RECOMMENDED CUTTING CONDITIONS

■ Dry cutting

	Workpiece Material	Hardness	Grade	**vc** (m/min)	**fz** (mm/t)
M	Austenitic Stainless Steel	≤200HB	**MC7020**	220 (170–270)	0.2 (0.1–0.35)
			MP7130	200 (150–250)	0.2 (0.1–0.35)
	Austenitic Stainless Steel	>200HB	**MC7020**	190 (140–240)	0.2 (0.1–0.35)
			MP7130	170 (120–220)	0.2 (0.1–0.35)
	Two-phase Stainless Steel	≤280HB	**MC7020**	180 (130–230)	0.2 (0.1–0.35)
			MP7130	160 (110–210)	0.2 (0.1–0.35)
	Ferritic and Martensitic Stainless Steel	≤200HB	**MC7020**	240 (190–290)	0.2 (0.1–0.35)
			MP7130	200 (150–250)	0.2 (0.1–0.35)
	Ferritic and Martensitic Stainless Steel	>200HB	**MC7020**	240 (190–290)	0.2 (0.1–0.35)
			MP7130	200 (150–250)	0.2 (0.1–0.35)
	Hardened Stainless Steel	<450HB	**MC7020**	170 (120–220)	0.2 (0.1–0.35)
			MP7130	150 (100–200)	0.2 (0.1–0.35)

■ Wet cutting

	Workpiece Material	Hardness	Grade	**vc** (m/min)	**fz** (mm/t)
M	Austenitic Stainless Steel	≤200HB	**MC7020**	150 (100–200)	0.2 (0.1–0.35)
			MP7130	130 (80–180)	0.2 (0.1–0.35)
	Austenitic Stainless Steel	>200HB	**MC7020**	120 (70–170)	0.2 (0.1–0.35)
			MP7130	100 (80–150)	0.2 (0.1–0.35)
	Two-phase Stainless Steel	≤280HB	**MC7020**	120 (70–170)	0.2 (0.1–0.35)
			MP7130	100 (80–150)	0.2 (0.1–0.35)
	Ferritic and Martensitic Stainless Steel	≤200HB	**MC7020**	170 (120–220)	0.2 (0.1–0.35)
			MP7130	130 (80–180)	0.2 (0.1–0.35)
	Ferritic and Martensitic Stainless Steel	>200HB	**MC7020**	170 (120–220)	0.2 (0.1–0.35)
			MP7130	130 (80–180)	0.2 (0.1–0.35)
	Hardened Stainless Steel	<450HB	**MC7020**	110 (60–160)	0.2 (0.1–0.35)
			MP7130	90 (50–140)	0.2 (0.1–0.35)
S	Titanium Alloy	–	**MP9130**	45 (30–55)	0.1 (0.05–0.15)
			MP9140	40 (30–50)	0.1 (0.05–0.15)
	Heat Resistant Alloy	–	**MP9130**	35 (15–45)	0.1 (0.05–0.15)
			MP9140	30 (15–40)	0.1 (0.05–0.15)

Note 1) Actual cutting conditions are estimated to avoid chatter vibration with high rigidity of a machine or workpiece.
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) The setting level for feeding 1 blade is ap = 2.5mm with ARP5 axial cutting. With ARP6, use ap = 3mm.
Use while matching the ap fluctuation and correction value F of the respective table.
Ex. Feed for the recommended 1 blade when ARP5,SUS304, MP7130,ap=1: 0.2 mm/t×1.5 (correction value F)=0.3 mm/t

Note 3) For grooving, use feed at the recommended 70% level. For ramping, drilling, and plunging, use 50% level.

Note 4) Internal coolant is recommended in titanium alloy and heat resistant alloy cutting.
It is more effective when a separately sold, coolant nozzle is used.

■ Correction level F feed amount for 1 blade, based on axial cutting ap fluctuation

Holder	ap=0.5mm	ap=1mm	ap=1.5mm	ap=2mm	ap=2.5mm	ap=3mm	ap=3.5mm	ap=4mm	ap=5mm	ap=6mm
ARP5	2.3	1.5	1.2	1.1	1.0	0.9	0.8	0.8	0.8	–
ARP6	2.5	1.7	1.3	1.1	1.0	1.0	0.9	0.9	0.8	0.8

Note 1) Tool body durability may weaken, when the amount of axial cutting exceeds ARP5=5mm and ARP6=6mm.

Depth of Cut and Width of Cut

Install Type	**DCX** (mm)	**RE** (mm)	Order Number	No.of Teeth	Depth of Cut **ap** (mm) *	Width of Cut **ae** (mm)
Arbor	40	5	**ARP5P-040A05AR**	5	≤2.5	≤1.0DCX
		6	**ARP6P-040A04AR**	4	≤3.5	≤1.0DCX
	50	5	**ARP5P-050A06AR**	6	≤2.5	≤1.0DCX
			ARP5P-050A07AR	7	≤1.5	≤1.0DCX
		6	**ARP6P-050A05AR**	5	≤3.5	≤1.0DCX
			ARP6P-050A06AR	6	≤2.5	≤1.0DCX
	63	5	**ARP5P-063A07AR**	7	≤2.5	≤0.75DCX
			ARP5P-063A08AR	8	≤1.5	≤0.75DCX
		6	**ARP6P-063A06AR**	6	≤3.5	≤0.75DCX
			ARP6P-063A07AR	7	≤2.5	≤0.75DCX
	80	6	**ARP6PR08008CA**	8	≤3.5	≤0.6DCX
			ARP6PR08009CA	9	≤2.5	≤0.6DCX
	100	6	**ARP6PR10009DA**	9	≤3.5	≤0.5DCX
			ARP6PR10011DA	11	≤2.5	≤0.5DCX
Screw-in	25	5	**ARP5PR2502AM1235**	2	≤2.5	≤1.0DCX
			ARP5PR2503AM1235	3	≤1.5	≤1.0DCX
	32	5	**ARP5PR3203AM1640**	3	≤2.5	≤1.0DCX
			ARP5PR3204AM1640	4	≤2.5	≤1.0DCX
		6	**ARP6PR3202AM1640**	2	≤3.5	≤1.0DCX
			ARP6PR3203AM1640	3	≤3.5	≤1.0DCX
	40	6	**ARP6PR4003AM1640**	3	≤3.5	≤1.0DCX
			ARP6PR4004AM1640	4	≤3.5	≤1.0DCX

Install Type	**DCX** (mm)	**RE** (mm)	Tool Holder Type	Depth of Cut **ap** (mm) *	Width of Cut **ae** (mm)
Shank	25	5	**ARP5PR25**	≤1.5	≤1.0DCX
	32	5	**ARP5PR32**	≤2.5	≤1.0DCX
		6	**ARP6PR32**	≤3.5	≤1.0DCX
	40	6	**ARP6PR40**	≤3.5	≤1.0DCX
	50	6	**ARP6PR50**	≤3.5	≤1.0DCX

* When using the 8 seat type, the specifications for depth of cut should be Max. 1.4 mm for ARP5 and 1.7 mm for ARP6.

MAXIMUM CAPACITIES BY MODE

Install Type	**DCX** (mm)	**RE** (mm)	Tool Holder Type	Ramping	Helical Drilling		Drilling Depth	Plunging
				RMPX	**DH max.** (mm)	**DH min.** (mm)	Maximum **AZ** (mm)	**AE1** (mm)
Arbor	40	5	**ARP5P-040A**	2.8°	70	78	1.30	2.0
		6	**ARP6P-040A**	2.7°	68	78	1.15	2.0
	50	5	**ARP5P-050A**	2.9°	90	98	1.85	2.0
		6	**ARP6P-050A**	2.9°	88	98	1.70	2.0
	63	5	**ARP5P-063A**	3.0°	116	124	2.50	2.5
		6	**ARP6P-063A**	3.1°	114	124	2.50	2.5
	80	6	**ARP6PR080**	2.3°	148	158	2.50	2.5
	100	6	**ARP6PR100**	1.7°	188	198	2.50	2.5
Shank	25	5	**ARP5PR25**	1.8°	40	48	0.40	1.0
	32	5	**ARP5PR32**	1.9°	54	62	0.65	1.0
		6	**ARP6PR32**	2.0°	52	62	0.60	1.0
	40	6	**ARP6PR40**	2.7°	68	78	1.15	2.5
	50	6	**ARP6PR50**	2.9°	88	98	1.70	2.5
Screw-in	25	5	**ARP5PR25**	1.8°	40	48	0.40	-
	32	5	**ARP5PR32**	1.9°	54	62	0.65	1.0
		6	**ARP6PR32**	2.0°	52	62	0.60	1.0
	40	6	**ARP6PR40**	2.7°	68	78	1.15	2.5

Note 1) When drilling, be careful of long scattered cutting chips

Note 2) When cutting helical holes, do not exceed the largest APMX cutting depth per one rotation.

Note 3) Calculate using the following formula for centre tool tracks and ϕdc when cutting helical holes : Centre tool tracks ϕdc=desired hole diameter ϕDH tool diameter ϕDCX

Note 4) For preventing trouble with cutting chip biting, especially when grooving, ramping, helical cutting, and drilling, thoroughly eliminate cutting chips with an air blower or the like.

Note 5) Small diameter cutters with a large number of teeth create smaller chips.
Pay attention to the depth of cut and feed rate as chip clogging may occur.

Note 6) When machining with a large diameter cutter with a large ae, the chips produced become long increasing the risk of chip clogging.
Please adjust the depth of cut ap and feed before use.