

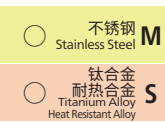
MRBTNH230

切削参数参考表

Recommended Milling Conditions



加工材料 Work Material			调质钢 Prehardened Steels HPM • NAK (~41HRC)				高硬度钢 Hardened Steels STAVAX • SKD61 (~52HRC)				高硬度钢 Hardened Steels SKD11 • PD613 (~62HRC)				高速钢 High Speed Steels SKH • HAP (~65HRC)			
(R)球头 半径 Radius	颈角 Neck Taper Angle	颈长 Under Neck Length	切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed	
			ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹
0.05	3°	0.5	0.005	0.005	120	40,000	0.003	0.005	100	40,000	0.002	0.005	70	40,000	0.002	0.003	50	40,000
		0.75	0.003	0.005	100	40,000	0.002	0.003	70	40,000	0.001	0.003	50	40,000	0.001	0.002	30	40,000
0.075	3°	1	0.005	0.005	180	40,000	0.003	0.005	150	40,000	0.002	0.005	120	40,000	0.002	0.003	70	40,000
		1.5	0.003	0.005	100	40,000	0.002	0.003	70	40,000	0.001	0.003	50	40,000	0.001	0.002	30	40,000
0.1	30'	1.5	0.003	0.01	200	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
		2	0.003	0.005	150	40,000	0.002	0.003	120	40,000	0.001	0.002	100	40,000	0.001	0.002	60	40,000
	1°	1.5	0.003	0.007	200	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
		2	0.003	0.007	160	40,000	0.003	0.005	140	40,000	0.002	0.003	120	40,000	0.001	0.002	80	40,000
	1°30'	1.5	0.005	0.01	230	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.001	0.002	120	40,000
		2	0.003	0.01	200	40,000	0.003	0.005	160	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
	2°	1.5	0.007	0.01	250	40,000	0.005	0.01	230	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000
		2	0.003	0.01	230	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
	3°	3	0.005	0.01	230	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
		5	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.001	0.002	120	40,000	0.001	0.002	80	40,000
	5°	3	0.007	0.01	250	40,000	0.005	0.01	200	40,000	0.003	0.005	160	40,000	0.002	0.003	120	40,000
		5	0.005	0.01	230	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	100	40,000
0.15	30'	2	0.003	0.007	230	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.002	0.002	120	40,000
		3	0.003	0.005	180	40,000	0.002	0.003	140	40,000	0.001	0.002	120	40,000	0.001	0.002	70	40,000
	1°	2	0.003	0.01	230	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.002	0.002	120	40,000
		3	0.003	0.007	200	40,000	0.003	0.005	160	40,000	0.002	0.003	140	40,000	0.001	0.002	90	40,000
	1°30'	2	0.005	0.01	250	40,000	0.003	0.005	230	40,000	0.002	0.003	180	40,000	0.002	0.002	140	40,000
		3	0.003	0.01	220	40,000	0.003	0.005	180	40,000	0.002	0.003	150	40,000	0.001	0.002	110	40,000
	2°	2	0.007	0.01	280	40,000	0.005	0.01	250	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000
		3	0.003	0.01	250	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.002	0.002	120	40,000
	3°	2	0.01	0.015	300	40,000	0.007	0.01	280	40,000	0.005	0.007	230	40,000	0.003	0.005	200	40,000
		3	0.007	0.015	280	40,000	0.005	0.01	250	40,000	0.003	0.007	200	40,000	0.002	0.005	180	40,000
	5°	5	0.007	0.01	250	40,000	0.005	0.007	230	40,000	0.003	0.005	180	40,000	0.002	0.003	160	40,000
		7	0.005	0.007	230	40,000	0.003	0.005	200	40,000	0.002	0.003	160	40,000	0.001	0.002	140	40,000
0.2	30'	3	0.01	0.015	300	40,000	0.007	0.01	280	40,000	0.005	0.007	230	40,000	0.003	0.005	200	40,000
		5	0.007	0.015	280	40,000	0.005	0.01	250	40,000	0.003	0.007	200	40,000	0.002	0.005	180	40,000
	1°	3	0.01	0.02	360	40,000	0.007	0.01	300	40,000	0.005	0.007	240	40,000	0.003	0.005	160	40,000
		4	0.007	0.01	240	40,000	0.005	0.005	160	40,000	0.003	0.003	120	40,000	0.002	0.003	100	40,000
	1°30'	6	0.005	0.01	160	40,000	0.003	0.005	120	40,000	0.002	0.003	100	40,000	0.001	0.003	70	40,000
		3	0.01	0.02	400	40,000	0.007	0.01	320	40,000	0.005	0.007	260	40,000	0.003	0.005	200	40,000
	2°	4	0.01	0.015	320	40,000	0.005	0.007	240	40,000	0.003	0.005	160	40,000	0.002	0.003	120	40,000
		6	0.005	0.007	200	40,000	0.003	0.005	160	40,000	0.002	0.003	120	40,000	0.001	0.002	90	40,000
	3°	3	0.015	0.02	450	40,000	0.007	0.01	360	40,000	0.005	0.007	280	40,000	0.003	0.005	240	40,000
		4	0.01	0.02	400	40,000	0.007	0.01	300	40,000	0.005	0.007	240	40,000	0.003	0.005	160	40,000
	5°	6	0.007	0.01	300	40,000	0.005	0.007	240	40,000	0.003	0.005	160	40,000	0.002	0.003	120	40,000
		3	0.015	0.02	480	40,000	0.007	0.01	400	40,000	0.005	0.007	320	40,000	0.003	0.005	280	40,000
0.25	30'	4	0.01	0.02	400	40,000	0.007	0.01	320	40,000	0.005	0.007	260	40,000	0.003	0.005	220	40,000
		6	0.01	0.015	320	40,000	0.005	0.007	240	40,000	0.003	0.005	180	40,000	0.002	0.003	140	40,000
	1°	5	0.01	0.02	400	40,000	0.007	0.01	320	40,000	0.005	0.007	240	40,000	0.003	0.005	220	40,000
		7	0.01	0.015	320	40,000	0.005	0.007	240	40,000	0.003	0.005	160	40,000	0.002	0.003	120	40,000
	1°30'	5	0.015	0.02	420	40,000	0.01	0.015	360	40,000	0.007	0.01	300	40,000	0.005	0.007	260	40,000
		7	0.015	0.015	400	40,000	0.007	0.01	320	40,000	0.005	0.007	240	40,000	0.003	0.005	220	40,000
	2°	4	0.012	0.02	500	40,000	0.007	0.01	450	40,000	0.005	0.007	360	40,000	0.003	0.005	280	40,000
		5	0.008	0.01	460	40,000	0.005	0.005	400	40,000	0.003	0.003	300	40,000	0.002	0.003	240	40,000
	3°	4	0.015	0.03	580	40,000	0.007	0.01	520	40,000	0.005	0.007	400	40,000	0.003	0.005	320	40,000
		5	0.012	0.02	500	40,000	0.007	0.01	440	40,000	0.005	0.007	360	40,000	0.003	0.005	260	40,000
	5°	4	0.015	0.035	640	40,000	0.01	0.02	560	40,000	0.007	0.01	480	40,000	0.005	0.007	360	40,000
		5	0.012	0.02	500	40,000	0.007	0.01	460	40,000	0.005	0.007	380	40,000	0.003	0.005	280	40,000
0.3	30'	4	0.015	0.035	700	40,000	0.01	0.02	640	40,000	0.007	0.01	540	40,000	0.005	0.007	400	40,000
		5	0.015	0.03	600	40,000	0.007	0.015	520	40,000	0.005	0.01	420	40,000	0.003	0.007	300	40,000
	1°	4	0.025	0.07	900	40,000	0.02	0.03	800	40,000	0.01	0.03	580	40,000	0.01	0.02	450	30,000
		5	0.025	0.05	750	40,000	0.02	0.03	700	35,000	0.01	0.02	500	35,000	0.008	0.015	420	30,000
	3°	6	0.015	0.02	500	35,000	0.01	0.015	460	30,000	0.007	0.01	400	30,000	0.005	0.008	360	30,000



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(R)球头 半径 Radius	颈角 Neck Taper Angle	颈长 Under Neck Length	切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed		切深量 Depth of Cut		进给速度 Feed	
			ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹
0.3	30°	8	0.008	0.015	400	30,000	0.005	0.007	360	25,000	0.003	0.005	300	25,000	0.003	0.003	260	20,000
		4	0.025	0.07	900	40,000	0.02	0.03	800	40,000	0.01	0.03	580	40,000	0.01	0.02	450	30,000
		5	0.025	0.05	750	40,000	0.02	0.03	700	35,000	0.01	0.02	500	35,000	0.008	0.015	420	30,000
		6	0.02	0.04	540	35,000	0.01	0.02	500	30,000	0.007	0.015	460	30,000	0.007	0.01	400	30,000
	1°	8	0.01	0.02	460	35,000	0.007	0.01	400	30,000	0.005	0.007	360	30,000	0.003	0.005	320	30,000
		4	0.025	0.07	1,000	40,000	0.02	0.03	900	40,000	0.01	0.03	620	40,000	0.01	0.02	480	30,000
		5	0.025	0.05	800	40,000	0.02	0.03	750	40,000	0.01	0.03	560	40,000	0.01	0.02	440	30,000
		6	0.025	0.04	750	40,000	0.02	0.025	700	35,000	0.01	0.02	500	35,000	0.008	0.015	420	30,000
	1°30'	8	0.013	0.02	500	35,000	0.01	0.015	460	30,000	0.007	0.01	400	30,000	0.005	0.008	360	30,000
		5	0.025	0.07	1,000	40,000	0.02	0.03	900	40,000	0.01	0.03	620	40,000	0.01	0.02	480	30,000
		6	0.025	0.05	800	40,000	0.02	0.03	750	35,000	0.01	0.02	560	35,000	0.008	0.015	440	30,000
		8	0.02	0.03	540	35,000	0.01	0.02	500	30,000	0.007	0.015	460	30,000	0.007	0.01	400	30,000
	2°	4	0.03	0.1	1,200	40,000	0.03	0.05	1,200	40,000	0.025	0.03	800	40,000	0.02	0.025	600	30,000
		5	0.03	0.07	1,000	40,000	0.03	0.05	1,000	40,000	0.025	0.03	600	40,000	0.02	0.025	500	30,000
		7	0.025	0.05	800	40,000	0.02	0.03	900	35,000	0.015	0.025	500	35,000	0.01	0.02	400	30,000
		8	0.03	0.1	1,200	40,000	0.03	0.05	1,200	40,000	0.025	0.03	800	40,000	0.02	0.025	600	30,000
	3°	7	0.03	0.07	1,000	40,000	0.03	0.05	1,000	35,000	0.025	0.03	600	35,000	0.02	0.025	500	30,000
		8	0.03	0.1	1,200	40,000	0.03	0.05	1,200	40,000	0.025	0.03	800	40,000	0.02	0.025	600	30,000
		5	0.03	0.1	1,200	40,000	0.03	0.05	1,200	40,000	0.025	0.03	800	40,000	0.02	0.025	600	30,000
		7	0.03	0.07	1,000	40,000	0.03	0.05	1,000	35,000	0.025	0.03	600	35,000	0.02	0.025	500	30,000
0.4	30°	8	0.015	0.03	720	35,000	0.012	0.02	600	30,000	0.007	0.015	540	30,000	0.005	0.01	480	25,000
		12	0.005	0.01	460	30,000	0.005	0.005	400	25,000	0.003	0.003	360	25,000	0.002	0.003	320	25,000
		8	0.03	0.05	800	35,000	0.02	0.03	700	30,000	0.01	0.02	680	30,000	0.007	0.01	520	25,000
		12	0.005	0.01	480	30,000	0.005	0.005	420	25,000	0.003	0.003	380	25,000	0.002	0.003	340	25,000
	1°	8	0.05	0.07	900	35,000	0.03	0.05	800	30,000	0.02	0.03	760	30,000	0.01	0.02	560	25,000
		12	0.015	0.03	640	35,000	0.01	0.02	500	30,000	0.007	0.01	500	30,000	0.005	0.01	480	25,000
		8	0.05	0.08	1,000	35,000	0.03	0.05	900	30,000	0.02	0.03	760	30,000	0.01	0.02	560	25,000
		12	0.03	0.05	800	35,000	0.02	0.03	700	30,000	0.01	0.02	600	30,000	0.007	0.01	520	25,000
	2°	6	0.1	0.2	1,600	35,000	0.05	0.1	1,400	30,000	0.04	0.05	1,200	25,000	0.02	0.05	740	20,000
		8	0.08	0.2	1,300	35,000	0.04	0.06	1,200	30,000	0.03	0.04	950	25,000	0.02	0.03	680	20,000
		10	0.03	0.06	1,000	30,000	0.03	0.05	820	25,000	0.015	0.03	750	20,000	0.01	0.02	500	18,000
		12	0.03	0.06	820	30,000	0.03	0.05	720	25,000	0.015	0.03	620	20,000	0.01	0.02	450	18,000
0.5	30°	16	0.012	0.025	540	25,000	0.008	0.02	500	20,000	0.005	0.01	420	18,000	0.003	0.006	350	16,000
		20	0.005	0.01	300	20,000	0.005	0.005	250	18,000	0.003	0.005	200	16,000	0.002	0.003	150	14,000
		25	0.005	0.005	180	20,000	0.003	0.005	150	18,000	0.002	0.005	120	16,000	0.002	0.002	85	14,000
		30	0.003	0.005	120	16,000	0.003	0.003	100	16,000	0.002	0.003	75	14,000	0.001	0.002	60	12,000
	1°	6	0.1	0.25	2,000	35,000	0.05	0.15	1,800	30,000	0.04	0.1	1,600	25,000	0.03	0.05	920	20,000
		8	0.1	0.2	1,600	35,000	0.05	0.1	1,400	30,000	0.04	0.05	1,200	25,000	0.02	0.05	740	20,000
		10	0.05	0.1	1,200	35,000	0.04	0.06	1,000	30,000	0.03	0.04	800	25,000	0.02	0.03	560	20,000
		12	0.04	0.06	1,000	30,000	0.03	0.05	820	25,000	0.02	0.03	700	20,000	0.01	0.02	500	18,000
	1°30'	16	0.015	0.025	600	25,000	0.01	0.025	500	20,000	0.007	0.02	450	18,000	0.005	0.01	400	16,000
		20	0.012	0.025	500	25,000	0.008	0.02	400	20,000	0.005	0.01	360	18,000	0.003	0.006	320	16,000
		25	0.005	0.01	300	20,000	0.005	0.005	250	18,000	0.003	0.005	200	16,000	0.002	0.003	150	14,000
		30	0.005	0.005	200	20,000	0.003	0.005	150	18,000	0.002	0.005	120	16,000	0.002	0.002	85	14,000
	2°	6	0.15	0.25	2,000	40,000	0.1	0.2	2,000	40,000	0.05	0.15	1,600	30,000	0.05	0.1	1,200	25,000
		8	0.1	0.2	1,800	35,000	0.05	0.1	1,600	30,000	0.04	0.05	1,200	25,000	0.02	0.05	800	20,000
		10	0.08	0.2	1,400	35,000	0.04	0.06	1,200	30,000	0.03	0.04	900	25,000	0.02	0.03	700	20,000
		12	0.05	0.1	1,200	35,000	0.04	0.06	1,000	30,000	0.03	0.04	800	25,000	0.02	0.03	550	20,000
0.6	30°	16	0.03	0.05	800	30,000	0.02	0.05	700	25,000	0.02	0.03	600	20,000	0.01	0.02	500	18,000
		20	0.015	0.025	600	25,000	0.01	0.025	500	20,000	0.007	0.02	450	18,000	0.005	0.01	400	16,000
		25	0.012	0.025	500	25,000	0.008	0.02	400	20,000	0.005	0.01	350	18,000	0.003	0.006	300	16,000
		30	0.01	0.02	400	20,000	0.005	0.01	300	20,000	0.003	0.007	250	18,000	0.002	0.005	200	16,000
	1°	8	0.1	0.2	2,000	35,000	0.05	0.1	1,600	30,000	0.04	0.05	1,200	25,000	0.02	0.05	900	20,000
		10	0.05	0.2	1,600	35,000	0.04	0.1	1,200	30,000	0.03	0.05	1,000	25,000	0.02	0.05	700	20,000
		20	0.03	0.05	800	30,000	0.02	0.05	700	25,000	0.02	0.03	600	20,000	0.01	0.02	450	18,000
		30	0.015	0.03	600	20,000	0.01	0.03	500	20,000	0.007	0.02	400	18,000	0.005	0.01	350	16,000
	2°	10	0.1	0.2	2,000	35,000	0.05	0.1	1,600	30,000	0.03	0.07	1,200	25,000	0.025	0.05	800	20,000
		20	0.04	0.1	1,200	30,000	0.03	0.05	1,000	25,000	0.02	0.03	800	20,000	0.015	0.025	500	18,000
		30	0.02	0.05	700	20,000	0.015	0.03	700	20,000	0.01	0.025	600	18,000	0.01	0.02	400	16,000

锥颈
Taper Neck涂层
Coating球头
Ball

Ball

P 调质钢
Prehardened SteelH ~52高硬度钢
HRC Hardened SteelH ~60高硬度钢
HRC Hardened SteelH ~65高硬度钢
HRC Hardened SteelM 不锈钢
Stainless SteelS 钛合金
耐热合金
Titanium Alloy
Heat Resistant Alloy

常规系列
无限白金涂层
长颈造型
Regular Line
MUGEN PREMIUM
Long Neck Type

MRBTNH230

切削参数参考表

Recommended Milling Conditions



加工材料 Work Material			调质钢 Prehardened Steels HPM・NAK (~41HRC)					高硬度钢 Hardened Steels STAVAX・SKD61 (~52HRC)					高硬度钢 Hardened Steels SKD11・PD613 (~62HRC)					高速钢 High Speed Steels SKH・HAP (~65HRC)								
(R)球头 半径 Radius	颈角 Neck Taper Angle	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		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	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹	ap mm	ae mm	mm/min	min ⁻¹
0.75	30°	10	0.15	0.2	2,000	30,000	0.1	0.15	1,600	25,000	0.05	0.15	1,400	25,000	0.05	0.15	1,400	25,000	0.05	0.15	1,400	25,000	0.05	0.15	1,400	25,000
		15	0.07	0.15	1,400	25,000	0.05	0.08	1,000	20,000	0.03	0.07	800	20,000	0.03	0.07	800	20,000	0.03	0.07	800	20,000	0.03	0.07	800	20,000
		20	0.03	0.05	800	18,000	0.02	0.04	600	16,000	0.012	0.025	450	16,000	0.012	0.025	450	16,000	0.012	0.025	450	16,000	0.012	0.025	450	16,000
		25	0.02	0.04	540	18,000	0.01	0.03	450	16,000	0.01	0.02	360	16,000	0.01	0.02	360	16,000	0.01	0.02	360	16,000	0.01	0.02	360	16,000
	1°	30	0.01	0.03	360	14,000	0.007	0.02	320	14,000	0.005	0.01	240	14,000	0.005	0.01	240	14,000	0.005	0.01	240	14,000	0.005	0.01	240	14,000
		10	0.15	0.25	2,000	30,000	0.1	0.2	1,800	25,000	0.05	0.2	1,400	25,000	0.05	0.2	1,400	25,000	0.05	0.2	1,400	25,000	0.05	0.2	1,400	25,000
		15	0.08	0.15	1,600	25,000	0.05	0.1	1,200	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000
		20	0.05	0.1	1,000	20,000	0.03	0.07	800	18,000	0.02	0.05	600	18,000	0.02	0.05	600	18,000	0.02	0.05	600	18,000	0.02	0.05	600	18,000
	1°30'	25	0.03	0.05	700	18,000	0.02	0.04	550	16,000	0.012	0.025	400	16,000	0.012	0.025	400	16,000	0.012	0.025	400	16,000	0.012	0.025	400	16,000
		30	0.02	0.04	450	16,000	0.01	0.03	360	16,000	0.01	0.02	300	16,000	0.01	0.02	300	16,000	0.01	0.02	300	16,000	0.01	0.02	300	16,000
		10	0.15	0.25	2,000	30,000	0.1	0.2	2,000	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000
		15	0.08	0.15	1,800	25,000	0.05	0.1	1,400	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000	0.03	0.1	920	20,000
	2°	20	0.06	0.1	1,200	25,000	0.05	0.07	1,000	20,000	0.03	0.05	820	20,000	0.03	0.05	820	20,000	0.03	0.05	820	20,000	0.03	0.05	820	20,000
		10	0.2	0.3	2,000	30,000	0.1	0.2	2,000	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000	0.05	0.2	1,600	25,000
		15	0.1	0.2	2,000	30,000	0.1	0.1	1,600	25,000	0.05	0.1	1,200	25,000	0.05	0.1	1,200	25,000	0.05	0.1	1,200	25,000	0.05	0.1	1,200	25,000
		20	0.07	0.12	1,400	25,000	0.05	0.1	1,200	20,000	0.03	0.1	900	20,000	0.03	0.1	900	20,000	0.03	0.1	900	20,000	0.03	0.1	900	20,000
1	30°	12	0.15	0.3	2,400	20,000	0.1	0.3	2,000	18,000	0.1	0.2	1,600	16,000	0.1	0.2	1,600	16,000	0.1	0.1	1,200	14,000	0.1	0.1	1,200	14,000
		16	0.1	0.2	1,800	18,000	0.07	0.15	1,600	16,000	0.05	0.08	1,200	14,000	0.05	0.08	1,200	14,000	0.05	0.07	800	12,000	0.05	0.07	800	12,000
		20	0.07	0.12	1,600	16,000	0.05	0.1	1,400	14,000	0.03	0.06	1,000	12,000	0.03	0.06	1,000	12,000	0.03	0.04	700	10,000	0.03	0.04	700	10,000
		25	0.05	0.1	1,000	14,000	0.03	0.08	850	14,000	0.02	0.05	700	12,000	0.02	0.05	700	12,000	0.02	0.02	600	10,000	0.02	0.02	600	10,000
		30	0.03	0.08	800	12,000	0.03	0.05	700	12,000	0.02	0.03	540	10,000	0.02	0.03	540	10,000	0.02	0.02	420	8,500	0.02	0.02	420	8,500
		35	0.03	0.05	600	12,000	0.025	0.04	500	12,000	0.015	0.025	420	10,000	0.015	0.025	420	10,000	0.015	0.015	320	8,500	0.015	0.015	320	8,500
		40	0.02	0.04	420	12,000	0.02	0.03	360	12,000	0.01	0.02	300	10,000	0.01	0.02	300	10,000	0.01	0.01	240	8,500	0.01	0.01	240	8,500
		50	0.01	0.03	300	10,000	0.01	0.02	240	10,000	0.005	0.01	200	8,500	0.005	0.01	200	8,500	0.005	0.005	160	7,000	0.005	0.005	160	7,000
	1°	12	0.15	0.3	2,400	20,000	0.15	0.3	2,000	18,000	0.1	0.2	1,600	16,000	0.1	0.2	1,600	16,000	0.1	0.1	1,200	14,000	0.1	0.1	1,200	14,000
		16	0.12	0.2	1,800	18,000	0.1	0.15	1,600	16,000	0.1	0.1	1,400	14,000	0.1	0.1	1,400	14,000	0.05	0.1	900	12,000	0.05	0.1	900	12,000
		20	0.1	0.15	1,600	18,000	0.07	0.1	1,400	16,000	0.05	0.08	1,200	14,000	0.05	0.08	1,200	14,000	0.03	0.05	800	12,000	0.03	0.05	800	12,000
		25	0.07	0.12	1,400	14,000	0.05	0.1	1,200	14,000	0.03	0.05	1,000	12,000	0.03	0.05	1,000	12,000	0.02	0.03	700	10,000	0.02	0.03	700	10,000
		30	0.05	0.1	1,000	14,000	0.035	0.08	850	14,000	0.025	0.05	700	12,000	0.025	0.05	700	12,000	0.02	0.02	600	10,000	0.02	0.02	600	10,000
		35	0.05	0.1	800	12,000	0.035	0.06	700	12,000	0.02	0.05	600	10,000	0.02	0.05	600	10,000	0.015	0.02	500	8,500	0.015	0.02	500	8,500
		40	0.03	0.05	700	12,000	0.03	0.05	600	12,000	0.02	0.04	540	10,000	0.02	0.04	540	10,000	0.01	0.02	400	8,500	0.01	0.02	400	8,500
		50	0.025	0.04	420	12,000	0.02	0.03	360	12,000	0.01	0.02	300	10,000	0.01	0.02	300	10,000	0.008	0.01	240	8,500	0.008	0.01	240	8,500
	1°30'	12	0.2	0.35	2,400	20,000	0.15	0.35	2,000	18,000	0.12	0.2	1,600	16,000	0.12	0.2	1,600	16,000	0.1	0.15	1,200	14,000	0.1	0.15	1,200	14,000
		16	0.15	0.2	1,800	18,000	0.1	0.2	1,600	16,000	0.1	0.15	1,400	14,000	0.1	0.15	1,400	14,000	0.05	0.1	1,000	12,000	0.05	0.1	1,000	12,000
		20	0.1	0.2	1,800	18,000	0.07	0.15	1,600	16,000	0.05	0.1	1,200	14,000	0.05	0.1	1,200	14,000	0.03	0.1	900	12,000	0.03	0.1	900	12,000
		25	0.1	0.15	1,600	16,000	0.07	0.12	1,400	16,000	0.05	0.08	1,200	14,000	0.05	0.08	1,200	14,000	0.03	0.07	900	12,000	0.03	0.07	900	12,000
		30	0.07	0.12	1,400	14,000	0.05	0.1	1,200	14,000	0.03	0.06	1,000	12,000	0.03	0.06	1,000	12,000	0.02	0.03	850	10,000	0.02	0.03	850	10,000
		35	0.06	0.12	1,000	14,000	0.05	0.1	900	14,000	0.03	0.05	800	12,000	0.03	0.05	800	12,000	0.02	0.03	700	10,000	0.02	0.03	700	10,000
		40	0.05	0.1	900	14,000	0.03	0.08	800	14,000	0.02	0.05	700	12,000	0.02	0.05	700	12,000	0.02	0.02	600	10,000	0.02	0.02	600	10,000
		50	0.04	0.07	800	12,000	0.03	0.05	700	12,000	0.02	0.04	600	10,000	0.02	0.04	600	10,000	0.01	0.02	420	8,500	0.01	0.02	420	8,500
	2°	12	0.2	0.4	2,400	20,000	0.2	0.3	2,000	20,000	0.15	0.25	1,600	18,000	0.15	0.25	1,600	18,000	0.1	0.2	1,200	16,000	0.1	0.2	1,200	16,000
		16	0.15	0.3	2,400	20,000	0.1	0.3	2,000	18,000	0.1	0.2	1,600	16,000	0.1	0.2	1,600	16,000	0.1	0.1	1,200	14,000	0.1	0.1	1,200	14,000
		20	0.12	0.2	2,000	18,000	0.1	0.2	1,800	16,000	0.1	0.1	1,400	14,000	0.1	0.1	1,400	14,000	0.05	0.1	1,100	12,000	0.05	0.1	1,100	12,000
		25	0.1	0.2	1,800	16,000	0.07	0.15	1,600	16,000	0.05	0.1	1,200	14,000	0.05	0.1	1,200	14,000	0.03	0.07	1,000	12,000	0.03	0.07	1,000	12,000
30		0.1	0.15	1,600	16,000	0.07	0.15	1,400	16,000	0.05	0.08	1,100	14,000	0.05	0.08	1,100	14,000	0.03	0.07	900	12,000	0.03	0.07	900	12,000	
40		0.07	0.12	1,400	14,000	0.05	0.1	1,200	14,000	0.03	0.05	1,000	12,000	0.03	0.05	1,000	12,000	0.02	0.03	800	10,000	0.02	0.03	800	10,000	
50		0.05	0.12	1,000	14,000	0.05	0.1	900	14,000	0.03	0.05	800	12,000	0.03	0.05	800	12,000	0.02	0.03	600	10,000	0.02	0.03	600	10,000	

切削参数参考表

Recommended Milling Conditions

加工材料 Work Material			调质钢 Prehardened Steels HPM • NAK (~41HRC)				高硬度钢 Hardened Steels STAVAX • SKD61 (~52HRC)				高硬度钢 Hardened Steels SKD11 • PD613 (~62HRC)				高速钢 High Speed Steels SKH • HAP (~65HRC)			
(R)球头 半径 Radius	颈角 Neck Taper Angle	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	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	ap mm	ae mm	mm/min	min ⁻¹
1.5	30°	15	0.2	0.4	2,400	18,000	0.1	0.4	2,000	18,000	0.1	0.3	1,600	14,000	0.1	0.2	1,200	12,000
		20	0.15	0.3	2,000	18,000	0.1	0.3	1,600	18,000	0.1	0.2	1,400	14,000	0.08	0.1	1,000	12,000
		25	0.12	0.3	1,800	16,000	0.1	0.25	1,400	16,000	0.07	0.15	1,200	12,000	0.05	0.07	900	10,000
		30	0.12	0.25	1,200	16,000	0.08	0.2	1,200	14,000	0.05	0.1	1,000	12,000	0.035	0.06	700	10,000
		40	0.07	0.15	800	14,000	0.04	0.1	720	12,000	0.025	0.06	600	10,000	0.02	0.04	480	8,000
		50	0.05	0.1	600	12,000	0.025	0.04	540	10,000	0.015	0.02	480	7,000	0.01	0.02	360	5,000
	1°	15	0.2	0.5	2,400	20,000	0.15	0.5	2,000	20,000	0.15	0.4	1,600	18,000	0.1	0.3	1,400	14,000
		20	0.15	0.4	2,000	18,000	0.1	0.4	1,800	18,000	0.1	0.2	1,400	16,000	0.08	0.2	1,200	12,000
		25	0.15	0.3	1,800	18,000	0.1	0.3	1,600	16,000	0.1	0.15	1,200	12,000	0.06	0.1	1,000	10,000
		30	0.12	0.3	1,600	16,000	0.08	0.2	1,200	14,000	0.05	0.1	1,000	12,000	0.035	0.07	700	10,000
		40	0.07	0.15	1,000	16,000	0.04	0.1	800	12,000	0.03	0.06	600	10,000	0.02	0.04	500	8,000
		50	0.05	0.12	700	12,000	0.025	0.04	580	10,000	0.015	0.02	480	7,000	0.01	0.02	360	5,000
	1°30'	15	0.25	0.5	3,000	20,000	0.2	0.5	2,400	20,000	0.2	0.4	2,000	18,000	0.15	0.3	1,400	14,000
		20	0.15	0.4	2,400	18,000	0.1	0.4	2,000	18,000	0.1	0.3	1,600	16,000	0.1	0.2	1,200	12,000
		25	0.15	0.3	2,000	18,000	0.1	0.3	1,600	18,000	0.1	0.2	1,400	16,000	0.1	0.1	1,000	12,000
		30	0.12	0.3	1,800	16,000	0.1	0.25	1,400	16,000	0.07	0.15	1,200	14,000	0.05	0.07	900	10,000
		40	0.1	0.25	1,200	16,000	0.06	0.2	1,000	14,000	0.04	0.1	800	12,000	0.03	0.05	520	10,000
		50	0.07	0.15	800	12,000	0.035	0.1	600	10,000	0.02	0.07	500	8,000	0.02	0.05	400	6,000
	2°	15	0.25	0.6	3,000	20,000	0.2	0.6	2,400	20,000	0.2	0.4	2,000	18,000	0.15	0.3	1,600	14,000
		20	0.2	0.5	2,400	18,000	0.15	0.4	2,000	18,000	0.12	0.3	1,600	16,000	0.1	0.2	1,200	12,000
		30	0.2	0.4	2,000	16,000	0.15	0.3	1,800	16,000	0.1	0.2	1,400	14,000	0.07	0.12	1,000	12,000
2	1°	20	0.5	1.5	3,000	18,000	0.4	1	2,400	18,000	0.2	0.8	2,000	16,000	0.15	0.6	1,600	12,000
		30	0.3	1	2,400	16,000	0.2	0.7	1,600	14,000	0.1	0.3	1,200	12,000	0.06	0.15	1,000	10,000
		40	0.2	0.3	2,000	12,000	0.1	0.15	1,200	9,000	0.06	0.1	1,000	6,000	0.035	0.07	800	5,000
		50	0.1	0.2	1,600	10,000	0.07	0.1	900	7,000	0.04	0.07	750	5,000	0.02	0.05	550	4,000
		61.1	0.05	0.1	1,200	8,000	0.025	0.04	600	5,000	0.015	0.025	480	3,500	0.01	0.02	360	3,000

备 注
Notes

- ※ 1 切削参数参考表列出等高线粗加工时的参数。
- ※ 2 切深量的 ap表示轴向切深量，ae表示步距量。
- ※ 3 发生振刀时，请以相同的比率降低主轴转速和进给速度。此外，主轴转速过低时，也以相同的比率降低。
- ※ 4 加工深沟时，请充分注意冷却液的供油及排屑是否顺畅。
- ※ 5 建议使用油雾冷却方式。
- ※ 6 加工参数会因切深量和机床刚性的状况而有所不同。请每次调整后在使用。
- ※ 1 Above conditions are for contour line roughing process.
- ※ 2 Depth of Cut : ap=Axial Depth of Cut / ae=Radial Depth of Cut.
- ※ 3 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.
- ※ 4 Coolant supply and chip disposal in the deep portion are very important.
- ※ 5 Recommended oil mist coolant.
- ※ 6 Adjust milling conditions according to the volume of Depth of Cut and rigidity of machine.

锥颈
Taper Neck



涂层
Coating

球头
Ball

Ball

P 调质钢
Prehardened Steel

H ~52高硬度钢
HRC Hardened Steel

H ~60高硬度钢
HRC Hardened Steel

H ~65高硬度钢
HRC Hardened Steel

M 不锈钢
Stainless Steel

S 钛合金
耐热合金
Titanium Alloy
Heat Resistant Alloy

常规系列
无限白金涂层
长颈造型
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