MITSUBISHI MATERIALS

ARP Series

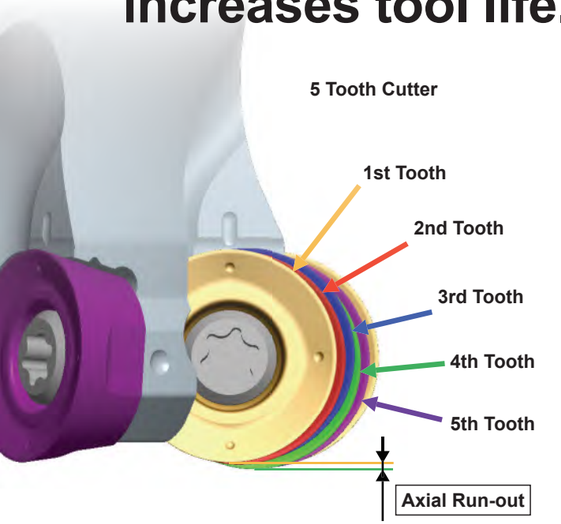
ROUND INSERT CUTTER FOR DIFFICULT-TO-CUT MATERIALS

TOOL NEWS B222A

Round Insert Cutter for Difficult-to-Cut Materials

ARP Series

Highest level of run-out accuracy increases tool life.



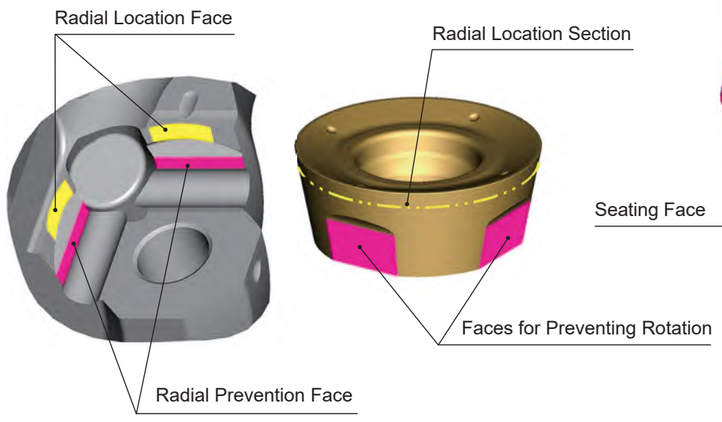
Highly accurate seating provides minimal change of run-out accuracy when indexing the inserts.

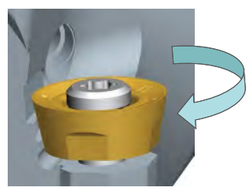
Compared to Conventional Tools

Axial Run-out 25% Improvement

Strong Clamping System

A wide seating face and 2 side location faces prevent inserts from moving during cutting.

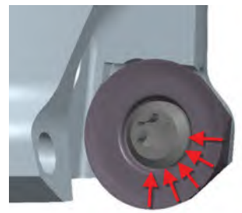




Easy indexing - No need to completely remove the clamping screw.

Choose 4 or 8 Indexing Faces According to the Depth of Cut

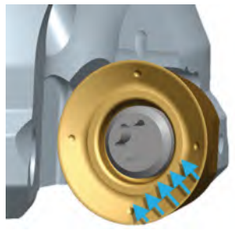
8 seating face inserts are economical for small depth of cut machining.



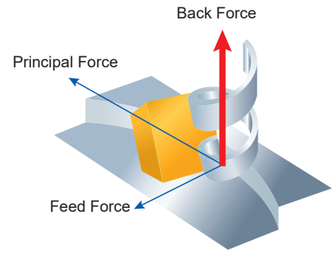
Rake design of
8 indexing face insert

When the cutting depth is medium or higher, the rake face is in the same direction as the chip flow, achieving low cutting resistance.
(4 indexing face insert)

Even chip flow

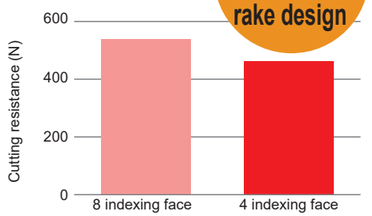


Rake design of 4 indexing face insert



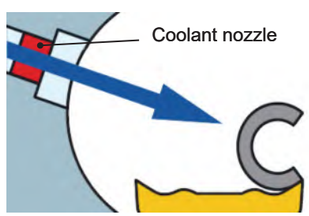
Comparison of the back force

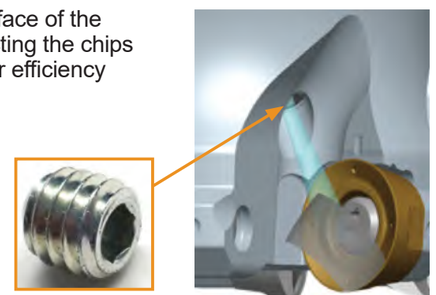
16% less than conventional rake design



Improved Chip Removal with Coolant Through

The internal coolant through is directed slightly above the rake face of the cutting edge so that it is aimed directly at the chip. Forcibly ejecting the chips prevents them from welding to the cutting edge, enabling higher efficiency machining.





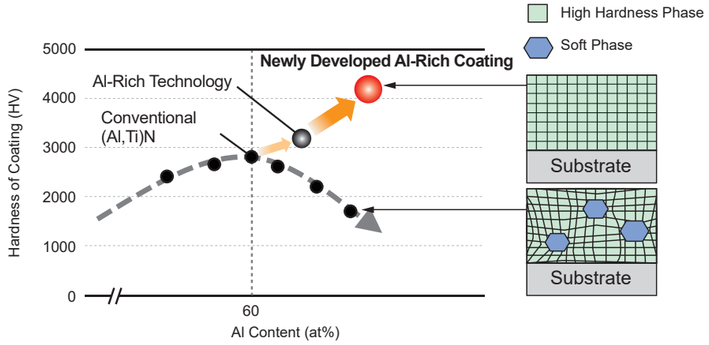
Use of the coolant nozzle discharges chips under high pressure and prevents welding of chips to the cutting edge.

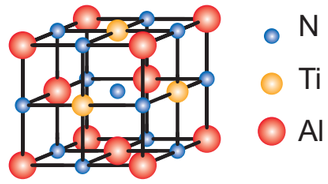
Coated Carbide Grade for Milling

MV1020/MV1030

Advanced Wear and Thermal Shock Resistance

By adopting the newly developed Al-Rich coating technology, the (Al,Ti)N with a high Al content ratio displays a very high hardness. This greatly improves oxidation and wear resistance.
The extreme heat resistance of this new series achieves amazing stability not only during dry cutting, but also when wet cutting where inserts are usually prone to thermal cracking.
MV1020 offers overwhelmingly superior performance in high-speed cutting, and MV1030 achieves stable performance during interrupted and stainless steel machining.



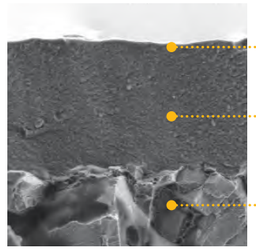


Crystal image of **MV1000** series

PVD Coated Grade for Difficult-to-cut Materials

MP9140

Excellent Welding Resistance Due to the Smoothened Surface



Smooth surfaces provide excellent welding resistance.

The high Al-rich AlTiN coating succeeds in dramatically improving wear and heat resistance.

Special cemented carbide substrate with improved fracture resistance.

CVD Coating Grade for Machining Stainless Steel

MC7020

Excellent Wear, Chipping and Thermal Crack Resistance
These features prevent the problems usually associated with machining stainless steel over prolonged periods.

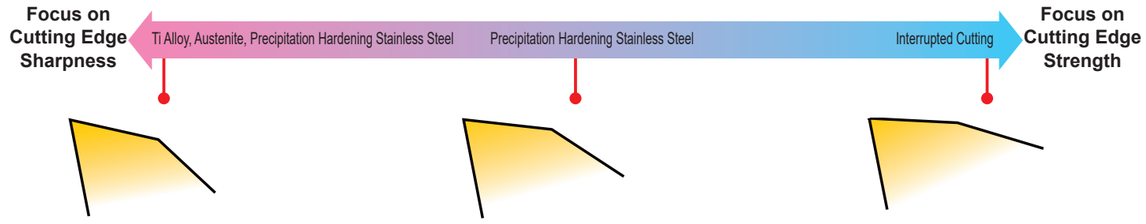
With Accumulated Al-Ti-Cr-N Based PVD Coating

MP7130, MP9130 and MP9140

A fusion of the separate coating technologies; PVD and multi-layering realizes extra toughness.

Chipbreaker System

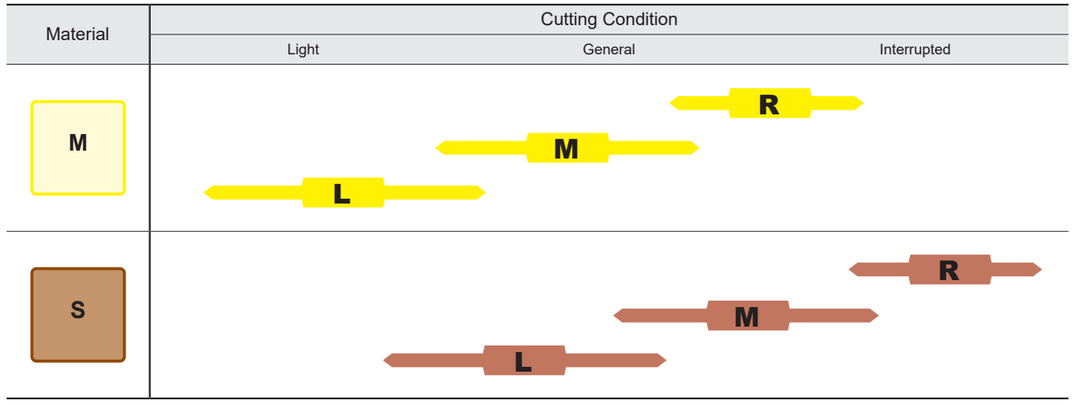
Chipbreaker Series for Various Applications

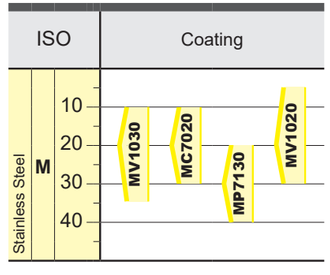


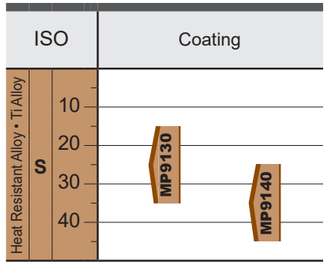
L Chipbreaker
Focus on Cutting Edge Sharpness
Low Resistance Type
- Accurate Molded Type
- Precision Ground Type

M Chipbreaker
- Accurate Molded Type
- Precision Ground Type

R Chipbreaker
Reinforced Edge Type
- Accurate Molded Type
- Precision Ground Type







MULTI-FUNCTIONAL MILLING

ARP

P | M | K | N | S | H

Fig.1

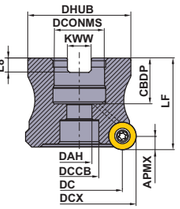
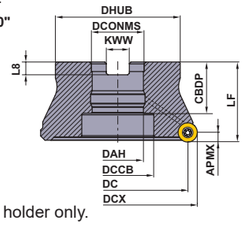
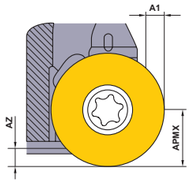


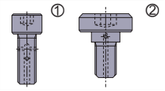
Fig.2



Right hand tool holder only.



DCX	Set Bolt	Geometry
ϕ1.500"	HSC08025H	①
ϕ2.000"	HSC10030H	①
ϕ2.500", ϕ3.000"	HSC12035H	①
ϕ4.000"	MBA16033H	②



Arbor Type

DCON = inch size (inch)

DCX	Order Number	Stock R	∗1 Coolant Thru	RE	∗2 No.T	Pitch	DC	LF	DCON MS	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
1.500	**ARP5UPR1504SA**	●	Y	.197	4	Fine	1.104	1.500	.500	.3	.079	.047	2.8°	1	RP○T1040
1.500	**ARP5UPR1505SA**	●	Y	.197	5	Extra Fine	1.104	1.500	.500	.3	.079	.047	2.8°	1	RP○T1040
1.500	**ARP6UPR1504SA**	●	Y	.236	4	Fine	1.026	1.500	.500	.3	.079	.041	2.7°	1	RP○T1248
2.000	**ARP5UPR0206AA**	●	Y	.197	6	Fine	1.604	1.750	.750	.8	.079	.073	2.9°	1	RP○T1040
2.000	**ARP5UPR0207AA**	●	Y	.197	7	Extra Fine	1.604	1.750	.750	.8	.079	.073	2.9°	1	RP○T1040
2.000	**ARP6UPR0205AA**	●	Y	.236	5	Fine	1.526	1.750	.750	.7	.079	.067	2.8°	1	RP○T1248
2.000	**ARP6UPR0206AA**	●	Y	.236	6	Extra Fine	1.526	1.750	.750	.7	.079	.067	2.8°	1	RP○T1248
2.500	**ARP5UPR2507CA**	●	Y	.197	7	Fine	2.104	2.000	1.000	1.4	.098	.098	2.9°	1	RP○T1040
2.500	**ARP5UPR2508CA**	●	Y	.197	8	Extra Fine	2.104	2.000	1.000	1.4	.098	.098	2.9°	1	RP○T1040
2.500	**ARP6UPR2506CA**	●	Y	.236	6	Fine	2.026	2.000	1.000	1.4	.098	.098	3.1°	1	RP○T1248
2.500	**ARP6UPR2507CA**	●	Y	.236	7	Extra Fine	2.026	2.000	1.000	1.4	.098	.098	3.1°	1	RP○T1248
3.000	**ARP6UPR0308CA**	●	Y	.236	8	Fine	2.526	2.000	1.000	1.8	.098	.098	2.4°	1	RP○T1248
3.000	**ARP6UPR0309CA**	●	Y	.236	9	Extra Fine	2.526	2.000	1.000	1.8	.098	.098	2.4°	1	RP○T1248
4.000	**ARP6UPR0409EA**	●	Y	.236	9	Fine	3.526	2.500	1.500	4.5	.098	.098	1.7°	2	RP○T1248
4.000	**ARP6UPR0411EA**	●	Y	.236	11	Extra Fine	3.526	2.500	1.500	4.5	.098	.098	1.7°	2	RP○T1248

∗1 Y=Yes, N=No
∗2 Number of Teeth
Note 1) For the maximum width of cut (APMX), Please refer to page 13.

Mounting Dimensions

(inch)

DCX	Tool Holder Type	DCONMS	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
1.500	**ARP5UPR15**	.500	.630	.433	.276	1.250	.250	.156	1
1.500	**ARP6UPR15**	.500	.630	.433	.276	1.250	.250	.156	1
2.000	**ARP5UPR02**	.750	.748	.630	.413	1.750	.313	.187	1
2.000	**ARP6UPR02**	.750	.748	.630	.413	1.750	.313	.187	1
2.500	**ARP5UPR25**	1.000	.945	.787	.539	2.190	.375	.219	1
2.500	**ARP6UPR25**	1.000	.945	.787	.539	2.190	.375	.219	1
3.000	**ARP6UPR03**	1.000	.945	.787	.539	2.190	.375	.219	1
4.000	**ARP6UPR04**	1.500	1.417	1.500	2.205	3.500	.625	.375	2

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
RE = Corner Radius
DC = Cutting Diameter
LF = Functional Length
DCONMS = Connection Diameter Machine Side
WT = Weight of Item
A1 = Max. Width of Cut in the Radius Direction
AZ = Plunge Depth Maximum
RMPX = Rampin Angle Maximum

● : Inventory maintained.

Fig.1

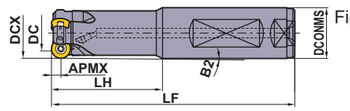


Fig.2

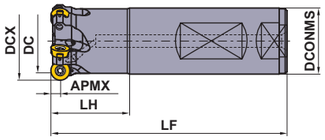


Fig.3

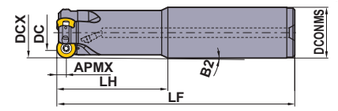
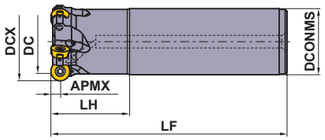


Fig.4



Shank Type

DCON = inch size (inch)

DCX	Order Number	Stock R	∗1 Coolant Thru	RE	∗2 No.T	DC	LF	LH	DCON MS	B2	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
1.000	**ARP5UPR1603FA16M**	●	Y	.197	3	.608	5.500	2.250	1.000	1.170°	.9	.039	.018	1.9°	1	RP○T1040
1.000	**ARP5UPR1602SA16L**	●	Y	.197	2	.608	7.000	3.000	1.000	.570°	1.3	.039	.018	1.9°	3	RP○T1040
1.250	**ARP5UPR2004FA20M**	●	Y	.197	4	.858	6.000	2.750	1.250	.760°	1.7	.039	.026	1.9°	1	RP○T1040
1.250	**ARP5UPR2003SA20L**	●	Y	.197	3	.858	8.000	4.750	1.250	1.010°	2.2	.039	.026	1.9°	3	RP○T1040
1.250	**ARP6UPR2003FA20M**	●	Y	.236	3	.781	6.000	2.750	1.250	.950°	1.7	.039	.024	2.0°	1	RP○T1248
1.250	**ARP6UPR2002SA20L**	●	Y	.236	2	.781	8.000	4.750	1.250	.510°	2.2	.039	.024	2.0°	3	RP○T1248
1.500	**ARP6UPR2404FA20M**	●	Y	.236	4	1.028	6.000	2.000	1.250	-	1.8	.098	.041	2.7°	2	RP○T1248
1.500	**ARP6UPR2403SA20L**	●	Y	.236	3	1.028	10.000	2.000	1.250	-	3.2	.098	.041	2.7°	4	RP○T1248
2.000	**ARP6UPR3205FA24M**	●	Y	.236	5	1.528	6.000	2.000	1.500	-	2.7	.098	.067	2.8°	2	RP○T1248
2.000	**ARP6UPR3204SA24L**	●	Y	.236	4	1.528	10.000	2.000	1.500	-	4.7	.098	.067	2.8°	4	RP○T1248

∗1 Y=Yes, N=No
∗2 Number of Teeth
Note 1) For the maximum width of cut (APMX), Please refer to page 13.

Spare Parts

Tool Holder Type	∗ Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

∗ Clamp Torque (lbf-in) : TPS351B=22,TPS4=31

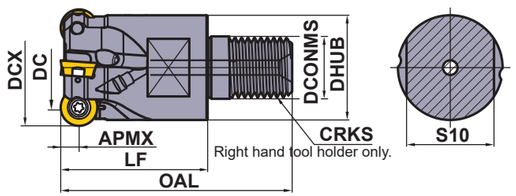
	≤1Mpa (≤20 l/min.)	←Standard→	≥5Mpa (≥30 l/min.)	≥7Mpa (≥50 l/min.)	To Plug a Coolant Through
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure. Select nozzles as required by the specification.
Clamp Torque (lbf-in) : HSD04004H○○= 13, HSS04004○○= 13

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
DCONMS = Connection Diameter Machin Side
CBDP = Connection Bore Depth
DAH = Diameter Access Hole
DCCB = counterbore diameter connection bore
DHUB = Hub Diameter
KWW = Keyway Width
L8 = Depth of Keyway

Round Insert Cutter for Difficult-to-Cut Materials



Screw-in Type

(inch)

DCX	Order Number	Stock R	✶1 Coolant Thru	RE	✶2 No.T	DC	DCONMS	DHUB	OAL	LF	S10	CRKS	WT (lbs)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Insert Type
1.000	**ARP5UPR1603AM1235**	●	Y	.197	3	.606	.492	.925	2.244	1.378	.748	M12	.2	–	.016	1.9°	RP◌T1040
1.250	**ARP5UPR2004AM1640**	●	Y	.197	4	.856	.669	1.122	2.480	1.575	.945	M16	.4	.039	.026	1.9°	RP◌T1040
1.250	**ARP6UPR2003AM1640**	●	Y	.236	3	.778	.669	1.122	2.480	1.575	.945	M16	.4	.039	.024	2.0°	RP◌T1248
1.500	**ARP6UPR2404AM1640**	●	Y	.236	4	1.028	.669	1.122	2.480	1.575	.945	M16	.4	.098	.045	2.7°	RP◌T1248

✶1 Y=Yes, N=No
✶2 Number of Teeth
Note 1) For the maximum width of cut (APMX), Please refer to page 13.

Spare Parts

Tool Holder Type	✶ Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

✶ Clamp Torque (lbf-in) : TPS351B=22,TPS4=31

	≤1Mpa (≤20 l/min.)	←Standard→	≥5Mpa (≥30 l/min.)	≥7Mpa (≥50 l/min.)	To Plug a Coolant Through
Nozzle Dia.	ø.024"	ø.031"	ø.047"	ø.063"	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure. Select nozzles as required by the specification.
Clamp Torque (lbf-in) : HSD04004H◌◌= 13, HSS04004◌◌= 13

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
RE = Corner Radius
DC = Cutting Diameter
DCONMS= Connection Diameter Machine Side
DHUB = Hub Diameter
OAL = Overall Length
LF = Functional Length
CRKS = Connection Retention Knob Thread Size
WT = Weight of Item
A1 = Max. Width of Cut in the Radius Direction
AZ = Plunge Depth Maximum
RMPX = Ramping Angle Maximum

● : Inventory maintained. ★ : Inventory maintained in Japan.

MULTI-FUNCTIONAL MILLING

ARP

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

Metric Standard

Fig.1
ø40
ø50
ø63
ø80

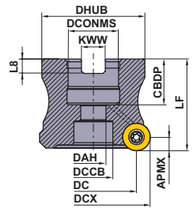
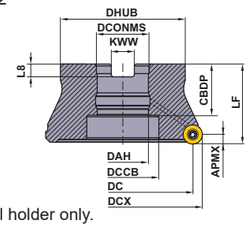
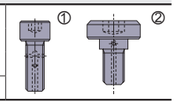


Fig.2
ø100



Right hand tool holder only.

DCX DCON inch size	DCX DCON mm size	Set Bolt	Geometry
–	ϕ40	HSC08025H	
–	ϕ50, ϕ63	HSC10030H	①
ϕ80	ϕ80	HSC12035H	
ϕ100	ϕ100	MBA16033H	②



Arbor Type

DCON=inch size, With Coolant Through

(mm)

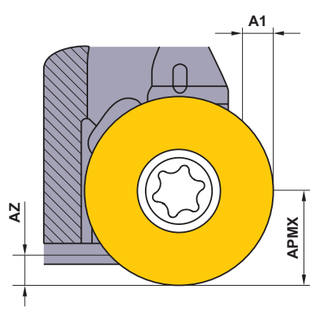
DCX	Order Number	Stock R	RE	✶1 No.T	DC	LF	DCONMS	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
80	**ARP6PR08008CA**	★	6	8	68	50	25.4	0.9	2.5	2.5	2.3°	1	RP◌T1248
80	**ARP6PR08009CA**	★	6	9	68	50	25.4	0.9	2.5	2.5	2.3°	1	RP◌T1248
100	**ARP6PR10009DA**	★	6	9	88	50	31.75	1.4	2.5	2.5	1.7°	2	RP◌T1248
100	**ARP6PR10011DA**	★	6	11	88	50	31.75	1.4	2.5	2.5	1.7°	2	RP◌T1248

DCON=mm size, With Coolant Through

(mm)

DCX	Order Number	Stock R	RE	✶1 No.T	DC	LF	DCONMS	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
40	**ARP5P-040A05AR**	★	5	5	29.9	40	16	0.2	2.0	1.3	2.8°	1	RP◌T1040
40	**ARP6P-040A04AR**	★	6	4	28	40	16	0.2	2.0	1.1	2.7°	1	RP◌T1248
50	**ARP5P-050A06AR**	★	5	6	39.9	40	22	0.3	2.0	1.8	2.9°	1	RP◌T1040
50	**ARP5P-050A07AR**	★	5	7	39.9	40	22	0.3	2.0	1.8	2.9°	1	RP◌T1040
50	**ARP6P-050A05AR**	★	6	5	38	40	22	0.3	2.0	1.7	2.9°	1	RP◌T1248
50	**ARP6P-050A06AR**	★	6	6	38	40	22	0.3	2.0	1.7	2.9°	1	RP◌T1248
63	**ARP5P-063A07AR**	★	5	7	52.9	40	22	0.5	2.5	2.5	3.0°	1	RP◌T1040
63	**ARP5P-063A08AR**	★	5	8	52.9	40	22	0.5	2.5	2.5	3.0°	1	RP◌T1040
63	**ARP6P-063A06AR**	★	6	6	51	40	22	0.4	2.5	2.5	3.1°	1	RP◌T1248
63	**ARR6P-063A07AR**	★	6	7	51	40	22	0.4	2.5	2.5	3.1°	1	RP◌T1248
80	**ARP6P-080A08AR**	★	6	8	68	50	27	0.9	2.5	2.5	2.3°	1	RP◌T1248
80	**ARP6P-080A09AR**	★	6	9	68	50	27	0.9	2.5	2.5	2.3°	1	RP◌T1248
100	**ARP6P-100B09AR**	★	6	9	88	50	32	1.5	2.5	2.5	1.7°	2	RP◌T1248
100	**ARP6P-100B11AR**	★	6	11	88	50	32	1.5	2.5	2.5	1.7°	2	RP◌T1248

✶1 Number of Teeth
Note 1) For the maximum width of cut (APMX), Please refer to page 13.



Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
RE = Corner Radius
DC = Cutting Diameter
LF = Functional Length
DCONMS= Connection Diameter Machine Side
WT = Weight of Item
A1 = Max. Width of Cut in the Radius Direction
AZ = Plunge Depth Maximum
RMPX = Ramping Angle Maximum

Round Insert Cutter for Difficult-to-Cut Materials

Mounting Dimensions

(mm)

DCX	Order Number	DCONMS	CBDP	DAH	DCCB	DHUB	KWW	L8	Fig.
40	**ARP5P-040A05AR**	16	18	9	14	34	8.4	5.6	1
40	**ARP6P-040A04AR**	16	18	9	13.4	34	8.4	5.6	1
50	**ARP5P-050A06AR**	22	20	11	17	45	10.4	6.3	1
50	**ARP5P-050A07AR**	22	20	11	17	45	10.4	6.3	1
50	**ARP6P-050A05AR**	22	20	11	17	45	10.4	6.3	1
50	**ARP6P-050A06AR**	22	20	11	17	45	10.4	6.3	1
63	**ARP5P-063A07AR**	22	20	11	17	50	10.4	6.3	1
63	**ARP5P-063A08AR**	22	20	11	17	50	10.4	6.3	1
63	**ARP6P-063A06AR**	22	20	11	17	50	10.4	6.3	1
63	**ARR6P-063A07AR**	22	20	11	17	50	10.4	6.3	1
80	**ARP6PR08008CA**	25.4	26	20	13	56	9.5	6.0	1
80	**ARP6PR08009CA**	25.4	26	20	13	56	9.5	6.0	1
80	**ARP6P-080A08AR**	27	23	13	20	56	12.4	7.0	1
80	**ARP6P-080A09AR**	27	23	13	20	56	12.4	7.0	1
100	**ARP6PR10009DA**	31.75	32	31.75	45	70	12.7	8.0	2
100	**ARP6PR10011DA**	31.75	32	31.75	45	70	12.7	8.0	2
100	**ARP6P-100B09AR**	32	26	45	32	78	14.4	8.0	2
100	**ARP6P-100B11AR**	32	26	45	32	78	14.4	8.0	2

Spare Parts

Tool Holder Type	 Clamp Screw *	 Wrench (Insert)	 Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

* Clamp Torque (N • m) : TPS351B=2.5,TPS4=3.5

	≤1Mpa (≤20 l/min.)	←Standard→	≥5Mpa (≥30 l/min.)	≥7Mpa (≥50 l/min.)	To Plug a Coolant Through
Nozzle Dia.	ø0.6mm	ø0.8mm	ø1.2mm	ø1.6mm	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure. Select nozzles as required by the specification.
Note 2) Use HSS04004 (JIS B 1177 flat point M4x4, clamp torque 1.5 Nm) to plug the coolant through.

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
DCONMS= Connection Diameter Machin Side
CBDP = Connection Bore Depth
DAH = Diameter Access Hole
DCCB = counterbore diameter connection bore
DHUB = Hub Diameter
KWW = Keyway Width
L8 = Depth of Keyway

★ : Inventory maintained in Japan.

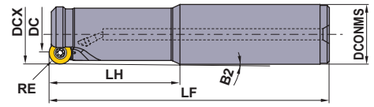


Fig.1

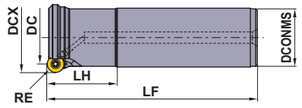


Fig.2

Arbor Type

With Coolant Through

(mm)

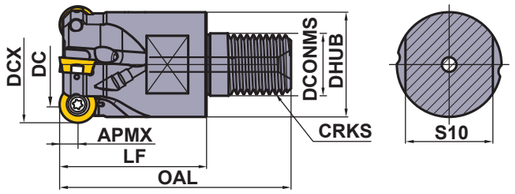
DCX	Order Number	Stock R	RE	*1 No.T	DC	LF	LH	DCONMS	B2	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Fig.	Insert Type
25	**ARP5PR2503SA25M**	★	5	3	15	140	60	25	1.10°	0.4	1.0	0.40	1.8°	1	RP○T1040
25	**ARP5PR2502SA25L**	★	5	2	15	180	80	25	0.80°	0.6	1.0	0.40	1.8°	1	RP○T1040
32	**ARP5PR3204SA32M**	★	5	4	22	150	70	32	0.92°	0.8	1.0	0.65	1.9°	1	RP○T1040
32	**ARP6PR3203SA32M**	★	6	3	20	150	70	32	0.51°	0.8	1.0	0.60	2.0°	1	RP○T1248
32	**ARP5PR3203SA32L**	★	5	3	22	200	120	32	0.94°	1.0	1.0	0.65	1.9°	1	RP○T1040
32	**ARP6PR3202SA32L**	★	6	2	20	200	120	32	0.52°	1.0	1.0	0.60	2.0°	1	RP○T1248
40	**ARP6PR4004SA32M**	★	6	4	28	150	50	32	–	0.9	2.5	1.15	2.7°	2	RP○T1248
40	**ARP6PR4003SA32L**	★	6	3	28	250	50	32	–	1.5	2.5	1.15	2.7°	2	RP○T1248
50	**ARP6PR5005SA42M**	★	6	5	38	150	50	42	–	1.5	2.5	1.70	2.9°	2	RP○T1248
50	**ARP6PR5004SA42L**	★	6	4	38	250	50	42	–	2.5	2.5	1.70	2.9°	2	RP○T1248

*1 Number of Teeth
Note 1) For the maximum width of cut (APMX), Please refer to page 13.

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
RE = Corner Radius
DC = Cutting Diameter
LF = Functional Length
DCONMS= Connection Diameter Machine Side
WT = Weight of Item
A1 = Max. Width of Cut in the Radius Direction
AZ = Plunge Depth Maximum
RMPX = Rampin Angle Maximum

Round Insert Cutter for Difficult-to-Cut Materials



Screw-in Type

With Coolant Through

(mm)

DCX	Order Number	Stock R	RE	✶1 No.T	DC	DCONMS	DHUB	OAL	LF	S10	CRKS	WT (kg)	Max. Depth of Cut A1	Max. Depth of Cut AZ	RMPX	Insert Type
25	**ARP5PR2502AM1235**	★	5	2	15	12.5	23.5	57	35	19	M12	0.1	–	0.40	1.8°	RP○T1040
25	**ARP5PR2503AM1235**	★	5	3	15	12.5	23.5	57	35	19	M12	0.1	–	0.40	1.8°	RP○T1040
32	**ARP5PR3203AM1640**	★	5	3	22	17.0	28.5	63	40	24	M16	0.2	1.0	0.65	1.9°	RP○T1040
32	**ARP5PR3204AM1640**	★	5	4	22	17.0	28.5	63	40	24	M16	0.2	1.0	0.65	1.9°	RP○T1040
32	**ARP6PR3202AM1640**	★	6	2	20	17.0	28.5	63	40	24	M16	0.2	1.0	0.60	2.0°	RP○T1248
32	**ARP6PR3203AM1640**	★	6	3	20	17.0	28.5	63	40	24	M16	0.2	1.0	0.60	2.0°	RP○T1248
40	**ARP6PR4003AM1640**	★	6	3	28	17.0	28.5	63	40	24	M16	0.2	2.5	1.15	2.7°	RP○T1248
40	**ARP6PR4004AM1640**	★	6	4	28	17.0	28.5	63	40	24	M16	0.2	2.5	1.15	2.7°	RP○T1248

✶1 Number of Teeth

Note 1) For the maximum width of cut (APMX), Please refer to page 13.

Spare Parts

(mm)

Tool Holder Type	✶ Clamp Screw	Wrench (Insert)	Anti-seize Lubricant
ARP5	TPS351B	TIP10D	MK1KS
ARP6	TPS4	TIP15D	MK1KS

✶ Clamp Torque (N • m) : TPS351B=2.5,TPS4=3.5

	≤1Mpa (≤20 l/min.)	←Standard→	≥5Mpa (≥30 l/min.)	≥7Mpa (≥50 l/min.)	To Plug a Coolant Through
Nozzle Dia.	ø0.6mm	ø0.8mm	ø1.2mm	ø1.6mm	–
Order Number	**HSD04004H06**	**HSD04004H08**	**HSD04004H12**	**HSD04004H16**	**HSS04004**

Note 1) Coolant nozzles are available with varying diameters for adjusting coolant pressure. Select nozzles as required by the specification.
Note 2) Use HSS04004 (JIS B 1177 flat point M4x4, clamp torque 1.5 Nm) to plug the coolant through.

Dimensions and Symbols (ISO 13399 Compliance)

DCX = Cutting Diameter Maximum
RE = Corner Radius
DC = Cutting Diameter
DCONMS = Connection Diameter Machine Side
DHUB = Hub Diameter
OAL = Overall Length
LF = Functional Length
CRKS = Connection Retention Knob Thread Size
WT = Weight of Item
A1 = Max. Width of Cut in the Radius Direction
AZ = Plunge Depth Maximum
RMPX = Ramping Angle Maximum

● : Inventory maintained. ★ : Inventory maintained in Japan. (10 inserts in one case)

Inserts

(inch)

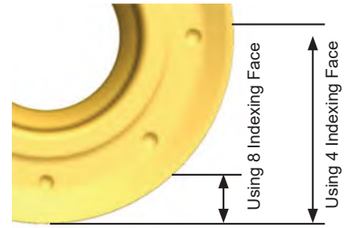
Material: **M** Stainless Steel; **S** Heat resistant Alloys, Titanium Alloys

This is the selection guideline for ARP.
Please note that the cutting conditions differ depending on multiple factors, for more details refer to the Recommended Cutting Conditions.
Edge Preparation (Honing) : E : Round

Application	Shape	Order Number	Class	Edge Preparation		Coated MV1020	Coated MV1030	Coated MC7020	Coated MP7130	Coated MP9130	Coated MP9140	Dimensions IC	Dimensions S	APMX 4 Seats	APMX 8 Seats	Geometry
Low Resistance	L	**RPHT1040M0E4-L**	H	E	4			●	●	●		.394	.156	.197	–	
		RPHT1248M0E4-L	H	E	4			●	●	●		.472	.187	.236	–	
		RPMT1040M0E4-L	M	E	4			●	●	●		.394	.156	.197	–	
		RPMT1248M0E4-L	M	E	4			●	●	●		.472	.187	.236	–	
General Purpose	M	**RPHT1040M0E4-M**	H	E	4			●	●	●		.394	.156	.197	–	
		RPHT1248M0E4-M	H	E	4			●	●	●		.472	.187	.236	–	
		RPMT1040M0E4-M	M	E	4			●	●	●		.394	.156	.197	–	
		RPMT1248M0E4-M	M	E	4			●	●	●		.472	.187	.236	–	
Reinforced Edge	R	**RPHT1040M0E4-R**	H	E	4			●	●	●		.394	.156	.197	–	
		RPHT1248M0E4-R	H	E	4			●	●	●		.472	.187	.236	–	
		RPMT1040M0E4-R	M	E	4			●	●	●		.394	.156	.197	–	
		RPMT1248M0E4-R	M	E	4			●	●	●		.472	.187	.236	–	
Low Resistance High Rigidity	L2	**RPMT1040M0E4-L2**	M	E	4	●	●				●	.394	.156	.197	–	
		RPMT1248M0E4-L2	M	E	4	●	●				●	.472	.187	.236	–	
General Purpose High Rigidity	M2	**RPMT1040M0E4-M2**	M	E	4	●	●				●	.394	.156	.197	–	
		RPMT1248M0E4-M2	M	E	4	●	●				●	.472	.187	.236	–	
Reinforced Edge High Rigidity	R2	**RPMT1040M0E4-R2**	M	E	4	●	●					.394	.156	.197	–	
		RPMT1248M0E4-R2	M	E	4	●	●					.472	.187	.236	–	
Low Resistance	L1	**RPMT1040M0E8-L1**	M	E	8	●	●	●	●	●	●	.394	.156	.197	.055	
		RPMT1248M0E8-L1	M	E	8	●	●	●	●	●	●	.472	.187	.236	.067	
General Purpose	M1	**RPMT1040M0E8-M1**	M	E	8	●	●	●	●	●	●	.394	.156	.197	.055	
		RPMT1248M0E8-M1	M	E	8	●	●	●	●	●	●	.472	.187	.236	.067	
Reinforced Edge	R1	**RPMT1040M0E8-R1**	M	E	8	●	●	●	●	●		.394	.156	.197	.055	
		RPMT1248M0E8-R1	M	E	8	●	●	●	●	●		.472	.187	.236	.067	

Depth of cut (ap) for 8 indexing face insert

8 indexing face type inserts can also be used at the same depth of cut as the 4 face type insert.



Recommended Cutting Conditions

	Material	Properties	Grade	Cutting Speed (SFM) Dry Cutting	Cutting Speed (SFM) Wet Cutting	Feed per Tooth (IPT)
M	Austenitic Stainless Steel	Hardness ≤200HB	**MV1030**	720 (560—885)	490 (330—655)	.008 (.004—.014)
			MC7020	720 (560—885)	490 (330—655)	.008 (.004—.014)
			MP7130	655 (490—820)	425 (260—590)	.008 (.004—.014)
			MV1020	820 (655—985)	590 (425—755)	.008 (.004—.014)
	Austenitic Stainless Steel	Hardness >200HB	**MV1030**	620 (460—785)	425 (260—590)	.008 (.004—.014)
			MC7020	620 (460—785)	395 (230—560)	.008 (.004—.014)
			MP7130	560 (395—720)	330 (260—490)	.008 (.004—.014)
			MV1020	720 (560—885)	490 (330—655)	.008 (.004—.014)
	Duplex Stainless Steel	Hardness ≤280HB	**MV1030**	720 (560—885)	490 (330—655)	.008 (.004—.014)
			MC7020	590 (425—755)	395 (230—560)	.008 (.004—.014)
			MP7130	525 (360—690)	330 (260—490)	.008 (.004—.014)
			MV1020	820 (655—985)	590 (425—755)	.008 (.004—.014)
	Ferritic and Martensitic Stainless Steel	—	**MV1030**	785 (620—950)	560 (395—720)	.008 (.004—.014)
			MC7020	785 (620—950)	560 (395—720)	.008 (.004—.014)
			MP7130	655 (490—820)	425 (260—590)	.008 (.004—.014)
			MV1020	885 (720—1050)	620 (460—785)	.008 (.004—.014)
	Precipitation Hardening Stainless Steel	Hardness <450HB	**MV1030**	560 (395—720)	395 (230—560)	.008 (.004—.014)
			MC7020	560 (395—720)	360 (195—525)	.008 (.004—.014)
			MP7130	490 (330—655)	295 (165—460)	.008 (.004—.014)
			MV1020	620 (460—785)	425 (260—590)	.008 (.004—.014)
S	Titanium Alloys	—	**MP9130**	—	150 (100—180)	.004 (.002—.006)
			MP9140	—	130 (100—165)	.004 (.002—.006)
	Heat Resistant Alloys	—	**MP9130**	—	115 (50—150)	.004 (.002—.006)
			MP9140	—	100 (50—130)	.004 (.002—.006)

Note 1) Actual cutting conditions are estimated to avoid chatter vibration with high rigidity of a machine or workpiece material.
Make appropriate adjustments when chatter and/or insert chipping occurs during cutting.
Use with lowered conditions when there is a big overhang and/or when pocket-cutting.
Note 2) Feed rate for recommended cutting conditions table above based when axial depth of cut is ap=.098" with ARP5, and when depth of cut is ap=.118" with ARP6.
Note 3) Due to the chip thinning effect when the axial depth of cut fluctuates, feed rate compensation table below shows (correction values "F") to help calculate correct feed.
Note 4) Example: Feed recommended for ARP5, 304 Stainless steel, MP7130, ap=.039" is .008IPTx1.5(correction values "F")=.012IPT.
Note 5) For slotting, use 70% of the recommended feed rate listed above. For ramping, helical cutting, and plunging, use 50% of the recommended feed rate listed above.
Note 6) Internal coolant through is recommended in titanium alloy and heat resistant alloy machining.

Feed rate compensation table, (correction values "F") based on axial depth of cut "ap" fluctuation.

Holder	ap = .020"	ap = .039"	ap = .059"	ap = .079"	ap = .098"	ap = .118"	ap = .138"	ap = .157"	ap = .197"	ap = .236"
ARP5	2.3	1.5	1.2	1.1	1.0	.9	.8	.8	.8	—
ARP6	2.5	1.7	1.3	1.1	1.0	1.0	.9	.9	.8	.8

* Tool body durability may weaken, when the amount of axial cutting exceeds ARP5=.197" and ARP6=.236".

Maximum Capacities for Each Type

(inch)

APMX	DCX	Order Number	Install	Type	Depth of Cut (4Seats) ap	Depth of Cut (4Seats) ae	Ramping RMPX(deg)	Helical Cutting DH min.	Helical Cutting DH max.	Plunging Depth AZ max.	Plunging A1
.197" 5mm	.984" 25mm	**ARP5PR2502AM1235**	Screw-in	Standard	≤ .098	≤1.00DCX	1.8°	1.575	1.890	.016	—
		ARP5PR2503AM1235	Screw-in	Fine Pitch	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	—
		ARP5PR2503SA25M	Shank	Standard	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	.039
		ARP5PR2502SA25L	Shank	Long	≤ .059	≤1.00DCX	1.8°	1.575	1.890	.016	.039
	1.000"	**ARP5UPR1603AM1235**	Screw-in	Fine Pitch	≤ .059	≤1.00DCX	1.9°	1.606	1.921	.018	.039
		ARP5UPR1603FA16M	Shank	Standard	≤ .059	≤1.00DCX	1.9°	1.606	1.921	.018	.039
		ARP5UPR1602SA16L	Shank	Long	≤ .098	≤1.00DCX	1.9°	1.606	1.921	.018	.039
	1.250"	**ARP5UPR2004AM1640**	Screw-in	Fine Pitch	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
		ARP5UPR2004FA20M	Shank	Standard	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
		ARP5UPR2003SA20L	Shank	Long	≤ .098	≤1.00DCX	1.9°	2.106	2.421	.026	.039
	1.260" 32mm	**ARP5PR3203AM1640**	Screw-in	Standard	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3204AM1640	Screw-in	Fine Pitch	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3204SA32M	Shank	Standard	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
		ARP5PR3203SA32L	Shank	Long	≤ .098	≤1.00DCX	1.9°	2.126	2.441	.026	.039
	1.500"	**ARP5UPR1504SA**	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.8°	2.606	2.921	.047	.079
		ARP5UPR1505SA	Arbor	Ex.-Fine	≤ .098	≤1.00DCX	2.8°	2.606	2.921	.047	.079
	1.575" 40mm	**ARP5P-040A05AR**	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.8°	2.756	3.071	.051	.079
	1.969" 50mm	**ARP5P-050A06AR**	Arbor	Fine Pitch	≤ .098	≤1.00DCX	2.9°	3.543	3.858	.073	.079
		ARP5P-050A07AR	Arbor	Ex.-Fine	≤ .059	≤1.00DCX	2.9°	3.543	3.858	.073	.079
	2.000"	**ARP5UPR0206AA**	Arbor	Fine Pitch	≤ .098	≤ .95DCX	2.9°	3.606	3.921	.007	.079
		ARP5UPR0207AA	Arbor	Ex.-Fine	≤ .059	≤ .95DCX	2.9°	3.606	3.921	.007	.079
	2.48" 63mm	**ARP5P-063A07AR**	Arbor	Fine Pitch	≤ .098	≤ .75DCX	3.0°	4.567	4.882	.098	.098
		ARP5P-063A08AR	Arbor	Ex.-Fine	≤ .059	≤ .75DCX	3.0°	4.567	4.882	.098	.098
	2.500"	**ARP5UPR2507CA**	Arbor	Fine Pitch	≤ .098	≤ .75DCX	2.9°	4.606	4.921	.098	.098
		ARP5UPR2508CA	Arbor	Ex.-Fine	≤ .059	≤ .75DCX	2.9°	4.606	4.921	.098	.098

Note 1) When drilling long chips may be generated.
Note 2) When cutting helical holes, do not exceed the largest APMX cutting depth per rotation.
Note 3) Calculate using the following formula for center tool tracks and ϕdc when cutting helical holes: Center tool tracks ϕdc=desired hole diameter ϕDH - tool diameter ϕDCX
Note 4) Use of air blow to disperse chips effectively is strongly recommended.
Note 5) Insert pockets are small in fine pitch and small diameter cutters therefore care should be taken to avoid chip jamming. Regulate the feed and speed accordingly.
Note 6) When machining with a large diameter cutter at high feed rates, chip jamming may occur. Regulate the feed and speed accordingly.

Round Insert Cutter for Difficult-to-Cut Materials

(inch)

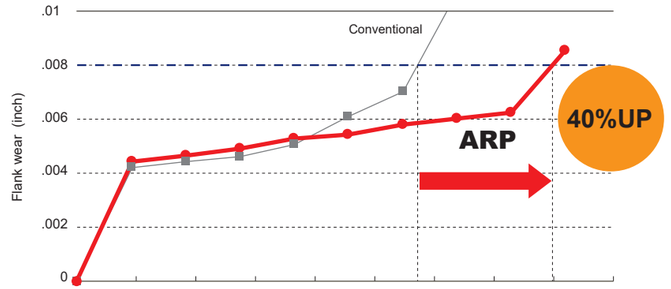
APMX	DCX	Order Number	Install	Type	Depth of Cut (4Seats) ap	Depth of Cut (4Seats) ae	Ramping RMPX(deg)	Helical Cutting DH min.	Helical Cutting DH max.	Plunging Depth AZ max.	Plunging A1
.236" 6mm	1.250"	ARP6UPR2003AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
		ARP6UPR2003FA20M	Shank	Standard	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
		ARP6UPR2002SA20L	Shank	Long	≤ .138	≤1.00DCX	2.0°	2.028	2.421	.024	.039
	1.260" 32mm	ARP6PR3202AM1640	Screw-in	Standard	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3203AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3203SA32M	Shank	Standard	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
		ARP6PR3202SA32L	Shank	Long	≤ .138	≤1.00DCX	2.0°	2.047	2.441	.024	.039
	1.575" 40mm	ARP6PR4003AM1640	Screw-in	Standard	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4004AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4004SA32M	Shank	Standard	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6PR4003SA32L	Shank	Long	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.098
		ARP6P-040A04AR	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.677	3.071	.045	.079
	1.500"	ARP6UPR2404AM1640	Screw-in	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR2404FA20M	Shank	Standard	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR2403SA20L	Shank	Long	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
		ARP6UPR1504SA	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.7°	2.528	2.921	.041	.079
	1.969" 50mm	ARP6PR5005SA42M	Shank	Standard	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.098
		ARP6PR5004SA42L	Shank	Long	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.098
		ARP6P-050A05AR	Arbor	Fine Pitch	≤ .138	≤1.00DCX	2.9°	3.465	3.858	.067	.079
		ARP6P-050A06AR	Arbor	Ex.-Fine	≤ .098	≤1.00DCX	2.9°	3.465	3.858	.067	.079
	2.000"	ARP6UPR3205FA24M	Shank	Standard	≤ .138	≤1.00DCX	2.8°	3.528	3.921	.067	.098
		ARP6UPR3204SA24L	Shank	Long	≤ .138	≤1.00DCX	2.8°	3.528	3.921	.067	.098
		ARP6UPR0205AA	Arbor	Fine Pitch	≤ .138	≤ .95DCX	2.8°	3.528	3.921	.067	.079
		ARP6UPR0206AA	Arbor	Ex.-Fine	≤ .098	≤ .95DCX	2.8°	3.528	3.921	.067	.079
	2.48" 63mm	ARP6P-063A06AR	Arbor	Fine Pitch	≤ .138	≤ .75DCX	3.1°	4.488	4.882	.098	.098
		ARP6P-063A07AR	Arbor	Ex.-Fine	≤ .098	≤ .75DCX	3.1°	4.488	4.882	.098	.098
	2.500"	ARP6UPR2506CA	Arbor	Fine Pitch	≤ .138	≤ .75DCX	3.1°	4.528	4.921	.098	.098
		ARP6UPR2507CA	Arbor	Ex.-Fine	≤ .098	≤ .75DCX	3.1°	4.528	4.921	.098	.098
	3.000"	ARP6UPR0308CA	Arbor	Fine Pitch	≤ .138	≤ .65DCX	2.4°	5.528	5.921	.098	.098
		ARP6UPR0309CA	Arbor	Ex.-Fine	≤ .098	≤ .65DCX	2.4°	5.528	5.921	.098	.098
	3.150" 80mm	ARP6PR08008CA	Arbor	Fine Pitch	≤ .138	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6PR08009CA	Arbor	Ex.-Fine	≤ .098	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6P-080A08AR	Arbor	Fine Pitch	≤ .138	≤ .60DCX	2.3°	5.827	6.220	.098	.098
		ARP6P-080A09AR	Arbor	Ex.-Fine	≤ .098	≤ .60DCX	2.3°	5.827	6.220	.098	.098
	3.937" 100mm	ARP6PR10009DA	Arbor	Fine Pitch	≤ .138	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6PR10011DA	Arbor	Ex.-Fine	≤ .098	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6P-100B09AR	Arbor	Fine Pitch	≤ .138	≤ .50DCX	1.7°	7.402	7.795	.098	.098
		ARP6P-100B11AR	Arbor	Ex.-Fine	≤ .098	≤ .50DCX	1.7°	7.402	7.795	.098	.098
	4.000"	ARP6UPR0409EA	Arbor	Fine Pitch	≤ .138	≤ .45DCX	1.7°	7.528	7.921	.098	.098
		ARP6UPR0411EA	Arbor	Ex.-Fine	≤ .098	≤ .45DCX	1.7°	7.528	7.921	.098	.098

Note 1) When drilling long chips may be generated.
Note 2) When cutting helical holes, do not exceed the largest APMX cutting depth per rotation.
Note 3) Calculate using the following formula for center tool tracks and ϕdc when cutting helical holes: Center tool tracks ϕdc=desired hole diameter ϕDH - tool diameter ϕDCX
Note 4) Use of air blow to disperse chips effectively is strongly recommended.
Note 5) Insert pockets are small in fine pitch and small diameter cutters therefore care should be taken to avoid chip jamming. Regulate the feed and speed accordingly.
Note 6) When machining with a large diameter cutter at high feed rates, chip jamming may occur. Regulate the feed and speed accordingly.

Cutting Performance

Cutting of 420 Stainless Steel

Long tool life! At least 40% more when compared to conventional tooling.



<Cutting Conditions>
Material : AISI 420
Cutter Body : ARP5P-050A06AR
Insert : RPHT1040M0E4-R MC7020
Cutting Speed : vc=1150 SFM
Feed per Tooth : fz=.014 IPT
Depth of Cut : ap=.098 inch
ae=.984 inch
Cutting Mode : Dry Cutting
Single Insert

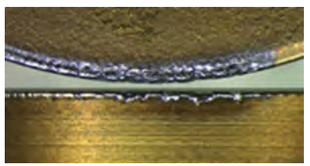
ARP5 (Cutting Length 27.6 feet)

Conventional (Cutting Length 27.6 feet)

Cutting of 631 Precipitation Hardening Stainless Steel

Implementation of stable processing compared to conventional products with precipitation hardening stainless steel.

ARP5 (Cutting Length 1.3 feet)



VB=.006 inch Minute Chipping

Conventional A (Cutting Length 1.3 feet)

VB=.014 inch Large Chipping

Conventional B (Cutting Length 1.3 feet)

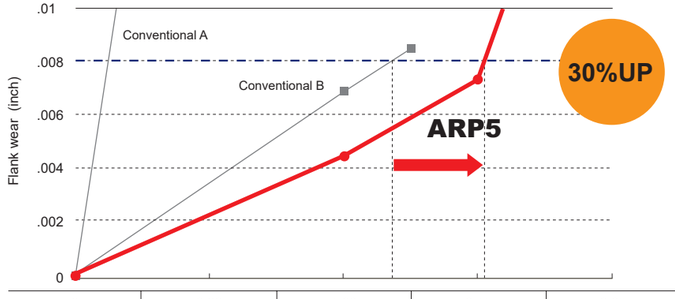
VB=.007 inch Chipping

<Cutting Conditions>
Material : AISI 631
Cutter Body : ARP5P-050A06AR
Insert : RPHT1040M0E4-L MP7130
Cutting Speed : vc=1150 SFM
Feed per Tooth : fz=.010 IPT
Depth of Cut : ap=.098 inch
ae=.551 inch
Cutting Mode : Wet Cutting
Single Insert

Cutting Performance

Cutting of 304 Stainless Steel

Long tool life! A 30% improvement when compared to conventional tooling.

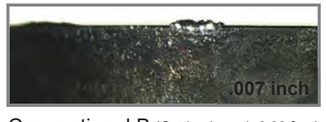


<Cutting Conditions>
Material : AISI 304
Cutter Body : ARP5P-050A06AR
Insert : RPHT1040M0E4-L MP7130
Cutting Speed : 720 SFM
Feed per Tooth : .014 IPT
Depth of Cut : ap=.098 inch
ae=.984 inch
Cutting Mode : Dry Cutting
Single Insert

0	0.82	1.63	2.45	3.27	Cutting Time (min)
0	1.31	2.62	2.62	5.24	Cutting Length (feet)

ARP5 (Cutting Length 2.62 feet)

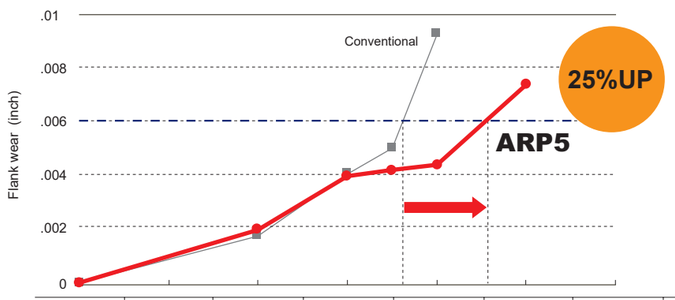
Conventional A (Cutting Length 2.62 feet)



Conventional B (Cutting Length 2.62 feet)

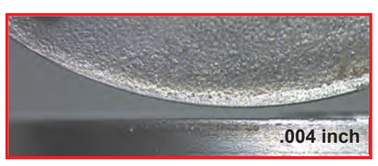
Cutting of Ti-6Al-4V

Long tool life! A 25% improvement when compared to conventional tooling.

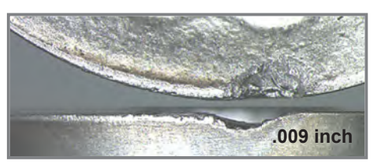


<Cutting Conditions>
Material : Ti-6Al-4V
Cutter Body : ARP5P-050A06AR
Insert : RPHT1040M0E4-L MP9130
Cutting Speed : 195 SFM
Feed per Tooth : .004 IPT
Depth of Cut : ap=.098 inch
ae=.984 inch
Cutting Mode : Wet (Low Pressure)
Single Insert

0	13.1	26.2	39.3	52.4	65.4	78.5	Cutting Time (min)
0	1.64	3.28	4.92	6.56	8.20	9.84	Cutting Length (feet)



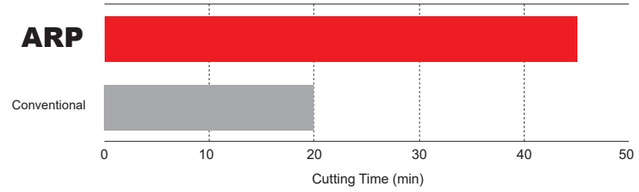
ARP5 (Cutting Length 6.56 feet)



Conventional (Cutting Length 6.56 feet)

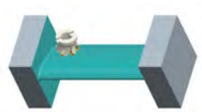
Stainless Steel, Tool Life Comparison

MP9140 prevents breakage, it achieved more than twice longer tool life than conventional.



<Cutting Conditions>
Material : Stainless Steel
Cutter Dia : 1.575 inch
Cutting Speed : vc=765 SFM
Feed per Tooth : fz=.006 IPT
Depth of Cut : ap=.079 inch
ae=.787 inch
Cutting Mode : Dry Cutting

Application Examples

Cutter Body		ARP6P-050A05AR	ARP6P-050A06AR	ARP6P-050A06AR
Insert (Grade)		RPHT1248M0E4-M (MC7020)	RPMT1248M0E4-R (MP7130)	RPMT1248M0E4-L (MP7130)
Workpiece			Martensitic Stainless Steel 	Martensitic Stainless Steel 
Component		Power Generator Parts	Power Generator Parts	Aerospace Parts
Cutting Conditions	Cutting Speed (SFM)	930	820	655
	Feed per Tooth (IPT)	.01	.018	.01
	Depth of Cut (inch)	ap=.118 ae=1.18	ap=.098 ae=1.58	ap=.039 ae=.787
Cutting Mode		Air Blow	MQL	Dry
Results		Further machining still possible after completing double the normal cutting length.	Machining efficiency increased by 20% and insert life by 30%.	Successfully completed component with improved cutting conditions and some tool life remaining. Cycle time reduced by 47%.

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

Memo

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Welcome to our new world-class Machining Technology and Education Center (MTEC) in Mooresville, NC providing year round support and services to North America.

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TOOLING PROPOSALS & EVALUATION

We will review your current processes or outline a new process. From this review, we will improve productivity, analyze programming methods and output a solution with programming, tooling and time savings.

MACHINING SIMULATION

Using the latest CAD/CAM software and our cutting tool experience, we will outline a new process using proper machining techniques to maximize tool life and productivity.

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Dedicated local professionals to answer any of your order, product or technical questions.

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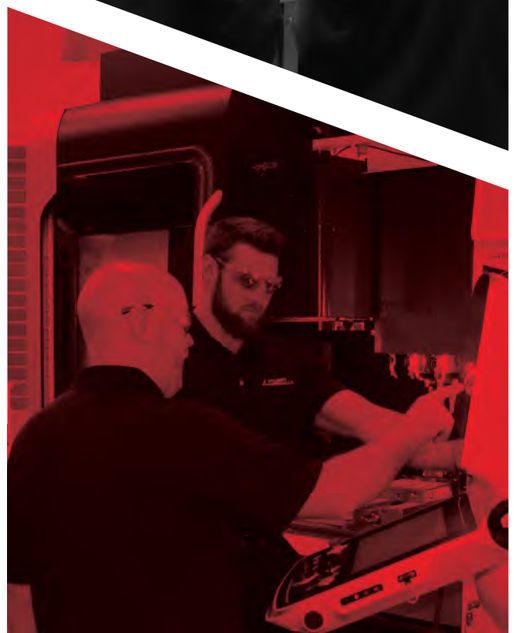
We are excited to offer several levels of training with goals to reach our highest level--Craftsman Machining Technology. At MTEC NC, we will train using a combination of classroom and hands-on machine time to develop skills and real-world understanding of materials, tools and applications. In addition to multi-day courses, we will have Machining Technology skills seminars, as well as seminars from our partners to complement our apprentice level courses, our journeyman courses, and up to our craftsman level courses.

PROCESS IMPROVEMENTS

Review of the complete part processing and recommend changes of speed, feed, new tooling, reduction of passes, modifying programming and other solutions to reduce cycle time, save money and be proactive.



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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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Tools specifications subject to change without notice.

B222A-US-2025.7