007D**	★	7	88.3	63	31.75	2.9	1.2	0.8°	1	JDM□1204
125	**AJX14R12505E**	★	5	113.2	63	38.1	3.3	1.2	0.8°	2	JDM□1405
125	**AJX14R12507E**	★	7	113.2	63	38.1	3.3	1.2	0.8°	2	JDM□1405
160	**AJX14R16006F**	★	6	148.2	63	50.8	5.0	1.2	0.5°	2	JDM□1405
160	**AJX14R16008F**	★	8	148.2	63	50.8	5.0	1.2	0.5°	2	JDM□1405

DCX=mm size, DCON=mm size

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
50	**AJX12-050A03R**	★	3	38.3	50	22	0.4	1.2	2°	1	JDM□1204
50	**AJX12-050A04R**	★	4	38.3	50	22	0.4	1.2	2°	1	JDM□1204
50	**AJX09-050A05R**	★	5	40.0	50	22	0.5	1.2	1.1°	1	JDM□09T3
63	**AJX14-063A03R**	★	3	51.1	50	22	0.7	1.2	2.8°	1	JDM□1405
63	**AJX14-063A04R**	★	4	51.1	50	22	0.7	1.2	2.8°	1	JDM□1405
63	**AJX12-063A05R**	★	5	51.3	50	22	0.9	1.2	1.5°	1	JDM□1204
NEW 63	**AJX14-063X03R**	★	3	51.1	50	27	0.6	1.2	2.8	1	JDM□1405
NEW 63	**AJX14-063X04R**	★	4	51.1	50	27	0.6	1.2	2.8	1	JDM□1405
NEW 63	**AJX12-063X05R**	★	5	51.3	50	27	0.6	1.2	1.5	1	JDM□1204
NEW 66	**AJX14-066X03R**	★	3	54.1	50	27	0.6	1.2	2.6	1	JDM□1405
NEW 66	**AJX14-066X04R**	★	4	54.1	50	27	0.6	1.2	2.6	1	JDM□1405
NEW 66	**AJX12-066X05R**	★	5	54.3	50	27	0.7	1.2	1.4	1	JDM□1204
80	**AJX14-080A04R**	★	4	68.1	50	27	1.2	1.2	1.8°	1	JDM□1405
80	**AJX14-080A05R**	★	5	68.1	50	27	1.2	1.2	1.8°	1	JDM□1405
80	**AJX12-080A06R**	★	6	68.3	50	27	1.2	1.2	1.1°	1	JDM□1204
100	**AJX14-100A05R**	★	5	88.1	63	32	2.4	1.2	1.2°	1	JDM□1405
100	**AJX14-100A06R**	★	6	88.1	63	32	2.4	1.2	1.2°	1	JDM□1405
100	**AJX12-100A07R**	★	7	88.3	63	32	2.6	1.2	0.8°	1	JDM□1204

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
125	**AJX14-125B05R**	★	5	113.2	63	40	3.3	1.2	0.8°	2	JDM□1405
125	**AJX14-125B07R**	★	7	113.2	63	40	3.3	1.2	0.8°	2	JDM□1405
160	**AJX14-160B06R**	★	6	148.2	63	40	5.0	1.2	0.5°	2	JDM□1405
160	**AJX14-160B08R**	★	8	148.2	63	40	5.0	1.2	0.5°	2	JDM□1405

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).

Fig.3

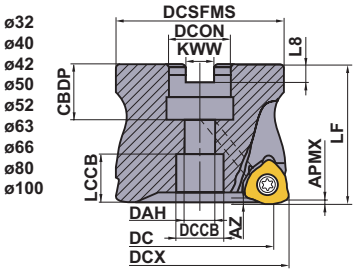
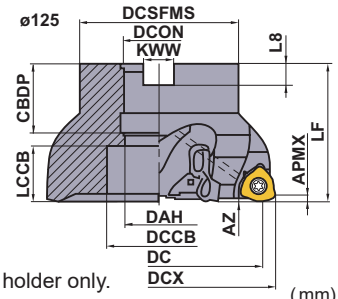
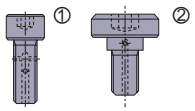


Fig.4



Right hand tool holder only.

(mm)

DCX	Set Bolt	Geometry	
ϕ32, ϕ40, ϕ42	HSC08025H	①	
ϕ50, ϕ52, ϕ63 ϕ66 (DCON=22)	HSC10030H		
ϕ63 ϕ66 (DCON=27), ϕ80	HSC12035H		
ϕ100	HSC16040H		
ϕ125	MBA20040H	②	With Air / coolant through.

■ARBOR TYPE SUPER EXTRA FINE PITCH

With Air / coolant through.
DCX=mm size, DCON=mm size

(mm)

	DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
NEW	32	**AJX06-032A05R**	★	5	24.9	40	16	0.1	0.6	0.5°	3	JOM□06T2
NEW	32	**AJX06-032A06R**	★	6	24.9	40	16	0.1	0.6	0.5°	3	JOM□06T2
NEW	40	**AJX08-040A06R**	★	6	31.4	40	16	0.2	0.9	1°	3	JOM□0803
NEW	42	**AJX08-042A06R**	★	6	33.4	40	16	0.2	0.9	0.9°	3	JOM□0803
NEW	50	**AJX09-050A06R**	★	6	39.3	50	22	0.4	1.2	1.1°	3	JDM□09T3
NEW	50	**AJX08-050A07R**	★	7	41.4	50	22	0.4	0.9	0.7°	3	JOM□0803
NEW	52	**AJX09-052A06R**	★	6	41.9	50	22	0.4	1.2	1°	3	JDM□09T3
NEW	52	**AJX08-052A07R**	★	7	43.4	50	22	0.5	0.9	0.7°	3	JOM□0803
NEW	63	**AJX12-063A06R**	★	6	51.3	50	22	0.7	1.2	1.5°	3	JDM□1204
NEW	63	**AJX09-063A07R**	★	7	52.9	50	22	0.7	1.2	0.8°	3	JDM□09T3
NEW	63	**AJX12-063X06R**	★	6	51.3	50	27	0.6	1.2	1.5°	3	JDM□1204
NEW	63	**AJX09-063X07R**	★	7	52.9	50	27	0.7	1.2	0.8°	3	JDM□09T3
NEW	66	**AJX12-066A06R**	★	6	54.3	50	22	0.7	1.2	1.4°	3	JDM□1204
NEW	66	**AJX09-066A07R**	★	7	55.9	50	22	0.8	1.2	0.8°	3	JDM□09T3
NEW	66	**AJX12-066X06R**	★	6	54.3	50	27	0.7	1.2	1.4°	3	JDM□1204
NEW	66	**AJX09-066X07R**	★	7	55.9	50	27	0.8	1.2	0.8°	3	JDM□09T3
NEW	80	**AJX12-080A08R**	★	8	68.3	50	27	1.1	1.2	1.1°	3	JDM□1204
NEW	100	**AJX12-100A09R**	★	9	88.3	63	32	2.5	1.2	0.8°	3	JDM□1204
NEW	125	**AJX14-125B09R**	★	9	113.2	63	40	3.0	1.2	0.8°	4	JDM□1405

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and maximum drilling depth (**AZ**).

ISO13399	➤ K003
MOUNTING DIMENSIONS	➤ K299
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

MOUNTING DIMENSIONS

Fig.1

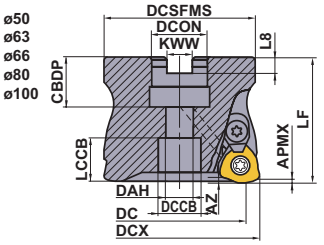


Fig.2

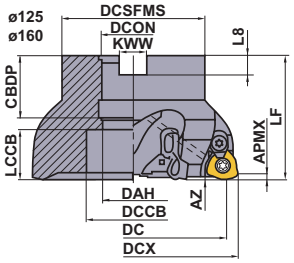


Fig.3

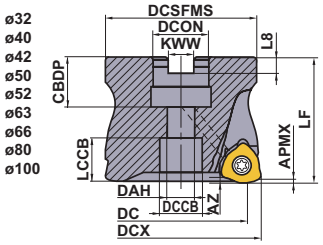
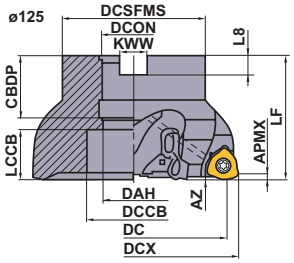


Fig.4



DCX=mm size, DCON=inch size (mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
50	**AJX12R050**	22.225	19	11	17	18.3	47	8.4	5	1
50	**AJX09R050**	22.225	19	11	17	18.3	47	8.4	5	1
63	**AJX14R063**	22.225	19	11	17	18.2	60	8.4	5	1
63	**AJX12R063**	22.225	19	11	17	18.3	60	8.4	5	1
80	**AJX14R080**	31.75	32	17	26	20.2	76	12.7	8	1
80	**AJX12R080**	31.75	32	17	26	20.3	76	12.7	8	1
100	**AJX14R100**	31.75	32	17	26	20.2	96	12.7	8	1
100	**AJX12R100**	31.75	32	17	26	20.3	96	12.7	8	1
125	**AJX14R125**	38.1	40	–	56	22.1	100	15.9	10	2
160	**AJX14R160**	50.8	43	–	72	19.1	100	19.1	11	2

DCX=mm size, DCON=mm size (mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
32	**AJX06-032A**	16	18	9	14	14.5	30	8.4	5.6	3
40	**AJX08-040A**	16	18	9	14	14.3	37	8.4	5.6	3
42	**AJX08-042A**	16	18	9	14	14.3	37	8.4	5.6	3
50	**AJX12-050A**	22	20	11	17	17.3	47	10.4	6.3	1
50	**AJX09-050A**	22	20	11	17	17.3	47	10.4	6.3	1, 3
52	**AJX09-052A**	22	20	11	17	17.3	47	10.4	6.3	3
52	**AJX08-052A**	22	20	11	17	17.4	47	10.4	6.3	3
63	**AJX14-063A**	22	20	11	17	17.2	60	10.4	6.3	1
63	**AJX12-063A**	22	20	11	17	17.3	60	10.4	6.3	1, 3
63	**AJX09-063A**	22	20	11	17	17.3	60	10.4	6.3	3
63	**AJX12-063X**	27	23	13	20	16.3	60	12.4	7.0	3
63	**AJX09-063X**	27	23	13	20	16.3	60	12.4	7.0	3
66	**AJX12-066A**	22	20	11	17	17.3	60	10.4	6.3	3
66	**AJX09-066A**	22	20	11	17	17.3	60	10.4	6.3	3
66	**AJX14-066X**	27	23	13	20	16.2	60	12.4	7.0	1
66	**AJX12-066X**	27	23	13	20	16.3	60	12.4	7.0	1, 3
66	**AJX09-066X**	27	23	13	20	16.3	60	12.4	7.0	3
80	**AJX14-080A**	27	23	13	19	16.2	76	12.4	7.0	1
80	**AJX12-080A**	27	23	13	19	16.3	76	12.4	7.0	1, 3
100	**AJX14-100A**	32	26	17	26	26.2	96	14.4	8.0	1
100	**AJX12-100A**	32	26	17	26	26.3	96	14.4	8.0	1, 3
125	**AJX14-125B**	40	40	–	56	22.1	100	16.4	9.0	2, 4
160	**AJX14-160B**	40	40	–	56	22.1	100	16.4	9.0	2

SPARE PARTS

(mm)

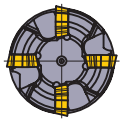
Tool Holder Type	Clamp Screw *	Clamp Bridge	Clamp Bridge Screw *	Spring	Wrench (F, D, T)
AJX06 Super Extra Fine Pitch	TS25	–	–	–	TKY08F
AJX08 Super Extra Fine Pitch	TS33	–	–	–	TKY08D
AJX09	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX09 Super Extra Fine Pitch	TS351	-	–	–	TKY10D
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15T
AJX12 Super Extra Fine Pitch	TS43	–	–	–	TKY15T
AJX14	TS54	AMS5	AJS5014T25	ASS3	TKY25T
AJX14 Super Extra Fine Pitch	TS54	–	–	–	TKY25T

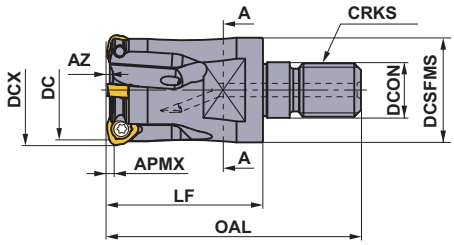
* Clamp Torque (N • m) : TS25=1.0, TS33=1.5, TS351=2.5, TS43=3.5, TS54=7.5, AJS3010T10=2.5, AJS4012T15=3.5, AJS5014T25=7.5

 ★ : Stocked in Japan

Metric Standard

Fig.1





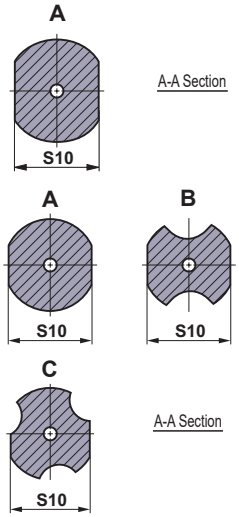
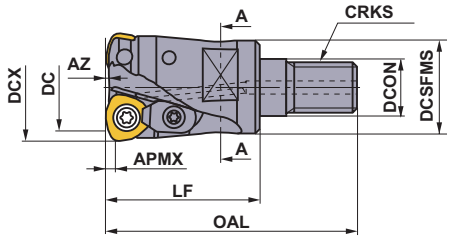


Fig.2



Right hand tool holder only.

■SCREW-IN TYPE

With Air / coolant through.

(mm)

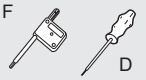
DCX	Order Number	Stock R	Number of Teeth	DC	LF	OAL	DCON	WT (kg)	APMX	RMPX	Fig.	Insert Type
16	**AJX06R162AM0830**	★	2	8.9	30	48	8.5	0.1	0.6	3°	1	JOM□06T2
17	**AJX06R172AM0830**	★	2	9.9	30	48	8.5	0.1	0.6	2.5°	1	JOM□06T2
20	**AJX08R202AM1030**	★	2	11.4	30	49	10.5	0.1	0.9	3.5°	1	JOM□0803
20	**AJX06R203AM1030**	★	3	12.9	30	49	10.5	0.1	0.6	1.5°	1	JOM□06T2
22	**AJX08R222AM1030**	★	2	13.4	30	49	10.5	0.1	0.9	3°	1	JOM□0803
22	**AJX06R223AM1030**	★	3	14.9	30	49	10.5	0.1	0.6	1°	1	JOM□06T2
25	**AJX09R252AM1235**	★	2	14.9	35	57	12.5	0.2	1.2	4°	2	JDM□09T3
25	**AJX08R253AM1235**	★	3	16.4	35	57	12.5	0.1	0.9	2°	1	JOM□0803
NEW 25	**AJX06R254AM1235**	★	4	17.9	35	57	12.5	0.1	0.6	0.8°	1	JOM□06T2
28	**AJX09R282AM1235**	★	2	17.9	35	57	12.5	0.2	1.2	3°	2	JDM□09T3
28	**AJX08R283AM1235**	★	3	19.4	35	57	12.5	0.1	0.9	1.7°	1	JOM□0803
NEW 28	**AJX06R284AM1235**	★	4	20.9	35	57	12.5	0.1	0.6	0.7°	1	JOM□06T2
30	**AJX12R302AM1645**	★	2	18.3	45	68	17.0	0.3	1.2	4.5°	2	JDM□1204
30	**AJX09R303AM1645**	★	3	20	45	68	17.0	0.2	1.2	2.7°	2	JDM□09T3
32	**AJX12R322AM1645**	★	2	20.3	45	68	17.0	0.3	1.2	4°	2	JDM□1204
32	**AJX09R323AM1645**	★	3	21.9	45	68	17.0	0.2	1.2	2.5°	2	JDM□09T3
NEW 32	**AJX08R324AM1645**	★	4	23.4	45	68	17.0	0.2	0.9	1.4°	1	JOM□0803
35	**AJX12R352AM1645**	★	2	23.3	45	68	17.0	0.3	1.2	3.5°	2	JDM□1204
35	**AJX09R353AM1645**	★	3	24.9	45	68	17.0	0.2	1.2	2°	2	JDM□09T3
NEW 35	**AJX08R354AM1645**	★	4	26.4	45	68	17.0	0.2	0.9	1.2°	1	JOM□0803
40	**AJX12R403AM1645**	★	3	28.3	45	68	17.0	0.3	1.2	3°	2	JDM□1204
40	**AJX09R404AM1645**	★	4	29.9	45	68	17.0	0.2	1.2	1.5°	2	JDM□09T3
NEW 40	**AJX08R406AM1645**	★	6	31.4	45	68	17.0	0.3	0.9	1°	1	JOM□0803

Note 1) Refer to page K306, for the max. depth of cut (**APMX**) and max. drilling depth (**AZ**).
Note 2) For screw-in type shank arbors, refer to page K382.

ISO13399	➤ K003
MOUNTING DIMENSIONS	➤ K299
SCREW-IN HOLDERS	➤ K382
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

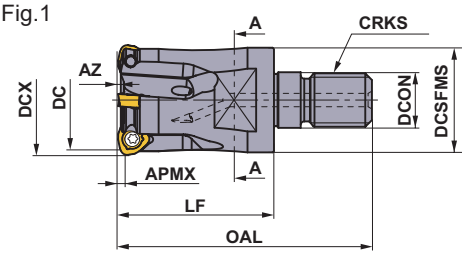
SPARE PARTS

(inch)

Tool Holder Type	 *		 *		 F D
	Clamp Screw	Clamp Bridge	Clamp Bridge Screw	Spring	Wrench
AJX06R	TS25	–	–	–	TKY08F
AJX08R	TS33	–	–	–	TKY08D
AJX09R	TS351	AMS3	AJS3010T10	ASS2	TKY10D
AJX12	TS43	AMS4	AJS4012T15	ASS2	TKY15T
AJX14	TS54	AMS5	AJS5014T25	ASS3	TKY25T

* Clamp Torque (lbf-in) : TS25=8.9, TS33=13, TS351=22, TS43=31, TS54=66, AJS3010T10=22, AJS4012T15=31, AJS5014T25=66

Fig.1



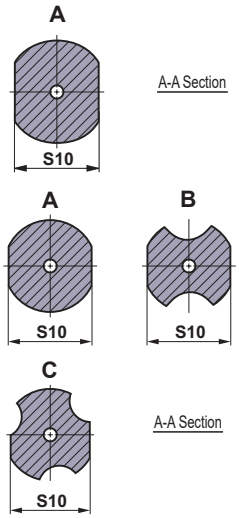
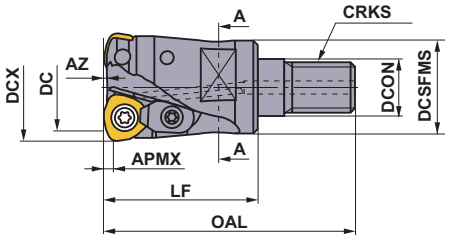


Fig.2



Right hand tool holder only.

MOUNTING DIMENSIONS

(mm)

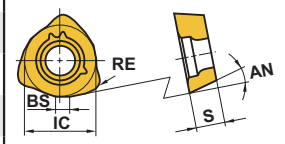
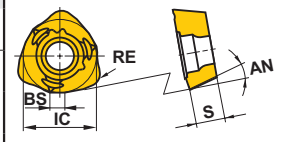
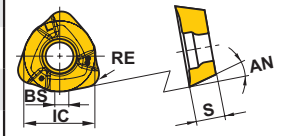
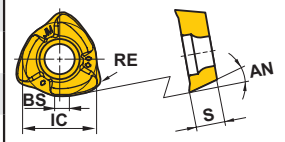
	DCX	Order Number	DCON	DCSFMS	S10	CRKS	Connection Type	Shank Arbor Type
	16	**AJX06R162AM0830**	8.5	13	10	M8	A	SC16M08
	17	**AJX06R172AM0830**	8.5	13	10	M8	A	SC16M08
	20	**AJX08R202AM1030**	10.5	18	14	M10	B	SC20M10
	20	**AJX06R203AM1030**	10.5	18	14	M10	C	SC20M10
	22	**AJX08R222AM1030**	10.5	18	14	M10	B	SC20M10
	22	**AJX06R223AM1030**	10.5	18	14	M10	C	SC20M10
	25	**AJX09R252AM1235**	12.5	21	19	M12	B	SC25M12
	25	**AJX08R253AM1235**	12.5	21	19	M12	A	SC25M12
NEW	25	**AJX06R254AM1235**	12.5	23.5	19	M12	A	SC25M12
	28	**AJX09R282AM1235**	12.5	21	19	M12	B	SC25M12
	28	**AJX08R283AM1235**	12.5	21	19	M12	A	SC25M12
NEW	28	**AJX06R284AM1235**	12.5	23.5	19	M12	A	SC25M12
	30	**AJX12R302AM1645**	17.0	29	24	M16	B	SC32M16
	30	**AJX09R303AM1645**	17.0	29	24	M16	A	SC32M16
	32	**AJX12R322AM1645**	17.0	29	24	M16	B	SC32M16
	32	**AJX09R323AM1645**	17.0	29	24	M16	A	SC32M16
NEW	32	**AJX08R324AM1645**	17.0	29	24	M16	A	SC32M16
	35	**AJX12R352AM1645**	17.0	29	24	M16	B	SC32M16
	35	**AJX09R353AM1645**	17.0	29	24	M16	A	SC32M16
NEW	35	**AJX08R354AM1645**	17.0	29	24	M16	A	SC32M16
	40	**AJX12R403AM1645**	17.0	29	24	M16	B	SC32M16
	40	**AJX09R404AM1645**	17.0	29	24	M16	A	SC32M16
NEW	40	**AJX08R406AM1645**	17.0	29	24	M16	A	SC32M16

■INSERTS

(inch)

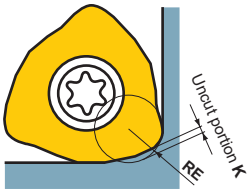
Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
S	Heat Resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Class	Coated										AN	IC	S	BS	RE	Geometry
			FH7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	MP9140	VP15TF	VP30RT						
General Use Type	JOMW06T215ZZSR-FT	M	●	●	●	●	●	●	●		●	●	13°	.250	.109	.047	.059	
	JOMW080320ZZSR-FT	M	●	●	●	●	●	●	●		●	●	13°	.315	.125	.055	.079	
	JDMW09T320ZDSR-FT	M	●	●	●	●	●	●	●		●	●	15°	.375	.156	.071	.079	
	JDMW120420ZDSR-FT	M	●	●	●	●	●	●	●		●	●	15°	.472	.187	.098	.079	
	JDMW140520ZDSR-FT	M	●	●	●	●	●	●	●		●	●	15°	.551	.219	.110	.079	
Strong Cutting Edge Type	JDMT120420ZDSR-ST	M	●	●	●	●	●				●	●	15°	.472	.187	.098	.079	
	JDMT140520ZDSR-ST	M	●	●	●	●	●				●	●	15°	.551	.219	.110	.079	
Sharp Cutting Edge Type (For Difficult-to-cut Materials)	JOMT06T216ZZER-JL	M				●	●	●	●	●			13°	.250	.109	.047	.063	
	JOMT080322ZZER-JL	M				●	●	●	●	●			13°	.315	.125	.055	.087	
	JDMT09T323ZDER-JL	M				●	●	●	●	●			15°	.375	.156	.071	.091	
	JDMT120423ZDER-JL	M				●	●	●	●	●			15°	.472	.187	.098	.091	
	JDMT140523ZDER-JL	M				●	●	●	●	●			15°	.551	.219	.110	.091	
Sharp Cutting Edge Type (For General Use)	JOMT06T215ZZSR-JM	M	●	●	●	●	●	●	●		●	●	13°	.250	.109	.047	.059	
	JOMT080320ZZSR-JM	M	●	●	●	●	●	●	●		●	●	13°	.315	.125	.055	.079	
	JDMT09T320ZDSR-JM	M	●	●	●	●	●	●	●		●	●	15°	.375	.156	.071	.079	
	JDMT120420ZDSR-JM	M	●	●	●	●	●	●	●		●	●	15°	.472	.187	.098	.079	
	JDMT140520ZDSR-JM	M	●	●	●	●	●	●	●		●	●	15°	.551	.219	.110	.079	

Note 1) When using ST breaker, please check the height setting as it differs from other chip breakers.

■NOTE FOR PROGRAMMING



When using the AJX, please program the approximate radius as indicated.
The approximate uncut portions for the program are as in the right table.

(inch)

Insert Size	Breaker	Approx. RE	Uncut Portion K
JOM○06T2○○ZZ○R-○○	FT / JM	.079	.013
	JL	.098	.013
JOM○0803○○ZZ○R-○○	FT / JM	.098	.018
	JL	.079	.016
JOM○09T3○○ZD○R-○○	FT / JM	.118	.019
	JL	.118	.018
JOM○1204○○ZD○R-○○	FT / JM / ST	.118	.025
	JL	.118	.021
JOM○1405○○ZD○R-○○	FT / JM / ST	.118	.025
	JL	.118	.022

Note) The uncut portion may change slightly depending on cutting conditions.

● : USA Stock
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

■ Cutting Speed

Workpiece Material		Properties	Cutting speed **vc** (SFM)			
P			**FH7020**	**MP6120**	**MP6130**	**VP30RT**
	Mild Steel	Hardness ≤180HB	850 (700—1000)	750 (580—910)	685 (515—845)	620 (450—880)
	Carbon Steel Alloy Steel	Hardness 180—280HB	550 (400—700)	480 (320—630)	415 (255—565)	350 (190—500)
	Carbon Steel Alloy Steel	Hardness 280—350HB	450 (300—600)	350 (190—500)	285 (125—435)	220 (60—370)
	Alloy Tool Steel	Hardness ≤350HB (Annealing)	450 (300—600)	350 (190—500)	285 (125—435)	220 (60—370)
	Pre-hardened Steel	Hardness 35—45HRC	—	330 (230—425)	265 (165—360)	200 (100—295)
M			**MP7130**	**MP7140**		
	Stainless Steel	Hardness ≤270HB	450 (300—600)	385 (235—535)	—	—
K			**FH7020**	**VP15TF**		
	Gray Cast Iron	Tensile Strength ≤350MPa	850 (700—1000)	—	—	—
	Ductile Cast Iron	Tensile Strength ≤800MPa	—	500 (400—700)	—	—
S			**MP9120**	**MP9130**	**MP9140**	
	Heat Resistant Alloys	Hardness ≤350HB	100 (65—130)	80 (65—115)	65 (50—100)	—
	Titanium Alloys	—	165 (130—195)	150 (100—180)	130 (100—165)	—
H			**VP15TF**			
	Hardened Steel	Hardness 40—55HRC	230 (165—295)	—	—	—

RECOMMENDED CUTTING CONDITIONS

■ Depth of Cut / Feed per Tooth

	Workpiece Material	Properties	DCX = ϕ.625", ϕ.688" (ϕ16 mm, ϕ17 mm) (Shank type)			DCX = ϕ.750", ϕ.875" (ϕ20 mm, ϕ22 mm) (Shank type)			DCX = ϕ.750" (ϕ20 mm) (Shank type)		
			AJXU06 Type			AJXU08 Type			AJXU06 Type		
			2 (Number of Teeth)			2 (Number of Teeth)			3 (Number of Teeth)		
			Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)
P	Mild Steel	Hardness ≤180HB	5.5	.031	.031	6.3	.039	.039	6.3	.035	.035
			7.0	.024	.024	8.3	.031	.031	8.3	.028	.028
			8.2	.016	.016	9.4	.024	.024	9.4	.020	.020
	Carbon Steel Alloy Steel	Hardness 180—280HB	5.5	.031	.031	6.3	.039	.039	6.3	.035	.035
			7.0	.024	.024	8.3	.031	.031	8.3	.028	.028
			8.2	.016	.016	9.4	.024	.024	9.4	.020	.020
	Carbon Steel Alloy Steel	Hardness 280—350HB	5.5	.028	.031	6.3	.031	.039	6.3	.028	.035
			7.0	.020	.024	8.3	.024	.031	8.3	.020	.028
			8.2	.012	.016	9.4	.016	.024	9.4	.016	.020
	Alloy Tool Steel	Hardness ≤350HB (Annealing)	5.5	.028	.031	6.3	.031	.039	6.3	.028	.035
			7.0	.020	.024	8.3	.024	.031	8.3	.020	.028
			8.2	.012	.016	9.4	.016	.024	9.4	.016	.020
	Pre-hardened Steel	Hardness 35—45HRC	5.5	.028	.028	6.3	.031	.031	6.3	.028	.028
			7.0	.020	.020	8.3	.024	.024	8.3	.020	.020
			8.2	.012	.012	9.4	.016	.016	9.4	.016	.012
M	Stainless Steel	Hardness ≤270HB	5.5	.031	.028	6.3	.039	.031	6.3	.035	.028
			7.0	.024	.020	8.3	.031	.024	8.3	.028	.020
			8.2	.016	.012	9.4	.024	.016	9.4	.020	.012
K	Gray Cast Iron	Tensile Strength ≤350MPa	5.5	.031	.039	6.3	.039	.047	6.3	.035	.039
			7.0	.024	.031	8.3	.031	.039	8.3	.028	.031
			8.2	.016	.024	9.4	.024	.031	9.4	.020	.024
	Ductile Cast Iron	Tensile Strength ≤800MPa	5.5	.028	.031	6.3	.031	.039	6.3	.028	.035
			7.0	.020	.024	8.3	.024	.031	8.3	.020	.028
			8.2	.012	.016	9.4	.016	.024	9.4	.016	.020
S	Heat Resistant Alloys	Hardness ≤350HB	5.5	.024	.024	6.3	.031	.024	5.5	.024	.024
			7.0	.016	.016	8.2	.024	.016	7.0	.016	.016
	Titanium Alloys	—	8.2	.012	.012	9.4	.016	.012	8.2	.012	.012
H	Hardened Steel	Hardness 40—55HRC	5.5	.020	.020	6.3	.020	.024	6.3	.020	.020
			7.0	.016	.012	8.3	.016	.016	8.3	.016	.016
			8.2	.012	.008	9.4	.012	.008	9.4	.012	.008

* Depth of cut of JL breaker is up to .024 inch. (06 size)
* Depth of cut of JL breaker is up to .035 inch. (08 size)

(inch)

	DCX = ϕ1.000", ϕ1.125" (ϕ25 mm, ϕ28 mm) (Shank type)			DCX = ϕ1.000" (ϕ25 mm) (Shank type)			DCX = ϕ1.250" (ϕ32 mm) (Shank type)			DCX = ϕ1.250" (ϕ32 mm) (Shank type)			DCX = ϕ1.500" (ϕ40 mm) (ϕ1.250"shank)			DCX = ϕ1.500" (ϕ40 mm) (ϕ1.250"shank)		
	AJXU09 Type			AJXU08 Type			AJXU12 Type			AJXU09 Type			AJXU12 Type			AJXU09 Type		
	2 (Number of Teeth)			3 (Number of Teeth)			2 (Number of Teeth)			3 (Number of Teeth)			3 (Number of Teeth)			4 (Number of Teeth)		
	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)
	6.7	.039	.047	6.7	.035	.039	7.0	.047	.055	7.0	.043	.047	7.0	.047	.055	7.0	.043	.047
	9.0	.031	.039	9.0	.028	.031	9.0	.039	.047	9.0	.035	.039	9.5	.039	.047	9.5	.035	.039
	11.5	.024	.031	11.5	.020	.024	11.0	.031	.039	11.5	.028	.031	12.0	.031	.039	12.0	.028	.031
	6.7	.039	.047	6.7	.035	.039	7.0	.047	.055	7.0	.043	.047	7.0	.047	.055	7.0	.043	.047
	9.0	.031	.039	9.0	.028	.031	9.0	.039	.047	9.0	.035	.039	9.5	.039	.047	9.5	.035	.039
	11.5	.024	.031	11.5	.020	.024	11.0	.031	.039	11.5	.028	.031	12.0	.031	.039	12.0	.028	.031
	6.7	.031	.047	6.7	.028	.039	7.0	.039	.055	7.0	.035	.047	7.0	.039	.055	7.0	.035	.047
	9.0	.024	.039	9.0	.020	.031	9.0	.031	.047	9.0	.028	.039	9.5	.031	.047	9.5	.028	.039
	11.5	.016	.031	11.5	.016	.024	11.0	.024	.039	11.5	.020	.031	12.0	.024	.039	12.0	.020	.031
	6.7	.031	.047	6.7	.028	.039	7.0	.039	.055	7.0	.035	.047	7.0	.039	.055	7.0	.035	.047
	9.0	.024	.039	9.0	.020	.031	9.0	.031	.047	9.0	.028	.039	9.5	.031	.047	9.5	.028	.039
	11.5	.016	.031	11.5	.016	.024	11.0	.024	.039	11.5	.020	.031	12.0	.024	.039	12.0	.020	.031
	6.7	.031	.039	6.7	.028	.035	7.0	.039	.047	7.0	.035	.039	7.0	.039	.047	7.0	.035	.039
	9.0	.024	.031	9.0	.020	.028	9.0	.031	.039	9.0	.028	.031	9.5	.031	.039	9.5	.028	.031
	11.5	.016	.024	11.5	.016	.020	11.0	.024	.031	11.5	.020	.024	12.0	.024	.031	12.0	.020	.024
	6.7	.039	.039	6.7	.035	.035	7.0	.047	.047	7.0	.043	.039	7.0	.047	.047	7.0	.043	.039
	9.0	.031	.031	9.0	.028	.028	9.0	.039	.039	9.0	.035	.031	9.5	.039	.039	9.5	.035	.031
	11.5	.024	.024	11.5	.020	.020	11.0	.031	.031	11.5	.028	.024	12.0	.031	.031	12.0	.028	.024
	6.7	.039	.055	6.7	.035	.047	7.0	.047	.063	7.0	.043	.055	7.0	.047	.063	7.0	.043	.055
	9.0	.031	.047	9.0	.028	.039	9.0	.039	.055	9.0	.035	.047	9.5	.039	.055	9.5	.035	.047
	11.5	.024	.039	11.5	.020	.031	11.0	.031	.047	11.5	.028	.035	12.0	.031	.047	12.0	.028	.035
	6.7	.031	.047	6.7	.028	.039	7.0	.039	.055	7.0	.035	.047	7.0	.039	.055	7.0	.035	.047
	9.0	.024	.039	9.0	.020	.031	9.0	.031	.047	9.0	.028	.039	9.5	.031	.047	9.5	.028	.039
	11.5	.016	.031	11.5	.016	.024	11.0	.024	.039	11.5	.020	.031	12.0	.024	.039	12.0	.020	.031
	6.7	.047	.024	6.3	.031	.024	7.0	.047	.024	7.0	.047	.024	7.0	.047	.024	7.0	.047	.024
	9.0	.039	.016	8.2	.024	.016	9.0	.039	.016	9.0	.039	.016	9.5	.039	.016	9.5	.039	.016
	11.5	.031	.012	9.4	.016	.012	11.0	.031	.012	11.5	.031	.012	12.0	.031	.012	12.0	.031	.012
	6.7	.020	.031	6.7	.020	.028	7.0	.024	.039	7.0	.020	.035	7.0	.024	.039	7.0	.020	.035
	9.0	.016	.024	9.0	.016	.020	9.0	.020	.031	9.0	.016	.028	9.5	.020	.031	9.5	.016	.028
	11.5	.012	.016	11.5	.012	.012	11.0	.016	.024	11.5	.012	.020	12.0	.016	.024	12.0	.012	.020

* Depth of cut of JL breaker is up to .047 inch. (09, 12 sizes)

RECOMMENDED CUTTING CONDITIONS

■ Depth of Cut / Feed per Tooth

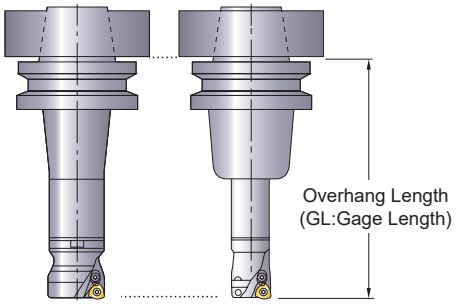
	Workpiece Material	Properties	DCX = ϕ1.500" (ϕ40 mm) (ϕ1.500"shank)			DCX = ϕ2.000" (ϕ50 mm) (Shank type)			DCX = ϕ2.000", ϕ2.500" (ϕ50 mm, ϕ63 mm) (Arbor type)		
			AJXU12 Type			AJXU14 Type			AJXU12 Type (ϕ2.000") AJXU14 Type (ϕ2.500")		
			3 (Number of Teeth)			3 (Number of Teeth)			3 or 4 (Number of Teeth)		
			Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)
P	Mild Steel	Hardness ≤180HB	7.0	.047	.059	7.0	.055	.059	6.0	.059	.059
			9.5	.039	.051	9.5	.047	.051	10.0	.051	.051
			12.0	.031	.043	—	—	—	14.0	.043	.043
	Carbon Steel Alloy Steel	Hardness 180—280HB	7.0	.047	.059	7.0	.055	.059	6.0	.059	.059
			9.5	.039	.051	9.5	.047	.051	10.0	.051	.051
			12.0	.031	.043	—	—	—	14.0	.043	.043
	Carbon Steel Alloy Steel	Hardness 280—350HB	7.0	.039	.059	7.0	.047	.059	6.0	.051	.059
			9.5	.031	.051	9.5	.039	.051	10.0	.043	.051
			12.0	.024	.043	—	—	—	14.0	.035	.043
	Alloy Tool Steel	Hardness ≤350HB (Annealing)	7.0	.039	.059	7.0	.047	.059	6.0	.051	.059
			9.5	.031	.051	9.5	.039	.051	10.0	.043	.051
			12.0	.024	.043	—	—	—	14.0	.035	.043
	Pre-hardened Steel	Hardness 35—45HRC	7.0	.039	.051	7.0	.047	.051	6.0	.051	.051
			9.5	.031	.043	9.5	.039	.043	10.0	.043	.043
			12.0	.024	.035	—	—	—	14.0	.035	.035
M	Stainless Steel	Hardness ≤270HB	7.0	.047	.051	7.0	.055	.051	6.0	.059	.051
			9.5	.039	.043	9.5	.047	.043	10.0	.051	.043
			12.0	.031	.035	—	—	—	14.0	.043	.035
K	Gray Cast Iron	Tensile Strength ≤350MPa	7.0	.047	.067	7.0	.055	.067	6.0	.059	.067
			9.5	.039	.059	9.5	.047	.059	10.0	.051	.059
			12.0	.031	.051	—	—	—	14.0	.043	.051
	Ductile Cast Iron	Tensile Strength ≤800MPa	7.0	.039	.059	7.0	.047	.059	6.0	.051	.059
			9.5	.031	.051	9.5	.039	.051	10.0	.043	.051
			12.0	.024	.043	—	—	—	14.0	.035	.043
S	Heat Resistant Alloys	Hardness ≤350HB	7.0	.047	.024	7.0	.047	.024	6.0	.047	.024
			9.5	.039	.016	9.5	.039	.016	10.0	.039	.016
	Titanium Alloys	—	12.0	.031	.012	—	—	—	14.0	.031	.012
H	Hardened Steel	Hardness 40—55HRC	7.0	.024	.043	7.0	.031	.043	6.0	.035	.043
			9.5	.020	.035	9.5	.024	.035	10.0	.028	.035
			12.0	.016	.028	—	—	—	—	—	—

(inch)

	DCX = ϕ2.000", ϕ2.500" (ϕ50mm, ϕ63mm, ϕ66mm) (Arbor type)			DCX = ϕ3.000", ϕ4.000", ϕ4.921", ϕ6.299" (ϕ80 mm, ϕ100 mm, ϕ125 mm, ϕ160 mm) (Arbor type)			DCX = ϕ3.000", ϕ4.000" (ϕ80 mm, ϕ100 mm) (Arbor type)		
	AJXU09 Type (ϕ2.000") AJXU12 Type (ϕ2.500")			AJXU14 Type AJX14 Type			AJXU12 Type		
	5 (Number of Teeth)			4 or 5 or 6 or 7 or 8 (Number of Teeth)			6 or 7 (Number of Teeth)		
	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)	Over-hang	Axial Depth of Cut	Feed per Tooth (IPT)
	6.0	.053	.051	7.0	.059	.059	7.0	.053	.051
	10.0	.046	.043	12.0	.051	.051	12.0	.046	.043
	14.0	.039	.035	18.0	.039	.039	18.0	.035	.031
	6.0	.053	.051	7.0	.059	.059	7.0	.053	.051
	10.0	.046	.043	12.0	.051	.051	12.0	.046	.043
	14.0	.039	.035	18.0	.039	.039	18.0	.035	.031
	6.0	.046	.051	7.0	.051	.059	7.0	.046	.051
	10.0	.039	.043	12.0	.043	.051	12.0	.039	.043
	14.0	.032	.035	18.0	.031	.039	18.0	.028	.031
	6.0	.046	.051	7.0	.051	.059	7.0	.046	.051
	10.0	.039	.043	12.0	.043	.051	12.0	.039	.043
	14.0	.032	.035	18.0	.031	.039	18.0	.028	.031
	6.0	.046	.043	7.0	.051	.051	7.0	.046	.043
	10.0	.039	.035	12.0	.043	.043	12.0	.039	.035
	14.0	.032	.028	18.0	.031	.031	18.0	.028	.024
	6.0	.053	.043	7.0	.059	.051	7.0	.053	.043
	10.0	.046	.035	12.0	.051	.043	12.0	.046	.035
	14.0	.039	.028	18.0	.039	.031	18.0	.035	.024
	6.0	.053	.059	7.0	.059	.067	7.0	.053	.059
	10.0	.046	.051	12.0	.051	.059	12.0	.046	.051
	14.0	.039	.039	18.0	.039	.047	18.0	.035	.035
	6.0	.046	.051	7.0	.051	.059	7.0	.046	.051
	10.0	.039	.043	12.0	.043	.051	12.0	.039	.043
	14.0	.032	.035	18.0	.031	.039	18.0	.028	.031
	6.0	.047	.024	7.0	.047	.024	7.0	.047	.024
	10.0	.039	.016	12.0	.039	.016	12.0	.039	.016
	14.0	.031	.012	18.0	.031	.012	18.0	.031	.012
	6.0	.032	.039	7.0	.035	.043	7.0	.032	.039
	10.0	.025	.031	12.0	.028	.035	12.0	.025	.031
	—	—	—	—	—	—	—	—	—

* Depth of cut of JL breaker is up to .047 inch.

①Overhang Length



②Main Spindle Speed
$n(min^{-1})=(Recommended\ Cutting\ Speed \times 12)\div(DCX \times 3.14)$

③Table Feed Rate
vf(IPM)=n x feed per tooth fz x number of teeth

④Recommended width of cut (ae) is more than 60% of cutting edge diameter.

⑤The cutting condition on the left are guide when using a CAT50 size holder. In case of CAT40 and HSK63 machines, a cutter diameter of under 1.5 inch is recommended. In this case, reduce the depth of cut and table feed rate.

⑥Use of ST chip breaker with a tougher cutting edge is recommended for interrupted cutting.

⑦A cutter body with a coarse pitch is recommended for use in unstable conditions such as a long tool overhang.

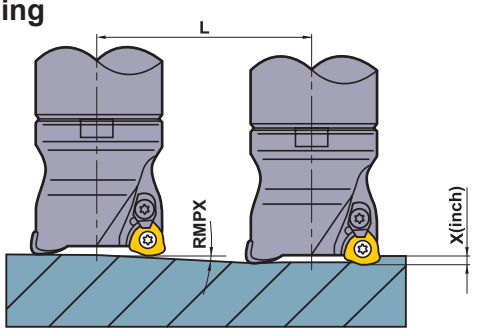
⑧Use “sharp” JM chip breaker to lower cutting forces or when there is a long tool overhang.

⑨Large chips are generated when machining with the AJX. To avoid chip jamming-related problems, machine using an air blow to disperse the chips effectively.

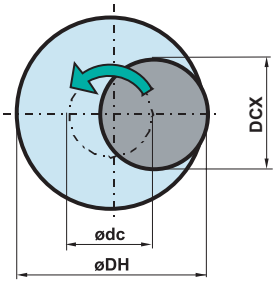
⑩The maximum depth of cut JL chip breaker is different in the insert size. 06 size is up to .024 inch, 08 size is up to .035 inch, and 09, 12, 14 size is up to .047 inch.

MAXIMUM CAPACITIES BY MODE

■ Ramping



■ Helical Milling and Drilling



- How to calculate the theoretical center of the tool path.

ødc = øDH - DCX

ødc	øDH	DCX
Theoretical Center of the Tool	Desired Hole Diameter	Cutting Diameter Max.

- Please set the depth of cut per cycle under max. depth of cut (APMX).
- Please machine in a down cutting direction.

- When ramping and helical milling, it is recommended to reduce the feed rate by 40%.
- When drilling, please set the feed in the axial direction .008 IPR or less.
- The long chips generated can discharge in any direction, so ensure that adequate safety precautions are taken.

(inch)

	Tool Holder Type	DCX	DC	Max. Depth of Cut APMX		Ramping machining					Helical Milling		AZ
				FT/JM/ ST	JL	RMPX	L Required Distance for X Inch Depth				Min. Hole Diameter	Max. Hole Diameter	
							Z=.039	Z=.047	Z=.059	Z=.079			
Shank Type	**AJXU06R102**	.625	.340	.039	.024	3°	.744	—	—	—	.90	1.13	.012
	AJXU06R112	.688	.400	.039	.024	2.5°	.893	—	—	—	1.02	1.26	.012
	AJXU06R123	.750	.472	.039	.024	1.7°	1.314	—	—	—	1.15	1.38	.012
	AJXU06R143	.875	.595	.039	.024	0.7°	3.192	—	—	—	1.40	1.63	.012
	AJXU08R122	.750	.410	.059	.035	3.5°	.638	.768	.965	—	.99	1.34	.020
	AJXU08R142	.875	.530	.059	.035	3°	.744	.897	1.126	—	1.24	1.59	.020
	AJXU08R163	1.000	.661	.059	.035	2°	1.117	1.346	1.690	—	1.49	1.84	.020
	AJXU08R183	1.125	.784	.059	.035	0.5°	4.469	5.386	6.761	—	1.74	2.09	.020
	AJXU09R162	1.000	.590	.079	.047	4°	.558	.672	.844	1.130	1.33	1.84	.039
	AJXU09R182	1.125	.720	.079	.047	3°	.744	.897	1.126	1.507	1.58	2.09	.039
	AJXU09R203	1.250	.854	.079	.047	3.3°	.676	.815	1.023	1.370	1.83	2.34	.039
	AJXU09R223	1.375	.976	.079	.047	2°	1.117	1.346	1.690	2.262	2.08	2.59	.039
	AJXU09R244	1.500	1.114	.079	.047	2.4°	.931	1.121	1.408	1.885	2.33	2.84	.039
	AJXU12R202	1.250	.790	.079	.047	4°	.558	.672	.844	1.130	1.59	2.34	.059
	AJXU12R243	1.500	1.040	.079	.047	3°	.744	.897	1.126	1.507	2.09	2.84	.059
	AJXU14R323	2.000	1.530	.079	.047	4.2°	.531	.640	.803	1.076	2.90	3.84	.079

(inch)

	Tool Holder Type	DCX	DC	Max. Depth of Cut APMX		Ramping machining					Helical Milling		AZ
						RMPX	L Required Distance for X Inch Depth				Min. Hole Diameter	Max. Hole Diameter	
				FT/JM/ ST	JL		Z=.039	Z=.047	Z=.059	Z=.079			
Arbor Type	**AJXU09R02**	2.000	1.606	.079	.047	1.1°	2.031	2.448	3.073	4.114	3.33	3.84	.039
	AJXU12R02	2.000	1.540	.079	.047	2°	1.117	1.346	1.690	2.262	3.09	3.84	.059
	AJXU12R2505	2.500	2.039	.079	.047	1.5°	1.489	1.795	2.253	3.017	4.09	4.84	.059
	AJXU12R0306	3.000	2.543	.079	.047	1.2°	1.862	2.244	2.817	3.771	5.09	5.84	.059
	AJXU12R0407	4.000	3.539	.079	.047	0.8°	2.793	3.366	4.225	5.658	7.09	7.84	.059
	AJXU14R25	2.500	2.030	.079	.047	2.8°	.797	.961	1.206	1.615	3.90	4.84	.079
	AJXU14R03	3.000	2.530	.079	.047	1.8°	1.241	1.496	1.877	2.514	4.90	5.84	.079
	AJXU14R04	4.000	3.530	.079	.047	1.2°	1.862	2.244	2.817	3.771	6.90	7.84	.079
	AJX14RA125	4.920	4.530	.079	.047	0.8°	2.793	3.366	4.225	5.658	8.74	9.68	.079
	AJX14RA160	6.300	5.830	.079	.047	0.5°	4.469	5.386	6.761	9.053	11.50	12.44	.079

MULTI-FUNCTIONAL MILLING

WJX09 NEW

P M K N S H

Fig.1
ø1.500"

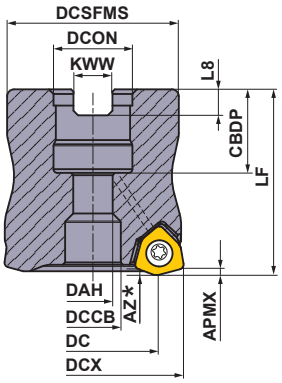
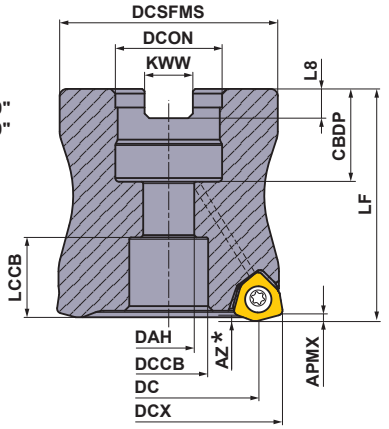


Fig.2
ø2.000"
ø2.500"



Right hand tool holder only.

(mm)

DCON	Set Bolt	Geometry	
.500	HSCU25011H	①	① ②
.750	HSCU37513H	②	
1.000	HSCU50014H		
			With Air / coolant through.

■ARBOR TYPE

With Air / coolant through.

DCON = inch size

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (lbs)	APMX	RPMX (min^{-1})	Fig.	Insert Type
1.500	**WJX09UR1.5004SA**	●	4	1.060	1.750	.500	0.5	.047	24000	1	JOMU0905
2.000	**WJX09UR2.0004AA**	●	4	1.557	2.000	.750	0.9	.047	19800	2	JOMU0905
2.000	**WJX09UR2.0006AA**	●	6	1.557	2.000	.750	0.9	.047	19800	2	JOMU0905
2.500	**WJX09UR2.5005CA**	●	5	2.057	2.000	1.000	1.7	.047	17200	2	JOMU0905
2.500	**WJX09UR2.5007CA**	●	7	2.057	2.000	1.000	1.7	.047	17200	2	JOMU0905

∗ Refer to page K317, for the maximum drilling depth (**AZ**).

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.

Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(inch)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.500	**WJX09UR1.5004SA**	.500	.630	.276	.433	.695	1.438	.250	.156	1
2.000	**WJX09UR2.0004AA**	.750	.748	.413	.630	.827	1.750	.313	.187	2
2.000	**WJX09UR2.0006AA**	.750	.748	.413	.630	.827	1.750	.313	.187	2
2.500	**WJX09UR2.5005CA**	1.000	.945	.539	.787	.709	2.375	.375	.219	2
2.500	**WJX09UR2.5007CA**	1.000	.945	.539	.787	.709	2.375	.375	.219	2

● : USA Stock

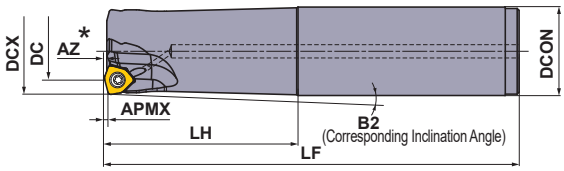


Fig.1

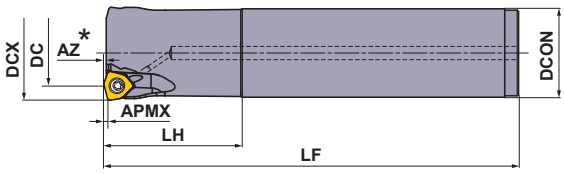


Fig.2

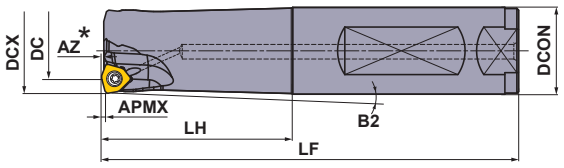


Fig.3

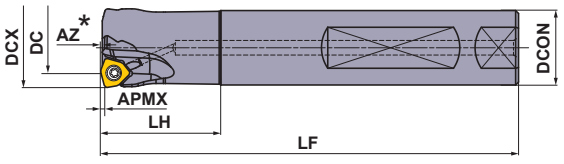


Fig.4

Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	LH	DCON	B2	APMX	RPMX (min^{-1})	Fig.	Insert Type
1.000	**WJX09UR1602FA16S**	●	2	.565	5.625	2.375	1.000	1.09°	.047	33000	3	JOMU0905
1.000	**WJX09UR1603FA16S**	●	3	.565	5.625	2.375	1.000	1.09°	.047	33000	3	JOMU0905
1.000	**WJX09UR1602SA16L**	●	2	.565	8.000	4.750	1.000	0.53°	.047	33000	1	JOMU0905
1.000	**WJX09UR1603SA16L**	●	3	.565	8.000	4.750	1.000	0.53°	.047	33000	1	JOMU0905
1.125	**WJX09UR1802FA16S**	●	2	.687	5.625	1.625	1.000	—	.047	29800	4	JOMU0905
1.125	**WJX09UR1803FA16S**	●	3	.687	5.625	1.625	1.000	—	.047	29800	4	JOMU0905
1.125	**WJX09UR1802SA16L**	●	2	.687	8.000	1.625	1.000	—	.047	29800	2	JOMU0905
1.125	**WJX09UR1803SA16L**	●	3	.687	8.000	1.625	1.000	—	.047	29800	2	JOMU0905
1.250	**WJX09UR2002FA20S**	●	2	.811	6.000	2.750	1.250	0.93°	.047	27500	3	JOMU0905
1.250	**WJX09UR2003FA20S**	●	3	.811	6.000	2.750	1.250	0.93°	.047	27500	3	JOMU0905
1.250	**WJX09UR2002SA20L**	●	2	.811	8.000	4.750	1.250	0.53°	.047	27500	1	JOMU0905
1.250	**WJX09UR2003SA20L**	●	3	.811	8.000	4.750	1.250	0.53°	.047	27500	1	JOMU0905
1.500	**WJX09UR2403FA20S**	●	3	1.060	6.000	2.000	1.250	—	.047	24000	4	JOMU0905
1.500	**WJX09UR2404FA20S**	●	4	1.060	6.000	2.000	1.250	—	.047	24000	4	JOMU0905
1.500	**WJX09UR2403SA20L**	●	3	1.060	10.000	2.000	1.250	—	.047	24000	2	JOMU0905
1.500	**WJX09UR2404SA20L**	●	4	1.060	10.000	2.000	1.250	—	.047	24000	2	JOMU0905

∗ Refer to page K317, for the maximum drilling depth (**AZ**).

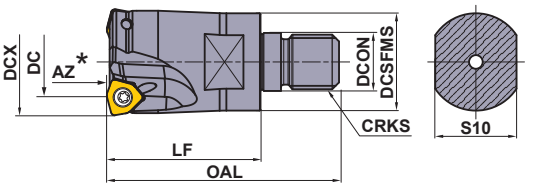
SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX09	TPS3R	TIP10D	MK1KS

∗ Clamp Torque (lbf-in) : TS3R = 17.7

ISO13399	➢ K003
OPERATIONAL GUIDANCE	➢ K327
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001



Right hand tool holder only.

■ SCREW-IN TYPE

With Air / coolant through.

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	OAL	DCON	DCSFMS	S10	CRKS	WT (lbs)	APMX	RPMX (min^{-1})	Insert Type
1.000	**WJX09UR1602AM1235**	●	2	.565	1.378	2.244	.492	.925	.748	M12	.2	.047	33000	JOMU0905
1.000	**WJX09UR1603AM1235**	●	3	.565	1.378	2.244	.492	.925	.748	M12	.2	.047	33000	JOMU0905
1.125	**WJX09UR1802AM1235**	●	2	.687	1.378	2.244	.492	.925	.748	M12	.3	.047	29800	JOMU0905
1.125	**WJX09UR1803AM1235**	●	3	.687	1.378	2.244	.492	.925	.748	M12	.2	.047	29800	JOMU0905
1.250	**WJX09UR2002AM1645**	●	2	.811	1.772	2.677	.669	1.122	.945	M16	.5	.047	27500	JOMU0905
1.250	**WJX09UR2003AM1645**	●	3	.811	1.772	2.677	.669	1.122	.945	M16	.5	.047	27500	JOMU0905
1.375	**WJX09UR2202AM1645**	●	2	.936	1.772	2.677	.669	1.122	.945	M16	.6	.047	25600	JOMU0905
1.375	**WJX09UR2203AM1645**	●	3	.936	1.772	2.677	.669	1.122	.945	M16	.5	.047	25600	JOMU0905
1.375	**WJX09UR2204AM1645**	●	4	.936	1.772	2.677	.669	1.122	.945	M16	.5	.047	25600	JOMU0905

∗ Refer to page K317, for the maximum drilling depth (**AZ**).

SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX09	TPS3R	TIP10D	MK1KS

∗ Clamp Torque (lbf-in) : TS3R = 17.7

● : USA Stock ★ : Stocked in Japan

Fig.1
ø40

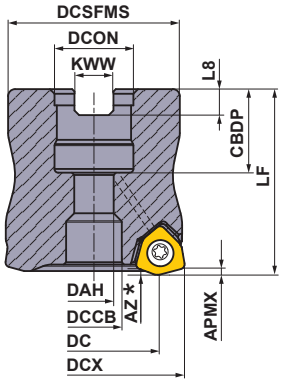
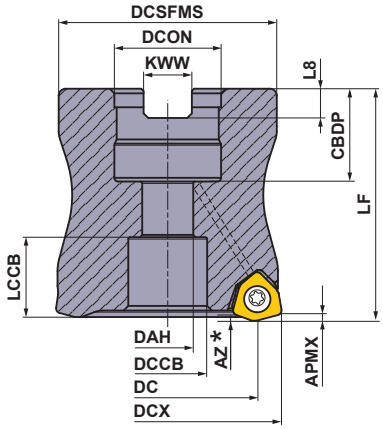
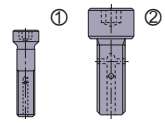


Fig.2
ø50
ø52
ø63
ø66



Right hand tool holder only.

(mm)

DCON		Set Bolt	Geometry	
inch size	mm size			
	ϕ16	HFF08033H	①	
ϕ22.225	ϕ22	HSC10030H	②	
	ϕ27	HSC12035H		

With Air / coolant through.

Metric Standard

■ARBOR TYPE

With Air / coolant through.

DCON = inch size

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.	Insert Type
50	**WJX09R05004BA**	★	4	38.8	50	22.225	0.4	1.2	20000	2	JOMU0905
50	**WJX09R05006BA**	★	6	38.8	50	22.225	0.4	1.2	20000	2	JOMU0905
63	**WJX09R06305BA**	★	5	51.8	50	22.225	0.8	1.2	17300	2	JOMU0905
63	**WJX09R06307BA**	★	7	51.8	50	22.225	0.8	1.2	17300	2	JOMU0905

DCON = mm size

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.	Insert Type
40	**WJX09-040A04AR**	★	4	28.8	40	16	0.2	1.2	23200	1	JOMU0905
40	**WJX09-040A05AR**	★	5	28.8	40	16	0.2	1.2	23200	1	JOMU0905
50	**WJX09-050A04AR**	★	4	38.8	50	22	0.4	1.2	20000	2	JOMU0905
50	**WJX09-050A06AR**	★	6	38.8	50	22	0.4	1.2	20000	2	JOMU0905
52	**WJX09-052A06AR**	★	6	40.8	50	22	0.5	1.2	19500	2	JOMU0905
63	**WJX09-063A05AR**	★	5	51.8	50	22	0.8	1.2	17300	2	JOMU0905
63	**WJX09-063A07AR**	★	7	51.8	50	22	0.8	1.2	17300	2	JOMU0905
63	**WJX09-063X07AR**	★	7	51.8	50	27	0.7	1.2	17300	2	JOMU0905
66	**WJX09-066X07AR**	★	7	54.8	50	27	0.8	1.2	16800	2	JOMU0905

✱ Refer to page K317, for the maximum drilling depth (**AZ**).

Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.

Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

ISO13399 ➤ K003
MOUNTING DIMENSION ➤ K312
OPERATIONAL GUIDANCE ➤ K327
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1
ø40

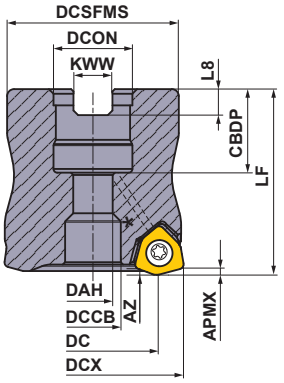
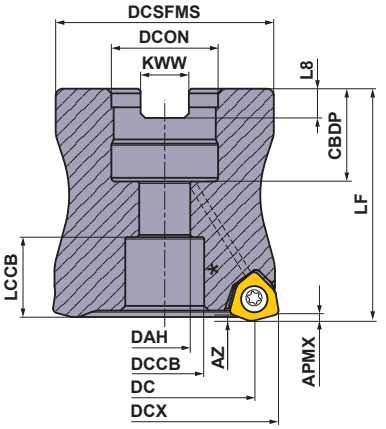


Fig.2
ø50
ø52
ø63
ø66



Right hand tool holder only.

MOUNTING DIMENSIONS

(mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
40	**WJX09-040A04AR**	16	18	8.5	12	—	37	8.4	5.6	1
40	**WJX09-040A05AR**	16	18	8.5	12	—	37	8.4	5.6	1
50	**WJX09-050A04AR**	22	20	11	17	17.2	47	10.4	6.3	2
50	**WJX09-050A06AR**	22	20	11	17	17.2	47	10.4	6.3	2
50	**WJX09R05004BA**	22.225	19	11	17	18.2	47	8.4	5	2
50	**WJX09R05006BA**	22.225	19	11	17	18.2	47	8.4	5	2
52	**WJX09-052A06AR**	22	20	11	17	17.2	47	10.4	6.3	2
63	**WJX09-063A05AR**	22	20	11	17	17.2	60	10.4	6.3	2
63	**WJX09-063A07AR**	22	20	11	17	17.2	60	10.4	6.3	2
63	**WJX09R06305BA**	22.225	19	11	17	18.2	60	8.4	5	2
63	**WJX09R06307BA**	22.225	19	11	17	18.2	60	8.4	5	2
63	**WJX09-063X07AR**	27	23	13	20	16.2	60	12.4	7	2
66	**WJX09-066X07AR**	27	23	13	20	16.2	60	12.4	7	2

SPARE PARTS

(mm)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX09	TPS3R	TIP10D	MK1KS

* Clamp Torque (N • m) : TPS3R = 2.0

★ : **Stocked in Japan**

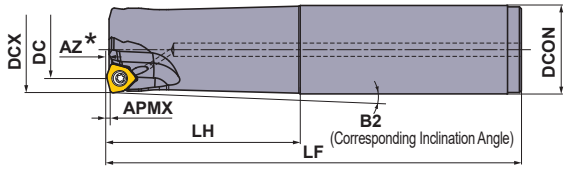


Fig.1

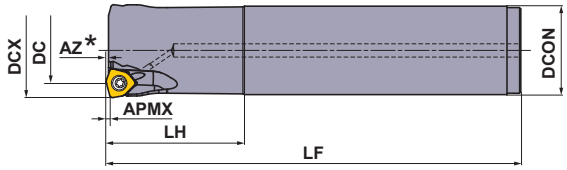


Fig.2

Metric Standard

■SHANK TYPE

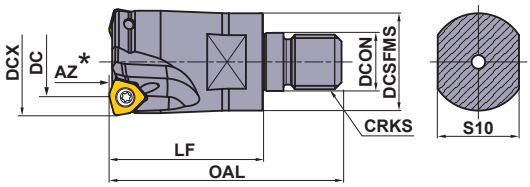
With Air / coolant through.

Right hand tool holder only.

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	LH	DCON	B2	APMX	RPMX (min^{-1})	Fig.	Insert Type
25	**WJX09R2502SA25S**	★	2	14	140	60	25	1.09°	1.2	33500	1	JOMU0905
25	**WJX09R2503SA25S**	★	3	14	140	60	25	1.09°	1.2	33500	1	JOMU0905
25	**WJX09R2502SA25L**	★	2	14	200	120	25	0.54°	1.2	33500	1	JOMU0905
25	**WJX09R2503SA25L**	★	3	14	200	120	25	0.54°	1.2	33500	1	JOMU0905
25	**WJX09R2502SA25EL**	★	2	14	300	180	25	0.35°	1.2	33500	1	JOMU0905
28	**WJX09R2802SA25S**	★	2	16.9	140	40	25	—	1.2	30300	2	JOMU0905
28	**WJX09R2803SA25S**	★	3	16.9	140	40	25	—	1.2	30300	2	JOMU0905
28	**WJX09R2802SA25L**	★	2	16.9	200	40	25	—	1.2	30300	2	JOMU0905
28	**WJX09R2803SA25L**	★	3	16.9	200	40	25	—	1.2	30300	2	JOMU0905
28	**WJX09R2802SA25EL**	★	2	16.9	300	40	25	—	1.2	30300	2	JOMU0905
32	**WJX09R3202SA32S**	★	2	20.9	150	70	32	0.93°	1.2	27300	1	JOMU0905
32	**WJX09R3203SA32S**	★	3	20.9	150	70	32	0.93°	1.2	27300	1	JOMU0905
32	**WJX09R3202SA32L**	★	2	20.9	200	120	32	0.54°	1.2	27300	1	JOMU0905
32	**WJX09R3203SA32L**	★	3	20.9	200	120	32	0.54°	1.2	27300	1	JOMU0905
32	**WJX09R3202SA32EL**	★	2	20.9	300	180	32	0.35°	1.2	27300	1	JOMU0905
35	**WJX09R3503SA32S**	★	3	23.8	150	50	32	—	1.2	25500	2	JOMU0905
35	**WJX09R3504SA32S**	★	4	23.8	150	50	32	—	1.2	25500	2	JOMU0905
35	**WJX09R3503SA32L**	★	3	23.8	200	50	32	—	1.2	25500	2	JOMU0905
35	**WJX09R3504SA32L**	★	4	23.8	200	50	32	—	1.2	25500	2	JOMU0905
35	**WJX09R3502SA32EL**	★	2	23.8	300	50	32	—	1.2	25500	2	JOMU0905
40	**WJX09R4003SA32S**	★	3	28.8	150	50	32	—	1.2	23200	2	JOMU0905
40	**WJX09R4004SA32S**	★	4	28.8	150	50	32	—	1.2	23200	2	JOMU0905
40	**WJX09R4003SA32L**	★	3	28.8	250	50	32	—	1.2	23200	2	JOMU0905
40	**WJX09R4004SA32L**	★	4	28.8	250	50	32	—	1.2	23200	2	JOMU0905
40	**WJX09R4003SA32EL**	★	3	28.8	300	50	32	—	1.2	23200	2	JOMU0905

∗ Refer to page K317, for the maximum drilling depth (**AZ**).



Metric Standard

■SCREW-IN TYPE

With Air / coolant through.

Right hand tool holder only.

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	OAL	DCON	DCSFMS	S10	CRKS	WT (kg)	APMX	RPMX (min^{-1})	Insert Type
25	**WJX09R2502AM1235**	★	2	14	35	57	12.5	23.5	19	M12	0.1	1.2	33500	JOMU0905
25	**WJX09R2503AM1235**	★	3	14	35	57	12.5	23.5	19	M12	0.1	1.2	33500	JOMU0905
28	**WJX09R2802AM1235**	★	2	16.9	35	57	12.5	23.5	19	M12	0.1	1.2	30300	JOMU0905
28	**WJX09R2803AM1235**	★	3	16.9	35	57	12.5	23.5	19	M12	0.1	1.2	30300	JOMU0905
32	**WJX09R3202AM1645**	★	2	20.9	45	68	17.0	28.5	24	M16	0.2	1.2	27300	JOMU0905
32	**WJX09R3203AM1645**	★	3	20.9	45	68	17.0	28.5	24	M16	0.2	1.2	27300	JOMU0905
35	**WJX09R3502AM1645**	★	2	23.8	45	68	17.0	28.5	24	M16	0.3	1.2	25500	JOMU0905
35	**WJX09R3503AM1645**	★	3	23.8	45	68	17.0	28.5	24	M16	0.2	1.2	25500	JOMU0905
35	**WJX09R3504AM1645**	★	4	23.8	35	68	17.0	28.5	24	M16	0.2	1.2	25500	JOMU0905
40	**WJX09R4003AM1645**	★	3	28.8	45	68	17.0	28.5	24	M16	0.3	1.2	23200	JOMU0905
40	**WJX09R4004AM1645**	★	4	28.8	45	68	17.0	28.5	24	M16	0.3	1.2	23200	JOMU0905
40	**WJX09R4005AM1645**	★	5	28.8	45	68	17.0	28.5	24	M16	0.3	1.2	23200	JOMU0905

∗ Refer to page K317, for the maximum drilling depth (**AZ**).

ISO13399	➤ K003
OPERATIONAL GUIDANCE	➤ K327
SCREW-IN HOLDERS	➤ K382
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

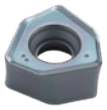
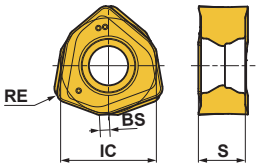
INSERTS

(mm)

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
S	Heat Resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✣ : Unstable Cutting

Edge Preparation :
E : Round

Shape	Order Number	Class	Edge Preparation	Coated									IC	S	BS	RE	Geometry
				MC7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT					
	JOMU090512ZZER-L	M	E	●	●	●	●	●	●	●	●	●	.375	.186	.035	.047	 Right hand insert only.
	JOMU090512ZZER-M	M	E	●	●	●	●	●	●	●	●	●	.375	.187	.035	.047	
	JOMU090512ZZER-R	M	E	●	●	●					●	●	.375	.190	.035	.047	

■Cutter Diameter and Flat Surface Milling

The maximum cutting diameter (DCX) shown in the WJX items table is not the same as the possible dimensions for plane cutting.
The possible dimensions for plane cutting are given as the cutting axle DC value. Please note that this is smaller than the DCX value.

● : USA Stock
<10 inserts in one case>

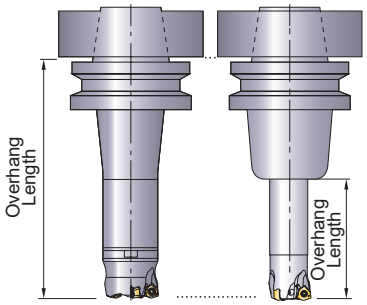
RECOMMENDED CUTTING CONDITIONS

CORRECTION VALUE ACCORDING TO OVERHANG LENGTH

Multiply the recommended cutting conditions by the corrections factor x overhang length.

(inch)

Type	Cutting Dia. Max. **DCX**	Overhang Length	Correction Value According		
			Cutting Speed **vc** (SFM)	Depth of Cut **ap**	Feed **fz**(IPT)
Shank Type Screw-in Type	.984-1.575	< 2.5×DCON	100%	100%	100%
		3.0×DCON	90%	100%	90%
		4.0×DCON	85%	90%	85%
		5.0×DCON	80%	85%	80%
		7.5×DCON	70%	75%	75%
Arbor Type	1.500-2.598	< 2.5×DCX	100%	100%	100%
		3.0×DCX	85%	100%	90%
		4.0×DCX	80%	80%	80%
		5.0×DCX	75%	75%	60%
		6.0×DCX	70%	70%	40%



DCON=Connection Dia.

CUTTING SPEED (Dry Cutting)

(inch)

	Workpiece Material	Properties	Cutting Speed **vc** (SFM)				
P			MP6130	MP6120	VP15TF	MC7020	VP30RT
	Mild Steel	≤180HB	525(360—655)	560(395—720)	560(395—720)	755(590—920)	460(330—590)
	Carbon Steel Alloy Steel	180—280HB	460(295—655)	525(330—720)	525(330—720)	720(560—885)	395(260—560)
	Carbon Steel Alloy Steel	280—350HB	460(295—655)	525(330—720)	525(330—720)	720(560—885)	395(260—560)
	Alloy Tool Steel	≤350HB (Annealing)	460(295—655)	525(330—720)	525(330—720)	720(560—885)	395(260—560)
	Pre-hardened Steel	35—45HRC	330(195—460)	395(260—525)	395(260—525)	—	295(165—425)
M			MP7130	MP7140	MC7020	VP30RT	
	Austenitic Stainless Steel	≤200HB	525(425—655)	490(395—590)	720(560—885)	490(395—590)	
	Austenitic Stainless Steel	>200HB	460(330—655)	425(260—590)	620(460—785)	425(260—590)	
	Ferritic and Martensitic Stainless Steel	≤200HB	490(330—655)	425(260—590)	720(560—885)	425(260—590)	
	Duplex Stainless Steel	≤280HB	425(260—590)	360(195—525)	590(425—755)	360(195—525)	
	Precipitation Hardening Stainless Steel	<450HB	360(195—525)	295(165—425)	560(395—720)	295(165—425)	
K			VP15TF				
	Gray Cast Iron	≤350MPa	590(460—720)				
	Ductile Cast Iron	≤450MPa	525(395—690)				
	Ductile Cast Iron	≤800MPa	425(295—560)				
S			MP9130	MP9120	VP15TF		
	Titanium Alloys	—	130(100—195)	165(100—210)	165(100—210)		
	Heat Resistant Alloys	—	100(65—130)	130(65—165)	130(65—165)		
H			VP15TF				
	Hardened Steel	40—55HRC	230(130—330)				

Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When wet cutting, tool life may become shorter than dry cutting. When carrying out wet cutting for the applications recommended with dry cutting, reduce the cutting speed by 25%.
Note 3) When large vibration occurs, reduce the cutting conditions.
Note 4) For interrupted cutting, reduce the cutting speed and feed rate by 20%.

DEPTH OF CUT / FEED PER TOOTH

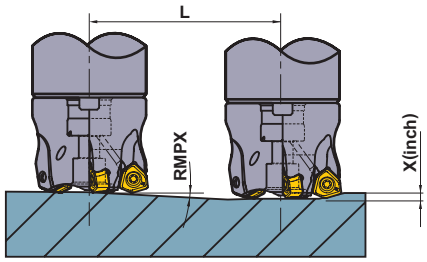
(inch)

	Workpiece Material	Properties	Depth of Cut **ap**	Breaker	DCX=1.000", 1.125", 25mm, 28mm Number of Teeth=2 Feed **fz**(IPT)	DCX=1.000", 1.125", 25mm, 28mm Number of Teeth=3 Feed **fz**(IPT)	DCX≥1.250", 32mm Feed **fz**(IPT)	Cutting Mode
P	Mild Steel	Hardness ≤180HB	≤.020	M,R	.051(.016–.079)	.051(.016–.079)	.059(.020–.079)	Dry
				L	.047(.016–.063)	.047(.016–.063)	.047(.016–.063)	
			≤.039	M,R	.039(.012–.051)	.031(.012–.039)	.047(.016–.059)	
				L	.031(.012–.047)	.031(.012–.039)	.031(.012–.047)	
			≤.059	M,R	.024(.012–.039)	–	.031(.016–.047)	
	Carbon Steel Alloy Steel	Hardness 180–280HB	≤.020	M,R	.051(.016–.067)	.051(.016–.067)	.059(.016–.079)	Dry
				L	.047(.012–.059)	.047(.012–.059)	.047(.012–.059)	
			≤.039	M,R	.031(.012–.039)	.028(.012–.035)	.039(.012–.051)	
				L	.028(.008–.039)	.028(.008–.035)	.028(.008–.039)	
			≤.059	M,R	.020(.012–.028)	–	.028(.012–.039)	
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280–350HB ≤350HB (Annealing)	≤.020	M,R	.051(.016–.067)	.051(.016–.067)	.059(.016–.079)	Dry
				L	.047(.012–.059)	.047(.012–.059)	.047(.012–.059)	
			≤.039	M,R	.031(.012–.039)	.028(.012–.035)	.039(.012–.051)	
				L	.028(.008–.039)	.028(.008–.035)	.028(.008–.039)	
			≤.059	M,R	.020(.012–.028)	–	.028(.012–.039)	
	Pre-hardened Steel	Hardness 35–45HRC	≤.020	M,R	.039(.012–.051)	.039(.012–.051)	.047(.012–.059)	Dry
				L	.031(.012–.047)	.031(.012–.047)	.031(.012–.047)	
			≤.039	M,R	.024(.008–.031)	.024(.008–.031)	.031(.008–.039)	
				L	.020(.008–.031)	.020(.008–.031)	.020(.008–.031)	
M	Austenitic Stainless Steel	–	≤.020	L	.031(.012–.039)	.031(.012–.039)	.031(.012–.039)	Dry
				M	.039(.016–.047)	.039(.016–.047)	.039(.016–.047)	
			≤.039	L	.024(.008–.031)	.024(.008–.031)	.024(.008–.031)	
				M	.031(.012–.039)	.031(.012–.039)	.031(.012–.039)	
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	≤.020	L	.031(.012–.039)	.031(.012–.039)	.031(.012–.039)	Dry
				M	.039(.016–.047)	.039(.016–.047)	.039(.016–.047)	
			≤.039	L	.024(.008–.031)	.024(.008–.031)	.024(.008–.031)	
				M	.031(.012–.039)	.031(.012–.039)	.031(.012–.039)	
	Duplex Stainless Steel	Hardness ≤280HB	≤.020	L	.024(.012–.031)	.024(.012–.031)	.024(.012–.031)	Dry
				M	.028(.012–.039)	.028(.012–.039)	.028(.012–.039)	
			≤.039	L	.020(.008–.028)	.020(.008–.028)	.020(.008–.028)	
				M	.024(.012–.028)	.024(.012–.028)	.024(.012–.028)	
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.020	L	.024(.012–.031)	.024(.012–.031)	.024(.012–.031)	Dry
				M	.028(.012–.039)	.028(.012–.039)	.028(.012–.039)	
			≤.039	L	.020(.008–.028)	.020(.008–.028)	.020(.008–.028)	
				M	.024(.012–.028)	.024(.012–.028)	.024(.012–.028)	
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.020	M,R	.051(.016–.079)	.051(.016–.079)	.059(.020–.079)	Dry
				L	.047(.016–.063)	.047(.016–.063)	.047(.016–.063)	
			≤.039	M,R	.039(.012–.051)	.031(.012–.039)	.047(.016–.059)	
				L	.039(.012–.051)	.031(.012–.039)	.039(.012–.051)	
			≤.059	M,R	.024(.012–.039)	–	.031(.016–.047)	
	Ductile Cast Iron	Tensile Strength ≤450MPa	≤.020	M,R	.051(.016–.067)	.051(.016–.067)	.059(.016–.079)	Dry
				L	.039(.012–.051)	.039(.012–.051)	.039(.012–.051)	
			≤.039	M,R	.031(.012–.039)	.028(.012–.035)	.039(.012–.051)	
				L	.031(.008–.039)	.028(.008–.035)	.031(.008–.047)	
			≤.059	M,R	.020(.012–.028)	–	.028(.012–.039)	
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.020	M,R	.039(.008–.059)	.039(.008–.059)	.051(.012–.067)	Dry
				L	.031(.012–.047)	.031(.012–.047)	.031(.012–.047)	
			≤.039	M,R	.031(.008–.039)	.024(.008–.031)	.039(.012–.047)	
				L	.020(.008–.031)	.020(.008–.031)	.020(.008–.031)	
S	Titanium Alloys	–	≤.020	L	.012(.008–.024)	.012(.008–.024)	.012(.008–.024)	Wet
			≤.039	L	.012(.008–.016)	.012(.008–.016)	.012(.008–.016)	
	Heat Resistant Alloys	–	≤.020	L,M,R	.031(.012–.047)	.031(.012–.047)	.031(.012–.047)	Wet
			≤.039	L,M,R	.028(.012–.039)	.028(.012–.039)	.028(.012–.039)	
H	Hardened Steel	Hardness 40–55HRC	≤.020	R,M	.024(.012–.039)	.024(.012–.039)	.024(.012–.039)	Dry
			≤.039	R,M	.020(.012–.031)	.016(.012–.024)	.020(.012–.031)	

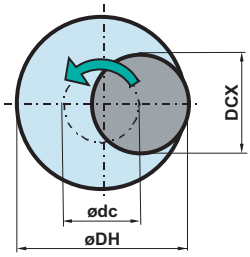
Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When large vibration occurs, reduce the cutting conditions.
Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.
Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

MAXIMUM CAPACITIES BY MODE

■Ramping



■Helical Milling



● How to derive a locus of the center of the tool.

ødc = øDH - DCX

Locus of the Center of the Tool | Desired Hole Diameter | Cutting Diameter Maximum

(inch)

Tool Holder Type	DCX	DC	APMX	Ramping		Helical Milling (Blind Hole, Flat Bottom)		Helical Milling (Through Hole)		AZ
				RMPX	L (inch) Required Distance for X inch Depth	DH		DH	P max.	
					x=.039	Min.	Max.	Min.		
WJX09UR16	1.000	.565	.047	4.5	.496	1.510	1.914	1.343	.047	.035
WJX09UR18	1.125	.687	.047	5.3	.420	1.756	2.164	1.516	.047	.047
WJX09UR20	1.250	.811	.047	4.3	.519	2.005	2.413	1.760	.047	.047
WJX09UR22	1.375	.936	.047	3.6	.620	2.255	2.664	2.006	.047	.047
WJX09UR24	1.500	1.060	.047	3.1	.720	2.504	2.913	2.254	.047	.047
WJX09UR1.50	1.500	1.060	.047	3.1	.720	2.504	2.913	2.254	.047	.047
WJX09UR2.00	2.000	1.557	.047	2	1.117	3.501	3.913	3.244	.047	.047
WJX09UR2.50	2.500	2.057	.047	1.4	1.596	4.500	4.913	4.243	.047	.047
WJX09R25	.984	.551	.047	4.7	.474	1.496	1.850	1.339	.047	.047
WJX09R28	1.102	.665	.047	5.6	.398	1.732	2.087	1.496	.047	.047
WJX09R32	1.260	.823	.047	4.2	.531	2.047	2.402	1.811	.047	.047
WJX09R35	1.378	.937	.047	3.6	.620	2.283	2.638	2.047	.047	.047
WJX09R40	1.575	1.134	.047	2.9	.770	2.677	3.031	2.402	.047	.047
WJX09-040	1.575	1.134	.047	2.9	.770	2.677	3.031	2.402	.047	.047
WJX09-050	1.969	1.528	.047	2	1.117	3.465	3.819	3.189	.047	.047
WJX09R050	1.969	1.528	.047	2	1.117	3.465	3.819	3.189	.047	.047
WJX09-052	2.047	1.606	.047	1.9	1.176	3.622	3.976	3.346	.047	.047
WJX09-063	2.480	2.039	.047	1.4	1.596	4.488	4.843	4.213	.047	.047
WJX09R063	2.480	2.039	.047	1.4	1.596	4.488	4.843	4.213	.047	.047
WJX09-066	2.598	2.157	.047	1.4	1.596	4.724	5.079	4.449	.047	.047

Note 1) When ramping and helical milling, it is recommended to reduce the feed per tooth.
Note 2) When ramping, helical milling and drilling, long continuous chips may be scattered so please be careful.

<Helical Milling>
To obtain a flat bottom surface when helical milling, it requires to remove “the uncut part” in the center of the workpiece material at a final pass.
When helical milling, make sure that the depth of cut per helical pass doesn’t exceed the maximum depth of cut (APMX).
<Drilling>
When drilling, set the axial feed per revolution at .008 IPR or less.

MULTI-FUNCTIONAL MILLING

WJX14

P M K N S H

Fig.1
ø2.000"

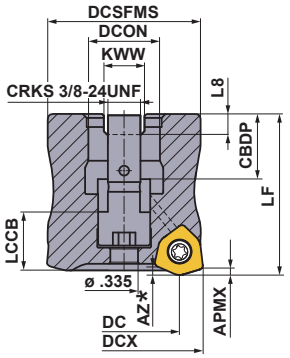


Fig.2
ø2.500"
ø3.000"
ø4.000"

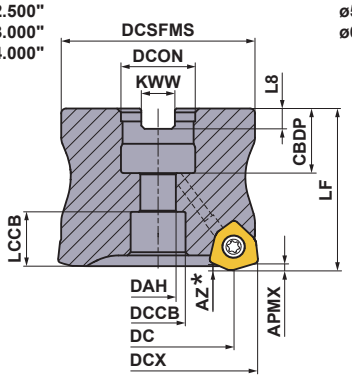
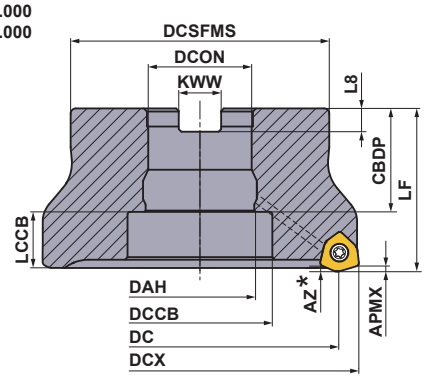


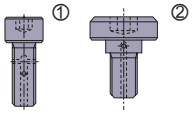
Fig.3
ø5.000
ø6.000



Right hand tool holder only.

(inch)

DCX	DCON	Set Bolt	Geometry
ϕ2.500", ϕ3.000"	ϕ1.000"	HSCU50014H	①
ϕ3.000"	ϕ1.250"	HSCU62516H	
ϕ4.000"	ϕ1.500"	HSCU75016H	
ϕ5.000"	ϕ1.500"	MBAU75016H	②
ϕ6.000"	ϕ2.000"	MBAU100016H	



With Air / coolant through.

Note 1) The milling cutter with cutting diameter maximum DCX = 2.000 inch has a built in set bolt.
Please use ϕ.276 Allen wrench to tighten/loosen the set bolt.

■ARBOR TYPE

With Air / coolant through.
DCX=inch size, DCON=inch size

(inch)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (lbs)	APMX	RMPX	RPMX (min^{-1})	Fig.
2.000	**WJX14UR2.0003AA**	●	3	1.388	2.000	.750	.882	.079	4.3°	5000	1
2.000	**WJX14UR2.0004AA**	●	4	1.388	2.000	.750	.882	.079	4.3°	5000	1
2.500	**WJX14UR2.5004CA**	●	4	1.887	2.000	1.000	1.5	.079	3°	18100	2
2.500	**WJX14UR2.5005CA**	●	5	1.887	2.000	1.000	1.5	.079	3°	18100	2
3.000	**WJX14UR3.0005CA**	●	5	2.387	2.000	1.000	2.3	.079	2.2°	16100	2
3.000	**WJX14UR3.0006CA**	●	6	2.387	2.000	1.000	2.3	.079	2.2°	16100	2
3.000	**WJX14UR3.0005DA**	●	5	2.387	2.500	1.250	2.7	.079	2.2°	16100	2
3.000	**WJX14UR3.0006DA**	●	6	2.387	2.500	1.250	2.7	.079	2.2°	16100	2
4.000	**WJX14UR4.0006EA**	●	6	3.386	2.500	1.500	5.4	.079	1.5°	13300	2
4.000	**WJX14UR4.0007EA**	●	7	3.386	2.500	1.500	5.5	.079	1.5°	13300	2
5.000	**WJX14UR5.0007EA**	●	7	4.386	2.500	1.500	7.0	.079	1.1°	11500	3
5.000	**WJX14UR5.0009EA**	●	9	4.386	2.500	1.500	7.0	.079	1.1°	11500	3
6.000	**WJX14UR6.0009FA**	●	9	5.386	2.500	2.000	10.3	.079	0.9°	9900	3

∗ Refer to page K326, for the maximum drilling depth (**AZ**).
Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.
Note 2) When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.

MOUNTING DIMENSIONS

(inch)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
2.000	**WJX14UR2.0003AA**	.750	.858	—	—	.689	1.750	.313	.187	1
2.000	**WJX14UR2.0004AA**	.750	.858	—	—	.689	1.750	.313	.187	1
2.500	**WJX14UR2.5004CA**	1.000	.945	.539	.787	.689	2.375	.375	.219	2
2.500	**WJX14UR2.5005CA**	1.000	.945	.539	.787	.689	2.375	.375	.219	2
3.000	**WJX14UR3.0005CA**	1.000	.945	.539	.787	.689	2.750	.375	.219	2
3.000	**WJX14UR3.0006CA**	1.000	.945	.539	.787	.689	2.750	.375	.219	2
3.000	**WJX14UR3.0005DA**	1.250	1.260	.669	1.024	.874	2.875	.500	.281	2
3.000	**WJX14UR3.0006DA**	1.250	1.260	.669	1.024	.874	2.875	.500	.281	2
4.000	**WJX14UR4.0006EA**	1.500	1.181	.787	1.181	.953	3.813	.625	.375	2
4.000	**WJX14UR4.0007EA**	1.500	1.181	.787	1.181	.953	3.813	.625	.375	2
5.000	**WJX14UR5.0007EA**	1.500	1.654	1.575	2.205	.795	3.813	.625	.375	3
5.000	**WJX14UR5.0009EA**	1.500	1.654	1.575	2.205	.795	3.813	.625	.375	3
6.000	**WJX14UR6.0009FA**	2.000	1.693	2.087	3.228	.756	4.875	.750	.437	3

SPARE PARTS

(inch)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX14	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

ISO13399 ➤ K003
OPERATIONAL GUIDANCE ➤ K327
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Fig.1
ø50
ø52

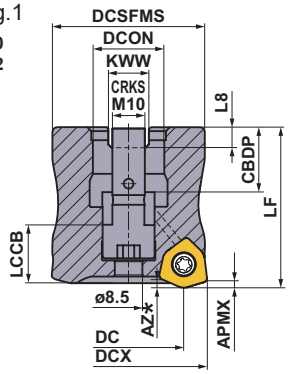


Fig.2
ø63
ø66
ø80
ø100

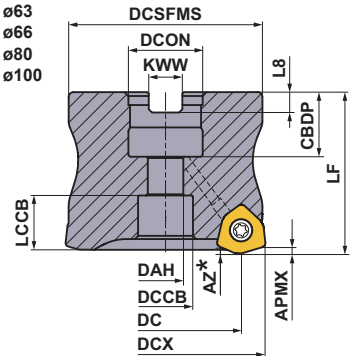
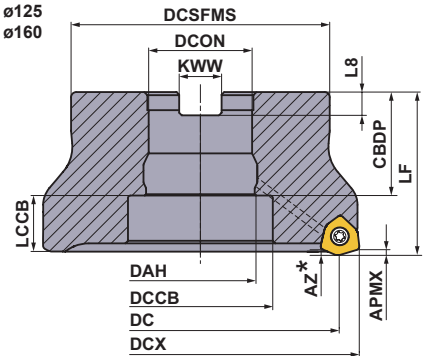


Fig.3
ø125
ø160



Right hand tool holder only.

(mm)

DCON		Set Bolt	Geometry	
inch size	mm size			
ϕ22.225	ϕ22	HSC10030H	①	① ②
ϕ31.75	ϕ27	HSC12035H		
ϕ38.1	ϕ32	HSC16040H		
ϕ50.8	ϕ40	MBA20040H	②	
		MBA24045H		With Air / coolant through.

Note 1) The milling cutter with cutting diameter maximum DCX = 50mm and 52mm has a built in set bolt.
Please use 7mm Allen wrench to tighten/loosen the set bolt.

■ARBOR TYPE

With Air / coolant through.

DCX=mm size, DCON=inch size, DCON=mm size

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.	Insert Type
50	**WJX14R05003BA**	★	3	34.5	50	22.225	0.4	2	5000	1	JOMU1407
50	**WJX14R05004BA**	★	4	34.5	50	22.225	0.4	2	5000	1	JOMU1407
63	**WJX14R06304BA**	★	4	47.5	50	22.225	0.7	2	18200	2	JOMU1407
63	**WJX14R06305BA**	★	5	47.5	50	22.225	0.7	2	18200	2	JOMU1407
80	**WJX14R08005DA**	★	5	64.4	63	31.75	1.4	2	15600	2	JOMU1407
80	**WJX14R08006DA**	★	6	64.4	63	31.75	1.4	2	15600	2	JOMU1407
100	**WJX14R10006DA**	★	6	84.4	63	31.75	2.5	2	13500	2	JOMU1407
100	**WJX14R10007DA**	★	7	84.4	63	31.75	2.5	2	13500	2	JOMU1407
125	**WJX14R12507EA**	★	7	109.4	63	38.1	3.2	2	11600	3	JOMU1407
125	**WJX14R12509EA**	★	9	109.4	63	38.1	3.1	2	11600	3	JOMU1407
160	**WJX14R16009FA**	★	9	144.4	63	50.8	4.5	2	9900	3	JOMU1407

DCX=mm, DCON=mm

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	DCON	WT (kg)	APMX	RPMX (min^{-1})	Fig.	Insert Type
50	**WJX14-050A03AR**	★	3	34.5	50	22	0.4	2	5000	1	JOMU1407
50	**WJX14-050A04AR**	★	4	34.5	50	22	0.4	2	5000	1	JOMU1407
52	**WJX14-052A04AR**	★	4	36.5	50	22	0.4	2	5000	1	JOMU1407
63	**WJX14-063A04AR**	★	4	47.5	50	22	0.7	2	18200	2	JOMU1407
63	**WJX14-063A05AR**	★	5	47.5	50	22	0.7	2	18200	2	JOMU1407
63	**WJX14-063X05AR**	★	5	47.5	50	27	0.6	2	18200	2	JOMU1407
66	**WJX14-066X05AR**	★	5	50.4	50	27	0.7	2	17700	2	JOMU1407
80	**WJX14-080A05AR**	★	5	64.4	50	27	1.2	2	15600	2	JOMU1407
80	**WJX14-080A06AR**	★	6	64.4	50	27	1.2	2	15600	2	JOMU1407
100	**WJX14-100A06AR**	★	6	84.4	63	32	2.5	2	13500	2	JOMU1407
100	**WJX14-100A07AR**	★	7	84.4	63	32	2.5	2	13500	2	JOMU1407
125	**WJX14-125B07AR**	★	7	109.4	63	40	3.2	2	11600	3	JOMU1407
125	**WJX14-125B09AR**	★	9	109.4	63	40	3.1	2	11600	3	JOMU1407
160	**WJX14-160B09AR**	★	9	144.4	63	40	4.9	2	9900	3	JOMU1407

⋆ Refer to page K326, for the maximum drilling depth (**AZ**).
Note 1) The maximum spindle speeds **RPMX** are set to ensure tool and insert stability.

MOUNTING DIMENSIONS

(mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
50	**WJX14-050A03AR**	22	20	—	—	18.3	47	10.4	6.3	1
50	**WJX14-050A04AR**	22	20	—	—	18.3	47	10.4	6.3	1
50	**WJX14R05003BA**	22.225	20	—	—	18.3	47	8.4	5	1
50	**WJX14R05004BA**	22.225	20	—	—	18.3	47	8.4	5	1
52	**WJX14-052A04AR**	22	20	—	—	18.3	47	10.4	6.3	1
63	**WJX14-063A04AR**	22	20	11	17	16.7	60	10.4	6.3	2
63	**WJX14-063A05AR**	22	20	11	17	16.7	60	10.4	6.3	2
63	**WJX14R06304BA**	22.225	19	11	17	17.7	60	8.4	5	2
63	**WJX14R06305BA**	22.225	19	11	17	17.7	60	8.4	5	2
63	**WJX14-063X05AR**	27	23	13	20	15.7	60	12.4	7	2
66	**WJX14-066X05AR**	27	23	13	20	15.7	60	12.4	7	2
80	**WJX14-080A05AR**	27	23	13	20	15.7	76	12.4	7	2
80	**WJX14-080A06AR**	27	23	13	20	15.7	76	12.4	7	2
80	**WJX14R08005DA**	31.75	32	17	26	19.7	76	12.7	8	2
80	**WJX14R08006DA**	31.75	32	17	26	19.7	76	12.7	8	2
100	**WJX14R10006DA**	31.75	32	17	26	19.7	96	12.7	8	2
100	**WJX14R10007DA**	31.75	32	17	26	19.7	96	12.7	8	2
100	**WJX14-100A06AR**	32	26	17	26	25.7	96	14.4	8	2
100	**WJX14-100A07AR**	32	26	17	26	25.7	96	14.4	8	2
125	**WJX14R12507EA**	38.1	40	40	56	21.7	100	15.9	10	3
125	**WJX14R12509EA**	38.1	40	40	56	21.7	100	15.9	10	3
125	**WJX14-125B07AR**	40	40	42	56	21.7	100	16.4	9	3
125	**WJX14-125B09AR**	40	40	42	56	21.7	100	16.4	9	3
160	**WJX14-160B09AR**	40	40	42	56	21.7	100	16.4	9	3
160	**WJX14R16009FA**	50.8	43	53	72	18.7	100	19.1	11	3

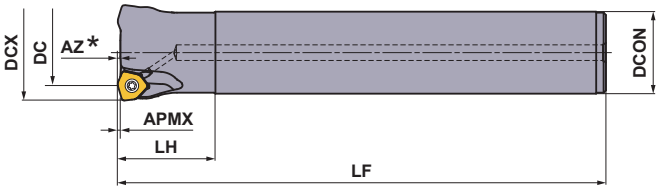
SPARE PARTS

(mm)

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX14	TS5R	TKY20T	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

ISO13399 ➤ K003
OPERATIONAL GUIDANCE ➤ K327
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.

■SHANK TYPE

With Air / coolant through.

(mm)

DCX	Order Number	Stock R	Number of Teeth	DC	LF	LH	DCON	APMX	RPMX (min^{-1})	Insert Type
50	**WJX14R5003SA42S**	★	3	34.5	150	50	42	2	21200	JOMU1407
50	**WJX14R5003SA42L**	★	3	34.5	250	50	42	2	21200	JOMU1407

* Refer to page K326, for the maximum drilling depth (**AZ**).

SPARE PARTS

Tool Holder Type	 *		
	Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
WJX14	TS5R	TKY20D	MK1KS

* Clamp Torque (lbf-in) : TS5R = 44

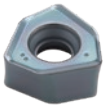
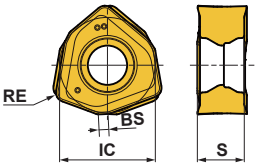
INSERTS

(inch)

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	S	Heat Resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Edge Preparation :
E : Round

Shape	Order Number	Class	Edge Preparation	Coated									IC	S	BS	RE	Geometry
				MC7020	MP6120	MP6130	MP7130	MP7140	MP9120	MP9130	VP15TF	VP30RT					
	**JOMU140715ZZER-L**	M	E	●	●	●	●	●	●	●	●	●	.551	.259	.051	.059	
	JOMU140715ZZER-M	M	E	●	●	●	●	●	●	●	●	●	.551	.261	.051	.059	
	JOMU140715ZZER-R	M	E	●	●	●					●	●	.551	.266	.051	.059	

Right hand insert only.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

ISO13399 ➤ K003
OPERATIONAL GUIDANCE ➤ K327
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

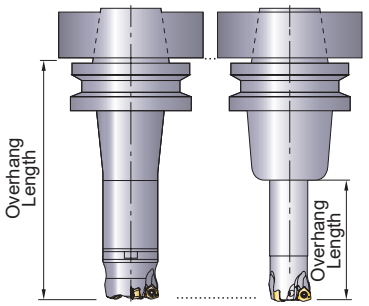
RECOMMENDED CUTTING CONDITIONS

■ Correction Value According to Overhang Length

Multiply the recommended cutting conditions on pages K323—K325 by the corrections factor x overhang length.

(inch)

Type	Cutting Dia. Max. **DCX**	Overhang Length	Correction Value According		
			Cutting Speed **vc** (SFM)	Depth of Cut **ap**	Feed **fz** (IPT)
Shank Type	1.969	< 2.5×DCON	100%	100%	100%
		3.0×DCON	90%	100%	90%
		4.0×DCON	80%	80%	90%
Arbor Type	2.000—3.150	< 2.5×DCX	100%	100%	100%
		3.0×DCX	85%	100%	90%
		4.0×DCX	80%	80%	80%
		5.0×DCX	75%	75%	60%
		6.0×DCX	70%	70%	40%
	≥3.937	8.0	100%	100%	100%
		12.0	85%	100%	90%
		16.0	80%	80%	80%



DCON=Connection Dia.

■ CUTTING SPEED (Dry Cutting)

(inch)

Workpiece Material		Properties	Cutting Speed **vc** (SFM)				
P			MP6130	MP6120	MC7020	VP15TF	VP30RT
	Mild Steel	Hardness ≤180HB	460 (295—590)	490 (330—655)	720 (560—885)	490 (330—655)	395 (260—525)
	Carbon Steel Alloy Steel	Hardness 180—280HB	395 (230—590)	460 (260—655)	655 (490—820)	460 (260—655)	330 (195—490)
	Carbon Steel Alloy Steel	Hardness 280—350HB	395 (230—590)	460 (260—655)	655 (490—820)	460 (260—655)	330 (195—490)
	Alloy Tool Steel	Hardness ≤350HB (Annealing)	395 (230—590)	460 (260—655)	655 (490—820)	460 (260—655)	330 (195—490)
	Pre-hardened Steel	Hardness 35—45HRC	295 (165—425)	360 (230—490)	—	360 (230—490)	260 (130—395)
M			MP7130	MP7140	MC7020	VP30RT	
	Austenitic Stainless Steel	Hardness ≤200HB	525 (425—655)	490 (395—590)	720 (560—885)	490 (395—590)	
	Austenitic Stainless Steel	Hardness >200HB	460 (330—655)	425 (260—590)	620 (460—785)	425 (260—590)	
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	490 (330—655)	425 (260—590)	720 (560—885)	425 (260—590)	
	Duplex Stainless Steel	Hardness ≤280HB	425 (260—590)	360 (195—525)	590 (425—755)	360 (195—525)	
	Precipitation Hardening Stainless Steel	Hardness <450HB	360 (195—525)	295 (165—425)	560 (395—720)	295 (165—425)	
K			VP15TF				
	Gray Cast Iron	Tensile Strength ≤350MPa	525 (395—655)				
	Ductile Cast Iron	Tensile Strength ≤450MPa	490 (330—655)				
	Ductile Cast Iron	Tensile Strength ≤800MPa	395 (260—525)				
S			MP9130	MP9120	VP15TF		
	Titanium Alloys	—	130 (100—195)	165 (100—210)	165 (100—210)		
	Heat Resistant Alloys	—	100 (65—130)	130 (65—165)	130 (65—165)		
H			VP15TF				
	Hardened Steel	Hardness 40—55HRC	230 (130—330)				

Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
Note 2) When wet cutting, tool life may become shorter than dry cutting. When carrying out wet cutting for the applications recommended with dry cutting, reduce the cutting speed by 25%.
Note 3) When large vibration occurs, reduce the cutting conditions.
Note 4) For interrupted cutting, reduce the cutting speed and feed rate by 20%.

RECOMMENDED CUTTING CONDITIONS

Depth of Cut / Feed per Tooth

(inch)

	Workpiece Material	Properties	Depth of Cut **ap**	Breaker	Cutting Dia. Max. DCX=2.000", 50 mm, 52 mm Feed **fz** (IPT)	Cutting Dia. Max. DCX≥2.500", 63 mm Feed **fz** (IPT)	Cutting Mode
P	Mild Steel	Hardness ≤180HB	≤.040	M,R *	.059(.024—.098)	.067(.024—.110)	Dry
				L	.047(.016—.079)	.047(.016—.079)	Dry
			≤.060	M,R *	.051(.024—.079)	.059(.024—.098)	Dry
				L	.039(.016—.071)	.039(.016—.071)	Dry
			≤.080	M,R *	.047(.024—.079)	.051(.024—.098)	Dry
				L	.031(.016—.067)	.031(.016—.067)	Dry
			≤.100	M,R	.031(.012—.059)	.039(.012—.063)	Dry
			≤.120	M,R	.016(.008—.039)	.020(.008—.047)	Dry
	Carbon Steel Alloy Steel	Hardness 180-280HB	≤.040	M,R *	.059(.020—.079)	.067(.020—.098)	Dry
				L	.039(.012—.067)	.039(.012—.067)	Dry
			≤.060	M,R *	.047(.020—.067)	.051(.020—.098)	Dry
				L	.031(.012—.059)	.031(.012—.059)	Dry
			≤.080	M,R *	.039(.020—.059)	.047(.020—.079)	Dry
				L	.028(.012—.047)	.028(.012—.047)	Dry
			≤.100	M,R	.028(.012—.047)	.035(.012—.059)	Dry
			≤.120	M,R	.012(.008—.031)	.016(.008—.039)	Dry
	Carbon Steel Alloy Steel Alloy Tool Steel	Hardness 280-350HB ≤350HB (Annealing)	≤.040	M,R *	.059(.020—.079)	.067(.020—.098)	Dry
				L	.039(.012—.067)	.039(.012—.067)	Dry
			≤.060	M,R *	.047(.020—.067)	.051(.020—.087)	Dry
				L	.031(.012—.059)	.031(.012—.059)	Dry
			≤.080	M,R *	.039(.020—.059)	.047(.020—.079)	Dry
				L	.028(.012—.047)	.028(.012—.047)	Dry
			≤.100	M,R	.028(.012—.047)	.035(.012—.059)	Dry
			≤.120	M,R	.012(.008—.031)	.016(.008—.039)	Dry
	Pre-hardened Steel	Hardness 35-45HRC	≤.040	M,R *	.051(.016—.067)	.059(.016—.079)	Dry
				L	.028(.012—.047)	.028(.012—.047)	Dry
			≤.060	M,R *	.039(.016—.059)	.047(.016—.059)	Dry
				L	.024(.012—.039)	.024(.012—.039)	Dry
			≤.080	M,R *	.031(.016—.047)	.039(.016—.051)	Dry
				L	.020(.012—.031)	.020(.012—.031)	Dry
M	Austenitic Stainless Steel	—	≤.040	L *	.031(.012—.047)	.031(.012—.047)	Dry
				M	.039(.020—.047)	.039(.020—.047)	Dry
			≤.060	L *	.031(.012—.039)	.031(.012—.039)	Dry
				M	.039(.020—.039)	.039(.020—.039)	Dry
	Ferritic and Martensitic Stainless Steel	Hardness ≤200HB	≤.040	L *	.031(.012—.047)	.031(.012—.047)	Dry
				M	.039(.020—.047)	.039(.020—.047)	Dry
			≤.060	L *	.031(.012—.039)	.031(.012—.039)	Dry
				M	.039(.020—.039)	.039(.020—.039)	Dry
	Duplex Stainless Steel	Hardness ≤280HB	≤.040	L *	.024(.012—.039)	.024(.012—.039)	Dry
				M	.031(.016—.039)	.031(.016—.039)	Dry
			≤.060	L *	.024(.012—.031)	.024(.012—.031)	Dry
				M	.031(.016—.031)	.031(.016—.031)	Dry
	Precipitation Hardening Stainless Steel	Hardness <450HB	≤.040	L *	.024(.012—.039)	.024(.012—.039)	Dry
				M	.031(.016—.039)	.031(.016—.039)	Dry
			≤.060	L *	.024(.012—.031)	.024(.012—.031)	Dry
				M	.031(.016—.031)	.031(.016—.031)	Dry

* The 1st recommend chip breaker for each depth of cut (**ap**).

Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.

Note 2) When large vibration occurs, reduce the cutting conditions.

Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.

Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

(inch)

	Workpiece Material	Properties	Depth of Cut **ap**	Breaker	Cutting Dia. Max. DCX=2.000", 50 mm, 52 mm Feed **fz** (IPT)	Cutting Dia. Max. DCX≥2.500", 63 mm Feed **fz** (IPT)	Cutting Mode
K	Gray Cast Iron	Tensile Strength ≤350MPa	≤.040	M,R *	.067(.024—.098)	.071(.024—.110)	Dry
				L	.051(.016—.079)	.051(.016—.079)	Dry
			≤.060	M,R *	.059(.024—.079)	.067(.024—.098)	Dry
				L	.047(.016—.071)	.047(.016—.071)	Dry
			≤.080	M,R *	.051(.024—.079)	.059(.024—.098)	Dry
				L	.039(.016—.059)	.039(.016—.059)	Dry
			≤.100	M,R	.031(.012—.059)	.039(.012—.063)	Dry
			≤.120	M,R	.016(.008—.039)	.020(.008—.047)	Dry
	Ductile Cast Iron	Tensile Strength ≤450MPa	≤.040	M,R *	.059(.020—.079)	.067(.020—.098)	Dry
				L	.047(.012—.079)	.047(.012—.079)	Dry
			≤.060	M,R *	.051(.020—.071)	.059(.020—.079)	Dry
				L	.039(.012—.067)	.039(.012—.067)	Dry
			≤.080	M,R *	.047(.020—.071)	.051(.020—.079)	Dry
				L	.031(.012—.059)	.031(.012—.059)	Dry
			≤.100	M,R	.028(.012—.047)	.035(.012—.059)	Dry
			≤.120	M,R	.012(.008—.031)	.016(.008—.039)	Dry
	Ductile Cast Iron	Tensile Strength ≤800MPa	≤.040	M,R *	.051(.016—.071)	.059(.016—.079)	Dry
				L	.039(.012—.067)	.039(.012—.067)	Dry
			≤.060	M,R *	.047(.016—.059)	.051(.016—.071)	Dry
				L	.031(.012—.059)	.031(.012—.059)	Dry
			≤.080	M,R *	.039(.016—.059)	.047(.016—.071)	Dry
				L	.028(.012—.047)	.028(.012—.047)	Dry
S	Titanium Alloys	—	≤.040	L	.012(.008—.024)	.012(.008—.024)	Wet
			≤.060	L	.012(.008—.020)	.012(.008—.020)	Wet
			≤.080	L	.012(.008—.016)	.012(.008—.016)	Wet
	Heat Resistant Alloys	—	≤.040	L,M,R	.039(.012—.051)	.039(.012—.051)	Wet
			≤.060	L,M,R	.031(.012—.047)	.031(.012—.047)	Wet
			≤.080	L,M,R	.028(.012—.047)	.028(.012—.047)	Wet
H	Hardened Steel	Hardness 40-55HRC	≤.040	R,M	.031(.012—.047)	.031(.012—.047)	Dry
			≤.060	R,M	.024(.012—.039)	.024(.012—.039)	Dry
			≤.080	R,M	.020(.012—.031)	.020(.012—.031)	Dry

* The 1st recommend chip breaker for each depth of cut (**ap**).

Note 1) To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.

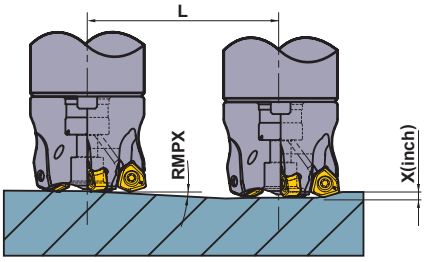
Note 2) When large vibration occurs, reduce the cutting conditions.

Note 3) For interrupted cutting, reduce the cutting speed and feed rate by 20%.

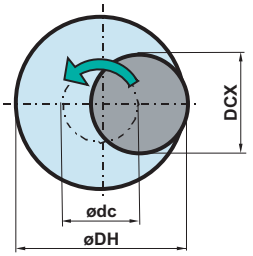
Note 4) If ap is set at .079" or more, avoid machining on the walls or ramping.

MAXIMUM CAPACITIES BY MODE

■ Ramping



■ Helical Milling



● How to derive a locus of the center of the tool.

ødc = øDH - DCX

ødc: Locus of the Center of the Tool
øDH: Desired Hole Diameter
DCX: Cutting Diameter Maximum

(inch)

Tool Holder Type	DCX	DC	APMX	Ramping			Helical Milling (Blind Hole, Flat Bottom)		Helical Milling (Through Hole)	AZ
				RMPX	L (inch) Required Distance for X inch Depth		DH		DH	
					x=.039	x=.079	Min.	Max.	Min.	
WJX14UR2.000	2.000	1.338	.079	4.3	.524	1.048	3.285	3.901	2.919	.082
WJX14UR2.500	2.500	1.887	.079	3°	.752	1.503	4.283	4.901	3.912	.082
WJX14UR3.000	3.000	2.387	.079	2.2°	1.025	2.050	5.283	5.901	4.909	.082
WJX14UR4.000	4.000	3.386	.079	1.5°	1.504	3.007	7.282	7.901	6.906	.082
WJX14UR5.000	5.000	4.386	.079	1.1°	2.051	4.101	9.281	9.901	8.904	.082
WJX14UR6.000	6.000	5.386	.079	0.9°	2.507	5.013	11.281	11.901	10.903	.082
WJX14R50	1.969	1.358	.079	4.4°	.512	1.024	3.228	3.819	2.874	.082
WJX14-050	1.969	1.358	.079	4.4	.512	1.024	3.228	3.819	2.874	.082
WJX14R050	1.969	1.358	.079	4.4	.512	1.024	3.228	3.819	2.874	.082
WJX14-052	2.047	1.437	.079	4.1	.551	1.102	3.386	3.976	3.031	.082
WJX14-063	2.480	1.870	.079	3°	.752	1.504	4.252	4.843	3.898	.082
WJX14R063	2.480	1.870	.079	3°	.752	1.504	4.252	4.843	3.898	.082
WJX14-066	2.598	1.984	.079	2.8°	.807	1.610	4.488	5.079	4.134	.082
WJX14-080	3.150	2.535	.079	2.1°	1.075	2.150	5.591	6.181	5.236	.082
WJX14R080	3.150	2.535	.079	2.1°	1.075	2.150	5.591	6.181	5.236	.082
WJX14-100	3.937	3.323	.079	1.5°	1.504	3.008	7.165	7.756	6.811	.082
WJX14R100	3.937	3.323	.079	1.5°	1.504	3.008	7.165	7.756	6.811	.082
WJX14-125	4.921	4.307	.079	1.2°	1.882	3.760	9.134	9.724	8.780	.082
WJX14R125	4.921	4.307	.079	1.2°	1.882	3.760	9.134	9.724	8.780	.082
WJX14-160	6.299	5.685	.079	0.8°	2.823	5.642	11.890	12.480	11.535	.082
WJX14R160	6.299	5.685	.079	0.8°	2.823	5.642	11.890	12.480	11.535	.082

Note 1) When ramping and helical milling, it is recommended to reduce the feed per tooth.
Note 2) When ramping, helical milling and drilling, long continuous chips may be scattered so please be careful.

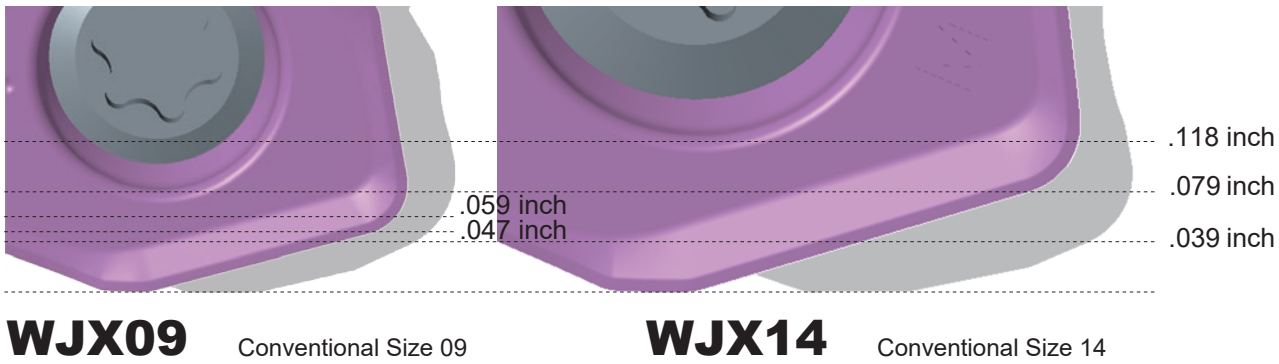
<Helical Milling>
To obtain a flat bottom surface when helical milling, it requires to remove “the uncut part” in the center of the workpiece material at a final pass.
When helical milling, make sure that the depth of cut per helical pass doesn’t exceed the maximum depth of cut (APMX).
<Drilling>
When drilling, set the axial feed per revolution at .008 IPR or less.

OPERATIONAL GUIDANCE

■ Depth of Cut

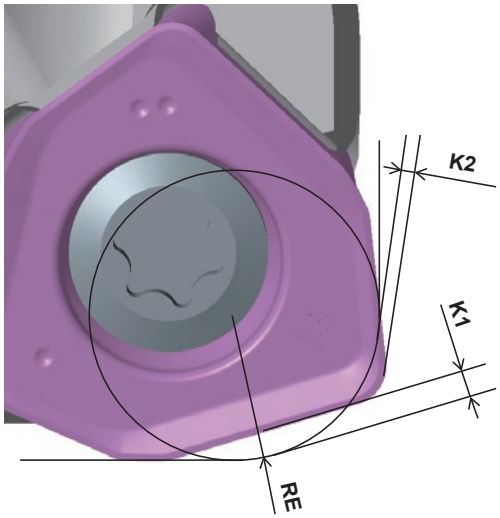
Refer to the following table for the maximum depth of cut of the WJX.
The straight cutting edge extending to the maximum depth of cut (APMX) allows for stable machining even at high depths of cut.
For face milling, lowering the feed rate will allow to exceed the APMX, up to depths of cut shown in the following table (when using the corner R).
For details on the feed rate, refer to the recommended cutting conditions on K315 and K323.

	WJX09	WJX14
High feed and multi-function machining (APMX)	ap=.047 inch	ap=.079 inch
Low feed and Face machining	ap=.059 inch	ap=.118 inch



■ Remaining Stock

For CAM, use CAD data (from online catalogs), or use a definition as a radius milling cutter with reference to the following table.
The approximate radius RE, remaining stock K1, and over cutting amount K2 are as shown in the following table.



WJX09

RE	Remaining Stock K1	Over Cut K2
R.079 (Recommendation)	.037	.000
R.091	.034	.000
R.118	.028	.005

WJX14

RE	Remaining Stock K1	Over Cut K2
R.118 (Recommendation)	.056	.000
R.126	.054	.000
R.157	.046	.004
R.197	.036	.015

(mm)

Depth of Cut ap	Remaining Stock H	
	WJX09	WJX14
.020	.001	–
.039	.003	.002
.059	–	.003
.079	–	.005

MULTI FUNCTIONAL MILLING

ARP

P | M | K | N | S | H

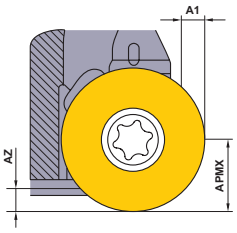


Fig.1

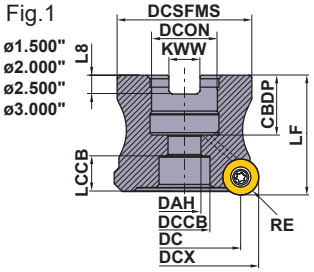
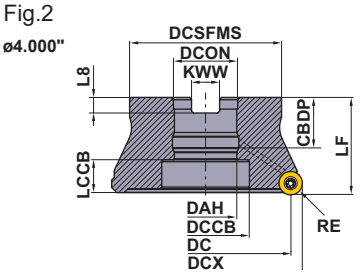


Fig.2



Right hand tool holder only.

DCX	Set Bolt	Geometry	
ϕ1.500"	HSC08025H	①	① ②
ϕ2.000"	HSC10030H		
ϕ2.500", ϕ3.000"	HSC12035H		
ϕ4.000"	MBA16033H	②	With Air / coolant through.

■ ARBOR TYPE

DCON = inch size, With Air / coolant through. (inch)

DCX	Order Number	Stock R	RE	Number of Teeth	Pitch	DC	LF	DCON	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
1.500	**ARP5UPR1504SA**	●	.197	4	Fine	1.104	1.500	.500	.3	.079	.047	2.8°	1	RP◌T1040
1.500	**ARP5UPR1505SA**	●	.197	5	Extra Fine	1.104	1.500	.500	.3	.079	.047	2.8°	1	RP◌T1040
1.500	**ARP6UPR1504SA**	●	.236	4	Fine	1.026	1.500	.500	.3	.079	.041	2.7°	1	RP◌T1248
2.000	**ARP5UPR0206AA**	●	.197	6	Fine	1.604	1.750	.750	.8	.079	.073	2.9°	1	RP◌T1040
2.000	**ARP5UPR0207AA**	●	.197	7	Extra Fine	1.604	1.750	.750	.8	.079	.073	2.9°	1	RP◌T1040
2.000	**ARP6UPR0205AA**	●	.236	5	Fine	1.526	1.750	.750	.7	.079	.067	2.8°	1	RP◌T1248
2.000	**ARP6UPR0206AA**	●	.236	6	Extra Fine	1.526	1.750	.750	.7	.079	.067	2.8°	1	RP◌T1248
2.500	**ARP5UPR2507CA**	●	.197	7	Fine	2.104	2.000	1.000	1.4	.098	.098	2.9°	1	RP◌T1040
2.500	**ARP5UPR2508CA**	●	.197	8	Extra Fine	2.104	2.000	1.000	1.4	.098	.098	2.9°	1	RP◌T1040
2.500	**ARP6UPR2506CA**	●	.236	6	Fine	2.026	2.000	1.000	1.4	.098	.098	3.1°	1	RP◌T1248
2.500	**ARP6UPR2507CA**	●	.236	7	Extra Fine	2.026	2.000	1.000	1.4	.098	.098	3.1°	1	RP◌T1248
3.000	**ARP6UPR0308CA**	●	.236	8	Fine	2.526	2.000	1.000	1.8	.098	.098	2.4°	1	RP◌T1248
3.000	**ARP6UPR0309CA**	●	.236	9	Extra Fine	2.526	2.000	1.000	1.8	.098	.098	2.4°	1	RP◌T1248
4.000	**ARP6UPR0409EA**	●	.236	9	Fine	3.526	2.500	1.500	4.5	.098	.098	1.7°	2	RP◌T1248
4.000	**ARP6UPR0411EA**	●	.236	11	Extra Fine	3.526	2.500	1.500	4.5	.098	.098	1.7°	2	RP◌T1248

RMPX = Max. Ramping Angle

Note 1) For the maximum width of cut (APMX), Please refer to page K335.

MOUNTING DIMENSIONS

(inch)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
1.500	**ARP5UPR15**	.500	.630	.433	.276	.359	1.250	.250	.156	1
1.500	**ARP6UPR15**	.500	.630	.433	.276	.354	1.250	.250	.156	1
2.000	**ARP5UPR02**	.750	.748	.630	.413	.649	1.750	.313	.187	1
2.000	**ARP6UPR02**	.750	.748	.630	.413	.643	1.750	.313	.187	1
2.500	**ARP5UPR25**	1.000	.945	.787	.539	.702	2.190	.375	.219	1
2.500	**ARP6UPR25**	1.000	.945	.787	.539	.696	2.190	.375	.219	1
3.000	**ARP6UPR03**	1.000	.945	.787	.539	.696	2.190	.375	.219	1
4.000	**ARP6UPR04**	1.500	1.417	1.500	2.205	.802	3.500	.625	.375	2

Fig.1

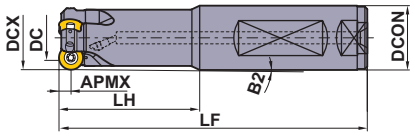


Fig.2

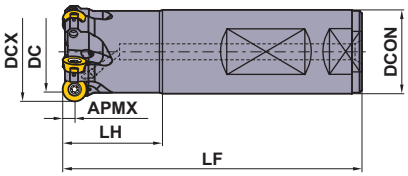


Fig.3

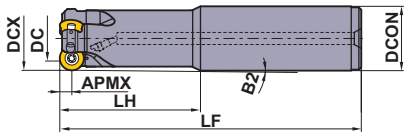
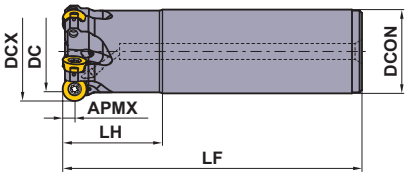


Fig.4



■ SHANK TYPE

DCON = inch size, With Air / coolant through.

(inch)

DCX	Order Number	Stock R	RE	Number of Teeth	DC	LF	LF	DCON	B2	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
1.000	**ARP5UPR1603FA16M**	●	.197	3	.608	5.500	2.250	1.000	1.170°	.9	.039	.018	1.9°	1	RP◌T1040
1.000	**ARP5UPR1602SA16L**	●	.197	2	.608	7.000	3.000	1.000	.570°	1.3	.039	.018	1.9°	3	RP◌T1040
1.250	**ARP5UPR2004FA20M**	●	.197	4	.858	6.000	2.750	1.250	.760°	1.7	.039	.026	1.9°	1	RP◌T1040
1.250	**ARP5UPR2003SA20L**	●	.197	3	.858	8.000	4.750	1.250	1.010°	2.2	.039	.026	1.9°	3	RP◌T1040
1.250	**ARP6UPR2003FA20M**	●	.236	3	.781	6.000	2.750	1.250	.950°	1.7	.039	.024	2.0°	1	RP◌T1248
1.250	**ARP6UPR2002SA20L**	●	.236	2	.781	8.000	4.750	1.250	.510°	2.2	.039	.024	2.0°	3	RP◌T1248
1.500	**ARP6UPR2404FA20M**	●	.236	4	1.028	6.000	2.000	1.250	-	1.8	.098	.041	2.7°	2	RP◌T1248
1.500	**ARP6UPR2403SA20L**	●	.236	3	1.028	10.000	2.000	1.250	-	3.2	.098	.041	2.7°	4	RP◌T1248
2.000	**ARP6UPR3205FA24M**	●	.236	5	1.528	6.000	2.000	1.500	-	2.7	.098	.067	2.8°	2	RP◌T1248
2.000	**ARP6UPR3204SA24L**	●	.236	4	1.528	10.000	2.000	1.500	-	4.7	.098	.067	2.8°	4	RP◌T1248

Note 1) For the maximum width of cut (APMX), Please refer to page K335.

SPARE PARTS

Tool Holder Type	 * Insert Screw	 Wrench	 Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

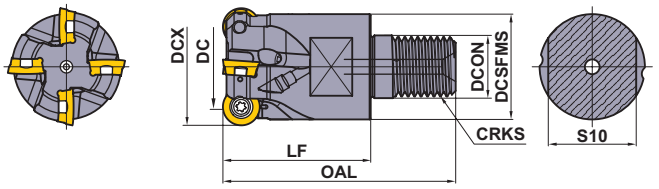
* Clamp Torque (lbf-in) : TPS351B = 22, TPS4 = 31

	≤140 PSI (≤5.3 gal/min)	←Standard→ (140 PSI-720 PSI)	≥720 PSI (≥7.9 gal/min)	≥1000 PSI (≥13.2 gal/min)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	-
Order Number	**HSD04004H06***	**HSD04004H08***	**HSD04004H12***	**HSD04004H16***	**HSS04004**

* Clamp Torque (lbf-in) : HSD04004H◌◌= 13, HSS04004= 13

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select nozzles as required by the specification.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Right hand tool holder only.

■ SCREW-IN TYPE

With Air / coolant through.

DCX	Order Number	Stock R	RE	Number of Teeth	DC	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Insert Type
1.000	**ARP5UPR1603AM1235**	●	.197	3	.606	.492	.925	2.244	1.378	.748	M12	.2	—	.016	1.9°	RP◌T1040
1.250	**ARP5UPR2004AM1640**	●	.197	4	.856	.669	1.122	2.480	1.575	.945	M16	.4	.039	.026	1.9°	RP◌T1040
1.250	**ARP6UPR2003AM1640**	●	.236	3	.778	.669	1.122	2.480	1.575	.945	M16	.4	.039	.024	2.0°	RP◌T1248
1.500	**ARP6UPR2404AM1640**	●	.236	4	1.028	.669	1.122	2.480	1.575	.945	M16	.4	.098	.045	2.7°	RP◌T1248

Note 1) For the maximum width of cut (APMX), Please refer to page K335.

SPARE PARTS

Tool Holder Type	 * Insert Screw	 Wrench	 Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

* Clamp Torque (lbf-in) : TPS351B = 22, TPS4 = 31

	≤140 PSI (≤5.3 gal/min)	←Standard→ (140 PSI-720 PSI)	≥720 PSI (≥7.9 gal/min)	≥1000 PSI (≥13.2 gal/min)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	-
Order Number	**HSD04004H06***	**HSD04004H08***	**HSD04004H12***	**HSD04004H16***	**HSS04004**

* Clamp Torque (lbf-in) : HSD04004H◌◌= 13, HSS04004= 13

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select nozzles as required by the specification.

Metric Standard

Fig.1

ø40
ø50
ø63
ø80

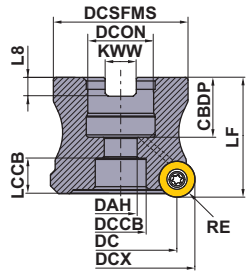
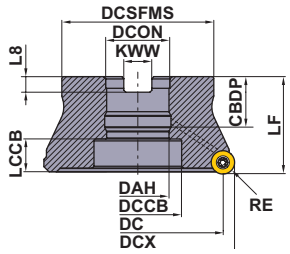
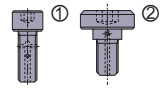


Fig.2

ø100



Right hand tool holder only.

DCX		Set Bolt	Geometry	
DCON inch size	DCON mm size			
–	ϕ40	HSC08025H	①	
–	ϕ50, ϕ63	HSC10030H		
ϕ80	ϕ80	HSC12035H		
ϕ100	ϕ100	MBA16033H	②	With Air / coolant through.

■ ARBOR TYPE

DCON = inch size, With Air / coolant through.

(mm)

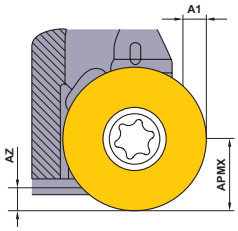
DCX	Order Number	Stock R	RE	Number of Teeth	DC	LF	DCON	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
80	**ARP6PR08008CA**	★	6	8	68	50	25.4	0.9	2.5	2.5	2.3°	1	RP◌T1248
80	**ARP6PR08009CA**	★	6	9	68	50	25.4	0.9	2.5	2.5	2.3°	1	RP◌T1248
100	**ARP6PR10009DA**	★	6	9	88	50	31.75	1.4	2.5	2.5	1.7°	2	RP◌T1248
100	**ARP6PR10011DA**	★	6	11	88	50	31.75	1.4	2.5	2.5	1.7°	2	RP◌T1248

DCON = mm size, With Air / coolant through.

(mm)

DCX	Order Number	Stock R	RE	Number of Teeth	DC	LF	DCON	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
40	**ARP5P-040A05AR**	★	5	5	29.9	40	16	0.2	2.0	1.3	2.8°	1	RP◌T1040
40	**ARP6P-040A04AR**	★	6	4	28	40	16	0.2	2.0	1.1	2.7°	1	RP◌T1248
50	**ARP5P-050A06AR**	★	5	6	39.9	40	22	0.3	2.0	1.8	2.9°	1	RP◌T1040
50	**ARP5P-050A07AR**	★	5	7	39.9	40	22	0.3	2.0	1.8	2.9°	1	RP◌T1040
50	**ARP6P-050A05AR**	★	6	5	38	40	22	0.3	2.0	1.7	2.9°	1	RP◌T1248
50	**ARP6P-050A06AR**	★	6	6	38	40	22	0.3	2.0	1.7	2.9°	1	RP◌T1248
63	**ARP5P-063A07AR**	★	5	7	52.9	40	22	0.5	2.5	2.5	3.0°	1	RP◌T1040
63	**ARP5P-063A08AR**	★	5	8	52.9	40	22	0.5	2.5	2.5	3.0°	1	RP◌T1040
63	**ARP6P-063A06AR**	★	6	6	51	40	22	0.4	2.5	2.5	3.1°	1	RP◌T1248
63	**ARR6P-063A07AR**	★	6	7	51	40	22	0.4	2.5	2.5	3.1°	1	RP◌T1248
80	**ARP6P-080A08AR**	★	6	8	68	50	27	0.9	2.5	2.5	2.3°	1	RP◌T1248
80	**ARP6P-080A09AR**	★	6	9	68	50	27	0.9	2.5	2.5	2.3°	1	RP◌T1248
100	**ARP6P-100B09AR**	★	6	9	88	50	32	1.5	2.5	2.5	1.7°	2	RP◌T1248
100	**ARP6P-100B11AR**	★	6	11	88	50	32	1.5	2.5	2.5	1.7°	2	RP◌T1248

Note 1) For the maximum width of cut (APMX), Please refer to page K335.



ISO13399	➢ K003
MOUNTING DIMENSION	➢ K332
SCREW-IN HOLDERS	➢ K382
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001

★ : Stocked in Japan

Fig.1

ø40
ø50
ø63
ø80

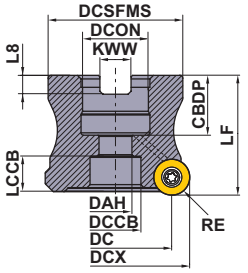
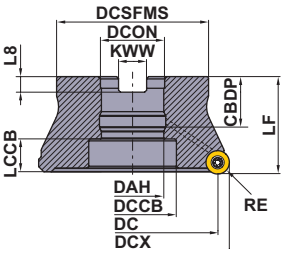
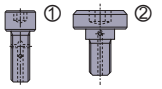


Fig.2

ø100



Right hand tool holder only.

DCX		Set Bolt	Geometry	
DCON inch size	DCON mm size			
–	ϕ40	HSC08025H	①	 With Air / coolant through.
–	ϕ50, ϕ63	HSC10030H		
ϕ80	ϕ80	HSC12035H		
ϕ100	ϕ100	MBA16033H	②	

MOUNTING DIMENSIONS

(mm)

DCX	Order Number	DCON	CBDP	DAH	DCCB	LCCB	DCSFMS	KWW	L8	Fig.
40	**ARP5P-040A05AR**	16	18	9	14	14.0	34	8.4	5.6	1
40	**ARP6P-040A04AR**	16	18	9	13.4	13.9	34	8.4	5.6	1
50	**ARP5P-050A06AR**	22	20	11	17	12.0	45	10.4	6.3	1
50	**ARP5P-050A07AR**	22	20	11	17	12.0	45	10.4	6.3	1
50	**ARP6P-050A05AR**	22	20	11	17	11.9	45	10.4	6.3	1
50	**ARP6P-050A06AR**	22	20	11	17	11.9	45	10.4	6.3	1
63	**ARP5P-063A07AR**	22	20	11	17	12.0	50	10.4	6.3	1
63	**ARP5P-063A08AR**	22	20	11	17	12.0	50	10.4	6.3	1
63	**ARP6P-063A06AR**	22	20	11	17	11.9	50	10.4	6.3	1
63	**ARR6P-063A07AR**	22	20	11	17	11.9	50	10.4	6.3	1
80	**ARP6PR08008CA**	25.4	26	20	13	14.9	56	9.5	6.0	1
80	**ARP6PR08009CA**	25.4	26	20	13	14.9	56	9.5	6.0	1
80	**ARP6P-080A08AR**	27	23	13	20	14.9	56	12.4	7.0	1
80	**ARP6P-080A09AR**	27	23	13	20	14.9	56	12.4	7.0	1
100	**ARP6PR10009DA**	31.75	32	31.75	45	11.9	70	12.7	8.0	2
100	**ARP6PR10011DA**	31.75	32	31.75	45	11.9	70	12.7	8.0	2
100	**ARP6P-100B09AR**	32	26	45	32	16.9	78	14.4	8.0	2
100	**ARP6P-100B11AR**	32	26	45	32	16.9	78	14.4	8.0	2

SPARE PARTS

Tool Holder Type	 *		
	Insert Screw	Wrench	Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

* Clamp Torque (lbf-in) : TPS351B = 22, TPS4 = 31

	≤140 PSI (≤5.3 gal/min)	←Standard→ (140 PSI-720 PSI)	≥720 PSI (≥7.9 gal/min)	≥1000 PSI (≥13.2 gal/min)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	-
Order Number	**HSD04004H06***	**HSD04004H08***	**HSD04004H12***	**HSD04004H16***	**HSS04004**

* Clamp Torque (lbf-in) : HSD04004H○○= 13, HSS04004= 13

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select nozzles as required by the specification.

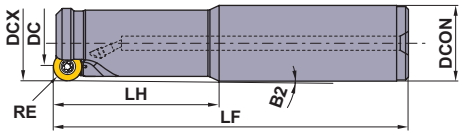


Fig.1

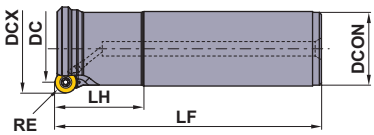


Fig.2

Metric Standard

■ SHANK TYPE

With Air / coolant through.

(mm)

DCX	Order Number	Stock R	RE	Number of Teeth	DC	LF	LH	DCON	B2	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
25	**ARP5PR2503SA25M**	★	5	3	15	140	60	25	1.10°	0.4	1.0	0.40	1.8°	1	RP◌T1040
25	**ARP5PR2502SA25L**	★	5	2	15	180	80	25	0.80°	0.6	1.0	0.40	1.8°	1	RP◌T1040
32	**ARP5PR3204SA32M**	★	5	4	22	150	70	32	0.92°	0.8	1.0	0.65	1.9°	1	RP◌T1040
32	**ARP6PR3203SA32M**	★	6	3	20	150	70	32	0.51°	0.8	1.0	0.60	2.0°	1	RP◌T1248
32	**ARP5PR3203SA32L**	★	5	3	22	200	120	32	0.94°	1.0	1.0	0.65	1.9°	1	RP◌T1040
32	**ARP6PR3202SA32L**	★	6	2	20	200	120	32	0.52°	1.0	1.0	0.60	2.0°	1	RP◌T1248
40	**ARP6PR4004SA32M**	★	6	4	28	150	50	32	–	0.9	2.5	1.15	2.7°	2	RP◌T1248
40	**ARP6PR4003SA32L**	★	6	3	28	250	50	32	–	1.5	2.5	1.15	2.7°	2	RP◌T1248
50	**ARP6PR5005SA42M**	★	6	5	38	150	50	42	–	1.5	2.5	1.70	2.9°	2	RP◌T1248
50	**ARP6PR5004SA42L**	★	6	4	38	250	50	42	–	2.5	2.5	1.70	2.9°	2	RP◌T1248

Note 1) For the maximum width of cut (APMX), Please refer to page K335.

SPARE PARTS

Tool Holder Type	 * Insert Screw	 Wrench	 Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

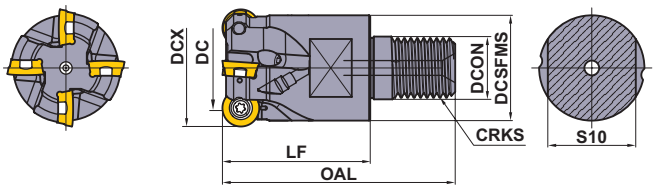
* Clamp Torque (lbf-in) : TPS351B = 22, TPS4 = 31

	≤140 PSI (≤5.3 gal/min)	←Standard→ (140 PSI-720 PSI)	≥720 PSI (≥7.9 gal/min)	≥1000 PSI (≥13.2 gal/min)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	-
Order Number	**HSD04004H06***	**HSD04004H08***	**HSD04004H12***	**HSD04004H16***	**HSS04004**

* Clamp Torque (lbf-in) : HSD04004H◌◌= 13, HSS04004= 13

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select nozzles as required by the specification.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001



Metric Standard

■ SCREW-IN TYPE

With Air / coolant through.

(mm)

DCX	Order Number	Stock R	RE	Number of Teeth	DC	DCON	DCSFMS	OAL	LF	S10	CRKS	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Insert Type
25	**ARP5PR2502AM1235**	★	5	2	15	12.5	23.5	57	35	19	M12	0.1	–	0.40	1.8°	RP◌T1040
25	**ARP5PR2503AM1235**	★	5	3	15	12.5	23.5	57	35	19	M12	0.1	–	0.40	1.8°	RP◌T1040
32	**ARP5PR3203AM1640**	★	5	3	22	17.0	28.5	63	40	24	M16	0.2	1.0	0.65	1.9°	RP◌T1040
32	**ARP5PR3204AM1640**	★	5	4	22	17.0	28.5	63	40	24	M16	0.2	1.0	0.65	1.9°	RP◌T1040
32	**ARP6PR3202AM1640**	★	6	2	20	17.0	28.5	63	40	24	M16	0.2	1.0	0.60	2.0°	RP◌T1248
32	**ARP6PR3203AM1640**	★	6	3	20	17.0	28.5	63	40	24	M16	0.2	1.0	0.60	2.0°	RP◌T1248
40	**ARP6PR4003AM1640**	★	6	3	28	17.0	28.5	63	40	24	M16	0.2	2.5	1.15	2.7°	RP◌T1248
40	**ARP6PR4004AM1640**	★	6	4	28	17.0	28.5	63	40	24	M16	0.2	2.5	1.15	2.7°	RP◌T1248

Note 1) For the maximum width of cut (APMX), Please refer to page K335.

SPARE PARTS

Tool Holder Type	 * Insert Screw	 Wrench	 Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

* Clamp Torque (lbf-in) : TPS351B = 22, TPS4 = 31

	≤140 PSI (≤5.3 gal/min)	←Standard→ (140 PSI-720 PSI)	≥720 PSI (≥7.9 gal/min)	≥1000 PSI (≥13.2 gal/min)	To Plug a Coolant Hole
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	-
Order Number	**HSD04004H06***	**HSD04004H08***	**HSD04004H12***	**HSD04004H16***	**HSS04004**

* Clamp Torque (lbf-in) : HSD04004H◌◌= 13, HSS04004= 13

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure.
Select nozzles as required by the specification.

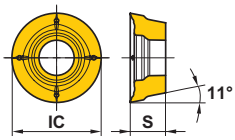
INSERTS

(mm)

Workpiece Material		
M	Stainless Steel	
S	Heat resistant Alloys, Titanium Alloys	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting
✠ : Unstable Cutting

Edge Preparation :
E : Round

Shape	Holder	Order Number	Type	Class	Edge Preparation	Coated MC7020	Coated MP7130	Coated MP9130	Coated MP9140	IC	S	APMX 4 Seats	APMX 8 Seats	Geometry
	ARP5	RPHT1040M0E4-L	Low Resistance, High Precision	H	E	●	●	●		.394	.156	.197	–	
		RPMT1040M0E4-L	Low Resistance	M	E	●	●	●		.394	.156	.197	–	
		NEW RPMT1040M0E8-L1	Low Resistance, 8 Seats	M	E	●	●	●	●	.394	.156	.197	.055	
		NEW RPMT1040M0E4-L2	Low Resistance, High Rigidity	M	E				●	.394	.156	.197	–	
		RPHT1040M0E4-M	General, High Precision	H	E	●	●	●		.394	.156	.197	–	
		RPMT1040M0E4-M	General Purpose	M	E	●	●	●		.394	.156	.197	–	
		NEW RPMT1040M0E8-M1	General, 8 Seats	M	E	●	●	●	●	.394	.156	.197	.055	
		NEW RPMT1040M0E4-M2	General, High Rigidity	M	E				●	.394	.156	.197	–	
		RPHT1040M0E4-R	Reinforced Edge, High Precision	H	E	●	●	●		.394	.156	.197	–	
		RPMT1040M0E4-R	Reinforced Edge	M	E	●	●	●		.394	.156	.197	–	
		NEW RPMT1040M0E8-R1	Reinforced Edge, 8 Seats	M	E	●	●	●		.394	.156	.197	.055	
	ARP6	RPHT1248M0E4-L	Low Resistance, High Precision	H	E	●	●	●		.472	.187	.236	–	
		RPMT1248M0E4-L	Low Resistance	M	E	●	●	●		.472	.187	.236	–	
		NEW RPMT1248M0E8-L1	Low Resistance, 8 Seats	M	E	●	●	●	●	.472	.187	.236	.067	
		NEW RPMT1248M0E4-L2	Low Resistance, High Rigidity	M	E				●	.472	.187	.236	–	
		RPHT1248M0E4-M	General, High Precision	H	E	●	●	●		.472	.187	.236	–	
		RPMT1248M0E4-M	General Purpose	M	E	●	●	●		.472	.187	.236	–	
		NEW RPMT1248M0E8-M1	General, 8 Seats	M	E	●	●	●	●	.472	.187	.236	.067	
		NEW RPMT1248M0E4-M2	General, High Rigidity	M	E				●	.472	.187	.236	–	
		RPHT1248M0E4-R	Reinforced Edge, High Precision	H	E	●	●	●		.472	.187	.236	–	
		RPMT1248M0E4-R	Reinforced Edge	M	E	●	●	●		.472	.187	.236	–	
		NEW RPMT1248M0E8-R1	Reinforced Edge, 8 Seats	M	E	●	●	●		.472	.187	.236	.067	

● = NEW

ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

RECOMMENDED CUTTING CONDITIONS

Dry Cutting

(inch)

	Workpiece Material	Hardness	Grade	vc (SFM)	fz (IPT)
M	Austenitic Stainless Steel	≤200HB	**MC7020**	720 (560–885)	.008 (.004–.014)
			MP7130	655 (490–820)	.008 (.004–.014)
	Austenitic Stainless Steel	>200HB	**MC7020**	620 (460–785)	.008 (.004–.014)
			MP7130	560 (395–720)	.008 (.004–.014)
	Duplex Stainless Steel	≤280HB	**MC7020**	590 (425–755)	.008 (.004–.014)
			MP7130	525 (360–690)	.008 (.004–.014)
	Ferritic and Martensitic Stainless Steel	≤200MPa	**MC7020**	785 (620–950)	.008 (.004–.014)
			MP7130	655 (490–820)	.008 (.004–.014)
	Ferritic and Martensitic Stainless Steel	>200HB	**MC7020**	785 (620–950)	.008 (.004–.014)
			MP7130	655 (490–820)	.008 (.004–.014)
	Precipitation Hardening Stainless Steel	<450HB	**MC7020**	560 (395–720)	.008 (.004–.014)
			MP7130	490 (330–655)	.008 (.004–.014)

Wet Cutting

(inch)

	Workpiece Material	Hardness	Grade	vc (SFM)	fz (IPT)
M	Austenitic Stainless Steel	≤200HB	**MC7020**	490 (330–655)	.008 (.004–.014)
			MP7130	425 (260–590)	.008 (.004–.014)
	Austenitic Stainless Steel	>200HB	**MC7020**	395 (230–560)	.008 (.004–.014)
			MP7130	330 (260–490)	.008 (.004–.014)
	Duplex Stainless Steel	≤280HB	**MC7020**	395 (230–560)	.008 (.004–.014)
			MP7130	330 (260–490)	.008 (.004–.014)
	Ferritic and Martensitic Stainless Steel	≤200MPa	**MC7020**	560 (395–720)	.008 (.004–.014)
			MP7130	425 (260–590)	.008 (.004–.014)
	Ferritic and Martensitic Stainless Steel	>200HB	**MC7020**	560 (395–720)	.008 (.004–.014)
			MP7130	425 (260–590)	.008 (.004–.014)
	Precipitation Hardening Stainless Steel	<450HB	**MC7020**	360 (195–525)	.008 (.004–.014)
			MP7130	295 (165–460)	.008 (.004–.014)
S	Titanium Alloys	–	**MP9130**	150 (100–180)	.004 (.002–.006)
			MP9140	130 (100–165)	.004 (.002–.006)
	Heat Resistant Alloys	–	**MP9130**	115 (50–150)	.004 (.002–.006)
			MP9140	100 (50–130)	.004 (.002–.006)

Note 1) Actual cutting conditions are estimated to avoid chatter vibration with high rigidity of a machine or workpiece material.
Make appropriate adjustments when chatter and/or insert chipping occurs during cutting.
Use with lowered conditions when there is a big overhang and/or when pocket-cutting.

Note 2) Feed rate for recommended cutting conditions table above based when axial depth of cut is ap=.098" with ARP5, and when depth of cut is ap=.118" with ARP6.
Due to the chip thinning effect when the axial depth of cut fluctuates, feed rate compensation table below shows (correction values "F") to help calculate correct feed.
Example: Feed recommended for ARP5, 304 Stainless steel, MP7130, ap=.039" is .008IPTx1.5(correction values "F")=.012IPT.

Note 3) For slotting, use 70% of the recommended feed rate listed above. For ramping, helical cutting, and plunging, use 50% of the recommended feed rate listed above.

Note 4) Internal coolant is recommended in titanium alloy and heat resistant alloy machining.

Feed rate compensation table, (correction values "F") based on axial depth of cut "ap" fluctuation.

Holder	ap = .020"	ap = .039"	ap = .059"	ap = .079"	ap = .098"	ap = .118"	ap = .138"	ap = .157"	ap = .197"	ap = .236"
ARP5	2.3	1.5	1.2	1.1	1.0	.9	.8	.8	.8	–
ARP6	2.5	1.7	1.3	1.1	1.0	1.0	.9	.9	.8	.8

* Tool body durability may weaken, when the amount of axial cutting exceeds ARP5=.197" and ARP6=.236".

MAXIMUM CAPACITIES BY EACH CUTTER

(inch)

APMX	DCX	Order Number	Install	Type	Depth of Cut (4Seats)		Ramping	Helical Cutting		Plunging Depth	Plunging
					ap	ae	RMPX(deg)	DH min.	DH max.	AZ max.	A1
.197" 5 mm	.984" 25 mm	ARP5PR2502AM1235	Screw-in	Standard	≤ .098	≤1.00DCX	1.8°	1.575	1.890	.016	—
		ARP5PR2503AM1235	Screw-in	Fine Pitch	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	—
		ARP5PR2503SA25M	Shank	Standard	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	.039
		ARP5PR2502SA25L	Shank	Long	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	.039
	1.000"	ARP5UPR1603AM1235	Screw-in	Fine Pitch	≤ .059	≤1.00DCX	1.9°	1.606	1.921	.018	.039
		ARP5UPR1603FA16M	Shank	Standard	≤ .059	≤1.00DCX	1.9°	1.606	1.921	.018	.039
		ARP5UPR1602SA16L	Shank	Long	≤ .098	≤1.00DCX	1.9°	1.606	1.921	.018	.039
	1.250"	ARP5UPR2004AM1640	Screw-in	Fine Pitch	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
		ARP5UPR2004FA20M	Shank	Standard	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
		ARP5UPR2003SA20L	Shank	Long	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
	1.260" 32 mm	ARP5PR3203AM1640	Screw-in	Standard	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3204AM1640	Screw-in	Fine Pitch	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3204SA32M	Shank	Standard	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3203SA32L	Shank	Long	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
	1.500"	ARP5UPR1504SA	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.8°	2.606	2.921	.047	.079
		ARP5UPR1505SA	Arbor	Ex.-Fine	≤ .098	≤1.00DCX	2.8°	2.606	2.921	.047	.079
	1.575" 40 mm	ARP5P-040A05AR	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.8°	2.756	3.071	.051	.079
	1.969" 50 mm	ARP5P-050A06AR	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.9°	3.543	3.858	.073	.079
		ARP5P-050A07AR	Arbor	Ex.-Fine	≤ .059	≤1.00DCX	2.9°	3.543	3.858	.073	.079
	2.000"	ARP5UPR0206AA	Arbor	Fine Pitch	≤ .098	≤ .95DCX	2.9°	3.606	3.921	.007	.079
		ARP5UPR0207AA	Arbor	Ex.-Fine	≤ .059	≤ .95DCX	2.9°	3.606	3.921	.007	.079
	2.48" 63 mm	ARP5P-063A07AR	Arbor	Fine Pitch	≤ .098	≤ .75DCX	3.0°	4.567	4.882	.098	.098
		ARP5P-063A08AR	Arbor	Ex.-Fine	≤ .059	≤ .75DCX	3.0°	4.567	4.882	.098	.098
	2.500"	ARP5UPR2507CA	Arbor	Fine Pitch	≤ .098	≤ .75DCX	2.9°	4.606	4.921	.098	.098
		ARP5UPR2508CA	Arbor	Ex.-Fine	≤ .059	≤ .75DCX	2.9°	4.606	4.921	.098	.098

Note 1) When drilling long chips may be generated.
Note 2) When cutting helical holes, do not exceed the largest APMX cutting depth per rotation.
Note 3) Calculate using the following formula for center tool tracks and ϕdc when cutting helical holes: Center tool tracks ϕdc=desired hole diameter ϕDH tool diameter ϕDCX
Note 4) Use of air blow to disperse chips effectively is strongly recommended.
Note 5) Insert pockets are small in fine pitch and small diameter cutters therefore care should be taken to avoid chip jamming. Regulate thefeed and speed accordingly.
Note 6) When machining with a large diameter cutter at high feed rates, chip jamming may occur. Regulate the feed and speed accordingly.

MAXIMUM CAPACITIES BY EACH CUTTER

(inch)

APMX	DCX	Order Number	Install	Type	Depth of Cut (4Seats)		Ramping	Helical Cutting		Plunging Depth	Plunging
					ap	ae	RMPX(deg)	DH min.	DH max.	AZ max.	A1
.236" 6 mm	1.250"	ARP6UPR2003AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
		ARP6UPR2003FA20M	Shank	Standard	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
		ARP6UPR2002SA20L	Shank	Long	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
	1.260" 32 mm	ARP6PR3202AM1640	Screw-in	Standard	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3203AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3203SA32M	Shank	Standard	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3202SA32L	Shank	Long	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
	1.575" 40 mm	ARP6PR4003AM1640	Screw-in	Standard	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4004AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4004SA32M	Shank	Standard	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4003SA32L	Shank	Long	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6P-040A04AR	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.079
	1.500"	ARP6UPR2404AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR2404FA20M	Shank	Standard	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR2403SA20L	Shank	Long	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR1504SA	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
	1.969" 50 mm	ARP6PR5005SA42M	Shank	Standard	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.098
		ARP6PR5004SA42L	Shank	Long	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.098
		ARP6P-050A05AR	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.079
		ARP6P-050A06AR	Arbor	Ex.-Fine	≤ .098	≤1.00DCX	2.9°	3.465	3.858	.067	.079
	2.000"	ARP6UPR3205FA24M	Shank	Standard	≤ .138	≤1.00DCX	2.8°	3.528	3.921	.067	.098
		ARP6UPR3204SA24L	Shank	Long	≤ .138	≤1.00DCX	2.8°	3.528	3.921	.067	.098
		ARP6UPR0205AA	Arbor	Fine Pitch	≤ .138	≤ .95DCX	2.8°	3.528	3.921	.067	.079
		ARP6UPR0206AA	Arbor	Ex.-Fine	≤ .098	≤ .95DCX	2.8°	3.528	3.921	.067	.079
	2.48" 63 mm	ARP6P-063A06AR	Arbor	Fine Pitch	≤ .138	≤ .75DCX	3.1°	4.488	4.882	.098	.098
		ARP6P-063A07AR	Arbor	Ex.-Fine	≤ .098	≤ .75DCX	3.1°	4.488	4.882	.098	.098
	2.500"	ARP6UPR2506CA	Arbor	Fine Pitch	≤ .138	≤ .75DCX	3.1°	4.528	4.921	.098	.098
		ARP6UPR2507CA	Arbor	Ex.-Fine	≤ .098	≤ .75DCX	3.1°	4.528	4.921	.098	.098
	3.000"	ARP6UPR0308CA	Arbor	Fine Pitch	≤ .138	≤ .65DCX	2.4°	5.528	5.921	.098	.098
		ARP6UPR0309CA	Arbor	Ex.-Fine	≤ .098	≤ .65DCX	2.4°	5.528	5.921	.098	.098
	3.150" 80 mm	ARP6PR08008CA	Arbor	Fine Pitch	≤ .138	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6PR08009CA	Arbor	Ex.-Fine	≤ .098	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6P-080A08AR	Arbor	Fine Pitch	≤ .138	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6P-080A09AR	Arbor	Ex.-Fine	≤ .098	≤ .60DCX	2.3°	5.827	6.220	.098	.098
	3.937" 100 mm	ARP6PR10009DA	Arbor	Fine Pitch	≤ .138	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6PR10011DA	Arbor	Ex.-Fine	≤ .098	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6P-100B09AR	Arbor	Fine Pitch	≤ .138	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6P-100B11AR	Arbor	Ex.-Fine	≤ .098	≤ .50DCX	1.7°	7.402	7.795	.098	.098
	4.000"	ARP6UPR0409EA	Arbor	Fine Pitch	≤ .138	≤ .45DCX	1.7°	7.528	7.921	.098	.098
		ARP6UPR0411EA	Arbor	Ex.-Fine	≤ .098	≤ .45DCX	1.7°	7.528	7.921	.098	.098

Note 1) When drilling long chips may be generated.
Note 2) When cutting helical holes, do not exceed the largest APMX cutting depth per rotation.
Note 3) Calculate using the following formula for center tool tracks and ϕdc when cutting helical holes: Center tool tracks ϕdc=desired hole diameter ϕDH tool diameter ϕDCX
Note 4) Use of air blow to disperse chips effectively is strongly recommended.
Note 5) Insert pockets are small in fine pitch and small diameter cutters therefore care should be taken to avoid chip jamming. Regulate thefeed and speed accordingly.
Note 6) When machining with a large diameter cutter at high feed rates, chip jamming may occur. Regulate the feed and speed accordingly.

Memo

MULTI FUNCTIONAL MILLING

ARX

P M K N S H

Metric Standard

Fig.1 (Type with the center cutting edge)

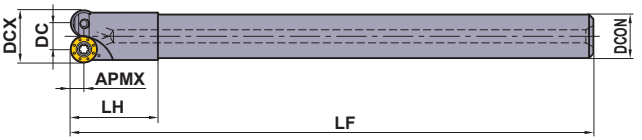
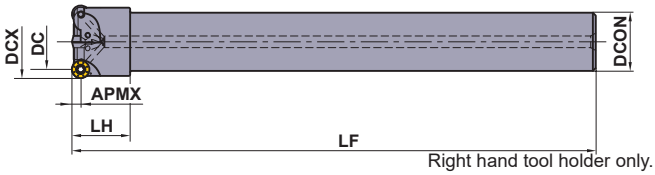


Fig.2 (Type without the center cutting edge (multi-tooth))



Right hand tool holder only.

■ STEEL SHANK TYPE

Type	Order Number	Stock	Coolant Thru *1	Number of Teeth	Dimensions (mm)					APMX (mm)	Fig.	*2		
		R			DCX	DCON	DC	LF	LH			Insert Screw	Wrench	Insert
With the Center Cutting Edge	**ARX25R102SA10S**	★	Y	2	10	10	5	120	20	2.5	1	TPS20	TIP06F	RDMW0517M0E
	ARX30R122SA10S	★	Y	2	12	10	6	120	20	3.0	1	TPS22S	TIP07FS	RDMW0620M0E
	ARX35R142SA12S	★	Y	2	14	12	7	140	20	3.5	1	TPS22	TIP07FS	RDMW0724M0E
Without the Center Cutting Edge (Multi-tooth)	**ARX25R122SA10S**	★	Y	2	12	10	7	120	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX25R163SA16S	★	Y	3	16	16	11	180	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX30R163SA16S	★	Y	3	16	16	10	180	20	3.0	2	TPS22	TIP07FS	RDMW0620M0E
	ARX25R173SA16S	★	Y	3	17	16	12	180	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX30R173SA16S	★	Y	3	17	16	11	180	20	3.0	2	TPS22	TIP07FS	RDMW0620M0E
	ARX25R204SA20S	★	Y	4	20	20	15	180	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX30R203SA20S	★	Y	3	20	20	14	180	20	3.0	2	TPS22	TIP07FS	RDMW0620M0E
	ARX25R224SA20S	★	Y	4	22	20	17	180	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX30R224SA20S	★	Y	4	22	20	16	180	20	3.0	2	TPS22	TIP07FS	RDMW0620M0E
	ARX25R255SA20S	★	Y	5	25	20	20	180	20	2.5	2	TPS20	TIP06F	RDMW0517M0E
	ARX30R254SA20S	★	Y	4	25	20	19	180	20	3.0	2	TPS22	TIP07FS	RDMW0620M0E

*1 Y=Yes

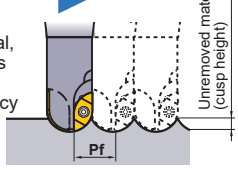
*2 Clamp Torque (lbf-in) : TPS20=4.5, TPS22=4.5, TPS22S=4.5

Using the ARX Effectively (Reducing Unremoved Material)

●When Milling Even Surfaces

Ball nose end milling

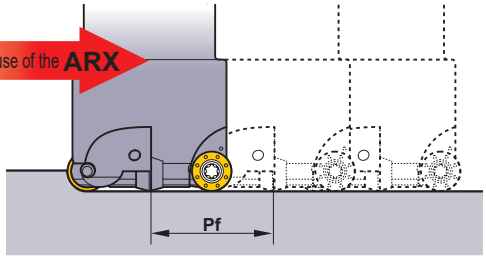
To reduce unremoved material, the pick feed needs to be reduced. (Machining efficiency will decrease.)



With the use of the ARX

Higher machining efficiency

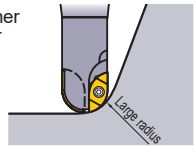
Even with a large pick feed, no unremoved material will remain.



●When Milling Corner Radius

Ball nose end milling

To machine small corner radii, the tool diameter needs to be reduced. (Tool rigidity will decrease.)



With the use of the ARX

A large shank diameter offering high rigidity can also machine small corner radii. (The cutting load of a subsequent finishing tool will be decreased thereby lengthening its' tool life. Surface finish quality will be improved.)

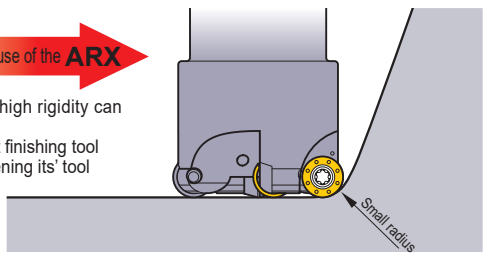


Fig.1

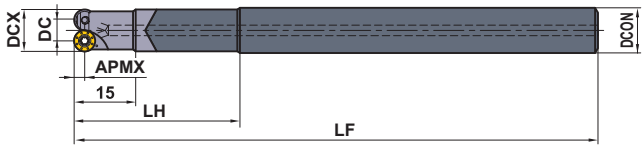


Fig.2

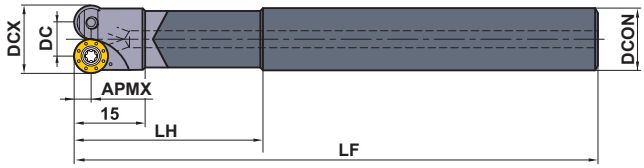
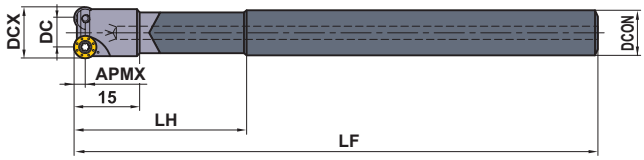


Fig.3



Metric Standard

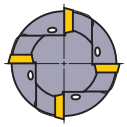
■ CARBIDE SHANK TYPE

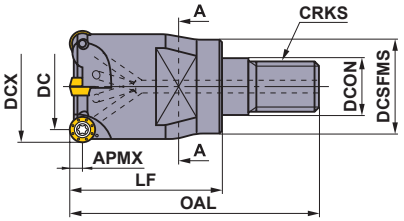
Right hand tool holder only.

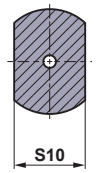
Type	Order Number	Stock	Coolant Thru *1	Number of Teeth	Dimensions (mm)					APMX (mm)	Fig.	*2		
		R			DCX	DCON	DC	LF	LH			Insert Screw	Wrench	Insert
With the Center Cutting Edge	**ARX25R102SA10LW**	★	Y	2	10	10	5	150	40	2.5	1	TPS20	TIP06F	RDMW0517M0E
	ARX30R122SA10LW	★	Y	2	12	10	6	150	40	3.0	1	TPS22S	TIP07FS	RDMW0620M0E
	ARX35R142SA12LW	★	Y	2	14	12	7	170	40	3.5	2	TPS22	TIP07FS	RDMW0724M0E
Without the Center Cutting Edge (Multi-tooth)	**ARX25R122SA10LW**	★	Y	2	12	10	7	150	40	2.5	3	TPS20	TIP06F	RDMW0517M0E

*1 Y=Yes

*2 Clamp Torque (lbf-in) : TPS20=4.5, TPS22=4.5, TPS22S=4.5







Section **A-A**

Metric Standard

■ SCREW-IN TYPE

Right hand tool holder only.

Order Number	Stock	Coolant Thru *3	Number of Teeth	Dimensions (mm)							*2	APMX (mm)	WT	*1		
	R			DCX	DCON	DC	DCSFMS	OAL	LF	S10	CRKS		(kg)	Insert Screw	Wrench	Insert
ARX25R163M08A30	★	Y	3	16	8.5	11	14.7	48	30	10	M8	2.5	0.1	TPS20	TIP06F	RDMW0517M0E
ARX25R173M08A30	★	Y	3	17	8.5	12	14.5	48	30	10	M8	2.5	0.1	TPS20	TIP06F	RDMW0517M0E
ARX25R204M10A30	★	Y	4	20	10.5	15	18.6	49	30	14	M10	2.5	0.2	TPS20	TIP06F	RDMW0517M0E
ARX25R224M10A30	★	Y	4	22	10.5	17	18.5	49	30	14	M10	2.5	0.2	TPS20	TIP06F	RDMW0517M0E
ARX25R255M12A35	★	Y	5	25	12.5	20	23.6	57	35	19	M12	2.5	0.2	TPS20	TIP06F	RDMW0517M0E
ARX30R163M08A30	★	Y	3	16	8.5	11	14.6	48	30	10	M8	3.0	0.1	TPS22	TIP07FS	RDMW0620M0E
ARX30R173M08A30	★	Y	3	17	8.5	12	14.5	48	30	10	M8	3.0	0.1	TPS22	TIP07FS	RDMW0620M0E
ARX30R203M10A30	★	Y	3	20	10.5	15	18.5	49	30	14	M10	3.0	0.2	TPS22	TIP07FS	RDMW0620M0E
ARX30R224M10A30	★	Y	4	22	10.5	17	18.5	49	30	14	M10	3.0	0.2	TPS22	TIP07FS	RDMW0620M0E
ARX30R254M12A35	★	Y	4	25	12.5	20	23.4	57	35	19	M12	3.0	0.2	TPS22	TIP07FS	RDMW0620M0E

*1 Clamp Torque (lbf-in) : TPS20=4.5, TPS22=4.5

*2 Clamp Torque of the Head (lbf-ft) : M8=17.1, M10=33.8, M12=59.2

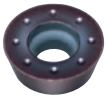
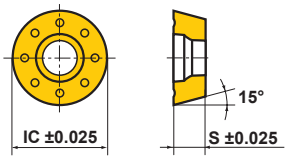
*3 Y=Yes

ISO13399	➤ K003
SCREW-IN HOLDERS	➤ K382
SPARE PARTS	➤ M001
TECHNICAL DATA	➤ N001

INSERTS

Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✠ : Unstable Cutting

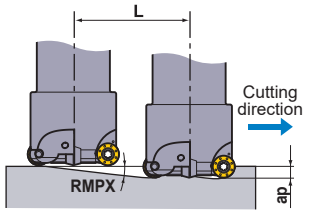
Shape	Order Number	Coated MP8010	Coated VP15TF	Dimensions (mm) IC	Dimensions (mm) S	Geometry
	**RDMW0517M0E**	★	★	5.0	1.70	
	RDMW0620M0E	★	★	6.0	1.99	
	RDMW0724M0E	★	★	7.0	2.38	

CUTTING MODE MAXIMUM CAPACITIES

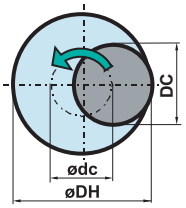
■ Ramping

Finding a cutters' distance moved **"L"** when depth of cut reaches **"ap"** at a ramping angle of **"α°"**.

L=ap/tan α (mm)



■ Helical Milling



●Setting a tool's center excursion

ødc = øDH - DC

Tool's center excursion | Required bore diameter | Tool's cutting diameter

●For the depth of cut per pass, refer to the cutting conditions on page K343 for helical milling.

●Set the machine spindle revolution so that the tool is rotating and cutting in a down cut direction.

Type	Order Number	DC (mm)	RE (mm)	Number of Teeth	Ramping RMPX *1	Ramping APMX (mm) *2	Ramping L (mm)	Helical Milling DH min. (mm)	Helical Milling DH max. (mm)
With the Center Cutting Edge	**ARX25R102SA10S**	10	2.5	2	90°	2.5	0	15	19
	ARX25R102SA10LW	10	2.5	2	90°	2.5	0	15	19
	ARX30R122SA10S	12	3.0	2	90°	3.0	0	18	23
	ARX30R122SA10LW	12	3.0	2	90°	3.0	0	18	23
	ARX35R142SA12S	14	3.5	2	90°	3.5	0	21	27
	ARX35R142SA12LW	14	3.5	2	90°	3.5	0	21	27
Without the Center Cutting Edge (Multi-tooth)	**ARX25R122SA10S**	12	2.5	2	27.17°	2.5	4.87	19	23
	ARX25R122SA10LW	12	2.5	2	27.17°	2.5	4.87	19	23
	ARX30R163SA16S	16	3.0	3	21.25°	3.0	7.71	26	31
	ARX25R163SA16S	16	2.5	3	13.70°	2.5	10.26	27	31
	ARX30R173SA16S	17	3.0	3	18.42°	3.0	9.01	28	33
	ARX25R173SA16S	17	2.5	3	12.22°	2.5	11.54	29	33
	ARX30R203SA20S	20	3.0	3	13.21°	3.0	12.78	34	39
	ARX25R204SA20S	20	2.5	4	9.23°	2.5	15.38	35	39
	ARX30R224SA20S	22	3.0	4	11.13°	3.0	15.25	38	43
	ARX25R224SA20S	22	2.5	4	7.94°	2.5	17.92	39	43
	ARX30R254SA20S	25	3.0	4	9.01°	3.0	18.92	44	49
	ARX25R255SA20S	25	2.5	5	6.57°	2.5	21.71	45	49

*1 RMPX : Max. Ramping Angle
*2 APMX : Max. Depth of Cut

★ : Stocked in Japan
<10 inserts in one case>

RECOMMENDED CUTTING CONDITIONS

Note 1) The cutting conditions below are a guide only.
Please make adjustments according to the machining conditions.

■ Shoulder / Pocket / Ramping / Copying

	Workpiece Material	Hardness	Grade	Cutting Speed **vc** (SFM)	ARX25R□□□SA□□S		ARX30R□□□SA□□S		ARX35R□□□SA□□S	
					Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)
P	Mild Steel	≤180HB	VP15TF	590 (490—720)	≤.039	≤.020	≤.047	≤.020	≤.059	≤.020
	Carbon Steel, Alloy Steel	180—350HB	VP15TF	525 (395—655)	≤.028	≤.012	≤.035	≤.012	≤.047	≤.012
M	Stainless Steel	≤270HB	VP15TF	490 (395—590)	≤.028	≤.012	≤.035	≤.012	≤.047	≤.012
K	Cast Iron	Tensile strength≤450MPa	VP15TF	590 (490—720)	≤.039	≤.020	≤.047	≤.020	≤.059	≤.020
H	Hardened Steel	45—55HRC	VP15TF	260 (165—395)	≤.020	≤.008	≤.028	≤.008	≤.039	≤.008

Note 1) When ramping, refer to the machining limits on page K342.

■ Slotting

	Workpiece Material	Hardness	Grade	Cutting Speed **vc** (SFM)	ARX25R□□□SA□□S		ARX30R□□□SA□□S		ARX35R□□□SA□□S	
					Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut **ap** (inch)	Feed per Tooth **fz** (inch/tooth)
P	Mild Steel	≤180HB	VP15TF	590 (490—720)	≤.039	≤.016	≤.047	≤.016	≤.059	≤.016
	Carbon Steel, Alloy Steel	180—350HB	VP15TF	525 (395—655)	≤.028	≤.008	≤.035	≤.008	≤.047	≤.008
M	Stainless Steel	≤270HB	VP15TF	490 (395—590)	≤.028	≤.008	≤.035	≤.008	≤.047	≤.008
K	Cast Iron	Tensile strength≤450MPa	VP15TF	590 (490—720)	≤.039	≤.016	≤.047	≤.016	≤.059	≤.016
H	Hardened Steel	45—55HRC	VP15TF	260 (165—395)	≤.020	≤.004	≤.028	≤.004	≤.039	≤.004

■ Plunging

	Workpiece Material	Hardness	Grade	Cutting Speed **vc** (SFM)	ARX25R□□□SA□□S		ARX30R□□□SA□□S		ARX35R□□□SA□□S	
					Width of Cut **ae** (inch)	Feed per Tooth **fz** (inch/tooth)	Width of Cut **ae** (inch)	Feed per Tooth **fz** (inch/tooth)	Width of Cut **ae** (inch)	Feed per Tooth **fz** (inch/tooth)
P	Mild Steel	≤180HB	VP15TF	590 (490—720)	≤.098	≤.012	≤.118	≤.012	≤.138	≤.012
	Carbon Steel, Alloy Steel	180—350HB	VP15TF	525 (395—655)	≤.098	≤.008	≤.118	≤.008	≤.138	≤.008
M	Stainless Steel	≤270HB	VP15TF	490 (395—590)	≤.098	≤.008	≤.118	≤.008	≤.138	≤.008
K	Cast Iron	Tensile strength≤450MPa	VP15TF	590 (490—720)	≤.098	≤.012	≤.118	≤.012	≤.138	≤.012
H	Hardened Steel	45—55HRC	VP15TF	260 (165—395)	≤.098	≤.004	≤.118	≤.004	≤.138	≤.004

■ Helical Milling

	Workpiece Material	Hardness	Grade	Cutting Speed **vc** (SFM)	ARX25R□□□SA□□S		ARX30R□□□SA□□S		ARX35R□□□SA□□S	
					Depth of Cut Per Pass **ap** (inch/pass)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut Per Pass **ap** (inch/pass)	Feed per Tooth **fz** (inch/tooth)	Depth of Cut Per Pass **ap** (inch/pass)	Feed per Tooth **fz** (inch/tooth)
P	Mild Steel	≤180HB	VP15TF	590 (490—720)	≤.039	≤.012	≤.039	≤.012	≤.039	≤.012
	Carbon Steel, Alloy Steel	180—350HB	VP15TF	525 (395—655)	≤.028	≤.008	≤.035	≤.008	≤.039	≤.008
M	Stainless Steel	≤270HB	VP15TF	490 (395—590)	≤.028	≤.008	≤.035	≤.008	≤.039	≤.008
K	Cast Iron	Tensile strength≤450MPa	VP15TF	590 (490—720)	≤.039	≤.012	≤.039	≤.012	≤.039	≤.012
H	Hardened Steel	45—55HRC	VP15TF	260 (165—395)	≤.020	≤.004	≤.028	≤.004	≤.039	≤.004

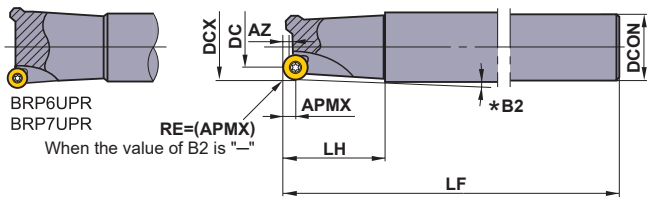
Note 1) When helical milling, refer to the machining limits on page K342.

MULTI FUNCTIONAL MILLING

BRP

P M K N S H

Fig.1



*Please allow for an inclination angle of B2+1°

Fig.2

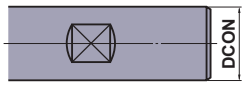


Fig.3

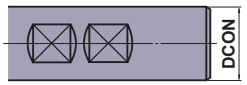
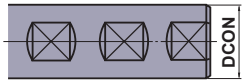


Fig.4



SHANK TYPE

Right hand tool holder only.

Corner Radius	Type *1	Order Number	Stock R	Number of Teeth	Dimensions (inch) DCX	DC	LF	DCON	LH	AZ	APMX	B2	Fig.	*2 Insert Screw	F D Wrench	① ② Insert
.156	R	BRP3UNR081W08	●	1	.500	.177	2.781	.500	1.000	.007	.146	2.93°	2	CS250560T	TKY08F	①RPMW07T200E ②RPMT07T200E-JS
		BRP3UNR101W10	●	1	.625	.303	3.500	.625	1.000	.039	.146	2.93°	3	CS250560T	TKY08F	
		BRP3UNR122W12	●	2	.750	.429	4.000	.750	1.250	.066	.146	2.27°	3	CS250560T	TKY08F	
		BRP3UNR163W16	●	3	1.000	.681	4.500	1.000	1.250	.078	.146	2.27°	4	CS250560T	TKY08F	
	L	BRP3UNR081LW08	●	1	.500	.177	6.000	.500	2.800	.007	.146	0.93°	1	CS250560T	TKY08F	
		BRP3UNR101LW10	●	1	.625	.303	6.000	.625	2.800	.039	.146	0.93°	1	CS250560T	TKY08F	
	EL	BRP3UNR122ELW12	●	2	.750	.429	10.000	.750	5.100	.066	.146	0.5°	1	CS250560T	TKY08F	
		BRP3UNR163ELW16	●	3	1.000	.681	10.000	1.000	5.100	.078	.146	0.5°	1	CS250560T	TKY08F	
.187	R	BRP4UNR101W10	●	1	.625	.244	3.500	.625	1.000	.011	.177	3.05°	3	CS350760T	TKY15F	①RPMW09T300E ②RPMT09T300E-JS
		BRP4UNR121W12	●	1	.750	.366	4.000	.750	1.250	.035	.177	2.33°	3	CS350760T	TKY15F	
		BRP4UNR162W16	●	2	1.000	.618	4.500	1.000	1.250	.098	.177	2.33°	4	CS350760T	TKY15F	
		BRP4UNR203W20	●	3	1.250	.866	5.000	1.250	1.750	.098	.177	1.58°	4	CS350760T	TKY15F	
	L	BRP4UNR101LW10	●	1	.625	.244	6.000	.625	2.800	.011	.177	0.95°	1	CS350760T	TKY15F	
		BRP4UNR121LW12	●	1	.750	.366	7.000	.750	3.900	.035	.177	0.67°	1	CS350760T	TKY15F	
	EL	BRP4UNR162ELW16	●	2	1.000	.618	10.000	1.000	5.100	.098	.177	0.5°	1	CS350760T	TKY15F	
		BRP4UNR203ELW20	●	3	1.250	.866	12.000	1.250	7.100	.098	.177	0.37°	1	CS350760T	TKY15F	
.250	R	BRP6UPR202W20	●	2	1.250	.744	5.000	1.250	1.750	.157	.240	—	4	TS43	TKY15D	①RPMW120400E ②RPMT120400E-JS
		BRP6UPR243W20	●	3	1.500	.976	5.000	1.250	1.750	.157	.240	—	4	TS43	TKY15D	
		BRP6UPR324W20	●	4	2.000	1.492	5.000	1.250	1.750	.157	.240	—	4	TS43	TKY15D	
		BRP6UPR405W20	●	5	2.500	1.999	5.000	1.250	1.750	.157	.240	—	4	TS43	TKY15D	
	EL	BRP6UPR202ELS20	●	2	1.250	.744	12.000	1.250	1.750	.157	.240	—	1	TS43	TKY15D	
		BRP6UPR243ELS20	●	3	1.500	.996	12.000	1.250	1.750	.157	.240	—	1	TS43	TKY15D	
		BRP6UPR324ELS20	●	4	2.000	1.492	12.000	1.250	1.750	.157	.240	—	1	TS43	TKY15D	
.312	R	BRP7UPR323W20	●	3	2.000	1.370	5.000	1.250	1.750	.217	.302	—	4	TS54	TKY25D	①RPMW150600E ②RPMT150600E-JS
		BRP7UPR404W20	●	4	2.500	1.866	5.000	1.250	1.750	.217	.302	—	4	TS54	TKY25D	
	EL	BRP7UPR323ELS20	●	3	2.000	1.370	12.000	1.250	1.750	.217	.302	—	1	TS54	TKY25D	

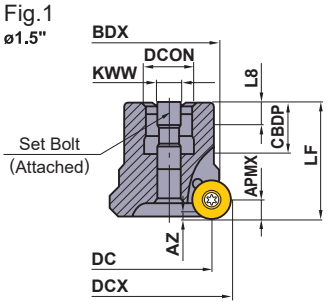
*1 Type R : Standard shank, L : Long shank, EL : Extra Long shank

*2 Clamp Torque (lbf-in) : CS250560T=8.9, CS350760T=31, TS43=31, TS54=66

● : USA Stock

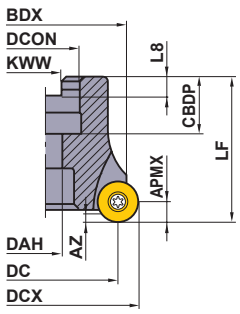
<10 inserts in one case>

Fig.1
ø1.5"



Use the attached set bolt.

Fig.2
ø2"
ø2.5"
ø3"
ø4"



■ ARBOR TYPE

Right hand tool holder only.

Corner Radius	Order Number	Stock R	Number of Teeth	Dimensions (inch) DCX	DC	BDX	LF	DCON	CBDP	DAH	KWW	L8	Max. Depth of cut AZ	APMX	Fig.	Insert
.250	**BRP6UPR1503X**	●	3	1.500	.996	1.228	2.000	.750	.748	—	.313	.187	.157	.240	1	RPMW120400E RPMT120400E-JS
	BRP6UPR0204	●	4	2.000	1.492	1.715	2.000	.750	.748	.415	.313	.187	.157	.240	2	
	BRP6UPR2505	●	5	2.500	1.992	2.214	2.000	.750	.748	.415	.313	.187	.157	.240	2	
	BRP6UPR0306C	●	6	3.000	2.492	2.706	2.000	1.000	1.024	.539	.375	.219	.157	.240	2	
	BRP6UPR0407E	●	7	4.000	3.492	3.696	2.500	1.500	1.181	.787	.625	.375	.157	.240	2	
.312	**BRP7UPR2504**	●	4	2.500	1.866	2.165	2.000	.750	.748	.415	.313	.187	.217	.302	2	RPMW150600E RPMT150600E-JS
	BRP7UPR0305C	●	5	3.000	2.366	2.649	2.000	1.000	.969	.539	.375	.219	.217	.302	2	
	BRP7UPR0406E	●	6	4.000	3.366	3.631	2.500	1.500	1.122	.787	.625	.375	.217	.302	2	

SPARE PARTS

Tool Holder Number	Insert Screw *	Wrench	Set Screw
BRP6UPR1503X	TS43	TKY15D	HDSU37513
BRP6UPR0204 ~ BRP6UPR0407E	TS43	TKY15D	—
BRP7UPR2504 ~ BRP7UPR0406E	TS54	TKY25D	—

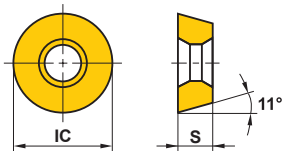
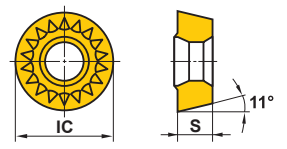
* Clamp Torque (lbf-in) : TS43=31, TS54=66

Note 1) Set bolt not included.

INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Materials

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	Class	Coated F7010	Coated VP15TF	Dimensions (inch) IC	S	Geometry
	RPMW120400E	M	●	●	.500	.188	
	RPMW150600E	M		●	.625	.250	
JS breaker	**RPMT07T200E-JS**	M		●	.313	.109	
	RPMT09T300E-JS	M		●	.375	.156	
	RPMT120400E-JS	M		●	.500	.188	
	RPMT150600E-JS	M		●	.625	.250	

RECOMMENDED CUTTING CONDITIONS

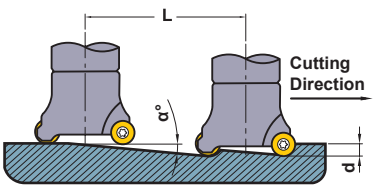
Workpiece Material			Cutting Speed (SFM)	
			CVD	PVD
	Material	Hardness	F7010 / F7030 / F620	VP15TF / AP20M
P	Mild Steel	≤180HB	820 (660—980)	820 (660—980)
	Carbon Steel	180—280HB	590 (425—720)	590 (425—720)
	Alloy Steel	280—380HB	525 (360—620)	525 (360—620)
	Prehardened Steel	35—45HB	390 (260—460)	390 (260—460)
	High Alloy Steel	≤300HB	425 (295—525)	425 (295—525)
	Sintered Steel	45—60HRC	—	215 (155—275)
M	Stainless Steel	≤260HB	590 (425—720)	590 (425—720)
K	Gray Cast Iron	Tensile Strength≤350MPa	—	570 (425—720)
	Ductile Cast Iron	Tensile Strength 360—500MPa	—	470 (340—600)
		Tensile Strength 500—800MPa	—	360 (260—460)

■ Feed per Tooth (IPT) for Straight Line (Non-ramping) Cutting Only

Type	Depth of Cut (inch)								
	.040	.080	.120	.150	.180	.200	.240	.280	.320
BRP3U	.012	.009	.008	.006	—	—	—	—	—
BRP4U	.014	.012	.010	.010	.007	—	—	—	—
BRP6U	.020	.016	.012	.012	.011	.009	.008	—	—
BRP7U	.024	.020	.018	.016	.012	.013	.012	.010	.008

■ Ramping

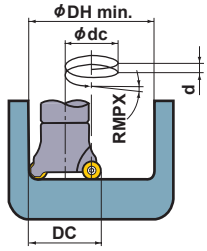
Type	Tool Diameter (inch)	Max. Ramping Angle RMPX	Tan α per inch	Min. Cutting Length According to Max. Ramping Angle **L** min. (inch)						
				d= .094"	d= .125"	d= .156"	d= .188"	d= .250"	d= .281"	d= .312"
BRP3U	.500	3.71°	.065°	1.446	1.923	2.400	—	—	—	—
	.625	12.34°	.219°	.429	.571	.712	—	—	—	—
	.750	13.50°	.240°	.392	.521	.650	—	—	—	—
	1.000	8.48°	.149°	.631	.839	1.047	—	—	—	—
BRP4U	.625	4.07°	.071°	1.324	1.761	2.197	2.648	—	—	—
	.750	8.41°	.148°	.635	.845	1.054	1.270	—	—	—
	1.000	12.98°	.231°	.407	.541	.675	.814	—	—	—
	1.250	8.18°	.144°	.653	.868	1.083	1.306	—	—	—
BRP6U	1.250	17.3°	.312°	.301	.401	.500	.603	.801	—	—
	1.500	11.78°	.209°	.450	.598	.746	.900	1.196	—	—
	2.000	7.15°	.125°	.752	1.000	1.248	1.504	2.000	—	—
	2.500	5.13°	.090°	1.044	1.389	1.733	2.089	2.778	—	—
	3.000	3.99°	.070°	1.343	1.786	2.229	2.686	3.571	—	—
	4.000	2.77°	.048°	1.958	2.604	3.250	3.917	5.208	—	—
BRP7U	2.000	11.49°	.203°	.463	.616	.768	.926	1.232	1.384	1.537
	2.500	7.88°	.138°	.681	.906	1.130	1.362	1.812	2.036	2.261
	3.000	5.99°	.105°	.895	1.190	1.486	1.790	2.381	2.676	2.971
	4.000	4.04°	.071°	1.324	1.761	2.197	2.648	3.521	3.958	4.394



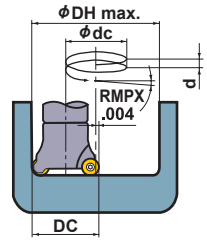
Helical Milling

Relationship Between Hole Diameter and Depth of Cut

Minimum Cutting Diameter



Maximum Cutting Diameter



Type	DC (inch)	*1 ϕDH min.	*2 ϕdc	Inclination Angle RMPX d=.094"	d=.156"	d=.188"	d=.250"	d=.312"	*1 ϕDH max.	*2 ϕdc	Inclination Angle RMPX d=.094"	d=.156"	d=.188"	d=.250"	d=.312"
BRP3U	.500	.688	.188	d=.039 → RMPX=3.778°					.922	.422	d=.078 → RMPX= 3.367°				
	.625	.938	.313	5.461°	9.015°	—	—	—	1.172	.547	3.131°	5.187°	—	—	—
	.750	1.188	.438	3.908°	6.468°	—	—	—	1.422	.672	2.549°	4.226°	—	—	—
	1.000	1.688	.688	2.490°	4.128°	—	—	—	1.922	.922	1.859°	3.083°	—	—	—
BRP4U	.625	.874	.249	d=.039 → RMPX=2.854°					1.172	.547	3.131°	5.187°	6.243°	—	—
	.750	1.124	.374	4.574°	7.563°	9.091°	—	—	1.422	.672	2.549°	4.226°	5.089°	—	—
	1.000	1.624	.624	2.745°	4.550°	5.478°	—	—	1.922	.922	1.859°	3.083°	3.714°	—	—
	1.250	2.124	.874	1.961°	3.252°	3.917°	—	—	2.422	1.172	1.462°	2.426°	2.923°	—	—
BRP6U	1.250	2.000	.750	2.285°	3.788°	4.562°	6.057°	—	2.422	1.172	1.462°	2.426°	2.923°	3.884°	—
	1.500	2.500	1.000	1.714°	2.843°	3.425°	4.550°	—	2.922	1.422	1.205°	2.000°	2.410°	3.203°	—
	2.000	3.500	1.500	1.143°	1.896°	2.285°	3.037°	—	3.922	1.922	.892°	1.480°	1.783°	2.371°	—
	2.500	4.500	2.000	.857°	1.422°	1.714°	2.279°	—	4.922	2.422	.708°	1.175°	1.415°	1.882°	—
	3.000	5.500	2.500	.686°	1.138°	1.371°	1.823°	—	5.922	2.922	.587°	.974°	1.173°	1.560°	—
	4.000	7.500	3.500	.490°	.813°	.980°	1.302°	—	7.922	3.922	.437°	.725°	.874°	1.162°	—
BRP7U	2.000	3.376	1.376	1.246°	2.067°	2.490°	3.310°	4.128°	3.922	1.922	.892°	1.480°	1.783°	2.371°	2.958°
	2.500	4.376	1.876	.914°	1.516°	1.827°	2.429°	3.030°	4.922	2.422	.708°	1.175°	1.415°	1.882°	2.348°
	3.000	5.376	2.376	.721°	1.197°	1.443°	1.918°	2.393°	5.922	2.922	.587°	.974°	1.173°	1.560°	1.947°
	4.000	7.376	3.376	.508°	.842°	1.016°	1.350°	1.685°	7.922	3.922	.437°	.725°	.874°	1.162°	1.451°

*1 DH = Cutting Hole Diameter : ϕ (inch)
*2 dc = Tool Pass Diameter : ϕ (inch)

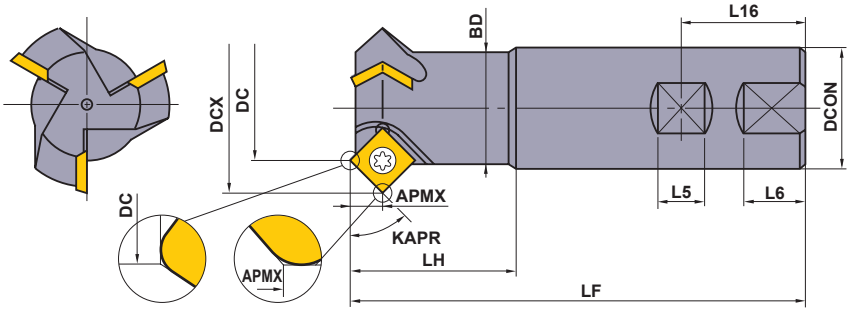
BRP3U type DH min. = (DC-.156) X 2, DH max. = (DC-.039) X 2, d max. =.156 (inch)
BRP4U type DH min. = (DC-.188) X 2, DH max. = (DC-.039) X 2, d max. =.188 (inch)
BRP6U type DH min. = (DC-.250) X 2, DH max. = (DC-.039) X 2, d max. =.250 (inch)
BRP7U type DH min. = (DC-.312) X 2, DH max. = (DC-.039) X 2, d max. =.312 (inch)
dc = DH-D
*DH min. (Minimum Cutting Diameter) DH max.(Maximum Cutting Diameter) d (Maximum Depth of Cut)

CHAMFER MILLING

45° KAPR

CFSP

P | M | K | N | S | H



Right hand tool holder only.

Order Number	Stock	Number of Teeth	Dimensions (inch)										*		
	R		DC	DCX	LF	DCON	BD	LH	L16	L5	L6	APMX	Insert Screw	Wrench	Insert
CFSPR051W16	●	1	.313	.964	4.000	1.000	.768	1.719	1.141	.515	.500	.327	TS52	TKY25R	SPMW42◌
CFSPR101W16	●	1	.625	1.280	4.000	1.000	.768	1.719	1.141	.515	.500	.327	TS5	TKY25R	SPMW42◌
CFSPR203W20	●	3	1.250	1.905	4.125	1.250	1.220	1.844	1.141	.515	.500	.327	TS5	TKY25R	SPMW42◌

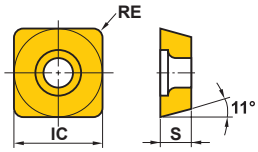
* Clamp Torque (lbf-in) : TS52=66, TS5=66

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS

Workpiece Material		
P	Steel	
K	Cast Iron	

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	ISO Number	Class	Coated			Cermet		Carbide		Dimensions (inch)			Geometry
				VP15TF	UP20M		NX2525	NX4545	UTi20T	HTi10	IC	S	RE	
	**SPMW421**	**SPMW120304**	M	●	●		★	★	●	●	.500	.125	.016	
	SPMW422	**SPMW120308**	M	●	●		★	★	●	●	.500	.125	.031	

RECOMMENDED CUTTING CONDITIONS

	Workpiece Material	Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (inch/tooth)	
					Chamfer Milling	Face Milling
P	Carbon Steel Alloy Steel	180—280HB	**UTi20T**	590 (425—720)	.016	.006
			VP15TF / UP20M	590 (425—720)	.016	.008
			NX2525 / NX4545	590 (425—720)	.016	.008
		280—350HB	**UTi20T**	330 (230—395)	.012	.006
K	Cast Iron	Tensile Strength ≤450MPa	**VP15TF / UTi20T**	460 (330—560)	.020	.004
			HTi10 / NX2525 / NX4545	460 (330—560)	.020	.004

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

BALL NOSE AND RADIUS END MILL

SRF/SUF

P M K N S H

Fig. 1

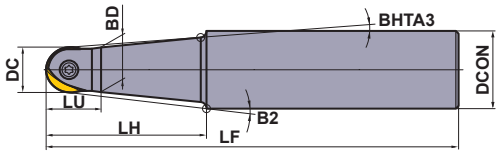


Fig. 2

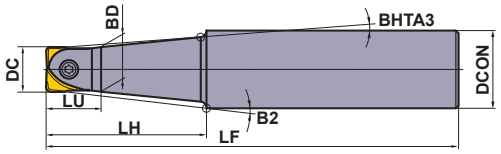


Fig. 3

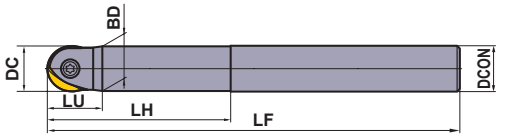


Fig. 4

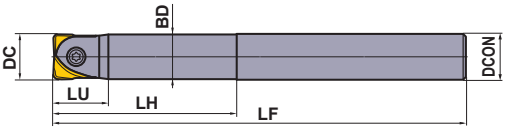


Fig. 5

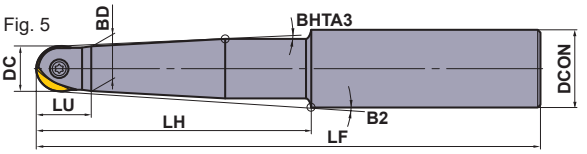
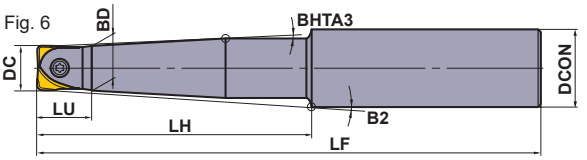


Fig. 6



Right hand tool holder only.
Refer to page K358 for APMX, PRFRAD&RE.

■STEEL SHANK

Type	Order Number	Stock R	Inserts	Dimensions (inch) RE*2	DC	DCON	LF	BD	LH	LU	B2	BHTA3	Fig.	*1 Clamp Screw	D T Wrench	Anti-seize Lubricant
Standard	**SRFU06S08M**	●	SRFT0375	.1875	.375	.500	4.375	.354	1.625	.512	2.5°	1.5°	1	RS3008TS	TKY08D	MK1KS
			SRFT10	.1969	.394						2.13°	1.5°	1			
			SUFT10R○○	—	.394						2.13°	1.5°	2			
	SRFU08S10M	●	SRFT0500	.2500	.500	.625	4.750	.453	2.000	.591	2.05°	1.5°	1	RS3510T	TKY10D	MK1KS
			SRFT12	.2362	.472						2.48°	1.5°	1			
			SUFT12R○○	—	.472						2.48°	1.5°	2			
	SRFU10S12M	●	SRFT0625	.3125	.625	.750	5.125	.606	2.000	.787	2.12°	1.5°	1	RS4015T	TKY15T	MK1KS
			SRFT16	.3150	.630						2.03°	1.5°	1			
			SUFT16R○○	—	.630						2.03°	1.5°	2			
	SRFU12S16M	●	SRFT0750	.3750	.750	1.000	6.000	.732	2.875	.945	2.87°	1.5°	1	RS5020T	TKY20T	MK1KS
			SRFT20	.3937	.787						2.45°	1.5°	1			
			SUFT20R○○	—	.787						2.45°	1.5°	2			
	SRFU16S20M	●	SRFT1000	.5000	1.000	1.250	7.125	.965	3.250	1.181	2.6°	1.5°	1	RS6025T	TKY25T	MK1KS
			SRFT25	.4921	.984						2.77°	1.5°	1			
			SUFT25R○○	—	.984						2.77°	1.5°	2			
	SRFU20S20M	●	SRFT1250	.6250	1.250	1.250	8.039	1.161	4.164	1.417	—	—	3	RS8030T	TKY30T	MK1KS
			SRFT30	.5906	1.181		8.000		4.125	1.378			3			
			SRFT32	.6299	1.260		8.039		4.164	1.417			3			
			SUFT30R○○	—	1.181		8.000		4.125	1.378			4			
Long	**SRFU06S08L**	●	SRFT0375	.1875	.375	.500	6.000	.354	2.500	.512	1.55°	1.5°	1	RS3008TS	TKY08D	MK1KS
			SRFT10	.1969	.394						1.32°	1.5°	1			
			SUFT10R○○	—	.394						1.32°	1.5°	2			
	SRFU08S10L	●	SRFT0500	.2500	.500	.625	6.375	.453	2.875	.591	1.36°	1.5°	1	RS3510T	TKY10D	MK1KS
			SRFT12	.2362	.472						1.65°	1.5°	1			
			SUFT12R○○	—	.472						1.65°	1.5°	2			
	SRFU10S12L	●	SRFT0625	.3125	.625	.750	7.125	.606	3.625	.787	1.08°	1.5°	5	RS4015T	TKY15T	MK1KS
			SRFT16	.3150	.630						1.03°	1.5°	5			
			SUFT16R○○	—	.630						1.03°	1.5°	6			
	SRFU12S16L	●	SRFT0750	.3750	.750	1.000	8.500	.732	4.625	.945	1.68°	1.5°	1	RS5020T	TKY20T	MK1KS
			SRFT20	.3937	.787						1.42°	1.5°	1			
			SUFT20R○○	—	.787						1.42°	1.5°	2			
	SRFU16S20L	●	SRFT1000	.5000	1.000	1.250	9.625	.965	5.750	1.181	1.37°	1.5°	1	RS6025T	TKY25T	MK1KS
			SRFT25	.4921	.984						1.45°	1.5°	1			
			SUFT25○○	—	.984						1.45°	1.5°	2			
	SRFU20S20L	●	SRFT1250	.6250	1.250	1.250	10.539	1.161	6.664	1.417	—	—	3	RS8030T	TKY30T	MK1KS
			SRFT30	.5906	1.181		10.500		6.625	1.378			3			
			SRFT32	.6299	1.260		10.539		6.664	1.417			3			
			SUFT30○○	—	1.181		10.500		6.625	1.378			4			

*1 Clamp Torque (lbf-in) : RS3008TS=13, RS3510T=22, RS4015T=29, RS5020T=44, RS6025T=66, RS8030T=88
*2 RE is shown for insert corner R.
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)

● : USA Stock

Fig. 1

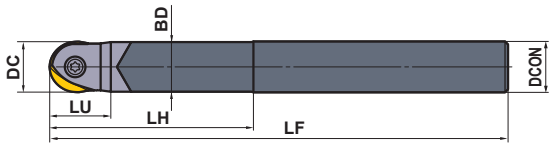
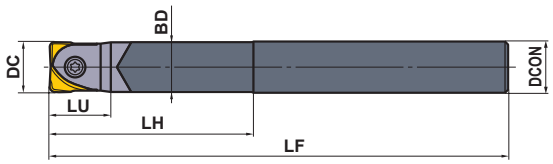


Fig. 2



■ CARBIDE SHANK

Right hand tool holder only.
Refer to page K358 for APMX, PRFRAD&RE.

Type	Order Number	Stock	Inserts	Dimensions (inch)							Fig.	✶1 Clamp Screw	D T Wrench	Anti-seize Lubricant
		R		RE✶2	DC	DCON	LF	BD	LH	LU				
Standard	SRFU06S06MW	●	SRFT0375	.1875	.375	.375	4.375	.354	1.625	0.512	1	RS3008TS	TKY08D	MK1KS
			SRFT10	.1969	.394						1			
			SUFT10R○○	—	.394						2			
	SRFU08S08MW	●	SRFT0500	.2500	.500	.500	4.750	.453	2.000	0.591	1	RS3510T	TKY10D	MK1KS
			SRFT12	.2362	.472						1			
			SUFT12R○○	—	.472						2			
	SRFU10S10MW	●	SRFT0625	.3125	.625	.625	5.250	.606	2.125	0.787	1	RS4015T	TKY15T	MK1KS
			SRFT16	.3150	.630						1			
			SUFT16R○○	—	.630						2			
	SRFU12S12MW	●	SRFT0750	.3750	.750	.750	7.125	.732	4.000	0.945	1	RS5020T	TKY20T	MK1KS
			SRFT20	.3937	.787						1			
			SUFT20R○○	—	.787						2			
	SRFU16S16MW	●	SRFT1000	.5000	1.000	1.000	8.000	.965	4.125	1.181	1	RS6025T	TKY25T	MK1KS
			SRFT25	.4921	.984						1			
			SUFT25R○○	—	.984						2			
Long	SRFU06S06LW	●	SRFT0375	.1875	.375	.375	6.625	.354	3.125	.512	1	RS3008TS	TKY08D	MK1KS
			SRFT10	.1969	.394						1			
			SUFT10R○○	—	.394						2			
	SRFU08S08LW	●	SRFT0500	.2500	.500	.500	6.625	.453	3.125	.591	1	RS3510T	TKY10D	MK1KS
			SRFT12	.2362	.472						1			
			SUFT12R○○	—	.472						2			
	SRFU10S10LW	●	SRFT0625	.3125	.625	.625	8.000	.606	4.500	.787	1	RS4015T	TKY15T	MK1KS
			SRFT16	.3150	.630						1			
			SUFT16R○○	—	.630						2			
	SRFU12S12LW	●	SRFT0750	.3750	.750	.750	10.000	.732	6.125	.945	1	RS5020T	TKY20T	MK1KS
			SRFT20	.3937	.787						1			
			SUFT20R○○	—	.787						2			
	SRFU16S16LW	●	SRFT1000	.5000	1.000	1.000	12.000	.965	8.125	1.181	1	RS6025T	TKY25T	MK1KS
			SRFT25	.4921	.984						1			
			SUFT25R○○	—	.984						2			

✶1 Clamp Torque (lbf-in) : RS3008TS=13, RS3510T=22, RS4015T=29, RS5020T=44, RS6025T=66
✶2 RE is shown for insert corner R.
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)

Fig. 1

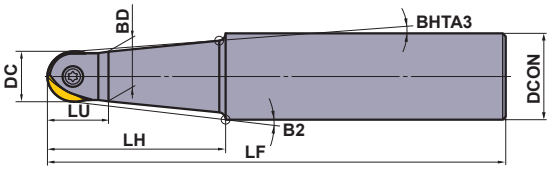


Fig. 2

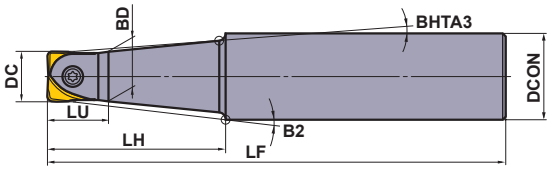


Fig. 3

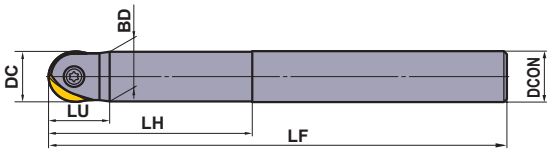


Fig. 4

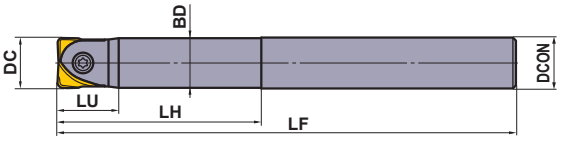


Fig. 5

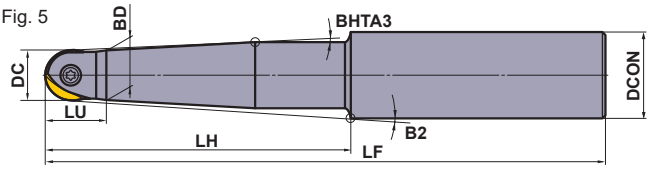
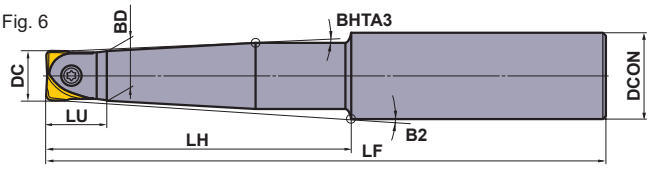


Fig. 6



Metric Standard

■STEEL SHANK

Right hand tool holder only.
Refer to page K358 for APMX, PRFRAD&RE.

Type	Order Number	Stock R	Inserts	Dimensions (mm) RE*2	DC	DCON	LF	BD	LH	LU	B2	BHTA3	Fig.	*1 Clamp Screw	D T Wrench	Anti-seize Lubricant
Standard	**SRFH10S12M**	★	SRFT10	5	10	12	110	9.5	40	13	1.63°	1.5°	1	RS3008T	TKY08D	MK1KS
			SUFT10R○○	—	10	12	110	9.5	40	13	1.63°	—	2			
	SRFH12S16M	★	SRFT12	6	12	16	120	11.5	50	15	2.6°	1.5°	1	RS3510T	TKY10D	MK1KS
			SUFT12R○○	—	12	16	120	11.5	50	15	2.6°	—	2			
	SRFH16S20M	★	SRFT16	8	16	20	130	15.5	50	20	2.73°	1.5°	1	RS4015T	TKY15T	MK1KS
			SUFT16R○○	—	16	20	130	15.5	50	20	2.73°	—	2			
	SRFH20S25M	★	SRFT20	10	20	25	150	19.5	70	24	2.38°	1.5°	1	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	25	150	19.5	70	24	2.38°	1.5°	2			
	SRFH25S32M	★	SRFT25	12.5	25	32	180	24.5	80	30	2.97°	1.5°	1	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	32	180	24.5	80	30	2.97°	1.5°	2			
	SRFH30S32M	★	SRFT30	15	30	32	200	29.5	100	35	—	—	3	RS8030T	TKY30T	MK1KS
			SUFT30R○○	—	30	32	200	29.5	100	35	—	—	4			
	SRFH32S32M	★	SRFT32	16	32	32	200	31.5	100	35	—	—	3	RS8030T	TKY30T	MK1KS
			SUFT32R○○	—	32	32	200	31.5	100	35	—	—	4			
Semi Long	**SRFH10S12L**	★	SRFT10	5	10	12	150	9.5	60	13	1.5°	1.5°	1	RS3008T	TKY08D	MK1KS
			SUFT10R○○	—	10	12	150	9.5	60	13	1.5°	—	2			
	SRFH12S16L	★	SRFT12	6	12	16	160	11.5	70	15	1.78°	1.5°	1	RS3510T	TKY10D	MK1KS
			SUFT12R○○	—	12	16	160	11.5	70	15	1.78°	—	2			
	SRFH16S20L	★	SRFT16	8	16	20	160	15.5	70	20	1.85°	1.5°	1	RS4015T	TKY15T	MK1KS
			SUFT16R○○	—	16	20	160	15.5	70	20	1.85°	—	2			
	SRFH20S25L	★	SRFT20	10	20	25	180	19.5	80	24	2.05°	1.5°	1	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	25	180	19.5	80	24	2.05°	1.5°	2			
	SRFH20S20L80	★	SRFT20	10	20	20	180	19.5	80	24	—	—	3	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	20	180	19.5	80	24	—	—	4			
	SRFH25S32L	★	SRFT25	12.5	25	32	200	24.5	100	30	2.28°	1.5°	1	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	32	200	24.5	100	30	2.28°	1.5°	2			
	SRFH25S25L100	★	SRFT25	12.5	25	25	200	24.5	100	30	—	—	3	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	25	200	24.5	100	30	—	—	4			
	SRFH30S32L	★	SRFT30	15	30	32	230	29.5	130	35	—	—	3	RS8030T	TKY30T	MK1KS
			SUFT30R○○	—	30	32	230	29.5	130	35	—	—	4			

*1 Clamp Torque (lbf-in) : RS3008T=13, RS3510T=22, RS4015T=29, RS5020T=44, RS6025T=66, RS8030T=88
*2 RE is shown for insert corner R.
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)
Note 2) Inch type insert can not be installed on the metric holder.

Type	Order Number	Stock	Inserts	Dimensions (mm)									Fig.	 *1 Clamp Screw	 Wrench	 Anti-seize Lubricant
		R		RE *2	DC	DCON	LF	BD	LH	LU	B2	BHTA3				
Long	**SRFH20S25E**	★	SRFT20	10	20	25	220	19.5	120	24	1.5°	1.5°	5	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	25	220	19.5	120	24	1.5°	1.5°	6			
	SRFH20S20E120	★	SRFT20	10	20	20	220	19.5	120	24	—	—	3	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	20	220	19.5	120	24	—	—	4			
	SRFH25S32E	★	SRFT25	12.5	25	32	250	24.5	150	30	1.5°	1.5°	5	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	32	250	24.5	150	30	1.5°	1.5°	6			
	SRFH25S25E150	★	SRFT25	12.5	25	25	250	24.5	150	30	—	—	3	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	25	250	24.5	150	30	—	—	4			
	SRFH30S32E	★	SRFT30	15	30	32	300	29.5	200	35	—	—	3	RS8030T	TKY30T	MK1KS
			SUFT30R○○	—	30	32	300	29.5	200	35	—	—	4			

*1 Clamp Torque (lbf-in) : RS5020T=44, RS6025T=66, RS8030T=88
*2 RE is shown for insert corner R.
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)
Note 2) Inch type insert can not be installed on the metric holder.

Fig. 1

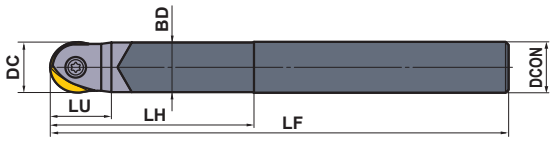
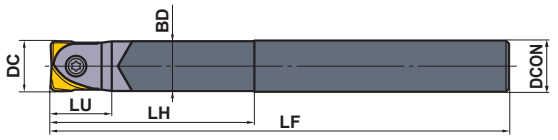


Fig. 2



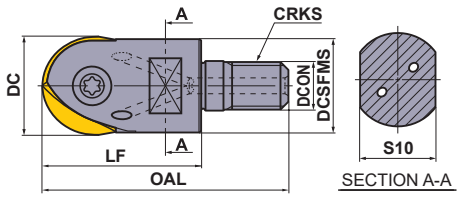
Metric Standard

■ CARBIDE SHANK

Right hand tool holder only.
Refer to page K358 for APMX, PRFRAD&RE.

Type	Order Number	Stock	Inserts	Dimensions (mm)							Fig.	✶1 Clamp Screw	D T Wrench	Anti-seize Lubricant
		R		RE ✶2	DC	DCON	LF	BD	LH	LU				
Standard	**SRFH10S10MW**	★	SRFT10	5	10	10	110	9.5	40	13	1	RS3008T	TKY08D	MK1KS
			SUFT10R○○	—	10	10	110	9.5	40	13	1			
	SRFH12S12MW	★	SRFT12	6	12	12	120	11.5	50	15	1	RS3510T	TKY10D	MK1KS
			SUFT12R○○	—	12	12	120	11.5	50	15	1			
	SRFH16S16MW	★	SRFT16	8	16	16	130	15.5	50	20	1	RS4015T	TKY15T	MK1KS
			SUFT16R○○	—	16	16	130	15.5	50	20	1			
	SRFH20S20MW	★	SRFT20	10	20	20	180	19.5	80	24	1	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	20	180	19.5	80	24	2			
	SRFH25S25MW	★	SRFT25	12.5	25	25	200	24.5	100	30	1	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	25	200	24.5	100	30	2			
	SRFH30S32MW	★	SRFT30	15	30	32	230	29.5	130	35	1	RS8030T	TKY30T	MK1KS
		★	SRFT32	16	32	32	231	29.5	131	36				
			SUFT30R○○	—	32	32	230	29.5	130	35	2			
Long	**SRFH10S10LW**	★	SRFT10	5	10	10	150	9.5	60	13	1	RS3008T	TKY08D	MK1KS
			SUFT10R○○	—	10	10	150	9.5	60	13	1			
	SRFH12S12LW	★	SRFT12	6	12	12	160	11.5	70	15	1	RS3510T	TKY10D	MK1KS
			SUFT12R○○	—	12	12	160	11.5	70	15	1			
	SRFH16S16LW	★	SRFT16	8	16	16	160	15.5	70	20	1	RS4015T	TKY15T	MK1KS
			SUFT16R○○	—	16	16	160	15.5	70	20	1			
	SRFH16S16EW	★	SRFT16	8	16	16	200	15.5	110	20	1	RS4015T	TKY15T	MK1KS
	SRFH20S20LW	★	SRFT20	10	20	20	250	19.5	150	24	1	RS5020T	TKY20T	MK1KS
			SUFT20R○○	—	20	20	250	19.5	150	24	2			
	SRFH25S25LW	★	SRFT25	12.5	25	25	300	24.5	200	30	1	RS6025T	TKY25T	MK1KS
			SUFT25R○○	—	25	25	300	24.5	200	30	2			
	SRFH30S32LW	★	SRFT30	15	30	32	350	29.5	250	35	1	RS8030T	TKY30T	MK1KS
		★	SRFT32	16	32	32	351	29.5	251	36				
			SUFT30R○○	—	30	32	350	29.5	250	35	2			

✶1 Clamp Torque (lbf-in) : RS3008T=13, RS3510T=22, RS4015T=29, RS5020T=44, RS6025T=66, RS8030T=88
✶2 RE is shown for insert corner R.
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)
Note 2) Inch type insert can not be installed on the metric holder.



■ SCREW-IN TYPE

Ball nose type only
With Air / coolant through.

Right hand tool holder only.

DC	Insert Type	Order Number	Stock	Number of Teeth	Dimensions (inch)							WT (lbs)
					RE*	LF	OAL	DCON	DCSFMS	S10	CRKS	
.625	**SRFT0625**	**SRFHU10AM0830**	●	1	.3125	1.181	1.890	.335	.587	.394	M8	.2
.750	**SRFT0750**	**SRFHU12AM1035**	●	1	.3750	1.378	2.126	.413	.724	.551	M10	.2

* RE is shown for insert corner R.

Metric Standard

■ SCREW-IN TYPE

Ball nose and corner radius shared holder
The dimensions of the case of using ball nose insert
With Air/coolant though.

Right hand tool holder only.

DC	Insert Type	Order Number	Stock	Number of Teeth	Dimensions (mm)							WT (kg)
					RE*	LF	OAL	DCON	DCSFMS	S10	CRKS	
16	**SRFT16**	**SRFH16AM0830**	★	1	8	30	48	8.5	14.9	10	M8	0.1
20	**SRFT20**	**SRFH20AM1035**	★	1	10	35	54	10.5	18.4	14	M10	0.1
25	**SRFT25**	**SRFH25AM1240**	★	1	12.5	40	62	12.5	23.5	19	M12	0.1
30	**SRFT30**	**SRFH30AM1645**	★	1	15	45	68	17	28.1	24	M16	0.2
32	**SRFT32**	**SRFH30AM1645**	★	1	16	46	69	17	28.1	24	M16	0.2

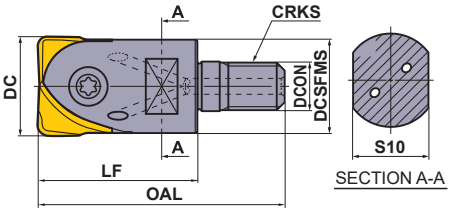
* RE is shown for insert corner R.

SPARE PARTS

Order Number	 * Insert Screw	 Insert Wrench	 Anti-seizure Lubricant
SRFHU10AM0830	RS4015T	TKY15T	MK1KS
SRFHU12AM1035	RS5020T	TKY20T	MK1KS
SRFH25AM1240	RS6025T	TKY25T	MK1KS
SRFH30AM1645	RS8030T	TKY30T	MK1KS

* Clamp Torque (lbf-in) : RS4015T=29, RS5020T=44, RS6025T=66, RS8030T=88
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)
Note 2) Inch type insert can not be installed on the metric holder.

ISO13399	➢ K003
SCREW-IN HOLDERS	➢ K382
SPARE PARTS	➢ M001
TECHNICAL DATA	➢ N001



Metric Standard

■ SCREW-IN TYPE

Ball nose and corner radius shared holder
The dimensions of the case of using corner radius insert
With Air/coolant though.

Right hand tool holder only.

DC	Insert Type	Order Number	Stock	Number of Teeth	Dimensions (mm)						WT (kg)
					LF	OAL	DCON	DCSFMS	S10	CRKS	
16	**SUFT16R**	**SRFH16AM0830**	★	1	30	48	8.5	14.9	10	M8	0.1
20	**SUFT20R**	**SRFH20AM1035**	★	1	35	54	10.5	18.4	14	M10	0.1
25	**SUFT25R**	**SRFH25AM1240**	★	1	40	62	12.5	23.5	19	M12	0.1
30	**SUFT30R**	**SRFH30AM1645**	★	1	45	68	17	28.1	24	M16	0.2
32	**SUFT32R**	**SRFH30AM1645**	★	1	46	69	17	28.1	24	M16	0.2

SPARE PARTS

Order Number	 * Insert Screw	 Insert Wrench	 Anti-seizure Lubricant
SRFHU10AM0830	RS4015T	TKY15T	MK1KS
SRFHU12AM1035	RS5020T	TKY20T	MK1KS
SRFH25AM1240	RS6025T	TKY25T	MK1KS
SRFH30AM1645	RS8030T	TKY30T	MK1KS

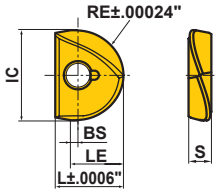
* Clamp Torque (lbf-in) : RS4015T=29, RS5020T=44, RS6025T=66, RS8030T=88
Note 1) Fit inserts in the right direction. (Refer to page K357 & K358)
Note 2) Inch type insert can not be installed on the metric holder.

INSERTS

Inch Standard

Workpiece Material			MP8010	EP6120	VP15TF
	P	Steel		◐	◐
	K	Cast Iron	●		✣
	N	Non-ferrous Metal		◐	
	H	Hardened Steel	○	◐	◐

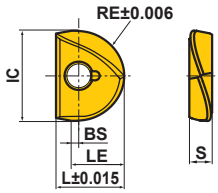
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated			Dimensions (inch)							Geometry
		MP8010	EP6120	VP15TF	IC	RE	L	LE	BS	S	APMX	
	SRFT0375	●	●	●	.375	.1875	.335	.216	.020	.102	—	
	SRFT0500	●	●	●	.500	.2500	.394	.256	.020	.118	—	
	SRFT0625	●	●	●	.625	.3125	.472	.354	.039	.158	—	
	SRFT0750	●	●	●	.750	.3750	.591	.433	.039	.197	—	
	SRFT1000	●	●	●	1.000	.5000	.728	.531	.039	.236	—	
	SRFT1250	●	●	●	1.250	.6250	.925	.669	.039	.276	—	

Metric Standard

Workpiece Material			MP8010	EP6120	VP15TF
	P	Steel		◐	◐
	K	Cast Iron	●		✣
	N	Non-ferrous Metal		◐	
	H	Hardened Steel	○	◐	◐

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated			Dimensions (mm)							Geometry
		MP8010	EP6120	VP15TF	IC	RE	L	LE	BS	S	APMX	
	SRFT10	★	★	★	10	5 (.1969")	8.5	5.5	0.5	2.6	—	
	SRFT12	★	★	★	12	6 (.2362")	10	6.5	0.5	3	—	
	SRFT16	★	★	★	16	8 (.3150")	12	9	1	4	—	
	SRFT20	★	★	★	20	10 (.3937")	15	11	1	5	—	
	SRFT25	★	★	★	25	12.5 (.4921")	18.5	13.5	1	6	—	
	SRFT30	★	★	★	30	15 (.5906")	22.5	16	1	7	—	
	SRFT32	★	★	★	32	16 (.6299")	23.5	17	1	7	—	

FITTING INSERTS ON HOLDERS

1. Clean the insert seat

Clean the insert seat in the holder body by blowing air or using a brush.

2. Fit the insert

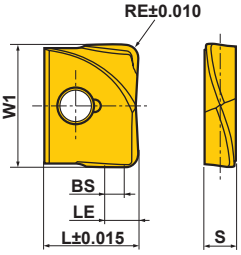
Place the concave mark of the insert into the clamp-screw-fastening part of the holder(only SRF type inserts). Fasten the clamp screw while firmly pressing the insert against the insert seat wall. You are recommended to use the special lubricant for preventing screw seizing, MK1KS, and to fasten with recommended torque.

ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

Workpiece Material					
	P	Steel		●	●
	M	Stainless Steel			◔
	K	Cast Iron	●		✱
	H	Hardened Steel	●	◔	◔

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	Coated			Dimensions (mm)							Geometry
		MP8010	EP6120	VP15TF	W1	RE	L	LE	BS	S	APMX	
	**SUFT10R05**	★	★	★	10	0.5 (.0197")	8.5	1.5	1	2.6	1.5	
	SUFT10R10	★	★	★	10	1 (.0394")	8.5	2	1	2.6	2	
	SUFT10R20	★	★	★	10	2 (.0787")	8.5	3	1	2.6	3	
	SUFT12R05	★	★	★	12	0.5 (.0197")	10	1.7	1.2	3	1.7	
	SUFT12R10	★	★	★	12	1 (.0394")	10	2.2	1.2	3	2.2	
	SUFT12R20	★	★	★	12	2 (.0787")	10	3.2	1.2	3	3.2	
	SUFT12R30	★	★	★	12	3 (.1181")	10	4.2	1.2	3	4.2	
	SUFT16R05	★	★	★	16	0.5 (.0197")	12	2.1	1.6	4	2.1	
	SUFT16R10	★	★	★	16	1 (.0394")	12	2.6	1.6	4	2.6	
	SUFT16R15	★	★	★	16	1.5 (.0591")	12	3.1	1.6	4	3.1	
	SUFT16R20	★	★	★	16	2 (.0787")	12	3.6	1.6	4	3.6	
	SUFT16R30	★	★	★	16	3 (.1181")	12	4.6	1.6	4	4.6	
	SUFT20R05	★	★	★	20	0.5 (.0197")	15	2.5	2	5	2.5	
	SUFT20R10	★	★	★	20	1 (.0394")	15	3	2	5	3	
	SUFT20R15	★	★	★	20	1.5 (.0591")	15	3.5	2	5	3.5	
	SUFT20R20	★	★	★	20	2 (.0787")	15	4	2	5	4	
	SUFT20R30	★	★	★	20	3 (.1181")	15	5	2	5	5	
	SUFT25R05	★	★	★	25	0.5 (.0197")	18.5	3	2.5	6	3	
	SUFT25R10	★	★	★	25	1 (.0394")	18.5	3.5	2.5	6	3.5	
	SUFT25R20	★	★	★	25	2 (.0787")	18.5	4.5	2.5	6	4.5	
	SUFT25R30	★	★	★	25	3 (.1181")	18.5	5.5	2.5	6	5.5	
	SUFT30R05	★	★	★	30	0.5 (.0197")	22.5	3.5	3	7	3.5	
	SUFT30R10	★	★	★	30	1 (.0394")	22.5	4	3	7	4	
	SUFT30R20	★	★	★	30	2 (.0787")	22.5	5	3	7	5	
	SUFT30R30	★	★	★	30	3 (.1181")	22.5	6	3	7	6	
	SUFT32R05	★	★	★	32	0.5 (.0197")	23.5	3.7	3.2	7	3.7	
	SUFT32R10	★	★	★	32	1 (.0394")	23.5	4.2	3.2	7	4.2	
	SUFT32R20	★	★	★	32	2 (.0787")	23.5	5.2	3.2	7	5.2	

FITTING INSERTS ON HOLDERS

1. Clean the insert seat

Clean the insert seat in the holder body by blowing air or using a brush.

2. Fit the insert

Place the concave mark of the insert into the clamp-screw-fastening part of the holder(only SRF type inserts). Fasten the clamp screw while firmly pressing the insert against the insert seat wall. You are recommended to use the special lubricant for preventing screw seizing, MK1KS, and to fasten with recommended torque.

★ : Stocked in Japan
<2 inserts in one case>

RECOMMENDED CUTTING CONDITIONS FOR SRFT BALL-NOSE INSERTS

	Workpiece Material	Hardness	Insert Grades	Cutting Speed **vc** (SFM)	Feed per Tooth **fz** (IPT)	Depth of Cut **ap** (inch)
P	Mild Steel	180HB	**EP6120**	655 (260—985)	.008 (.004—.012)	≤0.05DC
P	Carbon Steel Alloy Steel	180—280HB	**EP6120**	655 (260—985)	.008 (.004—.012)	≤0.05DC
P			**VP15TF**	655 (260—985)	.008 (.004—.012)	≤0.05DC
P		280—350HB	**EP6120**	655 (260—985)	.008 (.004—.012)	≤0.05DC
P	Pre-hardened Steel	35—45HRC	**EP6120**	490 (260—655)	.008 (.004—.012)	≤0.05DC
P			**VP15TF**	490 (260—655)	.008 (.004—.012)	≤0.05DC
P	Alloy Tool Steel	350HB	**EP6120**	490 (260—655)	.008 (.004—.012)	≤0.05DC
P			**VP15TF**	490 (260—655)	.008 (.004—.012)	≤0.05DC
K	Gray Cast Iron	350MPa	**MP8010**	820 (260—1475)	.008 (.004—.012)	≤0.05DC
K	Ductile Cast Iron	450MPa	**MP8010**	655 (260—985)	.008 (.004—.012)	≤0.05DC
K		800MPa	**MP8010**	655 (260—985)	.008 (.004—.012)	≤0.05DC
N	Copper,Copper Alloys		**EP6120**	655 (260—985)	.008 (.004—.012)	≤0.05DC
H	Hardened Steel	45—55HRC	**MP8010**	330 (195—395)	.008 (.004—.012)	≤0.05DC
H		55—65HRC	**MP8010**	260 (195—395)	.008 (.004—.012)	≤0.01DC

Note 1) The values above are for average machining conditions. The optimum values can change slightly according to the condition and rigidity of the machine and work holding. Adjust the values accordingly.
Note 2) For end mills with a carbide shank, up to 20% higher cutting conditions are possible.
Note 3) Please note the following when machining hardened steel with MP8010.
- Please shorten the overhang length as much as possible.
- Use with carbide shank recommended.
- Take special care with the depth of cut to prevent fracture.

RECOMMENDED CUTTING CONDITIONS FOR SUFT CORNER RADIUS INSERT

■Shoulder Milling(When small width of cut.*)

	Workpiece Material	Hardness	Insert Grades	Cutting Speed **vc** (SFM)	Depth of Cut **ap** (inch)	Wide of Cut **ae** (inch)	Feed per Tooth **fz** (IPT)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	655 (260—985)	≤0.05DC	≤0.05DC	.008 (≤.016)
	Pre-hardened steel	≤45HRC	**VP15TF**	490 (260—655)	≤0.05DC	≤0.05DC	.006 (≤.012)
	Alloy Tool Steel	180—380HB	**VP15TF**	490 (260—655)	≤0.05DC	≤0.05DC	.006 (≤.012)
M	Stainless Steel	≤270HB	**VP15TF**	490 (330—655)	≤0.05DC	≤0.05DC	.008 (≤.016)
K	Cast Iron	Tensile Strength ≤350MPa	**MP8010**	820 (590—1475)	≤0.05DC	≤0.1DC	.012 (≤.016)
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MP8010**	655 (260—985)	≤0.05DC	≤0.1DC	.012 (≤.016)
H	Hardened Steel	45—55HRC	**MP8010**	330 (260—395)	≤0.05DC	≤0.02DC	.004 (≤.008)
	Hardened Steel	55—65HRC	**MP8010**	260 (195—330)	≤0.05DC	≤0.02DC	.004 (≤.008)

* When the pick feed direction is along the axis of the tool such as finish machining at the wall part.

■Slot Milling / Shoulder Milling(When large width of cut.*)

	Workpiece Material	Hardness	Insert Grades	Cutting Speed **vc** (SFM)	Depth of Cut **ap** (inch)	Wide of Cut **ae** (inch)	Feed per Tooth **fz** (IPT)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	655 (260—985)	≤0.02DC	≤DC	.008 (≤.016)
	Pre-hardened steel	≤45HRC	**VP15TF**	490 (260—655)	≤0.02DC	≤DC	.006 (≤.012)
	Alloy Tool Steel	180—380HB	**VP15TF**	490 (260—655)	≤0.02DC	≤DC	.006 (≤.012)
M	Stainless Steel	≤270HB	**VP15TF**	490 (330—655)	≤0.02DC	≤DC	.008 (≤.016)
K	Cast Iron	Tensile Strength ≤350MPa	**MP8010**	835 (590—1475)	≤0.03DC	≤DC	.012 (≤.016)
	Ductile Cast Iron	Tensile Strength ≤800MPa	**MP8010**	655 (260—985)	≤0.03DC	≤DC	.012 (≤.016)
H	Hardened Steel	45—55HRC	**MP8010**	330 (260—395)	≤0.01DC	≤DC	.004 (≤.006)
	Hardened Steel	55—65HRC	**MP8010**	230 (195—330)	≤0.01DC	≤DC	.004 (≤.008)

* When the pick feed direction is along the radius of the tool such as finish face machining.

Note 1) This cutting condition is the standard condition when using the steel standard shank type.
If vibration or chipping on cutting edge occurs, please decrease the cutting condition as width of cut, depth of cut and feed per tooth depending on the situation.

Note 2) Recommended cutting speeds apply to tool outside diameter.
Please calculate the spindle speed of tool in the following expressions.
Spindle speed of cutting tool $n(min^{-1})=12\times$Cutting speed vc ÷ Diameter of cutting tool DC ÷ 3.14

CALCULATING ACTUAL CUTTING SPEED

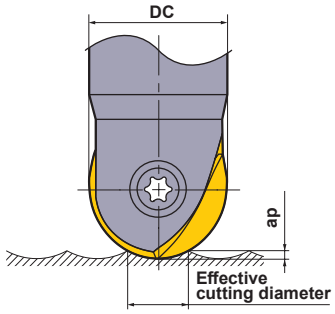
1. Effective cutting diameter = $2\sqrt{ap\,(DC-ap)}$

DC: Tool diameter (inch)
ap : Depth of Cut (inch)

2. Using ap ➡ Calculate cutting speed at the depth of cut line.

$$vc = \frac{2\pi n\sqrt{ap(DC-ap)}}{12}$$

vc : Actual cutting speed (SFM)
n : Revolution (min^{-1})



SELECTING PICK FEED

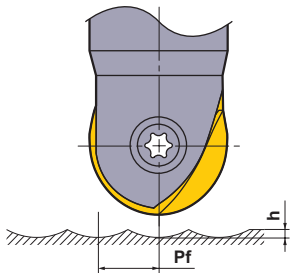
Theoretical

$$h = \frac{(Pf)^2}{8R}$$

h : Cusp height
Pf : Pick feed
PRFRAD : Ball nose or corner radius

Actual surface roughness Rz will be about 3 times worse than theoretical h.
This is because of the effect of a built-up edge.
To determine Pf, use the formula below based on a particular Rz value.

$$Pf = \sqrt{\frac{8xPRFRADxRz}{3}}$$



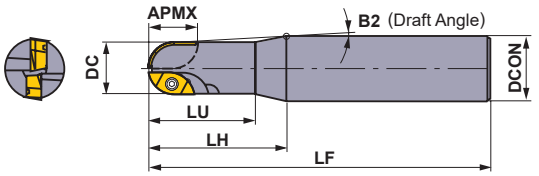
BALL NOSE END MILL

SRM2

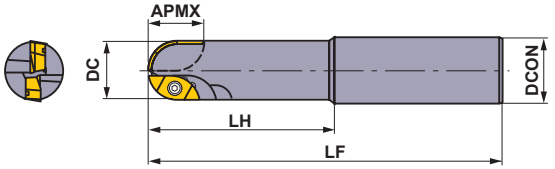
P M K N S H

● Short Type

SRM210SAS2
SRM212SAS2

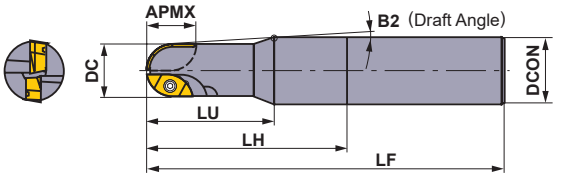


SRM216SAS2
SRM220SAS2

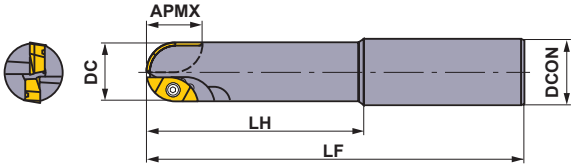


● Medium Type

SRM210SAM2
SRM212SAM2

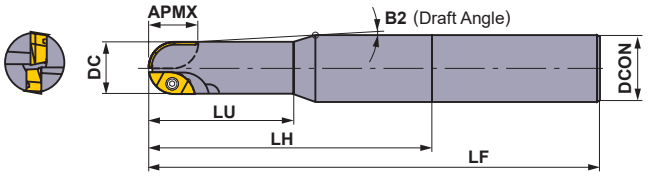


SRM216SAM2
SRM220SAM2

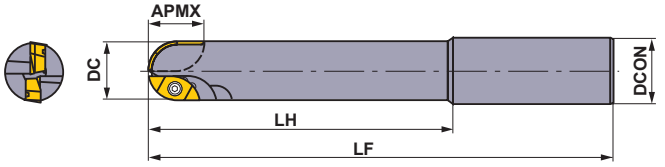


● Long Type

SRM210SAL2
SRM212SAL2
SRM216SAL2

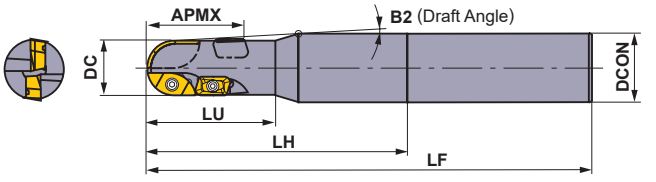


SRM220SAL2

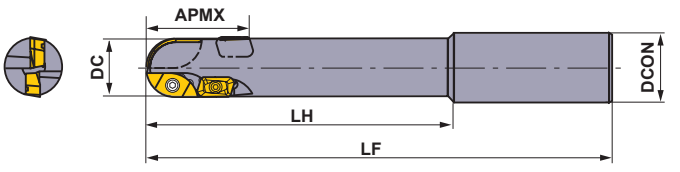


● Long Edge Type

SRM212SAL4
SRM216SAL4



SRM220SAL4



Right hand tool holder only.

■ SHANK TYPE

With Air / coolant through.

Type	Order Number	Stock	Number of Teeth	Dimensions (inch)								*1 Inner, Outer	*1 Peripheral	D T F Inner, Outer	D T F Peripheral	Inner	Outer	Peripheral
		R		RE*2	DC	LF	DCON	LH	LU	APMX	B2	Insert Screw		Wrench		Insert		
Short	**SRM210SAS2**	●	2	.313	.625	4.0	.75	1.5	1.00	.625	3°	TS25H	—	TKY08D	—	SRM210C-M	SRM210E-M	—
	SRM212SAS2	●	2	.375	.750	4.0	1.00	1.5	1.25	.750	6.5°	TS32	—	TKY08D	—	SRM212C SRM212C-M	SRM212E SRM212E-M	—
	SRM216SAS2	●	2	.500	1.000	4.5	1.00	2.0	—	.945	—	TS43	—	TKY15T	—	SRM216C SRM216C-M	SRM216E SRM216E-M	—
	SRM220SAS2	●	2	.625	1.250	5.0	1.25	2.0	—	1.102	—	TS55	—	TKY25T	—	SRM220C SRM220C-M	SRM220E SRM220E-M	—
Medium	**SRM210SAM2**	●	2	.313	.625	5.0	.75	2.5	1.00	.625	1.5°	TS25H	—	TKY08D	—	SRM210C-M	SRM210E-M	—
	SRM212SAM2	●	2	.375	.750	5.0	1.00	2.5	1.25	.750	1.5°	TS32	—	TKY08D	—	SRM212C SRM212C-M	SRM212E SRM212E-M	—
	SRM216SAM2	●	2	.500	1.000	5.5	1.00	3.0	—	.945	—	TS43	—	TKY15T	—	SRM216C SRM216C-M	SRM216E SRM216E-M	—
	SRM220SAM2	●	2	.625	1.250	6.5	1.25	3.5	—	1.102	—	TS55	—	TKY25T	—	SRM220C SRM220C-M	SRM220E SRM220E-M	—
Long	**SRM210SAL2**	●	2	.313	.625	6.0	.75	3.5	1.00	.625	1.5°	TS25H	—	TKY08D	—	SRM210C-M	SRM210E-M	—
	SRM212SAL2	●	2	.375	.750	6.0	1.00	3.5	1.50	.750	1.5°	TS32	—	TKY08D	—	SRM212C SRM212C-M	SRM212E SRM212E-M	—
	SRM216SAL2	●	2	.500	1.000	6.5	1.25	4.0	1.75	.945	1.5°	TS43	—	TKY15T	—	SRM216C SRM216C-M	SRM216E SRM216E-M	—
	SRM220SAL2	●	2	.625	1.250	8.0	1.25	5.0	—	1.102	—	TS55	—	TKY25T	—	SRM220C SRM220C-M	SRM220E SRM220E-M	—
Long Edge	**SRM212SAL4**	●	4	.375	.750	6.0	1.00	3.5	1.50	1.180	1.5°	TS32	TS25	TKY08D	TKY08D	SRM212C SRM212C-M	SRM212E SRM212E-M	APMT1135 PDER-□2
	SRM216SAL4	●	4	.500	1.000	6.5	1.25	4.0	1.75	1.457	1.5°	TS43	TS25	TKY15T	TKY08F	SRM216C SRM216C-M	SRM216E SRM216E-M	APMT1135 PDER-□2
	SRM220SAL4	●	4	.625	1.250	8.0	1.25	5.0	—	1.732	—	TS55	TS43	TKY25T	TKY15F	SRM220C SRM220C-M	SRM220E SRM220E-M	APMT1604 PDER-□2

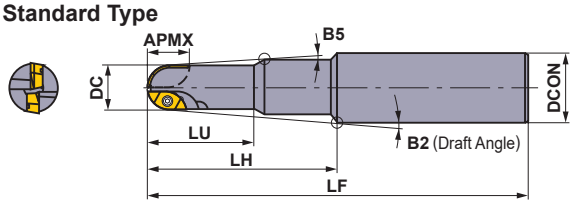
*1 Clamp Torque (lbf-in) : TS25H=15, TS25=8.9, TS32=18, TS43=31, TS55=66

*2 RE is shown for insert corner R.

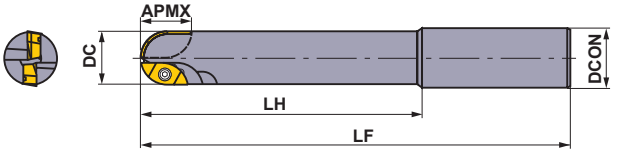
ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

Metric Standard

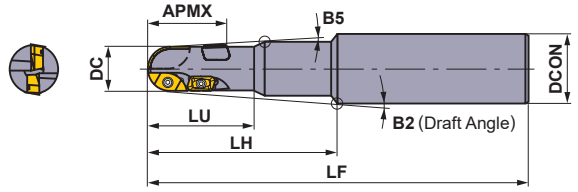
● Standard Type



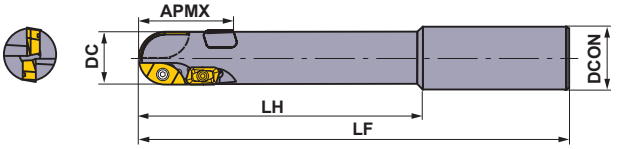
● Long Neck Type



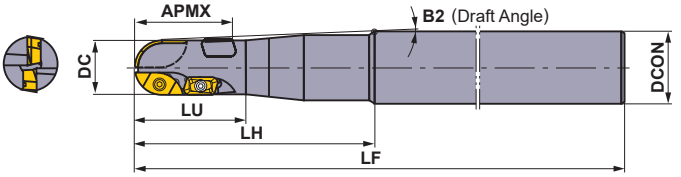
● Long Cutting Edge Type



● Long Neck Cutting Edge Type



● Extra Long Cutting Edge Type



Right hand tool holder only.

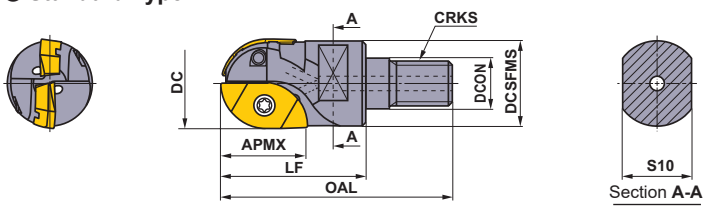
Type	Order Number	Stock R	Coolant Thru ★1	Number of Teeth	Dimensions (mm) RE ★3	DC	DCON	LF	LH	LU	APMX	B2	B5	★2 Inner, Outer Clamp	★2 Peripheral Screw	D Inner, Outer Wrench	T F Peripheral Wrench	Inner Insert	Outer Insert	Peripheral Insert
Standard	**SRM2160SNM**	★	N	2	8	16	20	130	50	25	12	2.8°	1.5°	TS25H	—	TKY08D	—	SRG16C SRM16C-M	SRG16E SRM16E-M	—
	SRM2160SAM	★	Y	2	8	16	20	130	50	25	12	2.8°	1.5°	TS25H	—	TKY08D	—	SRG16C SRM16C-M	SRG16E SRM16E-M	—
	SRM2200SNM	★	N	2	10	20	25	150	70	35	14	2.45°	1.5°	TS32	—	TKY08D	—	SRG20C SRM20C-M	SRG20E SRM20E-M	—
	SRM2200SAM	★	Y	2	10	20	25	150	70	35	14	2.45°	1.5°	TS32	—	TKY08D	—	SRG20C SRM20C-M	SRG20E SRM20E-M	—
	SRM2250SNM	★	N	2	12.5	25	32	180	80	40	19	3.22°	1.5°	TS43	—	TKY15T	—	SRG25C SRM25C-M	SRG25E SRM25E-M	—
	SRM2250SAM	★	Y	2	12.5	25	32	180	80	40	19	3.22°	1.5°	TS43	—	TKY15T	—	SRG25C SRM25C-M	SRG25E SRM25E-M	—
	SRM2300SNM	★	N	2	15	30	32	200	100	50	24	0.73°	0.5°	TS55	—	TKY25T	—	SRG30C SRM30C-M	SRG30E SRM30E-M	—
	SRM2300SAM	★	Y	2	15	30	32	200	100	50	24	0.73°	0.5°	TS55	—	TKY25T	—	SRG30C SRM30C-M	SRG30E SRM30E-M	—
Long Cutting Edge	**SRM2200SNL**	★	N	4	10	20	25	150	70	35	30	2.45°	1.5°	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2200SAL	★	Y	4	10	20	25	150	70	35	30	2.45°	1.5°	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2250SNL	★	N	4	12.5	25	32	180	80	40	37	3.22°	1.5°	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2250SAL	★	Y	4	12.5	25	32	180	80	40	37	3.22°	1.5°	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2300SNL	★	N	4	15	30	32	200	100	50	44	0.73°	0.5°	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2
	SRM2300SAL	★	Y	4	15	30	32	200	100	50	44	0.73°	0.5°	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2

★1 Y=Yes, N=No
★2 Clamp Torque (N • m) : TS25H=1.0, TS25=1.0, TS32=2.0, TS43=3.5, TS55=7.5
★3 RE is shown for insert corner R.

Type	Order Number	Stock	*1 Coolant Thru	Number of Teeth	Dimensions (mm)									*2 Inner, Outer	*2 Peripheral	D T F Inner, Outer	D T F Peripheral	Inner	Outer	Peripheral
		R			*3 RE	DC	DCON	LF	LH	LU	APMX	B2	B5	Clamp Screw		Wrench		Insert		
Long Neck	**SRM2160SNF**	★	N	2	8	16	16	150	70	—	12	—	—	TS25H	—	TKY08D	—	SRG16C SRM16C-M	SRG16E SRM16E-M	—
	SRM2160SAF	★	Y	2	8	16	16	150	70	—	12	—	—	TS25H	—	TKY08D	—	SRG16C SRM16C-M	SRG16E SRM16E-M	—
	SRM2200SNF	★	N	2	10	20	20	180	100	—	14	—	—	TS32	—	TKY08D	—	SRG20C SRM20C-M	SRG20E SRM20E-M	—
	SRM2200SAF	★	Y	2	10	20	20	180	100	—	14	—	—	TS32	—	TKY08D	—	SRG20C SRM20C-M	SRG20E SRM20E-M	—
	SRM2250SNF	★	N	2	12.5	25	25	200	120	—	19	—	—	TS43	—	TKY15T	—	SRG25C SRM25C-M	SRG25E SRM25E-M	—
	SRM2250SAF	★	Y	2	12.5	25	25	200	120	—	19	—	—	TS43	—	TKY15T	—	SRG25C SRM25C-M	SRG25E SRM25E-M	—
	SRM2300SNF	★	N	2	15	30	32	230	150	—	24	—	—	TS55	—	TKY25T	—	SRG30C SRM30C-M	SRG30E SRM30E-M	—
	SRM2300SAF	★	Y	2	15	30	32	230	150	—	24	—	—	TS55	—	TKY25T	—	SRG30C SRM30C-M	SRG30E SRM30E-M	—
Long Neck Cutting Edge	**SRM2200SNLF**	★	N	4	10	20	20	180	100	—	30	—	—	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2200SALF	★	Y	4	10	20	20	180	100	—	30	—	—	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2250SNLF	★	N	4	12.5	25	25	200	120	—	37	—	—	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2250SALF	★	Y	4	12.5	25	25	200	120	—	37	—	—	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2300SNLF	★	N	4	15	30	32	230	150	—	44	—	—	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2
	SRM2300SALF	★	Y	4	15	30	32	230	150	—	44	—	—	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2
Extra Long Cutting Edge	**SRM2200SNLL**	★	N	4	10	20	25	250	120	35	30	1.5°	—	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2200SALL	★	Y	4	10	20	25	250	120	35	30	1.5°	—	TS32	TS25	TKY08D	TKY08D	SRG20C SRM20C-M	SRG20E SRM20E-M	APMT1135 PDER-□2
	SRM2250SNLL	★	N	4	12.5	25	32	300	170	37	37	1.5°	—	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2250SALL	★	Y	4	12.5	25	32	300	170	37	37	1.5°	—	TS43	TS25	TKY15T	TKY08F	SRG25C SRM25C-M	SRG25E SRM25E-M	APMT1135 PDER-□2
	SRM2300SNLL	★	N	4	15	30	32	350	100	50	44	1.5°	—	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2
	SRM2300SALL	★	Y	4	15	30	32	350	100	50	44	1.5°	—	TS55	TS43	TKY25T	TKY15F	SRG30C SRM30C-M	SRG30E SRM30E-M	APMT1604 PDER-□2

*1 Y=Yes, N=No
*2 Clamp Torque (N • m) : TS25H=1.0, TS25=1.0, TS32=2.0, TS43=3.5, TS55=7.5
*3 RE is shown for insert corner R.

● Standard Type



■ SCREW-IN TYPE

With Air / coolant through.

Right hand tool holder only.

DC	Order Number	Stock	Dimensions (inch)								WT (lbs)
			RE*2	LF	OAL	DCON	DCSFMS	S10	CRKS*1	APMX	
.750	**SRM212AM10S35**	●	.375	1.378	2.126	.413	.701	.551	M10	.551	.2
1.000	**SRM216AM12S40**	●	.500	1.575	2.441	.492	.933	.748	M12	.748	.4
1.250	**SRM220AM16S45**	●	.625	1.772	2.677	.669	1.169	.945	M16	1.102	.4

*1 Clamp Torque of the Head (lbf-ft) : M10=33.8, M12=59.2, M16=66.7
*2 RE is shown for insert corner R.

SPARE PARTS

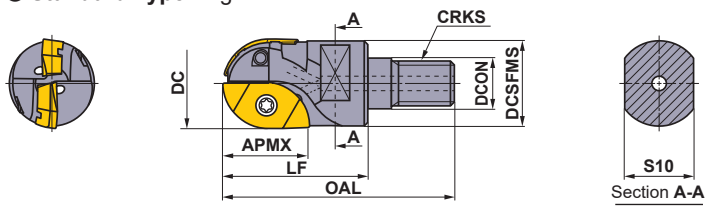
DC	Order Number	 *1	 *1					
		Insert Screw Inner,Outer	Insert Screw Peripheral	Insert Wrench	Insert Wrench	Insert Inner	Insert Outer	Insert Peripheral
.750	**SRM212AM10S35**	TS32	—	TKY08D	—	SRM212C	SRM212E	—
1.000	**SRM216AM12S40**	TS43	TS25	TKY15T	—	SRM216C	SRM216E	—
1.250	**SRM220AM16S45**	TS55	TS43	TKY25T	TKY15F	SRM220C	SRM220E	—

*1 Clamp Torque (lbf-in) : TS32=18, TS43=31, TS55=66

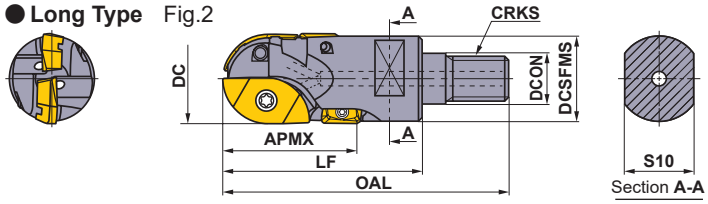
Metric Standard

With Air / coolant through.

● **Standard Type** Fig.1



● **Long Type** Fig.2



Right hand tool holder only.

DC	Order Number	Stock	Dimensions (mm)								WT (kg)	Fig.
			RE*2	LF	OAL	DCON	DCSFMS	S10	CRKS *1	APMX		
16	**SRM2160AM08S30**	★	8	30	48	8.5	14.6	10	M8	12	0.1	1
20	**SRM2200AM10L45**	★	10	45	64	10.5	18.6	14	M10	30	0.2	2
20	**SRM2200AM10S35**	★	10	35	54	10.5	18.6	14	M10	14	0.1	1
25	**SRM2250AM12L55**	★	12.5	55	77	12.5	23.5	19	M12	37	0.3	2
25	**SRM2250AM12S40**	★	12.5	40	62	12.5	23.5	19	M12	19	0.2	1
30	**SRM2300AM16L60**	★	15	60	83	17	28.3	24	M16	44	0.3	2
30	**SRM2300AM16S45**	★	15	45	68	17	28.3	24	M16	24	0.2	1
32	**SRM2320AM16L60**	★	16	60	83	17	29	24	M16	44	0.3	2
32	**SRM2320AM16S45**	★	16	45	68	17	30	24	M16	24	0.2	1

*1 Clamp Torque of the Head (lbf-ft) : M8=17.1, M10=33.8, M12=59.2, M16=66.7
*2 RE is shown for insert corner R.

SPARE PARTS

DC	Order Number	*1 Insert Screw Inner,Outer	*1 Insert Screw Peripheral	D T Insert Wrench	Insert Wrench	Insert Inner	Insert Outer	Insert Peripheral
16	**SRM2160AM08S30**	TS25H	–	TKY08D	–	SR○16C	SR○16E	–
20	**SRM2200AM10L45**	TS32	TS25	TKY08D	–	SR○20C	SR○20E	APMT1135
20	**SRM2200AM10S35**	TS32	–	TKY08D	–	SR○20C	SR○20E	–
25	**SRM2250AM12L55**	TS43	TS25	TKY15T	TKY08F	SR○25C	SR○25E	APMT1135
25	**SRM2250AM12S40**	TS43	TS25	TKY15T	–	SR○25C	SR○25E	–
30	**SRM2300AM16L60**	TS55	TS43	TKY25T	TKY15F	SR○30C	SR○30E	APMT1604
30	**SRM2300AM16S45**	TS55	–	TKY15T	TKY08F	SR○30C	SR○30E	–
32	**SRM2320AM16L60**	TS55	TS43	TKY25T	TKY15F	SR○32C	SR○32E	APMT1604
32	**SRM2320AM16S45**	TS55	TS43	TKY25T	TKY15F	SR○32C	SR○32E	–

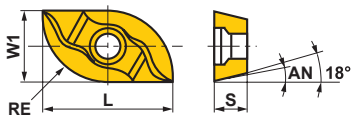
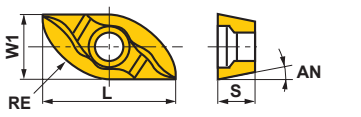
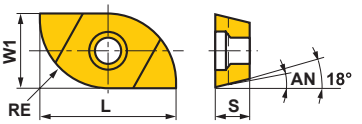
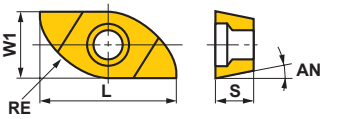
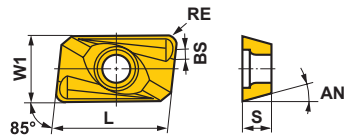
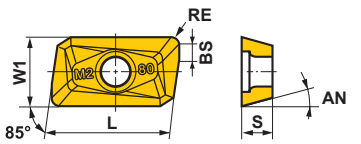
*1 Clamp Torque (lbf-in) : TS25H=15, TS25=8.9, TS32=18, TS43=31, TS55=66

ISO13399 ➤ K003
SCREW-IN HOLDERS ➤ K382
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

INSERTS

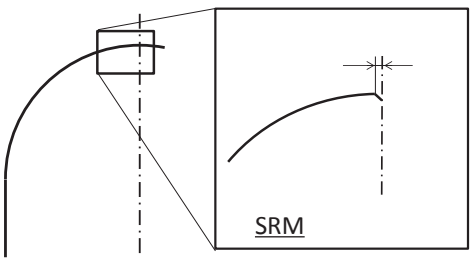
Workpiece Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
S	Heat resistant Alloys, Titanium Alloys	
H	Hardened Steel	

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✱ : Unstable Cutting

Type	Shape	Order Number	Class	Coated				Dimensions (inch)						Geometry
				F7030	MP6120	MP9120	VP15TF	RE	L	W1	S	BS	AN	
Inner		**SRM210C-M**	M		●	●	●	.313	.630	.323	.138	—	11°	
		SRM212C-M	M		●	●	●	.375	.748	.385	.169	—	11°	
		SRM216C-M	M		●	●	●	.500	.945	.512	.216	—	11°	
		SRM220C-M	M		●	●	●	.625	1.102	.638	.275	—	11°	
Outer		**SRM210E-M**	M		●	●	●	.313	.531	.258	.138	—	11°	
		SRM212E-M	M		●	●	●	.375	.610	.315	.169	—	11°	
		SRM216E-M	M		●	●	●	.500	.807	.409	.216	—	11°	
		SRM220E-M	M		●	●	●	.625	.964	.520	.275	—	11°	
Inner	Strong Cutting Edge Type 	**SRM212C**	M		●	●	●	.375	.748	.385	.169	—	11°	
		SRM216C	M		●	●	●	.500	.945	.512	.216	—	11°	
		SRM220C	M		●	●	●	.625	1.102	.638	.275	—	11°	
Outer	Strong Cutting Edge Type 	**SRM212E**	M		●	●	●	.375	.610	.315	.169	—	11°	
		SRM216E	M		●	●	●	.500	.807	.409	.216	—	11°	
		SRM220E	M		●	●	●	.625	.964	.520	.275	—	11°	
Peripheral	Strong Cutting Edge Type 	**APMT1135PDER-H2**	M	●			●	.031	.433	.250	.138	.047	11°	
		APMT1604PDER-H2	M	●			●	.031	.650	.375	.187	.055	11°	
	Low Resistance Type 	**APMT1135PDER-M2**	M	●			●	.031	.433	.250	.138	.047	11°	
		APMT1604PDER-M2	M	●			●	.031	.650	.375	.187	.055	11°	

Note 1) The **M** type breaker (APMT....PDER-M2) is the first recommendation for its excellent cutting performance.
Please use **H** type breakers (APMT....PDER-H2) due to cutting edge strength.

Note 2) SRM tooling is designed for rough machining applications.
*Programming Note: If you choose to use SRM tooling for semi-finishing applications, care must be taken when setting the tool height. The SRM insert includes a chamfer flat at the tip as illustrated. To assist with SRM programming needs, please download our CAD data from our web site; http://www.mmus-carbide.com



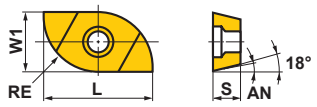
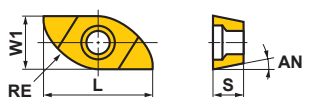
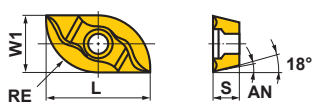
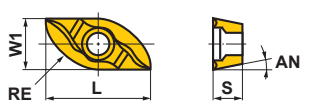
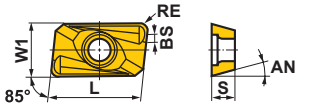
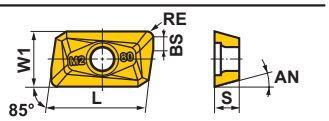
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

INSERTS

For Metric Standard

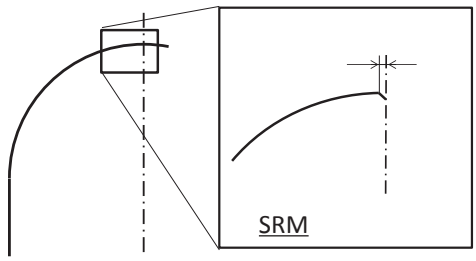
Workpiece Material			F7030	MP6120	MP9120	VP15TF
	P	Steel	●	●		●
	M	Stainless Steel	◔			◔
	K	Cast Iron				✱
	S	Heat resistant Alloys, Titanium Alloys			●	●
	H	Hardened Steel				◔

Cutting Conditions (Guide) :
● : Stable Cutting ◔ : General Cutting ✱ : Unstable Cutting

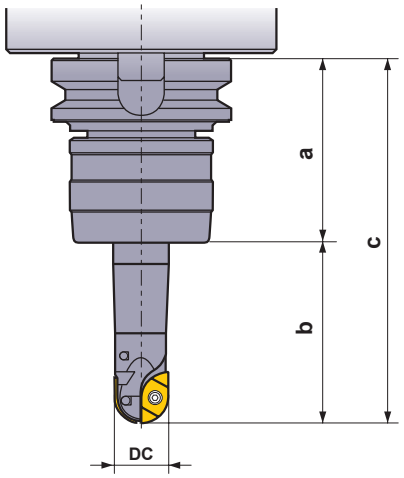
Type	Shape	Order Number	Class	Coated F7030	Coated MP6120	Coated MP9120	Coated VP15TF	RE	L	W1	S	BS	AN	Geometry
Inner	Strong Cutting Edge Type 	**SRG16C**	G		★	★	★	8	16	8.2	3.5	—	11°	
		SRG20C	G		★	★	★	10	19	10.2	4.6	—	10°	
		SRG25C	G		★	★	★	12.5	24	12.8	5.5	—	10°	
		SRG30C	G		★	★	★	15	28	15.3	7	—	10°	
		SRG32C	G		★	★	★	16	28	16.3	7	—	10°	
Outer	Strong Cutting Edge Type 	**SRG16E**	G		★	★	★	8	13.5	6.7	3.5	—	11°	
		SRG20E	G		★	★	★	10	15.5	8.5	4.6	—	9°	
		SRG25E	G		★	★	★	12.5	20.5	10.2	5.5	—	9°	
		SRG30E	G		★	★	★	15	25.2	12.2	7	—	9°	
		SRG32E	G		★	★	★	16	26.1	13.1	7	—	9°	
Inner	Low Resistance Type 	**SRM16C-M**	M		★	★	★	8	16	8.2	3.5	—	11°	
		SRM20C-M	M		★	★	★	10	19	10.2	4.6	—	10°	
		SRM25C-M	M		★	★	★	12.5	24	12.8	5.5	—	10°	
		SRM30C-M	M		★	★	★	15	28	15.3	7	—	10°	
		SRM32C-M	M		★	★	★	16	28	16.3	7	—	10°	
Outer	Low Resistance Type 	**SRM16E-M**	M		★	★	★	8	13.5	6.7	3.5	—	11°	
		SRM20E-M	M		★	★	★	10	15.5	8.5	4.6	—	9°	
		SRM25E-M	M		★	★	★	12.5	20.5	10.2	5.5	—	9°	
		SRM30E-M	M		★	★	★	15	25.2	12.2	7	—	9°	
		SRM32E-M	M		★	★	★	16	26.1	13.1	7	—	9°	
Peripheral *	Strong Cutting Edge Type 	**APMT1135PDER-H2**	M	●			●	0.8	11	6.35	3.5	1.2	11°	
		APMT1604PDER-H2	M	●			●	0.8	16.5	9.525	4.76	1.4	11°	
	Low Resistance Type 	**APMT1135PDER-M2**	M	●			●	0.8	11	6.35	3.5	1.2	11°	
		APMT1604PDER-M2	M	●			●	0.8	16.5	9.525	4.76	1.4	11°	

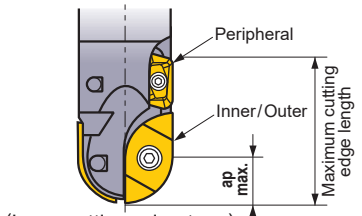
(Low-resistance inner or outer inserts are precision M class type.)
* Selection guide for peripheral cutting edges : The first recommendation is the super sharp M breaker (APMT....PDER-M2).
When cutting edge strength is particularly important, use the H breaker (APMT....PDER-H2).

Note 1) SRM tooling is designed for rough machining applications.
*Programming Note: If you choose to use SRM tooling for semi-finishing applications, care must be taken when setting the tool height. The SRM insert includes a chamfer flat at the tip as illustrated. To assist with SRM programming needs, please download our CAD data from our web site; http://www.mmus-carbide.com



RECOMMENDED CUTTING CONDITIONS





(Long cutting edge type)

Tool Overhang

Recommended cutting conditions on this literature are chosen based on deflection, vibration and machined surface when using a CAT50 arbor. Conditions-**"a"** is the length from a gage line to the arbor end face, and **"b"** is the neck length (tool overhang from the arbor).

(Inch)

Cutting Diameter : DC	Type	a	b	c
.625"	Short	4	1.5	5.5
	Medium		2.5	6.5
	Long		3.5	7.5
.750"	Short		1.5	5.5
	Medium		2.5	6.5
	Long		3.5	7.5
1.000"	Short		2.0	6.0
	Medium		3.0	7.0
	Long		4.0	8.0
1.250"	Short		2.0	6.0
	Medium		3.5	7.5
	Long		5.0	9.0

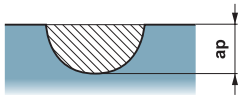
Recommended Depth of Cut for Long Cutting Edge Type

The maximum cutting edge length of the long cutting edge type with a peripheral insert is 1.4-1.5DC. The peripheral insert is for light machining only.

Please refer the recommended cutting condition or page K373.

■Slot Milling

Cutting Mode

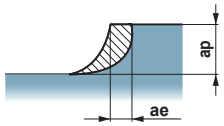


N: Spindle Speed (min^{-1})
F: Table Feed (IPM)

	Workpiece Material	Hardness	Cutting Speed (SFM)	Insert Grade, Type	Type	ϕ.625"			ϕ.750"			ϕ1.000"			ϕ1.250"		
						min^{-1}	IPM	ap	min^{-1}	IPM	ap	min^{-1}	IPM	ap	min^{-1}	IPM	ap
P	Carbon Steel Alloy Steel	180-280HB	525	MP6120 VP15TF Low Resistance Type	Short	3183	15	.236	2546	12	.315	2037	19	.492	1698	16	.591
			395		Medium	3183	15	.236	2546	12	.315	2037	19	.492	1698	16	.591
			655		Long	3183	15	.157	2546	12	.157	2037	19	.236	1698	16	.295
		280-350HB	460	MP6120 VP15TF Low Resistance Type	Short	2785	13	.236	2228	11	.315	1783	17	.492	1485	14	.591
			395		Medium	2785	13	.236	2228	11	.315	1783	17	.492	1485	14	.591
			525		Long	2785	13	.157	2228	11	.157	1783	17	.236	1485	14	.295
	Pre-Hardened Steel	35-45HRC	395	MP6120 VP15TF Low Resistance Type	Short	2387	11	.236	1910	9	.315	1528	14	.492	1273	12	.472
			330		Medium	2387	11	.236	1910	9	.315	1528	14	.492	1273	12	.472
			525		Long	2387	11	.157	1910	9	.157	1528	14	.236	1273	12	.177
	Alloy Tool Steel	≤350HB	460	MP6120 VP15TF Low Resistance Type	Short	2785	13	.236	2228	11	.315	1783	21	.394	1485	23	.295
			395		Medium	2785	13	.236	2228	11	.315	1783	21	.394	1485	23	.295
			525		Long	2785	13	.157	2228	11	.157	1783	21	.197	1485	23	.177
M	Stainless Steel	≤270HB	655	VP15TF Low Resistance Type	Short	3979	19	.157	3183	15	.197	2546	30	.236	2122	33	.591
			330		Medium	3979	19	.157	3183	15	.197	2546	30	.236	2122	33	.591
			820		Long	3979	19	.118	3183	15	.118	2546	24	.157	2122	25	.177
K	Gray Cast Iron	≤350MPa	655	VP15TF Low Resistance Type	Short	3979	31	.236	3183	25	.315	2546	40	.492	2122	33	.591
			490		Medium	3979	31	.236	3183	25	.315	2546	40	.492	2122	33	.591
			985		Long	3979	31	.157	3183	25	.157	2546	40	.295	2122	33	.177
	Ductile Cast Iron	≤500MPa	590	VP15TF Low Resistance Type	Short	3581	28	.236	2865	23	.315	2292	36	.492	1910	30	.591
			490		Medium	3581	28	.236	2865	23	.315	2292	36	.492	1910	30	.591
			785		Long	3581	28	.157	2865	23	.157	2292	36	.295	1910	30	.177
		≤800MPa	525	VP15TF Low Resistance Type	Short	3183	25	.236	2546	20	.315	2037	32	.492	1698	27	.591
			490		Medium	3183	25	.236	2546	20	.315	2037	32	.492	1698	27	.591
			820		Long	3183	25	.157	2546	20	.157	2037	32	.295	1698	27	.177
S	Titanium Alloys	≤350HB	165	MP9120	Short	995	4	.157	796	3	.157	637	3	.236	531	2	.295
			100		Medium	995	4	.157	796	3	.157	637	3	.236	531	2	.295
			195		Long	995	4	.079	796	3	.079	637	3	.157	531	2	.118
	Heat resistant Alloys	–	165	MP9120	Short	995	4	.157	796	3	.157	637	3	.236	531	2	.295
			100		Medium	995	4	.157	796	3	.157	637	3	.236	531	2	.295
			195		Long	995	4	.079	796	3	.079	637	3	.157	531	2	.118
H	Hardened Steel	45-50HRC	330	VP15TF Strong Cutting Edge Type	Short	1989	9	.157	1591	8	.157	1273	10	.236	1061	8	.295
			195		Medium	1989	9	.157	1591	8	.157	1273	10	.236	1061	8	.295
			395		Long	1989	9	.079	1591	8	.079	1273	10	.157	1061	8	.118
		50-60HRC	195	VP15TF Strong Cutting Edge Type	Short	1194	6	.157	955	5	.157	764	6	.236	637	5	.295
			130		Medium	1194	6	.157	955	5	.157	764	6	.236	637	5	.295
			330		Long	1194	6	.079	955	5	.079	764	6	.157	637	5	.118

■Shoulder Milling (Cutting Depth : Small)

Cutting Mode

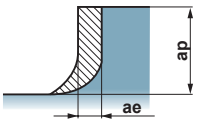


N : Spindle Speed (min^{-1})
F : Table Feed (IPM)

	Workpiece Material	Hardness	Cutting Speed (SFM)	Insert Grade, Type	Type	ϕ.625"				ϕ.750"				ϕ1.000"				ϕ1.250"			
						min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae
P	Carbon Steel Alloy Steel	180-280HB	655	MP6120 VP15TF Low Resistance Type	Short	3979	31	.157	.236	3183	38	.197	.315	2546	50	.236	.394	2122	50	.295	.394
			525		Medium	3979	31	.157	.236	3183	38	.197	.315	2546	50	.236	.394	2122	50	.295	.394
			820		Long	3979	25	.157	.157	3183	25	.197	.236	2546	50	.236	.295	2122	50	.295	.295
		280-350HB	525	MP6120 VP15TF Low Resistance Type	Short	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			395		Medium	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			655		Long	3183	15	.157	.157	2546	16	.197	.236	2037	24	.236	.295	1698	20	.295	.295
	Pre-Hardened Steel	35-45HRC	525	MP6120 VP15TF Low Resistance Type	Short	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			395		Medium	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			655		Long	3183	15	.157	.157	2546	16	.197	.236	2037	24	.236	.295	1698	27	.295	.295
	Alloy Tool Steel	≤350HB	525	MP6120 VP15TF Low Resistance Type	Short	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			395		Medium	3183	20	.157	.236	2546	20	.197	.315	2037	32	.236	.394	1698	33	.295	.394
			655		Long	3183	15	.157	.157	2546	16	.197	.236	2037	24	.236	.295	1698	20	.295	.295
M	Stainless Steel	≤270HB	655	VP15TF Low Resistance Type	Short	3979	19	.157	.236	3183	20	.197	.315	2546	30	.236	.394	2122	33	.295	.394
			330		Medium	3979	19	.157	.236	3183	20	.197	.315	2546	30	.236	.394	2122	33	.295	.394
			820		Long	3979	19	.157	.157	3183	15	.197	.236	2546	24	.236	.295	2122	33	.295	.295
K	Gray Cast Iron	≤350MPa	655	VP15TF Low Resistance Type	Short	3979	63	.157	.315	3183	63	.197	.394	2546	60	.236	.394	2122	58	.295	.394
			490		Medium	3979	63	.157	.315	3183	63	.197	.394	2546	60	.236	.394	2122	58	.295	.394
			985		Long	3979	47	.157	.236	3183	50	.197	.315	2546	60	.236	.394	2122	58	.295	.236
	Ductile Cast Iron	≤500MPa	655	VP15TF Low Resistance Type	Short	3979	63	.157	.315	3183	63	.197	.394	2546	60	.236	.394	2122	50	.295	.394
			490		Medium	3979	63	.157	.315	3183	63	.197	.394	2546	60	.236	.394	2122	50	.295	.394
			920		Long	3979	47	.157	.236	3183	50	.197	.315	2546	60	.236	.394	2122	50	.295	.236
		≤800MPa	590	VP15TF Low Resistance Type	Short	3581	56	.157	.315	2865	56	.197	.394	2292	54	.236	.394	1910	45	.295	.394
			490		Medium	3581	56	.157	.315	2865	56	.197	.394	2292	54	.236	.394	1910	45	.295	.394
			820		Long	3581	42	.157	.236	2865	45	.197	.315	2292	54	.236	.394	1910	45	.295	.236
S	Titanium Alloys	≤350HB	165	MP9120	Short	995	12	.157	.157	796	9	.157	.197	637	8	.236	.236	531	6	.295	.118
			100		Medium	995	12	.157	.157	796	9	.157	.197	637	8	.236	.236	531	6	.295	.118
			195		Long	995	12	.079	.079	796	9	.079	.118	637	8	.157	.157	531	6	.118	.059
	Heat resistant Alloys	–	165	MP9120	Short	995	12	.157	.157	796	9	.157	.197	637	8	.236	.236	531	6	.295	.118
			100		Medium	995	12	.157	.157	796	9	.157	.197	637	8	.236	.236	531	6	.295	.118
			195		Long	995	12	.079	.079	796	9	.079	.118	637	8	.157	.157	531	6	.118	.059
H	Hardened Steel	45-50HRC	330	VP15TF Strong Cutting Edge Type	Short	1989	9	.157	.157	1591	8	.197	.197	1273	10	.236	.295	1061	8	.295	.118
			195		Medium	1989	9	.157	.157	1591	8	.197	.197	1273	10	.236	.295	1061	8	.295	.118
			395		Long	1989	9	.157	.079	1591	8	.197	.118	1273	10	.236	.157	1061	8	.295	.059
		50-60HRC	195	VP15TF Strong Cutting Edge Type	Short	1194	6	.157	.157	955	5	.197	.197	764	6	.236	.295	637	5	.295	.118
			130		Medium	1194	6	.157	.157	955	5	.197	.197	764	6	.236	.295	637	5	.295	.118
			330		Long	1194	6	.157	.079	955	5	.197	.118	764	6	.236	.157	637	5	.295	.059

■Shoulder Milling (Cutting Depth : Large)

Cutting Mode



N : Spindle Speed (min^{-1})
F : Table Feed (IPM)

✱Machining Stainless Steel

Down cutting is preferred.

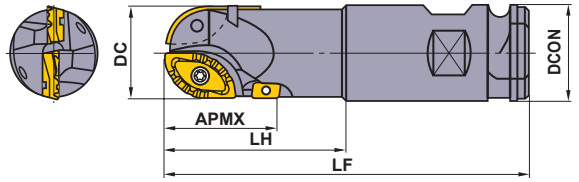
Workpiece Material		Hardness	Cutting Speed (SFM)	Insert Grade, Type	Type	ϕ.625"				ϕ.750"				ϕ1.000"				ϕ1.250"			
						min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae	min^{-1}	IPM	ap	ae
P	Carbon Steel Alloy Steel	180-280HB	655	MP6120 VP15TF Low Resistance Type	Short	3979	25	.315	.157	3183	30	.394	.157	2546	50	.492	.197	2122	50	.591	.177
			525		Medium	3979	25	.315	.157	3183	30	.394	.157	2546	50	.492	.197	2122	50	.591	.177
			820		Long	3979	19	.315	.118	3183	20	.394	.118	2546	40	.492	.157	2122	33	.591	.118
		280-350HB	525	MP6120 VP15TF Low Resistance Type	Short	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			395		Medium	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			655		Long	3183	15	.315	.118	2546	12	.394	.118	2037	24	.492	.157	1698	20	.591	.118
	Pre-Hardened Steel	35-45HRC	525	MP6120 VP15TF Low Resistance Type	Short	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			395		Medium	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			655		Long	3183	15	.315	.118	2546	12	.394	.118	2037	24	.492	.157	1698	20	.591	.118
	Alloy Tool Steel	≤350HB	525	MP6120 VP15TF Low Resistance Type	Short	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			395		Medium	3183	15	.315	.157	2546	20	.394	.157	2037	32	.492	.197	1698	33	.591	.177
			655		Long	3183	15	.315	.118	2546	12	.394	.118	2037	24	.492	.098	1698	20	.591	.118
M	Stainless Steel	≤270HB	655	VP15TF Low Resistance Type	Short	3979	19	.315	.157	3183	20	.394	.157	2546	30	.492	.394	2122	33	.591	.394
			330		Medium	3979	19	.315	.157	3183	20	.394	.157	2546	30	.492	.394	2122	33	.591	.394
			820		Long	3979	19	.315	.118	3183	15	.394	.118	2546	24	.492	.157	2122	20	.591	.177
K	Gray Cast Iron	≤350MPa	655	VP15TF Low Resistance Type	Short	3979	47	.315	.315	3183	50	.394	.315	2546	50	.492	.394	2122	58	.591	.394
			490		Medium	3979	47	.315	.315	3183	50	.394	.315	2546	50	.492	.394	2122	58	.591	.394
			985		Long	3979	38	.315	.197	3183	38	.394	.157	2546	50	.492	.295	2122	42	.591	.177
	Ductile Cast Iron	≤500MPa	655	VP15TF Low Resistance Type	Short	3979	47	.315	.315	3183	50	.394	.315	2546	50	.492	.394	2122	50	.591	.394
			490		Medium	3979	47	.315	.315	3183	50	.394	.315	2546	50	.492	.394	2122	50	.591	.394
			920		Long	3979	38	.315	.197	3183	38	.394	.157	2546	50	.492	.295	2122	33	.591	.177
		≤800MPa	590	VP15TF Low Resistance Type	Short	3581	42	.315	.315	2865	45	.394	.315	2292	45	.492	.394	1910	45	.591	.394
			490		Medium	3581	42	.315	.315	2865	45	.394	.315	2292	45	.492	.394	1910	45	.591	.394
			820		Long	3581	34	.315	.197	2865	34	.394	.157	2292	45	.492	.295	1910	30	.591	.177
S	Titanium Alloys	≤350HB	165	MP9120	Short	995	8	.157	.079	796	6	.157	.118	637	5	.236	.157	531	4	.295	.118
			100		Medium	995	8	.157	.079	796	6	.157	.118	637	5	.236	.157	531	4	.295	.118
			195		Long	995	8	.079	.039	796	6	.079	.079	637	5	.157	.059	531	4	.118	.059
	Heat resistant Alloys	–	165	MP9120	Short	995	8	.157	.079	796	6	.157	.118	637	5	.236	.157	531	4	.295	.118
			100		Medium	995	8	.157	.079	796	6	.157	.118	637	5	.236	.157	531	4	.295	.118
			195		Long	995	8	.079	.039	796	6	.079	.079	637	5	.157	.059	531	4	.118	.059
H	Hardened Steel	45-50HRC	330	VP15TF Strong Cutting Edge Type	Short	1989	9	.315	.079	1591	8	.394	.118	1273	10	.492	.157	1061	8	.591	.118
			195		Medium	1989	9	.315	.079	1591	8	.394	.118	1273	10	.492	.157	1061	8	.591	.118
			395		Long	1989	9	.315	.039	1591	8	.394	.079	1273	8	.492	.059	1061	4	.591	.059
		50-60HRC	195	VP15TF Strong Cutting Edge Type	Short	1194	6	.315	.079	955	5	.394	.118	764	6	.492	.157	637	5	.591	.118
			130		Medium	1194	6	.315	.079	955	5	.394	.118	764	6	.492	.157	637	5	.591	.118
			330		Long	1194	6	.315	.039	955	5	.394	.079	764	5	.492	.059	637	3	.591	.059

BALL NOSE END MILL

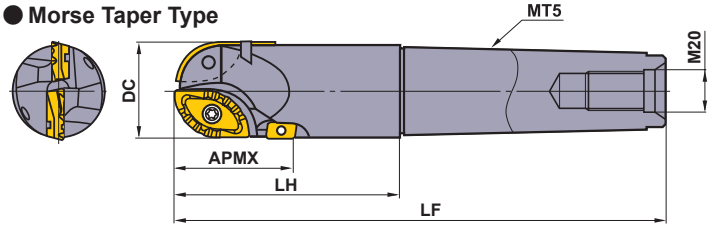
SRM2 Ø40 (1.575") Ø50 (1.969")

P M K N S H

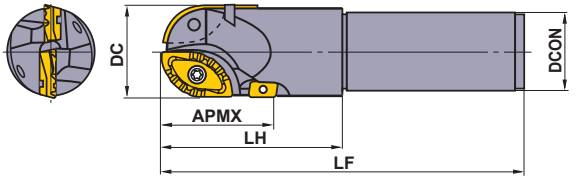
● Combination Type



● Morse Taper Type



● Straight Type



Metric Standard

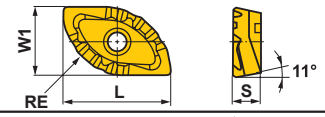
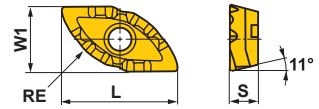
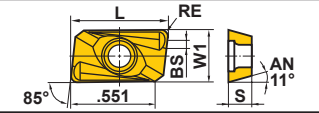
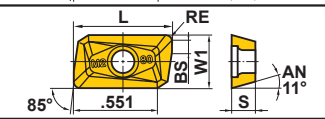
Right hand tool holder only.

Type		Order Number	Stock	Number of Flutes	Dimensions (inch)						✶1	✶1					
			R		✶2 RE	DC	DCON	LF	LH	APMX	Inner, Outer	Peripheral	Inner, Outer	Peripheral	Inner	Outer	Peripheral
											Insert Screw		Wrench		Insert		
Combination	Standard	**SRM2400WNLS**	★	2	.787	1.575	2.000	7.874	4.724	2.126	TS6S	TS43	TKY30T	TKY15F	SRG40C	SRG40E	APMT1604 PDER-□2
		SRM2500WNLS	★	2	.984	1.969	2.000	7.874	4.724	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
	Long	**SRM2400WNLM**	★	2	.787	1.575	2.000	9.843	6.693	2.126	TS6S	TS43	TKY30T	TKY15F	SRG40C	SRG40E	APMT1604 PDER-□2
		SRM2500WNLM	★	2	.984	1.969	2.000	9.843	6.693	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
	Extra Long	**SRM2500WNLL**	★	2	.984	1.969	2.000	11.811	8.661	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
		SRM2500WNLX	★	2	.984	1.969	2.000	13.780	10.630	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
Straight	Standard	**SRM2400SNLS**	★	2	.787	1.575	1.654	7.874	3.937	2.126	TS6S	TS43	TKY30T	TKY15F	SRG40C	SRG40E	APMT1604 PDER-□2
		SRM2500SNLS	★	2	.984	1.969	1.654	7.874	3.937	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
	Long	**SRM2400SNLM**	★	2	.787	1.575	1.654	9.843	5.906	2.126	TS6S	TS43	TKY30T	TKY15F	SRG40C	SRG40E	APMT1604 PDER-□2
		SRM2500SNLM	★	2	.984	1.969	1.654	9.843	3.937	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
Morse Taper	Standard	**SRM2500MNLS**	★	2	.984	1.969	—	10.079	4.724	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2
	Long	**SRM2500MNLM**	★	2	.984	1.969	—	11.260	5.906	2.480	TS6	TS43	TKY30T	TKY15F	SRG50C	SRG50E	APMT1604 PDER-□2

✶1 Clamp Torque (lbf-in) : TS43=53, TS6=89, TS6S=89
✶2 RE is shown for insert corner R.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case><Inserts with asterisk (✶2) are available in 2 piece in one case>

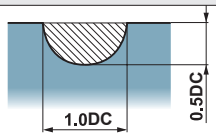
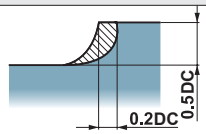
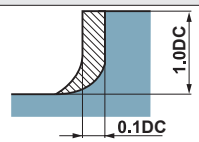
INSERTS

Workpiece Material			Coated				Dimensions (inch)					Geometry
Application	Shape	Order Number	Class	F7030	VP15TF	VP20RT	VP30RT	RE	L	W1	S	BS	
	P	Steel											
	K	Cast Iron											
Inner		*2 **SRG40C**	G		★	★	★	.787	1.417	.807	.315	—	
		*2 **SRG50C**	G		★	★	★	.984	1.575	1.024	.335	—	
Outer		*2 **SRG40E**	G		★	★	★	.787	1.260	.654	.315	—	
		*2 **SRG50E**	G		★	★	★	.984	1.409	.787	.335	—	
*1 Peripheral		**APMT1604PDER-M2**	M	●	●			.031	.650	.375	.187	.055	
	Strong Cutting Edge Type 	**APMT1604PDER-H2**	M	●	●			.031	.650	.375	.187	.055	

(Low-resistance inner or outer inserts are precision M class type.)

*1 Selection guide for peripheral cutting edges : The first recommendation is the super sharp M breaker (APMT....PDER-M2).
When cutting edge strength is particularly important, use the H breaker (APMT....PDER-H2).

RECOMMENDED CUTTING CONDITIONS

Cutting Mode	A : Slot Milling	B : Shoulder Milling (Standard Type)	C : Shoulder Milling (Long Cutting Edge Type)
			

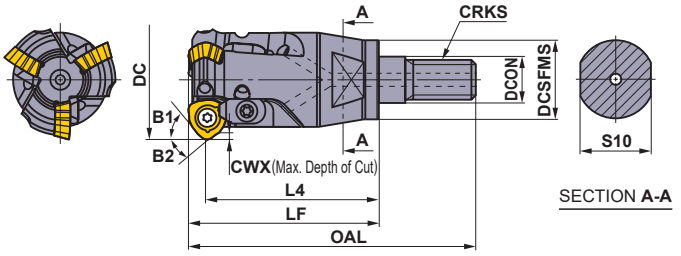
Workpiece Material		Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (IPR)	Cutting Mode
P	Alloy Tool Steel	≤250HB	**VP20RT VP30RT**	655 (525—820)	.008 (.004—.012)	A
					.008 (.004—.016)	B
					.012 (.004—.016)	C
	Cast Tool Steel	≤230HB	**VP15TF VP20RT**	655 (525—985)	.008 (.004—.012)	A
					.012 (.004—.018)	B
					.008 (.004—.016)	C
K	Ductile Cast Iron	Tensile Strength ≤540MPa	**VP15TF VP20RT**	655 (525—985)	.010 (.004—.016)	A
					.010 (.004—.018)	B
					.014 (.004—.018)	C
	Gray Cast Iron	Tensile Strength ≤350MPa	**VP15TF VP20RT**	655 (525—985)	.010 (.004—.016)	A
					.014 (.004—.018)	B
					.010 (.004—.016)	C

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

VERTICAL FEED MILLING

PMC

P | M | K | N | S | H



SECTION **A-A**

Metric Standard

With Air / coolant through.

Right hand tool holder only.

DC	Order Number	Stock	Number of Teeth	Dimensions (mm)								WT (kg)	B1	B2
				LF	OAL	DCON	DCSFMS	L4	S10	CWX	CRKS*			
25	**PMC08R252AM1035**	★	2	39.7	58.7	10.5	18	35	14	1.5	M10	0.1	40.5°	35°
32	**PMC09R323AM1245**	★	3	50.5	72.5	12.5	21	45	19	3.0	M12	0.2	40.5°	35°
40	**PMC12R403AM1645**	★	3	51.4	74.4	17	29	45	24	3.5	M16	0.3	42°	35°

* Clamp Torque of the Head (lbf-ft) : M10=33.8, M12=59.2, M16=66.7

SPARE PARTS

DC	Order Number	Insert Screw *	Insert Wench	Clamp Bridge	Clamp Bridge Screw *	Clamp Wrench (R D)	Anti-seizure Lubricant	Spring	Insert
25	**PMC08R252AM1035**	AJS3010T10	TKY08D	AMS3	TS33	TKY10R	MK1KS	ASS2	JOM□08
32	**PMC09R323AM1245**	AJS3010T10	TKY10D	AMS3	TS351	TKY10D	MK1KS	ASS2	JOM□09
40	**PMC12R403AM1645**	AJS4012T15	TKY15D	AMS4	TS43	TKY15D	MK1KS	ASS2	JOM□12

* Clamp Torque (lbf-in) : TS33=13, TS351=22, TS43=31, AJS3010T10=22, AJS4012T15=31

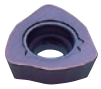
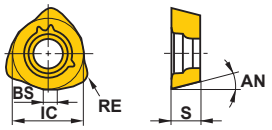
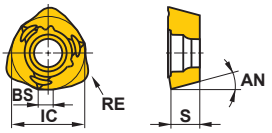
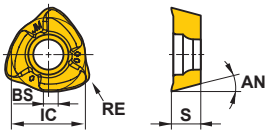
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

ISO13399 ➢ K003

INSERTS

Workpiece Material		
	P	Steel
	K	Cast Iron

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Class	Coated FH7020	Coated VP15TF	Coated VP30RT	Dimensions (mm) AN	IC	S	BS	RE	PMC holder	Geometry
Partial Profile FT Breaker 	**JOMW080320ZZSR-FT**	M	●	●	●	13°	8	3.18	1.4	2	PMC08R252AM1035	
	JDMW09T320ZDSR-FT	M	●	●	●	15°	9.525	3.97	1.8	2	PMC09R323AM1245	
	JDMW120420ZDSR-FT	M	●	●	●	15°	12	4.76	2.5	2	PMC12R403AM1645	
Strong Cutting Edge Type ST Breaker 	**JDMT120420ZDSR-ST**	M	●	●	●	15°	12	4.76	2.5	2	PMC12R403AM1645	
JM Breaker 	**JOMT080320ZZSR-JM**	M	●	●	●	13°	8	3.18	1.4	2	PMC08R252AM1035	
	JDMT09T320ZDSR-JM	M	●	●	●	15°	9.525	3.97	1.8	2	PMC09R323AM1245	
	JDMT120420ZDSR-JM	M	●	●	●	15°	12	4.76	2.5	2	PMC12R403AM1645	

RECOMMENDED CUTTING CONDITIONS

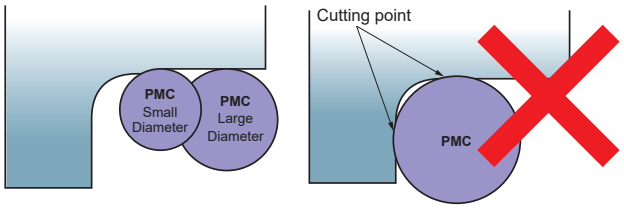
	Workpiece Material	Hardness	Grade	Breaker	Diameter (mm)	Number of Teeth	Cutting Speed (SFM)	Feed per Tooth (inch/tooth)	Width of Cut (inch)	Pick Feed (inch)
P	Carbon Steel Alloy Steel	≤180HB	**VP15TF**	**FT**	ø40	3	820 (655—985)	—.024	—.059	—.236
					ø32	3	655 (490—720)	—.022	—.047	—.197
					ø25	2	655 (490—720)	—.022	—.039	—.197
	Alloy Tool Steel Hardening Tool Steel for Cold Work Dies	≤300HB	**VP15TF**	**FT**	ø40	3	820 (655—985)	—.022	—.059	—.197
					ø32	3	590 (490—655)	—.020	—.047	—.118
					ø25	2	590 (490—655)	—.020	—.039	—.118
	Alloy Tool Steel	≤300HB	**VP15TF**	**FT**	ø40	3	655 (330—985)	—.022	—.059	—.197
					ø32	3	490 (260—655)	—.020	—.047	—.118
					ø25	2	490 (260—655)	—.020	—.039	—.118
K	Gray Cast Iron	Tensile Strength ≤350MPa	**VP15TF**	**FT**	ø40	3	820 (655—985)	—.024	—.059	—.236
					ø32	3	655 (490—720)	—.022	—.047	—.197
					ø25	2	655 (490—720)	—.022	—.039	—.197
	Ductile Cast Iron	Tensile Strength ≤800MPa	**VP15TF**	**FT**	ø40	3	820 (655—985)	—.024	—.059	—.236
					ø32	3	655 (490—720)	—.022	—.047	—.197
					ø25	2	655 (490—720)	—.022	—.039	—.197

Note 1) The above cutting conditions are general guide lines. Adjustments maybe necessary depending on machine rigidity, workpiece material geometry and clamping.
Note 2) A carbide shank extension is recommended to prevent vibrations.

NOTES ON MACHINING METHODS

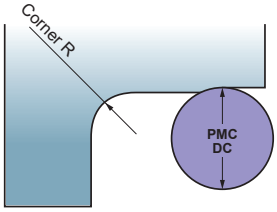
● How to choose an appropriate diameter tool.

Machine plain surfaces with a larger tool and corner radii with smaller diameter cutters.



● Relation of the cutter diameter and corner R size of workpiece material

A guide for the smallest possible workpiece material radius that can be machined is from 0.6—0.7 x diameter of the tool.



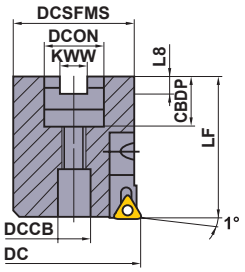
Tool diameter DC(mm)	Corner R (inch)
ϕ25	R ≥ .689
ϕ32	R ≥ .866
ϕ40	R ≥ .945

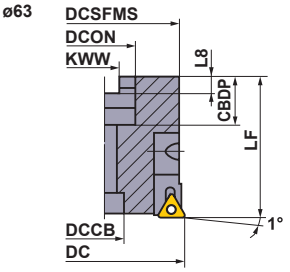
✱Adjust cutting conditions according to the set up.
✱Smaller workpiece material corner radii (only >0.5 x cutter &) may be possible by reducing the width of cut, speed and pick feed.

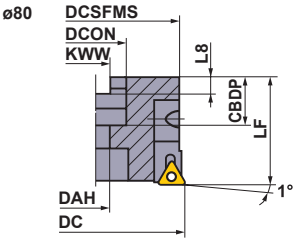
VERTICAL FEED MILLING

PMF

P | M | K | N | S | H







Metric Standard

Right hand tool holder only.

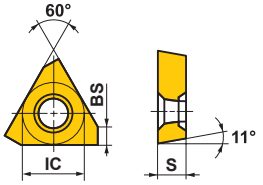
Order Number	Stock	Number of Teeth	Dimensions (mm)									Max. Allowable Revolution (min^{-1})		Cartridge	Insert Screw *2	Radial Screw	Set Bolt (Cartridge) *2	Wrench	Wrench	Set Bolt ①②	Insert
	R		DC	LF	DCON	CBDP	DAH	DCCB	KWW	L8	DCSFMS	Balance Unknown	G40 *1 Balanced								
PMF05004A22R	●	4	50	63	22	20	—	12	10.4	6.3	48	6300	12700	PMFA13R	TS254	TSS04005	HBH06012	TKY08F	HKY40R HKY50R	①HDS10031	TPEW 1303 ZP□R2
PMF06306A22R	●	6	63	63	22	20	—	18	10.4	6.3	60	5000	10100	PMFA13R	TS254	TSS04005	HBH06012	TKY08F	HKY40R	②HSC10050	
PMF08008A27R	●	8	80	50	27	23	13.5	—	12.4	7	75	3900	7900	PMFA13R	TS254	TSS04005	HBH06012	TKY08F	HKY40R	②HSC12035	

*1 You need to balance the tool and holder together so that it confirms to G40 or higher standards.
*2 Clamp Torque (lbf-in) : TS254=8.9, HBH06012=8.5

INSERTS

Workpiece Material		
	P	Steel
	K	Cast Iron

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	Class	Coated VP15TF	Coated AP10H	Dimensions (mm) IC	LE	S	BS	Geometry
	**TPEW1303ZPER2**	E	●	●	7.94	—	3.18	2	

RECOMMENDED CUTTING CONDITIONS

	Workpiece Material	Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (inch/tooth)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	820 (490—1150)	.004 (.0019—.006)
		280—380HB	**VP15TF**	655 (330—985)	
K	Gray Cast Iron	Tensile Strength ≤350MPa	**AP10H**	1150 (655—1640)	.004 (.0019—.006)

	Workpiece Material	Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (inch/tooth)
K	Dactile Cast Iron	Tensile Strength ≤500MPa	**AP10H**	820 (490—1150)	.004 (.002—.006)
		Tensile Strength ≤800MPa	**AP10H**	655 (330—985)	.004 (.002—.006)

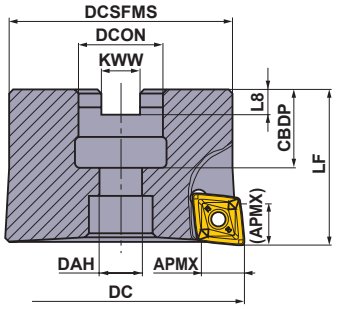
Note 1) Recommended radial depth of cut is .004" to .008"(1—2 mm).
Note 2) Up and down vertical cutting is recommended for efficiency.
Note 3) For crossfeed cutting, feed per tooth should be reduced to less than .002 (inch/tooth).

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

VERTICAL FEED MILLING

PMR

P Steel | M | K Cast Iron | N | S | H



Right hand tool holder only.

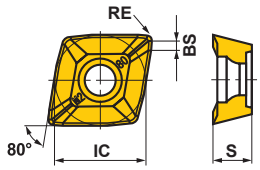
	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	Insert
Metric	**PMR405003A22R**	★	3	50	40	22	20	11	45	10.4	6.3	11	CPMT1205ZPEN-M2/3
	PMR406304A22R	★	4	63	40	22	20	11	57	10.4	6.3	11	CPMT1205ZPEN-M2/3
	PMR408005A27R	★	5	80	50	27	23	13	73	12.4	7	11	CPMT1205ZPEN-M2/3
Inch	**PMR405003BR**	★	3	50	40	22.225	19	11	45	8.4	5	11	CPMT1205ZPEN-M2/3
	PMR406304BR	★	4	63	40	22.225	19	11	57	8.4	5	11	CPMT1205ZPEN-M2/3
	PMR408005DR	★	5	80	63	31.75	32	17	73	12.7	8	11	CPMT1205ZPEN-M2/3

SPARE PARTS

Order Number	Shim	Shim Screw *	Insert Screw *	Wrench (Insert)	Wrench (Shim)	Set Bolt
PMR405003A22R	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC10035
PMR406304A22R	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC10035
PMR408005A27R	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC12040
PMR405003BR	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC10035
PMR406304BR	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC10035
PMR408005DR	STPMR4N	WCS503507H	TPS35	TIP15T	HKY35R	HSC16040

* Clamp Torque (lbf-in) : WCS503507H=44, TPS35=31

INSERTS

Shape	Order Number	Class	Coated VP15TF	Dimensions (mm) IC	S	BS	RE	Geometry
	**CPMT1205ZPEN-M2**	M	●	12.7	5.56	1.4	0.8	
	CPMT1205ZPEN-M3	M	★	12.7	5.56	1.4	1.2	

RECOMMENDED CUTTING CONDITIONS

	Workpiece Material	Hardness	Grade	Cutting Speed (SFM)	Feed per Tooth (inch/tooth)	pf (mm)
P	Carbon Steel Alloy Steel	180—280HB	**VP15TF**	590 (490—655)	.008 (.004—.012)	≤.5DC
		280—380HB				
K	Gray Cast Iron	Tensile Strength ≤350MPa	**VP15TF**	590 (490—655)	.008 (.004—.012)	≤.5DC
	Ductile Cast Iron	Tensile Strength 360—500MPa	**VP15TF**	490 (390—555)	.008 (.004—.012)	≤.5DC
		Tensile Strength 500—800MPa	**VP15TF**	390 (330—490)	.008 (.004—.012)	≤.5DC

Note 1) The above conditions are suitable for general machining purposes, it is possible to use conditions that are different from the above.
Note 2) For horizontal feed machining, please reduce the feed rate by 20—40%.
Note 3) If vibration occurs when machining, please reduce the depth of cut, cutting speed by 20—50%.

ISO13399 ➤ K003
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

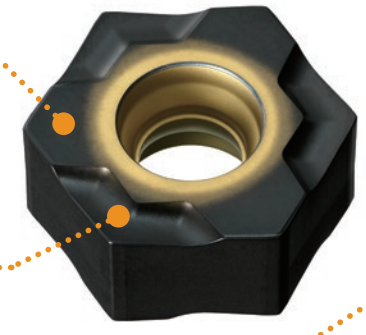
Boring Cutter

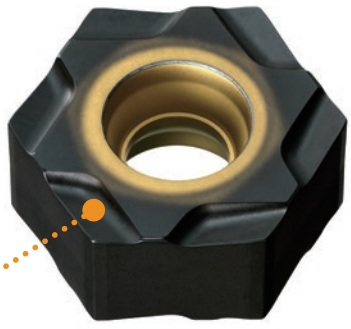
BMR

BMR Engineering Specials

High Clamping Rigidity

High feed processing possible with improved fracture resistance.





Double Positive Breaker

Reduced cutting resistance. Supports open deck work. Effective finished surface due to wiper edge.

12-Corner Type with Right Hand

Economical 12-corner type that preserves comparable insert rigidity of the 6-corner type by securing the seating surface directly below where the cutting force is absorbed.

Highly Rigid 6-corner Type and Economical 12-corner Type Inserts

Body with Peripheral Cutting Edge Run-out Adjustable Mechanism

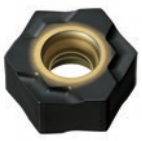
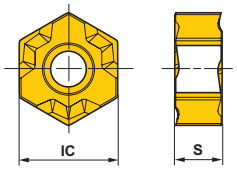
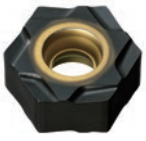
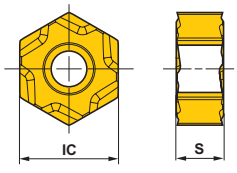
Economical M-class insert can be used since run out is adjustable.

* BMR Cutters - Non stock, engineering specials produced to order only.

INSERT

(inch)

Workpiece Material	K	Cast Iron	◐	Cutting Conditions(Guide) : ● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	Grade	Hand	Cutting Edge	Stock	IC	S	Geometry
	**HNMX1206EN06-R**	**MC5015**	–	6	★	.500	.236	
	**HNMX1206ER12-R**	**MC5015**	R	12	★	.500	.236	

★ : **Stocked in Japan**

RECOMMENDED CUTTING CONDITIONS

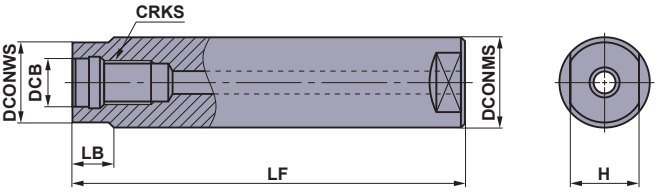
(inch)

Workpiece Material		Tensile Strength	Grade	vc (SFM)	fz (IPT)	ae
K	Gray Cast Iron	≤350MPa	**MC5015**	655 (490—820)	.008 (.004—.010)	≤.118

✱ With feed per cutter, settings are set small for finished surface roughness and large for ideal product life.

SCREW-IN HOLDERS

STRAIGHT SHANK TYPE



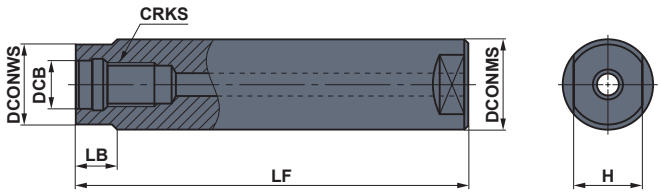
STEEL SHANK TYPE

Through coolant compatible

CRKS	Order Number	Stock	Dimensions (inch)						WT (lbs)
			DCONMS	LF	DCB	DCONWS	LB	H	
M8	**SCU10M08S100S**	●	.625	3.937	.335	.571	.394	.394	.2
M8	**SCU10M08S200L**	●	.625	7.874	.335	.571	.394	.394	.7
M10	**SCU12M10S120S**	●	.750	4.724	.413	.728	.394	.551	.4
M10	**SCU12M10S220L**	●	.750	8.661	.413	.728	.394	.551	.9
M12	**SCU16M12S125S**	●	1.000	4.921	.492	.925	.394	.748	.9
M12	**SCU16M12S245L**	●	1.000	9.646	.492	.925	.394	.748	2.0
M16	**SCU20M16S140S**	●	1.250	5.512	.669	1.122	.591	.945	1.8
M16	**SCU20M16S280L**	●	1.250	11.024	.669	1.122	.591	.945	3.5

Metric Standard

CRKS	Order Number	Stock	Dimensions (mm)						WT (kg)
			DCONMS	LF	DCB	DCONWS	LB	H	
M8	**SC16M08S100S**	★	16	100	8.5	14.5	10	10	0.1
M8	**SC16M08S200L**	★	16	200	8.5	14.5	10	10	0.3
M10	**SC20M10S120S**	★	20	120	10.5	18.5	10	14	0.3
M10	**SC20M10S220L**	★	20	220	10.5	18.5	10	14	0.5
M12	**SC25M12S125S**	★	25	125	12.5	23.5	10	19	0.4
M12	**SC25M12S245L**	★	25	245	12.5	23.5	10	19	0.8
M16	**SC32M16S140S**	★	32	140	17	28.5	15	24	0.8
M16	**SC32M16S280L**	★	32	280	17	28.5	15	24	1.6



CARBIDE SHANK TYPE

Through coolant compatible

CRKS	Order Number	Stock	Dimensions (inch)						WT (lbs)
			DCONMS	LF	DCB	DCONWS	LB	H	
M8	**SCU10M08S100SW**	●	.625	3.937	.335	.571	.394	.394	.4
M8	**SCU10M08S200LW**	●	.625	7.874	.335	.571	.394	.394	1.1
M10	**SCU12M10S120SW**	●	.750	4.724	.413	.728	.394	.551	.9
M10	**SCU12M10S220LW**	●	.750	8.661	.413	.728	.394	.551	1.8
M12	**SCU16M12S125SW**	●	1.000	4.921	.492	.925	.394	.748	1.8
M12	**SCU16M12S245LW**	●	1.000	9.646	.492	.925	.394	.748	3.5
M16	**SCU20M16S140SW**	●	1.250	5.512	.669	1.122	.591	.945	3.1
M16	**SCU20M16S280LW**	●	1.250	11.024	1.250	1.122	.591	.945	6.4

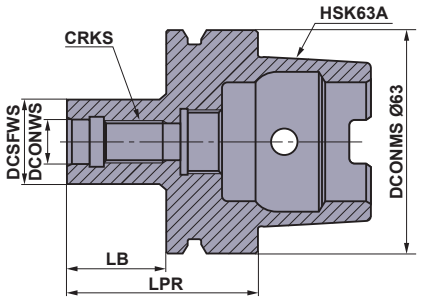
Metric Standard

CRKS	Order Number	Stock	Dimensions (mm)						WT (kg)
			DCONMS	LF	DCB	DCONWS	LB	H	
M8	**SC16M08S100SW**	★	16	100	8.5	14.5	10	10	0.2
M8	**SC16M08S200LW**	★	16	200	8.5	14.5	10	10	0.5
M10	**SC20M10S120SW**	★	20	120	10.5	18.5	10	14	0.5
M10	**SC20M10S220LW**	★	20	220	10.5	18.5	10	14	0.9
M12	**SC25M12S125SW**	★	25	125	12.5	23.5	10	19	0.8
M12	**SC25M12S245LW**	★	25	245	12.5	23.5	10	19	1.5
M16	**SC32M16S140SW**	★	32	140	17	28.5	15	24	1.4
M16	**SC32M16S280LW**	★	32	280	17	28.5	15	24	2.8

SPARE PARTS ➢ M001
TECHNICAL DATA ➢ N001

SCREW-IN HOLDERS

■HSK63A SHANK ARBOR



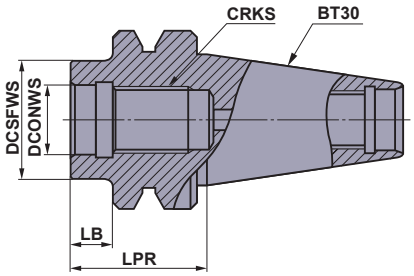
Metric Standard

Through coolant compatible

CRKS	Order Number	Stock	Dimensions (mm)				WT (kg)
			DCONWS	DCSFWS	LPR	LB	
M8	**SC16M08S22-HSK63A**	★	8.5	14.5	48	22	0.7
M10	**SC20M10S24-HSK63A**	★	10.5	18.5	50	24	0.7
M12	**SC25M12S27-HSK63A**	★	12.5	23.5	53	27	0.7
M16	**SC32M16S28-HSK63A**	★	17	28.5	54	28	0.8

Note 1) The HSK63A shank type has a built-in coolant pipe for installation.

■BT30 SHANK ARBOR

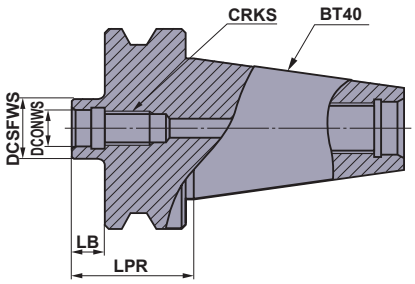


Metric Standard

Through coolant compatible

CRKS	Order Number	Stock	Dimensions (mm)				WT (kg)
			DCONWS	DCSFWS	LPR	LB	
M8	**SC16M08S10-BT30**	★	8.5	14.5	32	10	0.4
M10	**SC20M10S10-BT30**	★	10.5	18.5	32	10	0.4
M12	**SC25M12S10-BT30**	★	12.5	23.5	32	10	0.4
M16	**SC32M16S10-BT30**	★	17	28.5	32	10	0.4

■BT40 SHANK ARBOR



Metric Standard

Through coolant compatible

CRKS	Order Number	Stock	Dimensions (mm)				WT (kg)
			DCONWS	DCSFWS	LPR	LB	
M8	**SC16M08S10-BT40**	★	8.5	14.5	37	10	1
M10	**SC20M10S10-BT40**	★	10.5	18.5	37	10	1
M12	**SC25M12S10-BT40**	★	12.5	23.5	37	10	1
M16	**SC32M16S10-BT40**	★	17	28.5	37	10	1

HOW TO INSTALL THE SCREW-IN HEAD

①Thoroughly clean the clamp section of the head and the arbor with an air blower or brush before installation.

②Tighten the head at the recommended torque and ensure that there is no gap between the head and arbor.

Screw Size	Recommended Torque (lbf-ft)	Wrench Size (mm)
M8	17.1	10
M10	33.8	14
M12	59.2	19
M16	66.7	24

- Cutting tools become extremely hot during cutting. Never touch them with bare hands after operation as this may produce risk of injuries or burns.
- Do not handle the cutting tools with bare hands as this may cause injuries.

ROTATING INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✱ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp

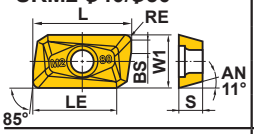
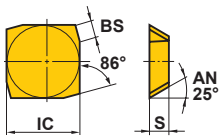
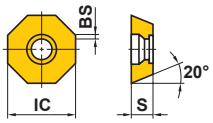
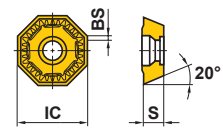
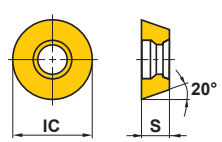
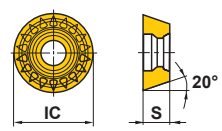
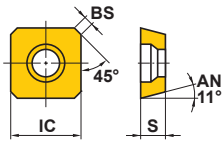
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated F7030	Coated VP15TF	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi10	Dimensions (inch) L	LE	W1	S	BS	RE
BAE500	**AEMW150304ER**	AEMW150304ER	M	E			●	★		●		.657	.598	—	.125	—	.016
	AEMW150308ER	AEMW150308ER	M	E			●	★		●		.654	.583	—	.125	—	.031
BAE600	**AEMW19T304ER**	AEMW19T304ER	M	E			●			●		.793	.724	.500	.156	—	.016
	AEMW19T308ER	AEMW19T308ER	M	E			●			●		.791	.709	.500	.156	—	.031
BAP300	**APGT1135PDFR-G2**	APGT1135PDFR-G2	G	F							●	.445	.382	.250	.138	.047	.031
BAP300 SRM2	**APMT1135PDER-H1**	APMT1135PDER-H1	M	E		●		★				.442	.354	.250	.138	.059	.016
	APMT1135PDER-H2	APMT1135PDER-H2	M	E	●	●		●				.442	.354	.250	.138	.047	.031
	APMT1135PDER-H6	APMT1135PDER-H6	M	E	★							.437	.354	.250	.138	.016	.094
BAP300 SRM2	**APMT1135PDER-M0**	APMT1135PDER-M0	M	E	●							.442	.354	.250	.138	.071	.008
	APMT1135PDER-M1	APMT1135PDER-M1	M	E	●							.442	.354	.250	.138	.059	.016
	APMT1135PDER-M2	APMT1135PDER-M2	M	E	●	●		●				.440	.354	.250	.138	.047	.031
BAP400	**APGT1604PDFR-G2**	APGT1604PDFR-G2	G	F							●	.670	.551	.375	.187	.055	.031
BAP400 SRM2 SRM2 ϕ40/ϕ50	**APMT1604PDER-H1**	APMT1604PDER-H1	M	E	★							.670	.551	.375	.187	.067	.016
	APMT1604PDER-H2	APMT1604PDER-H2	M	E	●	●		●		●		.674	.551	.375	.187	.055	.031
	APMT1604PDER-H4	APMT1604PDER-H4	M	E	★							.672	.551	.375	.187	.016	.063
	APMT1604PDER-H6	APMT1604PDER-H6	M	E	★							.667	.551	.375	.187	.016	.094
	APMT1604PDER-H8	APMT1604PDER-H8	M	E	★							.661	.551	.375	.187	.016	.126

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✠ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp
S : Chamfer + Round **T** : Chamfer

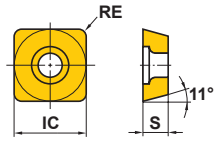
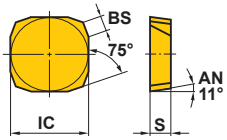
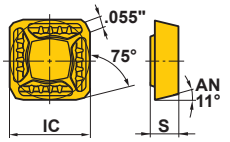
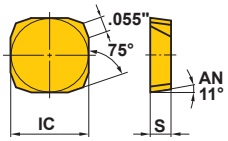
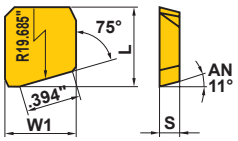
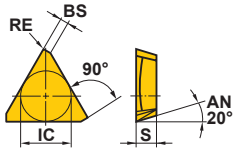
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated F7010	Coated F7030	Coated VP15TF	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide HTi10	Dimensions (inch) IC	L	LE	W1	S	BS	RE
BAP400 **SRM2** **SRM2 ϕ40/ϕ50** 	**APMT1604PDER-M2**	APMT1604PDER-M2	M	E		●	●			●		–	.673	.551	.375	.187	.055	.031
BF407  Right hand insert shown.	**SFAN42ZFFR2**	SFAN1203ZFFR2	A	F							★	.500	–	–	–	.125	.094	–
	SFAN42ZFFL2	SFAN1203ZFFL2	A	F							★	.500	–	–	–	.125	.094	–
	SFCN42ZFFR2	SFCN1203ZFFR2	A	F							●	.500	–	–	–	.125	.094	–
BOE 	**OEMX12T3ETR1**	OEMX12T3ETR1	M	T					●	●		.500	–	–	–	.156	.039	–
	OEMX12T3ESR1	OEMX12T3ESR1	M	S		●						.500	–	–	–	.156	.039	–
	OEMX1705ETR1	OEMX1705ETR1	M	T	●		●		●	●		.669	–	–	–	.197	.055	–
	OEMX1705ESR1	OEMX1705ESR1	M	S		●						.669	–	–	–	.197	.055	–
BOE 	**OEMX12T3EER1-JS**	OEMX12T3EER1-JS	M	E		★						.500	–	–	–	.156	.039	–
	OEMX12T3ETR1-JS	OEMX12T3ETR1-JS	M	T					●			.500	–	–	–	.156	.039	–
	OEMX1705EER1-JS	OEMX1705EER1-JS	M	E		★						.669	–	–	–	.197	.055	–
	OEMX1705ETR1-JS	OEMX1705ETR1-JS	M	T			●		●			.669	–	–	–	.197	.055	–
BOE 	**REMX1705EN**	REMX1705EN	M	E		●						.679	–	–	–	.205	–	–
	REMX1705SN	REMX1705SN	M	S		★						.679	–	–	–	.205	–	–
BOE 	**REMX12T3EN-JS**	REMX12T3EN-JS	M	E		●						.500	–	–	–	.164	–	–
	REMX1705EN-JS	REMX1705EN-JS	M	E		●						.679	–	–	–	.205	–	–
BSP 	**SPMB1204APT**	SPMB1204APT	M	T				●				.500	–	–	–	.187	.055	–

ROTATING INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◕ : General Cutting
✲ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp
S : Chamfer + Round **T** : Chamfer

Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated F7010	Coated MC5020	Coated VP15TF	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi05T	Carbide HTi10	IC	L	W1	S	BS	RE
CFSP 	**SPMW321**	SPMW090304	M	E*			●	★	★	★	★		★	.375	–	–	.125	–	.016
	SPMW322	SPMW090308	M	E*			★	★	★	★	★		★	.375	–	–	.125	–	.031
FBP415  Right hand insert shown.	**SPEN42EEER1**	SPEN1203EEER1	E	E	●	●							★	.500	–	–	.125	.055	–
	SPEN42EEEL1	SPEN1203EEEL1	E	E		●							★	.500	–	–	.125	.055	–
FBP415 	**SPER42EEER-JS**	SPER1203EEER-JS	E	E		●								.500	–	–	.125	–	–
FBP415  Right hand insert shown.	**SPNN42EEER1**	SPNN1203EEER1	N	E		●							★	.500	–	–	.125	–	–
	SPNN42EEEL1	SPNN1203EEEL1	N	E									★	.500	–	–	.125	–	–
FBP415  Right hand insert shown.	**WPC42EEER10C**	WPC42EEER10C	C	E								●		–	.597	.500	.125	–	–
	WPC42EEEL10C	WPC42EEEL10C	C	E								★		–	.597	.500	.125	–	–
NSE300 **For improved wall accuracy** 	**TECN32PEFR1W**	TECN1603PEFR1W	C	F									★	.375	–	–	.125	.055	.016
	TECN32PEER1W	TECN1603PEER1W	C	E									★	.375	–	–	.125	.055	.016
	TECN32PETR1W	TECN1603PETR1W	C	T					★	★	★			.375	–	–	.125	.055	.016

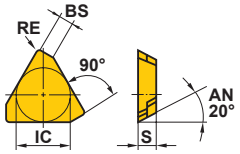
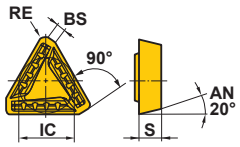
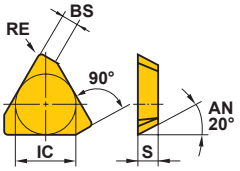
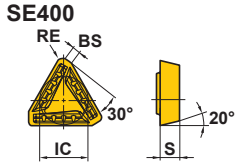
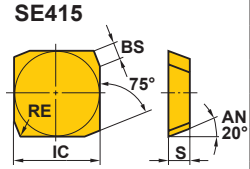
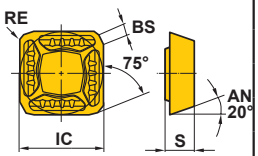
* Grade NX2525 and NX4545 have “T” honing. Grade HTi10 has “F” honing.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✱ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp **S** : Chamfer + Round
T : Chamfer **X** : Round (Small)

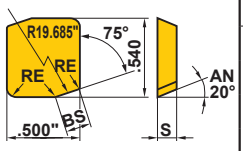
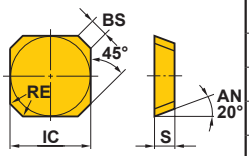
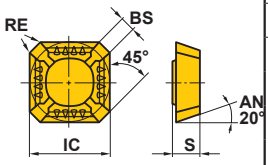
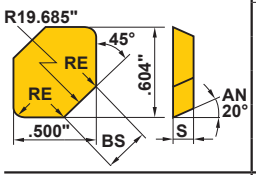
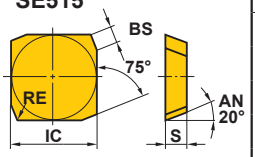
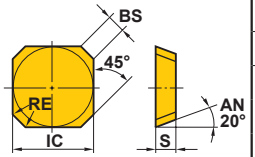
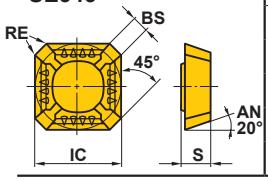
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated					Cermet		Carbide		Dimensions (inch)			
					F7010	F7030	MC5020	VP15TF	UP20M	NX2525	NX4545	UTi20T	HTi10	IC	S	BS	RE
NSE300 	**TEEN32PEFR1**	TEEN1603PEFR1	E	F									●	.375	.125	.055	.016
	TEEN32PEER1	TEEN1603PEER1	E	E				●					●	.375	.125	.055	.016
	TEEN32PETR1	TEEN1603PETR1	E	T					●	★	●	●		.375	.125	.055	.016
	TEEN32PESR1	TEEN1603PESR1	E	S	●	★								.375	.125	.055	.016
NSE300 	**TEER32PEER-JS**	TEER1603PEER-JS	E	E	●							★		.375	.125	.055	.016
NSE400 **SE400** 	**TECN43PEFR1**	TECN2204PEFR1	C	F									●	.500	.187	.055	.039
	TECN43PEER1	TECN2204PEER1	C	E									★	.500	.187	.055	.039
	TECN43PETR1	TECN2204PETR1	C	T						★	★	★		.500	.187	.055	.039
	TEEN43PEFR1	TEEN2204PEFR1	E	F									●	.500	.187	.055	.039
	TEEN43PEER1	TEEN2204PEER1	E	E				●					●	.500	.187	.055	.039
	TEEN43PETR1	TEEN2204PETR1	E	T					●	★	●	●		.500	.187	.055	.039
	TEEN43PESR1	TEEN2204PESR1	E	S	●	★								.500	.187	.055	.039
NSE400 **SE400** 	**TEER43PEER-JS**	TEER2204PEER-JS	E	E	★							★		.500	.187	.055	.039
SE415  Right hand insert shown.	**SEEN42EFFR1**	SEEN1203EFFR1	E	F									●	.500	.125	.055	.039
	SEEN42EFER1	SEEN1203EFER1	E	E	●			●						.500	.125	.055	.039
	SEEN42EFTR1	SEEN1203EFTR1	E	T						●	●			.500	.125	.055	.039
	SEEN42EFSR1	SEEN1203EFSR1	E	S	★	★								.500	.125	.055	.039
SE415 	**SEER42EFER-JS**	SEER1203EFER-JS	E	E	★	★								.500	.125	.055	.039

ROTATING INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✱ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp **S** : Chamfer + Round
T : Chamfer **X** : Round (Small)

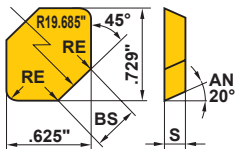
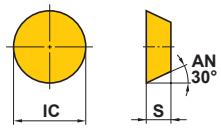
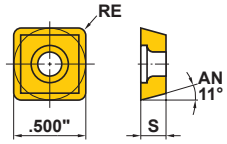
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated F7010	Coated F7030	Coated MC5020	Coated VP15TF	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide HTi05T	Carbide HTi10	Dimensions (inch) IC	S	BS	RE
SE415 	**WEC42EFER5C**	WEC42EFER5C	C	E								★		–	.125	.197	.039
	WEC42EFTR5C	WEC42EFTR5C	C	T						●				–	.125	.197	.039
SE445 	**SECN42AFTN1**	SECN1203AFTN1	C	T							★			.500	.125	.055	.039
	SEEN42AFFN1	SEEN1203AFFN1	E	F									●	.500	.125	.055	.039
	SEEN42AFEN1	SEEN1203AFEN1	E	E				●						.500	.125	.055	.039
	SEEN42AFTN1	SEEN1203AFTN1	E	T	●			●		●	●			.500	.125	.055	.039
	SEEN42AFSN1	SEEN1203AFSN1	E	S		●	●	●						.500	.125	.055	.039
	SEEN42AFXN1	SEEN1203AFXN1	E	X				●						.500	.125	.055	.039
SE445 	**SEER42AFEN-JS**	SEER1203AFEN-JS	E	E	●	●	●	●						.500	.125	.055	.039
	SEER42AFXN-JS	SEER1203AFXN-JS	E	X				●						.500	.125	.055	.039
SE445 	**WEC42AFTR5C**	WEC42AFTR5C	C	T						●				–	.125	.197	.039
SE515  Right hand insert shown.	**SEEN53EFER1**	SEEN1504EFER1	E	E				★						.625	.187	.055	.039
SE545 	**SEEN53AFEN1**	SEEN1504AFEN1	E	E				●						.625	.187	.055	.039
	SEEN53AFTN1	SEEN1504AFTN1	E	T	●					●	●			.625	.187	.055	.039
	SEEN53AFSN1	SEEN1504AFSN1	E	S		●	●							.625	.187	.055	.039
SE545 	**SEER53AFEN-JS**	SEER1504AFEN-JS	E	E		★	★							.625	.187	.055	.039

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✲ : Unstable Cutting

Edge Preparation :
E : Round **S** : Chamfer + Round
T : Chamfer

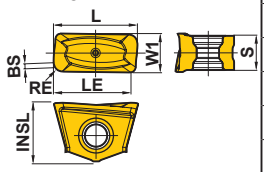
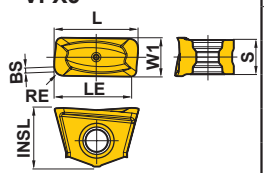
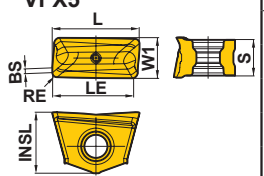
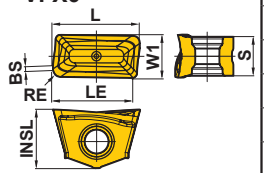
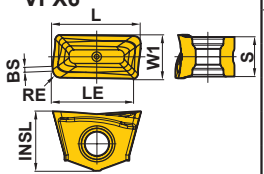
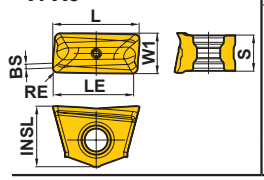
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated F7030	Coated VP15TF	Coated UP20M	Cermet NX2525	Carbide UTi20T	Carbide HTi05T	Carbide HTi10	Dimensions (inch) IC	S	BS	RE
SE545 	**WEC53AFER5C**	WEC53AFER5C	C	E						●		–	.187	.197	.039
	WEC53AFTR5C	WEC53AFTR5C	C	T				★				–	.187	.197	.039
SG20 	**RGEN2004EN**	RGEN2004M0EN	E	E		★						.787	.187	–	–
	RGEN2004SN	RGEN2004M0SN	E	S	★		★		★		★	.787	.187	–	–
TBE1 	**SPMM432A**	SPMT120408-A	M	E			●		●			–	.187	–	.031

ROTATING INSERTS

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✱ : Unstable Cutting

Edge Preparation :
E : Round

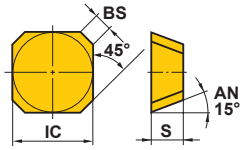
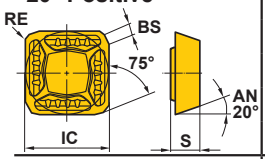
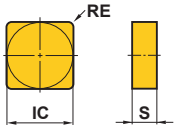
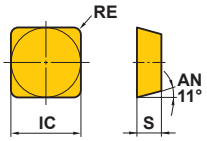
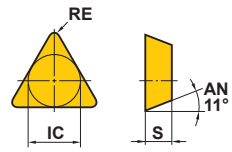
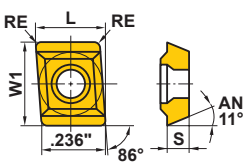
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated MP9130	Dimensions (inch) L	LE	W1	INSL	S	BS	RE
VFX5 	**XNMU160708R-MS**	XNMU160708R-MS	M	E	●	.630	.528	.276	.437	.256	.039	.031
	XNMU160712R-MS	XNMU160712R-MS	M	E	●	.630	.543	.276	.437	.256	.039	.047
	XNMU160716R-MS	XNMU160716R-MS	M	E	●	.630	.543	.276	.437	.256	.039	.063
	XNMU160724R-MS	XNMU160724R-MS	M	E	●	.630	.543	.276	.437	.256	.039	.094
	XNMU160732R-MS	XNMU160732R-MS	M	E	●	.681	.567	.276	.437	.256	—	.126
	XNMU160740R-MS	XNMU160740R-MS	M	E	●	.744	.598	.276	.437	.256	—	.157
VFX5 	**XNMU160708R-HS**	XNMU160708R-HS	M	E	●	.630	.528	.276	.437	.256	.039	.031
VFX5 	**XNMU160708R-LS**	XNMU160708R-LS	M	E	●	.630	.528	.276	.437	.256	.039	.031
VFX6 	**XNMU190912R-MS**	XNMU190912R-MS	M	E	●	.752	.650	.374	.500	.335	.039	.047
	XNMU190916R-MS	XNMU190916R-MS	M	E	●	.752	.650	.374	.500	.335	.039	.063
	XNMU190924R-MS	XNMU190924R-MS	M	E	●	.752	.654	.374	.500	.335	.039	.094
	XNMU190932R-MS	XNMU190932R-MS	M	E	●	.795	.673	.374	.500	.335	—	.126
	XNMU190940R-MS	XNMU190940R-MS	M	E	●	.858	.701	.374	.500	.335	—	.157
	XNMU190950R-MS	XNMU190950R-MS	M	E	●	.858	.701	.374	.500	.335	—	.197
VFX6 	**XNMU190912R-HS**	XNMU190912R-HS	M	E	●	.752	.650	.374	.500	.335	.039	.047
VFX6 	**XNMU190912R-LS**	XNMU190912R-LS	M	E	●	.752	.650	.374	.500	.335	.039	.047

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Workpiece Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-Ferrous Metal
	S	Heat resistant Alloys, Titanium Alloys
	H	Hardened Steel

Cutting Conditions (Guide) :
● : Stable Cutting
◐ : General Cutting
✱ : Unstable Cutting

Edge Preparation :
E : Round **F** : Sharp
T : Chamfer

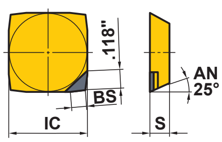
Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	Edge Preparation	Coated				Cermet	Carbide	Dimensions (inch)					
					F7010	F7030	MC5020	VP15TF	UP20M	NX2525	NX4545	UTi20T	HTi10	IC	L	W1	S	BS	RE
Corner Angle 45° 15° Positive 	**SDEN42AEN**	SDEN1203AEN	E	T						★				.500	—	—	.125	.047	—
Corner Angle 45° 20° Positive 	**SEER43AFEN-JS**	SEER1204AFEN-JS	E	E	●									.500	—	—	.187	.055	.039
Negative 	**SNMN432**	SNMN120408	M	E			★			★		★★		.500	—	—	.187	—	.031
	SNMN433	SNMN120412	M	E			★			★		★		.500	—	—	.187	—	.047
11° Positive 	**SPMN421**	SPMN120304	M	E ✱1				★				★★		.500	—	—	.125	—	.016
	SPMN421T	SPMN120304T	M	T						★				.500	—	—	.125	—	.016
	SPMN422	SPMN120308	M	E ✱1		★		●				●●		.500	—	—	.125	—	.031
	SPMN423	SPMN120312	M	E ✱1		★		★				★★		.500	—	—	.125	—	.047
	SPMN432	SPMN120408	M	E			★					★★		.500	—	—	.187	—	.031
	SPMN433	SPMN120412	M	E			★					●		.500	—	—	.187	—	.047
	SPMN532	SPMN150408	M	E								★		.625	—	—	.187	—	.031
11° Positive  Right hand insert shown.	**TPMN321**	TPMN160304	M	E ✱2		★		●★	★			●●		.375	—	—	.125	—	.016
	TPMN322	TPMN160308	M	E ✱2		★		●★	★			●●		.375	—	—	.125	—	.031
	TPMN323	TPMN160312	M	E ✱1				★					●	.375	—	—	.125	—	.047
	TPMN431	TPMN220404	M	E								●		.500	—	—	.187	—	.031
	TPMN432	TPMN220408	M	E ✱1		★		●★				●★		.500	—	—	.187	—	.031
	TPMN433	TPMN220412	M	E ✱1		★		★				●●		.500	—	—	.187	—	.047
	**JPMT060204-E**	JPMT060204-E	M	E				★★						—	.276	.313	.094	—	.016

✱1 Grade HTi10 has “F” honing.
✱2 Grade HTi10 has “F” honing, grade NX2525 has “T” honing.

CBN AND PCD

Workpiece Material	N	Non-Ferrous Metal			General Cutting (MD220)		Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

Cutter Type / Insert Geometry	Order Number	(ISO) Number	Class	PCD MD220	Dimensions (inch) IC	S	BS
BF407	**SFCN42ZFFR2**	SFCN1203ZFFR2	C	●	.500	.125	.094



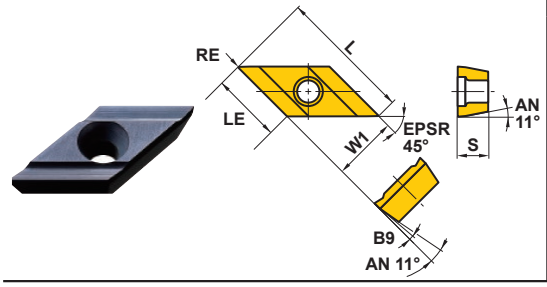
K

INDEXABLE MILLING

● : USA Stock ★ : Stocked in Japan
<1 insert in one case, TAWC : 10 inserts in one case>

DRILLING INSERTS

Insert for TAW Drill Chamfering Module

Shape Geometry	Order Number	Coated		Dimensions (mm)					
		VP15TF		L	LE	WI	S	RE	B9
	TAWC12T301-45GM	★		17.4	9.05	8.5	3.97	0.1	5°