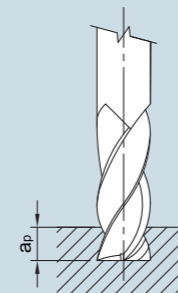
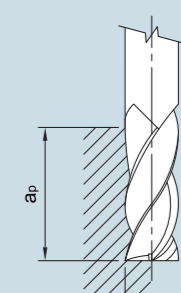


切削數據表 Cutting Speed Specifications

微小徑平刀-2刃 Micro Diameter Square Endmills - 2 Flutes

 槽加工
Grooving

 側面加工
Side Milling


被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 40~50		
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	0.2	32000	130	32000	120	32000	100
	0.3	32000	190	32000	170	24000	120
	0.4	32000	260	29000	210	18000	120
	0.5	29000	290	23000	210	14000	110
	0.6	27000	320	21000	230	13000	120
	0.8	20000	320	16000	230	10000	130
側銑 a _p	1.0D		1.0D		1.0D		
側銑 a _e	0.05D (D < 1) 0.1.0D (D ≥ 1)		0.05D (D < 1) 0.1.0D (D ≥ 1)		0.05D		
溝銑 a _p	0.3D (D < 1) 0.5D (D ≥ 1)		0.3D (D < 1) 0.5D (D ≥ 1)		0.2D		

被切削材 Work Material	SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45		
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	0.2	32000	90	19000	30
	0.3	29000	120	14000	30
	0.4	21000	120	11000	30
	0.5	17000	120	8600	30
	0.6	16000	130	8000	40
	0.8	12000	130	6000	40
側銑 a _p	1.0D		1.0D		
側銑 a _e	0.05D (D < 1) 0.1.0D (D ≥ 1)		0.05D (D < 1) 0.1.0D (D ≥ 1)		
溝銑 a _p	0.3D		0.1.0D		

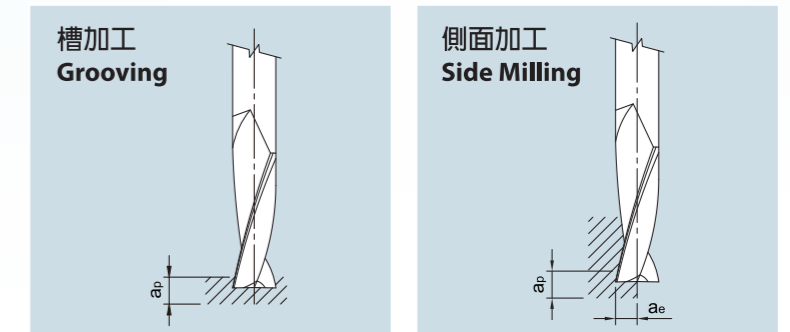


長頸短刃平刀-2刃
Long Neck Short Flute Square Endmills - 2 Flutes



被切削材 Work Material		SS, SC 碳素鋼·合金鋼 Carbon Steels, Alloy Steels HB 150~250		SUS 不銹鋼·模具鋼 Stainless Steels, Mold Steels HRC 25~35		NAK 預硬化鋼 Pre-hardened Steels HRC 35~45		淬火鋼 Hardened Steels HRC 45~55	
刀徑 Mill Diameter	有效長度 Effective Length	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.3	1	50000	500	50000	450	50000	400	42000	300
0.3	2	50000	500	50000	450	50000	400	42000	300
0.3	3	50000	500	50000	450	50000	400	42000	300
0.4	2	50000	750	50000	680	50000	560	34000	340
0.4	3	50000	750	50000	680	50000	560	34000	340
0.4	4	50000	750	50000	680	35000	560	34000	340
0.5	2	50000	900	43000	770	30000	450	25000	320
0.5	4	50000	900	43000	770	30000	450	25000	320
0.5	6	48000	860	41000	730	29000	430	24000	300
0.6	2	50000	1000	43000	850	30000	500	25000	350
0.6	4	50000	1000	43000	850	30000	500	25000	350
0.6	6	42000	840	36000	710	25000	420	21000	290
0.6	8	2000	640	27000	540	19000	320	16000	220
0.7	2	45000	990	38000	840	27000	500	23000	350
0.7	4	45000	990	38000	840	27000	500	23000	350
0.7	6	36000	790	31000	670	22000	400	18000	280
0.7	8	36000	790	31000	670	22000	400	18000	280
0.7	10	28000	620	24000	530	17000	310	14000	220
0.8	4	40000	1000	34000	850	24000	500	20000	350
0.8	6	40000	1000	34000	850	24000	500	20000	350
0.8	8	32000	800	27000	680	19000	400	16000	280
0.8	10	24000	600	20000	510	14000	300	12000	210
0.8	12	24000	600	20000	510	14000	300	12000	210
0.9	6	36000	1190	31000	1010	22000	600	18000	420
0.9	8	30000	990	26000	840	18000	500	15000	350
0.9	10	30000	990	26000	840	18000	500	15000	350
1.0	4	32000	1280	27000	900	22000	640	11000	300
1.0	6	32000	1280	27000	900	22000	640	11000	300
1.0	8	32000	1280	27000	900	22000	640	11000	300
1.0	10	26000	1040	22000	730	18000	520	9000	250
1.0	12	26000	1040	22000	730	18000	520	9000	250
1.5	6	21000	1130	18000	790	15000	570	7000	300
1.5	8	21000	1130	18000	790	15000	570	7000	300
1.5	10	21000	1130	18000	790	15000	570	7000	300
1.5	12	21000	1130	18000	790	15000	570	7000	300
1.5	14	17000	920	14000	640	12000	460	6000	260
1.5	16	17000	920	14000	640	12000	460	6000	260
1.5	18	17000	920	14000	640	12000	460	6000	260
1.5	20	12800	690	11000	480	9000	350	6000	260
2.0	6	16000	1120	14000	780	11000	560	6000	360
2.0	8	16000	1120	14000	780	11000	560	6000	360
2.0	10	16000	1120	14000	780	11000	560	6000	360
2.0	12	16000	1120	14000	780	11000	560	6000	360
2.0	14	16000	1120	14000	780	11000	560	6000	360
2.0	16	16000	1120	14000	780	11000	560	6000	360
2.0	18	12000	840	10000	590	8000	420	5000	300
2.0	20	12000	840	10000	590	8000	420	5000	300
3.0	8	11000	1760	9000	1230	8000	880	4000	450
3.0	10	11000	1760	9000	1230	8000	880	4000	450
3.0	12	11000	1760	9000	1230	8000	880	4000	450
3.0	14	11000	1760	9000	1230	8000	880	4000	450
3.0	16	11000	1760	9000	1230	8000	880	4000	450
3.0	18	11000	1760	9000	1230	8000	880	4000	450
3.0	20	11000	1760	9000	1230	8000	880	4000	450
3.0	25	8000	1280	7000	900	6000	640	3000	330
4.0	12	8000	1440	7000	1010	6000	720	3000	420
4.0	20	8000	1440	7000	1010	6000	720	3000	420
4.0	25	8000	1440	7000	1010	6000	720	3000	420

平刀-2刃
Square Endmills - 2 Flutes

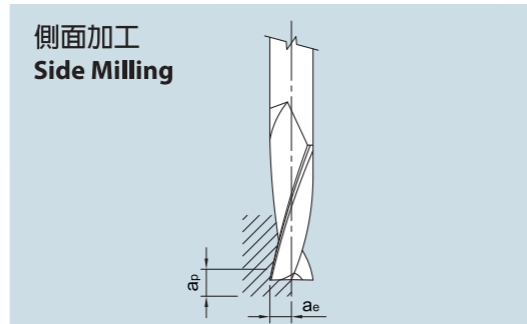
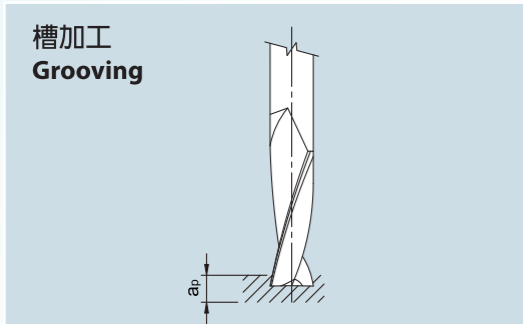


被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35	
	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
2	11200	340	1050	240	7300	130
4	6400	460	6000	320	4200	180
6	4600	550	4300	390	3000	210
8	3400	550	3200	390	2200	210
10	2800	560	2600	390	1800	210
12	2300	560	2200	400	1500	210
16	1700	450	1600	320	1100	180
20	1350	380	1300	280	900	160
側銑 ap	1.5D		1.5D		1.5D	
側銑 ae	0.1.0D		0.1.0D		0.05D	
溝銑 ap	0.5D		0.5D		0.3D	

被切削材 Work Material	淬火鋼 Hardened Steels HRC 25~35		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
2	5300	80	5300	90	3300	50
4	3000	110	3000	130	1900	70
6	2200	130	2200	150	1400	80
8	1600	130	1600	150	1000	80
10	1300	130	1300	150	800	80
12	1100	130	1100	150	700	80
16	800	100	800	110	500	60
20	650	90	650	100	400	50
側銑 ap	1.0D		1.5D		1.0D	
側銑 ae	0.02D		0.1.0D		0.05D	
溝銑 ap	0.05D		0.5D		0.05D	



平刀-4刃 (通用條件)
Square Endmills - 4 Flutes (Conventional Condition)

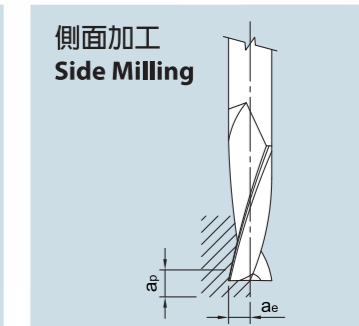
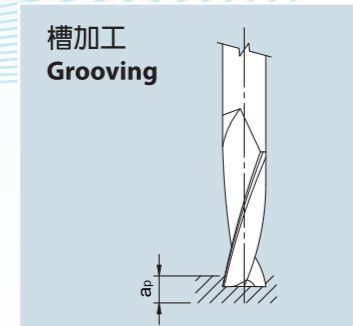


被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	12800	50	1200	380	8300	230
4	6800	730	6400	490	4400	300
6	4600	70	4300	520	3000	320
8	3400	770	3200	520	2200	320
10	2800	780	2600	520	1800	320
12	2300	780	2200	530	1500	320
16	1700	650	1600	420	1100	280
20	1350	600	1300	380	900	260
側銑 ap	1.5D		1.5D		1.5D	
側銑 ae	0.1D		0.1D		0.05D	
溝銑 ap	0.5D		0.5D		0.2D	

被切削材 Work Material	淬火鋼 Hardened Steels HRC 25~35		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	6000	150	6000	130	3700	70
4	3200	200	3200	170	2000	90
6	2200	210	2200	180	1400	100
8	1600	210	1600	180	1000	100
10	1300	210	1300	180	800	100
12	1100	210	1100	180	700	100
16	800	170	800	150	500	80
20	650	150	650	140	400	75
側銑 ap	1.0D		1.5D		1.0D	
側銑 ae	0.02D		0.1D		0.05D	
溝銑 ap	0.05D		0.3D		0.1D	

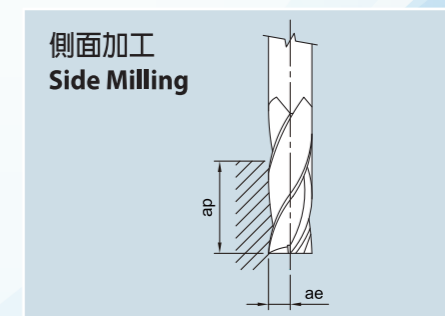


平刀-4刃 (高速條件)
Square Endmills - 4 Flutes (High Speed Condition)



被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35		淬火鋼 Hardened Steels HRC 45~55		SUS 304, 316 不銹鋼 Stainless Steels	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	47800	2200	47800	1600	39800	1200	31800	900	15900	400
4	23900	2600	23900	1900	19900	1400	15900	1100	8000	490
6	16000	2700	16000	2000	13300	1500	10600	1200	5300	510
8	12000	2700	12000	2000	10000	1500	8000	1200	4000	520
10	9600	2700	9600	2000	8000	1500	6400	1200	3200	520
12	8000	2700	8000	2000	6700	1500	5300	1200	2700	520
16	6000	2200	6000	1600	5000	1200	4000	900	2000	450
20	4800	2000	4800	1400	4000	1100	3200	750	1600	380
側銑 ap	1.5D		1.5D		1.5D		1.0D		1.0D	
側銑 ae	0.05D		0.05D		0.05D		0.02D		0.05D	

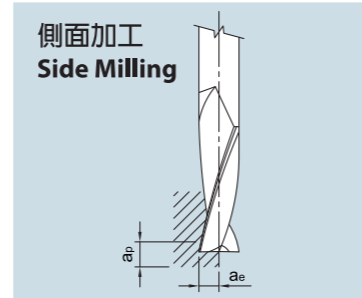
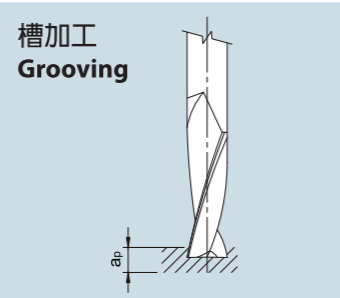
長刃型平刀
Long Flute Square Endmills



被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
3	8500	370	5500	210	4000	180	5500	160	2600	60
4	6600	400	4500	220	3000	190	4000	160	2000	60
6	4800	480	3000	240	2500	190	3000	240	1200	60
8	3600	500	2200	300	2000	200	2000	260	1000	70
10	2800	500	1800	300	1500	200	1700	270	800	80
12	2400	470	1500	270	1200	190	1500	250	700	70
16	1800	320	1100	210	800	150	1000	180	500	60
20	1400	250	900	160	700	120	820	150	400	50
側銑 ap	3.0D		3.0D		3.0D		3.0D		3.0D	
側銑 ae	0.05D		0.05D		0.02D		0.05D		0.02D	

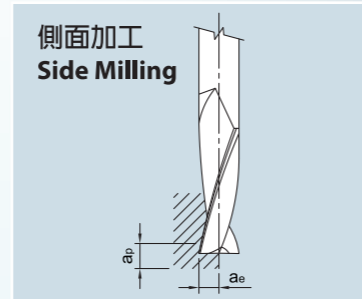


長柄型平刀
Long Shank
Square Endmills



被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
3	8500	520	5500	300	3800	260	5000	220	2500	80
4	6600	560	4500	320	3000	270	4000	220	2000	80
6	4800	670	3000	340	2500	270	3000	340	1200	80
8	3600	700	2200	430	2000	280	2000	360	1000	100
10	2800	700	1800	430	1500	280	1700	390	800	110
12	2400	670	1500	390	1200	270	1500	350	700	100
16	1800	460	1100	290	800	210	1000	250	500	80
20	1400	350	900	230	700	180	820	210	400	70
側銑 ap	1.2D		1.2D		1.2D		1.2D		1.2D	
側銑 ae	0.05D		0.05D		0.1D		0.2D		0.1D	

重切削平刀
Heavy Duty
Square Endmills

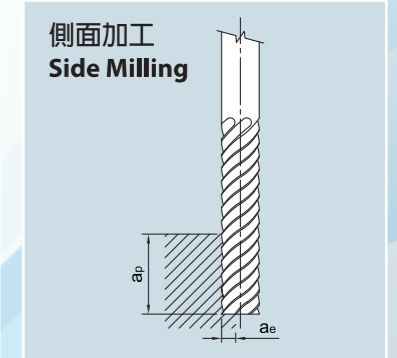
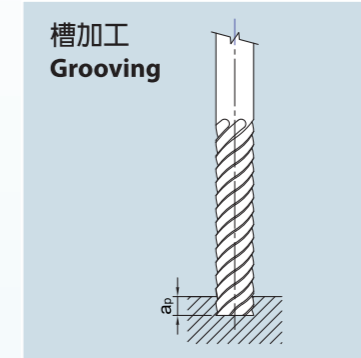


被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	9000	720	6000	430	4000	320	5500	320	2600	120
4	6600	800	4500	450	3000	380	4000	320	2000	120
6	4800	960	3000	480	2500	380	3000	480	1200	120
8	3600	100	2200	610	2000	400	2000	520	1000	140
10	2800	100	1800	610	1500	400	1700	550	800	160
12	2400	950	1500	550	1200	380	1500	500	700	140
14	2200	880	1300	490	1000	360	1200	430	600	130
16	1800	650	1100	420	800	300	1000	360	500	120
18	1600	580	1000	360	750	270	900	340	450	110
20	1400	500	900	330	700	250	820	300	400	100
側銑 ap	1.5D		1.5D		1.5D		1.5D		1.0D	
側銑 ae	0.1D		0.1D		0.05D		0.1D		0.05D	
溝銑 ap	1.0D		1.0D		0.2D		0.3D		0.2D	

平刀-6刃 (通用條件)
Square Endmills - 6 Flutes (Conventional Condition)

被切削材 Work Material	FC, FCD 鑄鐵 Cast Irons		SUS 304, 316 不銹鋼 Stainless Steels		SC, SKD 低硬度鋼·碳素鋼·模具鋼 Carbon Steels, Alloy Steels HRC ~35		SC, NAK, SKD 中硬度鋼·預硬化鋼·模具鋼 Pre-hardened Steels, Mold Steels HRC 35~45		高硬度鋼 Hardened Steels HRC 45~55	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
4	8000	1600	2800	180	800	1600	4000	490	2400	180
5	6200	2000	2200	230	6200	2000	3200	490	1900	220
6	5300	2400	1900	230	5300	2000	2700	490	1600	250
8	4000	2400	1400	230	4000	2000	2000	490	1200	280
10	3200	2400	1100	230	3200	2000	1600	630	1000	300
12	2700	2400	930	300	2700	2100	1300	570	800	350
16	2000	2000	700	270	2000	1900	1100	360	640	220
20	1600	1600	560	240	1600	1600	800	200	480	180
側銑 ap	1.5D		1.5D		1.5D		1.5D		1.5D	
側銑 ae	0.1D		0.1D		0.1D		0.1D		0.05D	
溝銑 ap	0.1D		0.1D		0.1D		0.1D		MAX 0.005	

平刀-6刃 (高速條件)
Square Endmills -
6 Flutes
(High Speed Condition)



被切削材 Work Material	SS, SC, FC 結構鋼·碳素鋼·鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼·淬火鋼 Hardened Steels HRC 25~35	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
4	24000	4800	24000	4600	24000	3200
5	19200	6000	19200	5800	19200	4000
6	16000	6000	16000	5800	16000	4000
8	12000	6000	12000	5800	12000	4000
10	10000	6000	10000	5700	9500	4200
12	8000	7600	8000	5300	8000	4600
16	6000	7600	6000	5300	6000	4000
20	5000	7000	5000	5000	4800	3000
側銑 ap	1~1.5D		1~1.5D		1~1.5D	
側銑 ae	0.1D		0.05D		0.02~0.05D	



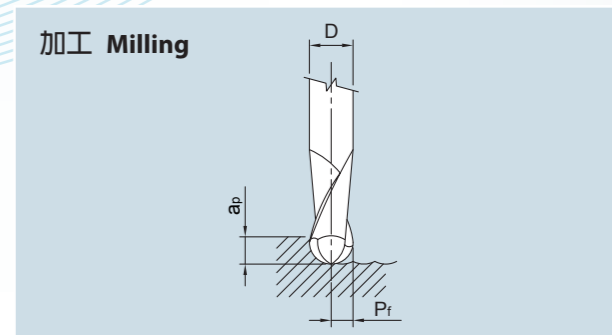
微細徑球刀-2刃 (通用條件)
Micro Diameter Ball Nose Endmills - 2 Flutes (Conventional Condition)

被切削材 Work Material	SC, FC 碳素鋼·鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼·模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼·預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.1	32000	320	32000	320	32000	300
0.15	32000	480	32000	480	32000	450
0.2	32000	600	32000	600	32000	520
0.25	32000	750	32000	650	32000	620
0.3	32000	900	32000	700	32000	700
0.4	32000	1200	32000	1000	32000	920
0.5	32000	1500	32000	1250	32000	1150
0.75	32000	2200	32000	1600	32000	1700
1.0	32000	2900	28500	2100	25000	1800
1.5	21000	2900	19000	2100	17000	1800
2.0	16000	2900	14000	2100	12500	1800
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr	0.2D		0.2D		0.2D	

被切削材 Work Material	SUS 不銹鋼·調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.1	32000	250	32000	160	32000	125
0.15	32000	375	32000	240	32000	190
0.2	32000	500	32000	320	32000	255
0.25	32000	600	32000	400	32000	320
0.3	32000	640	32000	480	32000	380
0.4	32000	850	32000	640	25000	400
0.5	32000	1000	32000	800	20000	400
0.75	29500	1400	25500	950	13500	400
1.0	22000	1400	19000	950	10000	400
1.5	14500	1400	12500	950	6800	400
2.0	11000	1400	9500	950	5000	400
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D	
切入量 Pr	0.2D		0.2D		0.1D	



微細徑球刀-2刃 (高速條件)
Micro Diameter Ball Nose Endmills - 2 Flutes (High Speed Condition)

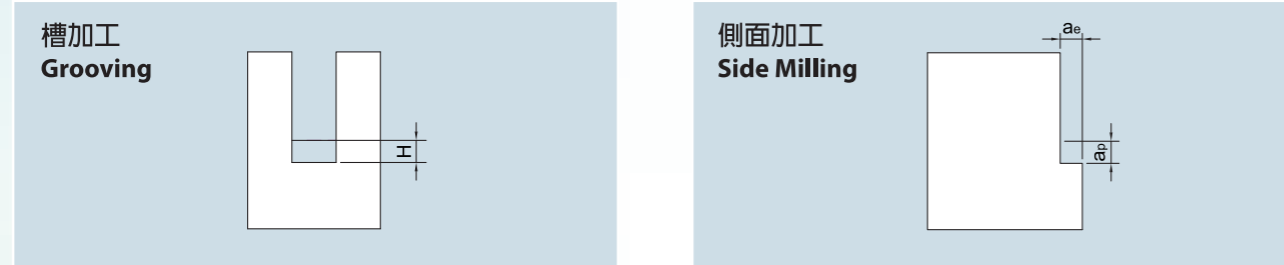


被切削材 Work Material	SC, FC 碳素鋼·鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼·模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼·預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.1	60000	600	60000	600	60000	560
0.15	60000	900	60000	900	60000	840
0.2	60000	1100	60000	1100	60000	1000
0.25	60000	1200	60000	1200	60000	1150
0.3	60000	1400	60000	1400	60000	1300
0.4	60000	1900	60000	1900	60000	1700
0.5	60000	2350	60000	2350	60000	2150
0.75	60000	3000	60000	3000	55000	2900
1.0	48000	4350	45000	3300	41500	2900
1.5	32000	4350	30000	3300	27500	2900
2.0	24000	4350	22000	3300	20500	2900
切入量 ap	0.05D		0.05D		0.05D	
切入量 Pr	0.1D		0.1D		0.1D	

被切削材 Work Material	SUS 不銹鋼·調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.1	60000	480	48000	240	48000	180
0.15	60000	700	48000	360	48000	280
0.2	60000	940	48000	480	48000	380
0.25	60000	1100	48000	600	48000	480
0.3	60000	1200	48000	720	48000	570
0.4	60000	1600	48000	960	48000	750
0.5	60000	1900	48000	1200	48000	950
0.75	51000	2400	42500	1600	32000	950
1.0	38000	2400	32000	1600	24000	950
1.5	25000	2400	21000	1600	16000	950
2.0	19000	2400	16000	1600	12000	950
切入量 ap	0.05D		0.05D		0.05D	
切入量 Pr	0.1D		0.1D		0.1D	



長頸短刃球刀-2刃
Long Neck Short Flute Ball Nose Endmills - 2 Flutes



被切削材 Work Material		SS, SC 碳素鋼·合金鋼 Carbon Steels, Alloy Steels HB 150~250		SUS 不銹鋼·模具鋼 Stainless Steels, Mold Steels HRC 25~35		NAK 預硬化鋼 Pre-hardened Steels HRC 35~45		淬火鋼 Hardened Steels HRC 45~55	
球半徑R Ball Radius	有效長度 Effective Length	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.2	2	50000	800	50000	810	50000	640	50000	500
0.2	2.5	50000	800	50000	740	50000	640	50000	500
0.2	3	50000	800	50000	740	50000	640	50000	500
0.2	4	50000	800	50000	740	50000	640	50000	500
0.2	5	48000	480	46000	420	50000	350	50000	500
0.25	2	50000	1100	50000	990	45000	770	32000	500
0.25	4	50000	1100	50000	990	40000	700	29000	450
0.25	5	50000	1100	40000	790	40000	700	29000	450
0.25	6	50000	1100	40000	790	31000	540	29000	450
0.3	2	50000	1300	48000	1110	37000	780	27000	520
0.3	3	50000	1300	46000	1060	35000	740	25000	480
0.3	4	50000	1300	43000	990	33000	700	24000	460
0.3	5	42000	1090	38000	880	30000	630	24000	440
0.3	6	42000	1090	33000	760	26000	550	24000	440
0.4	2	48000	1750	36000	1180	28800	840	20000	500
0.4	4	48000	1750	36000	1180	28800	840	20000	500
0.4	5	40000	1460	30000	980	24000	700	18000	420
0.4	6	40000	1460	30000	980	24000	700	18000	420
0.4	7	32000	1120	24000	780	20000	560	18000	420
0.4	8	32000	1120	24000	780	20000	560	18000	420
0.4	10	24000	840	21000	680	18000	500	16000	380
0.5	3	38000	1710	29000	1160	22800	770	16000	480
0.5	4	38000	1710	29000	1160	22800	770	16000	480
0.5	5	38000	1710	29000	1160	22800	770	16000	480
0.5	6	32000	1440	24000	960	19200	650	14500	435
0.5	7	32000	1440	24000	960	19200	650	14500	435
0.5	8	32000	1440	24000	960	19200	650	14500	435
0.5	9	26000	1170	20000	800	15600	530	14500	435
0.5	10	26000	1170	20000	800	15600	530	13000	390
0.5	12	26000	1170	20000	800	15600	530	13000	390
0.75	8	13200	680	8800	450	22000	1500	16500	1050
0.75	10	13200	680	8800	450	22000	1500	16500	1050
0.75	12	13200	680	8800	450	22000	1500	16500	1050
0.75	14	17000	1160	12750	810	10200	520	6800	350
0.75	16	17000	1160	12750	810	10200	520	6800	350
1.0	4	19000	1710	14250	1200	11400	770	7600	510
1.0	6	19000	1710	14250	1200	11400	770	7600	510
1.0	8	19000	1710	14250	1200	11400	770	7600	510
1.0	12	16000	1440	12000	1010	9600	650	6400	430
1.0	14	16000	1440	12000	1010	9600	650	6400	430
1.0	16	16000	1440	12000	1010	9600	650	6400	430
1.0	18	12800	1150	9600	810	7680	520	5120	350
1.5	8	12800	2180	9600	1530	7680	980	5120	650
1.5	10	12800	2180	9600	1530	7680	980	5120	650
1.5	16	10600	1800	7950	1260	6360	810	4240	540
1.5	20	10600	1800	7950	1260	6360	810	4240	540
2.0	10	10000	2200	7500	1540	6000	990	4000	660
2.0	16	10000	2200	7500	1540	6000	990	4000	660
2.0	20	10000	2200	7500	1540	6000	990	4000	660
2.0	25	8000	1760	6000	1230	4800	790	3200	530

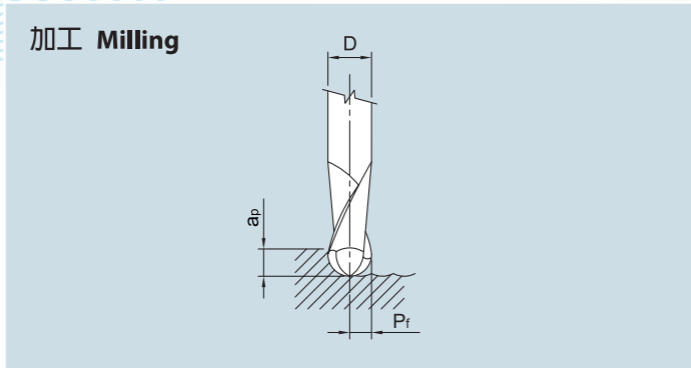
球刀 (通用條件)
Ball Nose Endmills (Conventional Condition)

被切削材 Work Material	SC, FC 碳素鋼·鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼·模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼·預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38		
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.5		32000	820	31000	620	25000	440
1		16000	920	15000	680	13000	510
2		8000	1000	7600	760	6400	560
3		5300	1000	5100	770	4200	550
5		3200	1000	3100	780	2500	550
8		2000	920	1900	680	1600	510
10		1600	820	1500	600	1300	460
切入量 ap		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pf		0.2D		0.2D		0.2D	

被切削材 Work Material	SUS 不銹鋼·調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60		
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.5		22000	330	19000	240	14000	130
1		11000	380	9600	280	7200	160
2		5600	430	4800	310	3600	170
3		3700	420	3200	310	2400	170
5		2200	420	1900	300	1400	170
8		1400	380	1200	280	900	160
10		1100	330	960	250	720	140
切入量 ap		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D	
切入量 Pf		0.2D		0.2D		0.1D	



球刀 (高速條件)
Ball Nose Endmills
(High Speed Condition)



被切削材 Work Material	SC, FC 碳素鋼・鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼・模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼・預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.5	60000	3600	60000	3600	60000	3000
1	51000	5100	48000	4800	40000	3200
2	25000	5000	24000	4800	20000	3200
3	17000	4100	16000	3800	13000	2900
5	10200	3100	9600	2500	8000	1900
8	6400	1900	6000	1800	5000	1200
10	5100	1600	4800	1400	4000	1000
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr	0.1D		0.1D		0.1D	

被切削材 Work Material	SUS 不銹鋼・調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.5	60000	3000	60000	2400	48000	1900
1	37000	3000	35000	2100	24000	1400
2	18000	2500	18000	2200	12000	1400
3	12000	2200	12000	1900	8000	1300
5	7300	1500	7000	1400	4800	960
8	4600	1000	4400	900	3000	600
10	3700	890	3500	700	2400	480
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr	0.1D		0.05D		0.05D	

圓鼻刀
Corner Radius Endmills

被切削材 Work Material	SS, SC, FC 結構鋼・碳素鋼・鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼・預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼・淬火鋼 Hardened Steels HRC 40~50		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金・鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	9000	720	6000	430	4000	320	5500	320	2600	120
4	6600	800	4500	450	3000	380	4000	320	2000	120
6	4800	960	3000	480	2500	380	3000	480	1200	120
8	3600	1000	2200	610	2000	400	2000	520	1000	140
10	2800	1000	1800	610	1500	400	1700	550	800	160
12	2400	950	1500	550	1200	380	1500	500	700	140
側銑 ap	1.5D		1.5D		1.5D		1.5D		1.5D	
側銑 ae	0.1D		0.1D		0.05D		0.1D		0.05D	
溝銑 ap	1.0D		1.0D		0.2D		0.3D		0.2D	

長柄型圓鼻刀
Long Shank Corner Radius Endmills



被切削材 Work Material	SS, SC, FC 結構鋼・碳素鋼・鑄鐵 Structural Steels, Carbon Steels, Cast Irons HB 150~250		SCM, NAK, HPM 合金鋼・預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35		調質鋼・淬火鋼 Hardened Steels HRC 40~50		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金・鈦合金 Nickel Alloys, Titanium Alloys HRC 20~45	
	刀徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	8500	520	5500	300	3800	260	5000	220	2500	80
4	6600	560	4500	320	3000	270	4000	220	2000	80
6	4800	670	3000	340	2500	270	3000	340	1200	80
8	3600	700	2200	430	2000	280	2000	360	1000	100
10	2800	700	1800	430	1500	280	1700	390	800	110
12	2400	670	1500	390	1200	270	1500	350	700	100
側銑 ap	1.2D		1.2D		1.2D		1.2D		1.2D	
側銑 ae	0.01D		0.01D		0.05D		0.1D		0.05D	
溝銑 ap	0.05D		0.05D		0.1D		0.2D		0.1D	



粗銑刀
Roughing Endmills

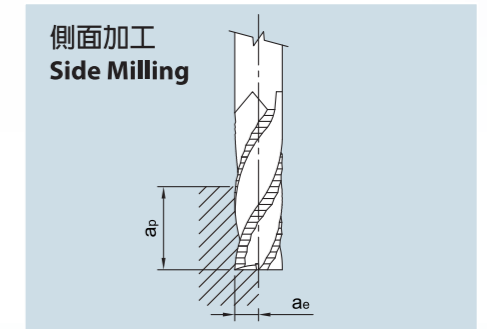
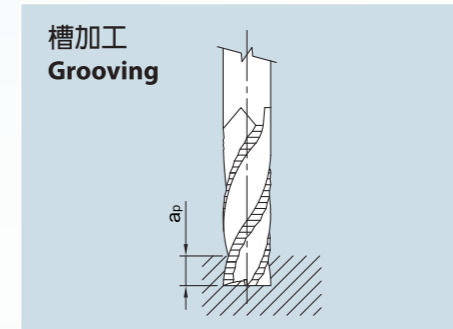
溝加工 Grooving

被切削材 Work Material	SS, SC 結構鋼·碳素鋼 Structural Steels, Carbon Steels HB 150~250		FC, FCD 鑄鐵 Cast Irons		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35	
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
6	3700	620	4200	710	3200	380
8	2800	620	3200	710	2400	380
10	2200	620	2600	710	1900	380
12	1900	620	2100	710	1600	380
16	1400	580	1600	660	1200	340
20	1100	540	1300	620	950	300
溝銑 ap	0.7D		0.7D		0.7D	

被切削材 Work Material	淬火鋼 Hardened Steels HRC 45~55		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys	
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
6	1900	200	2700	190	1100	80
8	1400	200	2000	190	800	80
10	1100	200	1600	190	650	80
12	900	200	1300	190	550	80
16	700	180	1000	160	400	60
20	550	160	800	130	320	50
溝銑 ap	0.2D		0.3D		0.2D	

粗銑刀
Roughing Endmills

側面加工
Side Milling



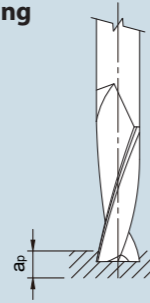
被切削材 Work Material	SS, SC 結構鋼·碳素鋼 Structural Steels, Carbon Steels HB 150~250		FC, FCD 鑄鐵 Cast Irons		SCM, NAK, HPM 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 25~35	
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
6	4800	800	5300	890	4200	510
8	3600	800	4000	890	3200	510
10	2800	800	3200	890	2500	510
12	2400	800	2700	890	2100	510
16	1800	740	2000	830	1600	460
20	1400	700	1600	780	1300	410
側銑 ap	1.5D		1.5D		1.5D	
側銑 ae	0.3D		0.3D		0.3D	
側銑 ap	1.0D		1.0D		1.0D	
側銑 ae	0.7D		0.7D		0.7D	

被切削材 Work Material	淬火鋼 Hardened Steels HRC 45~55		SUS 304, 316 不銹鋼 Stainless Steels		耐熱合金·鈦合金 Nickel Alloys, Titanium Alloys	
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
6	2700	290	3200	230	1600	110
8	2000	290	2400	230	1200	110
10	1600	290	1900	230	950	110
12	1300	290	1600	230	800	110
16	1000	250	1200	190	600	110
20	800	220	950	150	480	80
側銑 ap	1.0D		1.5D		1.0D	
側銑 ae	0.02D		0.2D		0.1D	
側銑 ap	0.6D		1.5D		0.6D	
側銑 ae	0.01D		0.02D		0.01D	

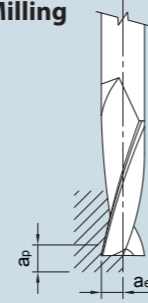


鋁銅專用平刀
For Aluminum & Copper
Alloy Processing
Square Endmills

槽加工
Grooving



側面加工
Side Milling



被切削材 Work Material	1070 鋁材 Aluminum		4032, 6061 鋁合金Si, Mg-Si 類 Aluminum Alloys (Si, Mg-Si)		5052 鋁合金Mg類 Aluminum Alloys (Mg)		
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	3	32000	800	5300	200	13000	400
	5	19200	1000	3200	250	8000	500
	6	16000	1000	2650	250	6500	500
	8	12000	1000	2000	300	5000	600
	10	9600	1200	1600	300	4000	600
	12	8000	1200	1300	350	3300	700
	16	6000	1200	1000	350	2500	700
	20	4800	1200	800	350	2000	700
側銑 ap		1.5D		1.5D		1.5D	
側銑 ae		0.2D		0.2D		0.2D	
溝銑 ap		1.0D		1.0D		1.0D	

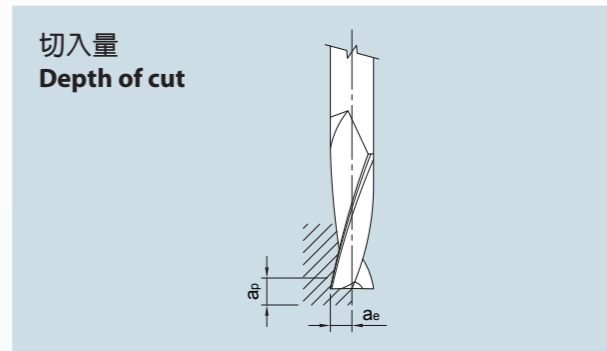
被切削材 Work Material	7075 鋁合金Zn-Mg類 Aluminum Alloys (Zn-Mg)		AC, ADC 鋁合金鑄件 Aluminum Casting Alloys		C1100 鋁合金 Copper Alloys		
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	3	27000	400	16000	500	7900	200
	5	16000	500	9600	600	4700	240
	6	13500	500	8000	600	3900	240
	8	10000	600	6000	700	2900	240
	10	8000	600	4800	700	2300	240
	12	6600	700	4000	800	1900	280
	16	5000	700	3000	800	1400	280
	20	4000	700	2400	800	1100	280
側銑 ap		1.5D		1.5D		1.5D	
側銑 ae		0.2D		0.2D		0.2D	
溝銑 ap		1.0D		1.0D		0.5D	

斜度刀
Taper Flute Square Endmills

溝加工 Grooving

被切削材 Work Material	SC, SCM, FC 碳素鋼·合金鋼·鑄鐵 Carbon Steels, Alloy Steels HRC ~30		SK, SCM, NAK, SKD 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 30~45		調質鋼·淬火鋼 Hardened Steels HRC 45~55		
	先端徑 Taper First Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	1	16000	400	12000	300	10000	100
	1.5	10000	400	7500	300	6500	100
	2	8000	400	6000	300	5000	100
	2.5	6500	400	5000	300	4000	100

側面加工 Side Milling

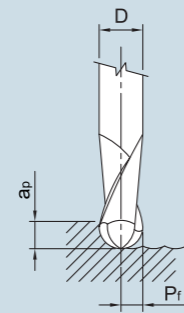


被切削材 Work Material	SC, SCM, FC 碳素鋼·合金鋼·鑄鐵 Carbon Steels, Alloy Steels HRC ~30		SK, SCM, NAK, SKD 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 30~45		調質鋼·淬火鋼 Hardened Steels HRC 45~55		
	先端徑 Taper First Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
	3	4200	110	3400	95	2300	60
	4	3400	135	2700	110	1800	70
	5	2900	170	2300	135	1500	80
	6	2500	200	2000	170	1300	100
	8	1900	220	1500	170	1000	100
	10	1600	220	1300	170	800	100



斜度球刀
Taper Flute Ball
Nose Endmills

切入量
Depth of cut



被切削材 Work Material	SK, SCM, NAK, SKD 合金鋼·預硬化鋼 Alloy Steels, Pre-hardened Steels HRC ~40			
	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$	
先端徑R Taper First Radius	轉速 SPEED	進給速 FEED	轉速 SPEED	進給速 FEED
	min ⁻¹	mm/min	min ⁻¹	mm/min
0.5	40000	8000	40000	3200
0.75	40000	9600	40000	4000
1	40000	9600	39000	4700
1.5	40000	12000	27000	4300
2	32000	11000	20000	3600
2.5	25000	9000	16000	2900
3	21000	8400	13000	2600
4	16000	6400	10000	2000
5	13000	5200	8000	1700
6	9000	3600	6000	1300

被切削材 Work Material	調質鋼·淬火鋼 Hardened Steels HRC 45~55			
	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$	
先端徑R Taper First Radius	轉速 SPEED	進給速 FEED	轉速 SPEED	進給速 FEED
	min ⁻¹	mm/min	min ⁻¹	mm/min
0.5	40000	7500	40000	3000
0.75	40000	9000	32000	3200
1	40000	9000	31000	3500
1.5	32000	7700	22000	3400
2	25000	8000	16000	2700
2.5	20000	7200	13000	2300
3	17000	6300	10000	2000
4	13000	4800	8000	1500
5	10000	3900	6400	1200
6	7200	2700	4800	1000



長斜頸球刀 (通用條件)
Lon Taper Neck Ball Nose Endmills (Conventional Condition)

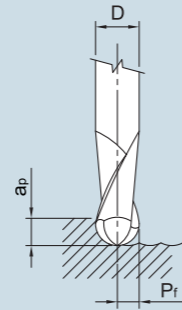
被切削材 Work Material	SC, FC 碳素鋼·鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼·模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼·預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38		
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.5		32000	820	31000	620	25000	440
1		16000	920	15000	680	13000	510
2		8000	1000	7600	760	6400	560
3		5300	1000	5100	770	4200	550
5		3200	1000	3100	780	2500	550
8		2000	920	1900	680	1600	510
10		1600	820	1500	600	1300	460
切入量 ap		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr		0.2D		0.2D		0.2D	

被切削材 Work Material	SUS 不銹鋼·調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60		
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min
0.5		22000	330	19000	240	14000	130
1		11000	380	9600	280	7200	160
2		5600	430	4800	310	3600	170
3		3700	420	3200	310	2400	170
5		2200	420	1900	300	1400	170
8		1400	380	1200	280	900	160
10		1100	330	960	250	720	140
切入量 ap		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D	
切入量 Pr		0.2D		0.1D		0.1D	



長斜頸球刀 (高速條件)
Lon Taper Neck Ball
Nose Endmills
(High Speed Condition)

加工 Milling



被切削材 Work Material	SC, FC 碳素鋼・鑄鐵 Carbon Steels, Cast Irons HB 150~250		SCM, SKD 合金鋼・模具鋼 Alloy Steels, Mold Steels HRC 25~35		NAK 調質鋼・預硬化鋼 Hardened Steels, Pre-hardened Steels HRC 30~38	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.5	60000	3600	60000	3600	60000	3000
1	51000	5100	48000	4800	40000	3200
2	25000	5000	24000	4800	20000	3200
3	17000	4100	16000	3800	13000	2900
5	10200	3100	9600	2500	8000	1900
8	6400	1900	6000	1800	5000	1200
10	5100	1600	4800	1400	4000	1000
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr	0.1D		0.1D		0.1D	

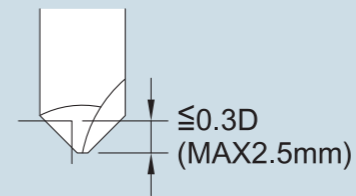
被切削材 Work Material	SUS 不銹鋼・調質鋼 Stainless Steels, Hardened Steels HRC 38~45		高硬度鋼 Hardened Steels HRC 45~55		高硬度鋼 Hardened Steels HRC 55~60	
	球半徑R Ball Radius	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.5	60000	3000	60000	2400	48000	1900
1	37000	3000	35000	2100	24000	1400
2	18000	2500	18000	2200	12000	1400
3	12000	2200	12000	1900	8000	1300
5	7300	1500	7000	1400	4800	960
8	4600	1000	4400	900	3000	600
10	3700	890	3500	700	2400	480
切入量 ap	0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)		0.05D(R<0.5) 0.1D(R≥0.5)	
切入量 Pr	0.1D		0.05D		0.05D	

外角R刀-4刃
Corner Rounding Cutters - 4 Flutes

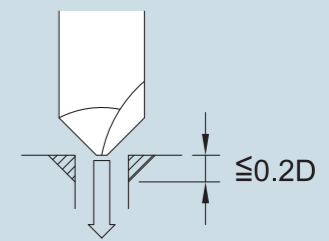
被切削材 Work Material	SS, SC 結構鋼・碳素鋼 Structural Steels, Carbon Steels HRC ~20		SCM, NAK, HPM 合金鋼・預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 20~35		調質鋼・淬火鋼 Hardened Steels HRC 40~50		FC 鑄鐵 Cast Irons		耐熱合金・鈦合金 Nickel Alloys, Titanium Alloys	
	R角 R Angle	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
0.5-1.5	1300	100	900	70	700	50	1400	150	2800	350
2.0-4.0	900	100	600	65	500	45	1000	130	2000	350
4.5-5.0	700	100	400	60	400	40	800	130	1600	350
6.0	550	100	300	60	350	40	650	130	1300	350
切入量 ap	0.5-1.5 (0.5 ↓); 2.0-4.0 (0.6 ↓); 4.5-5.0 (0.6 ↓); 6.0 (0.8 ↓)									

定位鑽-60°/90°/120°
NC Spotting Drills - 60°/ 90°/ 120°

平面加工
Face Milling



槽孔加工
Slot Hole
Milling



被切削材 Work Material	SS, SC, FC 結構鋼・碳素鋼・鑄鐵 Structural Steels, Cast Irons HRC~30		SCM, NAK, HPM 合金鋼・預硬化鋼 Alloy Steels, Pre-hardened Steels HRC 30~45		SUS 304, 316 不銹鋼 Stainless Steels		調質鋼・淬火鋼 Hardened Steels HRC 45~55	
	刃徑 Mill Diameter	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹	進給速 FEED mm/min	轉速 SPEED min ⁻¹
2	16000	960	11000	590	9500	460	8000	320
4	8000	480	5600	300	4800	230	4000	160
6	5300	320	3700	200	3200	150	2700	110
8	4000	240	2800	150	2400	120	2000	80
10	3200	190	2200	120	1900	90	1600	60
12	2700	160	1900	100	1600	80	1300	50