

切削参数参考表
Recommended Milling Conditions

加工材料 Work Material		高硬度钢 Hardened Steels HPM-38 · STAVAX · SKD61 (~55HRC)				高硬度钢 Hardened Steels SKD11 (~62HRC)				高速钢 High Speed Steels SKH (~65HRC)			
外径 Dia.	颈长 Under Neck Length	切深量 Depth of Cut		进给速度 Feed	主轴转速 Spindle Speed	切深量 Depth of Cut		进给速度 Feed	主轴转速 Spindle Speed	切深量 Depth of Cut		进给速度 Feed	主轴转速 Spindle Speed
		ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹
0.2	0.4	0.003	0.002	400	40,000	0.002	0.002	300	40,000	0.002	0.002	200	40,000
	1	0.003	0.002	300	40,000	0.002	0.002	200	40,000	0.002	0.002	100	40,000
0.3	0.5	0.005	0.003	600	40,000	0.004	0.003	400	40,000	0.003	0.003	400	40,000
	1.5	0.005	0.002	500	40,000	0.004	0.002	300	40,000	0.003	0.002	200	40,000
0.4	0.8	0.007	0.004	700	40,000	0.005	0.003	600	40,000	0.003	0.003	600	40,000
	2	0.007	0.003	600	40,000	0.005	0.002	400	40,000	0.003	0.002	400	40,000
0.5	1	0.01	0.005	800	40,000	0.007	0.003	700	40,000	0.005	0.003	600	40,000
	2.5	0.01	0.004	800	40,000	0.007	0.002	500	40,000	0.005	0.002	400	40,000
0.6	1.2	0.01	0.005	800	40,000	0.007	0.003	700	40,000	0.005	0.003	600	40,000
	3	0.01	0.004	800	40,000	0.007	0.002	500	40,000	0.005	0.002	400	40,000
0.8	1.5	0.01	0.005	800	40,000	0.007	0.004	800	40,000	0.005	0.004	700	40,000
	3.5	0.01	0.004	800	40,000	0.007	0.003	600	40,000	0.005	0.003	500	40,000
1	2	0.01	0.006	800	40,000	0.007	0.006	800	40,000	0.005	0.006	800	40,000
	5	0.01	0.005	800	40,000	0.007	0.005	600	40,000	0.005	0.005	600	40,000
备注 Notes		<p>※1 切深量是指进行等高线精加工时的最大值。 ※2 切深量的ap表示轴向切深量，ae表示径向切深量。 ※3 建议使用油雾冷却方式。 ※4 请根据需要控制刀具的伸出量。 ※5 请尽量抑制刀具的偏摆量。(可能的话，请确认所用主轴转速下的动态偏摆精度。) ※6 进行底面精加工时，进给速度请取切削参数参考表的约50%，切深量ap取$\phi 0.2 \cdot \phi 0.3 : \sim 0.002\text{mm}$、$\phi 0.4 \sim \phi 1 : \sim 0.003\text{mm}$，切深量ae取外径$\times 0.05\text{mm}$作为参考值。 ※1 Depth of Cut is the maximum effective value for the contour line tool path. ※2 ap: Axial Depth of Cut, ae: Radial Depth of Cut. ※3 Recommended oil mist coolant. ※4 Minimize a possible tool overhang length. ※5 Minimize chucking runout. (Recommend to measure actual runout of activated spindle speed.) ※6 For the reference value, when finishing process of bottom surface, reduce the feed approx. 50% of the recommended milling conditions and Depth of Cut (ap): 0.002mm for Dia. 0.2mm and 0.3mm, for Dia. 0.4 to 1mm, up to 0.003mm, (ae): Dia. x 0.05mm.</p>											

H ~52高硬度钢
HRC Hardened SteelH ~60高硬度钢
HRC Hardened SteelH ~65高硬度钢
HRC Hardened SteelH ~70高硬度钢
HRC Hardened Steel

使用注意事项

Points in Use

加工环境 Advice on Cutting Environment

- 刀具偏摆量越小越好。
Minimize the deflection of cutting edge.

- 掌握机床主轴的伸缩量以及机床的水平状态，需要时采取恰当的措施。

To understand the nature of the expansion of the main spindle and machine posture transformation, and take measures against them.

精加工量(余量) Advice on Finishing Allowance (stock amount)

- 使用小径CBN铣刀时，精加工量(余量)均匀性非常重要。
When using small CBN End Mill, uniform finishing allowance (stock amount) is important.
- 粗加工·中精加工使用刀具磨损过大时，中精加工和精加工的余量会变大，从而影响刀具寿命和加工精度，所以预加工时留有均匀的加工余量非常重要。

When tool is used on roughing and semi-finishing and it has a big abrasion, finishing allowance (stock amount) on semi-finishing and finishing is increasing and it affects tool life and cutting accuracy. Therefore, it is important to get uniform stock amount in the pre-stage cutting.

