

MRB230SF

切削参数参考表 Recommended Milling Conditions

加工材料 Work Material		碳素钢・调质钢 Carbon Steels・Prehardened Steels S50C・NAK・HPM-1 (~44HRC)				淬火钢 Hardened Steels SKD・STAVAX・HPM-38 (46~55HRC)				淬火钢 Hardened Steels SKD11 (56~62HRC)				铜合金 Copper			
(R)球头半径 Radius	有效长 Effective Length	切深量 Depth of Cut		进给量 Feed		主轴转速 Spindle Speed		切深量 Depth of Cut		进给量 Feed		主轴转速 Spindle Speed		切深量 Depth of Cut		进给量 Feed	
		ap mm		ae mm		mm/min		ap mm		ae mm		mm/min		ap mm		ae mm	
		mm/min		min ⁻¹		mm/min		mm/min		min ⁻¹		mm/min		mm/min		min ⁻¹	
0.1	0.5	0.01	0.02	250	20,000~50,000	0.01	0.01	210	20,000~50,000	0.007	0.007	170	20,000~50,000	0.01	0.02	250	20,000~50,000
	0.75	0.007	0.01	250	20,000~50,000	0.005	0.01	210	20,000~50,000	0.004	0.007	170	20,000~50,000	0.01	0.015	250	20,000~50,000
	1	0.005	0.01	250	20,000~50,000	0.003	0.005	210	20,000~50,000	0.002	0.004	170	20,000~50,000	0.008	0.015	250	20,000~50,000
	1.25	0.003	0.01	150	20,000~50,000	0.003	0.005	120	20,000~50,000	0.002	0.004	100	20,000~50,000	0.005	0.015	150	20,000~50,000
0.15	0.5	0.01	0.02	250	20,000~50,000	0.01	0.015	210	20,000~50,000	0.007	0.01	170	20,000~50,000	0.012	0.025	250	20,000~50,000
	0.6	0.01	0.02	250	20,000~50,000	0.01	0.015	210	20,000~50,000	0.007	0.01	170	20,000~50,000	0.012	0.025	250	20,000~50,000
	0.75	0.008	0.02	250	20,000~50,000	0.007	0.012	210	20,000~50,000	0.005	0.008	170	20,000~50,000	0.011	0.02	250	20,000~50,000
	1	0.007	0.01	250	20,000~50,000	0.005	0.01	210	20,000~50,000	0.004	0.007	170	20,000~50,000	0.01	0.02	250	20,000~50,000
	1.25	0.005	0.01	250	20,000~50,000	0.005	0.005	210	20,000~50,000	0.004	0.004	170	20,000~50,000	0.008	0.015	250	20,000~50,000
	1.5	0.005	0.01	200	20,000~50,000	0.005	0.005	170	20,000~50,000	0.004	0.004	140	20,000~50,000	0.008	0.015	200	20,000~50,000
0.2	1.75	0.005	0.01	200	20,000~50,000	0.005	0.005	170	20,000~50,000	0.004	0.004	140	20,000~50,000	0.008	0.015	200	20,000~50,000
	0.75	0.02	0.05	800	20,000~50,000	0.02	0.03	650	20,000~50,000	0.015	0.02	560	20,000~50,000	0.03	0.07	800	20,000~50,000
	1	0.02	0.05	800	20,000~50,000	0.02	0.03	650	20,000~50,000	0.012	0.02	560	20,000~50,000	0.03	0.07	800	20,000~50,000
	1.5	0.02	0.03	700	20,000~50,000	0.01	0.02	600	20,000~50,000	0.007	0.015	490	20,000~50,000	0.03	0.05	700	20,000~50,000
	2	0.015	0.02	600	20,000~50,000	0.01	0.015	500	20,000~50,000	0.007	0.01	420	20,000~50,000	0.02	0.03	600	20,000~50,000
0.25	2.5	0.015	0.02	450	20,000~50,000	0.01	0.015	380	20,000~50,000	0.007	0.01	310	20,000~50,000	0.02	0.03	450	20,000~50,000
	1	0.03	0.05	800	20,000~50,000	0.02	0.05	680	20,000~50,000	0.015	0.035	560	20,000~50,000	0.045	0.07	800	20,000~50,000
	1.5	0.03	0.05	700	20,000~50,000	0.02	0.04	600	20,000~50,000	0.015	0.03	490	20,000~50,000	0.04	0.07	700	20,000~50,000
	2	0.02	0.04	600	20,000~50,000	0.02	0.03	510	20,000~50,000	0.015	0.02	420	20,000~50,000	0.03	0.06	600	20,000~50,000
	2.5	0.015	0.04	600	20,000~50,000	0.01	0.03	510	20,000~50,000	0.007	0.02	420	20,000~50,000	0.02	0.06	600	20,000~50,000
0.3	3	0.015	0.035	500	20,000~50,000	0.01	0.025	420	20,000~50,000	0.007	0.015	350	20,000~50,000	0.02	0.05	500	20,000~50,000
	1.5	0.05	0.1	1,200	20,000~50,000	0.05	0.07	1,000	20,000~50,000	0.035	0.05	840	20,000~50,000	0.07	0.12	1,200	20,000~50,000
	2	0.05	0.1	1,200	20,000~50,000	0.04	0.07	1,000	20,000~50,000	0.028	0.05	840	20,000~50,000	0.07	0.12	1,200	20,000~50,000
	2.5	0.035	0.1	1,200	20,000~50,000	0.03	0.06	1,000	20,000~50,000	0.02	0.04	840	20,000~50,000	0.05	0.12	1,200	20,000~50,000
	3	0.025	0.1	1,000	20,000~50,000	0.03	0.05	850	20,000~50,000	0.02	0.035	700	20,000~50,000	0.04	0.1	1,000	20,000~50,000
	3.5	0.025	0.08	1,000	20,000~50,000	0.02	0.05	850	20,000~50,000	0.015	0.035	700	20,000~50,000	0.04	0.1	1,000	20,000~50,000
	4	0.025	0.05	800	20,000~50,000	0.02	0.04	680	20,000~50,000	0.015	0.03	560	20,000~50,000	0.035	0.08	800	20,000~50,000
	4.5	0.025	0.05	750	20,000~50,000	0.01	0.03	630	20,000~50,000	0.007	0.02	520	20,000~50,000	0.035	0.08	750	20,000~50,000
	5	0.02	0.04	500	20,000~30,000	0.01	0.02	420	20,000~30,000	0.007	0.015	350	20,000~30,000	0.03	0.06	500	20,000~30,000
	5.5	0.013	0.02	500	20,000~30,000	0.01	0.01	420	20,000~30,000	0.007	0.007	350	20,000~30,000	0.02	0.03	500	20,000~30,000
0.4	6	0.01	0.02	450	20,000~30,000	0.005	0.01	380	20,000~30,000	0.004	0.007	310	20,000~30,000	0.015	0.03	450	20,000~30,000
	2	0.1	0.15	2,000	20,000~50,000	0.1	0.12	1,700	20,000~50,000	0.07	0.085	1,400	14,000~35,000	0.15	0.2	2,000	20,000~50,000
	3	0.08	0.13	1,700	20,000~50,000	0.08	0.1	1,500	20,000~50,000	0.056	0.065	1,190	14,000~35,000	0.12	0.2	1,700	20,000~50,000
	4	0.05	0.12	1,500	20,000~50,000	0.05	0.08	1,300	20,000~50,000	0.035	0.055	1,000	14,000~35,000	0.1	0.2	1,500	20,000~50,000
	5	0.05	0.1	1,200	20,000~50,000	0.04	0.07	1,000	20,000~50,000	0.03	0.05	840	14,000~35,000	0.08	0.15	1,200	20,000~50,000

CBN铣刀 Cubic Boron Nitride	PC・D涂层 PC・Diamond Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
钻石铣刀 Diamond	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
平底铣刀 Square	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
长颈平底铣刀 Long Neck Square	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
球头铣刀 Ball	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
长颈球头铣刀 Long Neck Ball	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
圆鼻铣刀 Radius	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
长颈圆鼻铣刀 Long Neck Radius	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
锥形铣刀 Taper	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
锥形球头铣刀 Taper Ball	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
锥形圆鼻铣刀 Taper Radius	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
钻头 Drilling	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
螺纹铣刀 Thread milling	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating
倒角刀 Chamfering	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating	涂层 Coating

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(R)球头半径 Radius	有效长 Effective Length	切深量 Depth of Cut		进给 Feed	主轴转速 Spindle Speed	切深量 Depth of Cut		进给 Feed	主轴转速 Spindle Speed	切深量 Depth of Cut		进给 Feed	主轴转速 Spindle Speed	切深量 Depth of Cut		进给 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	
0.5	3	0.2	0.3	3,000	20,000~50,000	0.12	0.3	2,500	20,000~50,000	0.08	0.21	2,100	14,000~35,000	0.25	0.4	3,000	20,000~50,000	
	4	0.15	0.25	2,500	20,000~50,000	0.1	0.2	2,100	20,000~50,000	0.07	0.14	1,700	14,000~35,000	0.2	0.4	2,500	20,000~50,000	
	5	0.1	0.25	2,000	20,000~50,000	0.08	0.17	1,700	20,000~50,000	0.055	0.12	1,400	14,000~35,000	0.15	0.35	2,000	20,000~50,000	
	6	0.1	0.2	1,500	20,000~50,000	0.07	0.12	1,200	20,000~50,000	0.05	0.085	1,000	14,000~35,000	0.15	0.3	1,500	20,000~50,000	
	8	0.05	0.1	1,200	20,000~30,000	0.05	0.08	1,000	20,000~30,000	0.035	0.055	840	14,000~21,000	0.08	0.15	1,200	20,000~30,000	
	10	0.03	0.05	800	20,000~30,000	0.03	0.05	680	20,000~30,000	0.02	0.035	560	14,000~21,000	0.05	0.08	800	20,000~30,000	
0.75	3	0.2	0.35	4,000	20,000~30,000	0.15	0.3	3,400	20,000~30,000	0.1	0.18	2,800	14,000~21,000	0.3	0.5	4,000	20,000~30,000	
	4	0.2	0.3	4,000	20,000~30,000	0.15	0.25	3,400	20,000~30,000	0.09	0.15	2,800	14,000~21,000	0.3	0.45	4,000	20,000~30,000	
	6	0.15	0.3	3,000	20,000~30,000	0.12	0.2	2,500	20,000~30,000	0.07	0.12	2,100	14,000~21,000	0.2	0.45	3,000	20,000~30,000	
	8	0.1	0.25	2,400	20,000~30,000	0.08	0.18	2,000	20,000~30,000	0.05	0.11	1,700	14,000~21,000	0.15	0.4	2,400	20,000~30,000	
	10	0.08	0.2	1,800	20,000~30,000	0.06	0.12	1,500	20,000~30,000	0.035	0.07	1,200	14,000~21,000	0.12	0.3	1,800	20,000~30,000	
1	3	0.3	0.5	4,000	20,000~30,000	0.2	0.5	3,400	20,000~30,000	0.12	0.3	2,800	14,000~21,000	0.45	0.7	4,000	20,000~30,000	
	4	0.3	0.5	4,000	20,000~30,000	0.2	0.45	3,400	20,000~30,000	0.12	0.27	2,800	14,000~21,000	0.45	0.7	4,000	20,000~30,000	
	6	0.25	0.5	3,000	20,000~30,000	0.2	0.4	2,500	20,000~30,000	0.12	0.24	2,100	14,000~21,000	0.38	0.7	3,000	20,000~30,000	
	8	0.2	0.3	2,500	16,000~20,000	0.15	0.3	2,100	16,000~20,000	0.09	0.18	1,700	11,200~14,000	0.3	0.45	2,500	16,000~20,000	
	10	0.15	0.3	2,500	16,000~20,000	0.1	0.2	2,100	16,000~20,000	0.06	0.12	1,700	11,200~14,000	0.23	0.45	2,500	16,000~20,000	
	12	0.13	0.2	1,800	12,000~16,000	0.1	0.15	1,500	12,000~16,000	0.06	0.09	1,300	8,400~11,200	0.2	0.3	1,800	12,000~16,000	
	14	0.1	0.2	1,800	12,000~16,000	0.07	0.13	1,500	12,000~16,000	0.04	0.08	1,300	8,400~11,200	0.15	0.3	1,800	12,000~16,000	
	16	0.1	0.15	1,600	10,000~14,000	0.06	0.11	1,400	10,000~14,000	0.035	0.065	1,100	7,000~9,800	0.15	0.25	1,600	10,000~14,000	
	18	0.07	0.12	1,600	10,000~14,000	0.05	0.1	1,400	10,000~14,000	0.03	0.06	1,100	7,000~9,800	0.1	0.2	1,600	10,000~14,000	
	20	0.06	0.1	1,000	8,000~12,000	0.05	0.07	850	8,000~12,000	0.03	0.04	700	5,600~8,400	0.1	0.15	1,000	8,000~12,000	
	1.5	6	0.35	0.6	4,000	16,000~20,000	0.25	0.5	3,400	16,000~20,000	0.15	0.3	2,800	11,200~14,000	0.5	1	4,000	16,000~20,000
		8	0.3	0.5	4,000	16,000~20,000	0.2	0.5	3,400	16,000~20,000	0.12	0.3	2,800	11,200~14,000	0.45	0.8	4,000	16,000~20,000
10		0.3	0.5	4,000	16,000~20,000	0.2	0.45	3,400	16,000~20,000	0.12	0.27	2,800	11,200~14,000	0.45	0.8	4,000	16,000~20,000	
12		0.2	0.4	3,000	16,000~20,000	0.2	0.4	2,500	16,000~20,000	0.12	0.24	2,100	11,200~14,000	0.3	0.6	3,000	16,000~20,000	
备 注 Notes		※切深量的ap表示轴向切入量，ae表示步距。 ※请以相同的比率调整主轴转速和进给速度。 ※加工淬火材料时，建议使用油雾冷却方式。 ※Depth of Cut : ap=Axial Depth of Cut / ae=Radial Depth of Cut. ※Adjust both spindle speed and feed at the same rate. ※Oil mist coolant is recommended for the machining of hardened steels.																

CBN 铣刀
Cube Boron Nitride
CBN Milling Cutter

钻石铣刀
Diamond
Diamond Milling Cutter

平底铣刀
Square
Square End Mill

长颈平底
铣刀
Long Neck Square
End Mill

球头铣刀
Ball
Ball End Mill

长颈球头
铣刀
Long Neck Ball
End Mill

圆鼻铣刀
Radius
Radius End Mill

长颈圆鼻
铣刀
Long Neck Radius
End Mill

锥形铣刀
Taper
Taper End Mill

锥形球头
铣刀
Taper Ball
End Mill

锥形圆鼻
铣刀
Taper Radius
End Mill

钻头
Drilling
Drill Bit

螺纹铣刀
Thread milling
Thread Milling Cutter

倒角刀
Chamfering
Chamfering Cutter