MHRH430R

增加规格 Lineup Expansion

切削参数参考表 Recommended Milling Conditions

加工材料 Work Material				调质钢 Prehardened Steels HPM·NAK (～42HRC)				高硬度钢 Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)				高硬度钢 Hardened Steels SKD11·PD613 (～62HRC)				高速钢 High Speed Steels SKH (～65HRC)			
外径 Dia.	角半径 Corner Radius	颈长 Under Neck Length	L(颈长)/D(外径) L/D	主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut	
				min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm
0.1	0.01	0.3	3.0	40,000	240	0.004	0.03	40,000	200	0.003	0.02	40,000	160	0.002	0.01	40,000	120	0.002	0.01
		0.5	5.0	40,000	180	0.003	0.03	40,000	150	0.002	0.02	40,000	120	0.001	0.01	40,000	90	0.001	0.01
0.15	0.01	0.3	2.0	40,000	360	0.004	0.04	40,000	300	0.003	0.03	40,000	240	0.002	0.015	40,000	180	0.002	0.01
		0.5	3.3	40,000	240	0.004	0.04	40,000	200	0.003	0.03	40,000	160	0.002	0.015	40,000	120	0.002	0.01
		0.75	5.0	40,000	180	0.003	0.04	40,000	150	0.002	0.03	40,000	120	0.001	0.015	40,000	90	0.001	0.01
		1	6.7	40,000	100	0.003	0.04	40,000	80	0.002	0.03	40,000	65	0.001	0.015	40,000	50	0.001	0.01
	0.02	0.3	2.0	40,000	360	0.004	0.04	40,000	300	0.003	0.03	40,000	240	0.002	0.015	40,000	180	0.002	0.01
		0.5	3.3	40,000	240	0.004	0.04	40,000	200	0.003	0.03	40,000	160	0.002	0.015	40,000	120	0.002	0.01
		0.75	5.0	40,000	180	0.003	0.04	40,000	150	0.002	0.03	40,000	120	0.001	0.015	40,000	90	0.001	0.01
		1	6.7	40,000	100	0.003	0.04	40,000	80	0.002	0.03	40,000	65	0.001	0.015	40,000	50	0.001	0.01
0.2	0.02	0.3	1.5	30,000	560	0.005	0.05	30,000	480	0.003	0.04	30,000	380	0.003	0.02	30,000	280	0.003	0.01
		0.5	2.5	30,000	480	0.005	0.05	30,000	400	0.003	0.04	30,000	320	0.003	0.02	30,000	240	0.003	0.01
		1	5.0	30,000	360	0.005	0.05	30,000	300	0.003	0.04	30,000	240	0.002	0.02	30,000	160	0.002	0.01
		1.5	7.5	30,000	240	0.004	0.05	30,000	200	0.002	0.04	30,000	160	0.002	0.02	30,000	120	0.001	0.01
		2	10.0	30,000	140	0.003	0.05	30,000	100	0.002	0.04	30,000	80	0.001	0.02	30,000	60	0.001	0.01
	0.05	0.3	1.5	30,000	560	0.01	0.05	30,000	480	0.003	0.04	30,000	380	0.003	0.02	30,000	280	0.003	0.01
		0.5	2.5	30,000	480	0.01	0.05	30,000	400	0.003	0.04	30,000	320	0.003	0.02	30,000	240	0.003	0.01
		1	5.0	30,000	360	0.007	0.05	30,000	300	0.003	0.04	30,000	240	0.003	0.02	30,000	160	0.003	0.01
		1.5	7.5	30,000	240	0.005	0.05	30,000	200	0.002	0.04	30,000	160	0.002	0.02	30,000	120	0.002	0.01
		2	10.0	30,000	140	0.003	0.05	30,000	100	0.002	0.04	30,000	80	0.002	0.02	30,000	60	0.002	0.01
0.3	0.02	0.5	1.7	30,000	800	0.015	0.1	30,000	680	0.003	0.08	30,000	560	0.003	0.04	30,000	450	0.003	0.03
		1	3.3	30,000	700	0.015	0.1	30,000	600	0.003	0.08	30,000	500	0.003	0.04	30,000	400	0.003	0.03
		1.5	5.0	30,000	480	0.01	0.1	30,000	400	0.003	0.08	30,000	320	0.003	0.04	30,000	240	0.003	0.03
		2	6.7	30,000	360	0.007	0.1	30,000	300	0.003	0.08	30,000	240	0.003	0.04	25,000	200	0.003	0.03
		2.5	8.3	30,000	300	0.005	0.1	25,000	200	0.002	0.08	25,000	160	0.002	0.04	20,000	120	0.002	0.03
		3	10.0	30,000	140	0.004	0.1	25,000	100	0.002	0.08	25,000	80	0.002	0.04	20,000	60	0.002	0.03
	0.05	0.5	1.7	30,000	800	0.02	0.1	30,000	680	0.003	0.08	30,000	560	0.003	0.04	30,000	450	0.003	0.03
		1	3.3	30,000	700	0.02	0.1	30,000	600	0.003	0.08	30,000	500	0.003	0.04	30,000	400	0.003	0.03
		1.5	5.0	30,000	480	0.015	0.1	30,000	400	0.003	0.08	30,000	320	0.003	0.04	30,000	240	0.003	0.03
		2	6.7	30,000	360	0.01	0.1	30,000	300	0.003	0.08	30,000	240	0.003	0.04	25,000	200	0.003	0.03
		2.5	8.3	30,000	300	0.007	0.1	25,000	200	0.002	0.08	25,000	160	0.002	0.04	20,000	120	0.002	0.03
		3	10.0	30,000	140	0.005	0.1	25,000	100	0.002	0.08	25,000	80	0.002	0.04	20,000	60	0.002	0.03
0.4	0.02	0.5	1.3	30,000	1,000	0.015	0.12	30,000	900	0.005	0.1	28,000	780	0.005	0.05	25,000	660	0.004	0.04
		1	2.5	30,000	900	0.015	0.12	30,000	800	0.005	0.1	28,000	700	0.005	0.05	25,000	600	0.004	0.04
		1.5	3.8	30,000	800	0.012	0.12	30,000	700	0.005	0.1	28,000	600	0.005	0.05	25,000	520	0.004	0.04
		2	5.0	30,000	720	0.01	0.12	30,000	600	0.005	0.1	25,000	500	0.005	0.05	25,000	440	0.003	0.04
		2.5	6.3	30,000	680	0.008	0.12	28,000	560	0.004	0.1	25,000	480	0.004	0.05	20,000	360	0.003	0.04
		3	7.5	30,000	640	0.008	0.12	25,000	500	0.004	0.1	23,000	440	0.003	0.05	18,000	320	0.002	0.04
		4	10.0	30,000	500	0.006	0.12	25,000	400	0.003	0.1	20,000	320	0.002	0.05	18,000	240	0.002	0.04
	0.05	0.5	1.3	30,000	1,000	0.025	0.12	30,000	900	0.005	0.1	28,000	780	0.005	0.05	25,000	660	0.005	0.04
		1	2.5	30,000	900	0.025	0.12	30,000	800	0.005	0.1	28,000	700	0.005	0.05	25,000	600	0.005	0.04
		1.5	3.8	30,000	800	0.022	0.12	30,000	700	0.005	0.1	28,000	600	0.005	0.05	25,000	520	0.005	0.04
		2	5.0	30,000	720	0.02	0.12	30,000	600	0.005	0.1	25,000	500	0.005	0.05	25,000	440	0.005	0.04
		2.5	6.3	30,000	680	0.015	0.12	28,000	560	0.004	0.1	25,000	480	0.004	0.05	20,000	360	0.004	0.04
		3	7.5	30,000	640	0.015	0.12	25,000	500	0.004	0.1	23,000	440	0.003	0.05	18,000	320	0.003	0.04
		4	10.0	30,000	500	0.01	0.12	25,000	400	0.003	0.1	20,000	320	0.002	0.05	18,000	240	0.002	0.04
	0.1	1	2.5	30,000	900	0.025	0.12	30,000	800	0.005	0.1	28,000	700	0.005	0.05	25,000	600	0.005	0.04
		2	5.0	30,000	720	0.02	0.12	30,000	600	0.005	0.1	25,000	500	0.005	0.05	25,000	440	0.005	0.04
		3	7.5	30,000	640	0.015	0.12	25,000	500	0.004	0.1	23,000	440	0.003	0.05	18,000	320	0.003	0.04
		4	10.0	30,000	500	0.01	0.12	25,000	400	0.003	0.1	20,000	320	0.002	0.05	18,000	240	0.002	0.04
0.5	0.02	1	2.0	30,000	1,200	0.016	0.14	25,000	1,000	0.008	0.15	23,000	900	0.006	0.1	20,000	800	0.004	0.08
		2	4.0	30,000	1,000	0.014	0.14	25,000	840	0.007	0.15	23,000	720	0.005	0.1	20,000	600	0.003	0.08
		3	6.0	30,000	840	0.012	0.14	25,000	700	0.006	0.15	23,000	640	0.004	0.1	20,000	560	0.003	0.08
		4	8.0	25,000	760	0.01	0.14	25,000	600	0.004	0.15	23,000	480	0.002	0.1	20,000	360	0.002	0.08
		5	10.0	25,000	600	0.008	0.14	20,000	400	0.003	0.15	18,000	300	0.002	0.1	16,000	200	0.002	0.08
		6	12.0	25,000	500	0.004	0.14	20,000	320	0.002	0.15	18,000	200	0.001	0.1	16,000	140	0.001	0.08

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加工材料 Work Material				调质钢 Prehardened Steels HPM·NAK (～42HRC)				高硬度钢 Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)				高硬度钢 Hardened Steels SKD11·PD613 (～62HRC)				高速钢 High Speed Steels SKH (～65HRC)			
外径 Dia.	角半径 Corner Radius	颈长 Under Neck Length	L(颈长)/D(外径) L/D	主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut	
				min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm
0.5	0.05 0.1	1	2.0	30,000	1,200	0.03	0.14	25,000	1,000	0.01	0.15	23,000	900	0.007	0.1	20,000	800	0.005	0.08
		2	4.0	30,000	1,000	0.025	0.14	25,000	840	0.01	0.15	23,000	720	0.007	0.1	20,000	600	0.005	0.08
		3	6.0	30,000	840	0.02	0.14	25,000	700	0.008	0.15	23,000	640	0.005	0.1	20,000	560	0.003	0.08
		4	8.0	25,000	760	0.015	0.14	25,000	600	0.005	0.15	23,000	480	0.003	0.1	20,000	360	0.002	0.08
		5	10.0	25,000	600	0.01	0.14	20,000	400	0.004	0.15	18,000	300	0.003	0.1	16,000	200	0.002	0.08
		6	12.0	25,000	500	0.008	0.14	20,000	320	0.003	0.15	18,000	200	0.002	0.1	16,000	140	0.001	0.08
0.6	0.02	2	3.3	30,000	1,200	0.016	0.2	25,000	1,000	0.012	0.2	23,000	800	0.006	0.15	20,000	640	0.004	0.1
		4	6.7	25,000	900	0.012	0.2	23,000	800	0.007	0.2	20,000	600	0.004	0.15	18,000	400	0.003	0.1
		6	10.0	23,000	600	0.008	0.2	20,000	400	0.005	0.2	18,000	300	0.003	0.15	12,000	200	0.002	0.1
		8	13.3	18,000	400	0.006	0.2	16,000	300	0.003	0.2	14,000	200	0.001	0.15	10,000	160	0.001	0.1
		10	16.7	16,000	240	0.003	0.2	14,000	200	0.001	0.2	12,000	160	0.001	0.15	8,000	100	0.001	0.1
	0.05 0.1	2	3.3	30,000	1,200	0.035	0.2	25,000	1,000	0.02	0.2	23,000	800	0.01	0.15	20,000	640	0.007	0.1
		4	6.7	25,000	900	0.025	0.2	23,000	800	0.015	0.2	20,000	600	0.007	0.15	18,000	400	0.005	0.1
		6	10.0	23,000	600	0.015	0.2	20,000	400	0.008	0.2	18,000	300	0.005	0.15	12,000	200	0.003	0.1
		8	13.3	18,000	400	0.01	0.2	16,000	300	0.005	0.2	14,000	200	0.002	0.15	10,000	160	0.001	0.1
		10	16.7	16,000	240	0.005	0.2	14,000	200	0.002	0.2	12,000	160	0.001	0.15	8,000	100	0.001	0.1
0.7	0.02	2	2.9	30,000	1,800	0.016	0.25	25,000	1,400	0.012	0.25	23,000	1,200	0.006	0.15	20,000	900	0.003	0.12
		4	5.7	28,000	1,400	0.012	0.25	25,000	1,200	0.008	0.25	23,000	1,000	0.005	0.15	20,000	700	0.002	0.12
		6	8.6	25,000	1,000	0.008	0.25	20,000	700	0.005	0.25	18,000	500	0.003	0.15	16,000	400	0.002	0.12
	0.05 0.1	2	2.9	30,000	1,800	0.04	0.25	25,000	1,400	0.03	0.25	23,000	1,200	0.015	0.15	20,000	900	0.01	0.12
		4	5.7	28,000	1,400	0.03	0.25	25,000	1,200	0.02	0.25	23,000	1,000	0.01	0.15	20,000	700	0.007	0.12
		6	8.6	25,000	1,000	0.02	0.25	20,000	700	0.01	0.25	18,000	500	0.007	0.15	16,000	400	0.005	0.12
0.8	0.02	2	2.5	28,000	2,000	0.016	0.3	25,000	1,600	0.014	0.25	23,000	1,400	0.006	0.16	20,000	1,000	0.005	0.14
		4	5.0	28,000	1,800	0.012	0.3	25,000	1,400	0.008	0.25	23,000	1,200	0.005	0.16	20,000	800	0.003	0.14
		6	7.5	23,000	1,400	0.009	0.3	20,000	1,100	0.006	0.25	18,000	900	0.004	0.16	16,000	650	0.002	0.14
		8	10.0	18,000	1,000	0.006	0.3	16,000	800	0.003	0.25	14,000	600	0.002	0.16	12,000	400	0.002	0.14
	0.05 0.1 0.2	2	2.5	28,000	2,000	0.05	0.3	25,000	1,600	0.03	0.25	23,000	1,400	0.02	0.16	20,000	1,000	0.015	0.14
		4	5.0	28,000	1,800	0.045	0.3	25,000	1,400	0.025	0.25	23,000	1,200	0.015	0.16	20,000	800	0.01	0.14
		6	7.5	23,000	1,400	0.03	0.3	20,000	1,100	0.02	0.25	18,000	900	0.01	0.16	16,000	650	0.007	0.14
		8	10.0	18,000	1,000	0.02	0.3	16,000	800	0.01	0.25	14,000	600	0.005	0.16	12,000	400	0.005	0.14
		12	15.0	16,000	600	0.007	0.3	14,000	400	0.005	0.25	12,000	240	0.003	0.16	10,000	160	0.001	0.14
0.9	0.1	4	4.4	25,000	2,200	0.05	0.3	25,000	1,700	0.03	0.3	20,000	1,400	0.02	0.2	18,000	1,200	0.01	0.15
		8	8.9	18,000	1,000	0.03	0.3	16,000	800	0.01	0.3	14,000	700	0.008	0.2	10,000	500	0.005	0.15
1	0.02	1.5	1.5	30,000	3,000	0.016	0.35	25,000	2,400	0.012	0.3	21,000	2,100	0.01	0.25	17,000	1,500	0.008	0.2
		2	2.0	30,000	2,800	0.016	0.35	25,000	2,300	0.012	0.3	21,000	2,000	0.01	0.25	17,000	1,400	0.008	0.2
		2.5	2.5	29,000	2,700	0.016	0.35	24,000	2,200	0.012	0.3	20,000	1,900	0.01	0.25	16,500	1,350	0.008	0.2
		3	3.0	28,000	2,500	0.016	0.35	23,000	2,100	0.012	0.3	20,000	1,800	0.01	0.25	16,000	1,300	0.008	0.2
		4	4.0	25,000	2,200	0.014	0.35	21,000	1,800	0.01	0.3	18,000	1,500	0.008	0.25	14,000	1,100	0.005	0.2
		5	5.0	23,000	1,900	0.012	0.35	19,000	1,600	0.008	0.3	16,000	1,400	0.005	0.25	13,000	1,000	0.003	0.2
		6	6.0	20,000	1,700	0.01	0.35	16,000	1,400	0.008	0.3	14,000	1,200	0.005	0.25	11,000	850	0.003	0.2
		8	8.0	18,000	1,400	0.008	0.35	15,000	1,100	0.006	0.3	13,000	900	0.005	0.25	10,000	650	0.002	0.2
		10	10.0	16,000	1,000	0.006	0.35	13,000	800	0.004	0.3	11,000	700	0.003	0.25	9,000	500	0.002	0.2
	0.05 0.1 0.2 0.3	1.5	1.5	30,000	3,000	0.065	0.35	25,000	2,400	0.05	0.3	21,000	2,100	0.04	0.25	17,000	1,500	0.03	0.2
		2	2.0	30,000	2,800	0.065	0.35	25,000	2,300	0.05	0.3	21,000	2,000	0.04	0.25	17,000	1,400	0.03	0.2
		2.5	2.5	29,000	2,700	0.06	0.35	24,000	2,200	0.05	0.3	20,000	1,900	0.04	0.25	16,500	1,350	0.03	0.2
		3	3.0	28,000	2,500	0.06	0.35	23,000	2,100	0.05	0.3	20,000	1,800	0.04	0.25	16,000	1,300	0.03	0.2
		4	4.0	25,000	2,200	0.055	0.35	21,000	1,800	0.04	0.3	18,000	1,500	0.03	0.25	14,000	1,100	0.02	0.2
		5	5.0	23,000	1,900	0.05	0.35	19,000	1,600	0.03	0.3	16,000	1,400	0.02	0.25	13,000	1,000	0.01	0.2
		6	6.0	20,000	1,700	0.045	0.35	16,000	1,400	0.02	0.3	14,000	1,200	0.01	0.25	11,000	850	0.007	0.2
		8	8.0	18,000	1,400	0.035	0.35	15,000	1,100	0.015	0.3	13,000	900	0.008	0.25	10,000	650	0.005	0.2
		10	10.0	16,000	1,000	0.025	0.35	13,000	800	0.01	0.3	11,000	700	0.006	0.25	9,000	500	0.005	0.2
1.2	0.1 0.2 0.3	5	4.2	24,000	2,200	0.06	0.45	20,000	1,800	0.045	0.4	17,000	1,500	0.03	0.3	14,000	1,100	0.02	0.2
		10	8.3	16,000	1,400	0.04	0.45	13,000	1,100	0.03	0.4	11,000	950	0.01	0.3	9,000	700	0.005	0.2
1.5	0.02	3	2.0	28,000	2,800	0.016	0.55	23,000	2,300	0.012	0.5	20,000	2,000	0.01	0.4	16,000	1,400	0.008	0.3
		4	2.7	25,000	2,400	0.016	0.55	21,000	2,000	0.012	0.5	18,000	1,700	0.01	0.4	14,000	1,200	0.008	0.3
		6	4.0	23,000	2,200	0.014	0.55	19,000	1,800	0.01	0.5	16,000	1,500	0.008	0.4	13,000	1,100	0.005	0.3

MHRH430R

增加规格 Lineup Expansion

切削参数参考表 Recommended Milling Conditions

加工材料 Work Material				调质钢 Prehardened Steels HPM·NAK (～42HRC)				高硬度钢 Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)				高硬度钢 Hardened Steels SKD11·PD613 (～62HRC)				高速钢 High Speed Steels SKH (～65HRC)			
外径 Dia.	角半径 Corner Radius	颈长 Under Neck Length	L(颈长)/D(外径) L/D	主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut	
				min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm
1.5	0.02	8	5.3	20,000	1,800	0.014	0.55	16,000	1,500	0.01	0.5	14,000	1,300	0.008	0.4	11,000	900	0.003	0.3
		10	6.7	18,000	1,600	0.013	0.55	15,000	1,300	0.008	0.5	13,000	1,100	0.006	0.4	10,000	750	0.003	0.3
		12	8.0	16,000	1,400	0.012	0.55	13,000	1,100	0.008	0.5	11,000	950	0.005	0.4	9,000	650	0.002	0.3
		15	10.0	14,000	1,000	0.008	0.55	11,000	800	0.005	0.5	9,000	700	0.003	0.4	7,000	500	0.002	0.3
	0.05 0.1 0.2 0.3 0.5	3	2.0	28,000	2,800	0.1	0.55	23,000	2,300	0.05	0.5	20,000	2,000	0.04	0.4	16,000	1,400	0.03	0.3
		4	2.7	25,000	2,400	0.08	0.55	21,000	2,000	0.05	0.5	18,000	1,700	0.04	0.4	14,000	1,200	0.03	0.3
		6	4.0	23,000	2,200	0.08	0.55	19,000	1,800	0.045	0.5	16,000	1,500	0.03	0.4	13,000	1,100	0.02	0.3
		8	5.3	20,000	1,800	0.06	0.55	16,000	1,500	0.04	0.5	14,000	1,300	0.025	0.4	11,000	900	0.01	0.3
		10	6.7	18,000	1,600	0.06	0.55	15,000	1,300	0.03	0.5	13,000	1,100	0.02	0.4	10,000	750	0.01	0.3
		12	8.0	16,000	1,400	0.06	0.55	13,000	1,100	0.03	0.5	11,000	950	0.02	0.4	9,000	650	0.007	0.3
		15	10.0	14,000	1,000	0.03	0.55	11,000	800	0.02	0.5	9,000	700	0.007	0.4	7,000	500	0.005	0.3
2	0.02	3	1.5	25,000	3,000	0.02	0.7	22,000	2,500	0.015	0.6	19,000	2,100	0.012	0.5	15,000	1,500	0.008	0.35
		4	2.0	24,000	2,800	0.02	0.7	20,000	2,300	0.015	0.6	17,000	2,000	0.012	0.5	14,000	1,400	0.008	0.35
		6	3.0	22,000	2,500	0.018	0.7	18,000	2,100	0.015	0.6	15,000	1,800	0.012	0.5	12,000	1,300	0.008	0.35
		8	4.0	20,000	2,200	0.016	0.7	16,000	1,800	0.012	0.6	14,000	1,500	0.01	0.5	11,000	1,100	0.005	0.35
		10	5.0	18,000	1,900	0.015	0.7	14,000	1,500	0.012	0.6	13,000	1,300	0.008	0.5	10,000	950	0.005	0.35
		12	6.0	16,000	1,700	0.014	0.7	13,000	1,400	0.01	0.6	11,000	1,200	0.008	0.5	9,000	850	0.003	0.35
		16	8.0	14,000	1,400	0.012	0.7	11,000	1,100	0.008	0.6	9,500	950	0.005	0.5	7,500	650	0.002	0.35
		20	10.0	10,000	800	0.01	0.7	8,000	650	0.005	0.6	7,000	550	0.003	0.5	5,500	400	0.002	0.35
	0.05 0.1 0.2 0.3 0.5	3	1.5	25,000	3,000	0.13	0.7	22,000	2,500	0.06	0.6	19,000	2,100	0.05	0.5	15,000	1,500	0.03	0.35
		4	2.0	24,000	2,800	0.13	0.7	20,000	2,300	0.06	0.6	17,000	2,000	0.05	0.5	14,000	1,400	0.03	0.35
		6	3.0	22,000	2,500	0.12	0.7	18,000	2,100	0.06	0.6	15,000	1,800	0.05	0.5	12,000	1,300	0.03	0.35
		8	4.0	20,000	2,200	0.11	0.7	16,000	1,800	0.05	0.6	14,000	1,500	0.04	0.5	11,000	1,100	0.02	0.35
		10	5.0	18,000	1,900	0.1	0.7	14,000	1,500	0.05	0.6	13,000	1,300	0.03	0.5	10,000	950	0.015	0.35
		12	6.0	16,000	1,700	0.09	0.7	13,000	1,400	0.04	0.6	11,000	1,200	0.03	0.5	9,000	850	0.01	0.35
		16	8.0	14,000	1,400	0.07	0.7	11,000	1,100	0.03	0.6	9,500	950	0.02	0.5	7,500	650	0.007	0.35
		20	10.0	10,000	800	0.05	0.7	8,000	650	0.02	0.6	7,000	550	0.01	0.5	5,500	400	0.005	0.35
2.5	0.1 0.2 0.3 0.5	5	2.0	20,000	2,800	0.16	0.85	20,000	2,400	0.08	0.7	16,000	1,800	0.05	0.5	13,000	1,300	0.03	0.5
		10	4.0	16,000	2,200	0.14	0.85	13,000	1,800	0.07	0.7	11,000	1,500	0.05	0.5	9,000	1,100	0.03	0.5
		15	6.0	14,000	1,800	0.11	0.85	12,000	1,600	0.05	0.7	9,000	1,100	0.03	0.5	7,000	750	0.02	0.5
		20	8.0	11,000	1,400	0.08	0.85	9,000	1,100	0.04	0.7	7,500	950	0.02	0.5	6,000	650	0.01	0.5
		30	12.0	7,000	800	0.03	0.85	5,500	650	0.01	0.7	4,500	550	0.01	0.5	3,500	400	0.005	0.5
3	0.05	4	1.3	18,000	2,800	0.18	1	15,000	2,300	0.1	0.8	13,000	2,000	0.07	0.7	10,000	1,400	0.05	0.6
		6	2.0	16,000	2,500	0.17	1	13,000	2,100	0.1	0.8	11,000	1,800	0.07	0.7	9,000	1,300	0.05	0.6
		8	2.7	14,000	2,200	0.16	1	11,000	1,800	0.1	0.8	9,500	1,500	0.07	0.7	7,500	1,100	0.05	0.6
		10	3.3	13,800	2,100	0.16	1	11,000	1,700	0.09	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		12	4.0	13,500	2,000	0.16	1	11,000	1,600	0.08	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		14	4.7	12,800	1,900	0.15	1	10,000	1,500	0.07	0.8	9,000	1,300	0.05	0.7	7,200	940	0.03	0.6
		16	5.3	12,000	1,800	0.14	1	10,000	1,500	0.07	0.8	8,500	1,300	0.05	0.7	7,000	900	0.03	0.6
		20	6.7	10,000	1,400	0.12	1	8,000	1,100	0.05	0.8	7,000	950	0.04	0.7	5,500	700	0.02	0.6
	0.1 0.2 0.3 0.5	4	1.3	18,000	2,800	0.18	1	15,000	2,300	0.1	0.8	13,000	2,000	0.07	0.7	10,000	1,400	0.05	0.6
		6	2.0	16,000	2,500	0.17	1	13,000	2,100	0.1	0.8	11,000	1,800	0.07	0.7	9,000	1,300	0.05	0.6
		8	2.7	14,000	2,200	0.16	1	11,000	1,800	0.1	0.8	9,500	1,500	0.07	0.7	7,500	1,100	0.05	0.6
		10	3.3	13,800	2,100	0.16	1	11,000	1,700	0.09	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		12	4.0	13,500	2,000	0.16	1	11,000	1,600	0.08	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		14	4.7	12,800	1,900	0.15	1	10,000	1,500	0.07	0.8	9,000	1,300	0.05	0.7	7,200	940	0.03	0.6
		16	5.3	12,000	1,800	0.14	1	10,000	1,500	0.07	0.8	8,500	1,300	0.05	0.7	7,000	900	0.03	0.6
		20	6.7	10,000	1,400	0.12	1	8,000	1,100	0.05	0.8	7,000	950	0.04	0.7	5,500	700	0.02	0.6
		25	8.3	9,000	1,200	0.08	1	7,500	1,000	0.04	0.8	6,500	850	0.02	0.7	5,000	600	0.01	0.6
		30	10.0	8,000	800	0.06	1	6,500	650	0.03	0.8	5,500	550	0.02	0.7	4,500	400	0.007	0.6
	1	6	2.0	16,000	2,500	0.17	1	13,000	2,100	0.1	0.8	11,000	1,800	0.07	0.7	9,000	1,300	0.05	0.6
		8	2.7	14,000	2,200	0.16	1	11,000	1,800	0.1	0.8	9,500	1,500	0.07	0.7	7,500	1,100	0.05	0.6
		10	3.3	13,800	2,100	0.16	1	11,000	1,700	0.09	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		12	4.0	13,500	2,000	0.16	1	11,000	1,600	0.08	0.8	9,500	1,400	0.06	0.7	7,500	1,000	0.04	0.6
		14	4.7	12,800	1,900	0.15	1	10,000	1,500	0.07	0.8	9,000	1,300	0.05	0.7	7,200	940	0.03	0.6
		16	5.3	12,000	1,800	0.14	1	10,000	1,500	0.07	0.8	8,500	1,300	0.05	0.7	7,000	900	0.03	0.6

切削参数参考表 Recommended Milling Conditions

加工材料 Work Material				调质钢 Prehardened Steels HPM·NAK (～42HRC)				高硬度钢 Hardened Steels HPM38·STAVAX·SKD61 (～55HRC)				高硬度钢 Hardened Steels SKD11·PD613 (～62HRC)				高速钢 High Speed Steels SKH (～65HRC)			
外径 Dia.	角半径 Corner Radius	颈长 Under Neck Length	L(颈长)/D(外径) L/D	主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut		主轴转速 Spindle Speed	进给速度 Feed	切深量 Depth of Cut	
				min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm	min^{-1}	mm/min	a_p mm	a_e mm
3	1	20	6.7	10,000	1,400	0.12	1	8,000	1,100	0.05	0.8	7,000	950	0.04	0.7	5,500	700	0.02	0.6
		25	8.3	9,000	1,200	0.08	1	7,500	1,000	0.04	0.8	6,500	850	0.02	0.7	5,000	600	0.01	0.6
		30	10.0	8,000	800	0.06	1	6,500	650	0.03	0.8	5,500	550	0.02	0.7	4,500	400	0.007	0.6
4	0.05	8	2.0	12,000	2,600	0.25	1.4	10,000	2,100	0.15	1.2	8,500	1,800	0.08	1	7,000	1,300	0.06	0.8
		12	3.0	12,000	2,600	0.25	1.4	10,000	2,100	0.15	1.2	8,500	1,800	0.08	1	7,000	1,300	0.06	0.8
		16	4.0	10,000	2,200	0.17	1.4	8,000	1,800	0.1	1.2	7,000	1,500	0.06	1	5,500	1,100	0.05	0.8
		20	5.0	9,000	1,900	0.15	1.4	7,200	1,500	0.09	1.2	6,300	1,300	0.06	1	5,000	950	0.04	0.8
		24	6.0	8,000	1,600	0.14	1.4	6,500	1,300	0.08	1.2	5,500	1,100	0.05	1	4,500	750	0.03	0.8
		28	7.0	7,200	1,400	0.11	1.4	6,000	1,200	0.05	1.2	5,000	1,000	0.03	1	4,000	700	0.02	0.8
		32	8.0	6,500	1,300	0.08	1.4	5,500	1,100	0.04	1.2	4,500	950	0.02	1	3,500	650	0.01	0.8
	0.1 0.2 0.3 0.5 1	8	2.0	12,000	2,600	0.25	1.4	10,000	2,100	0.15	1.2	8,500	1,800	0.08	1	7,000	1,300	0.06	0.8
		10	2.5	12,000	2,600	0.25	1.4	10,000	2,100	0.15	1.2	8,500	1,800	0.08	1	7,000	1,300	0.06	0.8
		12	3.0	12,000	2,600	0.25	1.4	10,000	2,100	0.15	1.2	8,500	1,800	0.08	1	7,000	1,300	0.06	0.8
		16	4.0	10,000	2,200	0.17	1.4	8,000	1,800	0.1	1.2	7,000	1,500	0.06	1	5,500	1,100	0.05	0.8
		20	5.0	9,000	1,900	0.15	1.4	7,200	1,500	0.09	1.2	6,300	1,300	0.06	1	5,000	950	0.04	0.8
		24	6.0	8,000	1,600	0.14	1.4	6,500	1,300	0.08	1.2	5,500	1,100	0.05	1	4,500	750	0.03	0.8
		28	7.0	7,200	1,400	0.11	1.4	6,000	1,200	0.05	1.2	5,000	1,000	0.03	1	4,000	700	0.02	0.8
		32	8.0	6,500	1,300	0.08	1.4	5,500	1,100	0.04	1.2	4,500	950	0.02	1	3,500	650	0.01	0.8
		40	10.0	5,500	1,000	0.05	1.4	4,600	830	0.025	1.2	3,600	640	0.01	1	2,400	420	0.005	0.8
5	0.1 0.2 0.3 0.5 1	10	2.0	9,800	2,500	0.3	2.2	8,500	2,100	0.18	2	7,400	1,800	0.08	1.6	6,000	1,400	0.06	1.2
		15	3.0	9,500	2,400	0.25	2.2	8,000	2,000	0.15	2	7,000	1,700	0.08	1.6	5,500	1,200	0.06	1.2
		20	4.0	8,000	2,000	0.18	2.2	6,500	1,600	0.1	2	5,500	1,400	0.07	1.6	4,500	1,000	0.05	1.2
		30	6.0	6,400	1,600	0.14	2.2	5,300	1,300	0.07	2	4,500	1,100	0.03	1.6	3,800	850	0.02	1.2
		40	8.0	5,000	1,200	0.09	2.2	4,000	1,000	0.05	2	3,500	850	0.02	1.6	3,000	600	0.01	1.2
6	0.05 0.1 0.2 0.3 0.5 1	12	2.0	8,000	2,500	0.35	2.7	6,500	2,100	0.18	2.5	5,500	1,800	0.08	2	4,500	1,300	0.06	1.5
		15	2.5	7,700	2,400	0.32	2.7	6,000	1,900	0.18	2.5	5,000	1,600	0.08	2	4,000	1,200	0.06	1.5
		18	3.0	7,000	2,200	0.3	2.7	5,500	1,800	0.18	2.5	4,500	1,500	0.08	2	3,500	1,100	0.06	1.5
		24	4.0	6,000	1,800	0.2	2.7	5,000	1,500	0.15	2.5	4,000	1,300	0.07	2	3,000	900	0.05	1.5
		30	5.0	5,300	1,600	0.16	2.7	4,300	1,300	0.13	2.5	3,600	1,080	0.06	2	2,700	870	0.04	1.5
		40	6.7	4,300	1,300	0.12	2.7	3,200	960	0.08	2.5	2,700	800	0.04	2	2,300	700	0.03	1.5
		48	8.0	3,000	900	0.1	2.7	2,500	750	0.05	2.5	2,000	650	0.03	2	2,000	450	0.02	1.5

备 注 Notes

※1 请根据实际的加工形状和所使用的机床等调整切削参数。
※2 切深量的ap表示轴向切深量，ae表示径向切深量。
※3 切削高硬度钢时，建议使用油雾冷却方式。
※4 轴向进刀建议采用螺旋进刀及倾斜进刀方式。
※5 L（颈长）/D（外径）超过8倍时，立面附近的进给速度须调整至 50%以下，切深量：ae调整至30%以下。
※6 沟槽切削时建议参考切削参数表，切深量：ap及进给速度设定为50%以下，并采用来回切削加工方式。
※7 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。
※1 Adjust milling conditions according to milling shape and machine type.
※2 ap : Axial Depth of Cut, ae : Radial Depth of Cut.
※3 Recommend to use oil mist coolant for machining hardened steels.
※4 Recommend to apply helical or ramping for approaching into axial direction.
※5 Adjust feed rate 50% lower and cutting depth (ae) 30% lower for milling deep wall area when L/D exceeds 8 for stable milling.
※6 For slotting, recommend reciprocating milling by adjusting feed & ap in below 50% of recommended milling condition.
※7 Reduce both spindle speed and feed at same rate for chattering and also for insufficient spindle speed of a machine.