

ROTATING TOOLS

RECOMMENDED CUTTING CONDITIONS

Work Material	Grade	Breaker	Cutting Speed vc (m/min)	Cutting Width ae (mm)	Cutting Depth ap (mm)	Feed (mm/tooth)		
						Cutting Edge Diameter D1		
						φ32	φ40	φ50-φ125
N	Aluminium Alloy	LC15TF TF15	GL	1000 (200-3000)	<0.25 D1	<5	<0.35	<0.40
						5-10	<0.30	<0.35
						10-15	<0.25	<0.30
						15-20	<0.20	<0.25
					<0.5 D1	<5	<0.35	<0.40
						5-10	<0.30	<0.35
						10-15	<0.25	<0.30
						15-20	<0.20	<0.25
					<0.75 D1	<5	<0.30	<0.35
						5-10	<0.25	<0.30
						10-15	<0.20	<0.25
						15-20	<0.15	<0.20
					<D1	<5	<0.25	<0.30
						5-10	<0.20	<0.30
						10-15	<0.15	<0.25
						15-20	<0.10	<0.20

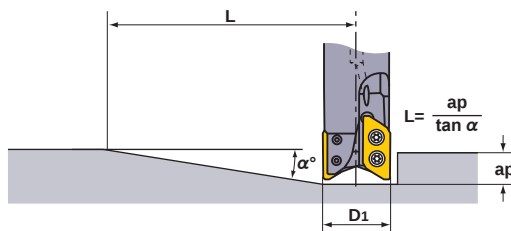
(Note 1) The above cutting conditions are determined based on high workpiece and machine rigidity, where no vibration occurred. If vibrations occur make adjustments according to the machining conditions.

(Note 2) Note, vibrations may occur in the following conditions.

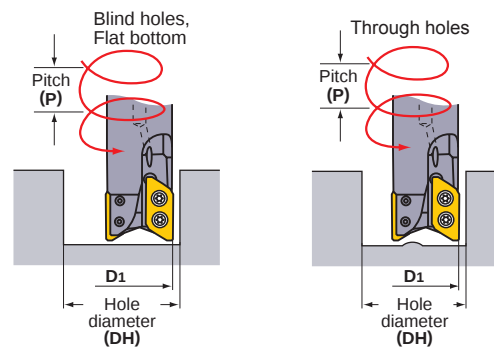
- When using long tool overhang.
- When pocket machining corner radii.
- When the workpiece has poor clamping rigidity or when the machine rigidity or workpiece rigidity is low, vibrations can occur easily, if so, reduce cutting conditions such as width and depth of cut and feed per tooth.

RAMPING/HELICAL MILLING

RAMPING



HELICAL MILLING



RAMPING/HELICAL MILLING

Holder Type	Cutting Edge Diameter D1 (mm)	Ramping		Helical Milling (Blind Hole, Flat Bottom)				Helical Milling (Through Hole)	
		Maximum Ramping Angle α°	Minimum*1 Distance L (mm)	Maximum*2 Hole Diameter DH max. (mm)	Maximum Pitch P max. (mm)	Minimum*3 Hole Diameter DH min. (mm)	Maximum Pitch P max. (mm)	Minimum Hole Diameter DH min. (mm)	Maximum Pitch P max. (mm)
A type	32	19	61	61.8	21	58.2	20	41	7
	40	13	91	77.8	18	74.2	17	57	9
	50	9	133	97.8	16	94.2	16	77	10
	63	7	171	123.8	15	120.2	15	103	11
	80	5	240	157.8	16	154.2	15	137	12
	100	4	300	197.8	15	194.2	15	177	12
B type	125	3	401	247.8	12	244.2	12	227	11
	32	18	63	55.4	16	54.0	16	41	7
	40	11	105	71.4	14	70.0	14	57	8
	50	8	146	91.4	13	90.0	12	77	8
	63	6	195	117.4	11	116.0	11	103	8
	80	4	293	151.4	11	150.0	11	137	9
	100	3	391	191.4	9	190.0	9	177	8
	125	2	587	241.4	12	240.0	12	227	11

(Note) The recommended ramping feed is 0.05mm/tooth or under.

*1 Using the maximum ramping angle, the distance to reach the maximum depth of cut is as follows:

$L = (\text{maximum depth of cut } ap / \tan \alpha)$. Maximum depth of cut A type is 21mm, B type is 20.4mm.

*2 The maximum diameter when machining a blind hole with a flat face using a corner radius of 0.8mm for A type and 4mm for B type.

For other corner radii, use the formula below.

$\{(\text{cutting edge diameter } D1) - (\text{corner radius } Re) - 0.3\} \times 2$

*3 The minimum diameter when machining a blind hole with a flat face using a corner radius of 0.8mm for A type and 4mm for B type.

For other corner radii, use the formula below.

$\{(\text{cutting edge diameter } D1) - (\text{corner radius } Re) - (\text{width of wiper edge } F1) - 0.1\} \times 2$

MAX.DRILLING DEPTH

Type	Insert Corner R Re (mm)	Max.Drilling Depth (mm)
A type	0.8-3.2	5
B type	4.0 5.0	4

AXD7000 can be effectively used for pocket machining without the need for a prepared hole.

