

New

CR-SUPERCUT
CR-超级切削立铣刀系列 End-Mills



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End-Mills Features

立铣刀特性

Center cutting

For plunging and
ramping operations

中心切削，用于插铣和坡铣操作

Optimized cutting edge geometry

最佳的几何切削刃
For smooth cutting
and mirror surface
finish

用于平稳切削和镜面精加工

Reinforced tool corner

加强刀具倒角
Prevents
chipping

防止立铣刀刀尖破损剥落

Unequal helix design

不等距、不等螺旋角度设计
For minimum
vibration and high
feed rates

高进给率下最小的振动

Unequal flute indexing

不等距、不等螺旋角度设计
Reduces harmonic
vibration

减少谐振

Unique core design

独一无二的核心设计

Polished surface

抛光表面
Provides an extra
smooth workpiece
surface finish
使工件达到特别光滑的表面光洁度

CR3 grade

硬质合金材质 CR3
Superior carbide
grade combined with
new generation of
PVD coating
优质的硬质合金材质和新的PVD涂层组合

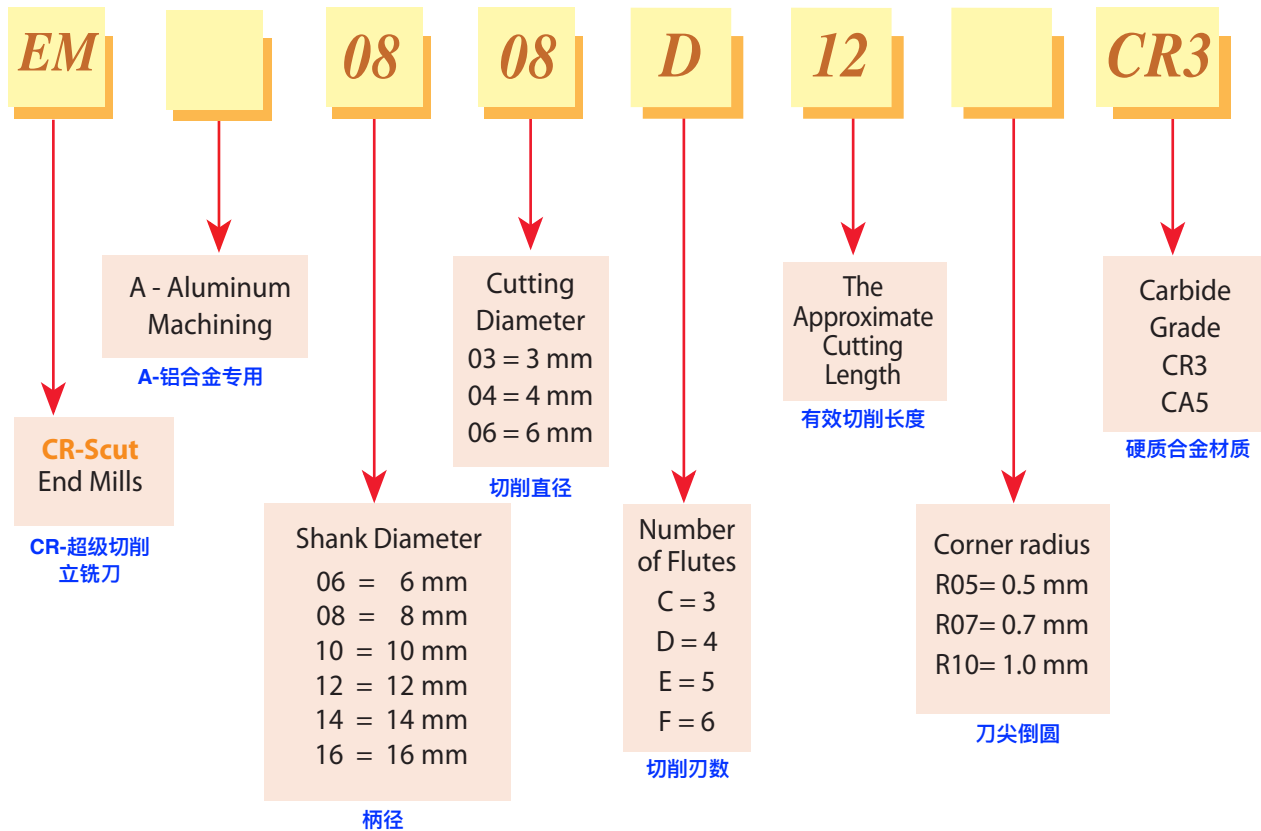
HPC – High Performance Cutting

高效率切削
High feed rate and
maximum metal
removal
高进给率和最大的金属移除率



Product Identification 产品标识

Ordering Codes 订货号



CR-超级切削立铣刀
高性能整体硬质合金立铣刀

CR-Supercut End-Mills *High Performance Solid Carbide End-Mills*



高性能CR超级切削立铣刀，设计用于高进给加工和高金属移除率，适用于宽范围的金属材料。创新的刀具几何角度提供高效率 and 低振动的加工。一个刀具实现半精加工和精加工，带锐利的刀尖或刀尖倒圆。

High Performance CR-Supercut End-mills, designed for high feed machining and high metal removal for a wide range of materials. Innovative tool geometry delivers high performance with low vibration machining in one pass. One tool for semi-finishing and fine-finishing operation with sharp corner or radii.

- High Performance Cutting (HPC) 高效能切削 (HPC)
- Center cutting 切削刃过中心 (中心切削)
- Low vibration machining 低振动加工
- High metal removal rates in Slotting, Shouldering and Helical Plunging operations. 槽铣加工高金属移除率，台阶铣和螺旋插补铣。
- 3-6 flutes 3-6刃

Carbide grade: CR3

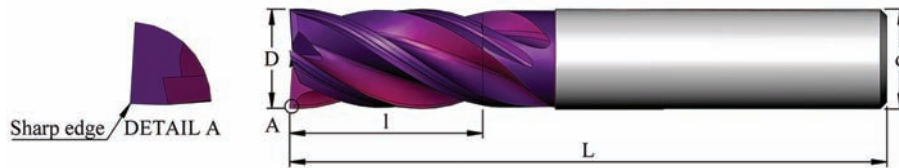
Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance. **A New Generation** of PVD Coating for High-Performance Cutting Applications.

特别细的硬质合金级颗粒提供了高硬度和高韧性切削刃和高稳定性和高耐磨性。新一代高性能PVD涂层用于高效能切削。

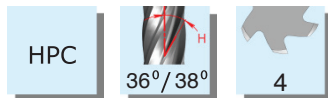
High Performance Solid Carbide End-Mills

高效能整体硬质合金立铣刀

Solid Carbide End-Mills 4 flutes 整体硬质合金-4刃立铣刀



Short Design 短的设计



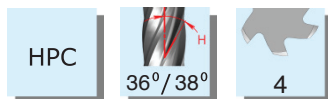
高效能切削 不等距角度

4刃

P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	l 有效长度	L 总长
EM 0604 D08	6	4	4	8	57
EM 0605 D10	6	5	4	10	57
EM 0606 D10	6	6	4	10	57
EM 0808 D12	8	8	4	12	63
EM 1010 D14	10	10	4	14	72
EM 1212 D16	12	12	4	16	73
EM 1414 D18	14	14	4	18	75
EM 1616 D24	16	16	4	24	82
EM 2020 D30	20	20	4	30	92

Long Design 长的设计



高效能 不等距角度

4刃

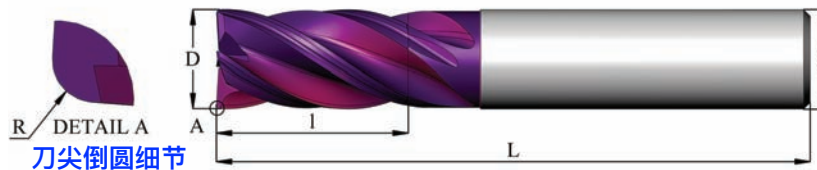
P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	l 有效长度	L 总长
EM 0603 D08	6	3	4	8	57
EM 0604 D11	6	4	4	11	57
EM 0605 D13	6	5	4	13	57
EM 0606 D16	6	6	4	16	57
EM 0808 D19	8	8	4	19	63
EM 1010 D22	10	10	4	22	72
EM 1212 D26	12	12	4	26	83
EM 1414 D26	14	14	4	26	85
EM 1616 D32	16	16	4	32	92
EM 2020 D38	20	20	4	38	104

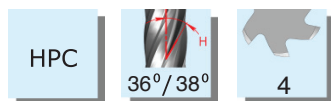
● First choice 首选 ○ Alternative 替换

整体硬质合金立铣刀-4刃带刀尖倒圆

Solid Carbide End-Mills 4 flutes with corner radius



Short Design 短的设计



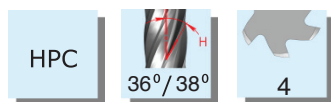
高效能切削 不等距角度

4刃

P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	R 刀尖圆角	I 有效长度	L 总长
EM 0808 D12 R05	8	8	4	0.5	12	63
EM 1010 D14 R05	10	10	4	0.5	14	72
EM 1212 D16 R07	12	12	4	0.7	16	73
EM 1414 D18 R07	14	14	4	0.7	18	75
EM 1616 D24 R10	16	16	4	1.0	24	82
EM 2020 D30 R10	20	20	4	1.0	30	92

Long Design 长的设计



高效能切削 不等距角度

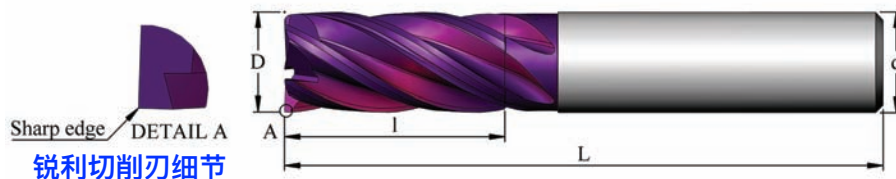
4刃

P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

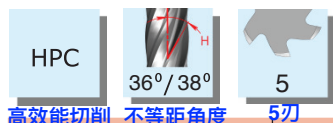
Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	R 刀尖圆角	I 有效长度	L 总长
EM 0603 D08 R03	6	3	4	0.3	8	57
EM 0604 D11 R03	6	4	4	0.3	11	57
EM 0605 D13 R03	6	5	4	0.3	13	57
EM 0606 D16 R05	6	6	4	0.5	16	57
EM 0808 D19 R05	8	8	4	0.5	19	63
EM 1010 D22 R05	10	10	4	0.5	22	72
EM 1212 D26 R07	12	12	4	0.7	26	83
EM 1414 D26 R07	14	14	4	0.7	26	85
EM 1616 D32 R10	16	16	4	1.0	32	92
EM 2020 D38 R10	20	20	4	1.0	38	104

● First choice 首选 ○ Alternative 替换

Solid Carbide End-Mills 5 flutes 整体硬质合金立铣刀-5刃



Long Design 长的设计



高效能切削 不等距角度

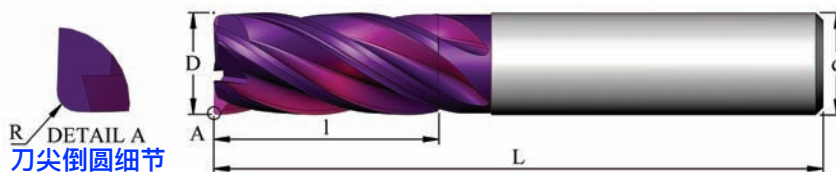
5刃

P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

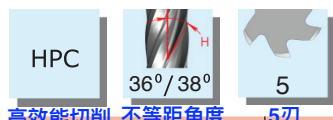
Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	l 有效长度	L 总长
EM 0606 E13	6	6	5	13	57
EM 0808 E19	8	8	5	19	63
EM 1010 E22	10	10	5	22	72
EM 1212 E26	12	12	5	26	83
EM 1414 E26	14	14	5	26	85
EM 1616 E32	16	16	5	32	92
EM 2020 E38	20	20	5	38	104

整体硬质合金立铣刀-5刃 带刀尖倒圆

Solid Carbide End-Mills 5 flutes with corner radius



Long Design 长的设计



高效能切削 不等距角度

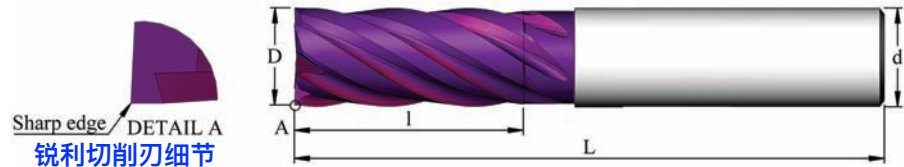
5刃

P	M	K	N	S	H
●	●	●	○	○	≤50 HRc

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	R 刀尖圆角	l 有效长度	L 总长
EM 0606 E13 R05	6	6	5	0.5	13	57
EM 0808 E19 R05	8	8	5	0.5	19	63
EM 1010 E22 R05	10	10	5	0.5	22	72
EM 1212 E26 R07	12	12	5	0.7	26	83
EM 1414 E26 R07	14	14	5	0.7	26	85
EM 1616 E32 R10	16	16	5	1.0	32	92
EM 2020 E38 R10	20	20	5	1.0	38	104

● First choice 首选 ○ Alternative 替换

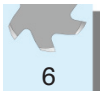
Solid Carbide End-Mills 6 flutes 整体硬质合金立铣刀-6刃



Extra-long Design 特别长的设计

HPC


36°/38°
高效能切削 不等距角度


6刃

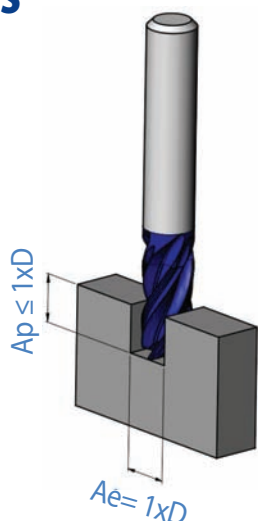
高温合金					
P	M	K	N	S	H
●	●	●		●	≤50 HRc

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	l 有效长度	L 总长
EM 0606 F18	6	6	6	18	57
EM 0808 F24	8	8	6	24	63
EM 1010 F30	10	10	6	30	80
EM 1212 F36	12	12	6	36	83
EM 1414 F42	14	14	6	42	100
EM 1616 F48	16	16	6	48	105
EM 2020 F60	20	20	6	60	150

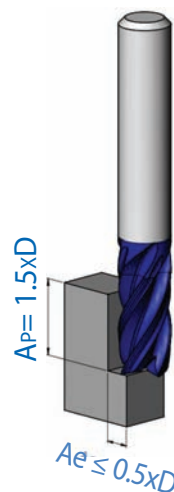
● First choice 首选 ○ Alternative 替换

切削条件

Cutting Conditions



D = Cutting Dia
D=切削径



4 fluted end-mills 4刃立铣刀

ISO	材料 Materials Class	线速度 Vc [m/min]	Fz [mm/tooth] 每齿进给=mm Cutting Diameter 切削直径									
			Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20
P	Low & Medium Carbon Steels <0.55%C 中、低碳钢	120-160	0.006	0.020	0.020	0.030	0.040	0.047	0.056	0.059	0.064	0.078
	High Carbon Steels ≥0.55%C 高碳钢	120-160	0.006	0.020	0.020	0.030	0.040	0.047	0.056	0.059	0.064	0.078
	Alloy Steels, Treated Steels 合金钢、热处理钢	100-140	0.005	0.010	0.015	0.020	0.030	0.039	0.047	0.049	0.053	0.065
M	Stainless Steel-Free Cutting 易切不锈钢	80-140	0.005	0.015	0.020	0.020	0.030	0.040	0.047	0.049	0.053	0.065
	Stainless Steel-Austenitic 奥氏体不锈钢	70-130	0.004	0.010	0.015	0.020	0.022	0.034	0.04	0.043	0.045	0.055
	Cast Steels 铸钢	70-130	0.004	0.010	0.015	0.020	0.022	0.034	0.04	0.043	0.045	0.055
K	Cast Iron 铸铁	80-140	0.005	0.015	0.020	0.023	0.027	0.039	0.047	0.049	0.053	0.065
N	Aluminum ≤12%Si, Copper 硅含量小于12%铝, 铜	240-300	0.036	0.040	0.048	0.052	0.056	0.065	0.074	0.078	0.083	0.093
	Aluminum >12%Si 硅含量大于12%铝	240-300	0.036	0.040	0.048	0.052	0.056	0.065	0.074	0.078	0.083	0.093
	Synthetics, duroplastics, thermoplastics 合成纤维、硬塑料, 热塑料	250-320	0.030	0.054	0.069	0.085	0.100	0.115	0.135	0.115	0.120	0.135
S	Heat-resistant alloys 耐热合金	20-40	0.005	0.008	0.013	0.018	0.031	0.048	0.056	0.060	0.064	0.077
	Titanium alloys 钛合金	80-100	0.005	0.008	0.013	0.018	0.031	0.048	0.056	0.060	0.064	0.077
H	Hardened Steel <50 HRc 硬钢小于-HRC50	40-70	0.007	0.010	0.013	0.017	0.020	0.023	0.025	0.026	0.027	0.028

For hard or tough materials, reduce the Ap by 20%-30% 用于硬和韧性材料, 切深Ap降低20%-30%

5 fluted end-mills 5刃-立铣刀切削条件

ISO	材料 Materials Class	线速度 Vc [m/min]	Fz [mm/tooth] 每齿进给=mm Cutting Diameter 切削直径						
			Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20
P	Low & Medium Carbon Steels <0.55%C 中、低碳钢	120-160	0.034	0.040	0.050	0.063	0.069	0.076	0.089
	High Carbon Steels ≥0.55%C 高碳钢	120-160	0.034	0.040	0.050	0.063	0.069	0.076	0.089
	Alloy Steels, Treated Steels 合金钢、热处理钢	100-140	0.034	0.038	0.050	0.063	0.069	0.076	0.089
M	Stainless Steel-Free Cutting 易切不锈钢	80-140	0.030	0.032	0.045	0.063	0.065	0.069	0.076
	Stainless Steel-Austenitic 奥氏体不锈钢	70-130	0.030	0.032	0.045	0.063	0.065	0.069	0.076
	Cast Steels 铸钢	70-130	0.030	0.032	0.045	0.063	0.065	0.069	0.076
S	Heat-resistant alloys 耐热合金	20-40	0.018	0.031	0.048	0.056	0.060	0.064	0.077
	Titanium alloys 钛合金	80-100	0.018	0.031	0.048	0.056	0.060	0.064	0.077
H	Hardened Steel <50 HRc HRC50以下硬钢	40-70	0.020	0.020	0.025	0.027	0.030	0.035	0.040

For hard or tough materials, reduce the Ap by 20%-30% 加工硬或韧性材料，减少Ap切深20%-30%

6 fluted end-mills 6刃-立铣刀切削条件

ISO	材料 Materials Class	线速度 Vc [m/min]	Fz [mm/tooth] 每齿进给=mm Cutting Diameter 切削直径						
			Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20
P	Low & Medium Carbon Steels <0.55%C 中、低碳钢	120-160	0.040	0.045	0.055	0.068	0.075	0.081	0.089
	High Carbon Steels ≥0.55%C 高碳钢	120-160	0.040	0.045	0.055	0.068	0.075	0.081	0.089
	Alloy Steels, Treated Steels 合金钢、热处理钢	100-140	0.040	0.045	0.055	0.068	0.075	0.081	0.089
M	Stainless Steel-Free Cutting 易切不锈钢	80-140	0.035	0.037	0.050	0.068	0.070	0.074	0.081
	Stainless Steel-Austenitic 奥氏体不锈钢	70-130	0.035	0.037	0.050	0.068	0.070	0.074	0.081
	Cast Steels 铸钢	70-130	0.035	0.037	0.050	0.068	0.070	0.074	0.081
S	Heat-resistant alloys 耐热合金	20-40	0.018	0.031	0.048	0.056	0.060	0.064	0.077
	Titanium alloys 钛合金	80-100	0.018	0.031	0.048	0.056	0.060	0.064	0.077
H	Hardened Steel <50 HRc HRC50以下硬钢	40-70	0.023	0.025	0.030	0.033	0.036	0.040	0.045

For hard or tough materials, reduce the Ap by 20%-30% 加工硬钢或韧性材料，减小Ap切深20%-30%

CR-超级切削立铣刀

CR-Supercut End-Mills

High Performance Solid Carbide End-Mills for Aluminum machining

高效能整体硬质合金立铣刀-铝加工专用

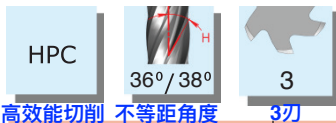
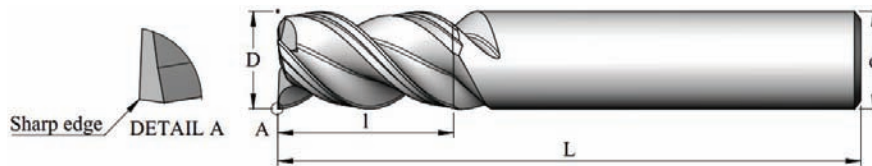


- High Performance Cutting (HPC) 高效能切削 (HPC)
- Center cutting 切削刃过中心 (中心切削)
- Low vibration machining 低振动加工
- High metal removal rates in Slotting, Shouldering and Helical Plunging operations. 槽铣高金属移除率, 台阶铣和螺旋插补铣
- Smooth polished flutes, more flute space and open flute design for better chip flow away from cutting area. 光滑的抛光容屑槽, 所有容屑槽空间和开放的容屑槽设计, 使更多的切屑从切削区域排出。
- 3 flutes 3刃

Carbide Grade: CA5 硬质合金材质: CA5

Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance. 特别细的硬质合金颗粒, 提供了高硬度和高韧性切削刃以及稳定性和耐磨性。

Solid Carbide End-Mills 3 flutes 整体硬质合金立铣刀-3刃



高效能切削 不等距角度

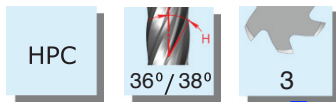
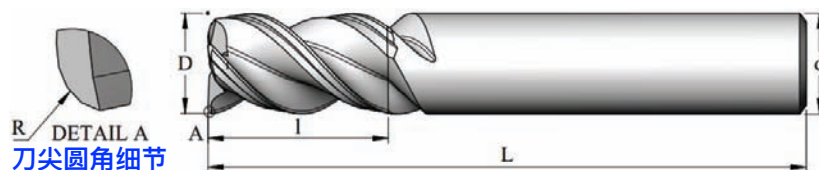
3刃

P	M	K	N	S	H
			●		

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	l 有效长度	L 总长
EMA 0303 C12	3	3	3	12	38
EMA 0404 C12	4	4	3	12	50
EMA 0505 C14	5	5	3	14	50
EMA 0606 C16	6	6	3	16	50
EMA 0808 C20	8	8	3	20	63
EMA 1010 C22	10	10	3	22	72
EMA 1212 C25	12	12	3	25	83
EMA 1414 C32	14	14	3	32	85
EMA 1616 C32	16	16	3	32	92
EMA 2020 C38	20	20	3	38	104

Solid Carbide End-Mills 3 flutes with corner radius 整体硬质合金立铣刀-3刃带刀尖圆角

整体硬质合金立铣刀-3刃带刀尖圆角



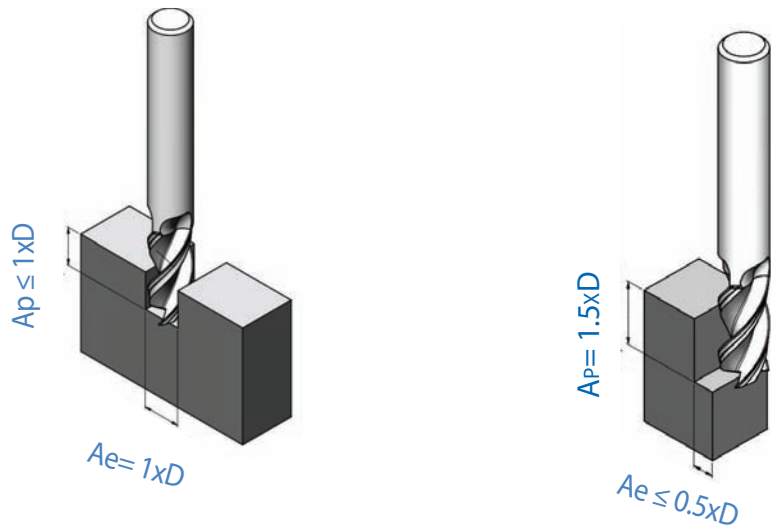
高效能切削 不等距角度

3刃

P	M	K	N	S	H
			●		

Ordering Code 订货号	d 柄径	D 切削径	No. of Flutes 刃数	R 刀尖圆角	l 有效长度	L 总长
EMA 0303 C12 R03	3	3	3	0.3	12	38
EMA 0404 C12 R03	4	4	3	0.3	12	50
EMA 0505 C14 R03	5	5	3	0.3	14	50
EMA 0606 C16 R05	6	6	3	0.5	16	50
EMA 0808 C20 R05	8	8	3	0.5	20	63
EMA 1010 C22 R05	10	10	3	0.5	22	72
EMA 1212 C25 R07	12	12	3	0.7	25	83
EMA 1414 C32 R07	14	14	3	0.7	32	85
EMA 1616 C32 R10	16	16	3	1.0	32	92
EMA 2020 C38 R10	20	20	3	1.0	38	104

Cutting Conditions 切削条件



Cutting conditions for side milling 侧铣切削条件

ISO	材料 Materials Class	线速度 Vc [m/min]	Fz [mm/tooth] 每齿进给=mm Cutting Diameter 切削直径									
			Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20
N	Aluminum ≤12%Si, Copper 硅含量小于12%铝, 铜	500-1000	0.025	0.035	0.045	0.055	0.070	0.090	0.105	0.125	0.145	0.180
	Aluminum >12%Si 硅含量大于12%铝	500-1000	0.020	0.030	0.038	0.049	0.063	0.081	0.096	0.115	0.130	0.160
	Synthetics, duroplastics, thermoplastics 合成纤维, 硬塑料、热塑料	500-1000	0.025	0.035	0.045	0.055	0.070	0.090	0.105	0.125	0.145	0.180

For slotting, reduce the Fz by 15%-25% depending on the application 槽铣, 减少每齿进给15%-25%, 取决于应用程序

Application Example 应用样式

