Recommended cutting conditions

Dry cutting

	Work 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)
	Ferritic and Martensitic 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

	Work 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)
	Ferritic and Martensitic 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)
	Heat Resistant Alloy	–	**MP9130**	35 (15–45)	0.1 (0.05–0.15)

* 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.
* 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.
* For grooving, use feed at the recommended 70% level. For ramping, drilling, and plunging, use 50% level.
* Internal coolant is recommended in titanium alloy and heat resistant alloy cutting.
  When the coolant nozzle of separately sold is used, it is more effective.

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

	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

Maximum capacities by each cutting method

Cutting Edge	Maximum hole diameter	Order Number	Install	Type	ap (mm)	ae (mm)	Ramping	Helical Milling		Drilling Depth	Plunging
APMX	**DCX**						**RMPX**(deg)	Smallest hole **DH min.**(mm)	Largest hole **DH max.**(mm)	Maximum **AZ**(mm)	**AE1**(mm)
	25	**ARP5PR2502AM1235**	Screw-in	Standard	≤2.5	≤1.00DCX	1.8	40	48	0.40	—
		ARP5PR2503AM1235	Screw-in	Fine Pitch	≤1.5	≤1.00DCX	1.8	40	48	0.40	—
		ARP5PR2503SA25M	Shank	Standard	≤1.5	≤1.00DCX	1.8	40	48	0.40	1.0
		ARP5PR2502SA25L	Shank	Long	≤1.5	≤1.00DCX	1.8	40	48	0.40	1.0
	32	**ARP5PR3203AM1640**	Screw-in	Standard	≤2.5	≤1.00DCX	1.9	54	62	0.65	1.0
		ARP5PR3204AM1640	Screw-in	Fine Pitch	≤2.5	≤1.00DCX	1.9	54	62	0.65	1.0
		ARP5PR3204SA32M	Shank	Standard	≤2.5	≤1.00DCX	1.9	54	62	0.65	1.0
		ARP5PR3203SA32L	Shank	Long	≤2.5	≤1.00DCX	1.9	54	62	0.65	1.0
5.0	40	**ARP5P-040A05AR**	Arbor	Fine Pitch	≤2.5	≤1.00DCX	2.8	70	78	1.30	2.0
	42	**ARP5P-042A05AR**	Arbor	Fine Pitch	≤2.5	≤1.00DCX	2.8	74	82	1.40	2.5
		ARP5P-042A06AR	Arbor	Extra Fine Pitch	≤1.5	≤1.00DCX	2.8	74	82	1.40	2.5
	50	**ARP5P-050A06AR**	Arbor	Fine Pitch	≤2.5	≤1.00DCX	2.9	90	98	1.85	2.0
		ARP5P-050A07AR	Arbor	Extra Fine Pitch	≤1.5	≤1.00DCX	2.9	90	98	1.85	2.0
	52	**ARP5P-052A06AR**	Arbor	Fine Pitch	≤2.5	≤0.95DCX	3.0	94	102	2.00	2.5
		ARP5P-052A07AR	Arbor	Extra Fine Pitch	≤1.5	≤0.95DCX	3.0	94	102	2.00	2.5
	63	**ARP5P-063A07AR**	Arbor	Fine Pitch	≤2.5	≤0.75DCX	3.0	116	124	2.50	2.5
		ARP5P-063A08AR	Arbor	Extra Fine Pitch	≤1.5	≤0.75DCX	3.0	116	124	2.50	2.5
	32	**ARP6PR3202AM1640**	Screw-in	Standard	≤3.5	≤1.00DCX	2.0	52	62	0.60	1.0
		ARP6PR3203AM1640	Screw-in	Fine Pitch	≤3.5	≤1.00DCX	2.0	52	62	0.60	1.0
		ARP6PR3203SA32M	Shank	Standard	≤3.5	≤1.00DCX	2.0	52	62	0.60	1.0
		ARP6PR3202SA32L	Shank	Long	≤3.5	≤1.00DCX	2.0	52	62	0.60	1.0
	40	**ARP6PR4003AM1640**	Screw-in	Standard	≤3.5	≤1.00DCX	2.7	68	78	1.15	2.5
		ARP6PR4004AM1640	Screw-in	Fine Pitch	≤3.5	≤1.00DCX	2.7	68	78	1.15	2.5
		ARP6PR4004SA32M	Shank	Standard	≤3.5	≤1.00DCX	2.7	68	78	1.15	2.5
		ARP6PR4003SA32L	Shank	Long	≤3.5	≤1.00DCX	2.7	68	78	1.15	2.5
		ARP6P-040A04AR	Arbor	Fine Pitch	≤3.5	≤1.00DCX	2.7	68	78	1.15	2.0
	50	**ARP6PR5005SA42M**	Shank	Standard	≤3.5	≤1.00DCX	2.9	88	98	1.70	2.5
		ARP6PR5004SA42L	Shank	Long	≤3.5	≤1.00DCX	2.9	88	98	1.70	2.5
6.0		**ARP6P-050A05AR**	Arbor	Fine Pitch	≤3.5	≤1.00DCX	2.9	88	98	1.70	2.0
		ARP6P-050A06AR	Arbor	Extra Fine Pitch	≤2.5	≤1.00DCX	2.9	88	98	1.70	2.0
	52	**ARP6P-052A05AR**	Arbor	Fine Pitch	≤3.5	≤0.95DCX	2.9	92	102	1.80	2.5
		ARP6P-052A06AR	Arbor	Extra Fine Pitch	≤2.5	≤0.95DCX	2.9	92	102	1.80	2.5
	63	**ARP6P-063A06AR**	Arbor	Fine Pitch	≤3.5	≤0.75DCX	3.1	114	124	2.50	2.5
		ARP6P-063A07AR	Arbor	Extra Fine Pitch	≤2.5	≤0.75DCX	3.1	114	124	2.50	2.5
	66	**ARP6P-066X06AR**	Arbor	Fine Pitch	≤3.5	≤0.75DCX	2.9	120	130	2.50	2.5
		ARP6P-066X07AR	Arbor	Extra Fine Pitch	≤2.5	≤0.75DCX	2.9	120	130	2.50	2.5
	80	**ARP6P-080A08AR**	Arbor	Fine Pitch	≤3.5	≤0.60DCX	2.3	148	158	2.50	2.5
		ARP6P-080A09AR	Arbor	Extra Fine Pitch	≤2.5	≤0.60DCX	2.3	148	158	2.50	2.5
	100	**ARP6P-100B09AR**	Arbor	Fine Pitch	≤3.5	≤0.50DCX	1.7	188	198	2.50	2.5
		ARP6P-100B11AR	Arbor	Extra Fine Pitch	≤2.5	≤0.50DCX	1.7	188	198	2.50	2.5

* Tool body durability may weaken, when the amount of axial cutting exceeds ARP5=5mm and ARP6=6mm.
* When drilling, be careful of long scattered cutting chips
* When cutting helical holes, do not exceed the largest APMX cutting depth per one rotation.
* Calculate using the following formula for center tool tracks and dc when cutting helical holes: Center tool tracks and dc=desired hole diameter & DH tool diameter & DCX
* 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.
* Cutting chip pockets are small for extra-multiple cutting and small diameter cutters.
  Use with caution the ae and ap feed due to the possibility of cutting blockage.
* When cutting large ae with large diameter cutter, blockage from long cuttings is possible.
  Regulate ap and feed.