DIA EDGE

APX 3000 4000

MULTI-FUNCTIONAL INDEXABLE CUTTER

ABOUT OUR BRAND

Your manufacturing success is our success.

It's simple. We want to provide high-quality cutting tool products that help deliver unparalleled performance and control for you to manufacture precisely perfect products every day.

Our long heritage of building partnerships through cutting tool solutions to metal working manufacturers, like yours, has given Mitsubishi Materials USA a solid reputation as an industry leader. We understand the importance of getting it right the first time by delivering high-quality cutting tool product brands to help overcome machining challenges to improve machining processes.

Your success is our success and is the driving force behind our innovative products. Our product brands, DIAEDGE and MOLDINO, are trusted globally in the metal manufacturing and die & mold industries for delivering expertly-designed manufactured tools of the trade for highly specialized industries like yours.

With the acquisition of MOLDINO Tool Engineering, Ltd, our traditional Mitsubishi Materials USA cutting tool product line is now sold under the DIAEDGE product brand name.

Brands you can trust:

MITSUBISHI MATERIALS U.S.A.

TRUSTED PRODUCT BRANDS

DIAEDGE MOLDINO

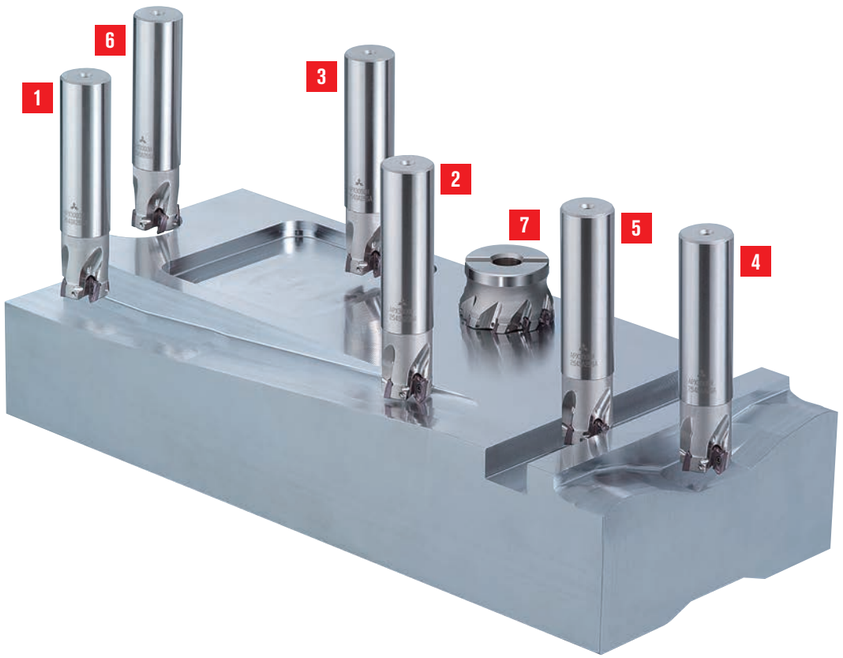
DIA EDGE

Multi-functional Indexable Cutter

APX3000/4000

Multi-functional

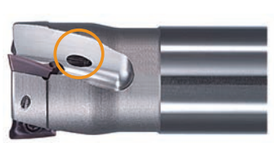
The APX is highly effective in various 3-D machining operations including excellent ramping capabilities.



1 Shoulder Milling
2 Ramping
3 Pocket Milling
4 3-D Profile Milling
5 Slot Milling
6 Helical Milling
7 Face Milling

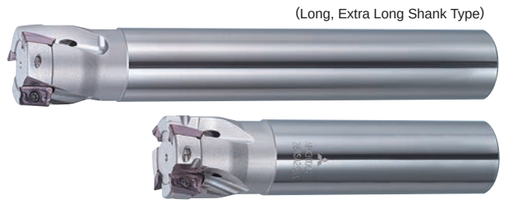
High Rigidity Cutter Bodies

Rigidity has been increased by using a larger amount of backing metal behind the insert. Resistance to corrosion and abrasion on the cutter bodies made possible by using a superior highly heat resistant alloy and a special surface treatment.The cutter bodies are designed with through coolant holes to improve cooling and chip disposal.



Effective Deep Hole Machining

APX3000/4000, an extra long shank type is now available for difficult to reach applications.



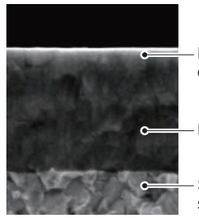
(Long, Extra Long Shank Type)

(Standard Shank Type)

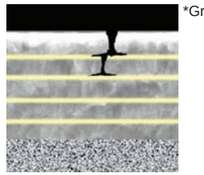
Insert Grades for a Wide Range of Materials

MP6100,MP7100,MP9100 **- With Accumulated Al-Ti-Cr-N Based PVD Coating**

PVD coatings have properties such as toughness, low coefficient of friction and excellent welding, wear and heat resistance. This results in tough, precision grades such as MP6100, MP7100 and MP9100.



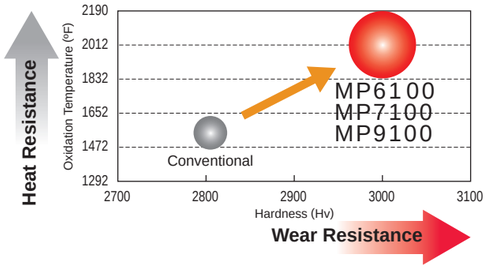
*Graphical Representation.

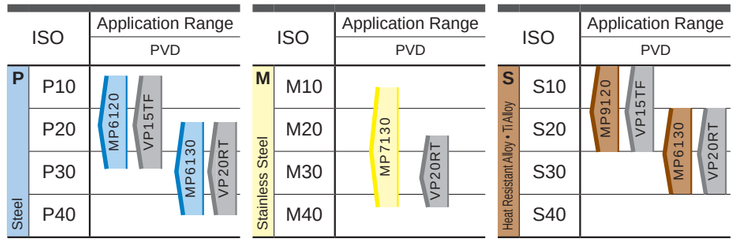


Multilayering of the coating prevents any cracks penetrating through to the substrate.

TOUGH-Σ Technology

A fusion of the separate coating technologies; PVD and multilayering realizes extra toughness.





CVD Coated MC5020

With high wear resistance and outstanding fracture resistance, MC5020 is ideal for milling for cast irons.

MIRACLE **Coated** VP15TF

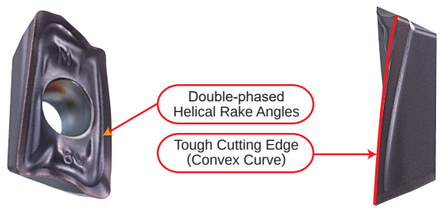
Stable machining properties are enabled when the coating is combined with a high wear and fracture resistant carbide substrate.

MIRACLE **Coated** VP20RT

Ideal for heavy interrupted cutting of stainless and general steels because of the excellent fracture resistance properties.

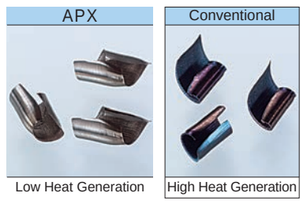
Low Cutting Resistance Inserts

Advanced simulation technology has been utilized to develop the inserts. Efficient machining on low rigidity machines and workpiece material is now possible and is ideal for thin wall or extended reach applications.



Ideal Heat Disposal and Chip Control

Heat generated during cutting has been reduced due to the APX's special geometry. Ideal chip shape formed by the insert for easy disposal.



<Cutting Conditions>
Workpiece Material : Alloy Steel
Tool : APX3000UR164SA16SA
Insert : AOMT123608PEER-M
Grade : VP15TF
Cutting Speed : vc=490 SFM
Feed per Tooth : fz=.006 IPT
Width of Cut : ae=.236 inch
Depth of Cut : ap=.236 inch

Insert Size

APX4000	APX3000
Max. Depth of Cut .591"	Max. Depth of Cut .394"
	

Insert Chip Breaker

General Use **M Breaker** (APX3000, APX4000)	Strong Cutting Edge Type **H Breaker** (APX3000, APX4000)	Aluminum Alloy Machining (Ground & Polished) **GM Breaker** (APX3000)
Rake Angle: 25°	Rake Angle: 7°	Rake Angle: 25°
		

Note 1) Rake angle when the insert is set in the cutter body.

Multi-functional Indexable Cutter
MULTI-FUNCTIONAL MILLING

90° KAPR

APX3000

P M K N S H

- Low resistance insert and high rigidity body.
- Ideal chip control.
- High wall accuracy can be produced by using this cutter and unique insert geometry.

Including Flat faces

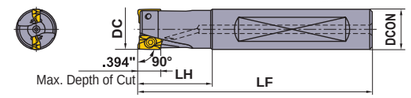
Fig.1


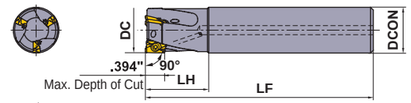
Fig.2


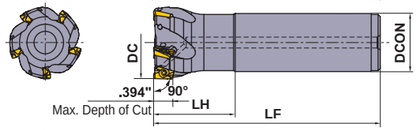
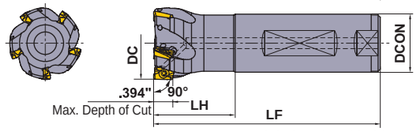
Fig.3


Fig.4


Right hand tool holder only.

■ Shank Type

With Coolant Hole

Type		RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions(inch) DC	DCON	LF	LH	RMPX	Fig.	✶1 Insert Screw	Wrench	Anti-seize Lubricant
Standard	A Holders	.008 I .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 I .125	**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

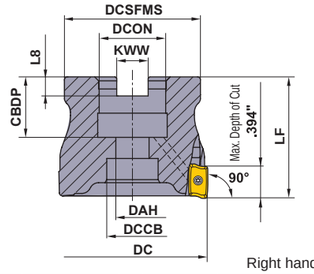
✶1 Clamp Torque (lbf-in) : TPS25=8.9, TPS25−1=8.9

● : **USA Stock**

Type		RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions(inch) DC	DCON	LF	LH	RMPX	Fig.	✶1 Insert Screw	Wrench	Anti-seize Lubricant
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 .125	**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

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

Multi-functional Indexable Cutter



KAPR : 90°
GAMP : +7°–+21° T : +15°–+27°
GAMF : +15°–+27° I : +7°–+21°

■ Arbor Type

With Coolant Hole

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB	RMPX	✶1 Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
A Holders	.008 – .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 – .125	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

✶1 Clamp Torque (lbf-in) : TPS25–1=8.9
✶2 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"	.125"

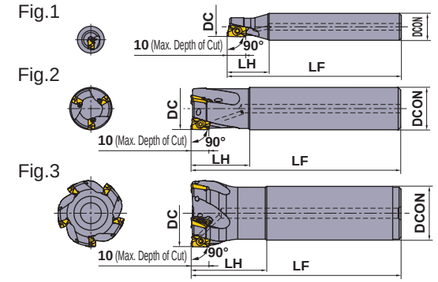
● : USA Stock ★ : Stocked in Japan

Metric Standard

■ Straight Shank Type (A Holders)

With Coolant Hole

Right hand tool holder only.



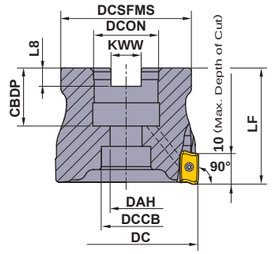
Type	RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions (mm) DC	DCON	LF	LH	RMPX	Fig.	✶1 Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
Standard	.008 – .079	APX3000R121SA16SA	★	1	12	16	85	25	6.0°	1	TPS25	TIP07F	MK1KS	AO○T1236
		APX3000R141SA16SA	★	1	14	16	85	25	6.0°	1	TPS25	TIP07F	MK1KS	
		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	

Note) When using inserts with corner radius RE≥.094" (2.4mm), B-Holders are required as shown on page 10.
✶1 Clamp Torque (lbf-in) : TPS25=8.9, TPS25–1=8.9

Multi-functional Indexable Cutter

Metric Standard

For Metric Arbors



■ Arbor Type (A Holders)

With Coolant Hole

KAPR : 90°
GAMP :+7°—+21° T :+15°—+27°
GAMF : +15°—+27° I :+7°—+21°

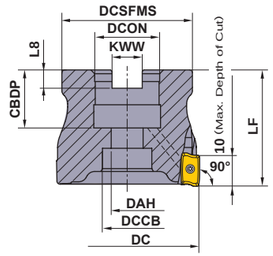
Right hand tool holder only.

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)									RMPX	★1 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

Note) When using inserts with corner radius RE≥.094"(2.4mm), B-Holders are required as shown on page 10.
★1 Clamp Torque (lbf-in) : TPS25—1=8.9
★2 Set bolt not included.

Metric Standard

For Inch Arbors



■ Arbor Type (A Holders)

With Coolant Hole

KAPR : 90°
GAMP :+7°—+21° T :+15°—+27°
GAMF : +15°—+27° I :+7°—+21°

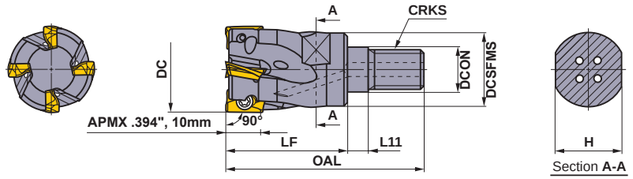
Right hand tool holder only.

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]									RMPX	★1 Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB					
.008 I .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

Note) When using inserts with corner radius RE≥.094"(2.4mm), B-Holders are required as shown on page 10.
★1 Clamp Torque (lbf-in) : TPS25—1=8.9
★2 Set bolt not included.

★ : Stocked in Japan.

Multi-functional Indexable Cutter



■ Screw-in Type

With Coolant Hole

Right hand tool holder only.

DC	Order Number	Stock	Number of Teeth	Dimensions (inch)							WT (lbs)	✶1 Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
				LF	OAL	DCON	DCSFMS	L11	H	✶2 CRKS					
.625	**APX3000UR102AM08A30**	●	2	1.181	1.890	.335	.512	.236	.394	M8	.2	TPS25	TIP07F	MK1KS	AO□T1236
.750	**APX3000UR122AM10A30**	●	2	1.181	1.929	.413	.709	.236	.551	M10	.2	TPS25	TIP07F	MK1KS	AO□T1236
.750	**APX3000UR123AM10A30**	●	3	1.181	1.929	.413	.709	.236	.551	M10	.2	TPS25	TIP07F	MK1KS	AO□T1236
.875	**APX3000UR142AM10A30**	●	2	1.181	1.929	.413	.709	.236	.551	M10	.2	TPS25-1	TIP07F	MK1KS	AO□T1236
.875	**APX3000UR143AM10A30**	●	3	1.181	1.929	.413	.709	.236	.551	M10	.2	TPS25-1	TIP07F	MK1KS	AO□T1236
1.000	**APX3000UR163AM12A35**	●	3	1.378	2.244	.492	.827	.236	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.000	**APX3000UR164AM12A35**	●	4	1.378	2.244	.492	.827	.236	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.125	**APX3000UR184AM12A35**	●	4	1.378	2.244	.492	.827	.236	.748	M12	.4	TPS25-1	TIP07F	MK1KS	AO□T1236
1.250	**APX3000UR205AM16A40**	●	5	1.575	2.480	.669	1.142	.236	.945	M16	.7	TPS25-1	TIP07F	MK1KS	AO□T1236
1.375	**APX3000UR225AM16A40**	●	5	1.575	2.480	.669	1.142	.236	.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 Coolant Hole

DC	Order Number	Stock	Number of Teeth	Dimensions (mm)							WT (kg)	✶1 Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
				LF	OAL	DCON	DCSFMS	L11	H	✶2 CRKS					
16	**APX3000R162M08A30**	★	2	30	48	8.5	13	6	10	M8	0.1	TPS25	TIP07F	MK1KS	AO□T1236
18	**APX3000R182M08A30**	★	2	30	48	8.5	13	6	10	M8	0.1	TPS25	TIP07F	MK1KS	AO□T1236
20	**APX3000R203M10A30**	★	3	30	49	10.5	18	6	14	M10	0.1	TPS25	TIP07F	MK1KS	AO□T1236
22	**APX3000R223M10A30**	★	3	30	49	10.5	18	6	14	M10	0.1	TPS25-1	TIP07F	MK1KS	AO□T1236
25	**APX3000R254M12A35**	★	4	35	57	12.5	21	6	19	M12	0.2	TPS25-1	TIP07F	MK1KS	AO□T1236
28	**APX3000R284M12A35**	★	4	35	57	12.5	21	6	19	M12	0.2	TPS25-1	TIP07F	MK1KS	AO□T1236
30	**APX3000R304M16A40**	★	4	40	63	17	29	6	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
32	**APX3000R325M16A40**	★	5	40	63	17	29	6	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
35	**APX3000R355M16A40**	★	5	40	63	17	29	6	24	M16	0.3	TPS25-1	TIP07F	MK1KS	AO□T1236
40	**APX3000R406M16A40**	★	6	40	63	17	29	6	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>

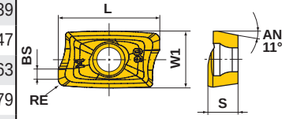
Inserts

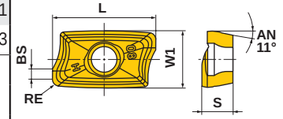
Workpiece Material: **P** Steels; **M** Stainless Steels; **K** Cast Irons; **N** Non-ferrous Metals; **S** Heat Resistant Alloys, Titanium Alloys; **H** Hardened Steels

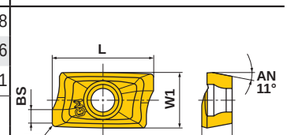
Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✣ : Unstable Cutting

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

Shape	Order Number	Class	Edge Preparation	Coated: MC5020	MP6120	MP6130	MP7130	MP9120	MP9130	VP15TF	VP20RT	Carbide: TF-15	Dimensions (inch) L	W1	S	BS	RE	Geometry
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	.125	
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	



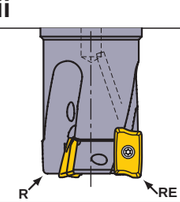




Note) For large R inserts
APX offers various nose radii for inserts, however one holder can not secure every insert radius.
We offer A-Holders that properly secures up to .079" radius.
We offer B-Holders that secures .094", .118" and .125" radius, only for popular inch sizes.
Customers may modify holders 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"	
.125"	

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

Multi-functional Indexable Cutter

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 Steels	≤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 Steels Alloy Steels	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 Steels	≤270HB	MP7130	VP20RT	M	H	590(460—690)	560(425—655)	460(360—525)	460(360—525)
K	Gray Cast Irons	≤350MPa	MC5020	VP15TF	H		820(655—985)	785(620—950)	690(525—850)	460(360—525)
	Ductile Cast Irons	≤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 Steels	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—ϕ16mm) Depth of Cut **ap**	DC ϕ.500"—ϕ.625"(ϕ12—ϕ16mm) Feed per Tooth **fz** (IPT)	DC ϕ.750"—ϕ1.000"(ϕ20—ϕ25mm) Depth of Cut **ap**	DC ϕ.750"—ϕ1.000"(ϕ20—ϕ25mm) Feed per Tooth **fz** (IPT)	DC ϕ1.250"—ϕ3.000"(ϕ28—ϕ100mm) Depth of Cut **ap**	DC ϕ1.250"—ϕ3.000"(ϕ28—ϕ100mm) Feed per Tooth **fz** (IPT)
P	Mild Steels Carbon Steels Alloy Steels	≤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 Steels	≤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 Irons	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 Irons	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)

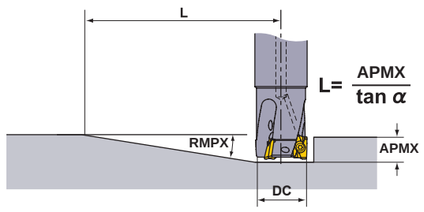
	Workpiece Material	Properties	Cutting Width **ae**	DC ϕ.500"—ϕ.625"(ϕ12—ϕ16mm) Depth of Cut **ap**	DC ϕ.500"—ϕ.625"(ϕ12—ϕ16mm) Feed per Tooth **fz** (IPT)	DC ϕ.750"—ϕ1.000"(ϕ20—ϕ25mm) Depth of Cut **ap**	DC ϕ.750"—ϕ1.000"(ϕ20—ϕ25mm) Feed per Tooth **fz** (IPT)	DC ϕ1.250"—ϕ3.000"(ϕ28—ϕ100mm) Depth of Cut **ap**	DC ϕ1.250"—ϕ3.000"(ϕ28—ϕ100mm) 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 Steels	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.

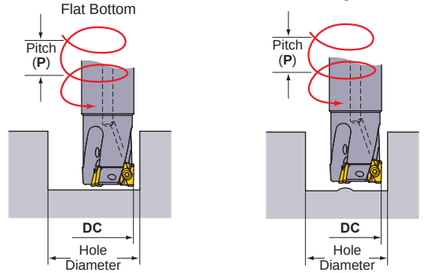
Note 3) In case of coarse and fine pitch cutters, the coarse pitch type is recommended to prevent vibration.
Note 4) For heavy interrupted and unstable cutting, the H breaker is first recommendation.

■ Ramping/Helical Cutting

● **Ramping**



● **Helical Cutting**



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 cutting.

Cutting Edge Diameter **DC** (inch)	Ramping: Maximum Ramping Angle **RMPX**	Ramping: Minimum Distance *1 **L** (inch)	Helical Cutting (Blind Hole, Flat Bottom): Maximum Hole Diameter *2 **DH max.** (inch)	Helical Cutting (Blind Hole, Flat Bottom): Maximum Pitch **P max.** (inch)	Helical Cutting (Blind Hole, Flat Bottom): Minimum Hole Diameter **DH min.** (inch)	Helical Cutting (Blind Hole, Flat Bottom): Maximum Pitch **P max.** (inch)	Helical Cutting (Through Hole): Minimum Hole Diameter **DH min.** (inch)	Helical Cutting (Through Hole): 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

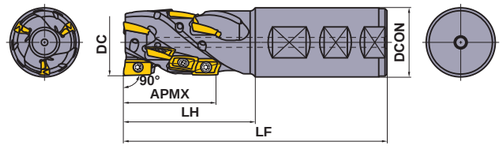
*1 L(=.394"/tanα). Cutters' moving distance until depth of cut reaches .394" at a maximum ramping angle.
*2 In case corner radius of .031". Other than that, find with the below formula.
{(cutting edge diameter DC) - (corner radius) - .008"} x 2
Note 1) When machining highly ductile materials with ramping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

Multi-functional Indexable Cutter

DEEP SHOULDER MILLING

APX3000 Long Edge

P M K N S H



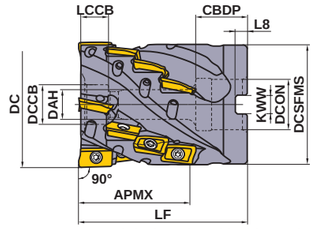
■Shank Type (A Holders)

Right hand tool holder only.

RE	Order Number	Stock	Coolant Hole	★1 No.F	Total	Dimensions (inch)					★2			
		R				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 ★1 Number of Flutes ★2 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 10.
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)

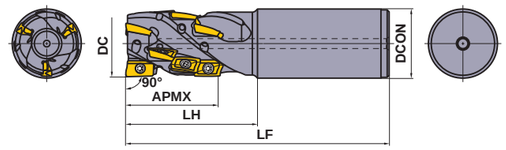
With Coolant Hole

RE	Order Number	Stock	★1 No.F	Total	Dimensions (inch)										★2			
		R			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

★1 Number of Flutes ★2 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 10.
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.

● : USA Stock ★ : Stocked in Japan



Metric Standard

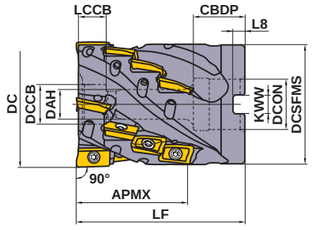
■Shank Type (A Holders)

Right hand tool holder only.

RE (inch)	Order Number	Stock	Coolant Hole	★1 No.F	Total	Dimensions (mm)					★2			
		R				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 ★1 Number of Flutes ★2 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 10.
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	HSC10045	

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

Metric Standard For Metric Arbors

■Shell Type (A Holders)

With Coolant Hole

RE (inch)	Order Number	Stock	★1 No.F	Total	Dimensions (mm)											★2			
		R			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	

★1 Number of Flutes ★2 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 10.
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.

Multi-functional Indexable Cutter

Recommended Cutting Conditions

Cutting Speed

(inch)

Workpiece Material		Insert Grade Priority 1st	Insert Grade Priority 2nd	Chip Breaker		Cutting Width **ae** ≤.25DC	Cutting Width **ae** .25–.75DC	Cutting Width **ae** DC (Slot)
						Cutting Speed **vc** (SFM)		
P	Mild Steels	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 Steels Alloy Steels, Alloy Tool Steels	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 Steels	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 Steels	MP7130		M		490(395–590)	395(330–460)	330(260–395)
K	Gray Cast Irons	MC5020		H		655(490–820)	590(490–690)	
		VP15TF		M	H	590(395–785)	490(330–655)	330(195–460)
	Ductile Cast Irons	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 ø20 Depth of Cut **ap**	DC ø20 Feed per Tooth **fz** (IPT)	DC ø25 Depth of Cut **ap**	DC ø25 Feed per Tooth **fz** (IPT)	DC ø32–ø50 Depth of Cut **ap**	DC ø32–ø50 Feed per Tooth **fz** (IPT)
P	Mild Steels	≤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 Steels Alloy Steels	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 Steels	≤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 Steels	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 Steels	–	≤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 Steels	≤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 Steels	<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 Irons	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 Irons	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

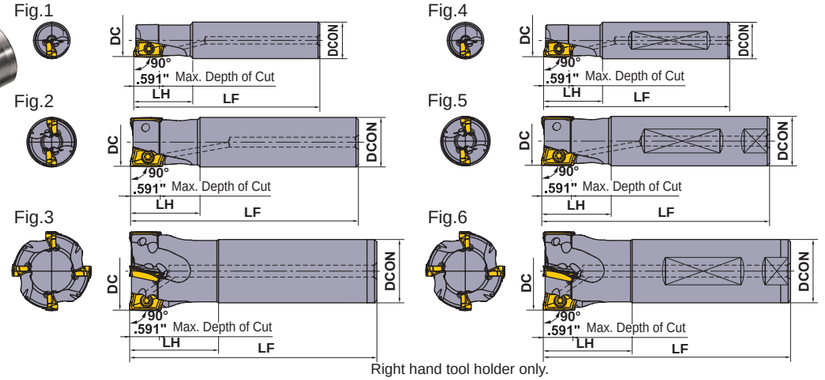
APX4000

P M K N S H

90° KAPR

Including Flat faces

Fig.1 Fig.2 Fig.3 Fig.4 Fig.5 Fig.6



Right hand tool holder only.

Shank Type

With Coolant Hole

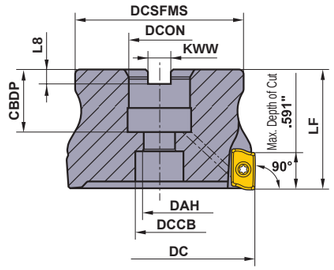
•APX4000UR○○○SA○○ = Ground shank : See figure 1, 2 and 3.
•APX4000UR○○○FA○○ = Flat shank : See figure 4 and 5.

Type		RE (inch)	Order Number	Stock R	Number of Teeth	Dimensions (inch) DC	DCON	LF	LH	RMPX	Fig.	✶1 Insert Screw	Wrench	Anti-seize Lubricant
Standard	A Holders	.016 – .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	.125 – .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 – .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	.125 – .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

Note) When using inserts with corner radius RE≥.125"(3.2mm), B-Holders or C-Holders are required as shown on page 23.
✶1 Clamp Torque (lbf-in) : TPS4=35.6, TPS4S=31, TPS43=35.6

● : USA Stock

Multi-functional Indexable Cutter



■ Arbor Type

With Coolant Hole

KAPR:90°
GAMP:+15°—+22°　T :+21°—+28°
GAMF:+21°—+28°　I :+15°—+22°

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (inch)									RMPX	★1			
			R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB		Insert Screw	Wrench	Anti-seize Lubricant	Coolant thru Set Bolt
A Holders	.016 — .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	.125 — .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

Note) When using inserts with corner radius RE≥.197"(5.0mm), C-Holders are required as shown on page 23.
★1 Clamp Torque (lbf-in) : TPS43=35.6
★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"	.125"	.157"	.197"	.250"

● : USA Stock　★ : Stocked in Japan

Metric Standard

Fig.1

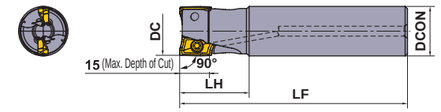
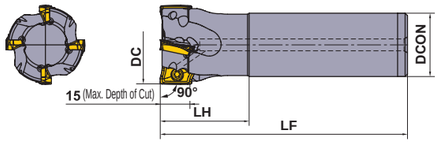


Fig.2



■ Straight Shank Type (A Holders)

With Coolant Hole

Right hand tool holder only.

Type	RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)				RMPX	Fig.	★1			
			R		DC	DCON	LF	LH			Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
Long	.016 — .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 — .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	

Note) When using inserts with corner radius RE≥.125"(3.2mm), B-Holders or C-Holders are required as shown on page 23.
★1 Clamp Torque (lbf-in) : TPS4=35.6, TPS43=35.6

Multi-functional Indexable Cutter

Fig.1

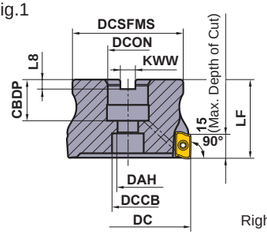
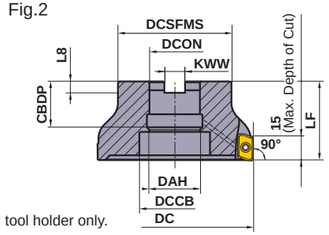
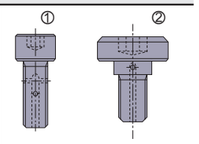


Fig.2



Right hand tool holder only.

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



Metric Standard

For Inch Arbors

■ Arbor Type (A Holders)

With Coolant Hole

KAPR:90°
GAMP:+15°—+22° T :+21°—+28°
GAMF:+21°—+28° I :+15°—+22°

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm) [inch]									WT	RMPX	Fig.	★1			
		R		DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	DCCB	(kg)			Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
.016 I .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	

Note) When using inserts with corner radius RE≥.125"(3.2mm), B-Holders or C-Holders are required as shown on page 23.
★1 Clamp Torque (lbf-in) : TPS43=35.6
★2 Set bolt not included.

★ : Stocked in Japan

Fig.1

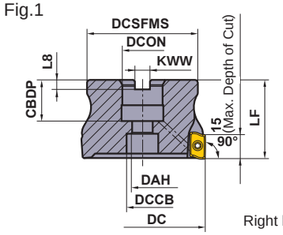
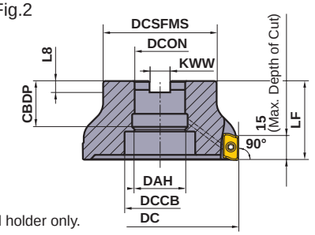
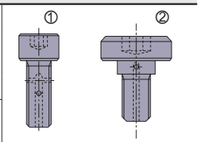


Fig.2



Right hand tool holder only.

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



Metric Standard

For Metric Arbors

■ Arbor Type (A Holders)

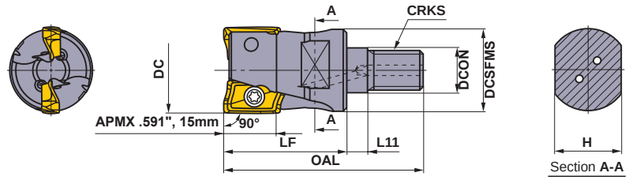
With Coolant Hole

KAPR:90°
GAMP:+15°—+22° T :+21°—+28°
GAMF:+21°—+28° I :+15°—+22°

RE (inch)	Order Number	Stock	Number of Teeth	Dimensions (mm)									WT	RMPX	Fig.	★1			
		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	

Note) When using inserts with corner radius RE≥.125"(3.2mm), B-Holders or C-Holders are required as shown on page 23.
★1 Clamp Torque (lbf-in) : TPS43=35.6
★2 Set bolt not included.

Multi-functional Indexable Cutter



■ Screw-in Type

With Coolant Hole

Right hand tool holder only.

DC	Order Number	Stock	Number of Teeth	Dimensions (inch)							WT	*1 Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
				LF	OAL	DCON	DCSFMS	L11	H	CRKS *2	(lbs)				
1.000	**APX4000UR162AM12A35**	●	2	1.378	2.244	.492	.925	.236	.748	M12	.4	TPS4	TIP15W	MK1KS	AOMT1848
1.125	**APX4000UR182AM12A35**	●	2	1.378	2.244	.492	.925	.236	.748	M12	.4	TPS4	TIP15W	MK1KS	AOMT1848
1.250	**APX4000UR203AM16A40**	●	3	1.575	2.480	.669	1.122	.236	.945	M16	.7	TPS4	TIP15W	MK1KS	AOMT1848
1.375	**APX4000UR223AM16A40**	●	3	1.575	2.480	.669	1.122	.236	.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 Coolant Hole

DC	Order Number	Stock	Number of Teeth	Dimensions (mm)							WT	*1 Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
				LF	OAL	DCON	DCSFMS	L11	H	CRKS *2	(kg)				
25	**APX4000R252M12A35**	★	2	35	57	12.5	23.5	6	19	M12	0.2	TPS4	TIP15W	MK1KS	AOMT1848
28	**APX4000R282M12A35**	★	2	35	57	12.5	23.5	6	19	M12	0.2	TPS4	TIP15W	MK1KS	AOMT1848
32	**APX4000R322M16A40**	★	2	40	63	17	28.5	6	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
32	**APX4000R323M16A40**	★	3	40	63	17	28.5	6	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
35	**APX4000R352M16A40**	★	2	40	63	17	28.5	6	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
35	**APX4000R353M16A40**	★	3	40	63	17	28.5	6	24	M16	0.3	TPS4	TIP15W	MK1KS	AOMT1848
40	**APX4000R403M16A40**	★	3	40	63	17	28.5	6	24	M16	0.3	TPS43	TIP15W	MK1KS	AOMT1848
40	**APX4000R404M16A40**	★	4	40	63	17	28.5	6	24	M16	0.3	TPS43	TIP15W	MK1KS	AOMT1848

*1 Clamp Torque (N • m) : TPS4=35.6, TPS43=35.6
*2 Clamp Torque of the Head (N • m) : M12=59.2, M16=66.7

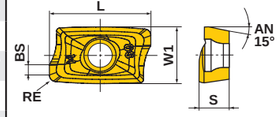
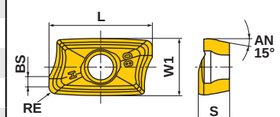
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

Inserts

Workpiece Material		
P	Steels	
M	Stainless Steels	
K	Cast Irons	
S	Heat Resistant Alloys, Titanium Alloys	
H	Hardened Steels	

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

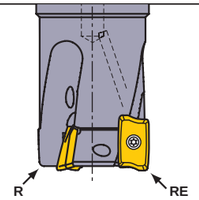
Edge Preparation :
E : Round **F :** Sharp Edge

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	.125	
	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) 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 .125"and .157" 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.125", please machine the holder with a radius form as shown on the right table.



RE	R
.125"	.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 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 Steels	≤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 Steels Alloy Steels	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 Steels	≤270HB	MP7130	VP20RT	M	H	590(460—690)	560(425—655)	460(360—525)	460(360—525)
K	Gray Cast Irons	≤350MPa	MC5020	VP15TF	H		820(655—985)	785(620—950)	690(525—850)	460(360—525)
	Ductile Cast Irons	≤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 Steels	40—55HRC	VP15TF		H		295(230—330)	280(195—330)	230(165—260)	230(165—260)

■ Depth of Cut / Feed per Tooth

(inch)

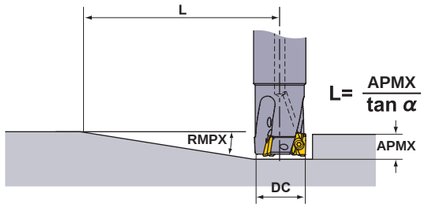
Workpiece Material		Properties	Cutting Width **ae**	Depth of Cut **ap**	Feed per Tooth **fz** (IPT) DC ϕ.750"—ϕ1.500"(ϕ25—ϕ40mm)	DC ϕ2.000"—ϕ3.000"(ϕ50—ϕ80mm)	DC ϕ4.000"(ϕ100—ϕ160mm)
P	Mild Steels Carbon Steels Alloy Steels	≤180HB	≤.5DC	≤.197	.012	.012	.010
				.197—.295	.010	.010	.008
				.295—.394	.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 Steels	≤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 Irons	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 Irons	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 Steels	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.

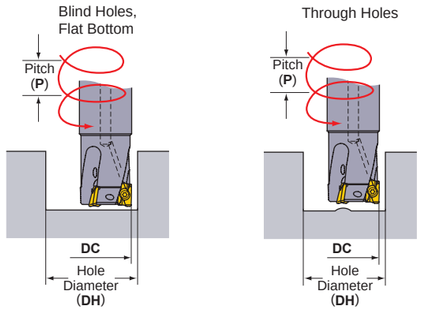
Multi-functional Indexable Cutter

■ Ramping/Helical Cutting

● Ramping



● Helical Cutting



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 cutting.

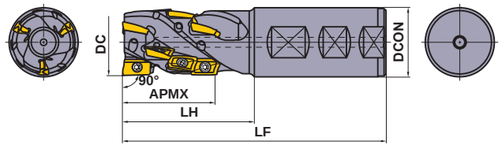
Cutting Edge Diameter **DC** (inch)	Ramping		Helical Cutting (Blind Hole, Flat Bottom)				Helical Cutting (Through Hole)	
	Maximum Ramping Angle **RMPX**	Minimum Distance ✶1 **L** (inch)	Maximum Hole Diameter ✶2 **DH max.** (inch)	Maximum Pitch **P max.** (inch)	Minimum Hole Diameter **DH min.** (inch)	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.

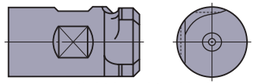
DEEP SHOULDER MILLING
APX4000 Long Edge

90° KAPR | F | R | Including Flat faces

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



✶1 Combination Type



■ Shank Type (A Holders)

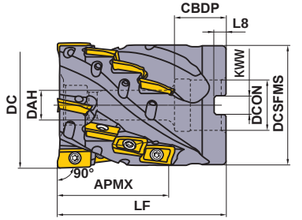
With Coolant Hole

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≥.125" on the bottom, B-Holders or C-Holders are required as shown on page 23.
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 Coolant Hole

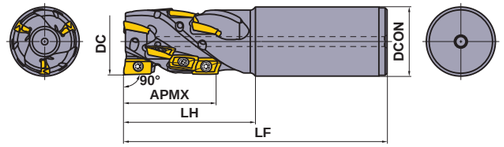
Order Number	Stock	Number of Flutes	Total	Dimensions (inch)									*			
	R			DC	LF	DCON	CBDP	DAH	DCSFMS	KWW	L8	APMX	Insert Screw	Wrench	Anti-seize Lubricant	Insert Type
APX4KUR0209A16A	●	3	9	2.000	2.500	.750	1.063	.415	1.918	.313	.187	1.650	TPS43	TIP15W	MK1KS	AOMT1848
APX4KUR2516CA22A	●	4	16	2.500	3.500	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≥.125" on the bottom, B-Holders or C-Holders are required as shown on page 23.
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.

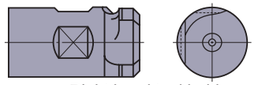
● : USA Stock

Multi-functional Indexable Cutter



Metric Standard

★1 Combination Type



■Shank Type (A Holders)

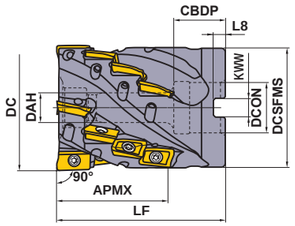
With Coolant Hole

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	

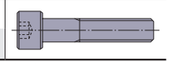
★2 Clamp Torque (lbf-in) : TPS43=35.4

Note 1) When using inserts with corner radius RE≥.125" on the bottom, B-Holders or C-Holders are required as shown on page 23.
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
ϕ50mm	HSC10050	
ϕ63mm	HSC12070	

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

■Shell Type (A Holders)

With Coolant Hole

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 Coolant Hole

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≥.125" on the bottom, B-Holders or C-Holders are required as shown on page 23.
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.

★ : Stocked in Japan

Recommended Cutting Conditions

■ Cutting Speed

(inch)

Workpiece Material		Properties	Insert Grade Priority 1st	Insert Grade Priority 2nd	Chip Breaker		Cutting Width **ae** ≤.15DC	.15—.3DC	DC (Slot)
							Cutting Speed **vc** (SFM)		
P	Mild Steels	≤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 Steels Alloy Steels	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 Steels	≤270HB	MP7130	VP15TF	M	H	525(395—655)	395(330—460)	330(260—395)
K	Gray Cast Irons	≤350MPa	MC5020	VP15TF	H		755(590—920)	620(460—785)	620(460—785)
	Ductile Cast Irons	≤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=56mm(2.205")) ϕ50 (Max.ap=42mm(1.654"))	ϕ2.0"(Max.ap=2.2") ϕ2.5"(Max.ap=2.2") ϕ50(Max.ap=56mm(2.205")) ϕ63 (Max.ap=56mm(2.205"))	ϕ2.0"(Max.ap=3.3") ϕ50(Max.ap=84mm(3.307"))
P	Mild Steels	≤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 Steels Alloy Steels	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 Steels	≤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 Irons	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 Irons	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

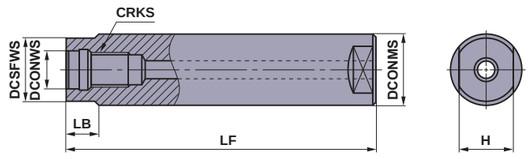
Cutting Edge Diameter **DC**	ϕ.500"	ϕ.625"	ϕ.750"	ϕ1.000"	ϕ1.250"	ϕ1.500"	ϕ2.000"	ϕ2.500"	ϕ3.000"	ϕ4.000"
Max. Spindle Speed **RPMX** (min^{-1})	9900	19000	16000	12000	9500	7600	6000	4800	3800	3100

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

Memo

SCREW-IN HOLDERS
STRAIGHT SHANK TYPE



■ Steel Shank Type

(inch)

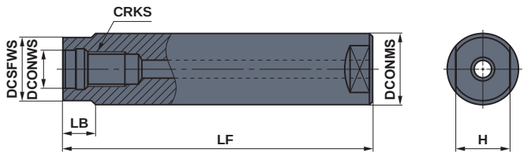
CRKS	Order Number	Stock	DCONMS	LF	DCONWS	DCSFWS	LB	H	WT (lbs)
M8	**SCU10M08S100S**	●	.625	3.937	.335	.571	.394	.394	.2
M8	**SCU10M08S200L**	●	.625	7.874	.335	.571	.394	.394	.7
M10	**SCU12M10S120S**	●	.750	4.724	.413	.728	.394	.551	.4
M10	**SCU12M10S220L**	●	.750	8.661	.413	.728	.394	.551	.9
M12	**SCU16M12S125S**	●	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

(mm)

CRKS	Order Number	Stock	DCONMS	LF	DCONWS	DCSFWS	LB	H	WT (kg)
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

● : USA Stock ★ : Stocked in Japan



■ Carbide Shank Type

(inch)

CRKS	Order Number	Stock	DCONMS	LF	DCONWS	DCSFWS	LB	H	WT (lbs)
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

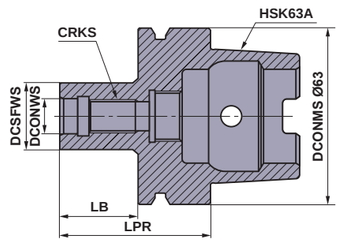
Metric Standard

(mm)

CRKS	Order Number	Stock	DCONMS	LF	DCONWS	DCSFWS	LB	H	WT (kg)
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

SCREW-IN HOLDERS

■ HSK63A Shank Arbor

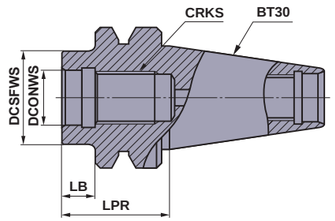


Metric Standard

(mm)

CRKS	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	WT (kg)
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

■ BT30 Shank Arbor

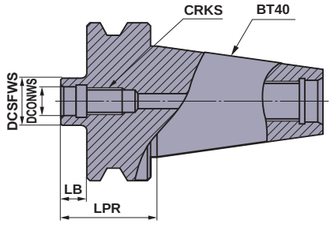


Metric Standard

(mm)

CRKS	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	WT (kg)
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

(mm)

CRKS	Order Number	Stock	DCONWS	DCSFWS	LPR	LB	WT (kg)
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

★ : Stocked in Japan

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 (inch)
M8	17.0	.394
M10	33.9	.551
M12	59.0	.748
M16	66.4	.945

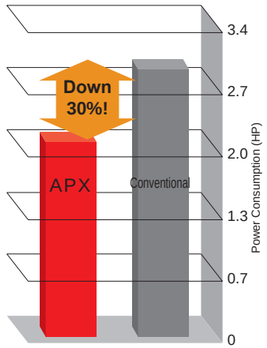
●Cutting tools become extremely hot during cutting. Never touch them with bare hands after operation as this may produce risk of injuries or burns.

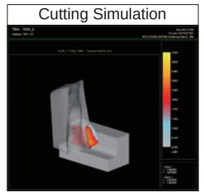
●Do not handle the cutting tools with bare hands as this may cause injuries.

Multi-functional Indexable Cutter

Cutting Performance

Power Consumption Comparison



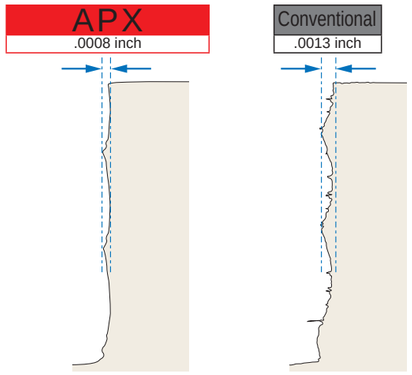


<Cutting Conditions>
Workpiece Material : Alloy Steels
Tool : APX3000UR164SA16SA
Insert : AOMT123608PEER-M
Grade : VP15TF
Cutting Speed : vc=525 SFM
Feed per Tooth : fz=.008 IPT
Width of Cut : ae=.236 inch
Depth of Cut : ap=.354 inch
Cutting Mode : Single Insert

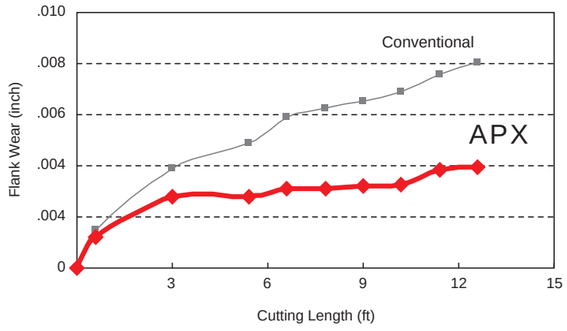
Wall Surface Accuracy

High wall accuracy can be produced by this body and unique insert geometry.

<Cutting Conditions>
Workpiece Material : Alloy Steels
Tool : APX3000UR163SA16SA
Insert : AOMT123608PEER-M
Grade : VP15TF
Cutting Speed : vc=525 SFM
Feed per Tooth : fz=.006 IPT
Width of Cut : ae=.079 inch
Depth of Cut : ap=.236 inch



Wear Resistance



<Cutting Conditions>
Workpiece Material : Alloy Steels
Tool : APX3000UR163SA16SA
Insert : AOMT123608PEER-M
Grade : VP15TF
Cutting Speed : vc=655 SFM
Feed per Tooth : fz=.008 IPT
Width of Cut : ae=.118 inch
Depth of Cut : ap=.197 inch
Cutting Mode : Air Blow

Cutting Performance

Application Examples in Ti-6AL-4V

Achieved a longer and more stable tool life due to excellent resistance to chipping.

MP9130

Cutting Length 3.9 feet

Conventional

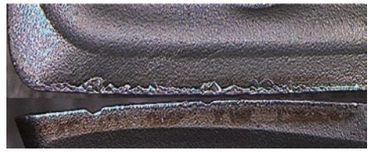
Cutting Length 2.5 feet

<Cutting Conditions>
Tool : APX3000R323SA32SA
Insert : AOMT123608PEER-M
Grade : MP9130
Cutting Speed : vc=100 SFM
Feed per Tooth : fz=.006 IPT
Width of Cut : ae=.315 inch
Depth of Cut : ap=.315 inch
Cutting Mode : Wet Cutting

Application Examples in Inconel718

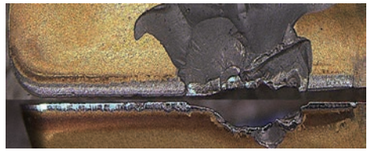
Superior wear and chipping resistance.

MP9130



Cutting Length 4.9 feet

Conventional



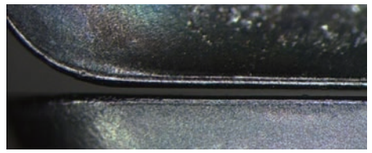
Cutting Length 3.9 feet

<Cutting Conditions>
Tool : APX3000R324SA32SA
Insert : AOMT123608PEER-M
Grade : MP9130
Cutting Speed : vc=100 SFM
Feed per Tooth : fz=.006 IPT
Width of Cut : ae=.315 inch
Depth of Cut : ap=.315 inch
Cutting Mode : Wet Cutting

Application Examples in AISI 1055

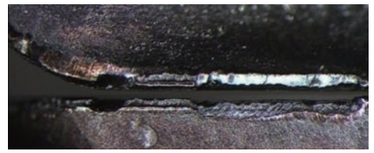
Excellent wear resistance!

MP6120



Cutting Length 91.9 feet
Can Continue Machining Up to 150.9 feet

Conventional A



Cutting Length 91.9 feet

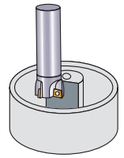
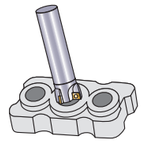
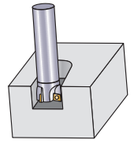
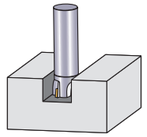
Conventional B

Cutting Length 49.2 feet

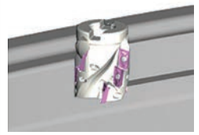
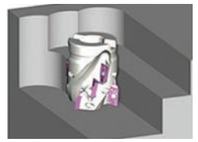
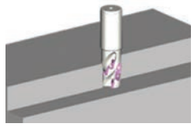
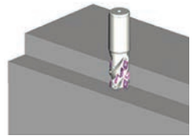
<Cutting Conditions>
Tool : APX3000R324SA32SA
Insert : AOMT123608PEER-M
Grade : MP6120
Cutting Speed : vc=655 SFM
Feed per Tooth : fz=.004 IPT
Width of Cut : ae=.079 inch
Depth of Cut : ap=.079 inch
Cutting Mode : Dry Cutting

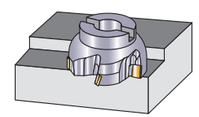
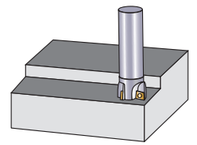
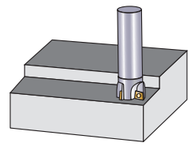
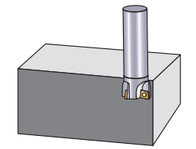
Multi-functional Indexable Cutter

Application Examples

Tool		APX3000UR102SA10SA	APX3000UR246SA20SA	APX3000UR164SA16SA	APX3000UR123SA12SA
Insert (Grade)		AOMT123616PEER-M(VP15TF)	AOMT123608PEER-H(MC5020)	AOMT123608PEER-M(VP15TF)	AOMT123608PEER-H(VP15TF)
Workpiece		Carbon Steel (ANSI 1045) 	Gray Cast Iron (ANSI class30) 	Carbon Steel (ANSI 1055) 	Alloy Steel 
Cutting Conditions	Cutting Speed **vc** (SFM)	490	700	350	800
	Feed per Tooth **fz** (IPT)	.002	.006	.005	.005
	Depth of Cut **ap** (inch)	.059	.197	.118	.118
	Width of Cut **ae** (inch)	.059	1.181	.394–.984	.750
Cutting Mode		Wet Cutting	Dry Cutting	Dry Cutting	Wet Cutting
Machine		M/C-BT30	M/C-BT50	M/C-BT50	M/C-BT50
Results		Lower cutting noise and 2X tool life compared to a conventional product.	Reduced cutting noise, better surface finish and 2X the tool life compared to a conventional product.	Improved cutting performance and lower cutting resistance.	Tool life has been improved by 30% compared to a conventional product.

Tool		APX3000UR205SA20SA	APX3000UR205SA20SA	APX4000UR0307DA	APX4000UR244SA20SA
Insert (Grade)		AOMT123608PEER-M(VP20RT)	AOMT123608PEER-H(VP20RT)	AOMT184808PEER-M(VP15TF)	AOMT184808PEER-M(VP15TF)
Workpiece		Stainless Steel (ANSI 420) 	Stainless Steel (ANSI 420) 	Carbon Steel (ANSI 1055) 	Mild Steel 
Cutting Conditions	Cutting Speed **vc** (SFM)	425	525	540	625
	Feed per Tooth **fz** (IPT)	.008	.003	.006	.010
	Depth of Cut **ap** (inch)	.010	.079	.118	.394
	Width of Cut **ae** (inch)	1.102	.984	1.969	.197
Cutting Mode		Wet Cutting	Wet Cutting	Wet Cutting	Wet Cutting
Machine		M/C-BT50	M/C-BT50	M/C-BT50	M/C-BT50
Results		Lower cutting resistance enabled stable machining even at 6X higher cutting conditions. 12X longer tool life.	2X tool life compared to a conventional product.	Better cutting performance and lower cutting resistance compared to a conventional product.	Cutting resistance is lower than the conventional product, thus allowing a stable machining performance.

Tool		APX4KUR0209A16A	APX4KUR0209A16A	APX4KUR2412WA24S35A	APX4KUR2412WA24S35A
Insert (Grade)	Bottom	AOMT184832PEER-H(VP20RT)	AOMT184832PEER-H(VP20RT)	AOMT184832PEER-H(VP20RT)	AOMT184832PEER-H(VP20RT)
	Peripheral	AOMT184808PEER-H(VP20RT)	AOMT184808PEER-H(VP20RT)	AOMT184808PEER-H(VP20RT)	AOMT184808PEER-H(VP20RT)
Workpiece		Titanium Alloy 	Stainless Steel 	Gray Cast Iron 	Alloy Steel 
Cutting Conditions	Cutting Speed **vc** (SFM)	115	260	410	330
	Feed per Tooth **fz** (IPT)	.003	.004	.012	.010
	Depth of Cut **ap** (inch)	.472–1.575	1.378	2.047	1.772
	Width of Cut **ae** (inch)	.394–.591	1.378	.315	.197
Cutting Mode		Wet Cutting	Wet Cutting	Dry Cutting	Dry Cutting
Machine		M/C-CAT50	M/C-CAT50	M/C-CAT50	M/C-CAT50
Results		3X tool life compared to a conventional product.	2.5X machining efficiency compared to a conventional product by shortening cycle times.	3X efficiency compared to a conventional product.	For stable, deep shoulder milling without vibration.

Tool		APX3000-040A06RA	APX3000UR123SA12SA	APX3000R254SA25SA	APX3000R254SA25SA
Insert (Grade)		AOMT123608PEER-M(MP9130)	AOMT123608PEER-M(MP7130)	AOMT123608PEER-M(MP7130)	AOMT123616PEER-M(MP6130)
Workpiece		WASPALOY 	AISI 420 	AISI 304 	AISI 4137 
Cutting Conditions	Cutting Speed **vc** (SFM)	100	400	460	655
	Feed per Tooth **fz** (IPT)	.001	.004	.004	.005
	Depth of Cut **ap** (inch)	.055	.010	.079	.098
	Width of Cut **ae** (inch)	.630	.020	.984	–
Cutting Mode		Wet Cutting	Dry Cutting	Dry Cutting	Dry Cutting
Results		2X tool life compared to conventional product which enabled to cut continuously without interruption.	Actual cutting time has been nearly 2X compared to conventional product.	Tool life has been improved by 25% compared to conventional product because of the superior fracture resistance.	1.5X longer tool life provided 140% processing efficiency.

The above application examples are customer's applications, so it can be different from the recommended conditions.

Memo

Memo

DIA EDGE

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Fax: 248.308.2627

For Your Safety

- Don't handle inserts and chips without gloves.
- Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage.
- Please use safety covers and wear safety glasses.
- When using compounded cutting oils, please take fire precautions.
- When attaching inserts or spare parts, please use only the correct wrench or driver.
- When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

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Product Brands Crafted by Mitsubishi Materials U.S.A.

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