RECOMMENDED CUTTING CONDITIONS

(mm)

| Workpiece Material	Characteristics	Grade	Breaker	Cutting Speed vc (m/min)	Cutting Width ae		Depth of Cut ap	Feed per Tooth (mm/t)
N Aluminium Alloys (A7050, A7075, A2024, A6061 etc) Aluminium-lithium Alloy	Content Si<5%	MT2010 TF15 MP9120	**GM**	4000(2000—5000)	≦0.5 DC		≦ 5	≦ 0.35
							≦ 10	≦ 0.30
							≦ 14.5	≦ 0.25
					≦0.75 DC		≦ 5	≦ 0.30
							≦ 10	≦ 0.25
							≦ 14.5	≦ 0.20
					DC (Slot)		≦ 5	≦ 0.30
		TF15 LC15TF	**GL**	4000(2000—5000)	≦0.75 DC		≦ 5	≦ 0.20
							≦ 10	≦ 0.15
							≦ 14.5	≦ 0.10
					DC (Slot)		≦ 5	≦ 0.20

Note 1) The above cutting conditions are determined based on high workpiece materials and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.
Note 2) Note, vibrations may occur in the following conditions.
   • When using a long tool overhang.
   • When pocket machining corner radii.
   • When the workpiece materials has poor clamping rigidity or when the machine rigidity or workpiece material rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

■ Ramping / Helical Milling / Drilling

● **Ramping**

$$L= \frac{APMX}{\tan RMPX}$$
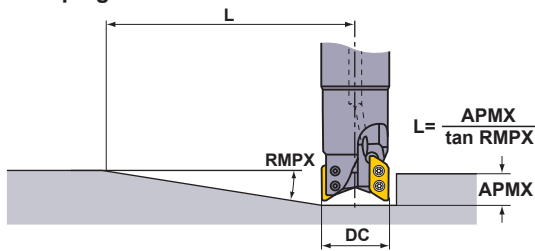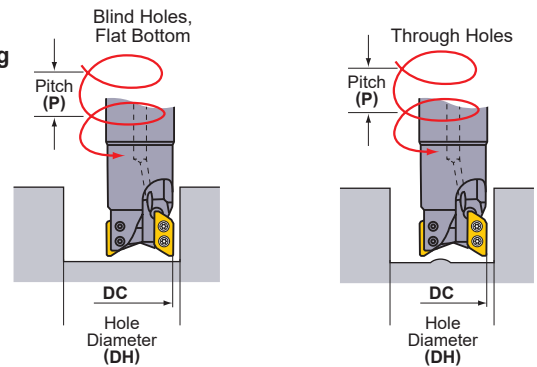
● **Helical Milling**

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

(mm)

DC	Type	Insert Corner R RE	Ramping RMPX	Ramping L *1	Helical Milling (Blind Hole, Flat Bottom) DH max.	DH min.	P max.	Helical Milling (Through Hole) DH min.	P max.	Drilling
50	D	0.4—1.2	8.2°	108	96.8 *2	95.4	14	81.2	14	5.5
		1.6—2.4	7.6°	117	94.4 *3	93.6	13	81.2	13	5.0
		3.0—3.2	6.9°	129	92.8 *4	92.0	12	81.2	12	4.5
	E	4.0	6.3°	135	91.2	90.0	10	81.2	10	3.9
		5.0	5.8°	146	89.2	88.8	9	81.2	9	3.6

*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows:
   L= (maximum depth of cut APMX/tan RMPX). Maximum depth of cut D type is 15.5mm, E type is 14.8mm.
*2 Corner radius of 1.2mm. For other corner radii, use the following formula. {(cutting edge diameter DC)−(corner radius RE)−0.3}×2
*3 Corner radius of 2.4mm. For other corner radii, use the following formula. {(cutting edge diameter DC)−(corner radius RE)−0.3}×2
*4 Corner radius of 3.2mm. For other corner radii, use the following formula. {(cutting edge diameter DC)−(corner radius RE)−0.3}×2
Note 1) The recommended ramping feed is 0.05mm/t or under.