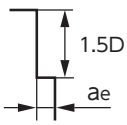
切削参数参考表
Recommended Milling Conditions

加工材料 Work Material	碳素钢 Carbon Steels S50C			合金钢 Alloy Steels SCM・SKD・SUS			调质钢 Prehardened Steels HPM・NAK			高硬度钢 Hardened Steels SKD61 (～52HRC)			铝合金 Aluminium Alloy			铜合金 Copper		
切削速度 Cutting Speed	50～80m/min			50～70m/min			40～60m/min			20～40m/min			100～200m/min			60～80m/min		
外径 Dia.	主轴转速 Spindle Speed	进给速度 Feed		主轴转速 Spindle Speed	进给速度 Feed		主轴转速 Spindle Speed	进给速度 Feed		主轴转速 Spindle Speed	进给速度 Feed		主轴转速 Spindle Speed	进给速度 Feed		主轴转速 Spindle Speed	进给速度 Feed	
	min^{-1}	mm/min		min^{-1}	mm/min		min^{-1}	mm/min		min^{-1}	mm/min		min^{-1}	mm/min		min^{-1}	mm/min	
		侧面 Side Milling	沟槽 Slotting		侧面 Side Milling	沟槽 Slotting		侧面 Side Milling	沟槽 Slotting		侧面 Side Milling	沟槽 Slotting		侧面 Side Milling	沟槽 Slotting		侧面 Side Milling	沟槽 Slotting
0.1	50,000	–	25	50,000	–	15	50,000	–	20	50,000	–	15	50,000	60	25	50,000	60	25
0.2	50,000	–	40	50,000	–	25	50,000	–	30	47,700	–	20	50,000	90	35	50,000	90	35
0.3	50,000	100	50	50,000	90	35	50,000	85	40	31,800	–	20	50,000	150	60	50,000	150	60
0.4	50,000	150	75	47,700	130	50	39,800	110	55	23,900	50	25	50,000	200	80	50,000	200	80
0.5	41,400	170	85	38,200	130	50	31,800	110	55	19,100	60	30	50,000	250	100	44,600	220	90
0.8	25,900	210	100	23,900	150	55	19,900	130	65	11,900	70	35	50,000	450	180	27,900	250	95
1	20,700	210	100	19,100	150	55	15,900	130	65	9,500	75	40	47,700	570	200	22,300	270	95
1.5	13,800	210	100	12,700	150	55	10,600	130	65	6,400	75	40	31,800	640	220	14,900	300	100
2	10,300	210	100	9,500	170	60	8,000	150	75	4,800	75	40	23,900	720	250	11,100	330	120
2.5	8,300	250	120	7,600	180	65	6,400	160	80	3,800	75	40	19,100	760	270	8,900	360	120
3	6,900	280	140	6,400	190	70	5,300	170	85	3,200	80	40	15,900	800	270	7,400	370	130
4	5,200	310	160	4,800	190	70	4,000	170	85	2,400	95	50	11,900	830	270	5,600	390	130
5	4,100	330	160	3,800	230	75	3,200	210	110	1,900	95	50	9,500	860	280	4,500	410	130
6	3,400	340	170	3,200	260	85	2,700	240	120	1,600	100	50	8,000	880	290	3,700	410	130
8	2,600	310	160	2,400	240	80	2,000	220	110	1,200	100	50	6,000	780	260	2,800	360	120
10	2,100	290	150	1,900	230	75	1,600	210	100	1,000	100	50	4,800	720	240	2,200	330	110
12	1,700	270	140	1,600	220	75	1,300	200	100	800	100	50	4,000	680	220	1,900	320	110

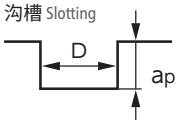
切深量 Depth of Cut

侧面 Side Milling



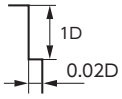
ae
ϕ0.3～0.95=0.05D
ϕ1～2.55=0.07D
ϕ2.6～6=0.1D
ϕ6.5～12=0.15D

沟槽 Slotting

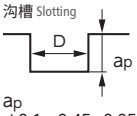


ap
ϕ0.1～0.45=0.05D
ϕ0.5～1.45=0.1D
ϕ1.5～3.9=0.35D
ϕ4～12=0.5D

侧面 Side Milling

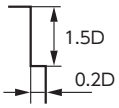


沟槽 Slotting

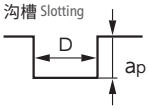


ap
ϕ0.1～0.45=0.05D
ϕ0.5～12=0.1D

侧面 Side Milling



沟槽 Slotting



ap
ϕ0.1～0.45=0.05D
ϕ0.5～1.45=0.3D
ϕ1.5～12=0.5D

(D:外径 Dia.)

备注 Notes

※ 1 请使用发烟性低的油冷冷却方式。
※ 2 切削高硬度钢时，建议使用油雾冷却方式。
※ 3 请以相同的比率调整主轴转速和进给速度。
※ 4 加工参数会因切深量和机床刚性的状况而有所不同。请每次调整后再使用。
※1 Use cutting fluid with smoke retardant.
※2 Recommend to use oil mist coolant for machining hardened steels.
※3 Adjust both spindle speed and feed at the same rate.
※4 Adjust milling conditions according to the volume of Depth of Cut and rigidity of the machine.

P 碳素钢 Carbon Steel
P 合金钢 Alloy Steel
P 调质钢 Prehardened Steel
M 不锈钢 Stainless Steel
N 铝合金 Aluminium Alloy
N 铜合金 Copper
O 树脂 Resin