



**EGRETOOL**

XIAMEN EGRET TOOL CO.,LTD.



**EGRETOOL**

**Solid Carbide Endmill**



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# 标记说明 Icon Guideline

## 01 材质 / Material

				
硬质合金 Cemented Carbide	金属陶瓷 Cermet	CBN Polycrystalline Cubic Boron Nitride	PCD Polycrystalline Diamond	





## 02 螺旋角 / Helix Angle

				
30° Helix Angle	35° Helix Angle	35°/38° Helix Angle	43°/45°/47° Helix Angle	45° Helix Angle

## 03 涂层 / Coating

				
TiAlN Coating	AlCrSiN Coating	TiAlCrSiN Coating	金刚石涂层 Diamond Coating	

## 04 刃数 / Number of Flutes

				
2刃 2 Flutes	3刃 3 Flutes	4刃 4 Flutes	6刃 6 Flutes	

## 05 角部形状 / Corner

				
圆角 Corner Radius	直角 Sharp Edge	球头 Ball Nose	倒角 Chamfer	

## 06 加工用途 / Applications

				
槽铣 Slot Milling	侧铣 Side Milling	仿形铣 Profile Milling		

# 整体硬质合金立铣刀订货号表示规则

## Product Code (Order Number) Instruction Of Solid Carbide Endmill

U-			S	
{ 1 }			{ 2 }	
产品系列 Product series	工件材料 Workpiece material	系列说明 Remark	底刀形状 Endteeth type	
U	钢件、铸铁 Steel, Cast iron	通用加工系列 General machining	S	平头 Square
UC	钢件、铸铁 Steel, Cast iron	通用加工系列 General machining	B	球头 Ball nose
UR	钢件、铸铁 Steel, Cast iron	通用粗加工系列 Roughing	R	圆弧角 Corner radius
UN	钢件、铸铁 Steel, Cast iron	通用粗加工系列 Roughing	C	刀尖倒角 Chamfer
X	钢件、铸铁 Steel, Cast iron	高效加工系列 High efficient machining		
H	高硬钢 Hardened steel	通用加工系列 General machining		
UM	钢件、铸铁 Steel, Cast Iron	小径深加工系列 Small diameter & Deep cavity machining		
A	铝合金 Aluminum Alloy	通用铝合金加工系列 Aluminum alloy general machining		
S	不锈钢 Stainless steel	通用不锈钢加工系列 Stainless steel general machining		
G	石墨 Graphite	石墨加工系列 Graphite machining		

H		2	020		06			
{ 3 }		{ 4 }	{ 5 }		{ 6 }			
特征项 Features		刃数 Flute number	刃径 Flute diameter		特征项 Characteristic code			
N	长颈 Long neck	2	2mm	020		类型 Type	代表项 Represented item	对应值 Value instruction
H	长柄 Long shank	3	10mm	100	1	平头\球头 Square \ Ball nose	a.颈长 b.刃长 a. neck length b. flute length	06-6mm
L	长刃 Long flute	4			2	圆角头 Corner radius	r值 r value	06-r0.6
S	短刃 Short flute	6			3	刀尖倒角 Chamfer	倒角值 Chamfer value	06-c0.06
空 Blank	标准 Standard							

# 涂层介绍 Coating Introduction

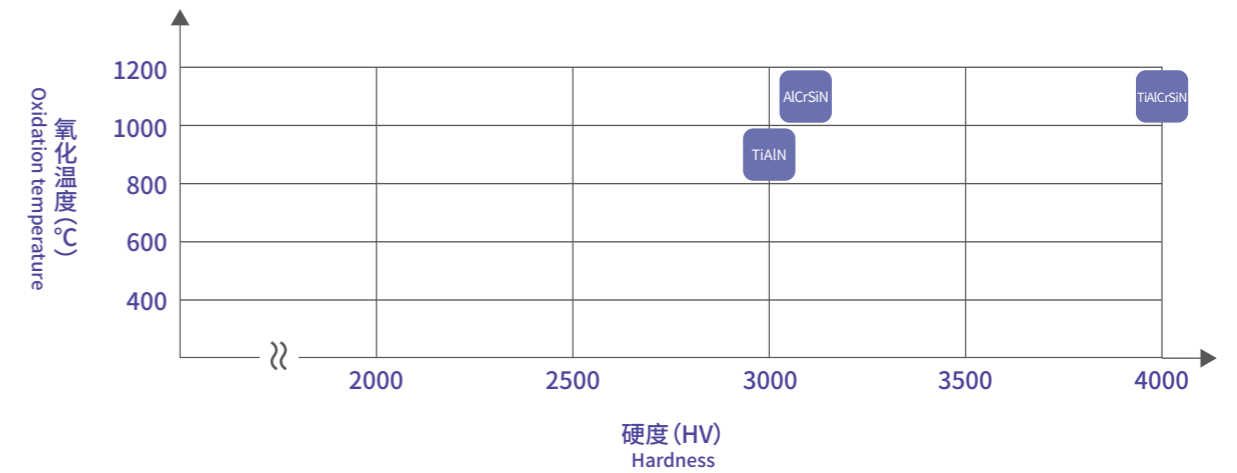
## 01 涂层特性 / Feature of Coating

涂层名称 Coating name	维氏硬度 (HV0.05) Vickers hardness	摩擦系数 Friction coefficient	最高适用温度(°C) Maximum applicable temperature	特点与功能 Features and function
AlCrSiN	3300	0.4	1100	高抗氧化性和高附着强度, 适用于碳钢、合金钢、不锈钢、钛合金等材料 (55HRC以下) 的各种铣削加工, 通用性好。 High oxidation resistance and high adhesion, suitable for milling of carbon steel, alloy steel, stainless steel, titanium alloy etc. (under 55HRC). Good versatility. 干、湿式切削均可实现长寿命加工 Long life in both dry cutting and wet cutting.
TiAlN	2900	0.35	900	高抗氧化性和高附着强度, 适用于不锈钢铣削加工, 部分高硬度钢的干式加工, 钛合金钻削加工。 High oxidation resistance and high adhesion, suitable for milling of stainless steel, dry machining of hardened steel and drilling of titanium alloy.
TiAlCrSiN	4000	0.35	1100	高硬度和高抗氧化性, 实现了高硬度材料切削加工的长寿命化和高效率化。 High Hardness and high oxidation resistance. Enables long life and high efficiency in machining of high hardness materials. 在高硬度材料(55HRC以上)的切削加工中发挥卓越性能。 Exhibits amazing performance when cutting high-hardness, materials(55HRC or higher).
粗晶金刚石 Coarse grained diamond	8500	—	700	高硬度, 高热导率, 高耐磨性; High hardness, high thermal conductivity, high wear resistance; 适用于石墨加工。 Suitable for graphite machining.
超细晶金刚石 Ultrafine grained diamond	8000	—	700	高硬度, 高热导率, 高耐磨性, 自润滑性好; High hardness, high thermal conductivity, high wear resistance, good self lubrication; 适用于非铁材料, 碳纤维复合材料等加工 Suitable for machining non-ferrous material, carbon fiber composites, etc.

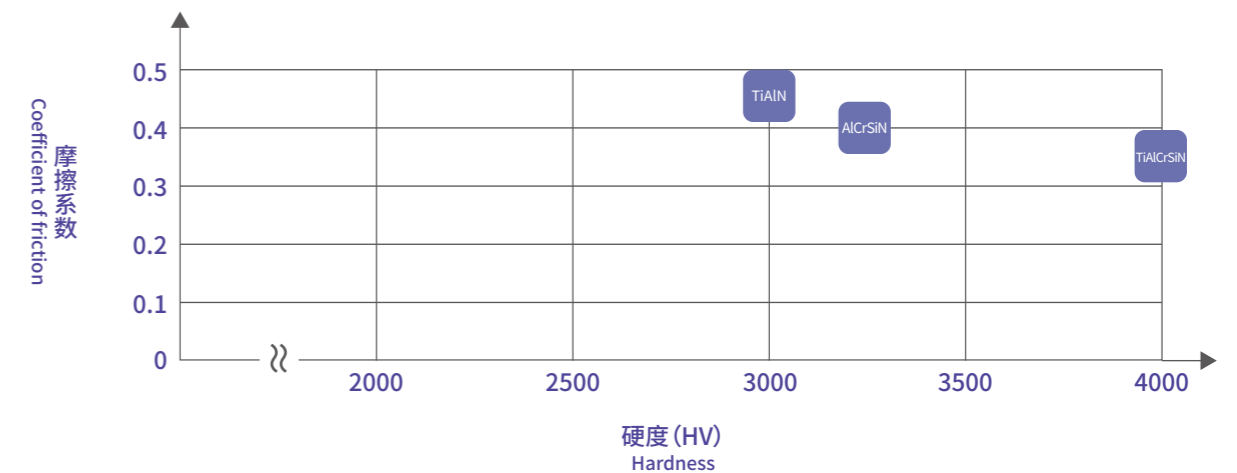
## 02 纳米PVD涂层定位 / Positioning of Nano PVD Coating

晶体颗粒控制在纳米量级, 因而大幅改善了硬度和抗氧化性  
By controlling the crystalline structure at nano level, hardness and oxidation resistance are greatly improved.

硬度与氧化温度  
Hardness and oxidation temperature



硬度与润滑特性  
Hardness and lubricant properties



## 刀具系列介绍 Introduction of Tool Series

### U系列 普通钢通用加工立铣刀 U series endmill for steel general machining

- ◎ 适用于普通钢、铸铁材料(≤48HRC)的通用加工  
Suitable for application of steel & cast iron (≤48HRC) general machining
- ◎ 采用高抗氧化性和高附着强度的AlCr系涂层  
AlCr series coating with high oxidation resistance and high adhesion
- ◎ 干、湿式加工均可实现长寿命  
Long life for both dry cutting and wet cutting

### UR系列 普通钢粗加工立铣刀 UR series endmill for steel roughing

- ◎ 适用于普通钢、铸铁材料(≤48HRC)的大切深、大切宽粗加工  
Suitable for application of steel & cast iron(≤48HRC) roughing with big cutting depth and width
- ◎ 独特的波形齿设计,使切屑更细更小,排屑更顺畅  
Special wave teeth design makes fine and short chip, and smooth chip removal.

### X系列 普通钢高效加工立铣刀 X series endmill for steel high efficiency machining

- ◎ 适用于普通钢、铸铁材料(≤48HRC)的高效加工  
Suitable for application of steel & cast iron (≤48HRC) high performance machining
- ◎ 采用高抗氧化性和高附着强度的AlCr系涂层  
AlCr series coating with high oxidation resistance and high adhesion
- ◎ 不等螺旋、不等分割设计,减震性能优越  
Unequal helix angle and unequal spacing of teeth, greatly reduces vibration
- ◎ 适用于大切深、大切宽的高效加工  
Applicable to big cutting depth and width

### UC系列 普通钢通用加工立铣刀 UC series endmill for steel general machining

- ◎ 高硬度、高韧性基材材质,特殊角度设计,适用于高硬钢材料的加工  
High hardness, high toughness substrate materials, special angle design, suitable for hardened steel machining.
- ◎ 适用于48-55HRC普通钢、铸铁的通用加工  
Application of steel & cast iron (48-55HRC) general machining

### UN系列 普通钢粗加工立铣刀 UN series endmill for steel roughing

- ◎ 适用于普通钢、铸铁材料(≤48HRC)的大切深、大切宽粗加工、半精加工  
Suitable for application of steel & cast iron(≤48HRC) roughing and semi-finishing with big cutting depth and width
- ◎ 独特的断屑齿设计,使切屑更小,排屑更顺畅,表面质量更高  
Special teeth design makes short chip, better chip removal and better surface quality

### UX系列 普通钢高效加工立铣刀 UX series endmill for steel high efficiency machining

- ◎ 适用于普通钢、铸铁材料(≤48HRC)的高效加工  
Suitable for application of steel & cast iron (≤48HRC) high performance machining
- ◎ 特别适合槽铣,刃口强度高,抗崩刃  
Especially suitable for slot milling, with high cutting edge strength and anti chipping
- ◎ 底刃变分度设计,切削过程稳定  
Variable indexing design of bottom edge, stable cutting process
- ◎ 抛物线容屑槽设计,排屑性能优异  
Parabolic chip tank design, excellent chip removal performance

### H系列 高硬钢通用加工立铣刀 H series endmill for hardened steel general machining

- ◎ 适用于高硬钢材料(≤60HRC)的半精加工、精加工  
Suitable for application of hardened steel (≤60HRC) semi-finishing and finishing
- ◎ 采用高硬度和高抗氧化性的TiAlCrSiN涂层  
TiAlCrSiN coating with high hardness and high oxidation resistance

### S系列 不锈钢通用加工立铣刀 S series end mill for stainless steel general machining

- ◎ 适用于不锈钢(≤300HB)的通用加工  
Suitable for application of stainless steel (≤300HB) general machining
- ◎ 采用高抗氧化性和高附着强度的TiAlN涂层  
TiAlN coating with high oxidation resistance and high adhesion
- ◎ 干、湿式加工均可实现长寿命  
Long life in both dry cutting and wet cutting

### G系列 石墨加工立铣刀 G series endmill for graphite machining

- ◎ 刀具精度高,工件加工表面质量好  
Excellent accuracy and excellent surface finish
- ◎ 金刚石涂层纯度高,具有优良的耐磨性,可实现长时间石墨加工  
High purity diamond coating enable high abrasion resistance and better tool life
- ◎ 适用于石墨材料的半精加工和精加工  
Suitable for application of semi-finishing and finishing of graphites

### A系列 铝合金通用加工立铣刀 A series endmill for aluminum alloys general machining

- ◎ 适用于铝合金(Si<12%)及铜合金(<200HB)的半精加工及精加工  
Suitable for application of semi-finishing and finishing of aluminum alloy(Si<12%) and copper alloy (<200HB)
- ◎ 独特的刃型设计,能够有效防止振动  
Special edge design, reduces vibration effectively.
- ◎ 精细磨削的切削刃,实现良好的精加工面  
Special edge preparation, good surface quality

### S10系列 不锈钢通用加工立铣刀 S10 series end mill for stainless steel general machining

- ◎ 适用于不锈钢(<380HB)粗加工、精加工  
Suitable for rough and finish machining of stainless steel (<380HB)
- ◎ 采用优异的基本体搭配TiAlCrSiN涂层,提升粗加工抗崩性能以及精加工耐磨性,刀具寿命长  
The excellent matrix and TiAlCrSiN coating are used to improve the anti collapse performance of rough machining and the wear resistance of finish machining, and the tool life is long
- ◎ 适用于高速快进给,面铣、侧铣、浅槽铣  
Suitable for high-speed fast feed, face milling, side milling and shallow groove milling
- ◎ 推荐油冷、水冷的冷却方式  
Recommended oil cooling and water cooling methods

### UM系列 小径深加工立铣刀 UM series endmill for small diameter & deep machining

- ◎ 适用于碳钢、合金钢、淬硬钢、铜、铝合金(≤55HRC)等材料的微加工  
Suitable for small & deep-cavity milling of carbon steel, alloy steel, hardened steel, copper & aluminum alloys etc (≤55HRC)
- ◎ 采用高抗氧化性和高附着强度的AlCr系涂层  
AlCr series coating with high oxidation resistance and high adhesion
- ◎ 特殊的避空设计,耐折损性高  
Special reduced neck design gives high breakage resistance

# 产品选择目录表





## Product selection table

名称 Name	产品系列 Series	产品型号 Item code	产品名称 Product name	刀尖形状 Nose shape	刀具类型 Type	齿数 No. of flutes	刃径范围 Flute diameter range	页码 Page		形状图示 Picture	涂层 Coating	工件材料 Workpiece Material											
								规格 明细表 Size list	切削 条件 Cutting data			铸铁 Cast iron	碳素钢 合金钢 Carbon steel, alloy	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC ~55HRC	高硬材料 Hardened steels 55HRC ~65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 Ti alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminum alloy	
通用加工 立铣刀 Endmill for general machining	U	U-S2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规刃 Regular	2	ø1-ø20	21	133		AlCrSiN	◎	◎	◎	○						○		
		U-SL2	2刃长刃平头立铣刀 Square, Long flute, 2 Flutes	平头 Square	长刃 Long flute	2	ø2-ø20	22	133		AlCrSiN	◎	◎	◎	○							○	
		U-SH2	2刃长柄平头立铣刀 Square, Long shank, 2 Flutes	平头 Square	长柄 Long shank	2	ø2-ø20	23	133		AlCrSiN	◎	◎	◎	○							○	
		U-S3	3刃平头立铣刀 Square, Regular, 3 Flutes	平头 Square	常规刃 Regular	3	ø2-ø20	24	134		AlCrSiN	◎	◎	◎	○							○	
		U-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	ø1-ø20	25	135		AlCrSiN	◎	◎	◎	○							○	
		U-SL4	4刃长刃平头立铣刀 Square, Long flute, 2 Flutes	平头 Square	长刃 Long flute	4	ø1-ø20	27	135		AlCrSiN	◎	◎	◎	○							○	
		U-SH4	4刃长柄平头立铣刀 Square, Long shank, 4 Flutes	平头 Square	长柄 Long shank	4	ø2-ø20	28	135		AlCrSiN	◎	◎	◎	○							○	
		U-S6	6刃平头立铣刀 Square, Regular, 6 Flutes	平头 Square	常规刃 Regular	6	ø6-ø20	29	135		AlCrSiN	◎	◎	◎	○							○	
		U-R2	2刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规刃 Regular	2	ø1-ø20	30	133		AlCrSiN	◎	◎	◎	○							○	
		U-RH2	2刃长柄圆角头立铣刀 Radius, Long shank, 2 Flutes	圆弧 Radius	长柄 Long shank	2	ø6-ø20	32	133		AlCrSiN	◎	◎	◎	○							○	
		U-R4	4刃圆角头立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规刃 Regular	4	ø1.5-ø20	33	135		AlCrSiN	◎	◎	◎	○							○	
		U-RH4	4刃长柄圆角头立铣刀 Radius, Long shank, 4 Flutes	圆弧 Radius	长柄 Long shank	4	ø3-ø20	35	135		AlCrSiN	◎	◎	◎	○							○	
		U-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	ø1-ø20	36	136		AlCrSiN	◎	◎	◎	○							○	
		U-BH2	2刃长柄球头立铣刀 Ball, Long shank, 2 Flutes	球头 Ball	长柄 Long shank	2	ø2-ø20	37	136		AlCrSiN	◎	◎	◎	○							○	
		U-B4	4刃球头立铣刀 Ball, Regular, 4 Flutes	球头 Ball	常规刃 Regular	4	ø2-ø20	38	136		AlCrSiN	◎	◎	◎	○							○	

◎ 最适合 Most Suitable ○ 适合 Suitable

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名称 Name	产品系列 Series	产品型号 Item code	产品名称 Product name	刀尖形状 Nose shape	刀具类型 Type	齿数 No. of flutes	刃径范围 Flute diameter range	页码 Page		形状图示 Picture	涂层 Coating	工件材料 Workpiece Material										
								规格 明细表 Size list	切削 条件 Cutting data			铸铁 Cast iron	碳素钢 合金钢 Carbon steel, alloy	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC ~55HRC	高硬材料 Hardened steels 55HRC ~65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 Ti alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminum alloy
通用加工 立铣刀 Endmill for general machining	UC	UC-S2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规刃 Regular	2	Ø1-Ø10	40	137		AlCrSiN	☉	☉	☉	○						○	
		UC-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	Ø1-Ø10	41	138		AlCrSiN	☉	☉	☉	○						○	
		UC-SH4	4刃长柄平头立铣刀 Square, Long shank, 4 Flutes	平头 Square	长柄 Long shank	4	Ø1-Ø10	42	138		AlCrSiN	☉	☉	☉	○						○	
		UC-R2	2刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规刃 Regular	2	Ø1-Ø10	43	137		AlCrSiN	☉	☉	☉	○						○	
		UC-R4	4刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规刃 Regular	4	Ø1-Ø10	44	138		AlCrSiN	☉	☉	☉	○						○	
		UC-RH4	4刃长柄圆角头立铣刀 Radius, Long shank, 4 Flutes	圆弧 Radius	长柄 Long shank	4	Ø1-Ø10	45	138		AlCrSiN	☉	☉	☉	○						○	
		UC-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	Ø1-Ø10	46	138		AlCrSiN	☉	☉	☉	○						○	
		UC-BH2	2刃长柄球头立铣刀 Ball, Long shank, 2 Flutes	球头 Ball	长柄 Long shank	2	Ø1-Ø10	47	138		AlCrSiN	☉	☉	☉	○						○	
粗加工 立铣刀 Endmill for rough machining	UR	UR-S4	4刃平头立铣刀 (波浪齿) Square, Regular, 4 Flutes with wave teeth	平头 Square	常规刃 Regular	4	Ø6-Ø20	49	139		AlCrSiN	☉	☉	☉	○					○		
	UN	UN-S4	4刃平头立铣刀 (断屑齿) Square, Regular, 4 Flutes with chip breaking teeth	平头 Square	常规刃 Regular	4	Ø6-Ø20	51	140		AlCrSiN	☉	☉	☉	○					○		
高效加工 立铣刀 Endmill for efficiency machining	X	X-S3	3刃平头立铣刀 Square, Regular, 3 Flutes	平头 Square	常规刃 Regular	3	Ø3-Ø20	54	141		AlCrSiN	☉	☉	☉	○					○		
		X-C3	3刃平头立铣刀 (刀尖倒角保护) Square, Regular, 3 Flutes with Chamfer	平头 Square	常规刃 Regular	3	Ø6-Ø16	55	141		AlCrSiN	☉	☉	☉	○					○		
		X-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	Ø2-Ø20	56	142		AlCrSiN	☉	☉	☉	○					○		
		X-C4	4刃平头立铣刀 (刀尖倒角保护) Square, Regular, 4 Flutes with Chamfer	平头 Square	常规刃 Regular	4	Ø3-Ø20	57	142		AlCrSiN	☉	☉	☉	○					○		
		X-CN4	4刃长颈平头立铣刀 (刀尖倒角保护) Square, Long neck, 4 Flutes with Chamfer	平头 Square	长颈 Long neck	4	Ø3-Ø20	58	142		AlCrSiN	☉	☉	☉	○					○		
		X-R4	4刃圆角头立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规刃 Regular	4	Ø3-Ø16	59	142		AlCrSiN	☉	☉	☉	○					○		

☉ 最适合 Most Suitable ○ 适合 Suitable



# 产品选择目录表

## Product selection table

名称 Name	产品系列 Series	产品型号 Item code	产品名称 Product name	刀尖形状 Nose shape	刀具类型 Type	齿数 No. of flutes	刃径范围 Flute diameter range	页码 Page		形状图示 Picture	涂层 Coating	工件材料 Workpiece Material										
								规格 明细表 Size list	切削 条件 Cutting data			铸铁 Cast iron	碳素钢 合金钢 Carbon steel, alloy	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC ~55HRC	高硬材料 Hardened steels 55HRC ~65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 Ti alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminum alloy
高效加工 立铣刀 Endmill for efficiency machining	X	X-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	Ø1-Ø12	60	143		AlCrSiN	☉	☉	☉	○						○	
		X-BH2	2刃长柄球头立铣刀 Ball, Long shank, 2 Flutes	球头 Ball	长柄 Long shank	2	Ø4-Ø12	61	143		AlCrSiN	☉	☉	☉	○						○	
高效加工 立铣刀 Endmill for efficiency machining	UX	UX-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	Ø1-Ø20	63	144		AlCrSiN	☉	☉	☉	○						○	
		UX-SL4	4刃长刃平头立铣刀 Square, Long flute, 4 Flute	平头 Square	长刃 Long flute	4	Ø1-Ø20	64	144		AlCrSiN	☉	☉	☉	○						○	
		UX-SH4	4刃长柄平头立铣刀 Square, Long shank, 4 Flutes	平头 Square	长柄 Long shank	4	Ø1-Ø20	65	144		AlCrSiN	☉	☉	☉	○						○	
		UX-R4	4刃圆角头立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规刃 Regular	4	Ø1-Ø20	66	144		AlCrSiN	☉	☉	☉	○						○	
		UX-RH4	4刃长柄圆角头立铣刀 Radius, Long shank, 4 Flutes	圆弧 Radius	长柄 Long shank	4	Ø1-Ø20	67	144		AlCrSiN	☉	☉	☉	○						○	
高硬钢加工 立铣刀 Endmill for hardened steel machining	H	H-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	Ø1-Ø20	70	145		TiAlCrSiN		○	☉	☉	○						
		H-SL4	4刃长刃平头立铣刀 Square, Long flute, 4 Flute	平头 Square	长刃 Long flute	4	Ø1-Ø16	71	145		TiAlCrSiN		○	☉	☉	○						
		H-S6	6刃平头立铣刀 Square, Regular, 6 Flutes	平头 Square	常规刃 Regular	6	Ø1-Ø12	72	147		TiAlCrSiN		○	☉	☉	○						
		H-SL6	6刃长刃平头立铣刀 Square, Long Regular, 6 Flutes	平头 Square	长刃 Long flute	6	Ø1-Ø12	73	147		TiAlCrSiN		○	☉	☉	○						
		H-R4	4刃圆角头立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规刃 Regular	4	Ø1-Ø12	74	145		TiAlCrSiN		○	☉	☉	○						
		H-RH4	4刃长柄圆角立铣刀 corner radius long shank, 4 flute	圆弧 Radius	长柄 Long shank	4	Ø1-Ø12	75	145		TiAlCrSiN		○	☉	☉	○						
		H-RN4	4刃长颈圆角头立铣刀 Radius, Long neck, 4 Flutes	圆弧 Radius	长颈 Long neck	4	Ø1-Ø12	76	145		TiAlCrSiN		○	☉	☉	○						
		H-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	Ø0.6-Ø16	77	146		TiAlCrSiN		○	☉	☉	○						
		H-BH2	2刃长柄球头立铣刀 Ball, Long shank, 2 Flutes	球头 Ball	长柄 Long shank	2	Ø2-Ø12	78	146		TiAlCrSiN		○	☉	☉	○						

☉ 最适合 Most Suitable ○ 适合 Suitable

# 产品选择目录表

## Product selection table

名称 Name	产品系列 Series	产品型号 Item code	产品名称 Product name	刀尖形状 Nose shape	刀具类型 Type	齿数 No. of flutes	刃径范围 Flute diameter range	页码 Page		形状图示 Picture	涂层 Coating	工件材料 Workpiece Material														
								规格 明细表 Size list	切削 条件 Cutting data			铸铁 Cast iron	碳素钢 合金钢 Carbon steel, alloy	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC ~55HRC	高硬材料 Hardened steels 55HRC ~65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 Ti alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminum alloy				
铝合金通用加工立铣刀 Endmill for aluminum alloys machining	A	A-S2/SS2/SL2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规/短刃/长刃 Regular/Short/Long flute	2	Ø1-Ø12	81	148												○	◎				
		A-S3/SS3/SL3	3刃平头立铣刀 Square, Regular, 3 Flutes	平头 Square	常规/短刃/长刃 Regular/Short/Long flute	3	Ø1-Ø12	83	149													○	◎			
		A-R2/RS2/RL2	2刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规/短刃/长刃 Regular/Short/Long flute	2	Ø1-Ø10	84	148														○	◎		
		A-R3/RS3	3刃圆角头立铣刀 Radius, Regular, 3 Flutes	圆弧 Radius	常规/短刃 Regular/Short flute	3	Ø2-Ø10	85	149															○	◎	
		A-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	Ø1-Ø10	86	150															○	◎	
不锈钢通用加工立铣刀 Endmill for stainless steel machining	S	S-S2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规刃 Regular	2	Ø0.5-Ø8	87	151		TiAlN		○										◎			
		S-SS4	4刃短刃平头立铣刀 Square, Short Regular, 4 Flutes	平头 Square	短刃 Short flute	4	Ø2-Ø12	88	153		TiAlN		○											◎		
		S-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	Ø1-Ø12	89	153		TiAlN		○												◎	
		S-R2	2刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规刃 Regular	2	Ø3-Ø8	90	151		TiAlN		○												◎	
		S-R3	3刃圆角头立铣刀 Radius, Regular, 3 Flutes	圆弧 Radius	常规刃 Regular	3	Ø2-Ø6	91	152		TiAlN		○												◎	
		S-R4/RS4	4刃圆角头/短刃立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规/短刃 Regular/Short flute	4	Ø2-Ø10	92	153		TiAlN		○												◎	
		S-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	Ø1-Ø4	93	154		TiAlN		○												◎	
不锈钢通用加工立铣刀 Endmill for stainless steel machining	S10	S10-S2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规刃 Regular	2	Ø0.5-Ø8	95	155		TiAlCrSiN		○											◎		
		S10-S4/SS4	4刃平头立铣刀 Square, Regular/Short Regular, 4 Flutes	平头 Square	常规/短刃 Regular/Short flute	4	Ø1-Ø16	96	155		TiAlCrSiN		○												◎	
		S10-R4/RS4	4刃圆角头/短刃立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规/短刃 Regular/Short flute	4	Ø1-Ø10	98	155		TiAlCrSiN		○												◎	

◎ 最适合 Most Suitable ○ 适合 Suitable

# 产品选择目录表

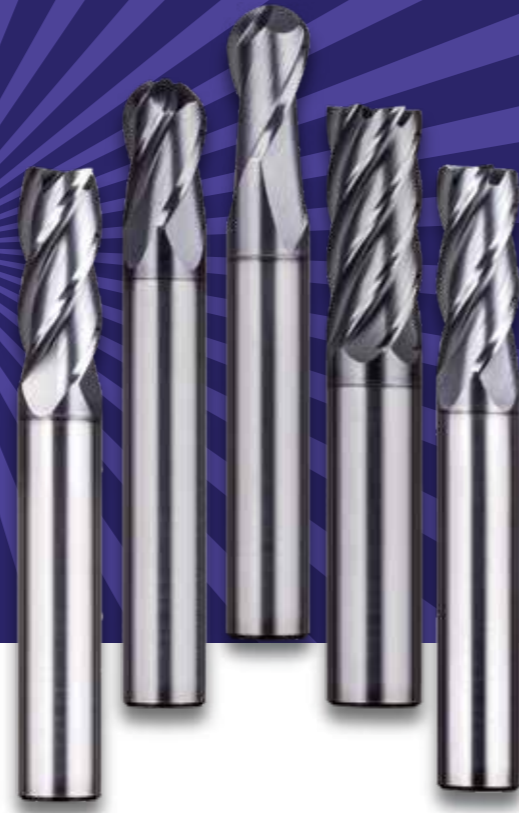
## Product selection table

名称 Name	产品系列 Series	产品型号 Item code	产品名称	刀尖形状 Nose shape	刀具类型 Type	齿数 No. of flutes	刃径范围 Flute diameter range	页码 Page		形状图示 Picture	涂层 Coating	工件材料 Workpiece Material												
								规格 明细表 Size list	切削 条件 Cutting Data			铸铁 Cast iron	碳素钢 / 合金钢 Carbon steel, alloy	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC ~55HRC	高硬材料 Hardened steels 55HRC ~65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 Ti alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminum alloy		
石墨加工 立铣刀 Endmill for graphite machining	G	G-S2	2刃平头立铣刀 Square, Regular, 2 Flutes	平头 Square	常规刃 Regular	2	∅0.4-∅12	101	156		DIA									◎	○	○		
		G-SN2	2刃长颈平头立铣刀 Square, Long neck, 2 Flutes	平头 Square	长颈 Long neck	2	∅1-∅12	102	156		DIA										◎	○	○	
		G-S3	3刃平头立铣刀 Square, Regular, 3 Flutes	平头 Square	常规刃 Regular	3	∅1-∅12	103	157		DIA											◎	○	○
		G-S4	4刃平头立铣刀 Square, Regular, 4 Flutes	平头 Square	常规刃 Regular	4	∅2-∅12	104	158		DIA											◎	○	○
		G-R2	2刃圆角头立铣刀 Radius, Regular, 2 Flutes	圆弧 Radius	常规刃 Regular	2	∅2-∅12	105	156		DIA											◎	○	○
		G-RN2	2刃长颈圆角头立铣刀 Radius, Long neck, 2 Flutes	圆弧 Radius	长颈 Long neck	2	∅2-∅10	106	156		DIA											◎	○	○
		G-R4	4刃圆角头立铣刀 Radius, Regular, 4 Flutes	圆弧 Radius	常规刃 Regular	4	∅2-∅12	107	158		DIA											◎	○	○
		G-RN4	4刃长颈圆角头立铣刀 Radius, Long neck, 4 Flutes	圆弧 Radius	长颈 Long neck	3	∅2-∅12	108	158		DIA											◎	○	○
		G-B2	2刃球头立铣刀 Ball, Regular, 2 Flutes	球头 Ball	常规刃 Regular	2	∅0.5-∅12	109	158		DIA											◎	○	○
		G-BN2	2刃长颈球头立铣刀 Ball, Long neck, 2 Flutes	球头 Ball	长颈 Long neck	2	∅0.5-∅10	110	158		DIA											◎	○	○
小径深加工 立铣刀 Endmill for small diameter & deep machining	UM	UM-SN2	小径深加工 2 刃平头立铣刀 Square, long neck, 2 flute	平头 Square	长颈 Long neck	2	∅0.1-∅6	112	159		AlCrSiN	◎	◎	◎	○				○	○	◎	○		
		UM-BN2	小径深加工 2 刃球头立铣刀 Ball, long neck, 2 flute	球头 Ball	长颈 Long neck	2	∅0.1-∅6	117	167		AlCrSiN	◎	◎	◎	○				○	○	◎	○		
		UM-RN2	小径深加工 2 刃圆角头立铣刀 Radius, long neck, 2 flute	圆弧 Radius	长颈 Long neck	2	∅0.2-∅6	121	177		AlCrSiN	◎	◎	◎	○				○	○	◎	○		
		UM-RN4	小径深加工 4 刃圆角头立铣刀 Radius, long neck, 4 flute	圆弧 Radius	长颈 Long neck	4	∅1-∅6	129	195		AlCrSiN	◎	◎	◎	○				○	○	◎	○		

◎ 最适合 Most Suitable ○ 适合 Suitable

# U系列

## 普通钢通用加工立铣刀 U series endmill for steel general machining



### 加工材料范围广

Suitable for wide range of workpiece

- 适用于普通钢、铸铁、不锈钢等(≤48HRC)的半精加工、精加工  
Suitable for semi-finishing, finishing of steel, cast iron, stainless steel (<48HRC)

### 加工工况广

Suitable for wide range of application

- 适用于小切深、大切宽的面铣;大切深、小切宽的侧铣;同时适用于小于0.5D的浅槽铣  
Suitable for facing milling under small ap & big ae, side milling under big ap & small ae, and slotting under condition of less than 0.5D

### 基体涂层优势

Substrate coating strength

- 超高性能的超细晶和超高硬度基体  
High performance, ultra-fine and super hard substrate.
- 采用Balzers最新一代涂层炉KiLA配合AlCr系涂层,使用稳定、耐高温、耐磨损  
Use the latest Kila coating furnace from Balzers, with AlCr series coating, which enable stable machining with good high temperature resistance & wear resistance

### 刀型结构

Geometry structure

- 特殊的切削刃设计,保证刃口强度与锋利性  
Special cutting edge design, which guarantees the strength & sharpness of the cutting edge

“

超高性能的基体配合高硬度涂层,使得刀具获的优秀得耐磨性及韧性,即使在高效率切削条件下,也能保持良好得耐磨以及抗崩性能。

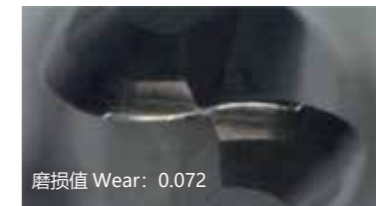
Super high performance substrate with high hardness coating, equip the cutting tool with good wear resistance and toughness, which makes the tool maintain good wear resistance and anti-chipping performance.

”

- 刀具型号: U-BH2-10005
- 刀具规格: R5\*18\*100\*d10
- 加工材料: 5CrNiMo (30-35HRC)
- 切削速度: 3800RPM
- 进给速度: 2000mm/min
- 切削方式: 仿形铣
- 切削量: ap=0.15mm, ae=0.25mm
- 冷却方式: 气冷
- Model No:U-BH2-10005
- Specification:R5\*18\*100\*d10
- Workpiece material:5CrNiMo (30-35HRC)
- Cutting speed:3800RPM
- Feed rate:2000mm/min
- Way of cutting:Profile milling
- ap, ae:ap=0.15mm, ae=0.25mm
- Coolant:Gas



加工 2 小时后  
Process 2 hours later



U-BH2-10005



A 公司 (Company)

- 刀具型号: U-S4-04011
- 刀具规格: D4\*11\*50\*d4
- 加工材料: 45# 钢 (180HB)
- 切削速度: 11942RPM
- 进给速度: 1194mm/min
- 切削方式: 圆周铣 - 顺铣
- 切削量: ap=6mm, ae=0.4mm
- 冷却方式: 水冷
- Model No:U-S4-04011
- Specification:D4\*11\*50\*d4
- Workpiece material:45#steel(180HB)
- Cutting speed:11942RPM
- Feed rate:1194mm/min
- Way of cutting: side milling, climb
- ap, ae:ap=6mm, ae=0.4mm
- Coolant:Water

切削长度 80 米  
Cutting length:80m



U-S4-04011

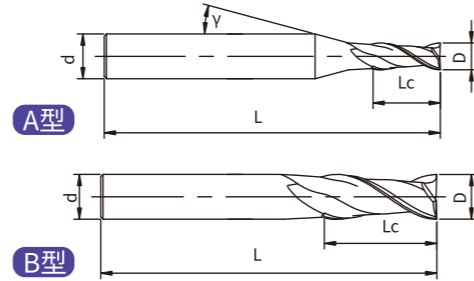


A 公司 (Company)

## U-S2

2刃平头通用加工立铣刀

2 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-S2-01003	1	3	50	4	A	●
U-S2-01504	1.5	4	50	4	A	●
U-S2-02006	2	6	50	4	A	●
U-S2-02508	2.5	8	50	4	A	●
U-S2-03009	3	9	50	4	A	●
U-S2-63009	3	9	50	6	A	●
U-S2-03509	3.5	9	50	4	A	●
U-S2-63509	3.5	9	50	6	A	●
U-S2-04011	4	11	50	4	B	●
U-S2-64011	4	11	50	6	A	●
U-S2-05013	5	13	50	6	A	●
U-S2-06016	6	16	50	6	B	●
U-S2-08020	8	20	60	8	B	●
U-S2-10025	10	25	75	10	B	●
U-S2-12030	12	30	75	12	B	●
U-S2-14034	14	34	100	14	B	●
U-S2-16036	16	36	100	16	B	●
U-S2-18040	18	40	100	18	B	●
U-S2-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

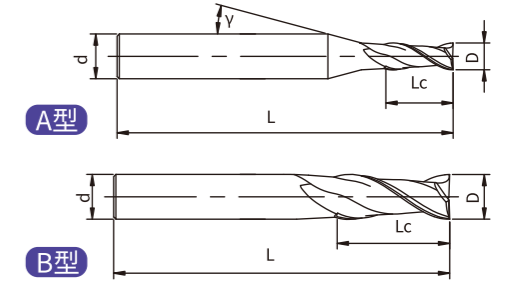
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-SL2

2刃长刃平头通用加工立铣刀

2 flute, square long flute endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-SL2-02015	2	15	75	4	A	●
U-SL2-03025	3	25	75	4	A	●
U-SL2-04030	4	30	75	4	B	●
U-SL2-05030	5	30	75	6	A	●
U-SL2-06035	6	35	75	6	B	●
U-SL2-08040	8	40	100	8	B	●
U-SL2-10045	10	45	100	10	B	●
U-SL2-12050	12	50	100	12	B	●
U-SL2-14055	14	55	100	14	B	●
U-SL2-16060	16	60	150	16	B	●
U-SL2-18065	18	65	150	18	B	●
U-SL2-20070	20	70	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

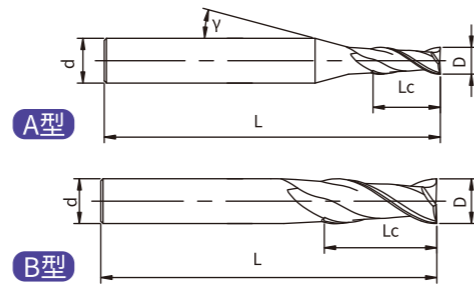
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-SH2

2刃长柄平头通用加工立铣刀

2 flute, square long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-SH2-02006	2	6	75	4	A	●
U-SH2-03009	3	9	75	4	A	●
U-SH2-04011	4	11	75	4	B	●
U-SH2-05020	5	20	75	6	A	●
U-SH2-06020	6	20	100	6	B	●
U-SH2-08025	8	25	100	8	B	●
U-SH2-10030	10	30	100	10	B	●
U-SH2-12035	12	35	100	12	B	●
U-SH2-14036	14	36	150	14	B	●
U-SH2-16036	16	36	150	16	B	●
U-SH2-18045	18	45	150	18	B	●
U-SH2-20045	20	45	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

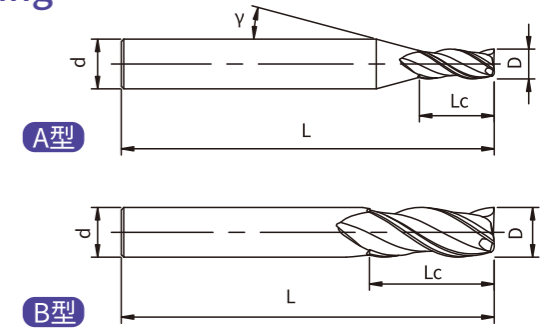
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-S3

3刃平头通用加工立铣刀

3 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-S3-02006	2	6	50	4	A	●
U-S3-03009	3	9	50	4	A	●
U-S3-04011	4	11	50	4	B	●
U-S3-05013	5	13	50	6	A	●
U-S3-06016	6	16	50	6	B	●
U-S3-08020	8	20	60	8	B	●
U-S3-10025	10	25	75	10	B	●
U-S3-12030	12	30	75	12	B	●
U-S3-14032	14	32	100	14	B	●
U-S3-16036	16	36	100	16	B	●
U-S3-18040	18	40	100	18	B	●
U-S3-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

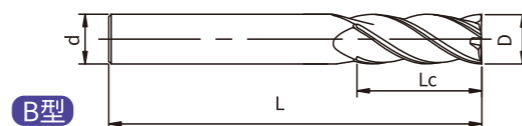
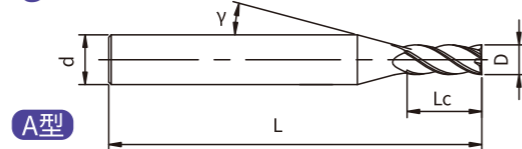
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P134

## U-S4

4刃平头通用加工立铣刀

4 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-S4-01003	1	3	50	4	A	●
U-S4-61003	1	3	50	6	A	●
U-S4-01505	1.5	5	50	4	A	●
U-S4-61505	1.5	5	50	6	A	●
U-S4-02006	2	6	50	4	A	●
U-S4-62006	2	6	50	6	A	●
U-S4-02508	2.5	8	50	4	A	●
U-S4-62508	2.5	8	50	6	A	●
U-S4-03009	3	9	50	4	A	●
U-S4-63009	3	9	50	6	A	●
U-S4-03511	3.5	11	50	4	A	●
U-S4-63511	3.5	11	50	6	A	●
U-S4-04011	4	11	50	4	B	●
U-S4-64011	4	11	50	6	A	●
U-S4-05013	5	13	50	6	A	●
U-S4-06016	6	16	50	6	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

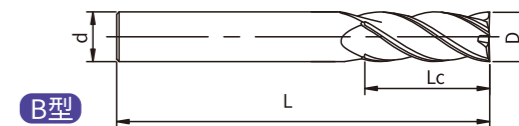
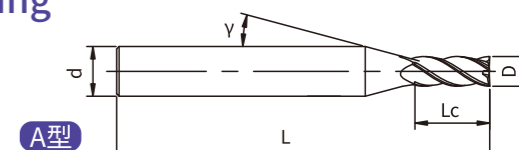
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-S4

4刃平头通用加工立铣刀

4 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-S4-07020	7	20	60	8	A	●
U-S4-08020	8	20	60	8	B	●
U-S4-09023	9	23	75	10	A	●
U-S4-10025	10	25	75	10	B	●
U-S4-12030	12	30	75	12	B	●
U-S4-14034	14	34	100	14	B	●
U-S4-16036	16	36	100	16	B	●
U-S4-16040	16	40	100	16	B	●
U-S4-16045	16	45	100	16	B	●
U-S4-18045	18	45	100	18	B	●
U-S4-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

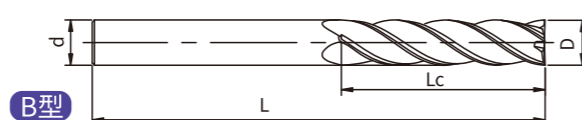
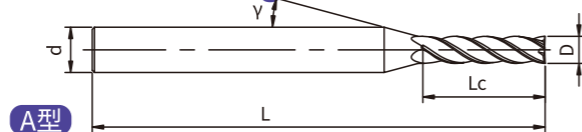
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-SL4

4刃长刃平头通用加工立铣刀

4 flute, square long flute endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-SL4-01004	1	4	50	4	A	●
U-SL4-02010	2	10	50	4	A	●
U-SL4-03015	3	15	60	4	A	●
U-SL4-63015	3	15	60	6	A	●
U-SL4-04020	4	20	60	4	B	●
U-SL4-64020	4	20	75	6	A	●
U-SL4-04030	4	30	75	4	B	●
U-SL4-05025	5	25	75	6	A	●
U-SL4-05030	5	30	75	6	A	●
U-SL4-06030	6	30	75	6	B	●
U-SL4-08025	8	25	75	8	B	●
U-SL4-08040	8	40	100	8	B	●
U-SL4-10050	10	50	100	10	B	●
U-SL4-12050	12	50	100	12	B	●
U-SL4-14045	14	45	100	14	B	●
U-SL4-16060	16	60	150	16	B	●
U-SL4-18070	18	70	150	18	B	●
U-SL4-20070	20	70	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

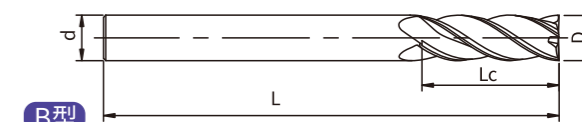
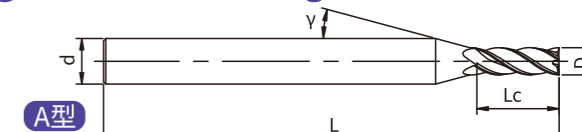
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-SH4

4刃长柄平头通用加工立铣刀

4 flute, square long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-SH4-02010	2	10	75	4	A	●
U-SH4-03012	3	12	75	4	A	●
U-SH4-04011	4	11	75	4	B	●
U-SH4-04015-100	4	15	100	4	B	●
U-SH4-04015	4	15	75	4	B	●
U-SH4-05020	5	20	75	6	A	●
U-SH4-06016	6	16	75	6	B	●
U-SH4-06020	6	20	75	6	B	●
U-SH4-06020-100	6	20	100	6	B	●
U-SH4-08020	8	20	100	8	B	●
U-SH4-08025	8	25	100	8	B	●
U-SH4-10030	10	30	100	10	B	●
U-SH4-10035	10	35	100	10	B	●
U-SH4-12035	12	35	100	12	B	●
U-SH4-14036	14	36	150	14	B	●
U-SH4-16036	16	36	150	16	B	●
U-SH4-18045	18	45	150	18	B	●
U-SH4-20045	20	45	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

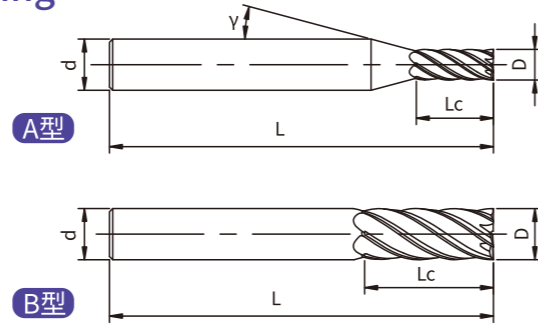
推荐切削参数P135



## U-S6

6刃平头通用加工立铣刀

6 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-S6-06015	6	15	50	6	B	●
U-S6-08020	8	20	60	8	B	●
U-S6-10025	10	25	75	10	B	●
U-S6-12030	12	30	75	12	B	●
U-S6-14032	14	32	100	14	B	●
U-S6-16036	16	36	100	16	B	●
U-S6-18040	18	40	100	18	B	●
U-S6-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

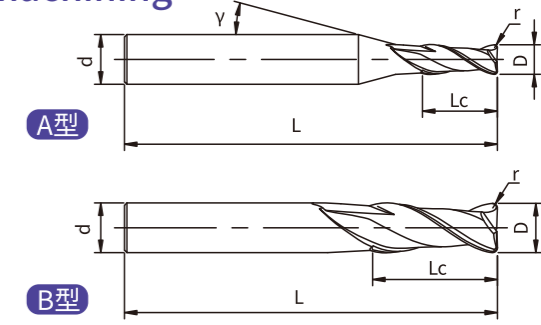
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-R2

2刃圆角头通用加工立铣刀

2 flute, corner radius endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-R2-01002	1	3	0.2	50	4	A	●
U-R2-01502	1.5	5	0.2	50	4	A	●
U-R2-02002	2	6	0.2	50	4	A	●
U-R2-03002	3	9	0.2	50	4	A	●
U-R2-63002	3	9	0.2	50	6	A	●
U-R2-03005	3	9	0.5	50	4	A	●
U-R2-63005	3	9	0.5	50	6	A	●
U-R2-04002	4	11	0.2	50	4	B	●
U-R2-64002	4	11	0.2	50	6	A	●
U-R2-04005	4	11	0.5	50	4	B	●
U-R2-64005	4	11	0.5	50	6	A	●
U-R2-05002	5	13	0.2	50	6	A	●
U-R2-05005	5	13	0.5	50	6	A	●
U-R2-06005	6	16	0.5	50	6	B	●
U-R2-06010	6	16	1.0	50	6	B	●
U-R2-08005	8	20	0.5	60	8	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

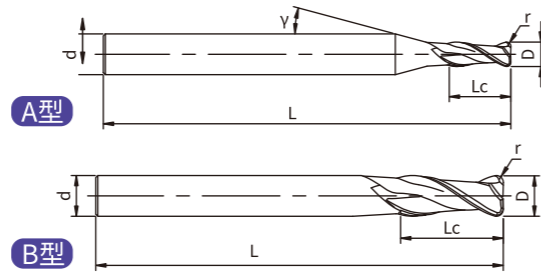
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-R2

2刃圆角头通用加工立铣刀

2 flute, ball nose endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-R2-08010	8	20	1.0	60	8	B	●
U-R2-10005	10	25	0.5	75	10	B	●
U-R2-10010	10	25	1.0	75	10	B	●
U-R2-10020	10	25	2.0	75	10	B	●
U-R2-12005	12	30	0.5	75	12	B	●
U-R2-12010	12	30	1.0	75	12	B	●
U-R2-12020	12	30	2.0	75	12	B	●
U-R2-16005	16	36	0.5	100	16	B	●
U-R2-16010	16	36	1.0	100	16	B	●
U-R2-16020	16	36	2.0	100	16	B	●
U-R2-20010	20	45	1.0	100	20	B	●
U-R2-20020	20	45	2.0	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

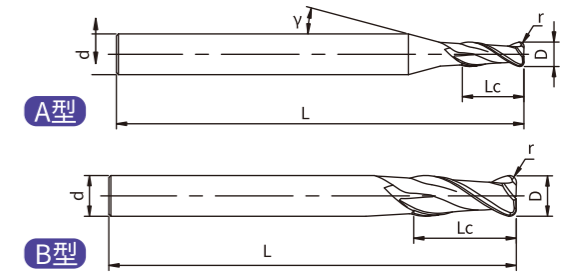
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-RH2

2刃长柄圆角头通用加工立铣刀

2 flute, ball nose, long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-RH2-06005	6	16	0.5	75	6	B	●
U-RH2-06010	6	16	1.0	75	6	B	●
U-RH2-08005	8	20	0.5	100	8	B	●
U-RH2-08010	8	20	1.0	100	8	B	●
U-RH2-10005	10	25	0.5	100	10	B	●
U-RH2-10010	10	25	1.0	100	10	B	●
U-RH2-10020	10	25	2.0	100	10	B	●
U-RH2-12005	12	30	0.5	100	12	B	●
U-RH2-12010	12	30	1.0	100	12	B	●
U-RH2-12020	12	30	2.0	100	12	B	●
U-RH2-16005	16	36	0.5	150	16	B	●
U-RH2-16010	16	36	1.0	150	16	B	●
U-RH2-16020	16	36	2.0	150	16	B	●
U-RH2-20010	20	45	1.0	150	20	B	●
U-RH2-20020	20	45	2.0	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

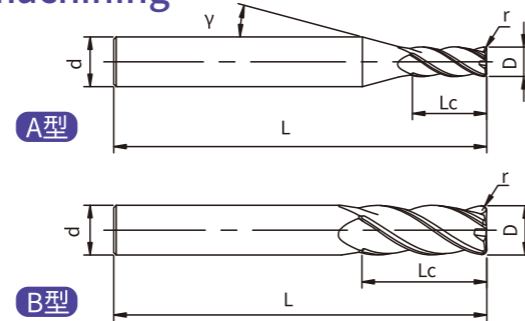
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P133

## U-R4

4刃圆角头通用加工立铣刀

4 flute, corner radius endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-R4-01002	1	3	0.2	50	4	A	●
U-R4-01502	1.5	5	0.2	50	4	A	●
U-R4-02002	2	6	0.2	50	4	A	●
U-R4-03002	3	9	0.2	50	4	A	●
U-R4-03005	3	9	0.5	50	4	A	●
U-R4-04002	4	11	0.2	50	4	B	●
U-R4-04003	4	11	0.3	50	4	B	●
U-R4-04005	4	11	0.5	50	4	B	●
U-R4-04010	4	11	1	50	4	B	●
U-R4-05002	5	12	0.2	50	6	A	●
U-R4-05005	5	13	0.5	50	6	A	●
U-R4-05010	5	13	1	50	6	A	●
U-R4-06002	6	16	0.2	50	6	B	●
U-R4-06005	6	16	0.5	50	6	B	●
U-R4-06010	6	16	1	50	6	B	●
U-R4-06015	6	16	1.5	50	6	B	●
U-R4-08005	8	20	0.5	60	8	B	●
U-R4-08010	8	20	1	60	8	B	●
U-R4-08020	8	20	2	60	8	B	●
U-R4-10005	10	25	0.5	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

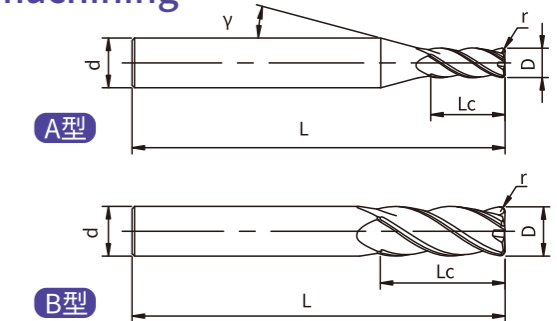
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-R4

4刃圆角头通用加工立铣刀

4 flute, corner radius endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-R4-10010	10	25	1	75	10	B	●
U-R4-10020	10	25	2	75	10	B	●
U-R4-12005	12	30	0.5	75	12	B	●
U-R4-12010	12	30	1	75	12	B	●
U-R4-12020	12	30	2	75	12	B	●
U-R4-12030	12	30	3	75	12	B	●
U-R4-16005	16	36	0.5	100	16	B	●
U-R4-16010	16	36	1	100	16	B	●
U-R4-16020	16	36	2	100	16	B	●
U-R4-16030	16	36	3	100	16	B	●
U-R4-20010	20	45	1	100	20	B	●
U-R4-20020	20	45	2	100	20	B	●
U-R4-20030	20	45	3	100	20	B	●
U-R4-20040	20	45	4	100	20	B	●
U-R4-20050	20	45	5	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

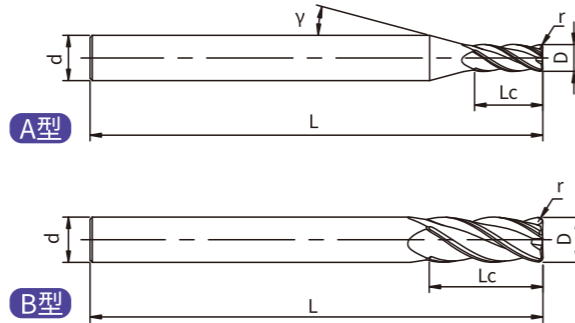
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-RH4

4刃长柄圆角头通用加工立铣刀  
4 flute corner radius, with long shank length endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-RH4-03005	3	9	0.5	75	4	A	●
U-RH4-04005	4	11	0.5	75	4	B	●
U-RH4-06005	6	16	0.5	75	6	B	●
U-RH4-06005-100	6	20	0.5	100	6	B	●
U-RH4-06010	6	16	1	75	6	B	●
U-RH4-06010-100	6	20	1	100	6	B	●
U-RH4-08005-75	8	20	0.5	75	8	B	●
U-RH4-08005	8	20	0.5	100	8	B	●
U-RH4-08010-75	8	20	1	75	8	B	●
U-RH4-08010	8	20	1	100	8	B	●
U-RH4-10005	10	25	0.5	100	10	B	●
U-RH4-10010	10	25	1	100	10	B	●
U-RH4-10020	10	25	2	100	10	B	●
U-RH4-12005	12	30	0.5	100	12	B	●
U-RH4-12010	12	30	1	100	12	B	●
U-RH4-12020	12	30	2	100	12	B	●
U-RH4-16005	16	36	0.5	150	16	B	●
U-RH4-16010	16	36	1	150	16	B	●
U-RH4-16020	16	36	2	150	16	B	●
U-RH4-20010	20	45	1	150	20	B	●
U-RH4-20020	20	45	2	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

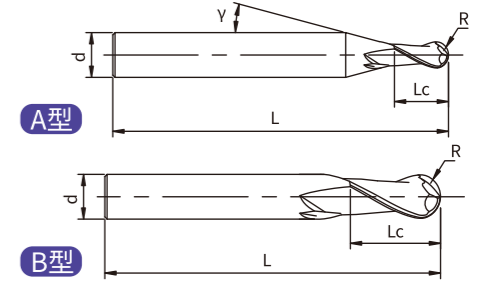
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P135

## U-B2

2刃球头通用加工立铣刀  
2 flute, ball nose endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-B2-01002	1	0.5	2	50	4	A	●
U-B2-61002	1	0.5	2	50	6	A	●
U-B2-01503	1.5	0.75	3	50	4	A	●
U-B2-61503	1.5	0.75	3	50	6	A	●
U-B2-02004	2	1	4	50	4	A	●
U-B2-62004	2	1	4	50	6	A	●
U-B2-02505	2.5	1.25	5	50	4	A	●
U-B2-03006	3	1.5	6	50	4	A	●
U-B2-63006	3	1.5	6	50	6	A	●
U-B2-04008	4	2	8	50	4	B	●
U-B2-64008	4	2	8	50	6	A	●
U-B2-05010	5	2.5	10	50	6	A	●
U-B2-06012	6	3	12	50	6	B	●
U-B2-07014	7	3.5	14	60	8	A	●
U-B2-08014	8	4	14	60	8	B	●
U-B2-09016	9	4.5	16	75	10	A	●
U-B2-10018	10	5	18	75	10	B	●
U-B2-12022	12	6	22	75	12	B	●
U-B2-16030	16	8	30	100	16	B	●
U-B2-20038	20	10	38	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

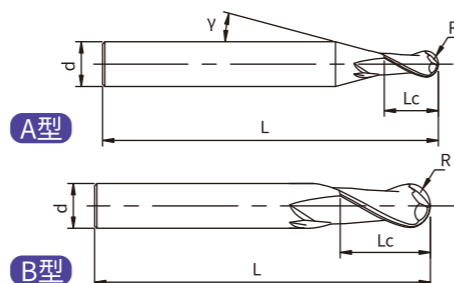
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P136

## U-BH2

2刃长柄球头通用加工立铣刀

2 flute, ball nose, with long shank length endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-BH2-02004	2	1	4	75	4	A	●
U-BH2-62004	2	1	4	75	6	A	●
U-BH2-03006	3	1.5	6	75	4	A	●
U-BH2-63006	3	1.5	6	75	6	A	●
U-BH2-04008	4	2	8	75	4	B	●
U-BH2-64008	4	2	8	75	6	A	●
U-BH2-05010	5	2.5	10	75	6	A	●
U-BH2-06012	6	3	12	75	6	B	●
U-BH2-06012-100	6	3	12	100	6	B	●
U-BH2-08014	8	4	14	75	8	B	●
U-BH2-08014H	8	4	14	100	8	B	●
U-BH2-10018	10	5	18	100	10	B	●
U-BH2-12022	12	6	22	100	12	B	●
U-BH2-16030	16	8	30	150	16	B	●
U-BH2-20038	20	10	38	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

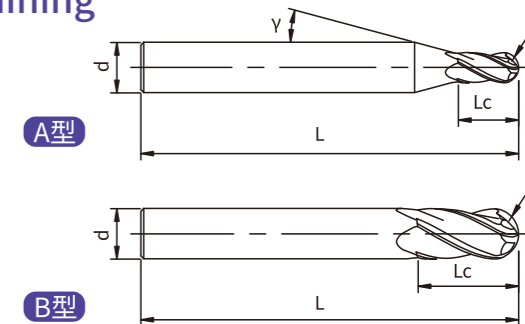
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P136

## U-B4

4刃球头通用加工立铣刀

4 flute, ball nose endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
U-B4-02004	2	1	4	50	4	A	●
U-B4-03006	3	1.5	6	50	4	A	●
U-B4-63006	3	1.5	6	50	6	A	●
U-B4-04008	4	2	8	50	4	B	●
U-B4-64008	4	2	8	50	6	A	●
U-B4-05010	5	2.5	10	50	6	A	●
U-B4-06012	6	3	12	50	6	B	●
U-B4-08014	8	4	14	60	8	B	●
U-B4-10018	10	5	18	75	10	B	●
U-B4-12022	12	6	22	75	12	B	●
U-B4-16030	16	8	30	100	16	B	●
U-B4-20018	20	10	38	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

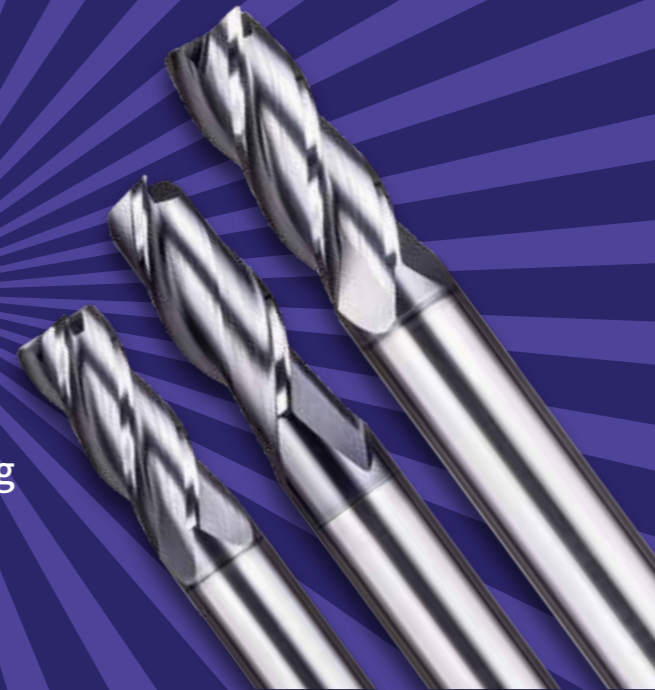
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P136

# UC系列

## 普通钢通用加工立铣刀

UC series endmill for steel general machining

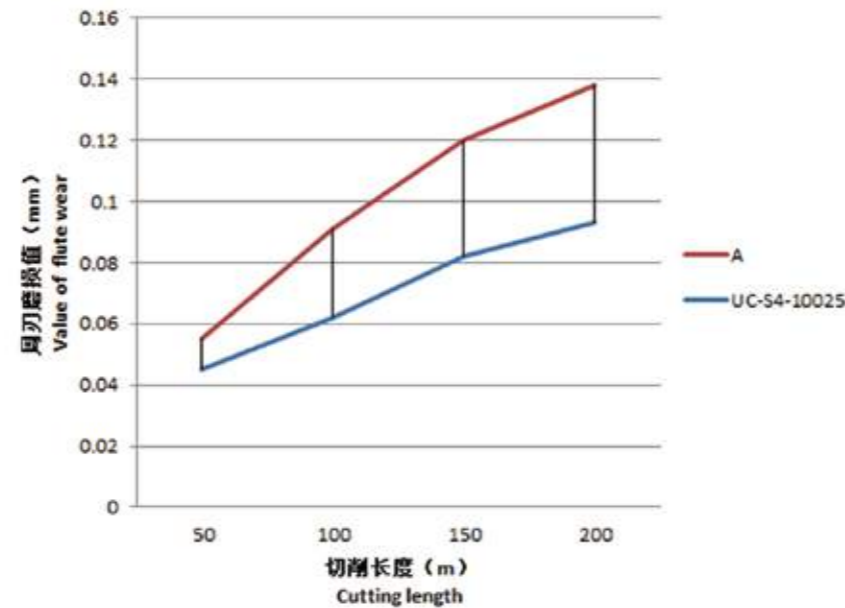


**加工材质范围广:** 能实现从普通钢到高硬钢的高效率切削加工  
Workable on wide range of workpiece: Suitable for high efficient machining for steel, hardened steel

**刀具结构:** 特殊的切削刃配合大螺旋角设计, 保证刀具刃口强度, 刀具寿命更长  
Tool geometry: Special cutting edge, together with big helix angle design, ensure cutting edge strength, and prolong tool life

**基体涂层优势:** 超高性能的超细晶和超高硬度基体配合Balzers最新一代涂层炉KiLA配合AlCr系涂层, 耐磨性能、抗氧化性能、润滑性能优异  
Substrate and coating advantage: Super high performance, ultra fine grain and high hardness substrate, together with AlCr series coating from Balzers latest Killa furnace, excellent wear resistance, oxidize resistance and lubricity.

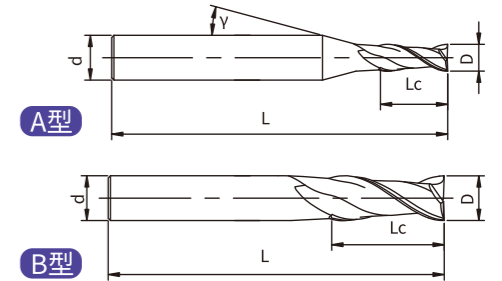
- 刀具型号: UC-S4-10025
- 刀具规格: D10\*25\*75\*d10
- 加工材料: H13 (45HRC)
- 切削速度: 2600RPM
- 进给速度: 400mm/min
- 切削方式: 侧铣
- 切削量: ap=10mm, ae=0.5mm
- 冷却方式: 气冷
- Model No: UC-S4-10025
- Specification: D10\*25\*75\*d10
- Workpiece material: H13 (45HRC)
- Cutting speed: 2600RPM
- Feed rate: 400mm/min
- Way of cutting: side milling
- ap, ae: ap=10mm, ae=0.5mm
- Coolant: Gas



## UC-S2

2刃平头通用加工立铣刀

2 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-S2-01003	1	3	50	4	A	●
UC-S2-01504	1.5	4	50	4	A	●
UC-S2-02006	2	6	50	4	A	●
UC-S2-02508	2.5	8	50	4	A	●
UC-S2-03009	3	9	50	4	A	●
UC-S2-63009	3	9	50	6	A	●
UC-S2-03509	3.5	9	50	4	A	●
UC-S2-63509	3.5	9	50	6	A	●
UC-S2-04011	4	11	50	4	B	●
UC-S2-64011	4	11	50	6	A	●
UC-S2-05013	5	13	50	6	A	●
UC-S2-06016	6	16	50	6	B	●
UC-S2-08020	8	20	60	8	B	●
UC-S2-10025	10	25	75	10	B	●
UC-S2-12030	12	30	75	12	B	●
UC-S2-14034	14	34	100	14	B	●
UC-S2-16036	16	36	100	16	B	●
UC-S2-18040	18	40	100	18	B	●
UC-S2-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

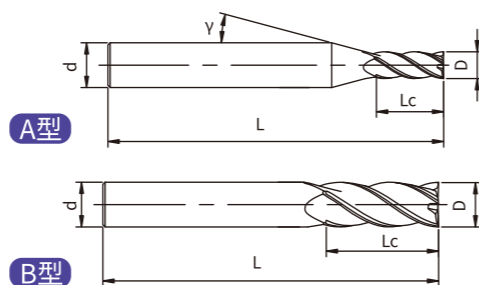
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P137

## UC-S4

4刃平头通用加工立铣刀

4 flute, square endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-S4-01003	1	3	50	4	A	●
U-S4-01505	1.5	5	50	4	A	●
UC-S4-02006	2	6	50	4	A	●
UC-S4-02508	2.5	8	50	4	A	●
UC-S4-03009	3	9	50	4	A	●
UC-S4-63009	3	9	50	6	A	●
UC-S4-03509	3.5	9	50	4	A	●
UC-S4-04011	4	11	50	4	B	●
UC-S4-64011	4	11	50	6	A	●
UC-S4-05013	5	13	50	6	A	●
UC-S4-06016	6	16	50	6	B	●
UC-S4-07020	7	20	60	8	A	●
UC-S4-08020	8	20	60	8	B	●
UC-S4-09023	9	23	75	10	A	●
UC-S4-10025	10	25	75	10	B	●
UC-S4-12030	12	30	75	12	B	●
UC-S4-14034	14	34	100	14	B	●
UC-S4-16036	16	36	100	16	B	●
UC-S4-18045	18	45	100	18	B	●
UC-S4-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

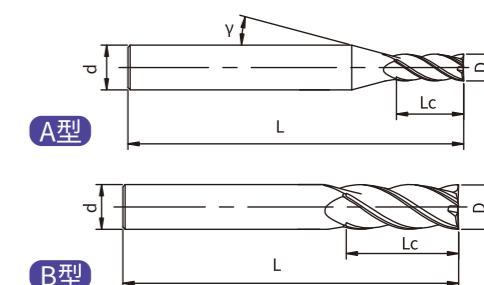
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P138

## UC-SH4

4刃长柄平头通用加工立铣刀

4 flute, square long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-SH4-03012	3	12	75	4	A	●
UC-SH4-04015	4	15	75	4	B	●
UC-SH4-06020	6	20	75	6	B	●
UC-SH4-06020-100	6	20	100	6	B	●
UC-SH4-08020-75	8	20	75	8	B	●
UC-SH4-08025	8	25	100	8	B	●
UC-SH4-10030	10	30	100	10	B	●
UC-SH4-12035	12	35	100	12	B	●
UC-SH4-14040	14	40	100	14	B	●
UC-SH4-16050	16	50	150	16	B	●
UC-SH4-20055	20	55	150	20	B	●

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

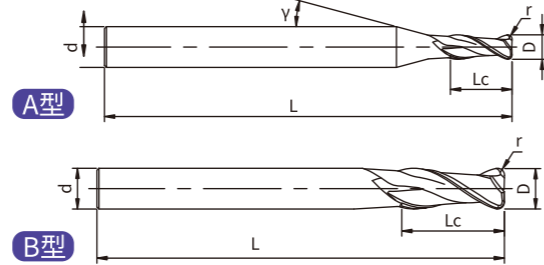
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P138

## UC-R2

2刃圆角头通用加工立铣刀

2 flute, corner radius endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-R2-02002	2	6	0.2	50	4	A	●
UC-R2-03005	3	9	0.5	50	4	A	●
UC-R2-04005	4	11	0.5	50	4	B	●
UC-R2-05005	5	13	0.5	50	6	A	●
UC-R2-06005	6	16	0.5	50	6	B	●
UC-R2-06010	6	16	1	50	6	B	●
UC-R2-08005	8	20	0.5	60	8	B	●
UC-R2-08010	8	20	1	60	8	B	●
UC-R2-10005	10	25	0.5	75	10	B	●
UC-R2-10010	10	25	1	75	10	B	●
UC-R2-10020	10	25	2	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

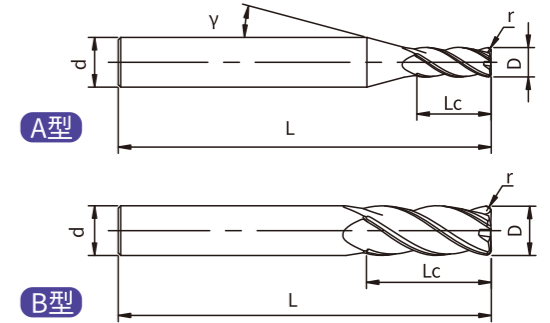
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P137

## UC-R4

4刃圆角头通用加工立铣刀

4 flute, corner radius endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-R4-01002	1	3	0.2	50	4	A	●
UC-R4-01502	1.5	5	0.2	50	4	A	●
UC-R4-02002	2	6	0.2	50	4	A	●
UC-R4-03002	3	9	0.2	50	4	A	●
UC-R4-03005	3	9	0.5	50	4	A	●
UC-R4-04002	4	11	0.2	50	4	B	●
UC-R4-04003	4	11	0.3	50	4	B	●
UC-R4-04005	4	11	0.5	50	4	B	●
UC-R4-04010	4	11	1.0	50	4	B	●
UC-R4-05005	5	13	0.5	50	6	A	●
UC-R4-05010	5	13	1.0	50	6	A	●
UC-R4-06002	6	16	0.2	50	6	B	●
UC-R4-06003	6	16	0.3	50	6	B	●
UC-R4-06005	6	16	0.5	50	6	B	●
UC-R4-06010	6	16	1.0	50	6	B	●
UC-R4-08005	8	20	0.5	60	8	B	●
UC-R4-08010	8	20	1.0	60	8	B	●
UC-R4-10005	10	25	0.5	75	10	B	●
UC-R4-10010	10	25	1.0	75	10	B	●
UC-R4-10020	10	25	2.0	75	10	B	●
UC-R4-10030	10	25	3.0	75	10	B	●
UC-R4-12005	12	30	0.5	75	12	B	●
UC-R4-12010	12	30	1	75	12	B	●
UC-R4-12020	12	30	2	75	12	B	●
UC-R4-12030	12	30	3	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

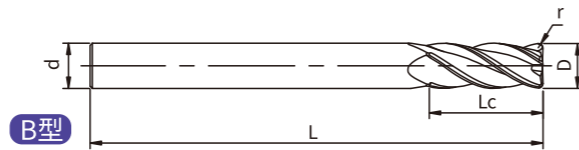
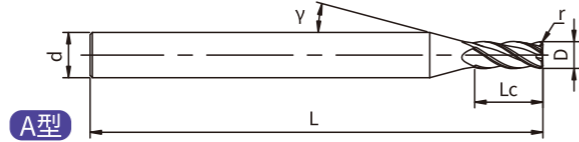
推荐切削参数P138



## UC-RH4

4刃长柄圆角头通用加工立铣刀

4 flute, corner radius, long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-RH4-04002	4	11	0.2	75	4	B	●
UC-RH4-04005	4	11	0.5	75	4	B	●
UC-RH4-06005	6	16	0.5	75	6	B	●
UC-RH4-06005-100	6	16	0.5	100	6	B	●
UC-RH4-06010	6	16	1.0	75	6	B	●
UC-RH4-06010-100	6	16	1.0	100	6	B	●
UC-RH4-08005-75	8	20	0.5	75	8	B	●
UC-RH4-08010-75	8	20	1.0	75	8	B	●
UC-RH4-08005	8	20	0.5	100	8	B	●
UC-RH4-08010	8	20	1.0	100	8	B	●
UC-RH4-10005	10	25	0.5	100	10	B	●
UC-RH4-10010	10	25	1.0	100	10	B	●
UC-RH4-10020	10	25	3.0	100	10	B	●
UC-RH4-12005	12	30	0.5	100	12	B	●
UC-RH4-12010	12	30	1.0	100	12	B	●
UC-RH4-12020	12	30	2.0	100	12	B	●
UC-RH4-16010	16	45	1.0	100	16	B	●
UC-RH4-16020	16	45	2.0	100	16	B	●

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

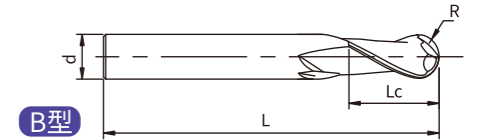
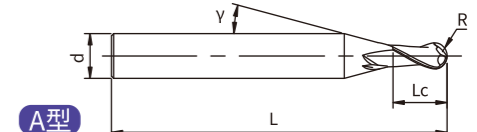
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P138

## UC-B2

2刃球头通用加工立铣刀

2 flute, ball nose endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-B2-01002	1	0.5	2	50	4	A	●
UC-B2-01503	1.5	0.75	3	50	4	A	●
UC-B2-02004	2	1	4	50	4	A	●
UC-B2-02505	2.5	1.25	5	50	4	A	●
UC-B2-03006	3	1.5	6	50	4	A	●
UC-B2-03507	3.5	1.75	7	50	4	A	●
UC-B2-04008	4	2	8	50	4	B	●
UC-B2-05010	5	2.5	10	50	6	A	●
UC-B2-06012	6	3	12	50	6	B	●
UC-B2-07014	7	3.5	14	60	8	A	●
UC-B2-08014	8	4	14	60	8	B	●
UC-B2-09016	9	4.5	16	75	10	A	●
UC-B2-10018	10	5	18	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02

(mm)

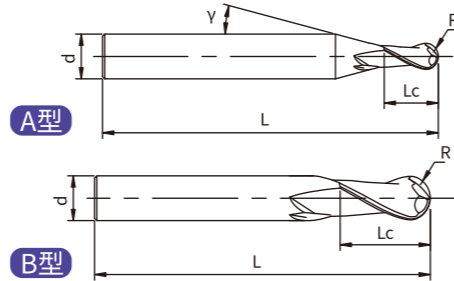
### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P138

UC-BH2 2刃长柄球头通用加工立铣刀  
2 flute, ball nose, long shank endmill for general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UC-BH2-04008	4	2	8	75	4	B	●
UC-BH2-04008-100	4	2	8	100	4	B	●
UC-BH2-06012	6	3	12	75	6	B	●
UC-BH2-06012-100	6	3	12	100	6	B	●
UC-BH2-08014	8	4	14	75	8	B	●
UC-BH2-08014-100	8	4	14	100	8	B	●
UC-BH2-10018	10	5	18	100	10	B	●
UC-BH2-12022	12	6	22	100	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02

(mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○		○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P138

# UR系列

## 普通钢粗加工立铣刀

UR series endmill for steel rough machining



独特的波形刃设计,使得切削更细小,排屑更顺畅  
Special wave flute design, makes small chip and smooth chip exhausting

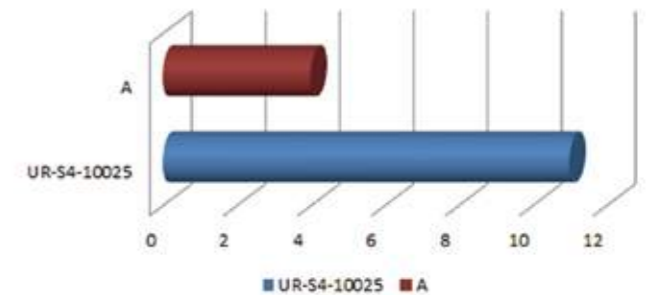
采用大螺旋角+U型槽设计,提高刀具加工稳定性  
Big helix angle + U groove design, increases machining stability

高性能超细晶基体配合高性能AlCrSiN涂层,耐高温,耐磨损,在重载粗加工况也能轻松驾驭  
High performance ultra fine substrate, together with high performance AlCrSiN coating, good heat resistance and wear resistance. Also suitable for heavy roughing

- 刀具型号: UR-S4-10005
- 刀具规格: D10\*C0.3\*25\*75\*d10
- 加工材料: 45# (180HB)
- 切削速度: 5500RPM
- 进给速度: 600mm/min
- 切削方式: 槽铣
- 切削量: ap=6mm, ae=10mm
- 冷却方式: 水基乳化液
- Model No:UR-S4-10005
- Specification:D10\*C0.3\*25\*75\*d10
- Workpiece material:45# (180HB)
- Cutting speed:5500RPM
- Feed rate:600mm/min
- Way of cutting:slotting
- ap, ae: ap=6mm, ae=10mm
- Coolant:emulsion



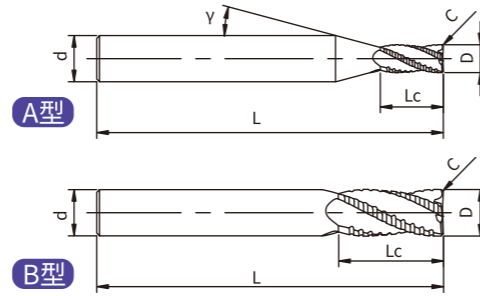
加工工件数 (PCS)  
Workpiece quantity



# UR-S4

4刃粗加工平头立铣刀

4 flute, square endmill for rough machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	刃尖倒角(C) Chamfer	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UR-S4-06016	6	16	0.2	50	6	B	●
UR-S4-08020	8	20	0.2	60	8	B	●
UR-S4-10025	10	25	0.3	75	10	B	●
UR-S4-12030	12	30	0.3	75	12	B	●
UR-S4-16036	16	36	0.4	100	16	B	●
UR-S4-20045	20	45	0.5	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P139

外径D	公差 Tol.
D ≤ 6	0 -0.03
6 < D ≤ 10	0 -0.04
D > 10	0 -0.05 (mm)

# UN系列

## 普通钢断屑齿粗加工立铣刀

UN series endmill for steel roughing



适用于普通钢、铸铁材料(≤48HRC)的大切深、大切宽粗加工、半精加工  
Suitable for semi-finishing, roughing with big ap. ae. on steel, cast iron (≤48HRC)

独特的断屑齿+大容屑槽设计,使切屑更小,排屑更顺畅,表面质量更高  
Special chip breaker+big chip pocket design, makes small chip and smooth chip exhausting, so as to get better surface quality

高性能超细晶基体配合高性能AlCrSiN涂层,耐高温,耐磨损  
High performance ultra fine substrate, together with high performance AlCrSiN coating, good heat resistance and wear resistance

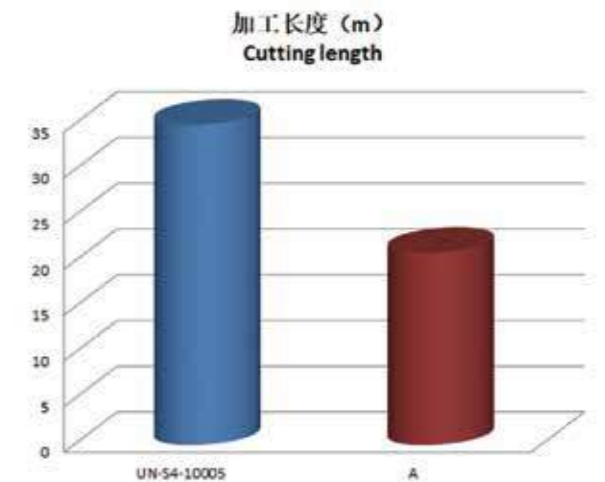
- 刀具型号: UN-S4-10005
- 刀具规格: D10\*C0.3\*25\*75\*d10
- 加工材料: 4140 (30HRC)
- 切削速度: 4000RPM
- 进给速度: 900mm/min
- 切削方式: 侧铣
- 切削量: ap=6mm, ae=10mm
- 冷却方式: 油雾
- Model No:UN-S4-10005
- Specification:D10\*C0.3\*25\*75\*d10
- Workpiece material:4140 (30HRC)
- Cutting speed:4000RPM
- Feed rate:900mm/min
- Way of cutting:side milling
- ap, ae: ap=6mm, ae=10mm
- Coolant:Oil mist



UN-S4-10005



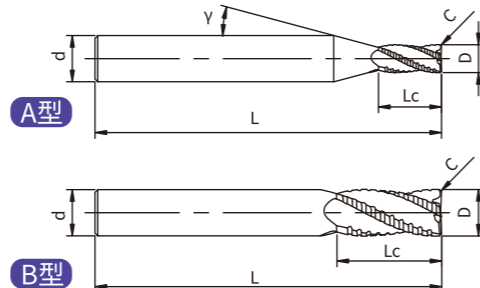
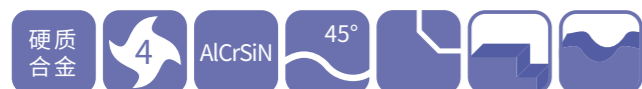
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## UN-S4

4刃粗加工平头立铣刀

4 flute, square endmill for rough machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	刃尖倒角(C) Chamfer	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UN-S4-06016	6	16	0.2	50	6	B	●
UN-S4-08020	8	20	0.2	60	8	B	●
UN-S4-10025	10	25	0.3	75	10	B	●
UN-S4-12030	12	30	0.3	75	12	B	●
UN-S4-16036	16	36	0.4	100	16	B	●
UN-S4-20045	20	45	0.5	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 6	0 -0.03
6 < D ≤ 10	0 -0.04
D > 10	0 -0.05 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P140

# X系列

## 普通钢高效加工立铣刀

X series endmill for steel high efficiency machining



### 加工材料范围广

Suitable for wide range of workpiece

- ◎ 变槽深设计, 兼顾刀具刚性及容屑空间, 适用于大切深、大切宽的高效加工  
Variable groove depth design considering both tool rigidity and chip pocket, good for high efficient machining with big cutting depth & width

### 加工工况广

Suitable for wide range of application

- ◎ 适用于小切深、大切宽的面铣; 大切深、小切宽的侧铣; 同时适用于小于0.5D的浅槽铣  
Suitable for facing milling under small ap & big ae, side milling under big ap & small ae, and slotting under condition of less than 0.5D

### 基体涂层优势

Substrate coating strength

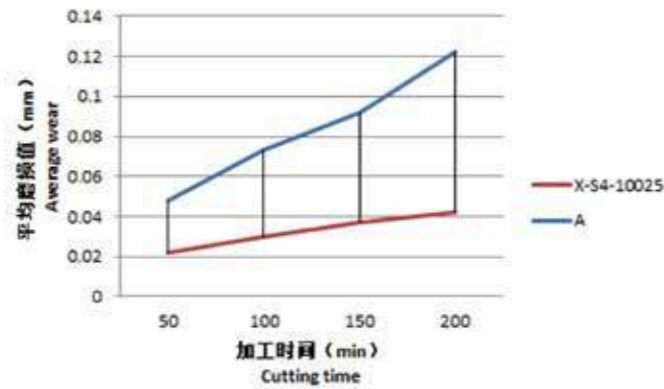
- ◎ 高性能的超细晶基体, 保证刀具兼具高耐磨性及高韧性  
High performance ultra-fine substrate guarantees good wear and toughness
- ◎ 采用Balzers最新一代涂层炉KiLA配合自主研发高性能AlCrSiN涂层  
Use the latest Kila coating furnace from Balzers, with AlCr series coating

### 刀型结构

Geometry structure

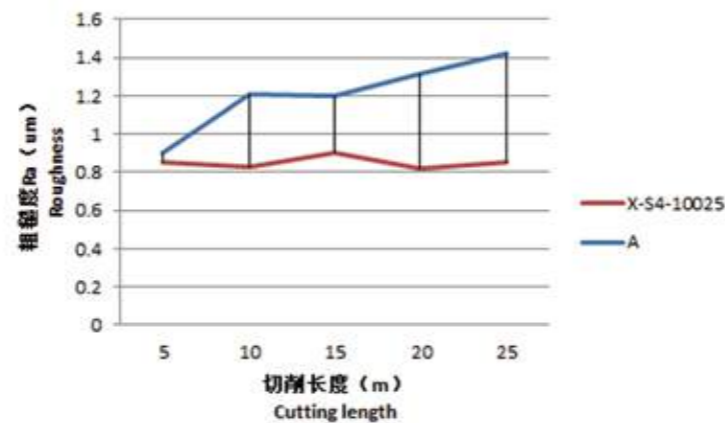
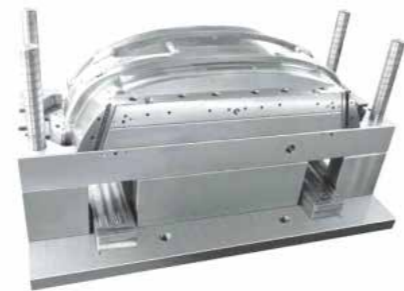
- ◎ 采用不等齿距, 不等螺旋分割设计, 减震性能优越  
Use variable pitch & helix design; Excellent vibration reduction performance

- 刀具型号: X-S4-10005
- 刀具规格: D10\*25\*75\*d10
- 加工材料: Q235A (HB200)
- 切削速度: 5100RPM
- 进给速度: 1600mm/min
- 切削方式: 侧铣
- 切削量: ap=12mm, ae=0.15m
- 冷却方式: 水基乳化液
- Model No:X-S4-10005
- Specification:D10\*25\*75\*d10
- Workpiece material:Q235A (HB200)
- Cutting speed:1600mm/min
- Feed rate:2000mm/min
- Way of cutting:Side milling
- ap, ae:ap=12mm, ae=0.15m
- Coolant:Emulsion



刀具磨损趋势变化对比  
Comparison of tool wear trend

- 刀具型号: X-BH2-08014
- 刀具规格: R4\*14\*75\*d8
- 加工材料: 718 (38HRC)
- 切削速度: 8000RPM
- 进给速度: 4500mm/min
- 切削方式: 仿形铣
- 切削量: ap=0.15mm, ae=0.15mm
- 冷却方式: 油雾冷却
- Model No:X-BH2-08014
- Specification:R4\*14\*75\*d8
- Workpiece material:718 (38HRC)
- Cutting speed:8000RPM
- Feed rate:4500mm/min
- Way of cutting: Profile milling
- ap, ae:ap=0.15mm, ae=0.15mm
- Coolant:Oil mist

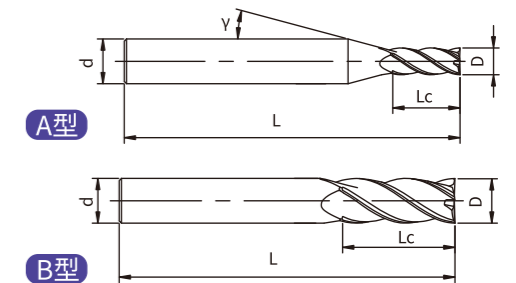


被加工表面粗糙度测试  
Workpiece surface roughness test

## X-S3

3刃平头变螺旋高效加工立铣刀

3 flute, square variabe helix endmill for high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-S3-03009	3	9	50	4	A	●
X-S3-04011	4	11	50	4	B	●
X-S3-05013	5	13	50	6	B	●
X-S3-06016	6	16	50	6	B	●
X-S3-08020	8	20	60	8	B	●
X-S3-10025	10	25	75	10	B	●
X-S3-12030	12	30	75	12	B	●
X-S3-16036	16	36	100	16	B	●
X-S3-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

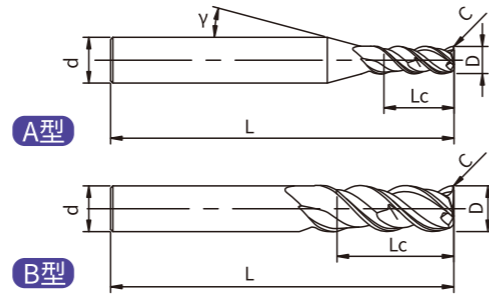
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P141

## X-C3

3刃平头双螺旋高效加工立铣刀(刀尖倒角)

3 flute, square variabe helix endmill for high efficiency machining (chamfer)



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	刃尖倒角(C) Chamfer	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-C3-06020	6	16	0.2	50	6	B	●
X-C3-08020	8	20	0.2	60	8	B	●
X-C3-10030	10	25	0.3	75	10	B	●
X-C3-12030	12	30	0.3	75	12	B	●
X-C3-16030	16	36	0.3	100	16	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

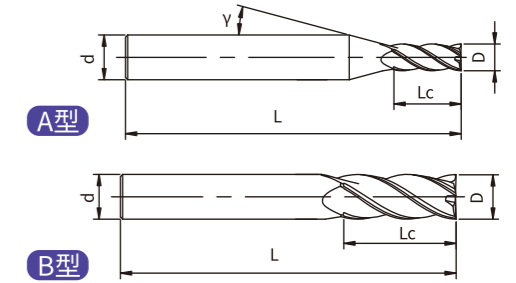
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P141

## X-S4

4刃平头双螺旋高效加工立铣刀

4 flute, square variabe helix endmill for high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-S4-02006	2	6	50	4	A	●
X-S4-03009	3	9	50	4	A	●
X-S4-04011	4	11	50	4	B	●
X-S4-05013	5	13	50	6	A	●
X-S4-06016	6	16	50	6	B	●
X-S4-08020	8	20	60	8	B	●
X-S4-10025	10	25	75	10	B	●
X-S4-12030	12	30	75	12	B	●
X-S4-16036	16	36	100	16	B	●
X-S4-20045	20	45	100	20	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

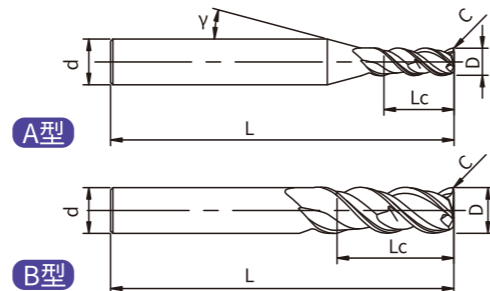
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P142

## X-C4

4刃平头变螺旋高效加工立铣刀(刀尖倒角)

4 flute, square variabe helix endmill for high efficiency machining (chamfer)



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	刃尖倒角(C) Chamfer	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-C4-03003	3	9	0.03	50	4	A	○
X-C4-03013	3	9	0.13	50	4	A	●
X-C4-04004	4	11	0.04	50	4	B	○
X-C4-04018	4	11	0.18	50	4	B	●
X-C4-05005	5	13	0.05	50	6	A	○
X-C4-05013	5	13	0.13	57	6	A	●
X-C4-05020	5	13	0.2	50	6	A	●
X-C4-06006	6	16	0.06	50	6	B	○
X-C4-06013	6	16	0.13	57	6	B	●
X-C4-06020	6	16	0.2	50	6	B	●
X-C4-08008	8	20	0.08	60	8	B	●
X-C4-08020	8	20	0.2	60	8	B	●
X-C4-10010	10	25	0.1	75	10	B	●
X-C4-10030	10	25	0.3	75	10	B	●
X-C4-12012	12	30	0.12	75	12	B	○
X-C4-12030	12	30	0.3	75	12	B	●
X-C4-16015	16	36	0.15	100	16	B	○
X-C4-16040	16	36	0.4	100	16	B	○
X-C4-20015	20	45	0.15	100	20	B	○
X-C4-20050	20	45	0.5	100	20	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

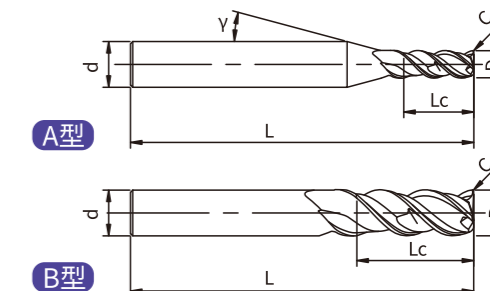
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P142

## X-CN4

4刃长颈平头双螺旋高效加工立铣刀(刀尖倒角)

4 flute, square variabe helix endmill for high efficiency machining (chamfer)



订货号 Ordering Code	外径 (D) Mill Dia.	刃长 (Lc) Flute Length	颈长 (L1) Under Neck Length	颈径 (d2) Neck Dia.	刃尖倒角 (C) Chamfer	全长 (L) Overall Length	柄径 (d) Shank Dia.	类型 Type	库存 Stock
X-CN4-03013	3	10	18	2.9	0.13	75	4	A	○
X-CN4-04018	4	12	20	3.8	0.18	75	4	B	●
X-CN4-05020	5	15	35	4.8	0.2	75	6	B	●
X-CN4-06020	6	16	24	5.8	0.2	100	6	B	●
X-CN4-08020	8	20	30	7.5	0.2	100	8	B	○
X-CN4-10030	10	25	40	9.5	0.3	150	10	B	○
X-CN4-12030	12	30	40	11	0.3	150	12	B	○
X-CN4-16040	16	36	50	15	0.4	150	16	B	○
X-CN4-20050	20	45	60	19	0.5	150	20	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

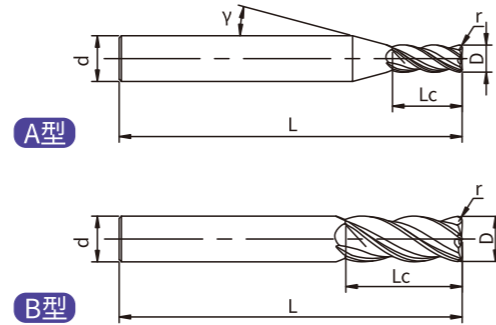
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P142

## X-R4

4刃圆角头双螺旋高效加工立铣刀  
4 flute, corner radius, variable helix endmill for high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-R4-03003	3	9	0.3	50	4	A	○
X-R4-03005	3	9	0.5	50	4	A	●
X-R4-04003	4	11	0.3	50	4	B	●
X-R4-04005	4	11	0.5	50	4	B	●
X-R4-05003	5	13	0.3	50	6	A	○
X-R4-05005	5	13	0.5	50	6	A	●
X-R4-06005	6	16	0.5	50	6	B	●
X-R4-06010	6	16	1	50	6	B	●
X-R4-08005	8	20	0.5	60	8	B	●
X-R4-08010	8	20	1	60	8	B	●
X-R4-10005	10	25	0.5	75	10	B	●
X-R4-10010	10	25	1	75	10	B	●
X-R4-10020	10	25	2	75	10	B	●
X-R4-12005	12	30	0.5	75	12	B	○
X-R4-12010	12	30	1	75	12	B	●
X-R4-12020	12	30	2	75	12	B	○
X-R4-14020	14	32	2	75	14	B	○
X-R4-16020	16	36	2	100	16	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

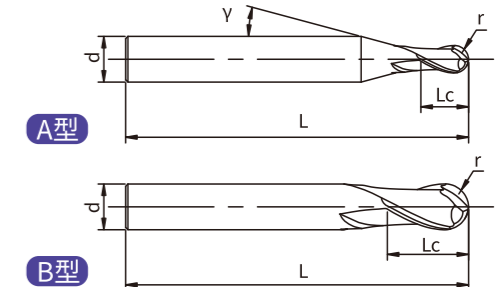
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P142

## X-B2

2刃球头高速加工立铣刀  
2 flute, ball nose endmill for high speed machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-B2-01002	1	0.5	2	50	4	A	●
X-B2-01503	1.5	0.75	3	50	4	A	●
X-B2-02004	2	1	4	50	4	A	●
X-B2-03006	3	1.5	6	50	4	A	●
X-B2-04008	4	2	8	50	4	B	●
X-B2-06012	6	3	12	50	6	B	●
X-B2-08014	8	4	14	60	8	B	●
X-B2-10018	10	5	18	75	10	B	●
X-B2-11020	11	5.5	20	75	12	B	●
X-B2-12022	12	6	22	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

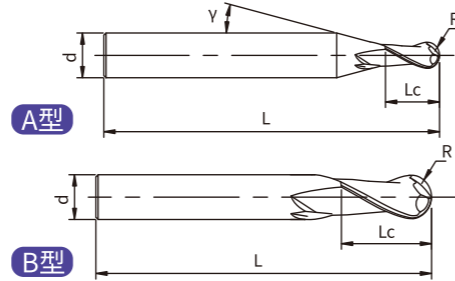
推荐切削参数P143



## X-BH2

2刃长柄球头高速加工立铣刀

2 flute, ball nose, long shank endmill for high speed machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
X-BH2-04008	4	2	8	75	4	B	●
X-BH2-06012	6	3	12	60	6	B	●
X-BH2-06012H	6	3	12	75	6	B	●
X-BH2-08014	8	4	14	75	8	B	●
X-BH2-10018	10	5	18	100	10	B	●
X-BH2-12022	12	6	22	100	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R ≤ 1.5	0 -0.01
1.5 < R < 3	0 -0.015
R ≥ 3	0 -0.02

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	○			○			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P143

# UX系列

## 普通钢高效加工立铣刀

UX series endmill for steel high efficiency machining

**U型槽设计, 兼顾刀具刚性及容屑空间, 适用于大切深、大切宽槽铣**

U-shaped groove design, taking into account the rigidity of the tool and chip space, is suitable for groove milling with large cutting depth and width

**底刃变分度+45°大螺旋角设计, 减震性能优越, 切削过程稳定**

The bottom edge variable index+45° large spiral angle design has excellent shock absorption performance and stable cutting process

**高性能的基体搭配AlCr系涂层, 刀具兼具高耐磨性以及高韧性**

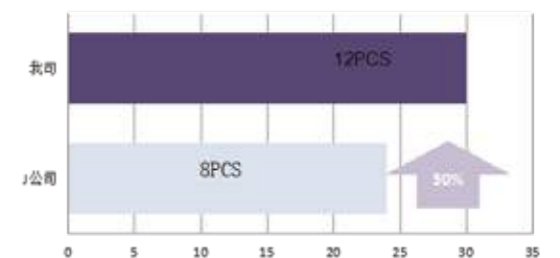
High performance matrix with AlCr coating, the tool has high wear resistance and high toughness

- 刀具型号: UX-S4-12030
- 刀具规格: D12\*30\*75\*d12
- 加工材料: 铸铁
- 加工参数: S=4krpm、F=2000mm/min、ap=28mm、ae=1mm
- 切削方式: 动态侧铣
- 冷却方式: 乳化液

- Model No:UX-S4-12030
- Specification:D12\*30\*75\*d12
- Workpiece material:cast
- Processing parameters:S=4krpm、F=2000mm/min ap=28mm、ae=1mm
- Way of cutting:Dynamic side milling
- Coolant:emulsion



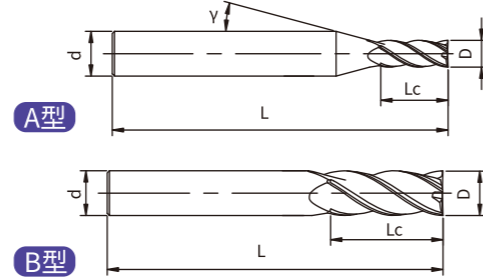
加工数量 (PCS)



## UX-S4

4刃平头普通钢高效加工立铣刀

4 flute, square endmill for steel high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UX-S4-01003	1	3	50	4	A	●
UX-S4-01505	1.5	5	50	4	A	●
UX-S4-61505	1.5	5	50	6	A	●
UX-S4-02006	2	6	50	4	A	●
UX-S4-62006	2	6	50	6	A	●
UX-S4-02508	2.5	8	50	4	A	●
UX-S4-62508	2.5	8	50	6	A	●
UX-S4-03009	3	9	50	4	A	●
UX-S4-63009	3	9	50	6	A	●
UX-S4-03511	3.5	11	50	4	A	●
UX-S4-63511	3.5	11	50	6	A	●
UX-S4-04011	4	11	50	4	B	●
UX-S4-64011	4	11	50	6	A	●
UX-S4-05013	5	13	50	6	A	●
UX-S4-06016	6	16	50	6	B	●
UX-S4-07020	7	20	60	8	A	●
UX-S4-08020	8	20	60	8	B	●
UX-S4-09023	9	23	75	10	A	●
UX-S4-10025	10	25	75	10	B	●
UX-S4-12030	12	30	75	12	B	●
UX-S4-14034	14	34	100	14	B	●
UX-S4-16036	16	36	100	16	B	●
UX-S4-18045	18	45	100	18	B	●
UX-S4-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

铸铁 Cast	碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminium alloy
○	○	○	○			○			○	

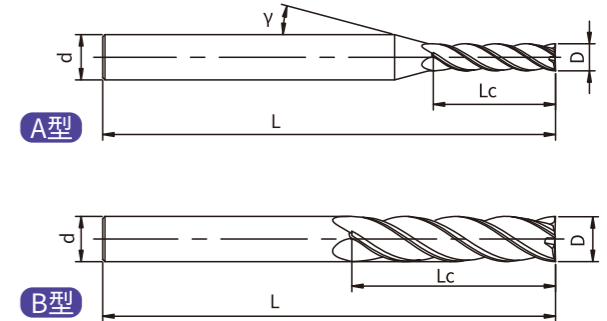
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P144

## UX-SL4

4刃长刃平头普通钢高效加工立铣刀

4 flute, square long flute endmill for steel high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UX-SL4-01004	1	4	50	4	A	●
UX-SL4-02010	2	10	50	4	A	●
UX-SL4-03015	3	15	60	4	A	●
UX-SL4-63015	3	15	60	6	A	●
UX-SL4-04020	4	20	60	4	B	●
UX-SL4-64020	4	20	75	6	A	●
UX-SL4-05025	5	25	75	6	A	●
UX-SL4-06030	6	30	75	6	B	●
UX-SL4-08040	8	40	100	8	B	●
UX-SL4-10050	10	50	100	10	B	●
UX-SL4-12050	12	50	100	12	B	●
UX-SL4-14045	14	45	100	14	B	●
UX-SL4-16060	16	60	150	16	B	●
UX-SL4-18070	18	70	150	18	B	●
UX-SL4-20070	20	70	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

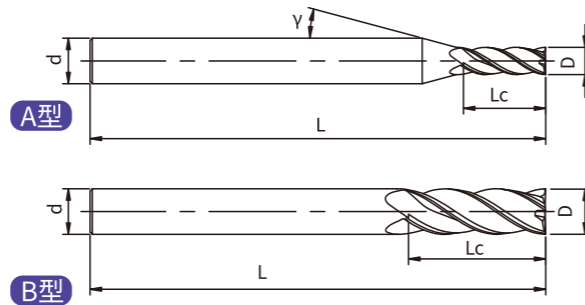
铸铁 Cast	碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	◎	○			○			○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P144

## UX-SH4

4刃长柄平头普通钢高效加工立铣刀  
4 flute, square long shank endmill for steel high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UX-SH4-02010	2	10	75	4	A	●
UX-SH4-03012	3	12	75	4	A	●
UX-SH4-04011	4	11	75	4	B	●
UX-SH4-04015	4	15	75	4	B	●
UX-SH4-05020	5	20	75	6	A	●
UX-SH4-06016	6	16	75	6	B	●
UX-SH4-06020	6	20	75	6	B	●
UX-SH4-08020	8	20	100	8	B	●
UX-SH4-08025	8	25	100	8	B	●
UX-SH4-10030	10	30	100	10	B	●
UX-SH4-10035	10	35	100	10	B	●
UX-SH4-12035	12	35	100	12	B	●
UX-SH4-14036	14	36	150	14	B	●
UX-SH4-16036	16	36	150	16	B	●
UX-SH4-18045	18	45	150	18	B	●
UX-SH4-20045	20	45	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

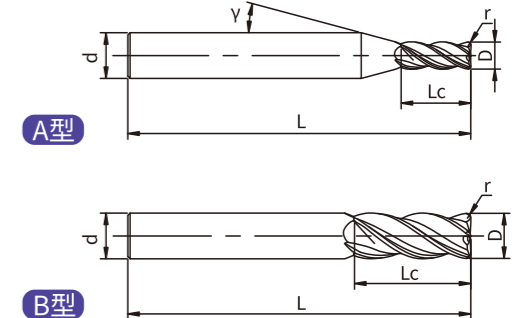
铸铁 Cast	碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminium alloy
○	○	○	○			○			○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P144

## UX-R4

4刃圆角头普通钢高效加工立铣刀  
4 flute, corner radius endmill for steel high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UX-R4-01502	1.5	5	0.2	50	4	A	●
UX-R4-02002	2	6	0.2	50	4	A	●
UX-R4-03002	3	9	0.2	50	4	A	●
UX-R4-03005	3	9	0.5	50	4	A	●
UX-R4-04002	4	11	0.2	50	4	B	●
UX-R4-04005	4	11	0.5	50	4	B	●
UX-R4-04010	4	11	1	50	4	B	●
UX-R4-05005	5	13	0.5	50	6	A	●
UX-R4-05010	5	13	1	50	6	A	●
UX-R4-06002	6	16	0.2	50	6	B	●
UX-R4-06005	6	16	0.5	50	6	B	●
UX-R4-06010	6	16	1	50	6	B	●
UX-R4-08005	8	20	0.5	60	8	B	●
UX-R4-08010	8	20	1	60	8	B	●
UX-R4-10005	10	25	0.5	75	10	B	●
UX-R4-10010	10	25	1	75	10	B	●
UX-R4-10020	10	25	2	75	10	B	●
UX-R4-12005	12	30	0.5	75	12	B	●
UX-R4-12010	12	30	1	75	12	B	●
UX-R4-12020	12	30	2	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

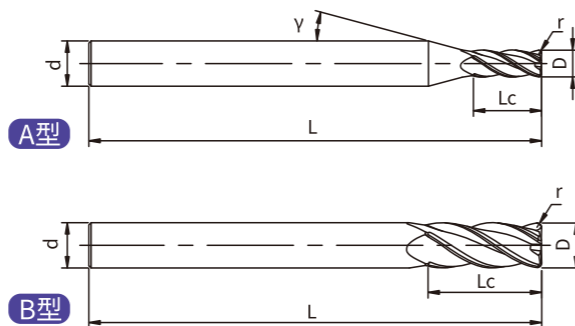
铸铁 Cast	碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminium alloy
◎	◎	◎	○			○			○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P144

## UX-RH4

4刃长柄圆角头普通钢高效加工立铣刀  
4 flute corner radius, with long shank length  
endmill for steel high efficiency machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
UX-RH4-03005	3	9	0.5	75	4	A	●
UX-RH4-04005	4	11	0.5	75	4	B	●
UX-RH4-06005	6	16	0.5	75	6	B	●
UX-RH4-06010	6	16	1	75	6	B	●
UX-RH4-08005	8	20	0.5	100	8	B	●
UX-RH4-08010	8	20	1	100	8	B	●
UX-RH4-10005	10	25	0.5	100	10	B	●
UX-RH4-10010	10	25	1	100	10	B	●
UX-RH4-10020	10	25	2	100	10	B	●
UX-RH4-12005	12	30	0.5	100	12	B	●
UX-RH4-12010	12	30	1	100	12	B	●
UX-RH4-12020	12	30	2	100	12	B	●
UX-RH4-16005	16	36	0.5	150	16	B	●
UX-RH4-16010	16	36	1	150	16	B	●
UX-RH4-16020	16	36	2	150	16	B	●
UX-RH4-20010	20	45	1	150	20	B	●
UX-RH4-20020	20	45	2	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

铸铁 Cast	碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	石墨 Graphite	铜合金 Copper alloy	铝合金 Aluminium alloy
○	○	○	○			○			○	

○ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P144

# H系列

## 高硬钢加工立铣刀

H series endmill for hardened steel machining



### 可加工材料硬度高

Suitable for high hardness workpiece

- ⊙ 可用于45~60HRC预硬化钢、淬火钢、高硬钢的半精加工、精加工  
Suitable for semi-finishing, finishing of pre-hardened steel, hardened steel, and high speed steel

### 加工工况广

Suitable for wide range of application

- ⊙ 适用普通加工、高速加工、部分高效加工、可加工注塑模具、锻造模具、压铸模具等  
Suitable for general machining, high speed machining and part of high efficient machining,  
Used on injection mould, forging die and die-casting mould

### 基体涂层优势

Substrate coating strength

- ⊙ 超高性能的超细晶和超高硬度基体  
High performance, ultra-fine and super hard substrate.
- ⊙ 采用Balzers最新一代涂层炉KiLA配合自主研发TiAlSiCrN系涂层, 使用稳定、耐高温、耐磨损  
Use the latest Kila coating furnace from Balzers, with our self-developed TiAlCrSiN

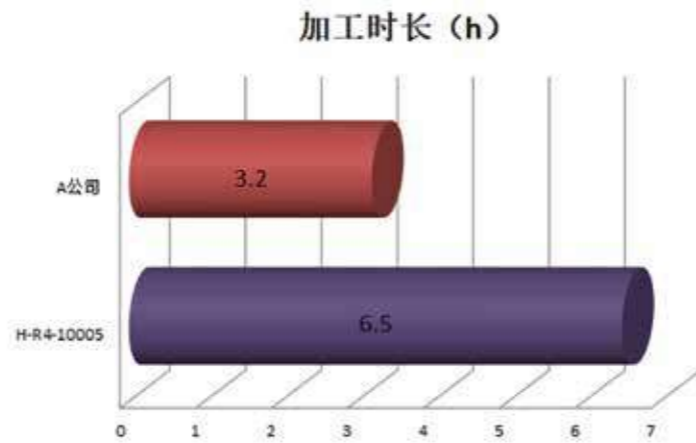
### 刀型结构

Geometry structure

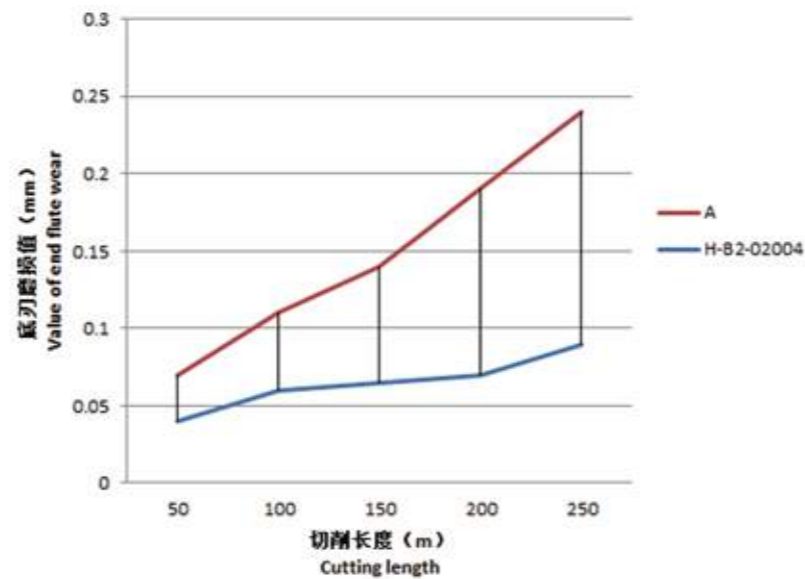
- ⊙ 独特的槽型设计、精细磨削切削刃, 实现卓越的高硬钢材料加工  
Unique geometry design, fine grinded cutting edge, enable excellent processing on hardened steel

“ 全新技术，让切削更简单 ”  
New technology makes cutting easier ”

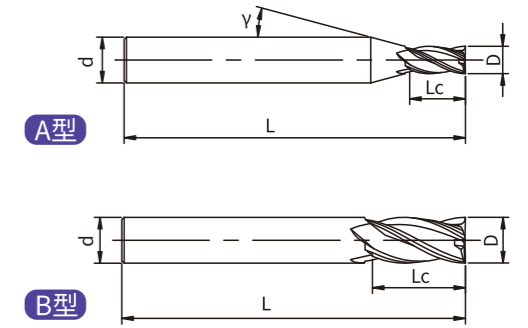
- 刀具型号: H-R4-10005
- 刀具规格: D10\*R0.5\*25\*75\*d10
- 加工材料: SKD61 (52HRC)
- 切削速度: 3800RPM
- 进给速度: 1200mm/min
- 切削方式: 侧铣、面铣
- 切削量: 面铣 ap=0.03mm ae=5mm  
侧铣 ap=0.1mm ae=0.05mm
- 冷却方式: 水基乳化液
- Model No:H-R4-10005
- Specification:D10\*R0.5\*25\*75\*d10
- Workpiece material:SKD61 (52HRC)
- Cutting speed:3800RPM
- Feed rate:1200mm/min
- Way of cutting:Side milling, face milling
- ap, ae:face milling ap=0.03mm ae=5mm  
side milling ap=0.1mm, ae=0.05mm
- Coolant:Emulsion



- 刀具型号: H-B2-02004
- 刀具规格: R1\*4\*50\*d4
- 加工材料: SKD11 (60HRC)
- 切削速度: 20000RPM
- 进给速度: 2000mm/min
- 切削方式: 面铣
- 切削量: ap=0.1mm, ae=0.3mm
- 冷却方式: 油雾
- Model No:H-B2-02004
- Specification:R1\*4\*50\*d4
- Workpiece material:SKD11 (60HRC)
- Cutting speed:20000RPM
- Feed rate:2000mm/min
- Way of cutting: face milling
- ap, ae:ap=0.1mm, ae=0.3mm
- Coolant:oil mist



H-S4  
4刃平头高硬钢加工立铣刀  
4 flute, square endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-S4-01003	1	3	50	4	A	●
H-S4-01504	1.5	4	50	4	A	●
H-S4-02006	2	6	50	4	A	●
H-S4-62006	2	6	50	6	A	●
H-S4-02508	2.5	8	50	4	A	●
H-S4-03008	3	8	50	4	A	●
H-S4-63008	3	8	50	6	A	●
H-S4-04011	4	11	50	4	B	●
H-S4-64011	4	11	50	6	A	●
H-S4-05013	5	13	50	6	A	●
H-S4-06016	6	16	50	6	B	●
H-S4-08020	8	20	60	8	B	●
H-S4-10025	10	25	75	10	B	●
H-S4-12030	12	30	75	12	B	●
H-S4-14032	14	32	100	14	B	●
H-S4-16040	16	40	100	16	B	●
H-S4-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

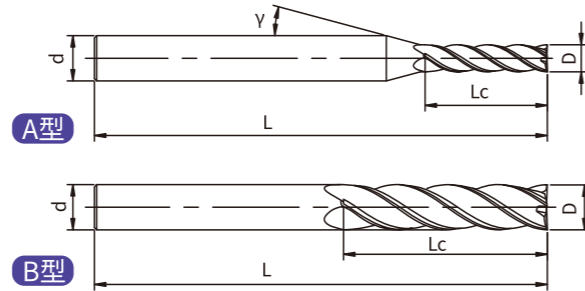
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P145

## H-SL4

4刃长刃平头高硬钢加工立铣刀

4 flute, square long flute endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-SL4-03012	3	12	75	6	A	●
H-SL4-04015	4	15	75	6	A	●
H-SL4-05020	5	20	75	6	A	●
H-SL4-06020	6	20	75	6	B	●
H-SL4-08025	8	25	100	8	B	●
H-SL4-10030	10	30	100	10	B	●
H-SL4-12035	12	35	100	12	B	●
H-SL4-14040	14	40	100	14	B	●
H-SL4-16050	16	50	150	16	B	●
H-SL4-20055	20	55	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

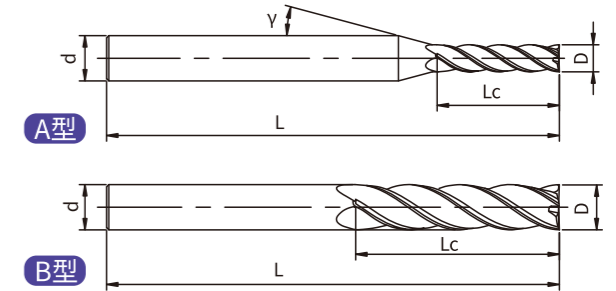
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P145

## H-S6

6刃平头高硬钢加工立铣刀

6 flute, square endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-S6-06018	6	18	50	6	B	●
H-S6-08020	8	20	60	8	B	●
H-S6-10030	10	30	75	10	B	●
H-S6-12032	12	32	75	12	B	●
H-S6-16040	16	40	100	16	B	●
H-S6-20045	20	45	100	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

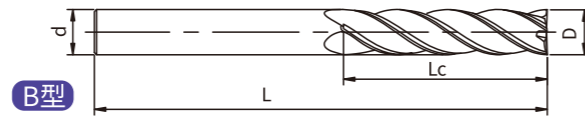
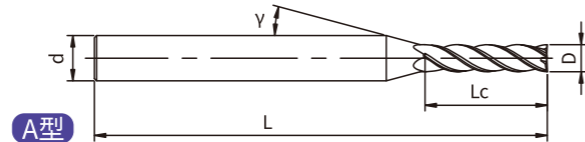
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P147

## H-SL6

6刃长刃平头高硬钢加工立铣刀

6 flute, square long flute endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-SL6-06024	6	24	75	6	B	●
H-SL6-08032	8	32	75	8	B	●
H-SL6-10040	10	40	100	10	B	●
H-SL6-12045	12	45	100	12	B	●
H-SL6-16064	16	64	150	16	B	●
H-SL6-20075	20	75	150	20	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 6	0 -0.01
6 < D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

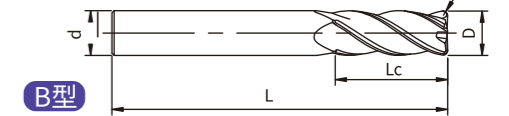
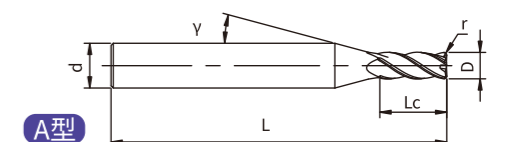
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P147

## H-R4

4刃圆角头高硬钢加工立铣刀

4 flute, corner radius endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-R4-01002	1	2.5	0.2	50	4	A	●
H-R4-01502	1.5	4	0.2	50	4	A	●
H-R4-02002	2	5	0.2	50	4	A	●
H-R4-02005	2	5	0.2	50	4	A	●
H-R4-03002	3	8	0.2	50	4	A	●
H-R4-03005	3	8	0.5	50	4	A	●
H-R4-04002	4	10	0.2	50	4	B	●
H-R4-04003	4	10	0.3	50	4	B	●
H-R4-04005	4	10	0.5	50	4	B	●
H-R4-04010	4	10	1.0	50	4	B	●
H-R4-05005	5	13	0.5	50	6	A	●
H-R4-06005	6	16	0.5	50	6	B	●
H-R4-06010	6	16	1.0	50	6	B	●
H-R4-08005	8	20	0.5	60	8	B	●
H-R4-08010	8	20	1.0	60	8	B	●
H-R4-10005	10	25	0.5	75	10	B	●
H-R4-10010	10	25	1.0	75	10	B	●
H-R4-12005	12	30	0.5	75	12	B	●
H-R4-12010	12	30	1.0	75	12	B	●
H-R4-12020	12	30	2.0	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 6	0 -0.01
6 < D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

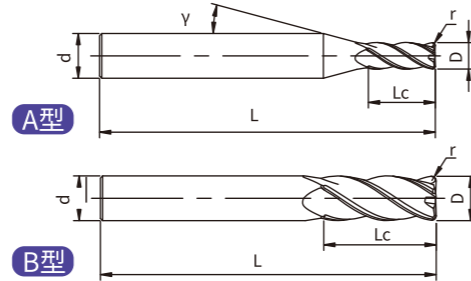
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P145

## H-RH4

4刃长柄圆角头高硬钢加工立铣刀

4 flute, corner radius long shank endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-RH4-04002	4	10	0.2	75	4	B	●
H-RH4-04003	4	10	0.3	75	4	B	●
H-RH4-04005	4	10	0.5	75	4	B	●
H-RH4-04010	4	10	1.0	75	4	B	●
H-RH4-06005	6	16	0.5	75	6	B	●
H-RH4-06010	6	16	1.0	75	6	B	●
H-RH4-08005	8	20	0.5	75	8	B	●
H-RH4-08010	8	20	1.0	75	8	B	●
H-RH4-08005-100	8	20	0.5	100	8	B	●
H-RH4-08010-100	8	20	1.0	100	8	B	●
H-RH4-10005	10	25	0.5	100	10	B	●
H-RH4-10010	10	25	1.0	100	10	B	●
H-RH4-12005	12	30	0.5	100	12	B	●
H-RH4-12010	12	30	1.0	100	12	B	●
H-RH4-12020	12	30	2.0	100	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

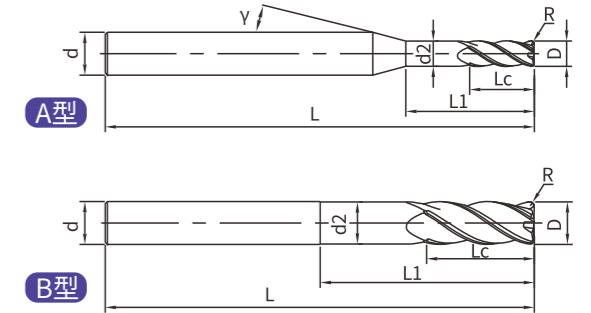
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P145

## H-RN4

4刃长颈圆角头高硬钢加工立铣刀

4 flute, corner radius long neck endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	颈长(L1) Under Neck Length	颈径(d2) Neck Dia.	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-RN4-06005	6	6	0.5	18	5.8	75	6	B	●
H-RN4-06010	6	6	1.0	18	5.8	75	6	B	●
H-RN4-08005-75	8	8	0.5	24	7.8	75	8	B	●
H-RN4-08005	8	8	0.5	24	7.8	100	8	B	●
H-RN4-08010	8	8	1.0	24	7.8	100	8	B	●
H-RN4-10005	10	10	0.5	30	9.6	100	10	B	●
H-RN4-10010	10	10	1.0	30	9.6	100	10	B	●
H-RN4-10020	10	10	2.0	30	9.6	100	10	B	●
H-RN4-12005	12	12	0.5	36	11.5	100	12	B	●
H-RN4-12010	12	12	1.0	36	11.5	100	12	B	●
H-RN4-12020	12	12	2.0	36	11.5	100	12	B	●
H-RN4-16010	16	16	1.0	40	15.5	150	16	B	●
H-RN4-16020	16	16	2.0	40	15.5	150	16	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

◎ 最适合 Most Suitable ○ 适合 Suitable

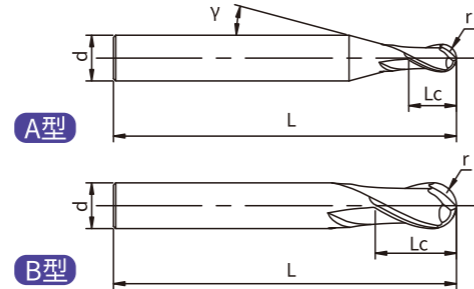
推荐切削参数P145



## H-B2

2刃球头高硬钢加工立铣刀

2 flute, ball nose endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-B2-01002	1	0.5	2	50	4	A	●
H-B2-01503	1.5	0.75	3	50	4	A	●
H-B2-02004	2	1	4	50	4	A	●
H-B2-02505	2.5	1.25	5	50	4	A	●
H-B2-03006	3	1.5	6	50	4	A	●
H-B2-63006	3	1.5	6	50	6	A	●
H-B2-04008	4	2	8	50	4	B	●
H-B2-64008	4	2	8	50	6	A	●
H-B2-05010	5	2.5	10	50	6	A	●
H-B2-06012	6	3	12	50	6	B	●
H-B2-07014	7	3.5	14	60	8	A	●
H-B2-08014	8	4	14	60	8	B	●
H-B2-10020	10	5	20	75	10	B	●
H-B2-12024	12	6	24	75	12	B	●
H-B2-16032	16	8	32	100	16	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

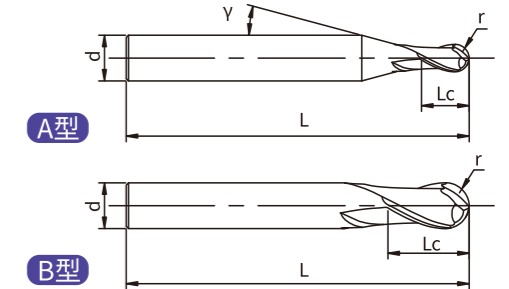
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P146

## H-BH2

2刃长柄球头高硬钢加工立铣刀

2 flute, ball nose long shank endmill for hardened steel machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
H-BH2-02004	2	1	4	75	4	A	●
H-BH2-03006	3	1.5	6	75	4	A	●
H-BH2-63006	3	1.5	6	60	6	A	●
H-BH2-63006-75	3	1.5	6	75	6	A	●
H-BH2-04008	4	2	8	75	4	B	●
H-BH2-64008-60	4	2	8	60	6	A	●
H-BH2-64008	4	2	8	75	6	A	●
H-BH2-05010	5	2.5	10	75	6	A	●
H-BH2-06012-60	6	3	12	60	6	B	●
H-BH2-06012	6	3	12	75	6	B	●
H-BH2-06012-100	6	3	12	100	6	B	●
H-BH2-08016-75	8	4	16	75	8	B	●
H-BH2-08016	8	4	16	100	8	B	●
H-BH2-10020	10	5	20	100	10	B	●
H-BH2-12024	12	6	24	100	12	B	●
H-BH2-16032	16	8	32	150	16	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤6	0 -0.01
6<D≤12	0 -0.02
D>12	0 -0.03 (mm)

工件材料 Workpiece Materials

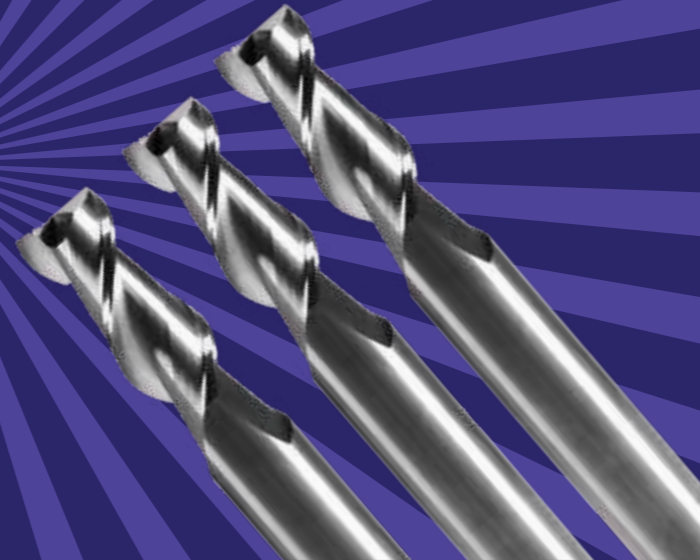
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○	◎	◎	○				○	

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P146

# A系列

## 铝合金通用加工立铣刀 A series endmill for aluminium alloys general machining



大前角和特殊周刃设计有效防止积屑瘤的产生,能够在精加工中完美表现  
Big rake angle and special flute design effectively prevent build-up-edge, making the tool perform well in finishing

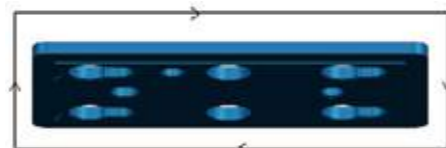
独特的容屑槽设计,保证刀具强度及排屑性能,大幅提高了加工稳定性  
Special groove design guarantee both tool strength and chip removal performance, increasing machining stability a lot

超细颗粒硬质合金基体,刀具耐磨性和切削刃强度得到完美结合  
Ultra fine substrate, good wear resistance and cutting edge strength

- 刀具型号: A-S3-06016
- 刀具规格: D6\*16\*50\*d6
- 加工材料: AL6063
- 切削速度: 12000RPM
- 进给速度: 600mm/min
- 切削方式: 精加工、侧铣
- 切削量: ap=5mm, ae=0.05mm
- 冷却方式: 乳化液
- Model No:A-S3-06016
- Specification:D6\*16\*50\*d6
- Workpiece material:AL6063
- Cutting speed:12000RPM
- Feed rate:600mm/min
- Way of cutting:finishing, side milling
- ap, ae: ap=5mm, ae=0.05mm
- Coolant:emulsion

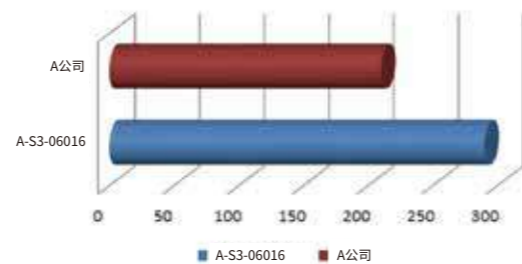


加工表面质量 (20X)  
The machining surface (20X)



走刀轨迹  
Cutting Path

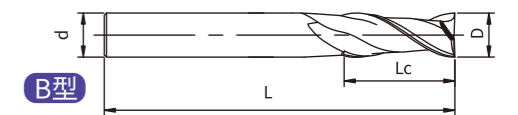
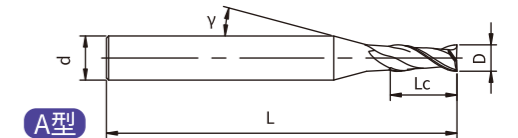
加工寿命  
Tool life



## A-S2/SS2/SL2

### 2刃平头铝合金加工立铣刀

### 2 flute, square endmill for aluminium alloys general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-S2-01003	1	3	50	4	A	●
A-SL2-01005	1	5	50	4	A	○
A-S2-01203	1.2	3	50	4	A	○
A-SS2-01503	1.5	3	50	4	A	○
A-S2-01504	1.5	4	50	4	A	●
A-SL2-01505	1.5	5	50	4	A	○
A-SL2-01506	1.5	6	50	4	A	○
A-SS2-02004	2	4	50	4	A	○
A-S2-02006	2	6	50	4	A	●
A-SL2-02008	2	8	50	4	A	○
A-S2-02508	2.5	8	50	4	A	○
A-SS2-03006	3	6	50	4	A	○
A-S2-03009	3	9	50	4	A	●
A-S2-63009	3	9	50	6	A	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

#### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

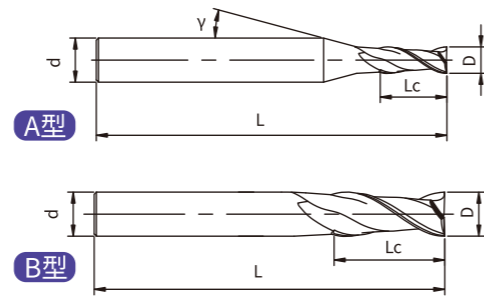
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P148

## A-S2/SS2/SL2

2刃平头铝合金加工立铣刀

2 flute, square endmill for aluminium alloys  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-SS2-04006	4	6	50	4	B	○
A-S2-04011	4	11	50	4	B	●
A-S2-64011	4	11	50	6	A	○
A-S2-05013	5	13	50	6	A	○
A-SS2-06009	6	9	50	6	B	○
A-SS2-06012	6	12	50	6	B	○
A-S2-06016	6	16	50	6	B	●
A-SS2-08009	8	9	60	8	B	○
A-SS2-08015	8	15	60	8	B	○
A-S2-08020	8	20	60	8	B	●
A-SS2-10015	10	15	75	10	B	○
A-S2-10025	10	25	75	10	B	○
A-SS2-12015	12	15	75	10	B	○
A-S2-12030	12	30	75	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

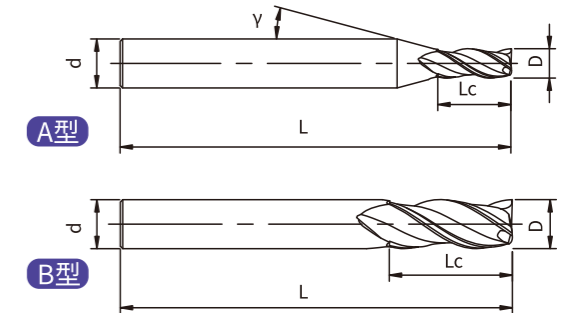
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P148

## A-S3/SS3/SL3

3刃平头铝合金加工立铣刀

3 flute, square endmill for aluminium alloys  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-S3-01003	1	3	50	4	A	●
A-SL3-01005	1	5	50	4	A	○
A-S3-01203	1.2	3	50	4	A	○
A-S3-01504	1.5	4	50	4	A	●
A-SL3-01505	1.5	5	50	4	A	○
A-SS3-02004	2	4	50	4	A	○
A-S3-02006	2	6	50	4	A	●
A-S3-02508	2.5	8	50	4	A	●
A-SS3-03006	3	6	50	4	A	○
A-S3-03009	3	9	50	4	A	●
A-SS3-04006	4	6	50	4	B	○
A-S3-04011	4	11	50	4	B	●
A-S3-64011	4	11	50	6	A	○
A-S3-05013	5	13	50	6	A	●
A-SS3-06012	6	12	50	6	B	●
A-S3-06016	6	16	50	6	B	●
A-SS3-08015	8	15	60	8	B	○
A-S3-08020	8	20	60	8	B	●
A-SS3-10015	10	15	75	10	B	○
A-S3-10025	10	25	75	10	B	●
A-SS3-12015	12	15	75	10	B	○
A-S3-12030	12	30	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

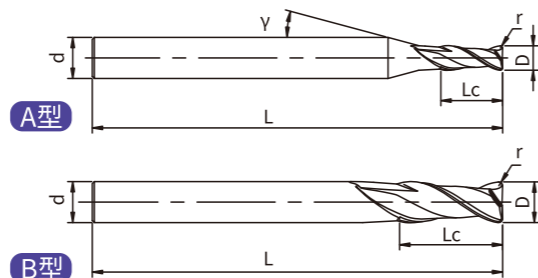
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P149

## A-R2/RS2/RL2

2刃圆角头铝合金加工立铣刀

2 flute, corner radius endmill for aluminium alloys  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner Radius	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-R2-01001	1	3	0.1	50	4	A	●
A-R2-01002	1	3	0.2	50	4	A	○
A-R2-01202	1.2	3	0.2	50	4	A	○
A-RL2-01502	1.5	6	0.2	50	4	A	○
A-R2-02002	2	6	0.2	50	4	A	○
A-R2-02005	2	6	0.5	50	4	A	●
A-R2-03002	3	9	0.2	50	4	A	●
A-R2-03003	3	9	0.3	50	4	A	○
A-R2-03005	3	9	0.5	50	4	A	○
A-R2-04002	4	11	0.2	50	4	B	●
A-RS2-04005	4	6	0.5	50	4	B	○
A-R2-05002	5	13	0.2	50	6	A	○
A-R2-05003	5	13	0.3	50	6	A	○
A-R2-06005	6	16	0.5	50	6	B	○
A-R2-06010	6	16	1	50	6	B	○
A-R2-08005	8	20	0.5	60	8	B	○
A-R2-08010	8	20	1	60	8	B	○
A-RS2-10002	10	15	0.2	50	10	B	○
A-R2-10005	10	25	0.5	75	10	B	○
A-R2-10020	10	25	2	75	10	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

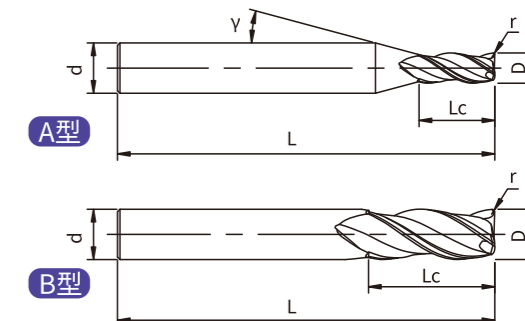
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P148

## A-R3/RS3

3刃圆角头铝合金加工立铣刀

3 flute, corner radius endmill for aluminium alloys  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner Radius	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-R3-02002	2	6	0.2	50	4	A	○
A-R3-03002	3	9	0.2	50	4	A	○
A-R3-04002	4	11	0.2	50	4	B	○
A-R3-04005	4	11	0.5	50	4	B	○
A-R3-05002	5	13	0.2	50	6	A	○
A-R3-05005	5	13	0.5	50	6	A	○
A-R3-06005	6	16	0.5	50	6	B	○
A-R3-06010	6	16	1	50	6	B	○
A-RS3-08002	8	9	0.2	60	8	B	○
A-R3-08005	8	20	0.5	60	8	B	○
A-R3-08010	8	20	1	60	8	B	○
A-R3-10005	10	25	0.5	75	10	B	○
A-RS3-10005	10	10	0.5	50	10	B	○
A-R3-10020	10	25	2	75	10	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

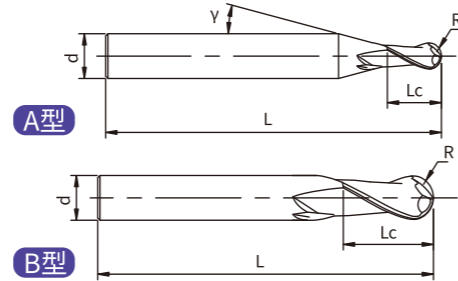
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P149

## A-B2

2刃球头铝合金加工立铣刀

2 flute, ballnose endmill for aluminium alloys  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
A-B2-01002	1	0.5	2	50	4	A	●
A-B2-02004	2	1	4	50	4	A	●
A-B2-02006	2	1	6	50	4	A	○
A-B2-03006	3	1.5	6	50	4	A	●
A-B2-04008	4	2	8	50	4	B	●
A-B2-64009	4	2	9	50	6	A	○
A-B2-06012	6	3	12	50	6	B	●
A-B2-08014	8	4	14	60	8	B	●
A-B2-10018	10	5	18	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R < 3	±0.015
R ≥ 3	±0.02

(mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
							○	◎

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P150

# S系列

不锈钢通用加工立铣刀  
S series endmill for stainless steels  
general machining



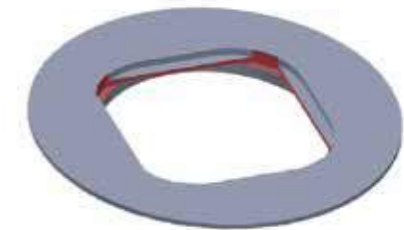
采用超细硬质合金和TiAlN涂层, 耐高温, 耐磨损, 涂层表面光滑, 降低切削阻力  
Use ultra fine carbide and TiAlN coating, good heat resistance and wear resistance, Smooth coating surface reduces cutting force

独特的刃口设计, 有效解决刀具刃口粘屑问题  
Special cutting edge design, effectively solve the issue of sticky chip on cutting edge

全尖角保护设计, 使刀具具有良好的抗崩性能, 满足通用加工需求  
Full angle protection design gives the tool with good anti-breaking performance, which is suitable for general machining

- 刀具型号: S-S2-01504
- 刀具规格: D1.5\*4\*50\*d4
- 加工材料: SUS316L(HB150-200)
- 切削速度: 12000RPM
- 进给速度: 2025mm/min
- 切削方式: 方肩铣、侧铣
- 切削量: 方肩铣 ap=0.6mm, ae=0.3mm  
侧铣 ap=0.3mm, ae=0.03mm
- 冷却方式: 油冷

- Model No:S-S2-01504
- Specification:D1.5\*4\*50\*d4
- Workpiece material:SUS316L(HB150-200)
- Cutting speed:12000RPM
- Feed rate:2025mm/min
- Way of cutting:shoulder milling, side milling
- ap, ae: shoulder milling ap=0.6mm, ae=0.3mm  
side milling ap=0.3mm, ae=0.03mm
- Coolant:oil



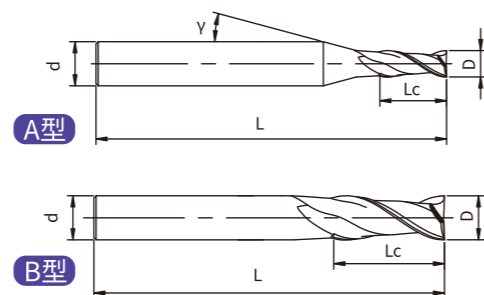
红色为加工区



## S-S2

2刃平头不锈钢通用加工立铣刀

2 flute, square endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-S2-00501	0.5	1	50	4	A	●
S-S2-00802	0.8	2	50	4	A	●
S-S2-01003	1	3	50	4	A	●
S-S2-01504	1.5	4	50	4	A	●
S-S2-02006	2	6	50	4	A	●
S-S2-02508	2.5	8	50	4	A	●
S-S2-03009	3	9	50	4	A	●
S-S2-04011	4	11	50	4	B	●
S-S2-06016	6	16	50	6	B	●
S-S2-08020	8	20	60	8	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

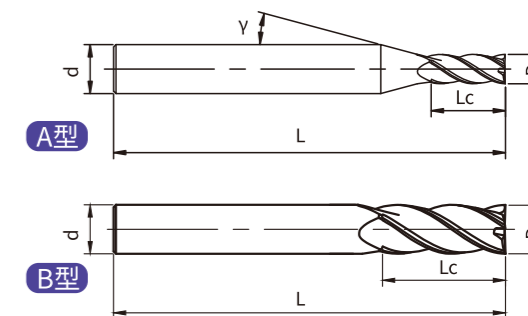
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P151

## S-SS4

4刃短刃平头不锈钢通用加工立铣刀

4 flute, square short flute endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-SS4-02004	2	4	50	4	A	●
S-SS4-03004	3	4	50	4	A	●
S-SS4-04006	4	6	50	4	B	●
S-SS4-05008	5	8	50	6	A	○
S-SS4-06009	6	9	50	6	B	●
S-SS4-08010	8	10	60	8	B	●
S-SS4-10012	10	12	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

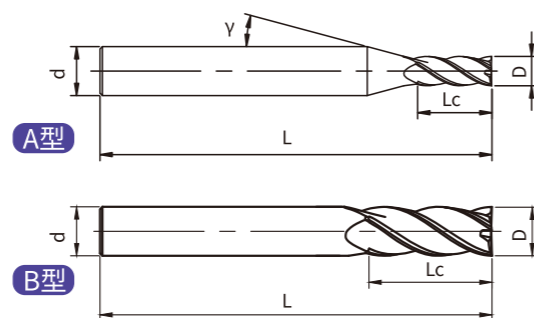
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P153

## S-S4

4刃平头不锈钢通用加工立铣刀

4 flute, square endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-S4-01003	1	3	50	4	A	●
S-S4-01504	1.5	4	50	4	A	●
S-S4-02006	2	6	50	4	A	●
S-S4-02508	2.5	8	50	4	A	●
S-S4-03009	3	9	50	4	A	●
S-S4-03510	3.5	10	50	4	A	●
S-S4-04011	4	11	50	4	B	●
S-S4-64011	4	11	50	6	A	●
S-S4-05013	5	13	50	6	A	●
S-S4-06016	6	16	50	6	B	●
S-S4-08020	8	20	60	8	B	●
S-S4-10025	10	25	75	10	B	●
S-S4-12030	12	30	75	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

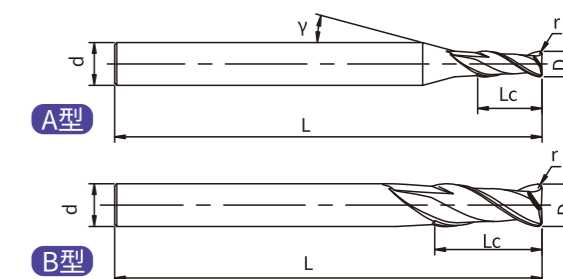
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P153

## S-R2

2刃圆角头不锈钢通用加工立铣刀

2 flute, corner radius endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-R2-03003	3	9	0.3	50	4	A	○
S-R2-03005	3	9	0.5	50	4	A	○
S-R2-04003	4	11	0.3	50	4	B	○
S-R2-64002	4	11	0.2	50	6	A	○
S-R2-64003	4	11	0.3	50	6	A	○
S-R2-64005	4	11	0.5	50	6	A	○
S-R2-05002	5	13	0.2	50	6	A	○
S-R2-05003	5	13	0.3	50	6	A	○
S-R2-05005	5	13	0.5	50	6	A	○
S-R2-06002	6	16	0.2	50	6	B	○
S-R2-06003	6	16	0.3	50	6	B	○
S-R2-06005	6	16	0.5	50	6	B	○
S-R2-08005	8	20	0.5	60	8	B	○
S-R2-08010	8	20	1.0	60	8	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	0 -0.02 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

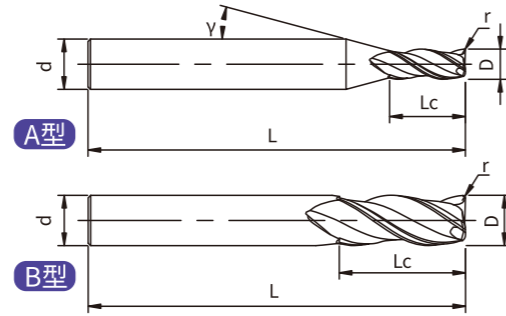
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P151

## S-R3

3刃圆角头不锈钢通用加工立铣刀

3 flute, corner radius endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-R3-02001	2	6	0.1	50	4	A	●
S-R3-02002	2	6	0.2	50	4	A	●
S-R3-04002	4	11	0.2	50	4	B	●
S-R3-64005	4	11	0.5	50	6	A	●
S-R3-06002	6	16	0.2	50	6	B	○
S-R3-06005	6	16	0.5	50	6	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	$\begin{matrix} 0 \\ -0.02 \end{matrix}$ (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

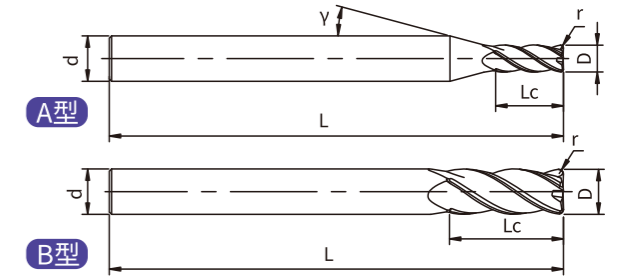
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P152

## S-R4/RS4

4刃短刃圆角头不锈钢通用加工立铣刀

4 flute, corner radius short flute endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-R4-02002	2	6	0.2	50	4	A	●
S-R4-03003	3	9	0.3	50	4	A	○
S-R4-03005	3	9	0.5	50	4	A	○
S-R4-04003	4	11	0.3	50	4	B	○
S-R4-04005	4	11	0.5	50	4	B	○
S-R4-64002	4	11	0.2	50	6	A	●
S-R4-64003	4	11	0.3	50	6	A	○
S-R4-05005	5	13	0.5	50	6	B	○
S-R4-06005	6	16	0.5	50	6	B	●
S-RS4-06005	6	6	0.5	50	6	B	●
S-R4-08002	8	20	0.2	60	8	B	○
S-R4-08005	8	20	0.5	60	8	B	●
S-R4-08010	8	20	1	60	8	B	○
S-R4-10005	10	25	0.5	75	10	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D≤12	$\begin{matrix} 0 \\ -0.02 \end{matrix}$ (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

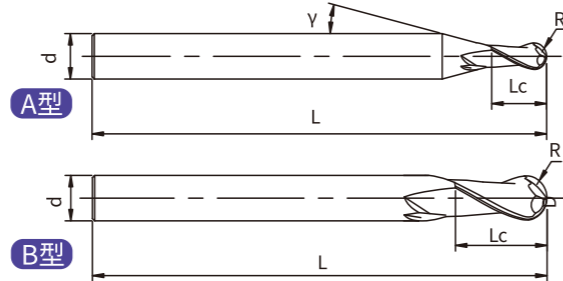
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P153



## S-B2

2刃球头不锈钢通用加工立铣刀  
2 flute, ballnose endmill for stainless steel  
general machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S-B2-01002	1	0.5	2	50	4	A	○
S-B2-01503	1.5	0.75	3	50	4	A	○
S-B2-02004	2	1	4	50	4	A	○
S-B2-03006	3	1.5	6	50	4	A	○
S-B2-63006	3	1.5	6	50	6	A	○
S-B2-04008	4	2	8	50	4	B	○
S-B2-64008	4	2	8	50	6	A	○
S-B2-05010	5	2.5	10	50	6	A	○
S-B2-06012	6	3	12	50	6	B	○
S-B2-08014	8	4	14	60	8	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球头半径R	公差 Tol.
R<3	±0.015
R≥3	±0.02 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P154

# S10系列

## 不锈钢通用加工立铣刀

S10 series end mill for stainless steel general machining

大前角设计, 切削刃锋利, 保证精加工良好的表面质量

Use high pure diamond coating, perfect adhesiveness between substrate and coating; Good wear resistance enable longer life during machining

双刃带设计, 圆弧刃带利于侧刃更加锋利, 特殊槽型设计, 保证切削刃的刚性

Double edge belt design, arc edge belt is conducive to sharper side edges, and special groove design ensures the rigidity of cutting edges

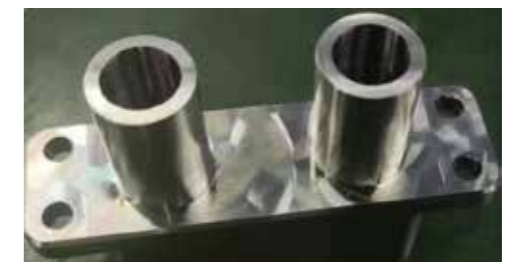
全新自主研发专用刀具基体, 保证开粗抗崩性能

New independent research and development of professional tool matrix to ensure the anti collapse performance of rough cutting

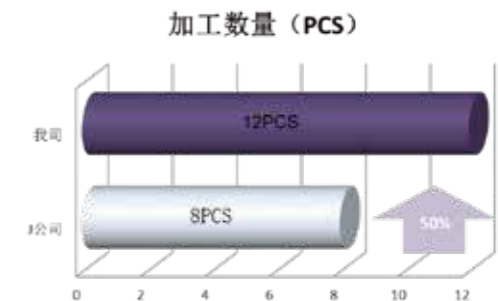
采用巴尔查斯AlCr系涂层, 抗高温氧化性能佳, 大大提升刀具耐磨性

Balchas AlCr series coating is adopted, which has good high-temperature oxidation resistance and greatly improves tool wear resistance

- 刀具型号: S10-S4-10025
- 刀具规格: D10\*25\*75\*d10
- 加工材料: S316L
- 加工参数: S=3.2krpm、F=450mm/min  
ap=15mm, ae=0.9mm
- 切削方式: 侧铣粗加工
- 冷却方式: 乳化液



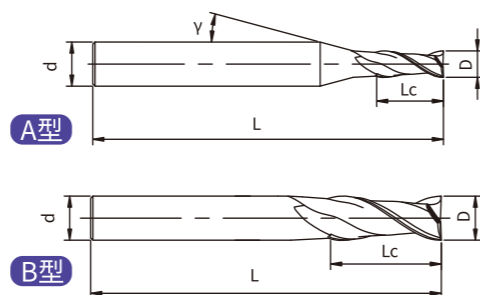
- Model No:S10-S4-10025
- Specification:D10\*25\*75\*d10
- Workpiece material:S316L
- Processing parameters:S=3.2krpm、F=450mm/min  
ap=15mm, ae=0.9mm
- Way of cutting: Side milling rough machining
- Coolant:Emulsion



## S10-S2

2刃平头不锈钢通用立铣刀

2 flute, square endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S10-S2-00501	0.5	1	50	4	A	●
S10-S2-00802	0.8	2	50	4	A	●
S10-S2-01003	1	3	50	4	A	●
S10-S2-01504	1.5	4	50	4	A	●
S10-S2-02006	2	6	50	4	A	●
S10-S2-02508	2.5	8	50	4	A	●
S10-S2-03009	3	9	50	4	A	●
S10-S2-04011	4	11	50	4	B	●
S10-S2-06016	6	16	50	6	B	●
S10-S2-08020	8	20	60	8	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

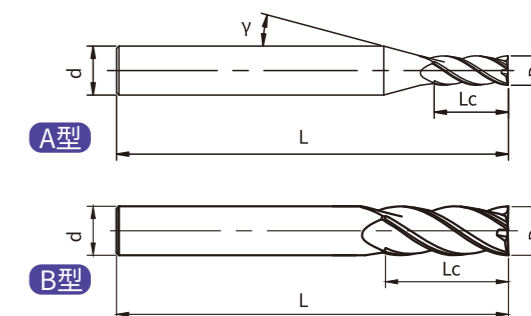
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P155

## S10-SS4

4刃短刃平头不锈钢通用加工立铣刀

4 flute, square short flute endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S10-SS4-02004	2	4	50	4	A	●
S10-SS4-03004	3	4	50	4	A	●
S10-SS4-04006	4	6	50	4	B	●
S10-SS4-05008	5	8	50	6	A	○
S10-SS4-06009	6	9	50	6	B	●
S10-SS4-08010	8	10	60	8	B	●
S10-SS4-10012	10	12	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

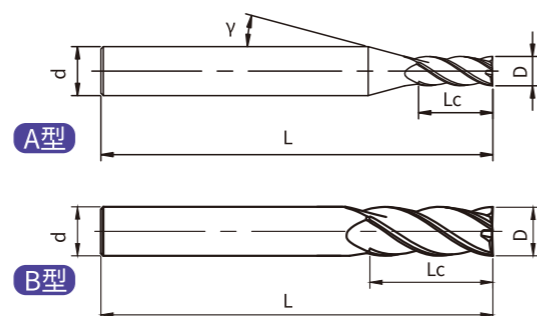
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P155

## S10-S4

4刃平头不锈钢通用加工立铣刀

4 flute, square endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S10-S4-01003	1	3	50	4	A	●
S10-S4-01504	1.5	4	50	4	A	●
S10-S4-02006	2	6	50	4	A	●
S10-S4-02508	2.5	8	50	4	A	●
S10-S4-03009	3	9	50	4	A	●
S10-S4-03510	3.5	10	50	4	A	●
S10-S4-04011	4	11	50	4	B	●
S10-S4-64011	4	11	50	6	A	●
S10-S4-05013	5	13	50	6	A	●
S10-S4-06016	6	16	50	6	B	●
S10-S4-08020	8	20	60	8	B	●
S10-S4-10025	10	25	75	10	B	●
S10-S4-12030	12	30	75	12	B	●
S10-S4-14034	14	34	100	14	B	●
S10-S4-16036	16	36	100	16	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

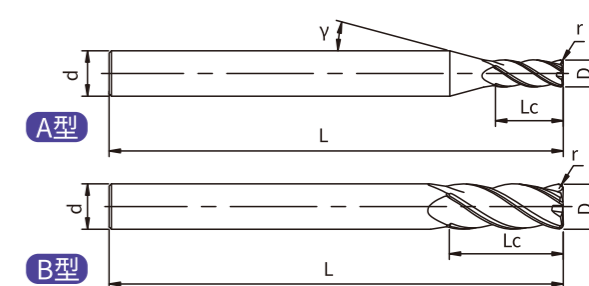
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P155

## S10-R4/RS4

4刃短刃圆角头不锈钢通用加工立铣刀

4 flute, corner radius short flute endmill for stainless steel general machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	圆角(r) Corner	全长(L) Overall Length	柄径(d) Shank Dia.	类型 Type	库存 Stock
S10-R4-02002	2	6	0.2	50	4	A	●
S10-R4-03003	3	9	0.3	50	4	A	○
S10-R4-03005	3	9	0.5	50	4	A	●
S10-R4-04003	4	11	0.3	50	4	B	○
S10-R4-04005	4	11	0.5	50	4	B	●
S10-R4-64002	4	11	0.2	50	6	A	○
S10-R4-64003	4	11	0.3	50	6	A	○
S10-R4-05005	5	13	0.5	50	6	B	○
S10-R4-06005	6	16	0.5	50	6	B	●
S10-RS4-06005	6	6	0.5	50	6	B	●
S10-R4-08002	8	20	0.2	60	8	B	○
S10-R4-08005	8	20	0.5	60	8	B	●
S10-R4-08010	8	20	1	60	8	B	○
S10-R4-10005	10	25	0.5	75	10	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
D ≤ 12	0 -0.02
D > 12	0 -0.03 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	铝合金 Aluminium alloy
○					◎			

◎ 最适合 Most Suitable ○ 适合 Suitable

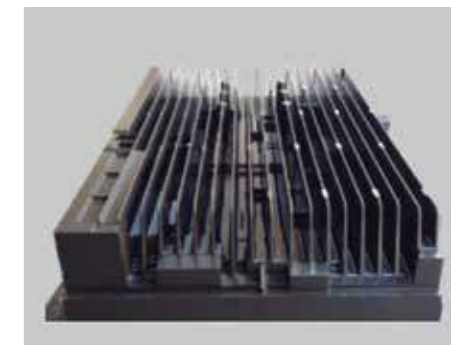
推荐切削参数P155

# G系列

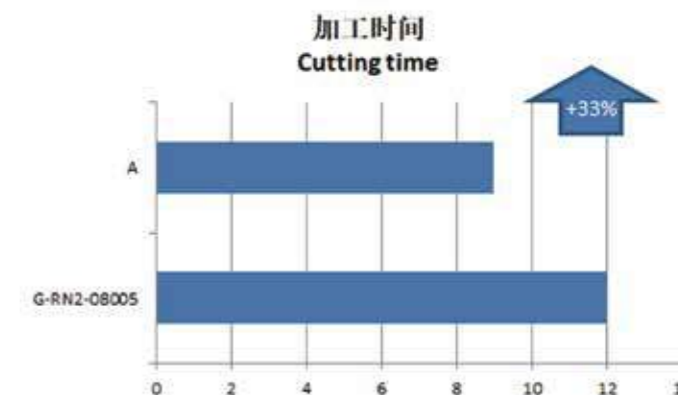
## 金刚石涂层立铣刀 G series endmill for graphite machining



- 刀具型号: G-RN2-08005
- 刀具规格: D8\*R0.5\*12\*30\*100\*d8
- 加工材料: 石墨
- 切削速度: 10000RPM
- 进给速度: 3000mm/min
- 切削方式: 侧铣
- 切削量:  $a_p=0.15\text{mm}$ ,  $a_e=0.2\text{mm}$
- 冷却方式: 气冷

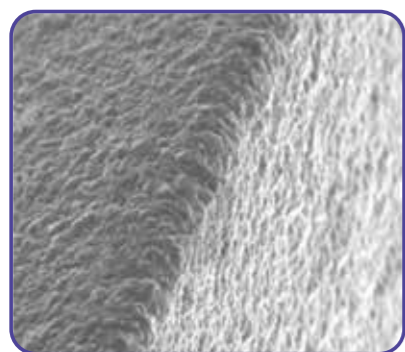


- Model No:G-RN2-08005
- Specification:D8\*R0.5\*12\*30\*100\*d8
- Workpiece material:Graphite
- Cutting speed:10000RPM
- Feed rate:3000mm/min
- Way of cutting: side milling
- $a_p$ ,  $a_e$ :  $a_p=0.15\text{mm}$ ,  $a_e=0.2\text{mm}$
- Coolant:Gas

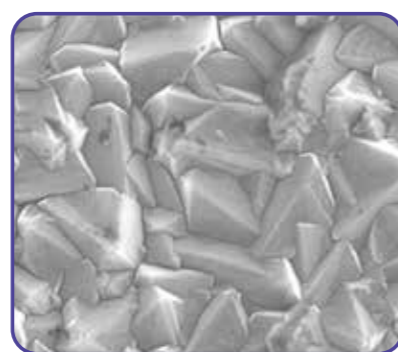


采用高纯度金刚石涂层, 基体与涂层粘合力强, 具有良好的耐磨性, 能够实现刀具长寿命加工  
Use high pure diamond coating, perfect adhesiveness between substrate and coating; Good wear resistance enable longer life during machining

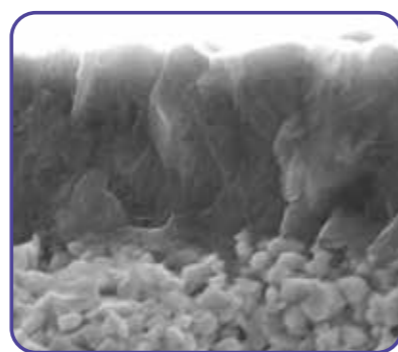
适用于石墨电极、石墨模具等石墨工件的精加工、半精加工, 推荐使用气冷  
Suitable for finishing & semi-finishing of graphite workpiece such as graphite electrode, graphite mould, etc., recommending gas coolant



金刚石涂层刀具刃口形貌  
Cutting edge picture of diamond coating tool



金刚石涂层刀具表层形貌图  
Surface picture of diamond coating tool

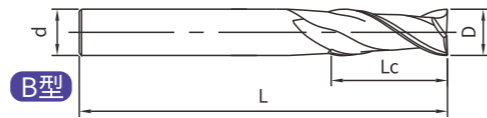
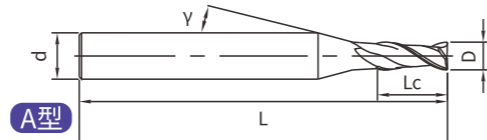


金刚石涂层刀具断面图  
Cross section picture of diamond coating tool

## G-S2

石墨加工2刃平头立铣刀

2 flute, square endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-S2-004008	0.4	0.8	50	4	A	●
G-S2-00802	0.8	2	50	4	A	●
G-S2-01003	1	3	60	4	A	●
G-S2-01506	1.5	6	60	4	A	●
G-S2-02006	2	6	60	4	A	●
G-S2-03009	3	9	60	4	A	●
G-S2-63009	3	9	60	6	A	○
G-S2-04012	4	12	60	4	B	●
G-S2-64012	4	12	60	6	A	○
G-S2-05015	5	15	60	6	A	○
G-S2-06018	6	18	60	6	B	●
G-S2-08024	8	24	75	8	B	●
G-S2-10025	10	25	80	10	B	○
G-S2-12025	12	25	80	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
0.2 ≤ D < 6	0 -0.015
6 ≤ D ≤ 12	0 -0.025 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

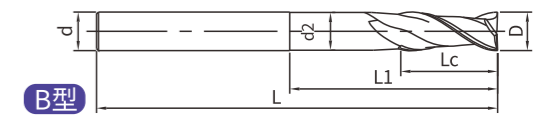
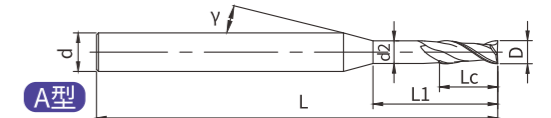
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P156

## G-SN2

石墨加工2刃长颈立铣刀

2 flute, long neck endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	颈长(L1) Under Neck Length	颈径(d2) Neck Dia.	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-SN2-01005	1	3	5	0.95	60	4	A	●
G-SN2-01510	1.5	6	10	1.44	60	4	A	●
G-SN2-02015	2	8	15	1.92	60	4	A	●
G-SN2-02020	2	8	20	1.92	60	4	A	○
G-SN2-03015	3	12	15	2.9	60	4	A	●
G-SN2-04020	4	16	20	3.9	60	4	B	○
G-SN2-04025	4	16	25	3.9	75	4	B	●
G-SN2-04040	4	16	40	3.9	75	4	B	○
G-SN2-05030	5	20	30	4.9	75	6	A	●
G-SN2-06030	6	24	30	5.9	75	6	B	●
G-SN2-08040	8	24	40	7.9	150	8	B	●
G-SN2-10040	10	25	40	9.8	150	10	B	○
G-SN2-12040	12	25	40	11.8	150	12	B	●
G-SN2-12060	12	25	60	11.8	150	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
0.2 ≤ D < 6	0 -0.015
6 ≤ D ≤ 12	0 -0.025 (mm)

工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

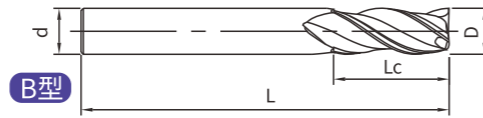
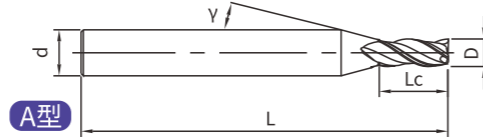
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P156

## G-S3

石墨加工3刃平头立铣刀

3 flute, square endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-S3-01003	1	3	60	4	A	●
G-S3-01506	1.5	6	60	4	A	●
G-S3-02006	2	6	60	4	A	●
G-S3-03009	3	9	60	4	A	●
G-S3-63009	3	9	60	6	A	○
G-S3-04012	4	12	60	4	B	●
G-S3-64012	4	12	60	6	A	○
G-S3-06018	6	18	60	6	B	●
G-S3-08024	8	24	75	8	B	●
G-S3-10025	10	25	80	10	B	●
G-S3-12025	12	25	80	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
0.2 ≤ D < 6	0 -0.015
6 ≤ D ≤ 12	0 -0.025 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

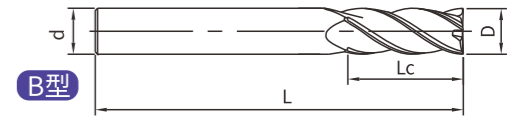
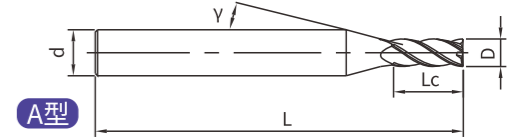
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P157

## G-S4

石墨加工4刃平头立铣刀

4 flute, square endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-S4-02006	2	6	60	4	A	●
G-S4-03009	3	9	60	4	A	●
G-S4-63009	3	9	60	6	A	○
G-S4-04012	4	12	60	4	B	●
G-S4-64012	4	12	60	6	A	○
G-S4-05015	5	15	60	6	A	●
G-S4-06018	6	18	60	6	B	●
G-S4-08024	8	24	75	8	B	●
G-S4-10025	10	25	80	10	B	●
G-S4-12025	12	25	80	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.
0.2 ≤ D < 6	0 -0.015
6 ≤ D ≤ 12	0 -0.025 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

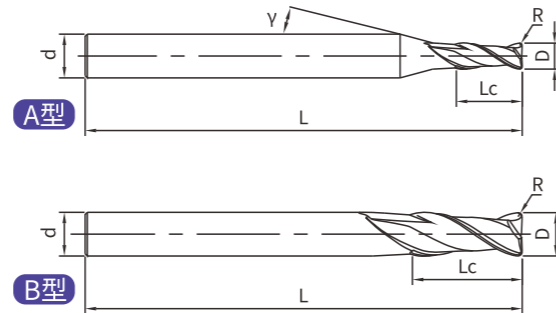
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P158

## G-R2

石墨加工2刃圆角头立铣刀

2 flute, corner radius endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	圆角(R) Corner Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-R2-02002	2	0.2	3.5	60	4	A	●
G-R2-03002	3	0.2	4	60	4	A	●
G-R2-04002	4	0.2	5	60	4	B	●
G-R2-04005	4	0.5	5	60	4	B	●
G-R2-05005	5	0.5	6	75	6	A	●
G-R2-06003	6	0.3	9	75	6	B	●
G-R2-06005	6	0.5	9	75	6	B	●
G-R2-08005	8	0.5	12	75	8	B	●
G-R2-08010	8	1	12	75	8	B	○
G-R2-10005	10	0.5	15	100	10	B	●
G-R2-10010	10	1	15	100	10	B	●
G-R2-10015	10	1.5	15	100	10	B	○
G-R2-12005	12	0.5	18	100	12	B	○
G-R2-12010	12	1	18	100	12	B	○
G-R2-12015	12	1.5	18	100	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

圆角半径R	公差 Tol.
R	±0.01 (mm)

外径D	公差 Tol.
0.2 ≤ D < 6	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
6 ≤ D ≤ 12	$\begin{matrix} 0 \\ -0.025 \end{matrix}$ (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

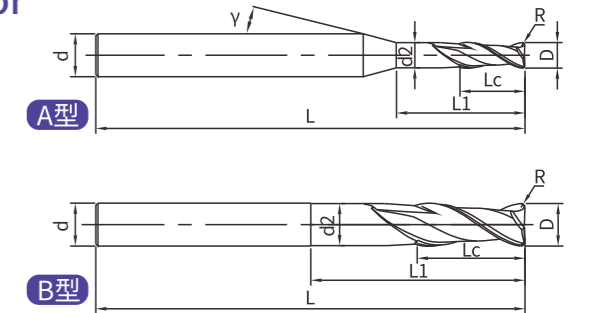
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P156

## G-RN2

石墨加工2刃长颈圆角头立铣刀

2 flute, corner radius long neck endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	圆角(R) Corner Radius	刃长(Lc) Flute Length	颈长(L1) Under Neck Length	颈径(d2) Neck Dia.	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-RN2-02002	2	0.2	3.5	6	1.92	60	4	A	●
G-RN2-02003	2	0.3	3.5	6	1.92	60	4	A	○
G-RN2-02005	2	0.5	3.5	6	1.92	60	4	A	○
G-RN2-03002	3	0.2	4	10	2.9	60	4	A	●
G-RN2-03003	3	0.3	4	10	2.9	60	4	A	○
G-RN2-03005	3	0.5	4	10	2.9	60	4	A	○
G-RN2-04002	4	0.2	5	15	3.9	75	4	B	●
G-RN2-04005	4	0.5	5	15	3.9	75	4	B	●
G-RN2-04010	4	1	5	15	3.9	75	4	B	○
G-RN2-05002	5	0.2	6	15	4.9	100	6	A	○
G-RN2-05005	5	0.5	6	15	4.9	100	6	A	○
G-RN2-06002	6	0.2	7	20	5.9	100	6	B	●
G-RN2-06005	6	0.5	7	20	5.9	100	6	B	●
G-RN2-06010	6	1	7	20	5.9	100	6	B	○
G-RN2-08005	8	0.5	12	30	7.9	100	8	B	●
G-RN2-10005	10	0.5	15	35	9.8	100	10	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

圆角半径R	公差 Tol.
R	±0.01 (mm)

外径D	公差 Tol.
0.2 ≤ D < 6	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
6 ≤ D ≤ 12	$\begin{matrix} 0 \\ -0.025 \end{matrix}$ (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

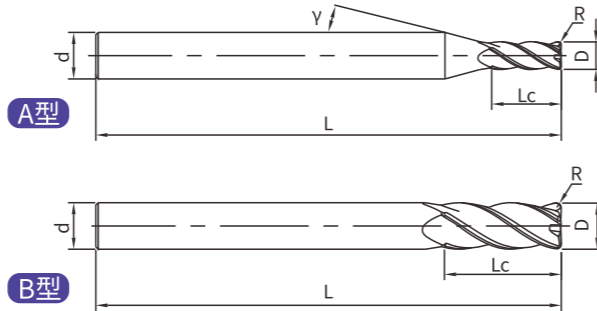
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P156

## G-R4

石墨加工4刃圆角头立铣刀

4 flute, corner radius endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	圆角(R) Corner Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-R4-02002	2	0.2	3.5	60	4	A	●
G-R4-03002	3	0.2	4	60	4	A	○
G-R4-04002	4	0.2	6	60	4	B	●
G-R4-04005	4	0.5	6	60	4	B	●
G-R4-06003	6	0.3	9	75	6	B	○
G-R4-06005	6	0.5	9	75	6	B	●
G-R4-08005	8	0.5	12	75	8	B	●
G-R4-08010	8	1	12	75	8	B	○
G-R4-10005	10	0.5	15	100	10	B	●
G-R4-10010	10	1	15	100	10	B	○
G-R4-12005	12	0.5	18	100	12	B	●
G-R4-12010	12	1	18	100	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

圆角半径R	公差 Tol.	外径D	公差 Tol.
R	±0.01 (mm)	0.2 ≤ D < 6	0 -0.015
		6 ≤ D ≤ 12	0 -0.025 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

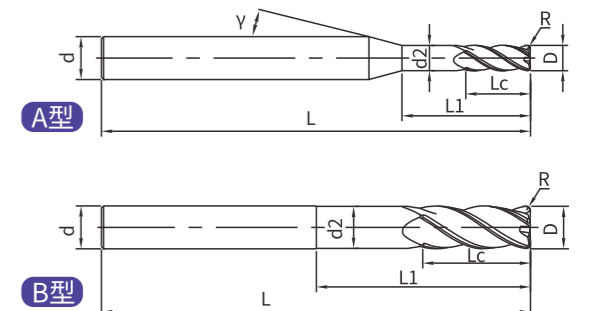
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P158

## G-RN4

石墨加工4刃长颈圆角头立铣刀

4 flute, corner radius long neck endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	圆角(R) Corner Radius	刃长(Lc) Flute Length	颈长(L1) Under Neck Length	颈径(d2) Neck Dia.	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-RN4-020015	2	0.15	3.5	6	1.92	60	4	A	○
G-RN4-02002	2	0.2	3.5	6	1.92	60	4	A	●
G-RN4-03002	3	0.2	4	10	2.9	60	4	A	●
G-RN4-03003	3	0.3	4	20	2.9	60	4	A	○
G-RN4-04002	4	0.2	6	20	3.9	75	4	B	●
G-RN4-04005	4	0.5	6	20	3.9	75	4	B	●
G-RN4-04010	4	1	6	20	3.9	75	4	B	○
G-RN4-06005	6	0.5	9	25	5.9	100	6	B	●
G-RN4-06010	6	1	9	25	5.9	100	6	B	○
G-RN4-06015	6	1.5	9	25	5.9	100	6	B	○
G-RN4-08005	8	0.5	12	30	7.9	100	8	B	●
G-RN4-08010	8	1	12	30	7.9	100	8	B	○
G-RN4-08020	8	2	12	30	7.9	100	8	B	○
G-RN4-10005	10	0.5	15	35	9.8	100	10	B	●
G-RN4-10010	10	1	15	35	9.8	100	10	B	○
G-RN4-12005	12	0.5	18	40	11.8	100	12	B	●
G-RN4-12010	12	1	18	40	11.8	100	12	B	○

● 标准库存 Stock ○ 需预定 Available Upon Order

圆角半径R	公差 Tol.	外径D	公差 Tol.
R	±0.01 (mm)	0.2 ≤ D < 6	0 -0.015
		6 ≤ D ≤ 12	0 -0.025 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

◎ 最适合 Most Suitable ○ 适合 Suitable

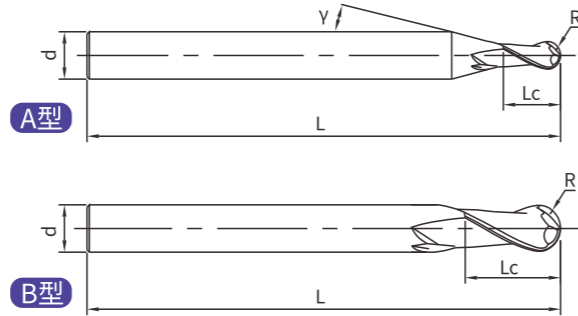
推荐切削参数P158



## G-B2

石墨加工2刃球头立铣刀

2 flute, ball nose endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	刃长(Lc) Flute Length	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-B2-00502	0.5	0.25	2	50	4	A	●
G-B2-00602	0.6	0.3	2	50	4	A	●
G-B2-00803	0.8	0.4	3	50	4	A	●
G-B2-01003	1	0.5	3	60	4	A	●
G-B2-01505	1.5	0.75	5	60	4	A	●
G-B2-02006	2	1	6	60	4	A	●
G-B2-03008	3	1.5	8	60	4	A	●
G-B2-04016	4	2	16	60	4	B	●
G-B2-06016	6	3	16	60	6	B	●
G-B2-08020	8	4	20	80	8	B	●
G-B2-10025	10	5	25	100	10	B	●
G-B2-12025	12	6	25	100	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R<3	0 -0.015
3≤R≤6	0 -0.025 (mm)

### 工件材料 Workpiece Materials

碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

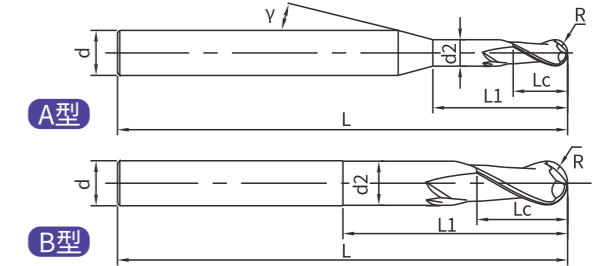
◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P158

## G-BN2

石墨加工2刃长颈球头立铣刀

2 flute, ball nose long neck endmill for graphite machining



订货号 Ordering Code	外径(D) Mill Dia.	球半径(R) Ball Radius	颈长(L1) Under Neck Length	刃长(Lc) Flute Length	颈径(d2) Neck Dia.	全长(L) Overall Length	柄径(d) Shank Dia.	型号 Type	库存 Stock
G-BN2-00505	0.5	0.25	5	2	0.46	50	4	A	●
G-BN2-00606	0.6	0.3	6	2	0.55	50	4	A	●
G-BN2-00610	0.6	0.3	10	2	0.55	50	4	A	○
G-BN2-00808	0.8	0.4	8	3	0.75	50	4	A	●
G-BN2-00815	0.8	0.4	15	3	0.75	50	4	A	○
G-BN2-01008	1	0.5	8	3	0.95	60	4	A	○
G-BN2-01010	1	0.5	10	3	0.95	60	4	A	●
G-BN2-01508	1.5	0.75	8	5	1.44	75	4	A	●
G-BN2-01515	1.5	0.75	15	5	1.44	75	4	A	●
G-BN2-01525	1.5	0.75	25	5	1.44	75	4	A	○
G-BN2-02010	2	1	10	6	1.92	75	4	A	○
G-BN2-02015	2	1	15	6	1.92	75	4	A	●
G-BN2-02025	2	1	25	6	1.92	75	4	A	○
G-BN2-03015	3	1.5	15	8	2.9	75	4	A	●
G-BN2-03025	3	1.5	25	8	2.9	75	4	A	○
G-BN2-04025	4	2	25	12	3.9	75	4	B	●
G-BN2-04040	4	2	40	12	3.9	100	4	B	○
G-BN2-06025	6	3	25	18	5.9	75	6	B	●
G-BN2-06040	6	3	40	18	5.9	100	6	B	○
G-BN2-08030	8	4	30	20	7.9	100	8	B	●
G-BN2-08040	8	4	40	20	7.9	100	8	B	○
G-BN2-10035	10	5	35	25	9.8	100	10	B	●
G-BN2-10050	10	5	50	25	9.8	100	10	B	○
G-BN2-12050	12	6	50	25	11.8	100	12	B	●

● 标准库存 Stock ○ 需预定 Available Upon Order

球半径R	公差 Tol.
R<3	0 -0.015
3≤R≤6	0 -0.025 (mm)

### 工件材料 Workpiece Materials

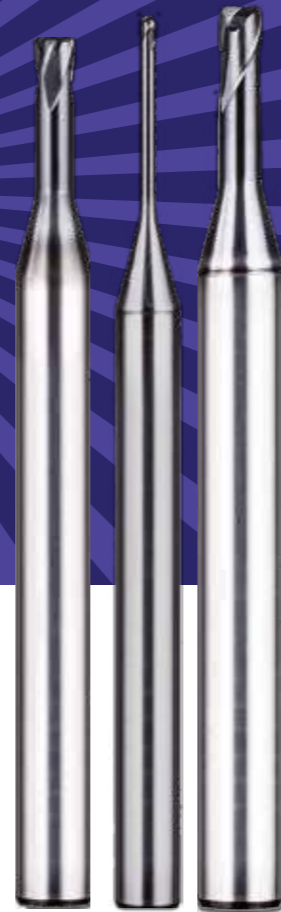
碳素钢 合金钢 Carbon steels Alloy steels	预硬化钢 Pre-hardened steels <45HRC	高硬材料 Hardened steels 45HRC-55HRC	高硬材料 Hardened steels 55HRC-65HRC	高硬材料 Hardened steels >65HRC	不锈钢 Stainless steels	钛合金 耐热合金 Ti alloy Heat-resistant alloy	铜合金 Copper alloy	石墨 Graphite
							○	◎

◎ 最适合 Most Suitable ○ 适合 Suitable

推荐切削参数P158

# UM系列

## 小径深加工立铣刀 UM series endmill for small diameter deep machining



特殊的避空设计,耐折损性高  
Special reduced neck design gives high breakage resistance

适用于碳钢、合金钢、淬硬钢、铜、铝合金 (<55HRC) 的深沟槽微加工  
Suitable for small diameter & deep machining of carbon steel, alloy steel, hardened steel, copper, aluminum alloy (<55HRC)

采用高性能超细晶基体配合高性能AlCrSiN涂层,耐高温,耐磨损,在重载粗加工况也能轻松驾驭  
Use high performance ultra fine substrate, together with high performance AlCrSiN coating, good heat resistance and wear resistance. Also suitable for heavy roughing

高的刃径精度 Flute diameter tolerance	0.1≤D≤0.5: $\begin{matrix} 0 \\ -0.007 \end{matrix}$ 0.6≤D≤0.9: $\begin{matrix} 0 \\ -0.010 \end{matrix}$ 1.0≤D≤6.0: $\begin{matrix} 0 \\ -0.015 \end{matrix}$
高的R弧轮廓精度 R profile tolerance	R±0.005
高的球头轮廓精度 Ball nose profile tolerance	R≤0.25, R±0.003 R>0.25, R±0.005
高的刀柄外径精度 Shank diameter tolerance	h5

- 刀具型号: UM-BN2-006040
- 刀具规格: R0.3\*0.48\*4\*50\*d4
- 加工材料: 铜钨合金 (25~30HRC)
- 切削速度: 30000RPM
- 进给速度: 500mm/min
- 切削方式: 仿形精加工
- 切削量: ap=0.01mm, ae=0.02mm
- 冷却方式: 油雾冷却

- Model No:UM-BN2-006040
- Specification:R0.3\*0.48\*4\*50\*d4
- Workpiece material:Coper tungsten alloy (25~30HRC)
- Cutting speed:30000RPM
- Feed rate:500mm/min
- Way of cutting:profile finish milling
- ap, ae:ap=0.01mm, ae=0.02mm
- Coolant:Oil mist

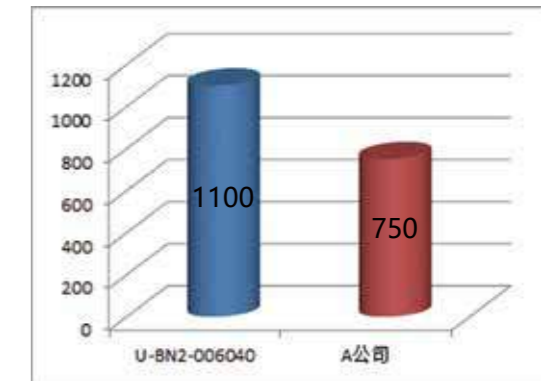


UM-BN2-006040

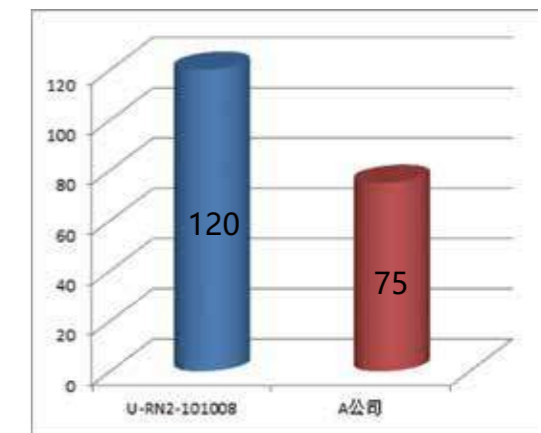


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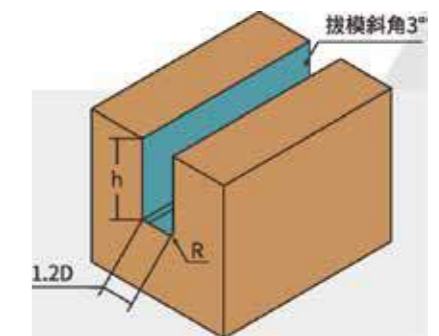
加工时间 (min)  
Processing time



加工距离 (m)  
Cutting length

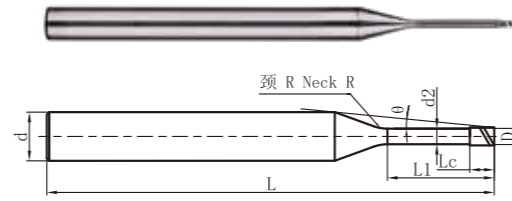


- 刀具型号: UM-RN2-101008
- 刀具规格: D1\*R0.1\*0.8\*10\*50\*d4
- 加工材料: NAK80 (42HRC)
- 切削速度: 26438RPM
- 进给速度: 634mm/min
- 切削方式: 等高线顺铣
- 切削量: ap=0.016mm
- 冷却方式: 气冷
- Model No:UM-RN2-101008
- Specification:D1\*R0.1\*0.8\*10\*50\*d4
- Workpiece material:NAK80 (42HRC)
- Cutting speed:26438RPM
- Feed rate:634mm/min
- Way of cutting: contour milling
- ap, ae:ap=0.016mm
- Coolant:air coolant



# UM-SN2

小径深加工2刃平头立铣刀  
2 flute, square endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
									0.5°	1°	1.5°	2°	3°	
UM-SN2-01002	0.1	0.3	0.15	0.08	50	4	1	14.39	0.31	0.33	0.35	0.37	0.40	●
UM-SN2-01005		0.5						14.03	0.52	0.55	0.58	0.60	0.65	●
UM-SN2-01010		1						13.22	1.05	1.09	1.13	1.18	1.27	●
UM-SN2-02005	0.2	0.5	0.3	0.17	50	4	1	14.03	0.52	0.54	0.57	0.59	0.64	●
UM-SN2-02010		1						13.20	1.04	1.08	1.12	1.16	1.26	●
UM-SN2-02015		1.5						12.45	1.56	1.62	1.67	1.74	1.88	●
UM-SN2-02020	0.3	2	0.45	0.27	50	4	2	11.79	2.08	2.15	2.23	2.31	2.50	●
UM-SN2-02030		3						10.65	3.11	3.22	3.34	3.46	3.74	●
UM-SN2-03010		1						13.06	1.06	1.12	1.18	1.23	1.33	●
UM-SN2-03015	0.4	1.5	0.6	0.37	50	4	2	12.31	1.59	1.67	1.74	1.81	1.95	●
UM-SN2-03020		2						11.65	2.12	2.21	2.29	2.38	2.57	●
UM-SN2-03025		2.5						11.05	2.64	2.75	2.85	2.96	3.20	●
UM-SN2-03030	0.5	3	0.75	0.47	50	4	2	10.51	3.16	3.28	3.40	3.53	3.82	●
UM-SN2-04010		1						13.01	1.06	1.12	1.18	1.23	1.33	●
UM-SN2-04015		1.5						12.25	1.59	1.67	1.74	1.81	1.95	●
UM-SN2-04020	0.6	2	0.9	0.57	50	4	4	11.57	2.12	2.21	2.29	2.38	2.57	●
UM-SN2-04025		2.5						10.97	2.64	2.75	2.85	2.96	3.20	●
UM-SN2-04030		3						10.42	3.16	3.28	3.40	3.53	3.82	●
UM-SN2-04035	0.7	3.5	1.05	0.65	50	4	2	9.92	3.68	3.82	3.96	4.11	4.44	●
UM-SN2-04040		4						9.47	4.20	4.35	4.51	4.68	5.06	●
UM-SN2-04050		5						8.68	5.24	5.42	5.62	5.83	6.30	●
UM-SN2-04060	0.8	6	1.2	0.76	50	4	4	8.01	6.27	6.49	6.73	6.98	7.55	●
UM-SN2-04080		8						6.94	8.34	8.63	8.94	9.28	10.03	●
UM-SN2-04100		10						6.12	10.41	10.77	11.16	11.58	12.52	●
UM-SN2-05010	0.9	1	1.35	0.86	50	4	4	12.96	1.06	1.12	1.18	1.23	1.33	●
UM-SN2-05015		1.5						12.19	1.59	1.67	1.74	1.81	1.95	●
UM-SN2-05020		2						11.50	2.12	2.21	2.29	2.38	2.57	●
UM-SN2-05025	1.0	2.5	1.5	1.03	50	4	2	10.88	2.64	2.75	2.85	2.96	3.20	●
UM-SN2-05030		3						10.33	3.16	3.28	3.40	3.53	3.82	●
UM-SN2-05040		4						9.37	4.20	4.35	4.51	4.68	5.06	●
UM-SN2-05050	1.2	5	1.8	1.15	50	4	4	8.58	5.24	5.42	5.62	5.83	6.30	●
UM-SN2-05060		6						7.91	6.27	6.49	6.73	6.98	7.55	●
UM-SN2-05080		8						6.84	8.34	8.63	8.94	9.28	10.03	●
UM-SN2-05100	1.4	10	2.1	1.34	50	4	4	6.02	10.41	10.77	11.16	11.58	12.52	●
UM-SN2-06020		2						11.21	2.17	2.31	2.44	2.56	2.78	●
UM-SN2-06030		3						10.07	3.24	3.42	3.58	3.72	4.02	●
UM-SN2-06040	1.5	4	2.25	1.44	50	4	4	9.13	4.30	4.51	4.69	4.87	5.26	●
UM-SN2-06050		5						8.36	5.35	5.59	5.80	6.02	6.50	●
UM-SN2-06060		6						7.70	6.40	6.67	6.91	7.17	7.75	●
UM-SN2-06070	1.6	7	2.5	1.64	50	4	4	7.14	7.44	7.74	8.02	8.32	8.99	●
UM-SN2-06080		8						6.66	8.49	8.81	9.12	9.47	10.23	●
UM-SN2-06090		9						6.23	9.53	9.88	10.23	10.62	11.48	●
UM-SN2-06100	10	5.86	10.57	10.94	11.34	11.77	12.72	●						

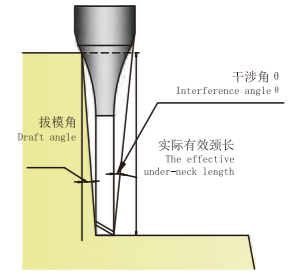
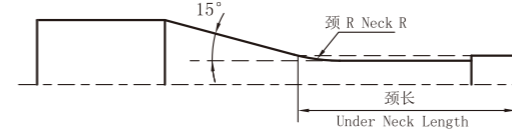
● 标准库存 Stock ○ 需预定 Available Upon Order 推荐切削参数P159/P163

外径D	公差 Tol.	外径D	公差 Tol.	外径D	公差 Tol.
0.1≤D≤0.5	0 -0.007	0.6≤D≤0.9	0 -0.01	1.0≤D≤6.0	0 -0.015

(mm)

# UM-SN2

小径深加工2刃平头立铣刀  
2 flute, square endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
									0.5°	1°	1.5°	2°	3°	
UM-SN2-07020	0.7	2	1.05	0.67	50	4	4	11.13	2.17	2.31	2.44	2.56	2.78	●
UM-SN2-07040		4						9.02	4.30	4.51	4.69	4.87	5.26	●
UM-SN2-07060		6						7.59	6.40	6.67	6.91	7.17	7.75	●
UM-SN2-07080	0.8	8	1.2	0.76	50	4	4	6.54	8.49	8.81	9.12	9.47	10.23	●
UM-SN2-07100		10						5.75	10.57	10.94	11.34	11.77	12.72	●
UM-SN2-08040		4						8.94	4.27	4.48	4.65	4.83	5.22	●
UM-SN2-08060	0.9	6	1.35	0.86	50	4	4	7.49	6.37	6.63	6.87	7.13	7.70	●
UM-SN2-08080		8						6.45	8.46	8.77	9.09	9.43	10.19	●
UM-SN2-08100		10						5.65	10.54	10.91	11.30	11.73	12.68	●
UM-SN2-08120	1.0	12	1.5	0.96	50	4	4	5.04	12.61	13.05	13.52	14.03	15.16	●
UM-SN2-09060		6						7.37	6.37	6.63	6.87	7.13	7.70	●
UM-SN2-09080		8						6.33	8.46	8.77	9.09	9.43	10.19	●
UM-SN2-09100	1.2	10	1.8	1.15	50	4	4	5.54	10.54	10.91	11.30	11.73	12.68	●
UM-SN2-09120		12						4.93	12.61	13.05	13.52	14.03	15.16	●
UM-SN2-10020		2						10.89	2.15	2.29	2.41	2.52	2.73	●
UM-SN2-10030	1.4	3	2.1	1.34	50	4	4	9.68	3.21	3.39	3.54	3.68	3.98	●
UM-SN2-10040		4						8.71	4.27	4.48	4.65	4.83	5.22	●
UM-SN2-10050		5						7.91	5.32	5.56	5.76	5.98	6.46	●
UM-SN2-10060	1.5	6	2.25	1.44	50	4	4	7.25	6.37	6.63	6.87	7.13	7.70	●
UM-SN2-10070		7						6.69	7.41	7.7	7.98	8.28	8.95	●
UM-SN2-10080		8						6.21	8.46	8.77	9.09	9.43	10.19	●
UM-SN2-10090	1.6	9	2.5	1.64	50	4	4	5.79	9.50	9.84	10.19	10.58	11.43	●
UM-SN2-10100		10						5.43	10.54	10.91	11.30	11.73	12.68	●
UM-SN2-10120		12						4.82	12.61	13.05	13.52	14.03	15.16	●
UM-SN2-10140	1.8	14	2.5	1.64	55	4	4	4.34	14.67	15.19	15.73	16.32	17.65	●
UM-SN2-10160		16						3.94	16.74	17.33	17.95	18.62	20.14	●
UM-SN2-10200		20						3.33	20.88	21.6	22.38	23.22	25.11	●
UM-SN2-10250	2.0	25	2.5	1.64	65	4	4	2.79	26.05	26.95	27.93	28.97	-	●
UM-SN2-12060		6						7.01	6.35	6.6	6.84	7.09	7.67	●
UM-SN2-12080		8						5.97	8.43	8.74	9.05	9.39	10.16	●
UM-SN2-12100	1.2	10	1.8	1.15	50	4	4	5.20	10.51	10.88	11.27	11.69	12.64	●
UM-SN2-12120		12						4.61	12.58	13.02	13.49	13.99	15.13	●
UM-SN2-12160		16						3.75	16.71	17.3	17.92	18.59	20.10	●
UM-SN2-14060	1.4	6	2.1	1.34	50	4	4	6.74	6.33	6.57	6.81	7.07	7.64	●
UM-SN2-14120		12						4.38	12.55	12.99	13.46	13.97	15.10	●
UM-SN2-15040		4						8.08	4.24	4.43	4.59	4.77	5.15	●
UM-SN2-15060	1.5	6	2.25	1.44	50	4	4	6.60	6.33	6.57	6.81	7.07	7.64	●
UM-SN2-15080		8						5.58	8.41	8.71	9.03	9.37	10.13	●
UM-SN2-15100		10						4.83	10.48	10.85	11.24	11.67	12.61	●
UM-SN2-15120	1.6	12	2.5	1.64	55	4	4	4.26	12.55	12.99	13.46	13.97	15.10	●
UM-SN2-15140		14						3.81	14.62	15.13	15.68	16.26	17.58	●
UM-SN2-15160		16						3.44	16.69	17.27	17.89	18.56	20.07	●
UM-SN2-15180	18	3.14	18.76	19.41	20.11	20.86	22.56	●						

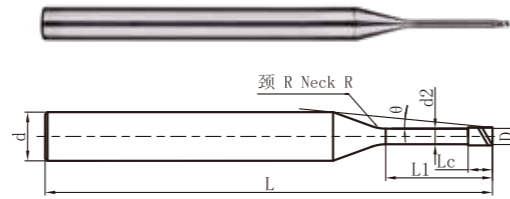
● 标准库存 Stock ○ 需预定 Available Upon Order

外径D	公差 Tol.	外径D	公差 Tol.	外径D	公差 Tol.
0.1≤D≤0.5	0 -0.007	0.6≤D≤0.9	0 -0.01	1.0≤D≤6.0	0 -0.015

(mm)

# UM-SN2

小径深加工2刃平头立铣刀  
2 flute, square endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
									0.5°	1°	1.5°	2°	3°	
									UM-SN2-15200		20			
UM-SN2-15250		25			65			2.41	25.99	26.9	27.87	28.91	-	●
UM-SN2-15300	1.5	30	2.25	1.44	70	4	4	2.06	31.16	32.25	33.41	34.66	-	●
UM-SN2-15350		35			75			1.80	36.33	37.59	38.95	-	-	●
UM-SN2-15400		40			80			1.60	41.50	42.94	44.49	-	-	●
UM-SN2-16060	1.6	6	2.4	1.54	50	4	4	6.45	6.33	6.57	6.81	7.07	7.64	●
UM-SN2-16080		8			50			5.43	8.41	8.71	9.03	9.37	10.13	●
UM-SN2-18060	1.8	6	2.7	1.73	50	4	4	6.14	6.31	6.55	6.79	7.04	7.61	●
UM-SN2-18080		8			50			5.14	8.39	8.69	9.00	9.34	10.10	●
UM-SN2-20040		4			50			7.27	4.21	4.39	4.55	4.72	5.11	●
UM-SN2-20060		6			50			5.81	6.30	6.53	6.77	7.02	7.59	●
UM-SN2-20080		8			50			4.83	8.38	8.67	8.99	9.32	10.08	●
UM-SN2-20100		10			50			4.14	10.45	10.81	11.20	11.62	12.57	●
UM-SN2-20120		12			55			3.62	12.51	12.95	13.42	13.92	15.05	●
UM-SN2-20140		14			55			3.21	14.58	15.09	15.64	16.22	17.54	●
UM-SN2-20160	2	16	3	1.92	55	4	4	2.89	16.65	17.23	17.85	18.52	-	●
UM-SN2-20180		18			60			2.63	18.72	19.37	20.07	20.82	-	●
UM-SN2-20200		20			60			2.41	20.78	21.51	22.28	23.12	-	●
UM-SN2-20250		25			65			1.99	25.95	26.86	27.83	-	-	●
UM-SN2-20300		30			70			1.70	31.12	32.2	33.37	-	-	●
UM-SN2-20350		35			75			1.48	36.29	37.55	-	-	-	●
UM-SN2-20400		40			80			1.31	41.46	42.9	-	-	-	●
UM-SN2-20500		50			90			1.07	51.79	53.6	-	-	-	●
UM-SN2-25080		8			50			3.95	8.35	8.64	8.95	9.29	10.04	●
UM-SN2-25120		12			55			2.89	12.48	12.92	13.39	13.89	-	●
UM-SN2-25160		16			55			2.28	16.62	17.2	17.82	18.49	-	●
UM-SN2-25200	2.5	20	3.75	2.4	60	4	4	1.88	20.75	21.48	22.25	-	-	●
UM-SN2-25300		30			70			1.31	31.09	32.17	-	-	-	●
UM-SN2-25400		40			80			1.01	41.43	42.87	-	-	-	●
UM-SN2-25500		50			90			0.82	51.76	-	-	-	-	●
UM-SN2-30080		8			55			6.27	8.33	8.62	8.93	9.26	10.02	●
UM-SN2-30120		12			60			4.86	12.46	12.9	13.36	13.86	14.99	●
UM-SN2-30160		16			60			3.97	16.60	17.17	17.79	18.46	19.96	●
UM-SN2-30200	3	20	4.5	2.88	65	6	4	3.35	20.73	21.45	22.23	23.06	24.93	●
UM-SN2-30250		25			70			2.81	25.90	26.8	27.77	28.81	-	●
UM-SN2-30300		30			75			2.41	31.07	32.15	33.31	34.56	-	●
UM-SN2-30400		40			90			1.89	41.40	42.85	44.39	-	-	●
UM-SN2-30500		50			100			1.55	51.74	53.54	55.48	-	-	●
UM-SN2-40120		12			60			3.63	12.44	12.88	13.34	13.84	14.97	●
UM-SN2-40160		16			60			2.90	16.58	17.16	17.78	18.44	-	●
UM-SN2-40200	4	20	6	3.86	70	6	4	2.41	20.71	21.43	22.21	23.04	-	●
UM-SN2-40250		25			70			2.00	25.88	26.78	27.75	-	-	●
UM-SN2-40300		30			80			1.70	31.05	32.13	33.29	-	-	●

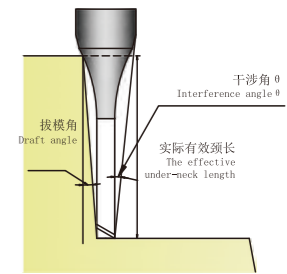
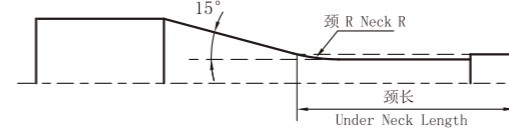
● 标准库存 Stock    ○ 需预定 Available Upon Order    推荐切削参数 P161/P165

外径 D	公差 Tol.	外径 D	公差 Tol.	外径 D	公差 Tol.
0.1 ≤ D ≤ 0.5	0 -0.007	0.6 ≤ D ≤ 0.9	0 -0.01	1.0 ≤ D ≤ 6.0	0 -0.015

(mm)

# UM-SN2

小径深加工2刃平头立铣刀  
2 flute, square endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
									0.5°	1°	1.5°	2°	3°	
									UM-SN2-40350		35			
UM-SN2-40400	4	40	6	3.86	90	6	4	1.31	41.39	42.83	-	-	-	●
UM-SN2-40500		50			100			1.07	51.72	53.52	-	-	-	●
UM-SN2-50200		20			70			1.31	20.71	21.43	-	-	-	●
UM-SN2-50250		25			70			1.07	25.87	26.78	-	-	-	●
UM-SN2-50300	5	30	7.5	4.85	80	6	4	0.90	31.04	-	-	-	-	●
UM-SN2-50400		40			90			0.69	41.38	-	-	-	-	●
UM-SN2-50500		50			100			0.56	51.72	-	-	-	-	●
UM-SN2-60200		20			70			-	-	-	-	-	-	●
UM-SN2-60300		30			80			-	-	-	-	-	-	●
UM-SN2-60400	6	40	9	5.85	90	6	-	-	-	-	-	-	-	●
UM-SN2-60500		50			100			-	-	-	-	-	-	●

● 标准库存 Stock    ○ 需预定 Available Upon Order

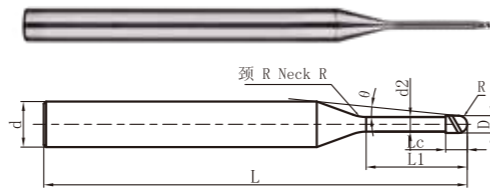
推荐切削参数 P162/P166

外径 D	公差 Tol.
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(mm)

# UM-BN2

小径深加工2刃球头立铣刀  
2 flute, ball nose endmill for small diameter & machining



订货号 Ordering Code	外径 (D) Mill Dia.	球半径 (R) Ball Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-BN2-01002			0.2		
UM-BN2-01003	0.1	0.05	0.3	0.08	0.08	50	4	1	14.48	0.31	0.33	0.34	0.36	0.39	●
UM-BN2-01005			0.5						14.12	0.52	0.55	0.57	0.59	0.64	●
UM-BN2-02005			0.5						14.21	0.51	0.53	0.55	0.57	0.61	●
UM-BN2-020075			0.75						13.77	0.78	0.8	0.83	0.86	0.92	●
UM-BN2-02010			1						13.36	1.04	1.07	1.11	1.15	1.23	●
UM-BN2-020125			1.25	0.16	0.17	50	4	1	12.97	1.3	1.34	1.39	1.43	1.54	●
UM-BN2-02015	0.2	0.1	1.5						12.6	1.56	1.61	1.66	1.72	1.85	●
UM-BN2-02020			2						11.92	2.07	2.14	2.22	2.3	2.48	●
UM-BN2-02025			2.5						11.31	2.59	2.68	2.77	2.87	3.1	●
UM-BN2-02030			3						10.76	3.11	3.21	3.33	3.45	3.72	●
UM-BN2-03005			0.5						14.17	0.52	0.55	0.57	0.6	0.66	●
UM-BN2-030075			0.75						13.72	0.79	0.83	0.87	0.91	0.98	●
UM-BN2-03010			1						13.3	1.05	1.11	1.16	1.2	1.29	●
UM-BN2-030125			1.25	0.24	0.27	50	4	2	12.9	1.32	1.38	1.44	1.5	1.61	●
UM-BN2-03015	0.3	0.15	1.5						12.53	1.58	1.66	1.72	1.78	1.92	●
UM-BN2-03020			2						11.84	2.11	2.2	2.28	2.36	2.54	●
UM-BN2-03025			2.5						11.22	2.63	2.74	2.83	2.93	3.16	●
UM-BN2-03030			3						10.66	3.15	3.27	3.39	3.51	3.78	●
UM-BN2-040075			0.75						13.78	0.78	0.82	0.86	0.9	0.97	●
UM-BN2-04010			1						13.34	1.05	1.1	1.15	1.19	1.28	●
UM-BN2-04015			1.5						12.55	1.58	1.65	1.72	1.78	1.9	●
UM-BN2-04020			2						11.84	2.11	2.19	2.27	2.35	2.53	●
UM-BN2-04025	0.4	0.2	2.5	0.32	0.37	50	4	2	11.2	2.63	2.73	2.83	2.93	3.15	●
UM-BN2-04030			3						10.63	3.15	3.27	3.38	3.5	3.77	●
UM-BN2-04035			3.5						10.12	3.67	3.8	3.94	4.08	4.39	●
UM-BN2-04040			4						9.65	4.19	4.34	4.49	4.65	5.01	●
UM-BN2-04045			4.5						9.22	4.71	4.87	5.04	5.23	5.63	●
UM-BN2-05010			1						13.39	1.05	1.09	1.14	1.19	1.27	●
UM-BN2-05015			1.5						12.56	1.58	1.65	1.71	1.77	1.89	●
UM-BN2-05020			2						11.83	2.1	2.19	2.27	2.34	2.51	●
UM-BN2-05025			2.5						11.18	2.63	2.73	2.82	2.92	3.14	●
UM-BN2-05030			3	0.4	0.47	50	4	2	10.6	3.15	3.27	3.38	3.49	3.76	●
UM-BN2-05040	0.5	0.25	4						9.6	4.19	4.34	4.48	4.64	5	●
UM-BN2-05050			5						8.77	5.23	5.41	5.59	5.79	6.24	●
UM-BN2-05055			5.5						8.4	5.75	5.94	6.15	6.37	6.86	●
UM-BN2-05060			6						8.07	6.27	6.48	6.7	6.94	7.49	●
UM-BN2-05080			8						6.96	8.33	8.62	8.92	9.24	9.97	●
UM-BN2-06010			1						13.15	1.07	1.14	1.2	1.27	1.41	●
UM-BN2-06020			2						11.61	2.15	2.28	2.39	2.5	2.7	●
UM-BN2-06025	0.6	0.3	2.5	0.48	0.57	50	4	4	10.96	2.68	2.84	2.97	3.09	3.32	●
UM-BN2-06030			3						10.38	3.22	3.39	3.54	3.67	3.95	●
UM-BN2-06035			3.5						9.86	3.75	3.94	4.1	4.25	4.57	●

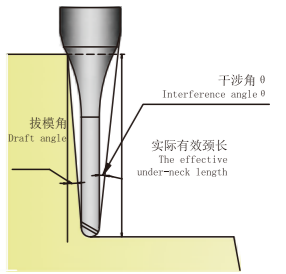
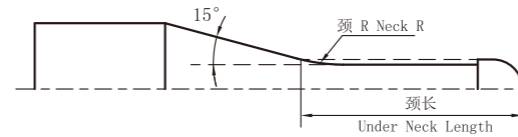
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P167/P172

球半径R	公差 Tol.
R≤0.25	±0.003
R>0.25	±0.005 (mm)

# UM-BN2

小径深加工2刃球头立铣刀  
2 flute, ball nose endmill for small diameter & machining



订货号 Ordering Code	外径 (D) Mill Dia.	球半径 (R) Ball Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-BN2-06040			4		
UM-BN2-06045			4.5			50			8.97	4.81	5.03	5.21	5.4	5.81	●
UM-BN2-06050			5			50			8.57	5.33	5.57	5.77	5.97	6.43	●
UM-BN2-06055			5.5			50			8.22	5.86	6.11	6.32	6.55	7.05	●
UM-BN2-06060			6	0.48	0.57	50	4	4	7.89	6.38	6.64	6.87	7.12	7.67	●
UM-BN2-06070	0.6	0.3	7			50			7.3	7.43	7.71	7.98	8.27	8.92	●
UM-BN2-06080			8			50			6.79	8.48	8.78	9.09	9.42	10.16	●
UM-BN2-06090			9			50			6.35	9.52	9.85	10.2	10.57	11.4	●
UM-BN2-06100			10			50			5.97	10.56	10.92	11.31	11.72	12.65	●
UM-BN2-06120			12			50			5.32	12.63	13.06	13.52	14.02	15.13	●
UM-BN2-07020			2			50			11.6	2.14	2.27	2.39	2.49	2.69	●
UM-BN2-07040	0.7	0.35	4	0.56	0.67	50	4	4	9.33	4.27	4.48	4.65	4.81	5.18	●
UM-BN2-07060			6			50			7.81	6.38	6.64	6.87	7.11	7.66	●
UM-BN2-07080			8			50			6.71	8.47	8.78	9.09	9.41	10.15	●
UM-BN2-08020			2			50			11.64	2.12	2.24	2.35	2.45	2.63	●
UM-BN2-08040			4			50			9.3	4.25	4.44	4.61	4.77	5.12	●
UM-BN2-08050			5	0.64	0.76	50	4	4	8.45	5.3	5.53	5.72	5.92	6.36	●
UM-BN2-08060	0.8	0.4	6			50			7.74	6.35	6.6	6.83	7.07	7.61	●
UM-BN2-08080			8			50			6.63	8.44	8.74	9.04	9.37	10.09	●
UM-BN2-08100			10			50			5.8	10.52	10.88	11.26	11.67	12.58	●
UM-BN2-09020			2			50			11.63	2.12	2.23	2.34	2.44	2.62	●
UM-BN2-09040	0.9	0.45	4	0.72	0.86	50	4	4	9.24	4.25	4.44	4.6	4.76	5.11	●
UM-BN2-09060			6			50			7.66	6.35	6.6	6.82	7.06	7.6	●
UM-BN2-09080			8			50			6.54	8.44	8.74	9.04	9.36	10.08	●
UM-BN2-10020			2			50			11.62	2.12	2.23	2.33	2.43	2.61	●
UM-BN2-10030			3			50			10.25	3.18	3.34	3.48	3.6	3.85	●
UM-BN2-10040			4			50			9.17	4.24	4.43	4.6	4.75	5.1	●
UM-BN2-10050			5			50			8.29	5.3	5.52	5.71	5.9	6.34	●
UM-BN2-10060			6			50			7.57	6.35	6.59	6.81	7.05	7.58	●
UM-BN2-10070			7			50			6.96	7.39	7.66	7.92	8.2	8.83	●
UM-BN2-10080			8			50			6.44	8.44	8.73	9.03	9.35	10.07	●
UM-BN2-10090	1	0.5	9	0.8	0.96	50	4	4	5.99	9.48	9.8	10.14	10.5	11.31	●
UM-BN2-10100			10			50			5.6	10.52	10.87	11.25	11.65	12.56	●
UM-BN2-10120			12			55			4.96	12.59	13.01	13.46	13.95	15.04	●
UM-BN2-10130			13			55			4.69	13.62	14.08	14.57	15.1	16.29	●
UM-BN2-10140			14			55			4.45	14.66	15.15	15.68	16.25	17.53	●
UM-BN2-10160			16			55			4.03	16.73	17.29	17.9	18.55	20.01	●
UM-BN2-10180			18			60			3.69	18.79	19.43	20.11	20.85	22.5	●
UM-BN2-10120			20			60			3.4	20.86	21.57	22.33	23.15	24.99	●
UM-BN2-11020			2			50			11.61	2.11	2.22	2.32	2.42	2.6	●
UM-BN2-11040	1.1	0.55	4	0.88	1.06	50	4	4	9.09	4.24	4.43	4.59	4.74	5.08	●
UM-BN2-11060			6			50			8.57	5.33	5.57	5.77	5.97	6.43	●
UM-BN2-11080			8			50			6.34	8.43	8.73	9.03	9.34	10.06	●

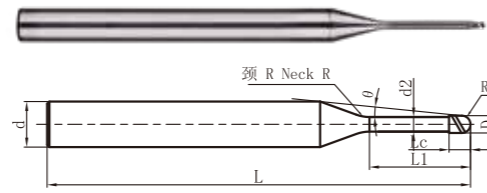
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P168/P173

球半径R	公差 Tol.
R≤0.25	±0.003
R>0.25	±0.005 (mm)

# UM-BN2

小径深加工2刃球头立铣刀  
2 flute, ball nose endmill for small diameter & machining



订货号 Ordering Code	外径 (D) Mill Dia.	球半径 (R) Ball Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-BN2-11100	1.1	0.55	10	0.88	
UM-BN2-12040	1.2	0.6	4	0.96	1.15	50	4	4	9.05	4.22	4.4	4.55	4.7	5.04	●
UM-BN2-12080			8			6.25			8.41	8.7	8.99	9.3	10.01	●	
UM-BN2-12100			10			5.41			10.49	10.84	11.21	11.6	12.5	●	
UM-BN2-12120	1.4	0.7	12	1.12	1.34	55	4	4	4.77	12.56	12.97	13.42	13.9	14.98	●
UM-BN2-14080			8			6.04			8.38	8.66	8.95	9.26	9.96	●	
UM-BN2-14120			12			4.56			12.53	12.94	13.38	13.86	14.93	●	
UM-BN2-14160	1.5	0.75	16	1.2	1.44	55	4	4	3.67	16.66	17.22	17.82	18.46	19.9	●
UM-BN2-15040			4			8.82			4.2	4.36	4.51	4.65	4.97	●	
UM-BN2-15060			6			7.08			6.29	6.52	6.73	6.95	7.46	●	
UM-BN2-15080	1.6	0.8	8	1.28	1.54	50	4	4	5.92	8.38	8.66	8.95	9.25	9.94	●
UM-BN2-15100			10			5.08			10.46	10.8	11.16	11.55	12.43	●	
UM-BN2-15120			12			4.45			12.53	12.94	13.38	13.85	14.92	●	
UM-BN2-15140	1.8	0.9	14	1.44	1.73	55	4	4	3.96	14.6	15.08	15.6	16.15	17.4	●
UM-BN2-15160			16			3.57			16.66	17.22	17.81	18.45	19.89	●	
UM-BN2-15180			18			3.25			18.73	19.36	20.03	20.75	22.38	●	
UM-BN2-15200	2	1	20	1.6	1.92	60	4	4	2.98	20.8	21.5	22.25	23.05	-	●
UM-BN2-16080			8			5.8			8.38	8.66	8.94	9.25	9.93	●	
UM-BN2-16120			12			4.34			12.53	12.94	13.37	13.85	14.9	●	
UM-BN2-16160	2.5	1.25	16	2	2.4	55	4	4	3.47	16.66	17.21	17.81	18.44	19.88	●
UM-BN2-16200			20			2.89			20.8	21.49	22.24	23.04	-	●	
UM-BN2-18080			8			5.55			8.36	8.63	8.91	9.21	9.88	●	
UM-BN2-18120	2	1	12	1.6	1.92	55	4	4	4.11	12.5	12.91	13.34	13.81	14.85	●
UM-BN2-18160			16			3.26			16.64	17.19	17.77	18.41	19.83	●	
UM-BN2-18200			20			2.7			20.77	21.46	22.21	23.01	-	●	
UM-BN2-20030	2.5	1.25	3	2	2.4	50	4	4	9.72	3.11	3.22	3.32	3.42	3.62	●
UM-BN2-20040			4			8.32			4.16	4.31	4.44	4.57	4.86	●	
UM-BN2-20060			6			6.46			6.26	6.46	6.66	6.87	7.35	●	
UM-BN2-20080	6	3	8	6	7.2	50	6	6	5.27	8.34	8.6	8.88	9.17	9.84	●
UM-BN2-20100			10			4.46			10.41	10.74	11.09	11.47	12.32	●	
UM-BN2-20120			12			3.86			12.48	12.88	13.31	13.77	14.81	●	
UM-BN2-20130	2	1	13	1.6	1.92	55	4	4	3.62	13.51	13.95	14.42	14.92	16.05	●
UM-BN2-20140			14			3.4			14.55	15.02	15.53	16.07	17.29	●	
UM-BN2-20160			16			3.04			16.62	17.16	17.74	18.37	19.78	●	
UM-BN2-20180	2.5	1.25	18	2	2.4	60	4	4	2.75	18.68	19.3	19.96	20.67	-	●
UM-BN2-20200			20			2.51			20.75	21.44	22.18	22.97	-	●	
UM-BN2-20220			22			2.31			22.82	23.58	24.39	25.27	-	●	
UM-BN2-20250	6	3	25	6	7.2	65	6	6	2.06	25.92	26.79	27.72	28.72	-	●
UM-BN2-20300			30			1.75			31.09	32.14	33.26	-	-	●	
UM-BN2-20350			35			1.52			36.26	37.48	38.8	-	-	●	
UM-BN2-20400	2.5	1.25	40	2	2.4	80	4	4	1.34	41.42	42.83	-	-	-	●
UM-BN2-25060			6			5.62			6.22	6.41	6.6	6.8	7.25	●	
UM-BN2-25100			10			3.69			10.37	10.69	11.03	11.4	12.23	●	

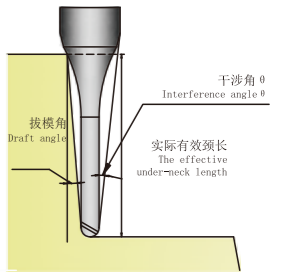
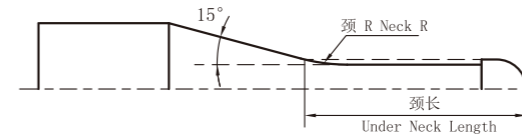
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P169/P174

球半径R	公差 Tol.
R ≤ 0.25	±0.003
R > 0.25	±0.005 (mm)

# UM-BN2

小径深加工2刃球头立铣刀  
2 flute, ball nose endmill for small diameter & machining



订货号 Ordering Code	外径 (D) Mill Dia.	球半径 (R) Ball Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-BN2-25150	2.5	1.25	15	2	
UM-BN2-25200	20	1.99	20.71	21.39	22.12	-	-	●							
UM-BN2-25250	25	1.62	25.88	26.74	27.66	-	-	●							
UM-BN2-25300	3	1.5	30	2.4	2.88	50	6	4	1.36	31.05	32.09	-	-	-	●
UM-BN2-30080			8			7.04			8.27	8.51	8.77	9.04	9.65	●	
UM-BN2-30100			10			6.05			10.34	10.65	10.98	11.34	12.14	●	
UM-BN2-30130	3.5	1.75	13	2.8	3.36	50	6	4	5	13.44	13.86	14.31	14.79	15.87	●
UM-BN2-30160			16			4.26			16.55	17.07	17.63	18.24	19.6	●	
UM-BN2-30200			20			3.56			20.68	21.35	22.07	22.84	24.57	●	
UM-BN2-30250	4	2	25	3.2	3.86	50	6	4	2.95	25.85	26.7	27.61	28.59	-	●
UM-BN2-30300			30			2.52			31.02	32.05	33.15	34.34	-	●	
UM-BN2-30350			35			2.2			36.19	37.39	38.69	40.08	-	●	
UM-BN2-35150	4	2	15	3.2	3.86	50	6	4	3.99	15.49	15.96	16.48	17.03	18.27	●
UM-BN2-35250			25			2.56			25.82	26.66	27.56	28.53	-	●	
UM-BN2-36350			35			1.89			36.16	37.36	38.64	-	-	●	
UM-BN2-35450	6	3	45	6	7.2	50	6	6	1.5	46.5	48.05	-	-	-	●
UM-BN2-40100			10			4.86			10.31	10.6	10.91	11.24	11.99	●	
UM-BN2-40130			13			3.88			13.41	13.81	14.23	14.69	15.72	●	
UM-BN2-40160	4	2	16	3.2	3.86	50	6	4	3.23	16.51	17.02	17.56	18.14	19.45	●
UM-BN2-40200			20			2.63			20.65	21.3	21.99	22.74	-	●	
UM-BN2-40250			25			2.14			25.81	26.64	27.53	28.49	-	●	
UM-BN2-40300	2.5	1.25	30	2	2.4	50	6	4	1.81	30.98	31.99	33.08	-	-	●
UM-BN2-40350			35			1.56			36.15	37.34	38.62	-	-	●	
UM-BN2-40400			40			1.38			41.32	42.69	-	-	-	●	
UM-BN2-40450	5	2.5	45	6	7.2	50	6	4	1.23	46.49	48.04	-	-	-	●
UM-BN2-40500			50			1.11			51.66	53.39	-	-	-	●	
UM-BN2-50200			20			1.48			20.62	21.25	-	-	-	●	
UM-BN2-50250	6	3	25	6	7.2	50	6	6	1.18	25.79	26.6	-	-	-	●
UM-BN2-50300			30			0.98			30.96	-	-	-	-	●	
UM-BN2-50400			40			0.73			41.29	-	-	-	-	●	
UM-BN2-60120	2.5	1.25	12	2	2.4	50	4	4	-	-	-	-	-	-	●
UM-BN2-60200			20			-			-	-	-	-	-	●	
UM-BN2-60300			30			-			-	-	-	-	-	●	
UM-BN2-60500	6	3	50	6	7.2	55	6	6	-	-	-	-	-	-	●

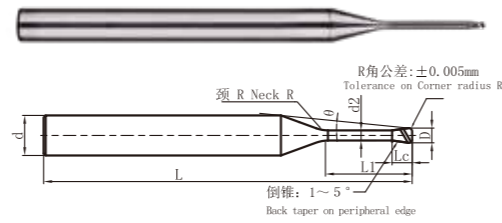
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P170/P175

球半径R	公差 Tol.
R ≤ 0.25	±0.003
R > 0.25	±0.005 (mm)

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-0202005			0.5		
UM-RN2-020201		0.02	1						13.23	1.04	1.08	1.12	1.16	1.25	●
UM-RN2-020202			2						11.82	2.08	2.15	2.23	2.31	2.50	●
UM-RN2-0205005	0.2		0.5	0.16	0.17	50	4	1	14.12	0.52	0.54	0.56	0.58	0.62	●
UM-RN2-020501		0.05	1						13.28	1.04	1.08	1.11	1.15	1.24	●
UM-RN2-0205015			1.5						12.53	1.56	1.61	1.67	1.73	1.87	●
UM-RN2-020502			2						11.85	2.08	2.15	2.22	2.30	2.49	●
UM-RN2-030201		0.02	1						13.09	1.06	1.12	1.17	1.23	1.33	●
UM-RN2-030202			2						11.67	2.11	2.21	2.29	2.38	2.57	●
UM-RN2-030203			3						10.53	3.16	3.28	3.40	3.53	3.81	●
UM-RN2-030501	0.3		1	0.24	0.27	50	4	2	13.14	1.06	1.12	1.17	1.22	1.32	●
UM-RN2-0305015		0.05	1.5						12.38	1.59	1.66	1.73	1.80	1.94	●
UM-RN2-030502			2						11.71	2.11	2.21	2.29	2.37	2.56	●
UM-RN2-0305025			2.5						11.11	2.64	2.75	2.84	2.95	3.18	●
UM-RN2-030503			3						10.56	3.16	3.28	3.40	3.52	3.81	●
UM-RN2-040201		0.02	1						13.04	1.06	1.12	1.17	1.23	1.33	●
UM-RN2-040202			2						11.60	2.11	2.21	2.29	2.38	2.57	●
UM-RN2-040203			3						10.44	3.16	3.28	3.40	3.53	3.81	●
UM-RN2-040204			4						9.49	4.20	4.35	4.51	4.68	5.06	●
UM-RN2-040501		0.05	1						13.09	1.06	1.12	1.17	1.22	1.32	●
UM-RN2-0405015			1.5						12.32	1.59	1.66	1.73	1.80	1.94	●
UM-RN2-040502			2						11.64	2.11	2.21	2.29	2.37	2.56	●
UM-RN2-0405025	0.4		2.5	0.32	0.37	50	4	2	11.03	2.64	2.75	2.84	2.95	3.18	●
UM-RN2-040503		0.05	3						10.47	3.16	3.28	3.40	3.52	3.81	●
UM-RN2-0405035			3.5						9.97	3.68	3.82	3.95	4.10	4.43	●
UM-RN2-040504			4						9.52	4.20	4.35	4.51	4.67	5.05	●
UM-RN2-041001		0.1	1						13.17	1.06	1.11	1.16	1.21	1.31	●
UM-RN2-041002			2						11.70	2.11	2.20	2.28	2.37	2.55	●
UM-RN2-041003			3						10.53	3.16	3.28	3.39	3.52	3.79	●
UM-RN2-041004			4						9.56	4.20	4.35	4.50	4.67	5.04	●
UM-RN2-050201		0.02	1						13.00	1.06	1.12	1.17	1.23	1.33	●
UM-RN2-050202			2						11.53	2.11	2.21	2.29	2.38	2.57	●
UM-RN2-050203			3						10.35	3.16	3.28	3.40	3.53	3.81	●
UM-RN2-050204			4						9.39	4.20	4.35	4.51	4.68	5.06	●
UM-RN2-050206			6						7.92	6.27	6.49	6.73	6.98	7.54	●
UM-RN2-050501		0.05	1						13.05	1.06	1.12	1.17	1.22	1.32	●
UM-RN2-050502			2						11.56	2.11	2.21	2.29	2.37	2.56	●
UM-RN2-050503	0.5		3	0.4	0.47	50	4	2	10.38	3.16	3.28	3.40	3.52	3.81	●
UM-RN2-050504		0.05	4						9.42	4.20	4.35	4.51	4.67	5.05	●
UM-RN2-050505			5						8.62	5.24	5.42	5.61	5.82	6.29	●
UM-RN2-050506			6						7.94	6.27	6.49	6.72	6.97	7.53	●
UM-RN2-051001		0.1	1						13.13	1.06	1.11	1.16	1.21	1.31	●
UM-RN2-051002			2						11.63	2.11	2.20	2.28	2.37	2.55	●

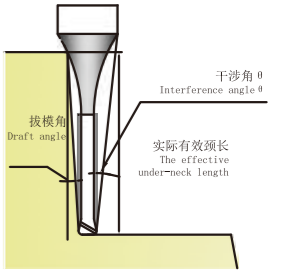
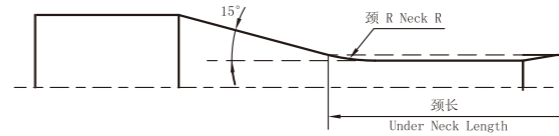
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P177/P186

圆角R	公差 Tol.
R	±0.005 (mm)

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-051003			3		
UM-RN2-051004		0.1	4						9.46	4.20	4.35	4.50	4.67	5.04	●
UM-RN2-051005	0.5		5	0.4	0.47	50	4	2	8.65	5.24	5.42	5.61	5.82	6.28	●
UM-RN2-051006			6						7.97	6.27	6.49	6.72	6.97	7.52	●
UM-RN2-060202		0.02	2						11.24	2.17	2.31	2.44	2.55	2.77	●
UM-RN2-060204			4						9.15	4.29	4.51	4.69	4.86	5.26	●
UM-RN2-060206			6						7.71	6.40	6.66	6.90	7.16	7.74	●
UM-RN2-060502		0.05	2						11.27	2.17	2.31	2.43	2.55	2.76	●
UM-RN2-060504			4						9.18	4.29	4.51	4.68	4.86	5.25	●
UM-RN2-060506			6						7.73	6.40	6.66	6.90	7.16	7.74	●
UM-RN2-060508	0.6		8	0.48	0.57	50	4	4	6.68	8.49	8.80	9.12	9.46	10.22	●
UM-RN2-060510		0.05	10						5.88	10.57	10.94	11.33	11.76	12.71	●
UM-RN2-061002		0.1	2						11.34	2.16	2.30	2.43	2.54	2.75	●
UM-RN2-061004			4						9.22	4.29	4.50	4.68	4.85	5.24	●
UM-RN2-061006			6						7.76	6.39	6.66	6.90	7.15	7.72	●
UM-RN2-061008			8						6.70	8.48	8.80	9.11	9.45	10.21	●
UM-RN2-061010			10						5.89	10.57	10.94	11.33	11.75	12.70	●
UM-RN2-070504		0.05	4						9.07	4.29	4.51	4.68	4.86	5.25	●
UM-RN2-070506			6						7.62	6.40	6.66	6.90	7.16	7.74	●
UM-RN2-071004	0.7		4	0.56	0.67	50	4	4	9.11	4.29	4.50	4.68	4.85	5.24	●
UM-RN2-071006		0.1	6						7.65	6.39	6.66	6.90	7.15	7.72	●
UM-RN2-080204		0.02	4			50			8.96	4.27	4.47	4.65	4.82	5.21	●
UM-RN2-080206			6			50			7.51	6.37	6.63	6.87	7.12	7.70	●
UM-RN2-080504		0.05	4			50			8.99	4.27	4.47	4.65	4.82	5.21	●
UM-RN2-080506			6			50			7.52	6.37	6.63	6.86	7.12	7.69	●
UM-RN2-080508			8			50			6.47	8.45	8.76	9.08	9.42	10.18	●
UM-RN2-080512			12			55			5.05	12.61	13.04	13.51	14.02	15.15	●
UM-RN2-081004	0.8		4	0.64	0.76	50	4	4	9.03	4.26	4.47	4.64	4.81	5.19	●
UM-RN2-081006		0.1	6			50			7.55	6.37	6.62	6.86	7.11	7.68	●
UM-RN2-081008			8			50			6.49	8.45	8.76	9.07	9.41	10.17	●
UM-RN2-081012			12			55			5.06	12.60	13.04	13.51	14.01	15.14	●
UM-RN2-082004		0.2	4			50			9.12	4.26	4.46	4.63	4.80	5.17	●
UM-RN2-082006			6			50			7.62	6.36	6.61	6.85	7.10	7.66	●
UM-RN2-082008			8			50			6.54	8.45	8.75	9.06	9.40	10.14	●
UM-RN2-082012			12			55			5.09	12.60	13.03	13.50	14.00	15.11	●
UM-RN2-100202		0.02	2			50			10.92	2.15	2.28	2.40	2.52	2.73	●
UM-RN2-100204			4			50			8.72	4.27	4.47	4.65	4.82	5.21	●
UM-RN2-100206			6			50			7.26	6.37	6.63	6.87	7.12	7.70	●
UM-RN2-100208			8			50			6.22	8.46	8.77	9.08	9.42	10.19	●
UM-RN2-100210	1		10	0.8	0.96	50	4	4	5.44	10.53	10.91	11.30	11.72	12.67	●
UM-RN2-100212		0.02	12			55			4.83	12.61	13.05	13.52	14.02	15.16	●
UM-RN2-100502		0.05	2			50			10.96	2.15	2.28	2.40	2.51	2.72	●
UM-RN2-100503			3			50			9.73	3.21	3.38	3.53	3.67	3.96	●

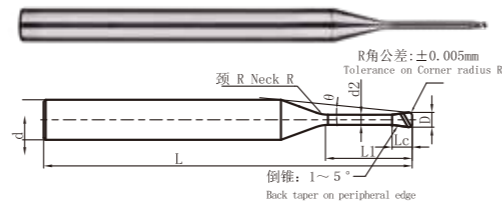
圆角R	公差 Tol.
R	±0.005 (mm)

● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P178/P187

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈径 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-100504	1	0.05	4	0.8	
UM-RN2-100505	5	7.95	5.32	5.55	5.75	5.97	6.45	●							
UM-RN2-100506	6	7.28	6.37	6.63	6.86	7.12	7.69	●							
UM-RN2-100508	8	6.23	8.45	8.76	9.08	9.42	10.18	●							
UM-RN2-100510	10	5.45	10.53	10.90	11.30	11.72	12.67	●							
UM-RN2-100512	12	4.84	12.61	13.04	13.51	14.02	15.15	●							
UM-RN2-100516	16	3.95	16.74	17.32	17.95	18.62	20.12	●							
UM-RN2-100520	20	3.34	20.88	21.60	22.38	23.22	25.10	●							
UM-RN2-101002	0.1	2	50	11.03	2.14	2.27	2.39	2.50	2.71	●					
UM-RN2-101003		3	50	9.79	3.21	3.38	3.53	3.66	3.95	●					
UM-RN2-101004		4	50	8.80	4.26	4.47	4.64	4.81	5.19	●					
UM-RN2-101005		5	50	7.99	5.32	5.55	5.75	5.96	6.44	●					
UM-RN2-101006		6	50	7.31	6.37	6.62	6.86	7.11	7.68	●					
UM-RN2-101008		8	50	6.25	8.45	8.76	9.07	9.41	10.17	●					
UM-RN2-101010		10	50	5.46	10.53	10.90	11.29	11.71	12.65	●					
UM-RN2-101012		12	55	4.85	12.60	13.04	13.51	14.01	15.14	●					
UM-RN2-101016	16	60	3.96	16.74	17.32	17.94	18.61	20.11	●						
UM-RN2-101020	20	60	3.35	20.87	21.60	22.37	23.21	25.08	●						
UM-RN2-102002	0.2	2	50	11.17	2.14	2.26	2.38	2.48	2.68	●					
UM-RN2-102003		3	50	9.90	3.20	3.37	3.51	3.65	3.93	●					
UM-RN2-102004		4	50	8.89	4.26	4.46	4.63	4.80	5.17	●					
UM-RN2-102005		5	50	8.06	5.31	5.54	5.74	5.95	6.41	●					
UM-RN2-102006		6	50	7.37	6.36	6.61	6.85	7.10	7.66	●					
UM-RN2-102008		8	50	6.30	8.45	8.75	9.06	9.40	10.14	●					
UM-RN2-102010		10	50	5.50	10.53	10.89	11.28	11.70	12.63	●					
UM-RN2-102012		12	55	4.88	12.60	13.03	13.50	14.00	15.11	●					
UM-RN2-102016	16	60	3.98	16.74	17.31	17.93	18.59	20.09	●						
UM-RN2-102020	20	60	3.36	20.87	21.59	22.36	23.19	25.06	●						
UM-RN2-103002	0.3	2	50	11.32	2.13	2.25	2.36	2.47	2.66	●					
UM-RN2-103003		3	50	10.01	3.20	3.36	3.50	3.63	3.90	●					
UM-RN2-103004		4	50	8.98	4.25	4.45	4.62	4.78	5.15	●					
UM-RN2-103005		5	50	8.14	5.31	5.53	5.73	5.93	6.39	●					
UM-RN2-103006		6	50	7.44	6.36	6.61	6.84	7.08	7.63	●					
UM-RN2-103008		8	50	6.35	8.44	8.75	9.05	9.38	10.12	●					
UM-RN2-103010		10	50	5.53	10.52	10.89	11.27	11.68	12.60	●					
UM-RN2-103012		12	55	4.90	12.60	13.03	13.49	13.98	15.09	●					
UM-RN2-103016	16	60	4.00	16.73	17.30	17.92	18.58	20.06	●						
UM-RN2-103020	20	60	3.37	20.87	21.58	22.35	23.18	25.04	●						
UM-RN2-1251005	1.25	0.1	5	1	1.2	50	4	4	7.68	5.30	5.52	5.72	5.93	6.40	●
UM-RN2-1251010			10			50			5.17	10.50	10.87	11.26	11.68	12.62	●
UM-RN2-1251015			15			55			3.90	15.68	16.22	16.80	17.43	18.83	●
UM-RN2-1251020			20			60			3.13	20.84	21.57	22.34	23.18	25.05	●
UM-RN2-1252005			5			50			7.75	5.29	5.51	5.71	5.91	6.38	●

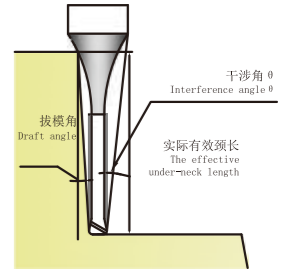
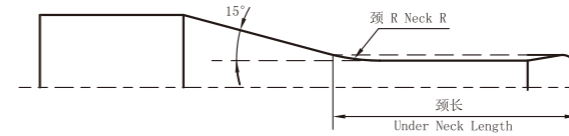
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P179/P188

圆角 R	公差 Tol.
R	±0.005 (mm)

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈径 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock	
										0.5°	1°	1.5°	2°	3°		
										UM-RN2-1252010	1.25	0.2	10	1		1.2
UM-RN2-1252015	15	3.92	15.67	16.21	16.79	17.41	18.81	●								
UM-RN2-1252020	20	3.14	20.84	21.56	22.33	23.16	25.02	●								
UM-RN2-1253005	5	7.83	5.29	5.50	5.70	5.90	6.35	●								
UM-RN2-1253010	10	5.24	10.50	10.86	11.24	11.65	12.57	●								
UM-RN2-1253015	15	3.94	15.67	16.20	16.78	17.40	18.78	●								
UM-RN2-1253020	20	3.15	20.84	21.55	22.32	23.15	25.00	●								
UM-RN2-151004	1.5	0.1	4	1.2	1.44	50	4	4	8.17	4.23		4.42	4.58	4.75	5.13	●
UM-RN2-151006			6			6.66			6.32	6.57		6.80	7.05	7.62	●	
UM-RN2-151008			8			5.62			8.41	8.71		9.02	9.35	10.10	●	
UM-RN2-151012			12			4.28			12.55	12.98		13.45	13.95	15.07	●	
UM-RN2-151015			15			3.63			15.65	16.19		16.77	17.40	18.80	●	
UM-RN2-151020			20			2.90			20.82	21.54	22.32	23.15	-	●		
UM-RN2-152004		0.2	4	50	8.26	4.23	4.41	4.57	4.74	5.10	●					
UM-RN2-152006			6	6.72	6.32	6.56	6.79	7.04	7.59	●						
UM-RN2-152008			8	5.66	8.40	8.70	9.01	9.34	10.08	●						
UM-RN2-152012			12	4.31	12.55	12.98	13.44	13.94	15.05	●						
UM-RN2-152015			15	3.65	15.65	16.19	16.76	17.38	18.78	●						
UM-RN2-152020			20	2.91	20.82	21.53	22.31	23.13	-	●						
UM-RN2-153004	0.3	4	50	8.36	4.22	4.40	4.56	4.72	5.08	●						
UM-RN2-153006		6	6.78	6.31	6.55	6.78	7.02	7.57	●							
UM-RN2-153008		8	5.71	8.40	8.69	8.99	9.32	10.05	●							
UM-RN2-153012		12	4.33	12.54	12.97	13.43	13.92	15.03	●							
UM-RN2-153015		15	3.67	15.64	16.18	16.75	17.37	18.76	●							
UM-RN2-153020		20	2.92	20.81	21.53	22.29	23.12	-	●							
UM-RN2-155004	0.5	4	50	8.55	4.21	4.39	4.54	4.69	5.03	●						
UM-RN2-155006		6	6.91	6.31	6.54	6.76	6.99	7.52	●							
UM-RN2-155008		8	5.80	8.39	8.68	8.97	9.29	10.00	●							
UM-RN2-155012		12	4.39	12.54	12.96	13.41	13.89	14.98	●							
UM-RN2-155015		15	3.71	15.64	16.17	16.73	17.34	18.71	●							
UM-RN2-155020		20	2.95	20.81	21.51	22.27	23.09	-	●							
UM-RN2-1751005	1.75	0.1	5	1.4	1.68	50	4	4	6.96	5.26	5.47	5.67	5.88	6.35	●	
UM-RN2-1751010			10			4.53			10.46	10.82	11.21	11.63	12.56	●		
UM-RN2-1751015			15			3.35			15.63	16.17	16.75	17.38	18.78	●		
UM-RN2-1751020			20			2.66			20.80	21.52	22.29	23.13	-	●		
UM-RN2-1752005			5			7.03			5.26	5.47	5.66	5.86	6.32	●		
UM-RN2-1752010			10			4.56			10.46	10.82	11.20	11.61	12.54	●		
UM-RN2-1752015		15	3.37	15.63	16.16	16.74	17.36	18.75	●							
UM-RN2-1752020		20	2.67	20.80	21.51	22.28	23.11	-	●							
UM-RN2-1753005		0.3	5	50	7.11	5.25	5.46	5.65	5.85	6.30	●					
UM-RN2-1753010			10	4.59	10.45	10.81	11.19	11.60	12.51	●						
UM-RN2-1753015			15	3.39	15.62	16.16	16.73	17.35	18.73	●						
UM-RN2-1753020			20	2.69	20.79	21.51	22.27	23.10	-	●						

● 标准库存 Stock ○ 需预定 Available Upon Order

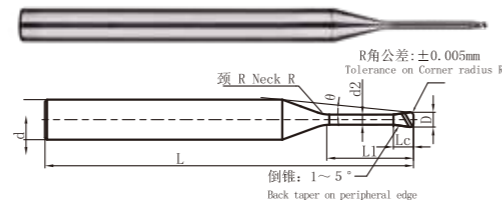
推荐切削参数P180/P189

圆角 R	公差 Tol.
R	±0.005 (mm)



# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-201004			4		
UM-RN2-201006			6			50			5.86	6.29	6.53	6.76	7.01	7.57	●
UM-RN2-201008			8			50			4.87	8.37	8.66	8.97	9.31	10.05	●
UM-RN2-201012		0.1	12			55			3.64	12.51	12.94	13.41	13.91	15.03	●
UM-RN2-201016		0.1	16			55			2.90	16.65	17.22	17.84	18.51	-	●
UM-RN2-201020		0.1	20			60			2.42	20.78	21.50	22.27	23.11	-	●
UM-RN2-201025		0.1	25			65			2.00	25.95	26.85	27.82	-	-	●
UM-RN2-201030		0.1	30			70			1.70	31.12	32.20	33.36	-	-	●
UM-RN2-202004		0.2	4			50			7.46	4.20	4.37	4.53	4.69	5.06	●
UM-RN2-202006		0.2	6			50			5.93	6.29	6.52	6.75	6.99	7.54	●
UM-RN2-202008		0.2	8			50			4.91	8.37	8.66	8.96	9.29	10.30	●
UM-RN2-202012		0.2	12			55			3.66	12.51	12.94	13.40	13.89	15.00	●
UM-RN2-202016		0.2	16			55			2.92	16.64	17.22	17.83	18.49	-	●
UM-RN2-202020		0.2	20			60			2.43	20.78	21.49	22.26	23.09	-	●
UM-RN2-202025		0.2	25			65			2.00	25.95	26.84	27.80	-	-	●
UM-RN2-202030		0.2	30			70			1.71	31.11	32.19	33.35	-	-	●
UM-RN2-203004		0.3	4			50			7.56	4.20	4.37	4.52	4.68	5.30	●
UM-RN2-203006		0.3	6			50			5.99	6.28	6.51	6.74	6.98	7.52	●
UM-RN2-203008		0.3	8			50			4.96	8.36	8.65	8.95	9.28	10.01	●
UM-RN2-203012	2	0.3	12	1.6	1.92	55	4	4	3.69	12.50	12.93	13.39	13.88	14.98	●
UM-RN2-203016		0.3	16			55			2.93	16.64	17.21	17.82	18.48	-	●
UM-RN2-203020		0.3	20			60			2.44	20.77	21.49	22.25	23.08	-	●
UM-RN2-203025		0.3	25			65			2.01	25.94	26.84	27.79	28.82	-	●
UM-RN2-203030		0.3	30			70			1.71	31.11	32.18	33.34	-	-	●
UM-RN2-205006		0.5	6			50			6.11	6.28	6.50	6.71	6.95	7.47	●
UM-RN2-205008		0.5	8			50			5.04	8.36	8.64	8.93	9.25	9.96	●
UM-RN2-205012		0.5	12			55			3.73	12.50	12.92	13.36	13.85	14.93	●
UM-RN2-205016		0.5	16			55			2.96	16.63	17.19	17.80	18.45	-	●
UM-RN2-205020		0.5	20			60			2.46	20.77	21.47	22.23	23.50	-	●
UM-RN2-205025		0.5	25			65			2.30	25.94	26.82	27.77	28.79	-	●
UM-RN2-205030		0.5	30			70			1.72	31.10	32.17	33.31	-	-	●
UM-RN2-208006		0.8	6			50			6.31	6.26	6.48	6.68	6.90	7.40	●
UM-RN2-208008		0.8	8			50			5.18	8.35	8.62	8.90	9.20	9.88	●
UM-RN2-208012		0.8	12			55			3.81	12.49	12.89	13.33	13.80	14.86	●
UM-RN2-208016		0.8	16			55			3.01	16.62	17.17	17.77	18.40	19.83	●
UM-RN2-208020		0.8	20			60			2.49	20.76	21.45	22.20	23.00	-	●
UM-RN2-208025		0.8	25			65			2.50	25.93	26.80	27.74	28.75	-	●
UM-RN2-208030		0.8	30			70			1.74	31.09	32.15	33.28	-	-	●
UM-RN2-251010		0.1	10			50			3.36	10.41	10.77	11.16	11.57	12.50	●
UM-RN2-251020		0.1	20			60			1.89	20.75	21.47	22.24	-	-	●
UM-RN2-251030	2.5	0.1	30	2	2.4	70	4	4	1.32	31.09	32.17	-	-	-	●
UM-RN2-252010		0.2	10			50			3.39	10.41	10.77	11.15	11.56	12.48	●
UM-RN2-252020		0.2	20			60			1.90	20.75	21.46	22.23	-	-	●

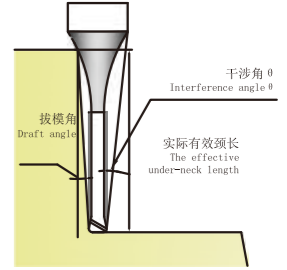
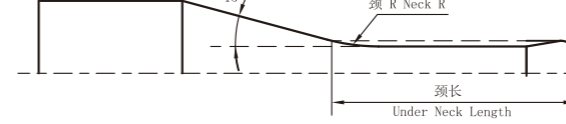
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P181/P190

圆角R	公差 Tol.
R	±0.005 (mm)

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-252030		0.2	30		
UM-RN2-253010		0.3	10			50			3.42	10.41	10.76	11.14	11.54	12.46	●
UM-RN2-253010		0.3	20			60			1.91	20.74	21.46	22.22	-	-	●
UM-RN2-253030	2.5	0.3	30	2	2.4	70	4	4	1.32	31.08	32.15	-	-	-	●
UM-RN2-255010		0.5	10			50			3.47	10.40	10.75	11.12	11.51	12.41	●
UM-RN2-255020		0.5	20			60			1.92	20.74	21.44	22.20	-	-	●
UM-RN2-255030		0.5	30			70			1.33	31.07	32.14	-	-	-	●
UM-RN2-301006		0.1	6			50			7.40	6.25	6.47	6.70	6.95	7.50	●
UM-RN2-301008		0.1	8			55			6.32	8.32	8.61	8.92	9.25	9.99	●
UM-RN2-301022		0.1	12			60			4.89	12.46	12.89	13.35	13.85	14.96	●
UM-RN2-301016		0.1	16			60			3.99	16.59	17.17	17.78	18.45	19.94	●
UM-RN2-301018		0.1	18			65			3.65	18.66	19.31	20.00	20.75	22.42	●
UM-RN2-301020		0.1	20			65			3.36	20.73	21.45	22.22	23.50	24.91	●
UM-RN2-301030		0.1	30			75			2.42	31.06	32.14	33.30	34.55	-	●
UM-RN2-301035		0.1	35			80			2.12	36.23	37.49	38.84	40.29	-	●
UM-RN2-302006		0.2	6			50			7.46	6.25	6.46	6.69	6.93	7.48	●
UM-RN2-302008		0.2	8			55			6.36	8.32	8.60	8.91	9.23	9.97	●
UM-RN2-302012		0.2	12			60			4.92	12.45	12.88	13.34	13.83	14.94	●
UM-RN2-302016		0.2	16			60			4.00	16.59	17.16	17.77	18.43	19.91	●
UM-RN2-302018		0.2	18			65			3.66	18.66	19.30	19.99	20.73	22.40	●
UM-RN2-302020		0.2	20			65			3.38	20.72	21.44	22.21	23.30	24.88	●
UM-RN2-302030		0.2	30			75			2.43	31.06	32.14	33.29	34.53	-	●
UM-RN2-302035		0.2	35			80			2.13	36.23	37.48	38.83	40.28	-	●
UM-RN2-303006		0.3	6			50			7.53	6.24	6.46	6.68	6.92	7.46	●
UM-RN2-303008	3	0.3	8	2.4	2.88	55	6	4	6.41	8.32	8.60	8.90	9.22	9.94	●
UM-RN2-303012		0.3	12			60			4.94	12.45	12.87	13.33	13.82	14.91	●
UM-RN2-303016		0.3	16			60			4.02	16.59	17.15	17.76	18.42	19.89	●
UM-RN2-303018		0.3	18			65			3.68	18.65	19.29	19.98	20.72	22.37	●
UM-RN2-303020		0.3	20			65			3.39	20.72	21.43	22.20	23.02	24.86	●
UM-RN2-303030		0.3	30			75			2.43	31.06	32.13	33.28	34.52	-	●
UM-RN2-303035		0.3	35			80			2.13	36.23	37.48	38.82	40.26	-	●
UM-RN2-305008		0.5	8			55			6.51	8.31	8.58	8.87	9.19	9.89	●
UM-RN2-305012		0.5	12			60			5.00	12.44	12.86	13.31	13.79	14.87	●
UM-RN2-305016		0.5	16			60			4.06	16.58	17.14	17.74	18.39	19.84	●
UM-RN2-305018		0.5	18			65			3.71	18.65	19.28	19.96	20.69	22.33	●
UM-RN2-305020		0.5	20			65			3.42	20.71	21.42	22.17	22.99	24.81	●
UM-RN2-305030		0.5	30			75			2.45	31.50	32.12	33.26	34.49	-	●
UM-RN2-305035		0.5	35			80			2.14	36.22	37.46	38.80	40.23	-	●
UM-RN2-30A008		1	8			55			6.76	8.29	8.55	8.82	9.11	9.77	●
UM-RN2-30A012		1	12			60			5.15	12.43	12.83	13.25	13.71	14.74	●
UM-RN2-30A016		1	16			55			4.16	16.56	17.10	17.69	18.31	19.72	●
UM-RN2-30A018		1	18			60			3.79	18.63	19.24	19.90	20.61	22.20	●
UM-RN2-30A020		1	20			50			3.49	20.70	21.38	22.12	22.91	24.69	●

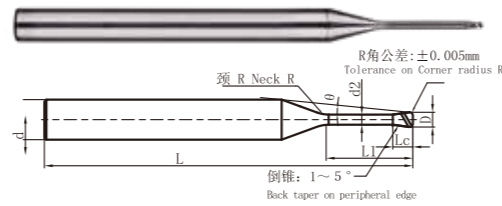
圆角R	公差 Tol.
R	±0.005 (mm)

● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P182/P191

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-30A030	3	1	30	2.4	
UM-RN2-30A035			35			50			2.17	36.20	37.43	38.74	40.16	-	●
UM-RN2-401008			8			55			4.90	8.31	8.59	8.90	9.23	9.97	●
UM-RN2-401012			12			55			3.66	12.44	12.87	13.33	13.83	14.94	●
UM-RN2-401016			16			60			2.91	16.57	17.15	17.76	18.43	-	●
UM-RN2-401020		0.1	20			65			2.42	20.71	21.43	22.20	23.30	-	●
UM-RN2-401030			30			70			1.71	31.50	32.12	33.28	-	-	●
UM-RN2-401035			35			50			1.49	36.21	37.47	-	-	-	●
UM-RN2-401045			45			50			1.18	46.55	48.17	-	-	-	●
UM-RN2-402008			8			50			4.94	8.30	8.58	8.89	9.21	9.94	●
UM-RN2-402012			12			55			3.68	12.44	12.86	13.32	13.81	14.92	●
UM-RN2-402016			16			55			2.93	16.57	17.14	17.75	18.41	-	●
UM-RN2-402020		0.2	20			60			2.43	20.71	21.42	22.19	23.01	-	●
UM-RN2-402030			30			65			1.71	31.04	32.12	33.27	-	-	●
UM-RN2-402035			35			70			1.49	36.21	37.47	-	-	-	●
UM-RN2-402045			45			50			1.18	46.55	48.16	-	-	-	●
UM-RN2-403008			8			50			4.99	8.30	8.58	8.88	9.20	9.92	●
UM-RN2-403012			12			50			3.70	12.43	12.86	13.31	13.80	14.89	●
UM-RN2-403016			16			55			2.94	16.57	17.13	17.74	18.40	-	●
UM-RN2-403020		0.3	20			55			2.44	20.70	21.41	22.18	23.00	-	●
UM-RN2-403030			30			60			1.72	31.04	32.11	33.26	-	-	●
UM-RN2-403035	4		35	3.2	3.86	65	6	4	1.49	36.21	37.46	-	-	-	●
UM-RN2-403045			45			70			1.19	46.54	48.16	-	-	-	●
UM-RN2-405012			12			50			3.75	12.43	12.84	13.29	13.77	14.84	●
UM-RN2-405016			16			50			2.97	16.56	17.12	17.72	18.37	-	●
UM-RN2-405020		0.5	20			55			2.47	20.70	21.40	22.15	22.97	-	●
UM-RN2-405030			30			55			1.73	31.03	32.10	33.24	-	-	●
UM-RN2-405035			35			60			1.50	36.20	37.44	-	-	-	●
UM-RN2-405045			45			65			1.19	46.54	48.14	-	-	-	●
UM-RN2-40A012			12			70			3.88	12.41	12.81	13.23	13.69	14.72	●
UM-RN2-40A016			16			50			3.50	16.54	17.09	17.67	18.29	19.70	●
UM-RN2-40A020		1	20			50			2.52	20.68	21.36	22.10	22.89	-	●
UM-RN2-40A030			30			55			1.75	31.02	32.06	33.18	-	-	●
UM-RN2-40A035			35			55			1.52	36.18	37.41	38.73	-	-	●
UM-RN2-40A045			45			60			1.20	46.52	48.11	-	-	-	●
UM-RN2-501020		0.1	20			65			1.32	20.70	21.42	-	-	-	●
UM-RN2-501040			40			70			0.69	41.38	-	-	-	-	●
UM-RN2-502020		0.2	20			50			1.32	20.70	21.41	-	-	-	●
UM-RN2-502040			40			60			0.69	41.37	-	-	-	-	●
UM-RN2-503020		0.3	20	4	4.85	70	6	4	1.33	20.69	21.41	-	-	-	●
UM-RN2-503040			40			50			0.69	41.37	-	-	-	-	●
UM-RN2-505020		0.5	20			60			1.34	20.69	21.39	-	-	-	●
UM-RN2-505040			40			85			0.70	41.36	-	-	-	-	●

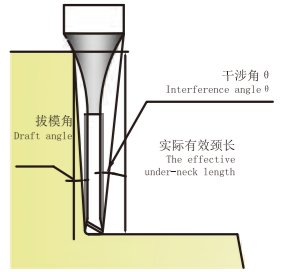
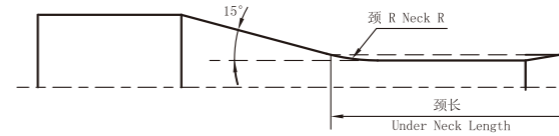
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数 P183/P192

圆角 R	公差 Tol.
R	±0.005 (mm)

# UM-RN2

小径深加工2刃圆角头立铣刀  
2 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
										UM-RN2-50A020	5	1	20	4	
UM-RN2-50A040			40			85			0.71	41.34	-	-	-	-	●
UM-RN2-601012			12			50			-	-	-	-	-	-	●
UM-RN2-601018			18			60			-	-	-	-	-	-	●
UM-RN2-601024		0.1	24			70			-	-	-	-	-	-	●
UM-RN2-601035			35			80			-	-	-	-	-	-	●
UM-RN2-601055			55			100			-	-	-	-	-	-	●
UM-RN2-602012			12			50			-	-	-	-	-	-	●
UM-RN2-602018			18			60			-	-	-	-	-	-	●
UM-RN2-602024		0.2	24			70			-	-	-	-	-	-	●
UM-RN2-602035			35			80			-	-	-	-	-	-	●
UM-RN2-602055			55			100			-	-	-	-	-	-	●
UM-RN2-603012			12			50			-	-	-	-	-	-	●
UM-RN2-603018	6		18	4.8	5.85	60	6	-	-	-	-	-	-	-	●
UM-RN2-603024		0.3	24			70			-	-	-	-	-	-	●
UM-RN2-603035			35			80			-	-	-	-	-	-	●
UM-RN2-603055			55			100			-	-	-	-	-	-	●
UM-RN2-605018			18			60			-	-	-	-	-	-	●
UM-RN2-605024		0.5	24			70			-	-	-	-	-	-	●
UM-RN2-605035			35			80			-	-	-	-	-	-	●
UM-RN2-605055			55			100			-	-	-	-	-	-	●
UM-RN2-60A018			18			60			-	-	-	-	-	-	●
UM-RN2-60A024		1	24			70			-	-	-	-	-	-	●
UM-RN2-60A035			35			80			-	-	-	-	-	-	●
UM-RN2-60A055			55			100			-	-	-	-	-	-	●

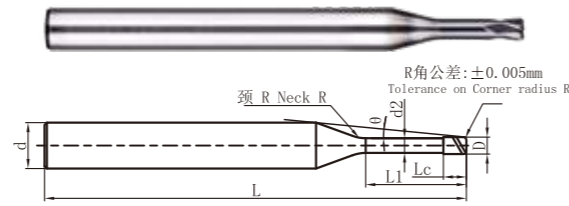
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数 P184/P193

圆角 R	公差 Tol.
R	±0.005 (mm)

# UM-RN4

小径深加工4刃圆角头立铣刀  
4 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock		
										0.5°	1°	1.5°	2°	3°			
										UM-RN4-100504	1	0.05	4	0.8		0.96	50
UM-RN4-100506	6	7.28	6.37	6.63	6.86	7.12	7.69	●									
UM-RN4-100508	8	6.23	8.45	8.76	9.08	9.42	10.18	●									
UM-RN4-100510	10	5.45	10.53	10.90	11.30	11.72	12.67	●									
UM-RN4-100512	12	4.84	12.61	13.04	13.51	14.02	15.15	●									
UM-RN4-100516	16	3.95	16.74	17.32	17.95	18.62	20.12	●									
UM-RN4-100520	20	3.34	20.88	21.60	22.38	23.22	25.10	●									
UM-RN4-101004	0.1	4	8.80	4.26	4.47	4.64	4.81	5.19	●								
UM-RN4-101006		6	7.31	6.37	6.62	6.86	7.11	7.68	●								
UM-RN4-101008		8	6.25	8.45	8.76	9.07	9.41	10.17	●								
UM-RN4-101010		10	5.46	10.53	10.90	11.29	11.71	12.65	●								
UM-RN4-101012		12	4.85	12.60	13.04	13.51	14.01	15.14	●								
UM-RN4-101016		16	3.96	16.74	17.32	17.94	18.61	20.11	●								
UM-RN4-101020		20	3.35	20.87	21.60	22.37	23.21	25.08	●								
UM-RN4-150504		1.5	0.05	4	1.2	1.44	50	8.12	4.23	4.42		4.59	4.76	5.14	●		
UM-RN4-150508				8			5.60	8.41	8.71	9.02		9.36	10.11	●			
UM-RN4-150512				12			4.27	12.55	12.99	13.46		13.96	15.09	●			
UM-RN4-150515	15			3.62			15.65	16.20	16.78	17.41		18.82	●				
UM-RN4-150520	20			2.89			20.82	21.55	22.32	23.16		-	●				
UM-RN4-151004	0.1		4	8.17			4.23	4.42	4.58	4.75		5.13	●				
UM-RN4-151008			8	5.62			8.41	8.71	9.02	9.35	10.10	●					
UM-RN4-151012			12	4.28			12.55	12.98	13.45	13.95	15.07	●					
UM-RN4-151015			15	3.63			15.65	16.19	16.77	17.40	18.80	●					
UM-RN4-151020			20	2.90			20.82	21.54	22.32	23.15	-	●					
UM-RN4-200504	2	0.05	4	1.6	1.92	50	7.32	4.21	4.39	4.55	4.72	5.09	●				
UM-RN4-200506			6			5.84	6.30	6.53	6.76	7.01	7.58	●					
UM-RN4-200508			8			4.85	8.37	8.67	8.98	9.31	10.07	●					
UM-RN4-200512			12			3.63	12.51	12.95	13.41	13.91	15.04	●					
UM-RN4-200516			16			2.90	16.65	17.23	17.85	18.51	-	●					
UM-RN4-200520			20			2.41	20.78	21.50	22.28	23.11	-	●					
UM-RN4-201004			0.1			4	7.36	4.21	4.38	4.54	4.71	5.08	●				
UM-RN4-201006						6	5.86	6.29	6.53	6.76	7.01	7.57	●				
UM-RN4-201008						8	4.87	8.37	8.66	8.97	9.31	10.05	●				
UM-RN4-201012						12	3.64	12.51	12.94	13.41	13.91	15.03	●				
UM-RN4-201016		16		2.90	16.65	17.22	17.84	18.51	-	●							
UM-RN4-201020		20		2.42	20.78	21.50	22.27	23.11	-	●							
UM-RN4-202004		0.2		4	7.46	4.20	4.37	4.53	4.69	5.06	●						
UM-RN4-202006				6	5.93	6.29	6.52	6.75	6.99	7.54	●						
UM-RN4-202008				8	4.91	8.37	8.66	8.96	9.29	10.03	●						
UM-RN4-202012				12	3.66	12.51	12.94	13.40	13.89	15.00	●						
UM-RN4-202016			16	2.92	16.64	17.22	17.83	18.49	-	●							
UM-RN4-202020			20	2.43	20.78	21.49	22.26	23.09	-	●							
UM-RN4-202025			25	2.00	25.95	26.84	27.80	-	-	●							

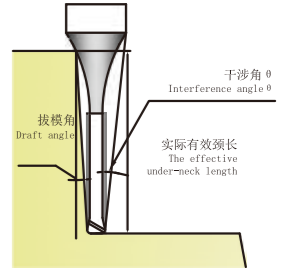
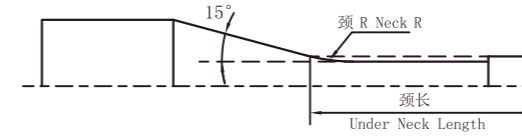
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P195

圆角R	公差 Tol.
R	±0.005 (mm)

# UM-RN4

小径深加工4刃圆角头立铣刀  
4 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock				
										0.5°	1°	1.5°	2°	3°					
										UM-RN4-202030	2	0.2	30	1.6		1.92	70	4	4
UM-RN4-203004	4	7.56	4.20	4.37	4.52	4.68	5.03	●											
UM-RN4-203008	8	4.96	8.36	8.65	8.95	9.28	10.01	●											
UM-RN4-203012	0.3	12	3.69	12.50	12.93	13.39	13.88	14.98	●										
UM-RN4-203016		16	2.93	16.64	17.21	17.82	18.48	-	●										
UM-RN4-203020		20	2.44	20.77	21.49	22.25	23.08	-	●										
UM-RN4-205004		0.5	4	7.76	4.19	4.35	4.50	4.65	4.98	●									
UM-RN4-205006	6		6.11	6.28	6.50	6.71	6.95	7.47	●										
UM-RN4-205008	8		5.04	8.36	8.64	8.93	9.25	9.96	●										
UM-RN4-205012	12		3.73	12.50	12.92	13.36	13.85	14.93	●										
UM-RN4-205016	16		2.96	16.63	17.19	17.80	18.45	-	●										
UM-RN4-205020	20		2.46	20.77	21.47	22.23	23.05	-	●										
UM-RN4-205025	25		2.03	25.94	26.82	27.77	28.79	-	●										
UM-RN4-205030	30		1.72	31.10	32.17	33.31	-	-	●										
UM-RN4-251008	2.5		0.1	8	2	2.4	50	6	4	3.98		8.34	8.63	8.94	9.27	10.02	●		
UM-RN4-251016				16			2.29			16.62		17.19	17.81	18.47	-	●			
UM-RN4-251020		20		1.89			20.75			21.47		22.24	-	-	●				
UM-RN4-252008		0.2		8			4.02			8.34		8.63	8.93	9.26	9.99	●			
UM-RN4-252016				16			2.30			16.61		17.18	17.80	18.46	-	●			
UM-RN4-252020			20	1.90			20.75			21.46		22.23	-	-	●				
UM-RN4-253012			0.3	12			2.95			12.47		12.90	13.35	13.84	-	●			
UM-RN4-253020				20			1.91			20.74		21.46	22.22	-	-	●			
UM-RN4-255020		0.5		12			2.99			12.47		12.88	13.33	13.81	-	●			
UM-RN4-255020				20			1.92			20.74		21.44	22.20	-	-	●			
UM-RN4-301008	3			0.1	8	2.4	2.88	60	6	4		6.32	8.32	8.61	8.92	9.25	9.99		
UM-RN4-301016			16		3.99			16.59				17.17	17.78	18.45	19.94	●			
UM-RN4-301025			25		2.82			25.90				26.79	27.76	28.80	-	●			
UM-RN4-301030		30	2.42		31.06			32.14				33.30	34.55	-	●				
UM-RN4-302008		0.2	8		6.36			8.32				8.60	8.91	9.23	9.97	●			
UM-RN4-302012			12	4.92	12.45			12.88				13.34	13.83	14.94	●				
UM-RN4-302016			16	4.00	16.59			17.16			17.77	18.43	19.91	●					
UM-RN4-302020			20	3.38	20.72			21.44			22.21	23.03	24.88	●					
UM-RN4-302025			25	2.82	25.89			26.79			27.75	28.78	-	●					
UM-RN4-302030		30	2.43	31.06	32.14			33.29			34.53	-	●						
UM-RN4-303008	3	0.2	8	2.4	2.88	60	6	4	6.41	8.32	8.60	8.90	9.22	9.94	●				
UM-RN4-303016			16			4.02			16.59	17.15	17.76	18.42	19.89	●					
UM-RN4-303020			20			3.39			20.72	21.43	22.20	23.02	24.86	●					
UM-RN4-303025			25			2.83			25.89	26.78	27.74	28.77	-	●					
UM-RN4-303030			30			2.43			31.06	32.13	33.28	34.52	-	●					
UM-RN4-305008		0.2	8			6.51			8.31	8.58	8.87	9.19	9.89	●					
UM-RN4-305012			12			5.00			12.44	12.86	13.31	13.79	14.87	●					
UM-RN4-305016			16			4.06			16.58	17.14	17.74	18.39	19.84	●					
UM-RN4-305020			20			3.42			20.71	21.42	22.17	22.99	24.81	●					

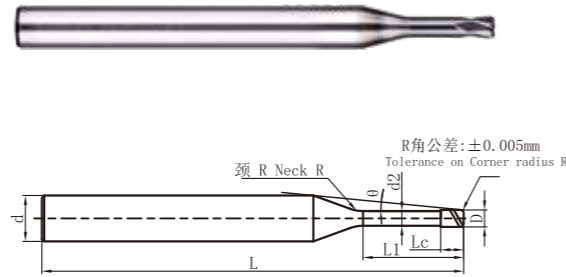
● 标准库存 Stock ○ 需预定 Available Upon Order

推荐切削参数P196

圆角R	公差 Tol.
R	±0.005 (mm)

# UM-RN4

小径深加工4刃圆角头立铣刀  
4 flute, corner radius endmill for small diameter & deep machining



订货号 Ordering Code	外径 (D) Mill Dia.	圆角 (R) Corner Radius	颈长 (L1) Under Neck Length	刃长 (Lc) Flute Length	颈径 (d2) Neck Dia.	全长 (L) Overall Length	柄径 (d) Shank Dia.	颈 (R) Neck R	干涉角 (θ) Interference Angle	对应拔模角的有效颈长 The effective under-neck length for the various draft angles					库存 Stock
										0.5°	1°	1.5°	2°	3°	
UM-RN4-305025	3	0.5	25	2.4	2.88	70			2.85	25.88	26.77	27.72	28.74	-	●
UM-RN4-305030			30			2.45			31.05	32.12	33.26	34.49	-	●	
UM-RN4-305035			35			2.14			36.22	37.46	38.80	40.23	-	●	
UM-RN4-401012	4	0.1	12	3.2	3.86	60			3.66	12.44	12.87	13.33	13.83	14.94	●
UM-RN4-401020			20			2.42			20.71	21.43	22.20	23.03	-	●	
UM-RN4-401030			30			1.71			31.05	32.12	33.28	-	-	●	
UM-RN4-401040			40			1.32			41.38	42.82	-	-	-	●	
UM-RN4-402012		0.2	12			3.68			12.44	12.86	13.32	13.81	14.92	●	
UM-RN4-402020			20			2.43			20.71	21.42	22.19	23.01	-	●	
UM-RN4-402030			30			1.71			31.04	32.12	33.27	-	-	●	
UM-RN4-402040			40			1.32			41.38	42.81	-	-	-	●	
UM-RN4-403012			0.3			12			3.70	12.43	12.86	13.31	13.80	14.89	●
UM-RN4-403020						20			2.44	20.70	21.41	22.18	23.00	-	●
UM-RN4-403030						30			1.72	31.04	32.11	33.26	-	-	●
UM-RN4-403040						40			1.32	41.38	42.81	-	-	-	●
UM-RN4-405012	0.5	12	3.75	12.43	12.84	13.29	13.77	14.84	●						
UM-RN4-405020		20	2.47	20.70	21.40	22.15	22.97	-	●						
UM-RN4-405030		30	1.73	31.03	32.10	33.24	-	-	●						
UM-RN4-405040		40	1.33	41.37	42.79	-	-	-	●						
UM-RN4-501020	5	0.1	20	4	4.85	70	6	4	1.32	20.70	21.42	-	-	-	●
UM-RN4-501040			40			0.69			41.38	-	-	-	-	●	
UM-RN4-502020		0.2	20			1.32			20.70	21.41	-	-	-	●	
UM-RN4-502040			40			0.69			41.37	-	-	-	-	●	
UM-RN4-503020		0.3	20			1.33			20.69	21.41	-	-	-	●	
UM-RN4-503040			40			0.69			41.37	-	-	-	-	●	
UM-RN4-505020		0.5	20			1.34			20.69	21.39	-	-	-	●	
UM-RN4-505040			40			0.70			41.36	-	-	-	-	●	
UM-RN4-50A020		1	20			1.38			20.67	21.36	-	-	-	●	
UM-RN4-50A040			40			0.71			41.34	-	-	-	-	●	
UM-RN4-602030	6	0.2	30	4	4.85	80			-	-	-	-	-	-	●
UM-RN4-602054			54			-			-	-	-	-	-	●	
UM-RN4-602072			72			-			-	-	-	-	-	●	
UM-RN4-603030		0.3	30			-			-	-	-	-	●		
UM-RN4-603054			54			-			-	-	-	-	●		
UM-RN4-603072			72			-			-	-	-	-	-	●	
UM-RN4-605030		0.5	30			-			-	-	-	-	●		
UM-RN4-605054			54			-			-	-	-	-	-	●	
UM-RN4-605072			72			-			-	-	-	-	-	●	
UM-RN4-60A030		1	30			-			-	-	-	-	●		
UM-RN4-60A054			54			-			-	-	-	-	-	●	
UM-RN4-60A072			72			-			-	-	-	-	-	●	

● 标准库存 Stock    ○ 需预定 Available Upon Order

推荐切削参数P197

圆角R	公差 Tol.
R	±0.005 (mm)

# 切削参数推荐

## RECOMMENDED CUTTING PARAMETERS



## U-S2/SL2/SH2/R2/RH2 切削参数推荐表

### U-S2/SL2/SH2/R2/RH2 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	1120	14490	720	14490	640
4	15040	1080	10860	690	10860	600
6	10020	960	7240	610	7240	570
8	7520	970	5430	680	5430	650
10	6010	960	4340	640	4340	580
12	5010	900	3620	610	3620	520
16	3750	900	2710	510	2710	430
20	3010	900	2170	480	2170	380

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.8D		ap≤0.3D		ap≤0.3D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	450	6130	140	6680	270
4	6680	560	4590	160	5010	320
6	4460	460	3060	210	3340	280
8	3340	420	2290	210	2500	240
10	2670	380	1830	210	2000	230
12	2220	360	1530	190	1660	230
16	1660	420	1150	170	1240	240
20	1330	430	920	160	1000	240

#### 注意

- 请尽可能使用高刚性、高精度的机床和卡盘。
- 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## U-S3 切削参数推荐表

### U-S3 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	1690	14490	1090	14490	950
4	15040	1620	10860	1030	10860	910
6	10020	1440	7240	930	7240	870
8	7520	1470	5430	1020	5430	970
10	6010	1440	4340	960	4340	890
12	5010	1350	3620	920	3620	790
16	3750	1350	2710	770	2710	650
20	3010	1350	2170	710	2170	580

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.8D		ap≤0.3D		ap≤0.3D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	670	6130	220	6680	390
4	6680	840	4590	250	5010	480
6	4460	690	3060	320	3340	420
8	3340	610	2290	310	2500	350
10	2670	570	1830	300	2000	340
12	2220	540	1530	300	1660	340
16	1660	630	1150	270	1240	350
20	1330	640	920	250	1000	350

#### 注意

- 请尽可能使用高刚性、高精度的机床和卡盘。
- 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## U-S4/SL4/SH4/R4/RH4 切削参数推荐表

### U-S4/SL4/SH4/R4/RH4 Recommended Cutting Parameters

侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	2240	14490	1440	14490	1270
4	15040	2160	10860	1390	10860	1210
6	10020	1920	7240	1240	7240	1150
8	7520	1950	5430	1360	5430	1300
10	6010	1920	4340	1290	4340	1180
12	5010	1800	3620	1220	3620	1060
16	3750	1800	2710	1020	2710	870
20	3010	1800	2170	950	2170	780

## U-S6 切削参数推荐表

### U-S6 Recommended Cutting Parameters

侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	3370	14490	2170	14490	1910
4	15040	3250	10860	2080	10860	1820
6	10020	2880	7240	1860	7240	1740
8	7520	2940	5430	2050	5430	1950
10	6010	2880	4340	1930	4340	1770
12	5010	2700	3620	1840	3620	1580
16	3750	2700	2710	1550	2710	1300
20	3010	2700	2170	1430	2170	1170

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## U-B2/BH2 切削参数推荐表

### U-B2/BH2 Recommended Cutting Parameters

仿形铣 Profiling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.2D ae≤0.3D		ap≤0.2D ap≤0.2D		ap≤0.15D ae≤0.15D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
4	13370	1070	9190	640	10020	640
5	10690	1070	7360	660	8020	670
6	8910	1070	6130	670	6680	690
7	7640	1070	5260	660	5730	660
8	6680	1070	4590	660	5010	650
9	5940	1070	4080	650	4460	640
10	5350	1070	3670	660	4010	640
11	4860	1070	3340	670	3640	640
12	4460	1070	3060	670	3340	640

## U-B4 切削参数推荐表

### U-B4 Recommended Cutting Parameters

仿形铣 Profiling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.2D ae≤0.3D		ap≤0.2D ap≤0.2D		ap≤0.15D ae≤0.15D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
4	13370	2140	9190	1290	10020	1280
5	10690	2140	7360	1320	8020	1340
6	8910	2140	6130	1350	6680	1390
7	7640	2140	5260	1320	5730	1330
8	6680	2140	4590	1320	5010	1300
9	5940	2140	4080	1310	4460	1280
10	5350	2140	3670	1320	4010	1280
11	4860	2140	3340	1330	3640	1270
12	4460	2140	3060	1350	3340	1270

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## UC-S2/R2 切削参数推荐表 U-S2/R2 Recommended Cutting Parameters

### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	900	14490	570	14490	510
4	15040	860	10860	550	10860	480
6	10020	760	7240	500	7240	450
8	7520	770	5430	540	5430	520
10	6010	760	4340	510	4340	460

### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.8D		ap≤0.3D		ap≤0.3D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	360	6130	110	6680	220
4	6680	450	4590	120	5010	250
6	4460	360	3060	160	3340	220
8	3340	330	2290	160	2500	190
10	2670	300	1830	160	2000	180

#### | 注意 |

- ▲ 请尽可能使用高刚性、高精度的机床和卡盘。
- ▲ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- ▲ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## UC-S4/SH4/R4/RH4 切削参数推荐表 U-S4/SH4/R4/RH4 Recommended Cutting Parameters

### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	20060	1790	14490	1150	14490	1020
4	15040	1730	10860	1110	10860	970
6	10020	1530	7240	990	7240	920
8	7520	1560	5430	1090	5430	1040
10	6010	1530	4340	1030	4340	940

## UC-B2/BH2 切削参数推荐表 U-B2/BH2 Recommended Cutting Parameters

### 仿形铣 Profiling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.2D ae≤0.3D		ap≤0.2D ap≤0.2D		ap≤0.15D ae≤0.15D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
4	13370	850	9190	510	10020	510
5	10690	850	7360	530	8020	530
6	8910	850	6130	530	6680	550
7	7640	850	5260	530	5730	530
8	6680	850	4590	530	5010	520
9	5940	850	4080	520	4460	510
10	5350	850	3670	530	4010	510

#### | 注意 |

- ▲ 请尽可能使用高刚性、高精度的机床和卡盘。
- ▲ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- ▲ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## UR-S4 切削参数推荐表

### UR-S4 Recommended Cutting Parameters

#### 侧铣 Side milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.3D		ap≤1.5D ae≤0.3D		ap≤1D ae≤0.25D		ap≤1D ae≤0.125D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
6	7800	1120	6130	600	6680	660	5560	550
8	5840	1120	4590	640	5010	690	4170	500
10	4680	1120	3670	660	4010	720	3340	470
12	3900	1120	3060	670	3340	730	2780	440
16	2920	1050	2290	550	2500	590	2080	420
20	2340	940	1830	510	2000	560	1660	390

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D		ap≤0.75D		ap≤0.75D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
6	6680	670	5000	390	5570	450
8	5010	660	3750	370	4200	420
10	4010	640	3000	420	3340	470
12	3340	670	2500	390	2780	440
16	2500	590	1870	330	2080	370
20	2000	560	1500	290	1660	330

#### 注意

- ▲ 请尽可能使用高刚性、高精度的机床和卡盘。
- ▲ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- ▲ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## UN-S4 切削参数推荐表

### UN-S4 Recommended Cutting Parameters

#### 侧铣 Side milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.3D		ap≤1.5D ae≤0.3D		ap≤1D ae≤0.25D		ap≤1D ae≤0.125D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
6	7240	1030	6130	600	6130	600	5010	500
8	5430	1030	4590	640	4590	640	3750	450
10	4340	1030	3670	660	3670	660	3010	420
12	3620	1030	3060	670	3060	670	2500	390
16	2710	970	2290	550	2290	550	1870	370
20	2170	870	1830	510	1830	510	1500	360

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.5D		ap≤0.5D		ap≤0.3D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
6	6680	670	5000	390	5570	450
8	5010	660	3750	370	4200	420
10	4010	640	3000	420	3340	470
12	3340	670	2500	390	2780	440
16	2500	590	1870	330	2080	370
20	2000	560	1500	290	1660	330

#### 注意

- ▲ 请尽可能使用高刚性、高精度的机床和卡盘。
- ▲ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- ▲ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.



## X-S3/C3 切削参数推荐表

### X-S3/C3 Recommended Cutting Parameters

#### 侧铣 Side milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	22290	2140	16710	1650	16710	1350
4	16710	2050	12530	1390	12530	1230
6	11150	1770	8350	1200	8350	1130
8	8350	1750	6260	1280	6260	1210
10	6680	1700	5010	1180	5010	1100
12	5570	1660	4170	1130	4170	970
16	4170	1560	3130	940	3130	790
20	3340	1550	2500	860	2500	710

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D		ap≤0.3D		ap≤0.5D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	820	6130	330	6680	520
4	6680	960	4590	330	5010	570
6	4460	760	3060	360	3340	470
8	3340	670	2290	350	2500	380
10	2670	610	1830	330	2000	370
12	2220	590	1530	330	1660	370
16	1660	670	1150	290	1240	380
20	1330	680	920	270	1000	380

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## X-C4/S4/CN4/R4 切削参数推荐表

### X-C4/S4/CN4/R4 Recommended Cutting Parameters

#### 侧铣 Side milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ap≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	22290	2850	16710	2200	16710	1800
4	16710	2740	12530	1850	12530	1650
6	11150	2360	8350	1600	8350	1500
8	8350	2340	6260	1700	6260	1620
10	6680	2270	5010	1580	5010	1470
12	5570	2220	4170	1500	4170	1300
16	4170	2080	3130	1240	3130	1070
20	3340	2070	2500	1150	2500	950

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D		ap≤0.3D		ap≤0.5D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	1100	6130	440	6680	690
4	6680	1280	4590	440	5010	760
6	4460	1010	3060	490	3340	630
8	3340	890	2290	470	2500	520
10	2670	820	1830	450	2000	490
12	2220	790	1530	450	1660	500
16	1660	890	1150	390	1240	510
20	1330	910	920	360	1000	520

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## X-B2/BH2 切削参数推荐表

### X-B2/BH2 Recommended Cutting Parameters

#### 仿形铣 Profiling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.04D ae≤0.04D		ap≤0.04D ae≤0.04D		ap≤0.02D ae≤0.02D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	52500	2940	52500	2640	52500	2040
2	36780	2940	36780	2570	30090	2110
3	24520	2940	24520	2690	20060	2080
4	18390	2940	18390	2760	15040	2110
6	12260	2940	12260	2690	10020	2110
8	9190	2940	9190	2660	7520	2110
10	7360	2940	7360	2640	6010	2100
12	6130	2940	6130	2650	5010	2100

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## UX-S4/SL4/SH4/R4/RH4 切削参数推荐表

### UX-S4/SL4/SH4/R4/RH4 Recommended Cutting Parameters

#### 侧铣 Side milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.15D		ap≤1.5D ae≤0.15D		ap≤1D ae≤0.12D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	22290	2850	16710	2200	16710	1800
4	16710	2740	12530	1850	12530	1650
6	11150	2360	8350	1600	8350	1500
8	8350	2340	6260	1700	6260	1620
10	6680	2270	5010	1580	5010	1470
12	5570	2220	4170	1500	4170	1300
16	4170	2080	3130	1240	3130	1070
20	3340	2070	2500	1150	2500	950

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-48HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D		ap≤0.3D		ap≤0.5D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	8910	1100	6130	440	6680	690
4	6680	1280	4590	440	5010	760
6	4460	1010	3060	490	3340	630
8	3340	890	2290	470	2500	520
10	2670	820	830	450	2000	490
12	2220	790	1530	450	1660	500
16	1660	890	1150	390	1240	510
20	1330	910	920	360	1000	520

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## H-S4/SL4/R4/RN4 切削参数推荐表

### H-S4/SL4/R4/RN4 Recommended Cutting Parameters

#### 高速侧铣 High speed side milling



工件材料 Workpiece Materials	合金钢·预硬化钢 (30-45HRC) Alloy steel, Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steel		淬硬钢 (55-60HRC) Hardened Steel	
	切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	21000	1260	18900	950	15750	830
4	10500	1470	9660	1210	8400	950
6	7350	1680	6410	1370	5570	1090
8	5460	1890	4830	1470	4200	1160
10	4410	1680	3780	1370	3360	1050
12	3780	1580	3150	1260	2840	950

#### 标准侧铣 Slotting



工件材料 Workpiece Materials	合金钢·预硬化钢 (30-45HRC) Alloy steel, Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steel		淬硬钢 (55-60HRC) Hardened Steel	
	切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	14700	840	13130	530	11550	460
4	7560	950	6720	630	5880	530
6	5040	1050	4410	740	3890	610
8	3780	1160	3360	840	2940	660
10	3050	1100	2630	740	2310	600
12	2520	1050	2210	670	2000	580

#### 注意

- 请尽可能使用高刚性、高精度的机床和卡盘。
- 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- 发生颤动和异常振动时，请调整切削条件。

#### NOTE

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

## H-B2/BH2 切削参数推荐表

### H-B2/BH2 Recommended Cutting Parameters

#### 高速仿型铣 High speed profiling



工件材料 Workpiece Materials	合金钢·预硬化钢 (30-45HRC) Alloy steel, Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steel		淬硬钢 (55-60HRC) Hardened Steel	
	切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	36750	2730	30030	2310	26670	1890
4	18380	2840	15020	2420	13340	1890
6	12180	2840	9980	2420	8930	1890
8	9140	2990	7560	2470	6720	1580
10	7350	2990	5990	2470	5250	1580
12	6300	3050	4730	2520	2000	1580

#### 标准仿型铣 Standard side profiling

工件材料 Workpiece Materials	合金钢·预硬化钢 (30-45HRC) Alloy steel, Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steel		淬硬钢 (55-60HRC) Hardened Steel	
	切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)		切削深度 Depth of cut (mm)	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	21000	1580	16700	1260	12600	
4	10820	1730	8400	1370	6300	
6	7250	1730	5570	1370	4200	
8	5360	1790	4200	1420	3050	
10	4310	1790	3360	1420	2520	
12	3570	1840	2730	1470	2210	

#### 注意

- 请尽可能使用高刚性、高精度的机床和卡盘。
- 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- 发生颤动和异常振动时，请调整切削条件。

#### NOTE

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

## H-S6/SL6 切削参数推荐表

### H-S6/SL6 Recommended Cutting Parameters

#### 侧铣 Side milling

工件材料 Workpiece Materials	合金钢·预硬化钢 (30-45HRC) Alloy steel, Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steel		淬硬钢 (55-60HRC) Hardened Steel	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.05D		ap≤1.5D ae≤0.03D		ap≤0.5D ae≤0.02D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
6	6200	1674	4500	1215	3100	744
8	4800	1584	3600	1188	2400	720
10	4000	1560	3000	1170	2000	720
12	3200	1440	2400	1080	1600	627
16	2400	1296	1800	972	1200	576
20	1600	960	1200	720	800	432

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时, 请考虑加工条件、目的、使用机床等因素, 对切削条件进行调整。
- △ 发生颤动和异常振动时, 请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## A-S2/SS2/SL2/R2/RS2/RL2 切削参数推荐表

### A-S2/SS2/SL2/R2/RS2/RL2 Recommended Cutting Parameters

#### 侧铣 Side Milling

工件材料 Workpiece Materials	锻造铝合金、铸造铝合金(Si<12%) Forging and Casting Aluminum Alloy(Si<12%)		铜合金(HB<200) Copper Alloy(HB<200)	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	16000	580	16000	520
2	12700	710	12700	650
4	12000	1200	12000	1070
6	10600	1280	10600	1150
8	10000	1390	10000	1250
10	9500	1720	9500	1550
12	9280	2400	9280	2170

#### 槽铣 Slotting

工件材料 Workpiece Materials	锻造铝合金、铸造铝合金(Si<12%) Forging and Casting Aluminum Alloy(Si<12%)		铜合金(HB<200) Copper Alloy(HB<200)	
切削深度 Depth of cut (mm)	ap≤0.5D ae≤1D		ap≤0.5D ae≤1D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	16000	400	16000	380
2	10000	500	10000	450
4	9000	810	9000	800
6	8000	920	8000	830
8	7800	1100	7800	1000
10	8000	1280	8000	1150
12	6800	1300	6800	1130

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时, 请考虑加工条件、目的、使用机床等因素, 对切削条件进行调整。
- △ 发生颤动和异常振动时, 请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## A-S3/SS3/SL3/R3/RS3 切削参数推荐表

### A-S3/SS3/SL3/R3/RS3 Recommended Cutting Parameters

#### 侧铣 Side Milling

工件材料 Workpiece Materials	锻造铝合金、铸造铝合金(Si<12%) Forging and Casting Aluminum Alloy(Si<12%)		铜合金(HB<200) Copper Alloy(HB<200)	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	12700	900	13000	850
4	12000	1430	12000	1200
6	10600	1530	10600	1200
8	10000	1670	10000	1500
10	9500	2050	9500	1800
12	9280	2800	9280	2225

#### 槽铣 Slotting

工件材料 Workpiece Materials	锻造铝合金、铸造铝合金(Si<12%) Forging and Casting Aluminum Alloy(Si<12%)		铜合金(HB<200) Copper Alloy(HB<200)	
切削深度 Depth of cut (mm)	ap≤0.5D ae≤1D		ap≤0.5D ae≤1D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	10000	570	10000	520
4	9000	960	9000	860
6	8000	1050	8000	830
8	7800	1300	7800	960
10	8000	1500	8000	1240
12	6800	1620	6800	1500

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时, 请考虑加工条件、目的、使用机床等因素, 对切削条件进行调整。
- △ 发生颤动和异常振动时, 请调整切削条件。

#### NOTE

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

## A-B2 切削参数推荐表

### A-B2 Recommended Cutting Parameters

#### 仿型铣 Profiling

工件材料 Workpiece Materials	锻造铝合金、铸造铝合金(Si<12%) Forging and Casting Aluminum Alloy(Si<12%)		铜合金(HB<200) Copper Alloy(HB<200)	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	12700	900	13000	850
4	12000	1430	12000	1200
6	10600	1530	10600	1200
8	10000	1670	10000	1500
10	9500	2050	9500	1900
12	9280	2800	9280	2225

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时, 请考虑加工条件、目的、使用机床等因素, 对切削条件进行调整。
- △ 发生颤动和异常振动时, 请调整切削条件。

#### NOTE

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

## S-S2/R2 切削参数推荐表

### S-S2/R2 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	20000	115	25000	220	20000	195
2	15000	185	15900	254	11150	165
4	10800	325	7960	340	5500	180
6	7000	350	5300	340	3700	180
8	5200	345	3980	365	2800	180
10	4200	340	3180	330	2200	180
12	3500	340	2650	300	1850	180

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.1D ae≤1D		ap≤0.1D ae≤1D		ap≤0.1D ae≤1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	7000	160	4200	120	6000	120
4	6000	160	3580	120	4800	125
6	4200	170	2390	155	3180	135
8	3100	170	1790	155	240	130
10	2500	170	1430	155	1960	130
12	2100	170	1195	155	1590	130

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## S-R3 切削参数推荐表

### S-R3 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	15000	345	15900	480	15000	305
4	10800	605	7960	525	8000	460
6	7000	650	5300	510	5300	500
8	5200	645	3980	550	4000	495
10	4200	630	3180	500	3200	480
12	3500	630	2650	450	2650	480

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.1D ae≤1D		ap≤0.1D ae≤1D		ap≤0.1D ae≤1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	9000	170	7165	300	9000	150
4	6480	300	3580	180	4800	230
6	4200	325	2390	235	3180	250
8	3120	320	1790	235	2400	250
10	2520	315	1430	230	1920	240
12	1950	315	1195	230	1590	240

#### 注意

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### NOTE

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## S-SS4/S4/R4 切削参数推荐表

### S-SS4/S4/R4 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤1D ae≤0.1D		ap≤1D ae≤0.1D		ap≤1D ae≤0.1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	20000	225	25000	700	20000	180
2	15000	360	15900	635	15000	315
4	10800	630	7960	700	8000	480
6	7000	675	5300	680	5300	515
8	5200	665	3980	730	4000	510
10	4200	660	3180	660	3800	505
12	3500	660	2650	600	3200	505

#### 槽铣 Slotting



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.1D ae≤1D		ap≤0.1D ae≤1D		ap≤0.1D ae≤1D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	9000	180	7165	280	9000	150
4	6480	315	3580	240	4800	240
6	4200	335	2390	310	3180	255
8	3120	330	1790	310	2400	255
10	2520	330	1430	310	1920	250
12	1950	330	1195	310	1590	250

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## S-B2 切削参数推荐表

### S-B2 Recommended Cutting Parameters

#### 仿型铣 Profiling



工件材料 Workpiece Materials	碳钢·合金钢·铸铁 (180-250HB) Carbon Steels, Alloy Steels, Cast Iron		不锈钢·工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels	
切削深度 Depth of cut (mm)	ap≤0.2D ae≤0.2D		ap≤0.2D ae≤0.2D		ap≤0.2D ae≤0.2D	
外径 Mill Dia. (mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	40000	800	25000	525	32000	420
2	24000	900	15900	480	16000	450
4	11500	950	7960	525	8000	480
6	8000	920	5300	510	5300	450
8	6000	880	3980	550	4000	400
10	4800	850	3180	540	3200	400
12	4000	800	2650	520	2650	380

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## S10-S2 切削参数推荐表

### S10-S2 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	切削深度 Depth of cut (mm)	vc m/min	刃径 (mm)	1	2	4	6	8
不锈钢 Stainless Steels	$ap \leq 1D$	80~120	转速 (n) (r/min)	25000	15900	7960	5300	3980
	$ae \leq 0.1D$		进给速度 (Vf) (mm/min)	290	330	450	450	480

#### 槽铣 Slotting



工件材料 Workpiece Materials	切削深度 Depth of cut (mm)	vc m/min	刃径 (mm)	1	2	4	6	8
不锈钢 Stainless Steels	$ap \leq 1D$	35~55	转速 (n) (r/min)	14330	7165	3580	2390	1790
	$ae \leq 0.1D$		进给速度 (Vf) (mm/min)	200	140	120	155	155

## S10-SS4/S4/R4/RS4 切削参数推荐表

### S10-SS4/S4/R4/RS4 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	切削深度 Depth of cut (mm)	vc m/min	刃径 (mm)	1	2	4	6	8	10	12
不锈钢 Stainless Steels	$ap \leq 1D$	80~120	转速 (n) (r/min)	25000	15900	7960	5300	3980	3180	2650
	$ae \leq 0.1D$		进给速度 (Vf) (mm/min)	950	850	950	900	950	900	850

#### 面铣 Face Milling



工件材料 Workpiece Materials	切削深度 Depth of cut (mm)	vc m/min	刃径 (mm)	1	2	4	6	8	10	12
不锈钢 Stainless Steels	$ap \leq 0.3D$	35~55	转速 (n) (r/min)	14300	7165	3580	2390	1790	1430	1195
	$ae \leq 0.1D$		进给速度 (Vf) (mm/min)	350	300	400	400	400	400	400

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.

## G-S2/SN2/R2/RN2 切削参数推荐表

### G-S2/SN2/R2/RN2 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	$ap \leq 1.5D$ $ae \leq 0.5D$		$ap \leq 1D$ $ae \leq 0.15D$	
外径 Mill Dia. (mm)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)
2	39810	3980	31850	1910
4	19900	2790	15920	1590
6	13270	2390	10620	1270
8	9950	2190	7960	1120
10	7960	2390	6370	1080
12	6640	2390	5310	1380

#### 槽铣 Slotting



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	$ap \leq 0.5D$		$ap \leq 0.5D$	
外径 Mill Dia. (mm)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)
2	31850	1910	28660	1150
4	15920	1430	14330	1150
6	10620	1380	9550	960
8	7960	1350	7170	860
10	6370	1400	5730	800
12	5310	1590	4780	860

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

1. Prefer to use the high-rigidity and high accuracy machine.
2. Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
3. Please adjust the parameters when chatter or abnormal vibration occurs.



## G-S3 切削参数推荐表

### G-S3 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.5D		ap≤1D ae≤0.15D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	39810	5970	31850	2870
4	19900	4180	15920	2390
6	13270	3580	10620	1910
8	9950	3280	7960	1670
10	7960	3580	6370	1620
12	6640	3580	5310	2070

#### 槽铣 Slotting



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	ap≤0.5D		ap≤0.5D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	31850	2870	28660	1720
4	15920	2150	14330	1720
6	10620	2070	9550	1430
8	7960	2030	7170	1290
10	6370	2100	5730	1200
12	5310	2390	4780	1290

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

## G-S4/R4/RN4 切削参数推荐表

### G-S4/R4/RN4 Recommended Cutting Parameters

#### 侧铣 Side Milling



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	ap≤1.5D ae≤0.5D		ap≤1D ae≤0.15D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	39810	7960	31850	3820
4	19900	5570	15920	3190
6	13270	4780	10620	2550
8	9950	4380	7960	2230
10	7960	4780	6370	2170
12	6640	4780	5310	2760

## G-B2/BN2 切削参数推荐表

### G-B2/BN2 Recommended Cutting Parameters

#### 仿型铣 Profiling



工件材料 Workpiece Materials	石墨 Graphite		铸造铝合金 (Si>12%) Aluminium Alloy (Si>12%)	
切削深度 Depth of cut (mm)	ap≤0.5D ae≤0.4D		ap≤0.3D ae≤0.3D	
外径 Mill Dia.(mm)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
2	31850	2790	31850	2040
4	19900	1990	15920	1430
6	13270	1860	10620	1270
8	9950	1790	7960	1270
10	7960	1910	6370	1400
12	6640	1990	5310	1380

#### | 注意 |

- △ 请尽可能使用高刚性、高精度的机床和卡盘。
- △ 此切削参数推荐表中的数值为切削条件的基准值。实际加工时，请考虑加工条件、目的、使用机床等因素，对切削条件进行调整。
- △ 发生颤动和异常振动时，请调整切削条件。

#### | NOTE |

- 1.Prefer to use the high-rigidity and high accuracy machine.
- 2.Recommended Cutting parameters are for your reference. Please adjust the parameter to fulfill your own purpose.
- 3.Please adjust the parameters when chatter or abnormal vibration occurs.

# UM-SN2 切削参数推荐表

## UM-SN2 Recommended Cutting Parameters

工件材料 Workpiece Materials		1		2		3		4		5		6		
		铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)		120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
0.1	0.3	0.006	50,000	500	50,000	500	50,000	475	46,170	331	40,613	242	38,048	198
	0.5	0.004	50,000	500	50,000	500	50,000	475	46,170	331	40,613	242	38,048	198
	1	0.003	50,000	455	50,000	455	46,170	409	41,515	299	36,575	220	34,248	178
0.2	0.5	0.02	50,000	708	42,750	606	38,475	545	36,338	383	32,063	286	29,925	230
	1	0.014	50,000	708	42,750	606	38,475	545	36,338	383	32,063	286	29,925	230
	1.5	0.008	46,170	599	38,475	499	34,628	448	32,704	344	28,856	257	26,933	207
	2	0.005	41,040	479	34,200	399	30,780	359	29,070	272	25,650	203	23,940	163
0.3	3	0.003	41,040	431	34,200	359	30,780	323	29,070	244	25,650	183	23,940	147
	1	0.021	45,600	646	38,000	539	34,200	485	32,300	340	28,500	254	26,600	205
	1.5	0.021	45,600	646	38,000	539	34,200	485	32,300	340	28,500	254	26,600	205
	2	0.012	41,040	532	34,200	444	30,780	399	29,070	306	25,650	229	23,940	184
	2.5	0.01	41,040	532	34,200	444	30,780	399	29,070	306	25,650	229	23,940	184
0.4	3	0.008	41,040	532	34,200	444	30,780	399	29,070	306	25,650	229	23,940	184
	1	0.04	36,480	805	30,400	671	27,360	603	25,840	424	22,800	316	21,280	255
	1.5	0.028	36,480	805	30,400	671	27,360	603	25,840	424	22,800	316	21,280	255
	2	0.028	36,480	805	30,400	671	27,360	603	25,840	424	22,800	316	21,280	255
	2.5	0.022	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	3	0.016	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	3.5	0.012	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	4	0.01	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	5	0.01	29,184	515	24,320	429	21,888	386	20,672	247	18,240	219	17,024	172
	6	0.006	29,184	515	24,320	429	21,888	386	20,672	247	18,240	219	17,024	172
0.5	8	0.003	25,536	392	21,280	327	19,152	295	18,088	190	15,960	163	14,896	124
	10	0.002	21,888	289	18,240	240	16,416	217	15,504	140	13,680	121	12,768	91
	1	0.05	36,480	805	30,400	671	27,360	603	25,840	508	22,800	316	21,280	255
	1.5	0.05	36,480	805	30,400	671	27,360	603	25,840	508	22,800	316	21,280	255
	2	0.035	36,480	805	30,400	671	27,360	603	25,840	508	22,800	316	21,280	255
	2.5	0.03	32,832	662	27,360	552	24,624	497	23,256	419	20,520	284	19,152	229
	3	0.02	32,832	662	27,360	552	24,624	497	23,256	419	20,520	284	19,152	229
	4	0.02	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	5	0.013	32,832	662	27,360	552	24,624	497	23,256	381	20,520	284	19,152	229
	6	0.013	29,184	515	24,320	429	21,888	386	20,672	247	18,240	219	17,024	172
0.6	8	0.008	29,184	441	24,320	368	21,888	331	20,672	235	18,240	184	17,024	140
	10	0.004	25,536	342	21,280	285	19,152	257	18,088	165	15,960	143	14,896	108
	2	0.042	36,480	1,150	30,400	958	27,360	862	25,840	604	22,800	451	21,280	364
	3	0.035	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	4	0.024	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	5	0.02	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	6	0.015	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	7	0.015	29,184	816	24,320	680	21,888	612	20,672	469	18,240	351	17,024	283
8	0.015	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245	

工件材料 Workpiece Materials		1		2		3		4		5		6		
		铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)		120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
0.6	9	0.012	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	10	0.009	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
0.7	2	0.07	36,480	1,150	30,400	958	27,360	862	25,840	604	22,800	451	21,280	365
	4	0.049	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	6	0.018	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	8	0.018	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
0.8	10	0.018	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	4	0.056	36,480	1,150	30,400	958	27,360	862	25,840	741	22,800	654	21,280	401
	6	0.032	32,832	945	27,360	788	24,624	709	23,256	644	22,800	632	19,152	360
	8	0.02	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
0.9	10	0.02	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	12	0.012	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	6	0.036	32,832	1,039	27,360	944	24,624	850	23,256	653	20,520	528	19,152	393
	8	0.023	32,832	1,039	27,360	865	24,624	779	23,256	599	20,520	487	19,152	360
1	10	0.023	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	12	0.023	29,184	735	24,320	613	21,888	552	20,672	353	18,240	312	17,024	245
	2	0.1	32,832	1,547	27,360	1,288	24,624	1,159	23,256	1,093	21,784	958	19,152	804
	3	0.085	32,832	1,547	27,360	1,288	24,624	1,159	23,256	1,093	21,784	958	19,152	804
	4	0.07	32,832	1,547	27,360	1,288	24,624	1,159	23,256	1,023	21,784	915	19,152	728
	5	0.055	32,832	1,547	27,360	1,288	24,624	1,159	23,256	977	21,784	827	19,152	651
	6	0.04	29,549	1,277	24,624	1,064	22,162	958	20,930	858	19,665	708	17,237	442
	7	0.04	29,549	1,277	24,624	1,064	22,162	958	20,930	795	19,665	668	17,237	442
	8	0.04	29,549	1,277	24,624	1,064	22,162	958	20,930	795	19,665	591	17,237	442
	9	0.033	29,549	1,277	24,624	1,064	22,162	958	20,930	734	18,468	548	17,237	442
	10	0.025	29,549	1,277	24,624	1,064	22,162	958	20,930	734	18,468	548	17,237	442
	12	0.025	26,266	993	21,888	827	19,699	745	18,605	477	16,416	421	15,322	331
	14	0.025	26,266	993	21,888	827	19,699	745	18,605	477	16,416	421	15,322	331
	16	0.015	26,266	851	21,888	709	19,699	638	18,605	452	16,416	354	15,322	269
	20	0.01	23,587	695	19,656	580	21,228	522	16,708	331	14,742	290	13,759	215
25	0.005	19,950	541	16,625	450	17,955	406	14,131	257	12,469	225	11,638	166	
1.2	6	0.084	29,184	1,379	24,320	1,150	21,888	1,035	20,672	827	18,240	542	17,024	437
	8	0.048	26,266	1,134	21,888	945	19,699	851	18,605	744	16,416	487	15,322	393
	10	0.03	26,266	1,134	21,888	945	19,699	851	18,605	707	16,416	487	15,322	393
	12	0.03	26,266	1,134	21,888	945	19,699	851	18,605	653	16,416	487	15,322	393
1.4	16	0.02	23,347	1,008	19,456	840	17,510	756	16,538	580	14,592	433	13,619	350
	6	0.1	25,536	1,207	21,280	1,005	19,152	905	18,088	635	15,960	474	14,896	383
1.5	12	0.035	22,982	993	19,152	827	17,237	745	16,279	571	14,364	427	13,406	344
	4	0.11	25,536	1,327	21,280	1,105	19,152	996	18,088	761	15,960	616	14,896	458
	6	0.11	25,536	1,327										

## UM-SN2 切削参数推荐表

### UM-SN2 Recommended Cutting Parameters

工件材料 Workpiece Materials		1		2		3		4		5		6		
		铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)		120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1.5	12	0.06	22,982	993	19,152	827	17,237	745	16,279	685	14,364	427	13,406	344
	14	0.038	22,982	993	19,152	827	17,237	745	16,279	685	14,364	427	13,406	344
	16	0.038	20,429	772	17,024	643	15,322	580	14,470	371	12,768	328	11,917	257
	18	0.038	20,429	772	17,024	643	15,322	580	14,470	371	12,768	328	11,917	257
	20	0.038	20,429	772	17,024	643	15,322	580	14,470	371	12,768	328	11,917	257
	25	0.023	15,322	497	12,768	413	11,491	372	10,853	264	9,576	207	8,938	157
	30	0.015	12,768	337	10,640	281	11,491	253	9,044	169	7,980	132	7,448	106
	35	0.01	12,768	337	10,640	281	11,491	253	9,044	169	7,980	132	7,448	106
1.6	40	0.005	10,214	181	8,512	150	7,661	135	7,235	90	6,384	70	5,958	57
	6	0.11	23,712	1,245	19,760	1,141	17,784	1,074	16,796	721	14,820	538	13,832	433
1.8	8	0.11	23,712	1,245	19,760	1,141	17,784	934	16,796	656	14,820	538	13,832	433
	6	0.13	23,712	1,245	19,760	1,141	17,784	1,120	16,796	721	14,820	587	13,832	473
2	8	0.13	23,712	1,245	19,760	1,141	17,784	1,027	16,796	656	14,820	587	13,832	473
	4	0.2	19,152	1,327	15,960	1,115	14,364	996	13,566	697	11,970	521	11,172	421
2	6	0.2	19,152	1,327	15,960	1,115	14,364	996	13,566	697	11,970	521	11,172	421
	8	0.14	19,152	1,327	15,960	1,115	14,364	996	13,566	697	11,970	521	11,172	421
	10	0.14	19,152	1,327	15,960	1,115	14,364	996	13,566	697	11,970	521	11,172	421
	12	0.1	17,237	1,092	14,364	910	12,928	819	12,209	628	10,773	468	10,055	378
	14	0.08	17,237	1,092	14,364	910	12,928	819	12,209	628	10,773	468	10,055	344
	16	0.08	17,237	993	14,364	868	12,928	819	12,209	571	10,773	427	10,055	344
	18	0.05	17,237	993	14,364	868	12,928	819	12,209	571	10,773	427	10,055	344
	20	0.05	17,237	993	14,364	827	12,928	745	12,209	571	10,773	427	10,055	344
	25	0.05	15,322	772	12,768	643	11,491	580	10,853	371	9,576	328	8,938	257
	30	0.03	15,322	772	12,768	643	11,491	580	10,853	371	9,576	328	8,938	257
	35	0.02	13,406	554	11,172	462	10,055	415	9,496	268	8,379	217	7,820	176
	40	0.01	13,406	554	11,172	462	10,055	415	9,496	268	8,379	217	7,820	176
	50	0.005	11,491	337	9,576	281	8,618	253	8,140	163	7,182	132	6,703	106
	2.5	8	0.18	16,416	1,422	13,680	1,185	12,312	1,067	11,628	748	10,260	610	9,576
12		0.18	16,416	1,197	13,680	1,185	12,312	1,067	11,628	680	10,260	559	9,576	409
16		0.1	14,774	1,064	12,312	1,019	11,081	918	10,465	612	9,234	503	8,618	369
20		0.1	14,774	1,064	12,312	886	11,081	798	10,465	612	9,234	503	8,618	369
30		0.06	13,133	827	10,944	689	9,850	620	9,302	413	8,208	324	7,661	262
40		0.03	11,491	594	9,576	495	8,618	446	8,140	297	7,182	233	6,703	188
3	50	0.01	11,491	594	9,576	495	8,618	446	8,140	297	7,182	233	6,703	188
	8	0.3	14,592	1,264	12,160	1,053	10,944	947	10,336	664	10,070	542	8,512	401
	12	0.21	14,592	1,264	12,160	1,053	10,944	947	10,336	664	10,070	542	8,512	401
	16	0.15	13,133	1,087	10,944	944	9,850	779	9,302	599	8,978	487	7,661	360
	20	0.12	13,133	945	10,944	865	9,850	779	9,302	599	8,978	487	7,661	360
	25	0.08	13,133	945	10,944	865	9,850	779	9,302	599	8,978	487	7,661	360
	30	0.08	13,133	945	10,944	788	9,850	709	9,302	599	8,978	487	7,661	330
	40	0.05	11,674	840	9,728	700	8,755	630	8,269	484	7,296	361	6,810	292

工件材料 Workpiece Materials		1		2		3		4		5		6		
		铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)		120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	50	0.02	10,214	528	8,512	440	7,661	396	7,235	264	6,384	207	5,958	167
	12	0.4	10,925	2,185	8,930	1,786	8,037	1,448	7,591	1,290	6,698	857	6,251	692
4	16	0.28	10,925	2,185	8,930	1,786	8,037	1,448	7,591	1,290	6,698	857	6,251	692
	20	0.28	9,833	1,967	8,037	1,607	7,233	1,302	6,831	1,161	6,028	771	5,626	622
	25	0.16	9,833	1,770	8,037	1,448	7,233	1,171	6,831	1,045	6,028	771	5,626	622
	30	0.16	9,833	1,770	8,037	1,448	7,233	1,171	6,831	1,045	6,028	771	5,626	622
	35	0.1	8,680	1,563	7,233	1,302	6,510	1,055	6,148	941	5,425	694	5,064	560
	40	0.1	8,680	1,563	7,233	1,302	6,510	1,055	6,148	941	5,425	694	5,064	560
	50	0.06	7,501	1,072	6,251	893	5,626	804	5,313	625	4,688	420	4,376	339
	20	0.3	8,563	1,712	7,136	1,569	6,423	1,413	6,066	998	5,352	671	4,995	542
5	25	0.3	7,706	1,540	6,422	1,283	5,780	1,155	5,459	899	4,817	603	4,495	487
	30	0.2	7,706	1,388	6,422	1,156	5,780	1,039	5,459	808	4,817	544	4,495	439
	40	0.15	6,936	1,249	5,780	1,041	5,202	937	4,912	729	4,335	489	4,046	395
	50	0.1	6,936	1,249	5,780	1,041	5,202	937	4,912	729	4,335	489	4,046	395
	20	0.5	7,047	1,548	5,873	1,407	5,286	1,266	4,992	984	4,405	728	4,111	534
6	30	0.4	6,407	1,406	5,339	1,279	4,805	1,151	4,538	895	4,004	661	3,737	485
	40	0.3	6,407	1,265	5,339	1,054	4,805	948	4,538	805	4,004	594	3,737	436
	50	0.2	5,700	1,036	4,750	937	4,275	843	4,038	656	3,563	489	3,325	360

#### 注意

- 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢(45~55HRC), ap需\*0.5。
- 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- 如果机床转速低于表中列数值, 则进给速度应与转速按同一比例降低。

#### NOTE

- For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

## UM-SN2 高精度切削参数推荐表

### UM-SN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials			1		2		3		4		5		6	
			铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)			120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
0.1	0.3	0.006	50,000	333	50,000	333	50,000	315	46,170	230	40,613	169	38,048	137
	0.5	0.004	50,000	333	50,000	333	50,000	315	46,170	230	40,613	169	38,048	137
	1	0.003	50,000	302	50,000	302	46,170	286	41,515	209	36,575	154	34,248	123
0.2	0.5	0.015	50,000	470	42,750	424	38,475	381	36,338	268	32,063	200	29,925	161
	1	0.011	50,000	470	42,750	424	38,475	381	36,338	268	32,063	200	29,925	161
	1.5	0.006	46,170	419	38,475	349	34,628	314	32,704	240	28,856	180	26,933	144
	2	0.004	41,040	334	34,200	279	30,780	251	29,070	190	25,650	157	23,940	140
	3	0.002	41,040	301	34,200	251	30,780	226	29,070	170	25,650	157	23,940	126
0.3	1	0.021	45,600	517	38,000	430	34,200	388	32,300	272	28,500	228	26,600	183
	1.5	0.021	45,600	517	38,000	430	34,200	388	32,300	272	28,500	228	26,600	183
	2	0.012	41,040	426	34,200	354	30,780	319	29,070	244	25,650	182	23,940	147
	2.5	0.01	41,040	426	34,200	354	30,780	319	29,070	244	25,650	182	23,940	147
	3	0.008	41,040	426	34,200	354	30,780	319	29,070	244	25,650	171	23,940	138
0.4	1	0.04	36,480	724	30,400	603	27,360	542	25,840	381	22,800	282	21,280	229
	1.5	0.028	36,480	724	30,400	603	27,360	542	25,840	381	22,800	282	21,280	229
	2	0.028	36,480	724	30,400	603	27,360	542	25,840	381	22,800	282	21,280	229
	2.5	0.022	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
	3	0.016	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
	3.5	0.012	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
	4	0.01	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
0.5	5	0.01	29,184	386	24,320	300	21,888	270	20,672	198	18,240	175	17,024	137
	6	0.006	29,184	386	24,320	300	21,888	270	20,672	198	18,240	175	17,024	137
	8	0.003	25,536	275	21,280	228	19,152	206	18,088	152	15,960	134	14,896	122
	10	0.002	21,888	201	18,240	168	16,416	151	15,504	111	13,680	98	12,768	89
	1	0.05	36,480	724	30,400	603	27,360	542	25,840	424	22,800	284	21,280	229
	1.5	0.05	36,480	724	30,400	603	27,360	542	25,840	424	22,800	284	21,280	229
	2	0.035	36,480	724	30,400	603	27,360	542	25,840	424	22,800	284	21,280	229
	2.5	0.03	32,832	529	27,360	441	24,624	397	23,256	336	20,520	227	19,152	182
	3	0.02	32,832	529	27,360	441	24,624	397	23,256	336	20,520	227	19,152	182
	4	0.02	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
0.6	5	0.013	32,832	529	27,360	441	24,624	397	23,256	304	20,520	227	19,152	182
	6	0.013	29,184	411	24,320	343	21,888	308	20,672	198	18,240	175	17,024	137
	8	0.008	29,184	352	24,320	294	21,888	264	20,672	163	18,240	147	17,024	111
	10	0.004	25,536	274	21,280	228	19,152	205	18,088	115	15,960	100	14,896	75
	2	0.042	36,480	1,035	30,400	862	27,360	775	25,840	543	22,800	406	21,280	327
	3	0.035	32,832	850	27,360	709	24,624	637	23,256	489	20,520	366	19,152	295
	4	0.024	32,832	850	27,360	709	24,624	637	23,256	489	20,520	366	19,152	295
	5	0.02	32,832	756	27,360	630	24,624	566	23,256	435	20,520	325	19,152	262
	6	0.015	32,832	756	27,360	630	24,624	566	23,256	435	20,520	325	19,152	262
	7	0.015	29,184	653	24,320	543	21,888	489	20,672	375	18,240	280	17,024	226
8	0.015	29,184	565	24,320	490	21,888	441	20,672	282	18,240	249	17,024	196	

工件材料 Workpiece Materials			1		2		3		4		5		6	
			铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)			120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
0.6	9	0.012	29,184	565	24,320	490	21,888	441	20,672	282	18,240	249	17,024	196
	10	0.009	29,184	565	24,320	490	21,888	441	20,672	282	18,240	249	17,024	196
0.7	2	0.07	36,480	1,035	30,400	862	27,360	775	25,840	543	22,800	406	21,280	327
	4	0.049	32,832	756	27,360	630	24,624	566	23,256	435	20,520	325	19,152	262
	6	0.018	32,832	756	27,360	630	24,624	566	23,256	435	20,520	325	19,152	262
	8	0.018	29,184	514	24,320	428	21,888	386	20,672	247	18,240	218	17,024	171
0.8	10	0.018	29,184	514	24,320	428	21,888	386	20,672	247	18,240	218	17,024	171
	4	0.056	36,480	1,035	30,400	862	27,360	775	25,840	604	22,800	451	21,280	364
	6	0.032	32,832	756	27,360	630	24,624	566	23,256	544	20,520	407	19,152	328
	8	0.02	32,832	756	27,360	630	24,624	566	23,256	435	20,520	325	19,152	262
0.9	10	0.02	29,184	514	24,320	428	21,888	386	20,672	247	18,240	218	17,024	171
	12	0.012	29,184	514	24,320	428	21,888	386	20,672	247	18,240	218	17,024	171
	6	0.036	32,832	945	27,360	788	24,624	709	23,256	544	20,520	407	19,152	328
	8	0.023	32,832	945	27,360	709	24,624	709	23,256	544	20,520	407	19,152	328
1	10	0.023	29,184	588	24,320	490	21,888	441	20,672	282	18,240	249	17,024	196
	12	0.023	29,184	514	24,320	428	21,888	393	20,672	282	18,240	249	17,024	196
	2	0.09	32,832	1,392	27,360	1,159	24,624	1,043	23,256	889	20,520	664	19,152	535
	3	0.07	32,832	1,392	27,360	1,159	24,624	1,043	23,256	889	20,520	664	19,152	535
	4	0.065	32,832	1,392	27,360	1,159	24,624	1,043	23,256	889	20,520	664	19,152	535
	5	0.05	32,832	1,392	27,360	1,159	24,624	1,043	23,256	889	20,520	664	19,152	535
	6	0.035	29,549	1,212	24,624	958	22,162	862	20,930	734	18,468	548	17,237	397
	7	0.035	29,549	1,212	24,624	958	22,162	862	20,930	734	18,468	548	17,237	397
	8	0.035	29,549	1,149	24,624	958	22,162	862	20,930	734	18,468	548	17,237	397
	9	0.03	29,549	1,149	24,624	958	22,162	862	20,930	660	18,468	438	17,237	353
	10	0.022	29,549	1,149	24,624	851	22,162	775	20,930	660	18,468	438	17,237	353
	12	0.022	26,266	794	21,888	661	19,699	596	18,605	381	16,416	336	15,322	264
	14	0.022	26,266	794	21,888	661	19,699	596	18,605	381	16,416	336	15,322	264
	16	0.012	26,266	680	21,888	566	19,699	510	18,605	361	16,416	283	15,322	215
	20	0.008	23,587	557	19,656	464	17,690	417	16,708	264	14,742	202	13,759	150
	25	0.005	19,950	432	16,625	360	14,963	324	14,131	205	12,469	157	11,638	116
1.2	6	0.084	29,184	1,241	24,320	1,035	21,888	931	20,672	722	18,240	487	17,024	393
	8	0.048	26,266	1,020	21,888	850	19,699	766	18,605	650	16,416	438	15,322	353
	10	0.03	26,266	1,020	21,888	850	19,699	766	18,605	650	16,416	438	15,322	353
	12	0.03	26,266	907	21,888	680	19,699	610	18,605	522	16,416	390	15,322	314
	16	0.02	23,347	806	19,456	672	17,510	529	16,538	464	14,592	346	13,619	279
1.4	6	0.1	25,536	1,086	21,280	904	19,152	814	18,088	571	15,960	427	14,896	343
	12	0.035	22,982	893	19,152	744	17,237	670	16,279	513	14,364	384	13,406	309
1.5	4	0.11	25,536	1,207	21,280	1,005	19,152	905	18,088	635	15,960	474	14,896	382
	6	0.11	25,536	1,086	21,280	904	19,15							

## UM-SN2 高精度切削参数推荐表

### UM-SN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials			1		2		3		4		5		6	
			铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)			120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
1.5	12	0.06	22,982	893	19,152	744	17,237	670	16,279	571	14,364	384	13,406	309
	14	0.038	22,982	893	19,152	744	17,237	670	16,279	571	14,364	384	13,406	309
	16	0.038	20,429	694	17,024	579	15,322	522	14,470	333	12,768	295	11,917	231
	18	0.038	20,429	694	17,024	579	15,322	522	14,470	333	12,768	295	11,917	231
	20	0.038	20,429	694	17,024	579	15,322	464	14,470	296	12,768	262	11,917	205
	25	0.023	15,322	447	12,768	371	11,491	297	10,853	211	9,576	165	8,938	125
	30	0.015	12,768	303	10,640	253	11,491	201	9,044	142	7,980	105	7,448	85
	35	0.01	12,768	270	10,640	224	11,491	177	9,044	142	7,980	105	7,448	85
	40	0.005	10,214	144	8,512	120	7,661	107	7,235	72	6,384	56	5,958	46
1.6	6	0.11	23,712	1,120	19,760	928	17,784	840	16,796	656	14,820	489	13,832	394
	8	0.11	23,712	1,120	19,760	928	17,784	840	16,796	656	14,820	489	13,832	394
1.8	6	0.13	23,712	1,120	19,760	947	17,784	840	16,796	656	14,820	489	13,832	394
	8	0.13	23,712	1,120	19,760	947	17,784	840	16,796	656	14,820	489	13,832	394
2	4	0.2	19,152	1,207	15,960	904	14,364	818	13,566	622	11,970	474	11,172	382
	6	0.2	19,152	1,207	15,960	904	14,364	818	13,566	622	11,970	474	11,172	382
	8	0.14	19,152	1,207	15,960	904	14,364	818	13,566	622	11,970	474	11,172	382
	10	0.14	19,152	1,207	15,960	904	14,364	818	13,566	622	11,970	474	11,172	382
	12	0.08	17,237	993	14,364	827	12,928	745	12,209	561	10,773	427	10,055	344
	14	0.08	17,237	993	14,364	827	12,928	745	12,209	561	10,773	427	10,055	309
	16	0.08	17,237	893	14,364	744	12,928	672	12,209	513	10,773	405	10,055	309
	18	0.05	17,237	893	14,364	744	12,928	672	12,209	513	10,773	384	10,055	275
	20	0.05	17,237	844	14,364	661	12,928	596	12,209	456	10,773	341	10,055	275
	25	0.05	15,322	694	12,768	579	11,491	522	10,853	296	9,576	295	8,938	220
	30	0.03	15,322	618	12,768	514	11,491	464	10,853	259	9,576	262	8,938	205
	35	0.02	13,406	443	11,172	369	10,055	332	9,496	214	8,379	173	7,820	141
	40	0.01	13,406	388	11,172	323	10,057	291	9,496	187	8,379	151	7,820	123
	50	0.005	11,491	270	9,576	224	8,618	177	8,140	114	7,182	92	6,703	74
	2.5	8	0.18	16,416	1,293	13,680	1,077	12,312	970	11,628	680	10,260	508	9,576
12		0.18	16,416	1,077	13,680	969	12,312	886	11,628	612	10,260	494	9,576	368
16		0.1	14,774	958	12,312	797	11,081	720	10,465	550	9,234	428	8,618	332
20		0.1	14,774	798	12,312	754	11,081	675	10,465	489	9,234	428	8,618	295
30		0.06	13,133	661	10,944	551	9,850	434	9,302	331	8,208	258	7,661	209
40		0.03	11,491	415	9,576	346	8,618	312	8,140	238	7,182	186	6,703	150
50		0.01	11,491	356	9,576	321	8,618	289	8,140	193	7,182	162	6,703	131
3	8	0.3	14,592	1,150	12,160	958	10,944	862	10,336	604	9,120	451	8,512	364
	12	0.21	14,592	1,150	12,160	958	10,944	862	10,336	604	9,120	451	8,512	364
	16	0.12	13,133	945	10,944	788	9,850	709	9,302	544	8,208	407	7,661	327
	20	0.12	13,133	850	10,944	748	9,850	670	9,302	544	8,208	407	7,661	327
	25	0.08	13,133	850	10,944	748	9,850	670	9,302	544	8,208	407	7,661	327
	30	0.08	13,133	756	10,944	630	9,850	571	9,302	544	8,208	407	7,661	295
40	0.05	11,674	587	9,728	489	8,755	441	8,269	338	7,296	289	6,810	233	

工件材料 Workpiece Materials			1		2		3		4		5		6	
			铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)			120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
3	50	0.02	10,214	370	8,512	330	7,661	276	7,235	184	6,384	144	5,958	117
	12	0.4	10,925	1,967	8,930	1,607	8,037	1,302	7,591	1,161	6,698	770	6,251	621
	16	0.28	10,925	1,967	8,930	1,607	8,037	1,302	7,591	1,161	6,698	770	6,251	621
	20	0.28	9,833	1,770	8,037	1,446	7,233	1,171	6,831	1,044	6,028	694	5,626	559
	25	0.16	9,833	1,592	8,037	1,302	7,233	1,054	6,831	941	6,028	694	5,626	559
	30	0.16	9,833	1,592	8,037	1,302	7,233	1,054	6,831	836	6,028	617	5,626	559
	35	0.1	8,680	1,250	7,233	1,041	6,510	844	6,148	752	5,425	555	5,064	447
	40	0.1	8,680	1,093	7,233	911	6,510	738	6,148	658	5,425	485	5,064	391
	50	0.06	7,501	750	6,251	625	6,751	562	5,313	437	4,688	294	4,376	237
4	20	0.3	8,563	1,540	7,136	1,283	6,423	1,155	6,066	898	5,352	603	4,995	487
	25	0.3	7,706	1,385	6,422	1,154	5,780	1,039	5,459	808	4,817	542	4,495	438
	30	0.2	7,706	1,247	6,422	1,039	5,780	935	5,459	727	4,817	488	4,495	394
	40	0.15	6,936	999	5,780	832	5,202	749	4,912	582	4,335	391	4,046	315
	50	0.1	6,936	937	5,780	832	5,202	656	4,912	546	4,335	342	4,046	276
5	20	0.5	7,047	1,407	5,873	1,172	5,286	1,055	4,992	821	4,405	551	4,111	446
	30	0.4	6,407	1,279	5,339	1,066	4,805	960	4,538	746	4,004	501	3,737	405
	40	0.3	6,407	1,150	5,339	959	4,805	863	4,538	671	4,004	450	3,737	364
	50	0.2	5,700	932	4,750	776	4,275	698	4,038	604	3,563	406	3,325	328

### 注意

- 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢(45~55HRC), ap需\*0.5。
- 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- 如果机床转速低于表中所列数值, 则进给速度应与转速按同一比例降低。

### NOTE

- For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# UM-BN2 切削参数推荐表

## UM-BN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给		
				(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)
0.05	0.1	0.2	0.008	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188		
				0.3	0.006	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
				0.5	0.004	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
0.1	0.2	0.5	0.02	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200		
		0.75	0.017	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200		
		1	0.014	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200		
		1.25	0.011	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162		
		1.5	0.008	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162		
		2	0.008	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162		
		2.5	0.006	45,600	307	45,600	256	41,040	230	38,760	201	34,200	164	31,920	127		
		3	0.004	45,600	307	45,600	256	41,040	230	38,760	201	34,200	164	31,920	127		
		0.15	0.3	0.5	0.027	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
0.75	0.024			50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319		
1	0.021			50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319		
1.25	0.019			50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319		
1.5	0.016			50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319		
2	0.012			50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258		
2.5	0.01			50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258		
3	0.008			50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258		
0.2	0.4	0.75	0.043	50,000	967	50,000	840	50,000	839	50,000	770	44,460	622	41,496	581		
		1	0.04	50,000	967	50,000	840	50,000	839	50,000	770	44,460	622	41,496	581		
		1.5	0.034	50,000	829	50,000	720	50,000	719	50,000	660	44,460	445	41,496	415		
		2	0.028	50,000	691	50,000	600	50,000	600	50,000	550	44,460	445	41,496	415		
		2.5	0.022	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	34,474	258		
		3	0.016	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	34,474	258		
		3.5	0.012	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	34,474	258		
		4	0.01	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	34,474	258		
		4.5	0.008	43,776	447	36,480	372	32,832	335	31,008	290	27,360	233	25,536	217		
0.25	0.5	1	0.045	50,000	1,500	50,000	1,500	44,460	1,334	41,990	1,133	37,050	1,000	34,580	706		
		1.5	0.04	50,000	1,500	50,000	1,500	44,460	1,334	41,990	1,133	37,050	1,000	34,580	647		
		2	0.035	50,000	1,200	50,000	1,200	44,460	1,067	41,990	907	37,050	800	34,580	647		
		2.5	0.033	50,000	1,081	50,000	1,000	40,014	720	37,791	613	33,345	540	31,122	477		
		3	0.03	50,000	900	44,460	800	40,014	720	37,791	613	33,345	540	23,940	367		
		4	0.02	41,040	739	34,200	616	30,780	554	29,070	471	30,780	498	23,940	367		
		5	0.018	41,040	739	34,200	616	30,780	554	29,070	471	30,780	498	23,940	367		
		5.5	0.015	36,480	620	30,400	517	27,360	466	25,840	395	22,800	349	21,280	308		
		6	0.013	36,480	620	30,400	517	27,360	466	25,840	395	22,800	349	21,280	308		
0.3	0.6	1	0.075	50,000	2,250	50,000	2,250	50,000	2,250	50,000	1,950	45,600	1,642	42,560	1,277		
		2	0.063	50,000	2,250	50,000	2,250	50,000	2,250	50,000	1,950	45,600	1,642	42,560	1,277		
		2.5	0.046	50,000	1,800	50,000	1,800	50,000	1,800	50,000	1,560	45,600	1,313	42,560	937		

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给	转速(n)	进给		
				(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)	(r/min)	(Vf) (mm/min)
0.3	0.6	3	0.041	50,000	1,800	50,000	1,800	50,000	1,800	50,000	1,800	50,000	1,560	45,600	1,313	42,560	937
		3.5	0.035	50,000	1,710	50,000	1,710	50,000	1,710	50,000	1,709	46,512	1,379	41,040	1,124	38,304	801
		4	0.026	50,000	1,710	50,000	1,710	50,000	1,709	46,512	1,379	41,040	1,124	38,304	728		
		4.5	0.022	50,000	1,350	50,000	1,350	46,170	1,247	43,605	1,020	38,475	831	35,910	647		
		5	0.02	50,000	1,350	44,460	1,201	40,014	1,081	37,791	884	33,345	720	31,122	561		
		5.5	0.017	50,000	1,350	44,460	1,201	40,014	1,081	37,791	884	33,345	720	31,122	561		
		6	0.015	50,000	1,350	44,460	1,201	40,014	1,081	37,791	884	33,345	720	31,122	561		
		7	0.015	36,480	930	30,400	775	27,360	837	25,840	571	22,800	466	21,280	470		
		8	0.015	36,480	930	30,400	775	27,360	697	25,840	571	22,800	466	21,280	362		
		9	0.012	36,480	930	30,400	775	27,360	697	25,840	571	22,800	466	21,280	362		
		10	0.009	31,920	814	26,600	678	23,940	611	22,610	500	19,950	407	18,620	316		
		12	0.007	27,360	656	22,800	547	20,520	492	19,380	403	17,100	329	15,960	256		
0.35	0.7	2	0.092	50,000	2,475	50,000	2,475	50,000	2,475	50,000	2,155	45,600	1,835	39,900	1,129		
		4	0.041	50,000	1,880	50,000	1,880	50,000	1,880	46,512	1,523	41,040	1,255	35,910	804		
		6	0.027	50,000	1,485	44,460	1,321	40,014	1,188	37,791	977	33,345	806	28,728	609		
		8	0.02	36,480	962	30,400	802	27,360	722	25,840	594	22,800	489	21,280	401		
0.4	0.8	2	0.12	50,000	2,700	50,000	2,700	50,000	2,700	50,000	2,400	45,600	2,462	42,560	1,788		
		4	0.078	50,000	2,700	50,000	2,700	50,000	2,700	50,000	2,400	45,600	2,462	42,560	1,788		
		5	0.059	50,000	2,431	50,000	2,429	50,000	2,431	46,512	2,008	41,040	2,017	38,304	1,448		
		6	0.042	50,000	2,269	50,000	2,267	43,092	1,955	40,698	1,641	35,910	1,358	33,516	1,183		
		8	0.02	47,424	1,536	39,520	1,281	35,568	1,152	33,592	967	29,640	800	27,664	696		
10	0.02	36,480	1,116	30,400	930	27,360	837	25,840	703	22,800	581	21,280	506				
0.45	0.9	2	0.135	50,000	3,197	50,000	3,197	50,000	3,197	50,000	2,821	43,320	2,290	40,432	2,031		
		4	0.081	50,000	2,771	50,000	2,771	50,000	2,771	46,028	2,251	40,613	1,861	37,905	1,650		
		6	0.05	50,000	2,302	45,486	1,919	40,937	1,727	38,663	1,439	34,115	1,190	31,840	1,055		
		8	0.036	41,587	1,595	34,656	1,329	31,190	1,196	29,458	997	25,992	825	24,259	732		
		2	0.2	50,000	3,750	50,000	3,750	46,170	3,463	43,605	2,943	41,040	2,586	35,910	2,155		
		3	0.2	50,000	3,750	50,000											

# UM-BN2 切削参数推荐表

## UM-BN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)
0.55	1.1	2	0.2	50,000	3,924	50,000	3,924	43,092	3,382	40,698	2,781	35,910	2,329	33,516	2,067
		4	0.14	50,000	3,924	50,000	3,924	43,092	3,382	40,698	2,781	35,910	2,329	33,516	2,067
		6	0.06	45,349	2,629	37,791	2,191	34,012	1,971	32,122	1,621	28,343	1,359	26,454	1,205
		8	0.06	45,349	2,191	37,791	2,191	34,012	1,643	29,651	1,246	26,163	1,045	24,419	926
		10	0.038	45,349	2,191	37,791	1,685	34,012	1,643	29,651	1,246	26,163	1,045	24,419	926
0.6	1.2	4	0.16	50,000	3,924	43,846	3,556	39,461	3,097	37,269	2,581	35,077	2,427	30,692	1,767
		8	0.06	42,682	2,442	35,568	2,035	32,011	1,998	30,233	1,966	28,728	1,959	24,898	996
		10	0.053	39,398	1,843	32,832	1,623	29,549	1,383	27,907	1,256	25,650	1,016	22,982	827
		12	0.045	39,398	1,843	32,832	1,537	29,549	1,383	27,907	1,256	24,624	975	22,982	827
0.75	1.4	8	0.11	37,346	2,689	31,122	2,241	28,010	2,017	26,454	1,715	23,342	1,456	21,785	1,307
		12	0.053	34,474	1,862	28,728	1,551	25,855	1,397	24,419	1,187	21,546	1,009	20,110	905
		16	0.035	25,536	1,302	21,280	1,085	19,152	977	18,088	830	15,960	706	14,896	633
0.75	1.5	4	0.2	50,000	4,951	39,900	3,950	35,910	3,555	33,915	3,052	29,925	2,424	27,930	2,095
		6	0.2	50,000	4,951	39,900	3,950	35,910	3,555	33,915	3,052	29,925	2,424	27,930	2,095
		8	0.09	37,346	2,662	31,122	2,496	28,010	1,996	26,454	1,715	23,342	1,362	21,785	1,177
		10	0.09	34,474	2,457	28,728	2,048	25,855	1,843	24,419	1,583	21,546	1,257	20,110	1,086
		12	0.09	34,474	2,047	28,728	1,706	25,855	1,535	24,419	1,319	21,546	1,048	20,110	905
		14	0.075	30,643	1,720	28,728	1,706	22,982	1,289	21,706	1,107	19,152	879	17,875	759
		16	0.038	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		18	0.038	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		20	0.038	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		0.8	1.6	8	0.22	41,496	3,486	34,580	2,905	31,122	2,614	29,393	2,368	25,935	2,023
12	0.098			37,346	3,294	31,122	2,745	28,010	2,471	26,454	2,067	23,342	1,765	20,229	1,225
16	0.06			32,011	2,017	26,676	1,681	24,008	1,512	22,675	1,265	20,007	1,081	18,673	941
20	0.04			23,712	1,411	19,760	1,176	17,784	1,058	16,796	885	14,820	756	13,832	658
0.9	1.8	8	0.26	38,532	3,699	32,110	3,083	28,899	2,774	27,294	2,292	24,083	1,908	22,477	1,619
		12	0.105	32,011	2,305	26,676	1,921	24,008	1,728	22,675	1,429	20,007	1,188	18,673	1,009
		16	0.068	32,011	2,305	26,676	1,921	24,008	1,728	22,675	1,429	20,007	1,188	18,673	1,009
		20	0.045	23,712	1,612	19,760	1,343	17,784	1,209	16,796	999	14,820	831	13,832	706
		3	0.4	35,910	5,387	29,925	4,489	26,933	4,040	25,436	3,435	22,444	2,897	20,948	2,514
1	2	4	0.4	35,910	5,387	29,925	4,489	26,933	4,040	25,436	3,435	22,444	2,897	20,948	2,514
		6	0.4	35,910	4,848	29,925	4,040	26,933	3,636	25,436	3,052	22,444	2,558	20,948	2,262
		8	0.28	35,910	4,848	29,925	4,040	26,933	3,636	25,436	3,052	22,444	2,558	20,948	2,262
		10	0.21	33,516	4,022	27,930	3,352	25,137	3,016	23,741	2,564	20,948	2,137	18,155	1,395
		12	0.12	30,164	3,619	25,137	3,016	22,623	2,715	21,366	2,309	18,853	1,948	16,339	1,255
		13	0.12	30,164	3,619	25,137	3,016	22,623	2,715	21,366	2,309	18,853	1,923	15,082	965
		14	0.12	30,164	3,136	25,137	2,614	22,623	2,353	21,366	2,001	17,507	1,548	15,082	965
		16	0.12	28,010	2,017	23,342	1,681	21,007	1,513	19,841	1,285	17,507	1,394	15,082	868
		18	0.09	25,855	1,862	21,546	1,551	19,391	1,397	18,314	1,187	17,507	1,286	15,082	868
		20	0.075	25,855	1,862	21,546	1,551	19,391	1,397	18,314	1,187	17,507	1,072	15,082	868
		22	0.05	20,349	1,384	16,958	1,153	15,262	1,037	14,414	883	12,719	735	14,244	775

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)	转速 (n) (r/min)	进给速度 (Vf) (mm/min)
1	2	25	0.05	19,152	1,302	15,960	1,085	14,364	977	13,566	830	11,970	692	13,406	730
		30	0.03	19,152	1,302	15,960	1,085	14,364	977	13,566	830	11,970	692	13,406	730
		35	0.025	16,758	1,073	13,965	894	12,569	805	11,870	684	10,474	570	9,776	501
		40	0.022	14,364	920	11,970	766	10,773	690	10,175	586	8,978	488	8,379	429
		6	0.5	31,635	5,771	26,363	4,810	23,726	4,328	22,409	3,607	19,772	2,934	18,454	2,404
1.25	2.5	10	0.34	31,635	5,771	26,363	4,810	23,726	4,328	22,409	3,607	19,772	2,934	18,454	2,404
		15	0.15	24,675	3,240	20,563	2,700	18,507	2,430	17,478	2,025	15,422	1,922	14,394	1,350
		20	0.12	22,777	2,493	18,981	2,077	17,083	1,870	16,134	1,558	15,422	1,373	13,287	1,038
		25	0.098	22,777	2,242	18,981	1,869	17,083	1,682	16,134	1,401	14,236	1,140	13,287	934
		30	0.055	16,872	1,744	14,060	1,454	12,654	1,308	11,951	1,091	10,545	886	9,842	727
1.5	3	8	0.6	27,360	6,156	22,800	5,130	20,520	4,617	19,380	3,895	17,100	3,232	15,960	2,873
		10	0.42	27,360	6,156	22,800	5,130	20,520	4,617	19,380	3,895	17,100	3,232	15,960	2,873
		13	0.315	25,536	4,596	21,280	3,830	19,152	3,448	18,088	2,908	15,960	2,413	14,896	2,145
		16	0.315	25,536	4,137	21,280	3,448	19,152	3,103	18,088	2,617	15,960	2,172	13,832	1,794
		20	0.18	21,341	2,881	17,784	2,401	16,006	2,161	15,116	1,823	13,338	1,513	11,491	1,242
		25	0.12	21,341	2,881	17,784	2,401	16,006	2,161	15,116	1,823	13,338	1,513	11,491	1,242
		30	0.12	19,699	2,660	16,416	2,216	14,774	1,995	13,954	1,682	12,312	1,397	11,491	1,242
		35	0.08	14,592	1,860	12,160	1,550	10,944	1,396	10,336	1,177	9,120	977	10,214	1,042
		15	0.36	20,378	4,179	16,981	3,483	15,284	3,134	14,434	2,613	12,736	2,124	11,887	1,741
		25	0.21	16,929	2,599	14,108	2,166	12,697	1,949	11,992	1,625	10,581	1,321	9,875	1,083
35	0.09	16,929	2,599	14,108	2,166	12,697	1,949	11,992	1,625	10,581	1,321	9,875	1,083		
45	0.09	12,540	1,822	10,450	1,518	9,405	1,366	8,883	1,139	7,838	926	7,315	759		
1.75	3.5	10	0.6	19,665	5,900	16,388	4,916	14,749	4,425	13,930	3,762	12,291	3,134	11,471	2,753
		13	0.48	19,665	5,900	16,388	4,916	14,749	4,425	13,930	3,762	12,291	3,134	11,471	2,753
		16	0.42	19,665	5,900	16,388	4,916	14,749	4,425	13,930	3,762	12,291	3,134	11,471	2,753
		20	0.42	17,043	4,091	14,203	3,40								

## UM-BN2 切削参数推荐表

### UM-BN2 Recommended Cutting Parameters

#### 注意

- ▲ 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢 (45~55HRC), ap需\*0.5。
- ▲ 进行肋槽或者挡槽加工等容易造成切屑卡住切削时, 切削深度应为基本切削深度乘以切削深度比例, 然后再降至该值的80%。
- ▲ ae设定为ap×切削比率×3-5倍。进行精加工时, 请输入理论余量值的最高点。
- ▲ 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- ▲ 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- ▲ 如果机床转速低于表中所示数值, 则进给速度应与转速按同一比例降低。

#### NOTE

1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
2. When performing cutting where cutting chips may cause clogging, such as for rib cutting, blind grooves, etc., cutting depth setting should be set by multiplying a cutting depth factor to calculate the cutting depth amount, and this amount should then be reduced to 80% of the calculated value.
3. Adjust by setting ae to (3 to 5) × (ap) × (cutting depth ratio). When performing finishing processing, calculate the theoretical cusp height and set accordingly.
4. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
5. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
6. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

## UM-BN2 高精度切削参数推荐表

### UM-SN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steels		淬硬钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)
0.05	0.1	0.2	0.004	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
		0.3	0.003	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
		0.5	0.002	50,000	300	50,000	250	50,000	250	50,000	225	50,000	200	50,000	188
0.1	0.2	0.5	0.015	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200
		0.75	0.013	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200
		1	0.011	50,000	420	50,000	350	50,000	350	50,000	325	43,225	259	39,900	200
		1.25	0.008	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162
		1.5	0.007	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162
		2	0.006	50,000	378	50,000	315	46,170	291	43,605	256	38,475	208	35,910	162
		2.5	0.005	45,600	307	45,600	256	41,040	230	38,760	201	34,200	164	31,920	127
3	0.003	45,600	307	45,600	256	41,040	230	38,760	201	34,200	164	31,920	127		
0.15	0.3	0.5	0.02	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
		0.75	0.018	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
		1	0.016	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
		1.25	0.014	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
		1.5	0.012	50,000	600	50,000	500	50,000	500	50,000	450	42,750	364	39,900	319
		2	0.009	50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258
		2.5	0.008	50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258
3	0.006	50,000	540	50,000	450	46,170	415	43,605	353	38,475	295	35,910	258		
0.2	0.4	0.75	0.043	50,000	691	45,600	547	41,040	492	38,760	427	34,200	342	31,920	319
		1	0.04	50,000	691	45,600	547	41,040	492	38,760	427	34,200	342	31,920	319
		1.5	0.034	50,000	691	45,600	547	41,040	492	38,760	427	34,200	342	31,920	319
		2	0.028	50,000	691	45,600	547	41,040	492	38,760	427	34,200	342	31,920	319
		2.5	0.016	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	28,728	258
		3	0.011	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	28,728	258
		3.5	0.008	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	28,728	258
		4	0.005	50,000	560	41,040	444	36,936	399	34,884	346	30,780	277	28,728	258
		4.5	0.004	43,776	447	36,480	372	32,832	335	31,008	290	27,360	233	25,536	217
0.25	0.5	1	0.045	45,600	912	38,000	760	34,200	684	32,300	581	28,500	513	26,600	452
		1.5	0.04	45,600	912	38,000	760	34,200	684	32,300	581	28,500	513	26,600	452
		2	0.035	45,600	912	38,000	760	34,200	684	32,300	581	28,500	513	26,600	452
		2.5	0.033	41,040	739	38,000	760	30,780	554	29,070	471	25,650	415	23,940	367
		3	0.03	41,040	739	34,200	616	30,780	554	29,070	471	25,650	415	23,940	367
		4	0.02	41,040	739	34,200	616	30,780	554	29,070	471	25,650	415	23,940	367
		5	0.018	41,040	739	34,200	616	30,780	554	29,070	471	25,650	415	23,940	367
		5.5	0.008	36,480	620	30,400	517	27,360	466	25,840	395	22,800	349	21,280	308
		6	0.007	36,480	620	30,400	517	27,360	466	25,840	395	22,800	349	21,280	308
8	0.004	36,480	620	30,400	517	27,360	466	25,840	395	22,800	349	21,280	308		
0.3	0.6	1	0.05	45,600	1,368	38,000	1,140	34,200	1,026	32,300	840	28,500	684	26,600	532
		2	0.042	45,600	1,368	38,000	1,140	34,200	1,026	32,300	840	28,500	684	26,600	532
		2.5	0.038	45,600	1,368	38,000	1,140	34,200	1,026	32,300	840	28,500	684	26,600	532



# UM-BN2 高精度切削参数推荐表

## UM-SN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)
0.3	0.6	3	0.034	45,600	1,368	38,000	1,140	34,200	1,026	32,300	840	28,500	684	26,600	532
		3.5	0.029	41,040	1,169	34,200	975	30,780	877	29,070	718	25,650	585	23,940	455
		4	0.024	41,040	1,169	34,200	975	30,780	877	29,070	718	25,650	585	23,940	455
		4.5	0.022	41,040	1,108	34,200	923	30,780	831	29,070	680	25,650	554	23,940	431
		5	0.02	41,040	1,108	34,200	923	30,780	831	29,070	680	25,650	554	23,940	431
		5.5	0.017	41,040	1,108	34,200	923	30,780	831	29,070	680	25,650	554	23,940	431
		6	0.015	41,040	1,108	34,200	923	30,780	831	29,070	680	25,650	554	23,940	431
		7	0.008	36,480	930	30,400	775	27,360	697	25,840	571	22,800	466	21,280	362
		8	0.008	36,480	930	30,400	775	27,360	697	25,840	571	22,800	466	21,280	362
		9	0.006	36,480	930	30,400	775	27,360	697	25,840	571	22,800	466	21,280	362
		10	0.005	31,920	814	26,600	678	23,940	611	22,610	500	19,950	407	18,620	316
		12	0.004	27,360	656	22,800	547	20,520	492	19,380	403	17,100	329	15,960	256
0.35	0.7	2	0.061	45,600	1,505	38,000	1,254	34,200	1,129	32,300	928	28,500	765	26,600	627
		4	0.034	41,040	1,286	34,200	1,072	30,780	964	29,070	793	25,650	654	23,940	536
		6	0.027	41,040	1,219	34,200	1,016	30,780	914	29,070	751	25,650	619	23,940	508
		8	0.01	36,480	962	30,400	802	27,360	722	25,840	594	22,800	489	21,280	401
0.4	0.8	2	0.08	45,600	1,642	38,000	1,368	34,200	1,231	32,300	1,034	28,500	855	26,600	745
		4	0.056	45,600	1,642	38,000	1,368	34,200	1,231	32,300	1,034	28,500	855	26,600	745
		5	0.045	41,040	1,330	34,200	1,108	30,780	998	29,070	837	25,650	693	23,940	603
		6	0.032	41,040	1,330	34,200	1,108	30,780	998	29,070	837	25,650	693	23,940	603
		8	0.02	36,480	1,182	30,400	985	27,360	886	25,840	744	22,800	616	21,280	536
		10	0.01	36,480	1,116	30,400	930	27,360	837	25,840	703	22,800	581	21,280	506
0.45	0.9	2	0.09	43,320	1,847	36,100	1,539	32,490	1,385	30,685	1,154	27,075	954	25,270	846
		4	0.058	43,320	1,847	36,100	1,539	32,490	1,385	30,685	1,154	27,075	954	25,270	846
		6	0.042	38,988	1,495	32,490	1,246	29,241	1,122	27,617	935	24,368	772	22,743	686
		8	0.03	34,656	1,329	28,880	1,108	25,992	997	24,548	831	21,660	687	20,216	609
0.5	1	2	0.1	41,040	2,052	34,200	1,710	30,780	1,539	29,070	1,308	25,650	1,077	23,940	958
		3	0.1	41,040	2,052	34,200	1,710	30,780	1,539	29,070	1,308	25,650	1,077	23,940	958
		4	0.07	41,040	2,052	34,200	1,710	30,780	1,539	29,070	1,308	25,650	1,077	23,940	958
		5	0.06	41,040	2,052	34,200	1,710	30,780	1,539	29,070	1,308	25,650	1,077	23,940	958
		6	0.04	36,936	1,663	30,780	1,385	27,702	1,246	26,163	1,059	23,085	873	21,546	775
		7	0.04	36,936	1,663	30,780	1,385	27,702	1,246	26,163	1,059	23,085	873	21,546	775
		8	0.04	36,936	1,663	30,780	1,385	27,702	1,246	26,163	1,059	23,085	873	21,546	775
		9	0.03	36,936	1,663	30,780	1,385	27,702	1,246	26,163	1,059	23,085	873	21,546	775
		10	0.025	36,936	1,663	30,780	1,385	27,702	1,246	26,163	1,059	23,085	873	21,546	775
		12	0.013	32,832	1,396	27,360	1,163	24,624	1,047	23,256	889	20,520	732	19,152	651
		13	0.011	32,832	1,396	27,360	1,163	24,624	1,047	23,256	889	20,520	732	19,152	651
		14	0.01	32,832	1,396	27,360	1,163	24,624	1,047	23,256	889	20,520	732	19,152	651
16	0.008	32,832	1,396	27,360	1,163	24,624	1,047	23,256	889	20,520	732	19,152	651		
18	0.006	28,728	1,150	23,940	958	21,546	862	20,349	732	17,955	603	16,758	536		
20	0.005	24,624	985	20,520	821	18,468	739	17,442	628	15,390	517	14,364	460		

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)
0.55	1.1	2	0.1	38,304	2,005	31,920	1,670	28,728	1,503	27,132	1,236	23,940	1,036	22,344	919
		4	0.07	38,304	2,005	31,920	1,670	28,728	1,503	27,132	1,236	23,940	1,036	22,344	919
		6	0.04	34,884	1,685	29,070	1,404	26,163	1,264	24,710	1,039	21,803	870	20,349	772
		8	0.04	34,884	1,685	29,070	1,404	26,163	1,264	24,710	1,039	21,803	870	20,349	772
		10	0.025	34,884	1,685	29,070	1,404	26,163	1,264	24,710	1,039	21,803	870	20,349	772
0.6	1.2	4	0.08	35,077	1,835	29,231	1,530	26,307	1,377	24,846	1,148	21,923	948	20,461	842
		8	0.04	32,832	1,707	27,360	1,423	24,624	1,281	23,256	1,047	20,520	903	19,152	766
		10	0.035	32,832	1,536	27,360	1,352	24,624	1,152	23,256	1,047	20,520	812	19,152	690
		12	0.03	32,832	1,536	27,360	1,281	24,624	1,152	23,256	1,047	20,520	812	19,152	690
0.7	1.4	8	0.055	28,728	1,723	23,940	1,436	21,546	1,293	20,349	1,099	17,955	934	16,758	838
		12	0.035	28,728	1,551	23,940	1,293	21,546	1,164	20,349	989	17,955	841	16,758	754
0.75	1.5	4	0.1	31,920	2,107	26,600	1,756	23,940	1,580	22,610	1,357	19,950	1,077	18,620	931
		6	0.1	31,920	2,107	26,600	1,756	23,940	1,580	22,610	1,357	19,950	1,077	18,620	931
		8	0.06	28,728	1,706	23,940	1,422	21,546	1,280	20,349	1,099	17,955	873	16,758	754
		10	0.06	28,728	1,706	23,940	1,422	21,546	1,280	20,349	1,099	17,955	873	16,758	754
		12	0.06	28,728	1,706	23,940	1,422	21,546	1,280	20,349	1,099	17,955	873	16,758	754
		14	0.05	25,536	1,433	23,940	1,422	19,152	1,074	18,088	922	15,960	732	14,896	633
		16	0.019	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		18	0.019	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		20	0.019	25,536	1,433	21,280	1,194	19,152	1,074	18,088	922	15,960	732	14,896	633
		0.8	1.6	8	0.11	29,640	2,075	24,700	1,729	22,230	1,556	20,995	1,302	18,525	1,112
12	0.065			26,676	1,681	22,230	1,400	20,007	1,261	18,896	1,055	16,673	901	15,561	785
16	0.04			26,676	1,681	22,230	1,400	20,007	1,261	18,896	1,055	16,673	901	15,561	785
0.9	1.8	8	0.02	23,712	1,411	19,760	1,176	17,784	1,058	16,796	885	14,820	756	13,832	658
		8	0.13	29,640	2,371	24,700	1,976	22,230	1,778	20,995	1,470	18,525	1,223	17,290	1,037
		12	0.07	26,676	1,921	22,230	1,601	20,007	1,440	18,896	1,190	16,673	990	15,561	841
		16	0.045	26,676	1,921	22,230	1,601	20,007	1,440	18,896	1,190	16,673	990	15,561	841
1	2	20	0.022	23,712	1,612	19,760	1,343	17,784	1,209	16,796	999	14,820	831	13,832	706
		3	0.2	23,940	2,394	19,950	1,995	17,955	1,796	16,958	1,527	14,963	1,287	13,965	1,117
		4	0.2	23,940	2,394	19,950	1,995	17,955	1,796	16,958	1,527	14,963	1,287	13,965	1,117
		6	0.2	23,940	2,155	19,950	1,796	17,955	1,616	16,958	1,357	14,963	1,137	13,965	1,005
		8	0.14	23,940	2,155	19,950	1,796	17,955	1,616	16,958	1,357	14,963	1,137	13,965	1,005
		10	0.14	23,940	1,915	19,950	1,596	17,955	1,436	16,958	1,221	14,963	1,017	13,965	894
		12	0.080	21,546	1,723	17,955	1,436	16,160	1,293	15,262	1,099	13,466	916	12,569	805
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## UM-BN2 高精度切削参数推荐表

### UM-SN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
球半径 (R) Ball Radius (mm)	外径 Mill Dia. (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)
1	2	25	0.035	19,152	1,302	15,960	1,085	14,364	977	13,566	830	11,970	692	11,172	608
		30	0.015	19,152	1,302	15,960	1,085	14,364	977	13,566	830	11,970	692	11,172	608
		35	0.012	16,758	1,073	13,965	894	12,569	805	11,870	684	10,474	570	9,776	501
		40	0.010	14,364	920	11,970	766	10,773	690	10,175	586	8,978	488	8,379	429
1.25	2.5	6	0.250	21,090	2,565	17,575	2,138	15,818	1,924	14,939	1,604	13,181	1,304	12,303	1,069
		10	0.170	21,090	2,565	17,575	2,138	15,818	1,924	14,939	1,604	13,181	1,304	12,303	1,069
		15	0.100	18,981	2,077	15,818	1,731	14,236	1,558	13,445	1,299	11,864	1,055	11,072	865
		20	0.080	18,981	2,077	15,818	1,731	14,236	1,558	13,445	1,299	11,864	1,055	11,072	865
		25	0.065	18,981	1,869	15,818	1,557	14,236	1,401	13,445	1,168	11,864	950	11,072	779
		30	0.044	16,872	1,744	14,060	1,454	12,654	1,308	11,951	1,091	10,545	886	9,842	727
1.5	3	8	0.300	18,240	2,736	15,200	2,280	13,680	2,052	12,920	1,731	11,400	1,436	10,640	1,277
		10	0.210	18,240	2,736	15,200	2,280	13,680	2,052	12,920	1,731	11,400	1,436	10,640	1,277
		13	0.210	18,240	2,736	15,200	2,280	13,680	2,052	12,920	1,731	11,400	1,436	10,640	1,277
		16	0.210	18,240	2,462	15,200	2,052	13,680	1,847	12,920	1,558	11,400	1,293	10,640	1,150
		20	0.120	16,416	2,216	13,680	1,847	12,312	1,663	11,628	1,402	10,260	1,164	9,576	1,035
		25	0.080	16,416	2,216	13,680	1,847	12,312	1,663	11,628	1,402	10,260	1,164	9,576	1,035
		30	0.080	16,416	2,216	13,680	1,847	12,312	1,663	11,628	1,402	10,260	1,164	9,576	1,035
		35	0.064	14,592	1,860	12,160	1,550	10,944	1,396	10,336	1,177	9,120	977	8,512	868
1.75	3.5	15	0.240	15,675	2,679	13,063	2,233	11,756	2,009	11,104	1,675	9,797	1,362	9,144	1,116
		25	0.140	14,108	2,166	11,756	1,805	10,581	1,625	9,993	1,354	8,817	1,101	8,230	903
		35	0.090	14,108	2,166	11,756	1,805	10,581	1,625	9,993	1,354	8,817	1,101	8,230	903
		45	0.072	12,540	1,822	10,450	1,518	9,405	1,366	8,883	1,139	7,838	926	7,315	759
2	4	10	0.400	13,110	2,622	10,925	2,185	9,833	1,967	9,286	1,672	8,194	1,393	7,648	1,224
		13	0.320	13,110	2,622	10,925	2,185	9,833	1,967	9,286	1,672	8,194	1,393	7,648	1,224
		16	0.280	13,110	2,622	10,925	2,185	9,833	1,967	9,286	1,672	8,194	1,393	7,648	1,224
		20	0.280	13,110	2,622	10,925	2,185	9,833	1,967	9,286	1,672	8,194	1,393	7,648	1,224
		25	0.160	11,799	2,124	9,833	1,770	8,849	1,593	8,358	1,354	7,375	1,129	6,883	991
		30	0.160	11,799	2,124	9,833	1,770	8,849	1,593	8,358	1,354	7,375	1,129	6,883	991
		35	0.100	11,799	2,124	9,833	1,770	8,849	1,593	8,358	1,354	7,375	1,129	6,883	991
		40	0.100	11,799	2,124	9,833	1,770	8,849	1,593	8,358	1,354	7,375	1,129	6,883	991
		45	0.080	10,488	1,783	8,740	1,486	7,866	1,338	7,429	1,136	6,555	947	6,118	832
		50	0.070	10,488	1,783	8,740	1,486	7,866	1,338	7,429	1,136	6,555	947	6,118	832
		2.5	5	20	0.350	10,260	2,462	8,550	2,052	7,695	1,847	7,268	1,454	6,413	1,283
25	0.350			10,260	2,462	8,550	2,052	7,695	1,847	7,268	1,454	6,413	1,283	5,985	1,077
30	0.200			9,234	2,216	7,695	1,847	6,926	1,663	6,541	1,308	5,771	1,154	5,387	970
40	0.200			9,234	1,995	7,695	1,663	6,926	1,496	6,541	1,177	5,771	1,039	5,387	873
3	6	12	0.600	10,260	2,873	8,550	2,394	7,695	2,155	7,268	1,796	6,413	1,460	5,985	1,197
		20	0.500	9,690	2,519	8,075	2,100	7,268	1,890	6,864	1,575	6,056	1,281	5,653	1,050
		30	0.420	9,120	2,189	7,600	1,824	6,840	1,642	6,460	1,292	5,700	1,140	5,320	958
		50	0.150	8,208	1,773	6,840	1,477	6,156	1,330	5,814	1,047	5,130	923	4,788	775

#### 注意

- 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢(45~55HRC), ap需\*0.5。
- 进行肋槽或者挡槽加工等容易造成切屑卡住切削时, 切削深度应为基本切削深度乘以切削深度比例, 然后再降至该值的80%。
- ae设定为ap×切削比率×3-5倍。进行精加工时, 请输入理论余量值的最高点。
- 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- 如果机床转速低于表中所列数值, 则进给速度应与转速按同一比例降低。

#### NOTE

- For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
- When performing cutting where cutting chips may cause clogging, such as for rib cutting, blind grooves, etc., cutting depth setting should be set by multiplying a cutting depth factor to calculate the cutting depth amount, and this amount should then be reduced to 80% of the calculated value.
- Adjust by setting ae to (3 to 5) × (ap) × (cutting depth ratio). When performing finishing processing, calculate the theoretical cusp height and set accordingly.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# UM-RN2 切削参数推荐表

## UM-RN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6				
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels				
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%				
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)			
0.2	0.02	0.5	0.016	50,000	922	50,000	922	42,750	788	40,375	670	35,625	525	33,250	429			
			0.011	50,000	922	50,000	922	42,750	788	40,375	670	35,625	525	33,250	429			
			0.007	50,000	809	39,900	735	38,475	709	36,338	603	32,063	473	29,925	386			
			0.05	0.02	50,000	922	50,000	922	42,750	788	40,375	670	35,625	525	33,250	429		
				0.014	50,000	922	50,000	922	42,750	788	40,375	670	35,625	525	33,250	429		
				0.008	50,000	809	44,650	823	40,613	749	38,356	637	33,844	499	31,588	408		
	0.3	0.02	1	0.016	50,000	1,208	45,600	1,103	41,040	993	38,760	696	34,200	520	31,920	419		
				0.011	42,750	948	36,936	817	33,242	735	31,396	564	27,702	421	25,855	339		
				0.007	40,613	837	35,089	722	31,580	650	29,826	499	26,317	372	24,562	300		
		0.05	1.5	0.021	50,000	1,208	45,600	1,103	41,040	993	38,760	696	34,200	520	31,920	419		
				0.016	45,125	1,090	43,320	1,048	38,988	943	36,822	662	32,490	494	30,324	398		
				0.012	42,750	948	36,936	817	33,242	735	31,396	564	27,702	421	25,855	339		
0.4	0.02	2.5	0.01	42,750	948	36,936	817	33,242	735	31,396	564	27,702	421	25,855	339			
			0.008	40,613	837	35,089	722	31,580	650	29,826	499	26,317	372	24,562	300			
			0.05	1	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483	
	0.013	43,776			1,059	36,385	883	32,832	794	30,643	678	27,360	529	25,390	434			
	0.01	33,488			741	27,859	617	25,115	556	23,441	474	20,929	371	19,423	304			
	0.5	0.02	4	0.007	27,578	610	22,943	508	20,683	457	19,304	390	17,236	305	15,995	250		
0.05				1.5	0.025	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483	
					0.02	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483	
		0.016	43,776		1,059	36,385	883	32,832	794	30,643	678	27,360	529	25,390	434			
0.1		2.5	0.015	41,040	1,009	34,200	841	30,780	756	29,070	643	25,650	504	23,940	412			
			0.014	33,488	741	27,859	617	25,115	556	23,441	474	20,929	371	19,423	304			
	0.012		31,396	694	26,163	579	23,547	521	22,239	444	19,622	347	18,314	284				
0.6	0.02	1	0.008	27,578	610	22,943	508	20,683	457	19,304	390	17,236	305	15,995	250			
			0.05	2	0.033	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483	
					0.028	43,776	1,059	36,385	883	32,832	794	30,643	678	27,360	529	25,390	434	
					0.016	33,488	741	27,859	617	25,115	556	23,441	474	20,929	371	19,423	304	
			0.1	4	0.01	27,578	610	22,943	508	20,683	457	19,304	390	17,236	305	15,995	250	
					0.05	1	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390
	0.013	43,776					1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483	
	0.01	35,459	950	29,549			797	26,594	713	25,116	602	22,162	449	20,684	362			
	0.7	0.02	1	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322		
				0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
				0.05	2	0.03	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483
						0.023	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483
0.017						35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362	
0.1				4	0.017	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322	
		0.011	27,579		739	22,982	620	20,684	554	19,535	468	17,237	350	16,087	282			
		0.008	24,515		633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211			
0.8		0.02	1	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362		
				0.05	2	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322
	0.006					24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
	0.003					24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
	0.1	0.02	2	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362		
		0.05	4	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322		
				0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
				0.003	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
0.9	0.02	1	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483			
			0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483			
			0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362			
			0.05	2	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322	
					0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
					0.003	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
	0.1	0.02	2	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362		
		0.05	4	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322		
				0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
				0.003	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
1.0	0.02	1	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483			
			0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483			
			0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362			
			0.05	2	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322	
					0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
					0.003	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211	
	0.1	0.02	2	0.016	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.013	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483		
				0.01	35,459	950	29,549	797	26,594	713	25,116	602	22,162	449	20,684	362		
		0.05	4	0.008	31,519	845	26,266	709	23,639	633	22,326	535	19,699	399	18,386	322		
				0.006	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		
				0.003	24,515	633	20,429	527	18,386	474	17,364	304	15,322	268	14,300	211		

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
0.5	0.1	1	0.035	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483
			0.03	43,776	1,177	36,385	980	32,832	883	30,643	753	27,360	589	25,390	483
			0.02	35,459	950	29,549	797	26,594	713	25,116	602	22			

# UM-RN2 切削参数推荐表

## UM-RN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	0.02	10	0.006	25,855	1,394	21,546	1,162	22,162	1,195	18,314	987	16,160	774	15,082	633
			0.005	22,982	1,101	19,152	918	19,391	1,045	16,279	683	14,364	602	13,406	482
			0.046	2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105	
				2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105	
				2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004	
				2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004	
			0.021	2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915	
				1,793	27,702	1,493	24,932	1,344	23,547	1,269	20,777	996	19,391	813	
				1,593	24,624	1,327	22,162	1,195	20,930	1,129	18,468	885	17,237	723	
				1,394	21,546	1,162	19,391	1,045	18,314	987	16,160	774	15,082	633	
			0.01	1,101	19,152	918	17,237	827	16,279	683	14,364	602	13,406	482	
				803	17,237	723	16,279	634	14,364	516	13,406	402			
	602	14,364		602	12,928	542	12,209	475	10,773	388	10,055	301			
	542	12,928		542	12,209	475	10,773	388	10,055	301					
	0.05	0.016	1,593	24,624	1,327	22,162	1,195	20,930	1,129	18,468	885	17,237	723		
			1,394	21,546	1,162	19,391	1,045	18,314	987	16,160	774	15,082	633		
			1,101	19,152	918	17,237	827	16,279	683	14,364	602	13,406	482		
			803	17,237	723	16,279	634	14,364	516	13,406	402				
		0.006	963	19,152	803	17,237	723	16,279	634	14,364	516	13,406	402		
			723	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301		
			602	12,928	542	12,209	475	10,773	388	10,055	301				
			542	12,209	475	10,773	388	10,055	301						
		0.1	0.065	2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105	
				2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105	
				2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004	
				2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004	
	0.03		2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915		
			1,793	27,702	1,493	24,932	1,344	23,547	1,269	20,777	996	19,391	813		
			1,593	24,624	1,327	22,162	1,195	20,930	1,129	18,468	885	17,237	723		
			1,394	21,546	1,162	19,391	1,045	18,314	987	16,160	774	15,082	633		
	0.015		1,101	19,152	918	17,237	827	16,279	683	14,364	602	13,406	482		
			803	17,237	723	16,279	634	14,364	516	13,406	402				
			602	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301		
			542	12,928	542	12,209	475	10,773	388	10,055	301				
	0.2	0.11	2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105		
			2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105		
			2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004		
			2,459	34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004		
		0.05	2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915		
			1,793	27,702	1,493	24,932	1,344	23,547	1,269	20,777	996	19,391	813		
			1,593	24,624	1,327	22,162	1,195	20,930	1,129	18,468	885	17,237	723		
			1,394	21,546	1,162	19,391	1,045	18,314	987	16,160	774	15,082	633		
		0.025	1,101	19,152	918	17,237	827	16,279	683	14,364	602	13,406	482		
			803	17,237	723	16,279	634	14,364	516	13,406	402				
			602	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301		
			542	12,928	542	12,209	475	10,773	388	10,055	301				
	0.3	0.11	2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105		
			2,723	37,516	2,251	33,885	2,033	31,767	1,715	28,136	1,350	26,322	1,105		
2,459			34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004			
2,459			34,200	2,049	30,780	1,844	29,070	1,568	25,650	1,229	23,940	1,004			
0.05		2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915			
		1,793	27,702	1,493	24,932	1,344	23,547	1,269	20,777	996	19,391	813			
		1,593	24,624	1,327	22,162	1,195	20,930	1,129	18,468	885	17,237	723			
		1,394	21,546	1,162	19,391	1,045	18,314	987	16,160	774	15,082	633			
0.025		1,101	19,152	918	17,237	827	16,279	683	14,364	602	13,406	482			
		803	17,237	723	16,279	634	14,364	516	13,406	402					
		602	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301			
		542	12,928	542	12,209	475	10,773	388	10,055	301					

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)		
1.25	0.1	5	0.03	37,818	2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915		
			0.015	25,855	1,394	24,624	1,327	19,391	1,045	18,314	987	16,160	774	15,082	633		
			0.01	22,982	963	19,152	803	17,237	723	16,279	634	14,364	516	13,406	402		
			0.006	17,237	723	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301		
			0.05	2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915			
				1,327	24,624	1,327	19,391	1,045	18,314	987	16,160	774	15,082	633			
				803	17,237	723	16,279	634	14,364	516	13,406	402					
				602	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301			
			0.025	2,269	30,255	1,815	27,834	1,669	26,322	1,421	23,296	1,118	21,783	915			
				1,327	24,624	1,327	19,391	1,045	18,314	987	16,160	774	15,082	633			
				803	17,237	723	16,279	634	14,364	516	13,406	402					
				602	14,364	602	12,928	542	12,209	475	10,773	388	10,055	301			
	1.5	0.1	4	0.042	31,601	2,045	26,315	1,703	23,701	1,533	22,121	1,309	19,751	1,022	18,328	839	
				0.04	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803	
				0.036	28,728	1,858	23,940	1,549	21,546	1,394	20,349	1,205	17,955	930	16,758	767	
				0.036	22,982	1,487	19,152	1,239	17,237	1,115	16,279	963	14,364	744	13,406	614	
		0.2	8	0.023	17,875	1,028	14,896	857	13,406	771	12,662	637	11,172	562	10,427	449	
					17,875	929	14,896	774	13,406	696	12,662	582	11,172	513	10,427	407	
					0.07	31,601	2,045	26,315	1,703	23,701	1,533	22,121	1,309	19,751	1,022	18,328	839
					0.065	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803
		0.3	12	0.06	28,728	1,858	23,940	1,549	21,546	1,394	20,349	1,205	17,955	930	16,758	767	
					22,982	1,487	19,152	1,239	17,237	1,115	16,279	963	14,364	744	13,406	614	
					17,875	1,028	14,896	857	13,406	771	12,662	637	11,172	562	10,427	449	
					17,875	929	14,896	774	13,406	696	12,662	582	11,172	513	10,427	407	
	1.5	0.1	4	0.085	31,601	2,045	26,315	1,703	23,701	1,533	22,121	1,309	19,751	1,022	18,328	839	
				0.08	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803	
				0.07	28,728	1,858	23,940	1,549	21,546	1,394	20,349	1,205	17,955	930	16,758	767	
				0.065	22,982	1,487	19,152	1,239	17,237	1,115	16,279	963	14,364	744	13,406	614	
		0.2	8	0.045	17,875	1,028	14,896	857	13,406	771	12,662	637	11,172	562	10,427	449	
					17,875	929	14,896	774	13,406	696	12,662	582	11,172	513	10,427	407	
					0.07	31,601	2,045	26,315	1,703	23,701	1,533	22,121	1,309	19,751	1,022	18,328	839
					0.065	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803
		0.3	12	0.06													

# UM-RN2 切削参数推荐表

## UM-RN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6		
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	
1.75	0.2	5	0.065	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803	
			0.06	22,982	1,487	19,152	1,239	17,237	1,115	16,279	963	14,364	744	13,406	614	
			0.038	17,875	1,028	14,896	857	13,406	771	12,662	637	11,172	562	10,427	449	
	0.3	5	0.065	30,255	1,954	25,212	1,628	22,590	1,459	21,380	1,265	18,959	981	17,547	803	
			0.06	22,982	1,487	19,152	1,239	17,237	1,115	16,279	963	14,364	744	13,406	614	
			0.038	17,875	1,028	14,896	857	13,406	771	12,662	637	11,172	562	10,427	449	
	2	0.1	4	0.08	27,229	3,060	22,993	2,584	20,724	2,329	19,514	2,193	17,244	1,549	16,186	1,272
				0.07	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207
				0.055	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098
12			0.03	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
			0.03	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790	
			0.025	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
0.2		4	0.1	27,229	3,060	22,993	2,584	20,724	2,329	19,514	2,193	17,244	1,549	16,186	1,272	
			0.08	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207	
			0.07	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098	
0.3		0.1	12	0.04	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889
				0.04	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790
				0.035	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620
			20	0.025	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620
				0.015	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620
				0.01	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590
	0.2	4	0.1	27,229	3,060	22,993	2,584	20,724	2,329	19,514	2,193	17,244	1,549	16,186	1,272	
			0.08	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207	
			0.07	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098	
		12	0.04	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
			0.04	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790	
			0.035	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
0.5	0.1	12	0.035	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.025	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.017	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590	
		4	0.13	27,229	3,060	22,993	2,584	20,724	2,329	19,514	2,193	17,244	1,549	16,186	1,272	
			0.11	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207	
			0.09	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098	
	0.3	12	0.06	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
			0.06	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790	
			0.037	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
		20	0.03	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.021	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590	
			0.17	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207	
0.8	6	0.17	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207		
		0.14	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098		
		0.08	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889		
	16	0.08	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790		
		0.05	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620		
		0.03	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590		
0.2	6	0.22	26,334	2,958	21,945	2,465	19,751	2,218	18,653	2,095	16,459	1,479	15,362	1,207		
		0.2	23,940	2,689	19,950	2,241	17,955	2,017	16,958	1,905	14,963	1,344	13,965	1,098		

工件材料 Workpiece Materials				1		2		3		4		5		6		
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	
2	0.8	12	0.13	19,391	1,960	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
			0.1	17,237	1,742	14,364	1,452	12,928	1,307	12,209	1,234	10,773	968	10,055	790	
			0.06	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
		20	0.057	15,082	1,525	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.045	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590	
			0.05	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
	2.5	0.1	10	0.03	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620
				0.015	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590
				0.07	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889
			20	0.04	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620
				0.025	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590
				0.07	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889
0.2		10	0.04	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.025	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590	
			0.09	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
		30	0.06	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620	
			0.03	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590	
			0.12	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889	
0.5	10	0.08	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620		
		0.05	14,328	1,449	11,941	1,207	10,746	1,086	10,149	1,026	8,955	723	8,358	590		
		0.05	19,391	2,178	16,160	1,634	14,544	1,471	13,736	1,389	12,120	1,089	11,312	889		
	20	0.08	15,082	1,694	12,569	1,270	11,312	1,144	10,684	1,080	9,427	761	8,798	620		
		0														

# UM-RN2 切削参数推荐表

## UM-RN2 Recommended Cutting Parameters

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
3	0.3	20	0.075	14,774	2,075	12,312	1,729	11,081	1,556	10,465	1,470	9,234	1,037	8,618	847
			0.06	11,491	1,448	9,576	1,207	8,618	1,086	8,140	1,025	7,182	732	6,703	590
			0.05	11,491	1,448	9,576	1,207	8,618	1,086	8,140	1,025	7,182	732	6,703	590
	0.5	8	0.18	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
			0.13	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
			0.1	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
			0.1	16,136	2,265	13,614	1,911	12,101	1,699	12,920	1,814	10,084	1,133	9,580	942
			0.1	14,774	2,075	12,312	1,729	11,081	1,556	10,465	1,470	9,234	1,037	8,618	847
			0.08	11,491	1,448	9,576	1,207	8,618	1,086	8,140	1,025	7,182	732	6,703	590
	1	8	0.2	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
			0.15	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
			0.12	18,240	2,561	15,200	2,134	13,680	1,921	12,920	1,814	11,400	1,281	10,640	1,046
0.11			16,136	2,265	13,614	1,911	12,101	1,699	12,920	1,814	10,084	1,133	9,580	942	
0.11			14,774	2,075	12,312	1,729	11,081	1,556	10,465	1,470	9,234	1,037	8,618	847	
0.09			11,491	1,448	9,576	1,207	8,618	1,086	8,140	1,025	7,182	732	6,703	590	
4	0.1	8	0.08	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117
			0.065	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117
			0.06	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900
	0.2	20	0.055	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900
			0.045	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667
			0.04	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667
			0.03	8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424
			0.16	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117
			0.14	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117
	0.3	20	0.13	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900
			0.11	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900
			0.1	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667
0.08			10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
0.06			8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424	
0.24			15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117	
0.5	20	0.22	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117	
		0.2	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
		0.18	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
		0.16	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
		0.14	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
		0.12	8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424	
1	20	0.35	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117	
		0.25	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
		0.2	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
		0.2	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
		0.12	8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424	
		0.35	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117	

工件材料 Workpiece Materials				1		2		3		4		5		6		
				铜 Copper		碳素钢,合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢,工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	
4	0.5	30	0.15	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
			0.1	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
			0.05	8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424	
	1	12	0.4	15,732	2,736	13,110	2,280	11,799	2,052	11,144	1,938	9,833	1,368	9,177	1,117	
			0.29	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
			0.23	13,046	2,269	10,873	1,891	9,567	1,663	9,132	1,587	7,828	1,089	7,393	900	
			0.17	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
			0.12	10,436	1,633	8,696	1,361	7,827	1,226	7,392	1,157	6,523	817	6,088	667	
			0.06	8,350	1,045	6,958	871	6,262	784	5,915	741	5,219	526	4,871	424	
	5	0.1	20	0.08	12,520	2,722	10,434	2,269	9,390	2,042	8,869	1,928	7,825	1,361	7,304	1,112
				0.06	11,275	2,196	9,396	1,830	8,456	1,647	7,987	1,555	7,047	1,098	6,577	897
		0.2	40	0.16	12,520	2,722	10,434	2,269	9,390	2,042	8,869	1,928	7,825	1,361	7,304	1,112
0.13				11,275	2,196	9,396	1,830	8,456	1,647	7,987	1,555	7,047	1,098	6,577	897	
0.3		20	0.24	12,520	2,722	10,434	2,269	9,390	2,042	8,869	1,928	7,825	1,361	7,304	1,112	
			0.2	11,275	2,196	9,396	1,830	8,456	1,647	7,987	1,555	7,047	1,098	6,577	897	
0.5		40	0.35	12,520	2,722	10,434	2,269	9,390	2,042	8,869	1,928	7,825	1,361	7,304	1,112	
			0.135	11,275	2,196	9,396	1,830	8,456	1,647	7,987	1,555	7,047	1,098	6,577	897	
1		20	0.4	12,520	2,722	10,434	2,269	9,390	2,042	8,869	1,928	7,825	1,361	7,304	1,112	
			0.15	11,275	2,196	9,396	1,830	8,456	1,647	7,987	1,555	7,047	1,098	6,577	897	
6		0.1	12	0.08	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112
				0.065	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112
	0.06			10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
	0.2	35	0.05	9,387	2,204	7,822	1,836	7,040	1,653	6,649	1,561	5,867	1,102	5,476	900	
			0.04	7,303	1,715	6,086	1,429	5,477	1,286	5,173	1,214	4,565	857	4,260	700	
			0.16	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
			0.14	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
			0.13	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
			0.11	9,387	2,204	7,822	1,836	7,040	1,653	6,649	1,561	5,867	1,102	5,476	900	
	0.3	55	0.08	7,303	1,715	6,086	1,429	5,477	1,286	5,173	1,214	4,565	857	4,260	700	
			0.24	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
			0.22	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112	
0.2			10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112		
0.18			9,387	2,204	7,822	1,836	7,040	1,653	6,649	1,561	5,867	1,102	5,476	900		
0.14			7,303	1,715	6,086	1,429	5,477	1,286	5,173	1,214	4,565	857	4,260	700		
0.5	18	0.35	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112		
		0.29	10,436	2,723	8,696	2,269	7,827	2,042	7,392	1,929	6,523	1,361	6,088	1,112		
		0.24	9,387	2,204	7,822	1,836	7,040	1,653	6,649	1,561						

## UM-RN2 切削参数推荐表

### UM-RN2 Recommended Cutting Parameters

#### 注意

- ▲ 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢 (45~55HRC), ap需\*0.5。
- ▲ 进行肋槽或者挡槽加工等容易造成切屑卡住切削时, 切削深度应为基本切削深度乘以切削深度比例, 然后再降至该值的80%。
- ▲ ae设定为ap×切削比率×3-5倍。进行精加工时, 请输入理论余量值的最高点。
- ▲ 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- ▲ 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- ▲ 如果机床转速低于表中所示数值, 则进给速度应与转速按同一比例降低。

#### NOTE

1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
2. When performing cutting where cutting chips may cause clogging, such as for rib cutting, blind grooves, etc., cutting depth setting should be set by multiplying a cutting depth factor to calculate the cutting depth amount, and this amount should then be reduced to 80% of the calculated value.
3. Adjust by setting ae to (3 to 5) × (ap) × (cutting depth ratio). When performing finishing processing, calculate the theoretical cusp height and set accordingly.
4. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
5. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
6. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

## UM-RN2 高精度切削参数推荐表

### UM-RN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬硬钢 (45-55HRC) Hardened Steels		淬硬钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)	转速(n) (r/min)	进给 速度 (Vf) (mm/min)
0.2	0.02	0.5	0.016	50,000	292	50,000	245	50,000	219	50,000	195	50,000	171	50,000	152
		1	0.011	50,000	292	50,000	245	50,000	219	50,000	195	50,000	171	50,000	152
		2	0.007	50,000	234	39,900	192	35,910	172	34,865	167	34,865	154	34,865	140
	0.05	0.5	0.02	50,000	292	50,000	245	50,000	219	50,000	195	50,000	171	50,000	152
		1	0.014	50,000	292	50,000	245	50,000	219	50,000	195	50,000	171	50,000	152
		1.5	0.008	50,000	262	50,000	228	46,170	212	43,605	192	43,605	162	43,605	145
0.3	0.02	2	0.008	50,000	234	39,900	192	35,910	172	34,865	167	34,865	154	34,865	140
		1	0.016	50,000	661	50,000	556	50,000	490	50,000	433	50,000	319	50,000	304
		2	0.011	42,750	589	42,750	504	42,750	437	42,750	399	42,750	285	42,750	276
	0.05	3	0.007	38,000	479	33,250	391	33,250	340	33,250	310	28,500	190	28,500	184
		1	0.021	50,000	661	50,000	556	50,000	490	50,000	433	50,000	319	50,000	304
		1.5	0.016	50,000	661	50,000	556	42,750	490	42,750	433	42,750	319	42,750	304
0.4	0.02	2.5	0.012	42,750	589	42,750	504	42,750	437	42,750	399	42,750	285	42,750	276
		2	0.01	38,000	523	38,000	447	38,000	389	38,000	354	38,000	254	38,000	245
		3	0.008	38,000	479	33,250	391	33,250	340	33,250	310	28,500	190	28,500	184
	0.05	1	0.016	50,000	656	50,000	551	50,000	492	50,000	438	38,000	304	34,200	257
		2	0.013	42,750	589	42,750	494	42,750	447	42,750	390	34,200	276	32,300	228
		3	0.01	38,000	456	38,000	390	38,000	352	38,000	314	31,160	228	24,320	190
0.5	0.02	4	0.007	28,500	352	28,500	304	28,500	266	28,500	238	20,520	152	18,240	143
		1	0.025	50,000	656	50,000	551	50,000	492	50,000	438	38,000	304	34,200	257
		1.5	0.02	50,000	656	50,000	551	50,000	492	50,000	438	38,000	304	34,200	257
	0.05	2	0.016	42,750	589	42,750	494	42,750	447	42,750	390	34,200	276	32,300	228
		2.5	0.015	38,475	532	38,475	456	38,475	380	38,475	352	31,730	257	29,070	209
		3	0.014	38,000	456	38,000	390	38,000	352	38,000	314	31,160	228	24,320	190
1	0.02	3.5	0.012	34,200	399	34,200	361	34,200	304	34,200	285	27,930	190	21,774	171
		4	0.008	28,500	352	28,500	304	28,500	266	28,500	238	20,520	152	18,240	143
		4	0.033	50,000	656	50,000	551	50,000	492	50,000	438	38,000	304	34,200	257
	0.05	2	0.028	42,750	589	42,750	494	42,750	447	42,750	390	34,200	276	32,300	228
		3	0.016	38,000	456	38,000	390	38,000	352	38,000	314	31,160	228	24,320	190
		4	0.01	28,500	352	28,500	304	28,500	266	28,500	238	20,520	152	18,240	143
0.2	0.02	1	0.016	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
		2	0.013	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
		3	0.01	42,750	912	42,750	770	42,750	650	34,200	393	25,650	299	23,275	248
	0.05	4	0.008	38,000	808	38,000	684	38,000	573	30,400	359	22,800	265	19,000	222
		6	0.006	28,500	542	27,360	456	22,800	361	18,430	247	17,100	238	14,250	190
		1	0.03	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
0.5	0.02	2	0.023	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
		3	0.017	42,750	912	42,750	770	42,750	650	34,200	393	25,650	299	23,275	248
		4	0.017	38,000	808	38,000	684	38,000	573	30,400	359	22,800	265	19,000	222
	0.05	5	0.011	28,500	608	27,360	513	22,800	361	18,430	266	17,100	238	14,250	190
		6	0.008	28,500	542	27,360	456	22,800	361	18,430	247	17,100	238	14,250	190

## UM-RN2 高精度切削参数推荐表

### UM-RN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
0.5	0.1	1	0.035	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
		2	0.03	50,000	1,017	50,000	853	50,000	718	38,000	441	28,500	359	26,600	299
		3	0.02	42,750	912	42,750	770	42,750	650	34,200	393	25,650	299	23,275	248
		4	0.02	38,000	808	38,000	684	38,000	573	30,400	359	22,800	265	19,000	222
		5	0.013	28,500	608	27,360	513	22,800	361	18,430	266	17,100	238	14,250	190
		6	0.013	28,500	542	27,360	456	22,800	361	18,430	247	17,100	238	14,250	190
0.6	0.02	2	0.016	50,000	1,311	50,000	1,101	44,460	874	35,939	570	26,790	371	21,850	304
		4	0.013	38,000	931	38,000	789	32,775	589	26,410	418	22,420	266	19,950	219
		6	0.01	28,500	551	22,800	466	19,000	342	17,100	285	16,910	228	14,250	200
	0.05	2	0.028	50,000	1,311	50,000	1,101	44,460	874	35,939	570	26,790	371	21,850	304
		4	0.019	38,000	931	38,000	789	32,775	589	26,410	418	22,420	266	19,950	219
		6	0.012	28,500	551	22,800	466	19,000	342	17,100	285	16,910	228	14,250	200
		8	0.01	28,500	523	22,800	443	19,000	325	17,100	271	16,910	217	14,250	190
	0.1	10	0.007	28,500	507	22,800	428	19,000	314	17,100	262	16,910	210	14,250	183
		2	0.035	50,000	1,311	50,000	1,101	44,460	874	35,939	570	26,790	371	21,850	304
		4	0.024	38,000	931	38,000	789	32,775	589	26,410	418	22,420	266	19,950	219
0.7	0.05	6	0.015	28,500	551	22,800	466	19,000	342	17,100	285	16,910	228	14,250	200
		4	0.029	38,000	931	38,000	789	32,775	589	26,410	418	22,420	266	19,950	219
	0.1	6	0.018	28,500	551	22,800	466	19,000	342	17,100	285	16,910	228	14,250	200
		4	0.016	50,000	1,246	45,600	1,047	34,200	713	26,600	492	19,000	304	19,000	274
0.8	0.02	6	0.013	38,000	903	36,765	760	24,700	504	23,750	438	17,100	274	17,100	243
		4	0.026	50,000	1,246	45,600	1,047	34,200	713	26,600	492	19,000	304	19,000	274
		6	0.015	38,000	903	36,765	760	24,700	504	23,750	438	17,100	274	17,100	243
		8	0.012	28,500	677	27,574	570	19,760	403	19,000	351	15,390	246	15,390	219
	0.05	12	0.01	28,500	643	27,574	542	19,760	383	19,000	333	15,390	234	15,390	208
		4	0.032	50,000	1,246	45,600	1,047	34,200	713	26,600	492	19,000	304	19,000	274
		6	0.019	38,000	903	36,765	760	24,700	504	23,750	438	17,100	274	17,100	243
		8	0.015	28,500	677	27,574	570	19,760	403	19,000	351	15,390	246	15,390	219
	0.1	12	0.012	28,500	643	27,574	542	19,760	383	19,000	333	15,390	234	15,390	208
		4	0.056	50,000	1,246	45,600	1,047	34,200	713	26,600	492	19,000	304	19,000	274
		6	0.032	38,000	903	36,765	760	24,700	504	23,750	438	17,100	274	17,100	243
		8	0.018	28,500	677	27,574	570	19,760	403	19,000	351	15,390	246	15,390	219
0.2	12	0.015	28,500	643	27,574	542	19,760	383	19,000	333	15,390	234	15,390	208	
	4	0.016	40,541	1,783	33,885	1,491	30,472	1,340	28,779	1,151	25,394	914	23,701	758	
	6	0.013	36,936	1,549	30,780	1,291	27,702	1,162	26,163	987	23,085	774	21,546	633	
	8	0.008	26,594	1,003	22,162	836	19,945	752	18,838	711	16,621	558	15,514	455	
1	0.02	10	0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
		12	0.025	20,684	694	17,237	579	15,514	521	14,651	430	12,928	379	12,066	304
		6	0.01	29,918	1,130	24,932	941	22,439	846	23,311	882	18,699	627	17,452	512
		8	0.008	26,594	1,003	22,162	836	19,945	752	18,838	711	16,621	558	15,514	455

工件材料 Workpiece Materials				1		2		3		4		5		6		
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	
1	0.02	0.02	10	0.006	20,684	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
			12	0.005	20,684	694	17,237	579	15,514	521	14,651	430	12,928	379	12,066	304
			2	0.046	40,541	1,783	33,885	1,491	30,472	1,340	28,779	1,151	25,394	914	23,701	758
			3	0.035	38,756	1,666	32,319	1,389	29,087	1,251	28,779	1,151	24,239	824	22,623	678
		0.05	4	0.027	36,936	1,549	30,780	1,291	27,702	1,162	27,471	1,072	23,085	774	21,546	633
			5	0.021	32,977	1,319	27,425	1,096	24,683	987	26,163	987	20,568	691	19,198	564
			6	0.017	29,918	1,130	24,932	941	22,439	846	23,311	882	18,699	627	17,452	512
			8	0.016	26,594	1,003	22,162	836	19,945	752	18,838	711	16,621	558	15,514	455
	0.1	10	0.011	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398	
		12	0.01	20,684	694	17,237	579	15,514	521	14,651	430	12,928	379	12,066	304	
		16	0.006	20,684	607	17,237	506	15,514	455	14,651	399	12,928	325	12,066	253	
		20	0.004	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190	
		2	0.065	40,541	1,783	33,885	1,491	30,472	1,340	28,779	1,151	25,394	914	23,701	758	
		3	0.05	38,756	1,666	32,319	1,389	29,087	1,251	28,779	1,151	24,239	824	22,623	678	
		4	0.038	36,936	1,549	30,780	1,291	27,702	1,162	27,471	1,072	23,085	774	21,546	633	
		5	0.03	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564	
0.2	6	0.024	29,918	1,130	24,932	941	22,439	846	21,192	800	18,699	627	17,452	512		
	8	0.024	26,594	1,003	22,162	836	19,945	752	18,838	711	16,621	558	15,514	455		
	10	0.015	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398		
	12	0.015	20,684	694	17,237	579	15,514	521	14,651	430	12,928	379	12,066	304		
	16	0.009	20,684	607	17,237	506	15,514	455	14,651	399	12,928	325	12,066	253		
	20	0.006	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190		
	2	0.11	40,541	1,783	33,885	1,491	30,472	1,340	28,779	1,151	25,394	914	23,701	758		
	3	0.09	38,756	1,666	32,319	1,389	29,087	1,251	27,471	1,072	24,239	824	22,623	678		
0.3	4	0.07	36,936	1,549	30,780	1,291	27,702	1,162	26,163	987	23,085	774	21,546	633		
	5	0.05	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564		
	6	0.04	29,918	1,130	24,932	941	22,439	846	21,192	800	18,699	627	17,452	512		
	8	0.04	26,594	1,003	22,162	836	19,945	752	18,838	711	16,621	558	15,514	455		
	10	0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398		
	12	0.025	20,684	694	17,237	579	15,514									



# UM-RN2 高精度切削参数推荐表

## UM-RN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1	0.3	20	0.01	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190
			0.03	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564
			0.015	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
			0.01	20,684	607	17,237	506	15,514	521	14,651	430	12,928	325	12,066	253
1.25	0.1	20	0.006	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190
			0.05	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564
			0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
			0.016	20,684	607	17,237	506	15,514	521	14,651	430	12,928	325	12,066	253
	0.2	20	0.01	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190
			0.05	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564
			0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
			0.016	20,684	607	17,237	506	15,514	521	14,651	430	12,928	325	12,066	253
0.3	20	0.01	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190	
		0.05	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564	
		0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398	
		0.016	20,684	607	17,237	506	15,514	521	14,651	430	12,928	325	12,066	253	
1.5	0.1	20	0.01	15,514	455	12,928	379	11,635	341	10,989	299	9,696	244	9,050	190
			0.05	32,977	1,319	27,425	1,096	24,683	987	23,311	882	20,568	691	19,198	564
			0.025	23,269	878	19,391	732	17,452	658	16,483	622	14,544	488	13,574	398
			0.016	20,684	607	17,237	506	15,514	521	14,651	430	12,928	325	12,066	253
	0.2	20	0.042	28,441	1,288	23,684	1,074	21,330	966	19,908	900	17,775	714	16,496	580
			0.04	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553
			0.036	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.036	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425
	0.3	20	0.018	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.018	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.042	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.04	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553
1.75	0.1	20	0.036	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.036	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425
			0.023	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.018	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
	0.2	20	0.042	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.04	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553
			0.036	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.036	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425
0.3	20	0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531	
		0.06	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425	
		0.038	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283	
		0.03	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283	
1.75	0.1	20	0.07	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.065	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553
			0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.06	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425
	0.2	20	0.07	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.065	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553
			0.07	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.065	20,684	937	17,237	781	15,514	703	14,651	663	12,928	521	12,066	425
0.3	20	0.045	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283	
		0.035	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283	
		0.07	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528	
		0.065	27,028	1,221	22,590	1,020	20,371	921	19,363	875	16,942	680	15,732	553	

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)
1.75	0.2	5	0.065	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.038	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.03	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.065	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
	0.3	5	0.065	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
			0.038	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.03	16,087	648	13,406	540	12,066	485	11,395	402	10,055	354	9,384	283
			0.065	28,441	1,288	23,684	1,074	21,330	966	19,908	825	17,775	644	16,496	528
			0.06	25,855	1,171	21,546	976	19,391	878	18,314	829	16,160	651	15,082	531
2	0.1	4	0.08	24,808	1,949	20,875	1,641	18,758	1,473	17,547	1,378	15,581	981	14,522	798
			0.07	23,701	1,864	19,751	1,553	17,775	1,397	16,788	1,320	14,813	932	13,825	761
			0.055	21,546	1,694	17,955	1,412	16,160	1,270	15,262	1,200	13,466	847	12,569	692
			0.03	17,452	1,235	14,544	1,029	13,089	926	12,362	875	10,908	686	10,180	561
			0.03	15,514	1,098	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			0.025	13,574	960	11,312	801	10,180	720	9,615	680	8,484	534	7,918	436
	0.2	4	0.015	13,574	863	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
			0.01	12,895	820	10,746	683	9,671	615	9,134	580	8,060	456	7,522	371
			0.1	24,808	1,949	20,875									

# UM-RN2 高精度切削参数推荐表

## UM-RN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
2	0.8		12 0.13	17,452	1,372	14,544	1,029	13,089	926	12,362	875	10,908	686	10,180	561
			16 0.1	15,514	1,220	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			20 0.06	13,574	1,067	11,312	801	10,180	720	9,615	680	8,484	534	7,918	436
			25 0.057	13,574	863	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
			30 0.045	12,895	820	10,746	683	9,671	615	9,134	580	8,060	456	7,522	371
2.5	0.1		10 0.055	21,546	1,694	17,955	1,412	16,160	1,270	15,262	1,200	13,466	847	12,569	692
			20 0.03	15,514	1,220	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			30 0.015	13,574	958	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
	0.2		10 0.07	21,546	1,694	17,955	1,412	16,160	1,270	15,262	1,200	13,466	847	12,569	692
			20 0.04	15,514	1,220	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			30 0.025	13,574	958	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
	0.3		10 0.09	21,546	1,694	17,955	1,412	16,160	1,270	15,262	1,200	13,466	847	12,569	692
			20 0.06	15,514	1,220	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			30 0.03	13,574	958	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
	0.5		10 0.14	21,546	1,694	17,955	1,412	16,160	1,270	15,262	1,200	13,466	847	12,569	692
			20 0.08	15,514	1,220	12,928	915	11,635	824	10,989	777	9,696	610	9,050	498
			30 0.05	13,574	958	11,312	719	10,180	647	9,615	611	8,484	480	7,918	390
3	0.1		6 0.08	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			8 0.07	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			12 0.05	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			16 0.035	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			18 0.035	14,723	1,445	12,303	1,207	11,093	1,092	10,387	1,019	9,278	729	8,572	589
			20 0.035	13,297	1,307	11,081	1,089	9,973	980	9,418	925	8,311	653	7,757	533
			30 0.027	10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373
			35 0.02	10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373
			0.2		6 0.1	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807
	8 0.09	16,416			1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
	12 0.07	16,416			1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
	16 0.05	16,416			1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
	18 0.05	14,723			1,445	12,303	1,207	11,093	1,092	10,387	1,019	9,278	729	8,572	589
	20 0.05	13,297			1,307	11,081	1,089	9,973	980	9,418	925	8,311	653	7,757	533
	30 0.04	10,342			914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373
	35 0.035	10,342			914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373
	0.3				6 0.145	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807
			8 0.13	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			12 0.1	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			16 0.075	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
			18 0.075	14,723	1,445	12,303	1,207	11,093	1,092	10,387	1,019	9,278	729	8,572	589
20 0.075			13,297	1,307	11,081	1,089	9,973	980	9,418	925	8,311	653	7,757	533	
30 0.06			10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373	
35 0.05			10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373	

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)		
3	0.5		8 0.18	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658		
			12 0.13	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658		
			16 0.1	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658		
			18 0.1	14,723	1,445	12,303	1,207	11,093	1,092	10,387	1,019	9,278	729	8,572	589		
			20 0.1	13,297	1,307	11,081	1,089	9,973	980	9,418	925	8,311	653	7,757	533		
			30 0.08	10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373		
			35 0.065	10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373		
			1		8 0.2	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
					12 0.15	16,416	1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658
	16 0.12	16,416			1,613	13,680	1,344	12,312	1,210	11,628	1,143	10,260	807	9,576	658		
	18 0.11	14,723			1,445	12,303	1,207	11,093	1,092	10,387	1,019	9,278	729	8,572	589		
	20 0.11	13,297			1,307	11,081	1,089	9,973	980	9,418	925	8,311	653	7,757	533		
	30 0.09	10,342			914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373		
	35 0.075	10,342	914	8,618	761	7,757	685	7,325	647	6,464	456	6,033	373				
	4	0.1		8 0.08	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908	
				12 0.065	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908	
				16 0.06	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773	
				20 0.055	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773	
				30 0.045	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773	
				35 0.04	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773	
				45 0.03	9,394	1,225	7,828	1,021	6,958	907	5,305	692	4,697	490	3,913	340	
0.2					8 0.16	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908
					12 0.14	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908
		16 0.13	11,742		2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
		20 0.11	11,742		2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
		30 0.1	11,742		2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
		35 0.08	11,742		2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
0.3			45 0.06	9,394	1,225	7,828	1,021	6,958	907	5,305	692	4,697	490	3,913	340		
			8 0.24	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908		
			12 0.22	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908		
			16 0.2	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
			20 0.18	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773		
	30 0.16		11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773			
	35 0.14		11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773			
	45 0.12		9,394	1,225	7,828	1,021	6,958	907	5,305	692	4,697	490	3,913	340			
	0.5			12 0.35	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908	
16 0.25		11,742		2,042	9,742	1											

## UM-RN2 高精度切削参数推荐表

### UM-RN2 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6	
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels	
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%	
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)
4	1	12	0.4	12,782	2,223	10,652	1,853	9,586	1,667	9,054	1,575	7,990	1,112	7,457	908
		16	0.29	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773
		20	0.23	11,742	2,042	9,742	1,694	8,697	1,512	8,262	1,436	7,219	1,004	6,350	773
		30	0.17	11,742	2,042	9,742	1,694	8,697	1,512	6,524	1,021	5,216	654	4,868	533
		35	0.12	11,742	2,042	9,742	1,694	8,697	1,512	6,524	1,021	5,216	654	4,868	533
		45	0.06	9,394	1,225	7,828	1,021	6,958	907	5,305	692	4,697	490	3,913	340
5	0.1	20	0.08	10,436	2,269	8,696	1,891	7,827	1,701	7,392	1,607	6,523	1,134	6,088	926
		40	0.06	7,512	1,463	6,261	1,220	5,634	1,097	5,322	1,036	4,696	732	4,382	598
	0.2	20	0.16	10,436	2,269	8,696	1,891	7,827	1,701	7,392	1,607	6,523	1,134	6,088	926
		40	0.13	7,512	1,463	6,261	1,220	5,634	1,097	5,322	1,036	4,696	732	4,382	598
	0.3	20	0.24	10,436	2,269	8,696	1,891	7,827	1,701	7,392	1,607	6,523	1,134	6,088	926
		40	0.2	7,512	1,463	6,261	1,220	5,634	1,097	5,322	1,036	4,696	732	4,382	598
	0.5	20	0.35	10,436	2,269	8,696	1,891	7,827	1,701	7,392	1,607	6,523	1,134	6,088	926
		40	0.135	7,512	1,463	6,261	1,220	5,634	1,097	5,322	1,036	4,696	732	4,382	598
	1	20	0.4	10,436	2,269	8,696	1,891	7,827	1,701	7,392	1,607	6,523	1,134	6,088	926
		40	0.15	7,512	1,463	6,261	1,220	5,634	1,097	5,322	1,036	4,696	732	4,382	598
6	0.1	12	0.08	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		18	0.065	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		24	0.06	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		35	0.05	7,394	1,736	6,162	1,447	5,545	1,302	5,237	1,229	4,622	868	4,313	709
		55	0.04	6,261	1,197	5,216	998	4,696	898	4,435	847	3,912	592	3,652	483
	0.2	12	0.16	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		18	0.14	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		24	0.13	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		35	0.11	7,394	1,736	6,162	1,447	5,545	1,302	5,237	1,229	4,622	868	4,313	709
		55	0.08	6,261	1,197	5,216	998	4,696	898	4,435	847	3,912	592	3,652	483
	0.3	12	0.24	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		18	0.22	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		24	0.2	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		35	0.18	7,394	1,736	6,162	1,447	5,545	1,302	5,237	1,229	4,622	868	4,313	709
		55	0.14	6,261	1,197	5,216	998	4,696	898	4,435	847	3,912	592	3,652	483
	0.5	18	0.35	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		24	0.29	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
		35	0.24	7,394	1,736	6,162	1,447	5,545	1,302	5,237	1,229	4,622	868	4,313	709
		55	0.165	6,261	1,197	5,216	998	4,696	898	4,435	847	3,912	592	3,652	483
		18	0.4	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926
1	24	0.35	8,698	2,270	7,249	1,891	6,525	1,701	6,162	1,607	5,436	1,134	5,075	926	
	35	0.28	7,394	1,736	6,162	1,447	5,545	1,302	5,237	1,229	4,622	868	4,313	709	
	55	0.2	6,261	1,197	5,216	998	4,696	898	4,435	847	3,912	592	3,652	483	

#### 注意

- 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢(45~55HRC), ap需\*0.5。
- 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- 如果机床转速低于表中所示数值, 则进给速度应与转速按同一比例降低。

#### NOTE

- For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# UM-RN4 高精度切削参数推荐表

## UM-RN4 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)		
1	0.05	4	0.012	38,900	2,440	31,120	1,952	28,008	1,757	26,608	1,669	23,947	1,230	22,749	1,000		
			0.01	31,500	1,780	25,200	1,424	22,680	1,282	21,546	1,218	19,391	990	18,422	810		
		8	0.008	28,000	1,580	22,400	1,264	20,160	1,138	19,152	1,081	17,237	880	16,375	720		
			0.005	24,500	1,390	19,600	1,112	17,640	1,001	16,758	951	15,082	770	14,328	630		
		12	0.004	21,800	1,100	17,440	880	15,696	792	14,911	752	13,420	600	12,749	480		
			0.003	21,800	960	17,440	768	15,696	691	14,911	657	13,420	510	12,749	400		
		20	0.002	16,300	720	13,040	576	11,736	518	11,149	492	10,034	385	9,533	300		
			0.02	38,900	2,440	31,120	1,952	28,008	1,757	26,608	1,669	23,947	1,230	22,749	1,000		
		0.1	4	0.018	31,500	1,780	25,200	1,424	22,680	1,282	21,546	1,218	19,391	990	18,422	810	
				0.014	28,000	1,580	22,400	1,264	20,160	1,138	19,152	1,081	17,237	880	16,375	720	
	8		0.01	24,500	1,390	19,600	1,112	17,640	1,001	16,758	951	15,082	770	14,328	630		
			0.008	21,800	1,100	17,440	880	15,696	792	14,911	752	13,420	600	12,749	480		
	12		0.006	21,800	960	17,440	768	15,696	691	14,911	657	13,420	510	12,749	400		
			0.004	16,300	720	13,040	576	11,736	518	11,149	492	10,034	385	9,533	300		
	1.5		0.05	4	0.02	29,900	2,030	23,920	1,624	21,528	1,462	20,452	1,389	18,406	1,020	17,486	830
				8	0.014	27,200	1,850	21,760	1,480	19,584	1,332	18,605	1,265	16,744	1,030	15,907	840
				12	0.007	21,800	1,480	17,440	1,184	15,696	1,066	14,911	1,012	13,420	820	12,749	670
				15	0.006	16,900	1,020	13,520	816	12,168	734	11,560	698	10,404	560	9,883	450
		20		0.004	16,900	1,020	13,520	816	12,168	734	11,560	698	10,404	560	9,883	450	
		0.1	4	0.027	29,900	2,030	23,920	1,624	21,528	1,462	20,452	1,389	18,406	1,020	17,486	830	
8			0.02	27,200	1,850	21,760	1,480	19,584	1,332	18,605	1,265	16,744	1,030	15,907	840		
12			0.017	21,800	1,480	17,440	1,184	15,696	1,066	14,911	1,012	13,420	820	12,749	670		
15			0.014	16,900	1,020	13,520	816	12,168	734	11,560	698	10,404	560	9,883	450		
20			0.01	16,900	1,020	13,520	816	12,168	734	11,560	698	10,404	560	9,883	450		
2	0.05	4	0.035	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		6	0.03	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		8	0.025	22,700	2,670	18,900	2,230	17,000	2,010	16,100	1,890	14,200	1,340	13,200	1,090		
		12	0.02	18,400	1,950	15,300	1,620	13,800	1,460	13,000	1,380	11,500	1,080	10,700	890		
		16	0.015	16,300	1,730	13,600	1,440	12,200	1,300	11,600	1,230	10,200	960	9,500	790		
	0.1	20	0.01	14,300	1,520	11,900	1,260	10,700	1,140	10,100	1,070	8,900	840	8,300	690		
		4	0.042	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		6	0.042	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		8	0.036	22,700	2,670	18,900	2,230	17,000	2,010	16,100	1,890	14,200	1,340	13,200	1,090		
		12	0.036	18,400	1,950	15,300	1,620	13,800	1,460	13,000	1,380	11,500	1,080	10,700	890		
0.2	0.05	16	0.023	16,300	1,730	13,600	1,440	12,200	1,300	11,600	1,230	10,200	960	9,500	790		
		20	0.018	14,300	1,520	11,900	1,260	10,700	1,140	10,100	1,070	8,900	840	8,300	690		
		4	0.08	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		6	0.08	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		8	0.07	22,700	2,670	18,900	2,230	17,000	2,010	16,100	1,890	14,200	1,340	13,200	1,090		
	0.1	12	0.04	18,400	1,950	15,300	1,620	13,800	1,460	13,000	1,380	11,500	1,080	10,700	890		
		16	0.04	16,300	1,730	13,600	1,440	12,200	1,300	11,600	1,230	10,200	960	9,500	790		
		20	0.04	16,300	1,730	13,600	1,440	12,200	1,300	11,600	1,230	10,200	960	9,500	790		
		4	0.13	17,300	2,830	14,400	2,360	13,000	2,120	12,200	2,010	10,800	1,410	10,100	1,160		
		6	0.13	17,300	2,830	14,400	2,360	13,000	2,120	12,200	2,010	10,800	1,410	10,100	1,160		

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)	转速(n) (r/min)	进给速度(Vf) (mm/min)		
2	0.2	20	0.035	14,300	1,520	11,900	1,260	10,700	1,140	10,100	1,070	8,900	840	8,300	690		
			0.025	14,300	1,520	11,900	1,260	10,700	1,140	10,100	1,070	8,900	840	8,300	690		
		30	0.017	13,600	1,440	11,300	1,200	10,200	1,080	9,600	1,020	8,500	800	7,900	650		
			0.011	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200		
		8	0.09	22,700	2,850	18,900	2,350	17,000	2,100	16,100	1,950	14,200	1,490	13,200	1,210		
			0.06	18,400	2,170	15,300	1,810	13,800	1,620	13,000	1,530	11,500	1,200	10,700	980		
		16	0.06	16,300	1,930	13,600	1,610	12,200	1,440	11,600	1,360	10,200	1,070	9,500	870		
			0.037	14,300	1,680	11,900	1,400	10,700	1,260	10,100	1,190	8,900	940	8,300	770		
		0.5	4	0.17	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200	
				0.17	24,900	2,940	20,800	2,450	18,700	2,210	17,700	2,080	15,600	1,470	14,600	1,200	
	8		0.14	22,700	2,850	18,900	2,350	17,000	2,100	16,100	1,950	14,200	1,490	13,200	1,210		
			0.08	18,400	2,170	15,300	1,810	13,800	1,620	13,000	1,530	11,500	1,200	10,700	980		
	12		0.08	16,300	1,930	13,600	1,610	12,200	1,440	11,600	1,360	10,200	1,070	9,500	870		
			0.05	14,300	1,680	11,900	1,400	10,700	1,260	10,100	1,190	8,900	940	8,300	770		
	25		0.05	14,300	1,680	11,900	1,400	10,700	1,260	10,100	1,190	8,900	940	8,300	770		
			0.03	13,600	1,600	11,300	1,330	10,200	1,200	9,600	1,130	8,500	850	7,900	730		
	2.5		0.1	8	0.047	22,700	2,970	18,900	2,480	17,000	2,230	16,100	2,100	14,200	1,490	13,200	1,210
				16	0.037	16,300	1,930	13,600	1,610	12,200	1,440	11,600	1,360	10,200	1,070	9,500	870
		20		0.025	14,300	1,680	11,900	1,400	10,700	1,260	10,100	1,190	8,900	940	8,300	770	
		8		0.08	19,400	2,570	16,200	2,140	14,600	1,920	13,800	1,820	12,200	1,280	11,300	1,100	
16		0.045		16,900	2,130	14,100	1,770	12,700	1,600	12,000	1,510	10,600	1,110	9,900	960		
0.2		20	0.042	14,100	1,750	11,800	1,410	10,600	1,270	10,000	1,200	8,800	930	8,200	790		
		12	0.09	17,700	2,350	14,800	1,960	13,300	1,760	12,500	1,660	11,100	1,230	10,300	1,010		
		20	0.052	14,100	1,870	11,800	1,560	10,600	1,400	10,000	1,330	8,800	1,040	8,200	850		
		12	0.1	17,700	2,350	14,800	1,960	13,300	1,760	12,500	1,660	11,100	1,230	10,300	1,010		
		20	0.07	14,100	1,870	11,800	1,560	10,600	1,400	10,000	1,330	8,800	1,040	8,200	850		
3	0.1	8	0.055	17,300	2,550	14,400	2,120	13,000	1,910	12,200	1,800	10,800	1,270	10,100	1,040		
		16	0.035	17,300	2,550	14,400	2,120	13,000	1,910	12,200	1,800	10,800	1,270	10,100	1,040		
		25	0.022	14,000	2,060	11,700	1,720	10,500	1,550	9,900	1,460	8,700	1,150	8,200	940		
		30	0.014	10,900	2,060	9,100	1,720	8,200	1,550	7,700	1,460	6,800	1,150	6,400	940		
		8	0.09	17,300	2,550	14,400	2,120	13,000	1,910	12,200	1,800	10,800	1,270	10,100	1,040		
	0.2	12	0.07	17,3													

## UM-RN4 高精度切削参数推荐表

### UM-RN4 Recommended cutting datas to high accuracy machining

工件材料 Workpiece Materials				1		2		3		4		5		6		
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels		
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%		
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	
3	0.5		8	0.18	17,300	2,830	14,400	2,360	13,000	2,120	12,200	2,010	10,800	1,410	10,100	1,160
			12	0.13	17,300	2,830	14,400	2,360	13,000	2,120	12,200	2,010	10,800	1,410	10,100	1,160
			16	0.1	17,300	2,830	14,400	2,360	13,000	2,120	12,200	2,010	10,800	1,410	10,100	1,160
			20	0.1	14,000	2,290	11,700	1,910	10,500	1,720	9,900	1,620	8,700	1,270	8,200	1,040
			25	0.09	14,000	2,290	11,700	1,910	10,500	1,720	9,900	1,620	8,700	1,270	8,200	1,040
			30	0.08	10,900	2,290	9,100	1,910	8,200	1,720	7,700	1,620	6,800	1,270	6,400	1,040
			35	0.065	10,900	2,290	9,100	1,910	8,200	1,720	7,700	1,620	6,800	1,270	6,400	1,040
4	0.1		12	0.065	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,240	7,800	1,750	7,200	1,300
			20	0.055	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,240	7,800	1,750	7,200	1,300
			30	0.045	11,200	3,020	9,300	2,520	8,400	2,010	7,900	1,830	7,000	1,470	6,500	1,170
	0.2		12	0.13	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,240	7,800	1,750	7,200	1,300
			20	0.1	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,240	7,800	1,750	7,200	1,300
			30	0.08	11,200	3,020	9,300	2,520	8,400	2,010	7,900	1,830	7,000	1,470	6,500	1,170
	0.3		12	0.17	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,380	7,800	1,860	7,200	1,410
			20	0.13	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,380	7,800	1,860	7,200	1,410
			30	0.1	11,200	3,020	9,300	2,520	8,400	2,260	7,900	1,900	7,000	1,570	6,500	1,170
	0.5		12	0.24	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,380	7,800	1,860	7,200	1,410
			20	0.2	12,400	3,350	10,400	2,790	9,300	2,520	8,800	2,380	7,800	1,860	7,200	1,410
			30	0.17	11,200	3,020	9,300	2,520	8,400	2,260	7,900	1,900	7,000	1,570	6,500	1,170
5	0.1		20	0.07	9,700	2,620	8,100	2,190	7,300	1,970	6,900	1,760	6,100	1,370	5,700	1,020
			40	0.035	8,700	2,360	7,300	1,970	6,600	1,570	6,200	1,430	5,500	1,150	5,100	920
	0.2		20	0.15	9,700	2,620	8,100	2,190	7,300	1,970	6,900	1,760	6,100	1,370	5,700	1,020
			40	0.08	8,700	2,360	7,300	1,970	6,600	1,570	6,200	1,430	5,500	1,150	5,100	920
	0.3		20	0.21	9,700	2,620	8,100	2,190	7,300	1,970	6,900	1,860	6,100	1,460	5,700	1,110
			40	0.1	8,700	2,360	7,300	1,970	6,600	1,770	6,200	1,490	5,500	1,230	5,100	920
0.5		20	0.28	9,700	2,620	8,100	2,190	7,300	1,970	6,900	1,860	6,100	1,460	5,700	1,110	
		40	0.14	8,700	2,360	7,300	1,970	6,600	1,770	6,200	1,490	5,500	1,230	5,100	920	
1		20	0.35	9,700	2,620	8,100	2,190	7,300	1,970	6,900	1,860	6,100	1,460	5,700	1,110	
		40	0.18	8,700	2,360	7,300	1,970	6,600	1,770	6,200	1,490	5,500	1,230	5,100	920	
6	0.2		30	0.15	8,600	2,330	7,200	1,940	6,500	1,750	6,100	1,560	5,400	1,220	5,000	910
			54	0.1	7,800	2,100	6,500	1,750	5,800	1,400	5,500	1,270	4,900	1,020	4,500	820
	0.3		30	0.25	8,600	2,330	7,200	1,940	6,500	1,750	6,100	1,560	5,400	1,300	5,000	980
			54	0.18	7,800	2,100	6,500	1,750	5,800	1,570	5,500	1,270	4,900	1,090	4,500	820
	0.5		30	0.35	8,600	2,330	7,200	1,940	6,500	1,750	6,100	1,650	5,400	1,300	5,000	980
			54	0.25	7,800	2,100	6,500	1,750	5,800	1,570	5,500	1,320	4,900	1,090	4,500	820

工件材料 Workpiece Materials				1		2		3		4		5		6			
				铜 Copper		碳素钢.合金钢 (180-250HB) Carbon Steels, Alloy Steels		不锈钢.工具钢 (25-35HRC) Stainless Steels, Tool Steels		预硬化钢 (35-45HRC) Pre-Hardened Steels		淬火钢 (45-55HRC) Hardened Steels		淬火钢 (55-65HRC) Hardened Steels			
切削深度(ap)比例系数 Ratio to standard depth of cut(ap)				120%		100%		90%		80%		65%		60%			
外径 Mill Dia. (mm)	圆角 (R) (mm)	颈长 Under Neck Length (mm)	ap	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)	转速(n) (r/min)	进给速度 (Vf) (mm/min)		
6	1		0.5	72	0.15	7,800	2,100	6,500	1,750	5,800	1,570	5,500	1,320	4,900	1,090	4,500	820
			30	0.55	8,600	2,330	7,200	1,940	6,500	1,750	6,100	1,650	5,400	1,300	5,000	980	
			54	0.4	7,800	2,100	6,500	1,750	5,800	1,570	5,500	1,320	4,900	1,090	4,500	820	
			72	0.22	7,800	2,100	6,500	1,750	5,800	1,570	5,500	1,320	4,900	1,090	4,500	820	

#### 注意

- 对于不同工件材料, ap请按上表切削深度比例系数进行调整, 如: 淬硬钢(45~55HRC), ap需\*0.5。
- 请结合工件材料、加工形状、使用合适的冷却液, 推荐气冷或水冷。
- 实际加工中, 请考虑加工形状、目的、使用机床等因素, 对切削条件进行调整。
- 如果机床转速低于表中所列数值, 则进给速度应与转速按同一比例降低。

#### NOTE

- For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap\*0.5.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# 附录 Appendix

## Cutting Parameters and General Formula For Milling

铣削加工的切削参数与通用计算公式

常用参数及其单位				Parameter and Unit			
D	铣刀直径	Diameter	(mm)	fn	每转进给量	Feeding per Revolution	(mm/rev)
ap	切削深度	Cutting Depth	(mm)	fz	每刃进给量	Feeding per Tooth	(mm/tooth)
ae	切削宽度	Cutting Width	(mm)	Z	刀刃数	Teeth Number	
Vf	进给速度	Feed Speed	(mm/min)	n	主轴转速	Spindle Speed	(rev/min)
Vc	切削速度	Cutting Speed	(m/min)	L	工作台总进给长度 <small>Length: (工件长度+ 铣刀直径:1+D)</small>		(mm)
Tc	加工时间	Processing Time	(min)	Q	金属切削率	Metal Removal Rate	(cm <sup>3</sup> /min)

通用计算公式				General Formula			
n	主轴转速	Spindle Speed		$n = \frac{Vc \times 1000}{\pi \times D}$	(r/min)		
Vc	切削速度	Cutting Speed		$Vc = \frac{\pi \times D \times n}{1000}$	(m/min)		
fz	每刃进给量	Feeding per Tooth		$fz = \frac{Vf}{z \times n}$	(mm)		
Vf	进给速度	Feed Speed		$Vf = n \times fz \times Z$	(mm/min)		
Q	金属切削率	Metal Removal Rate		$Q = \frac{ae \times ap \times Vf}{1000}$	(mm)		
Tc	加工时间	Processing Time		$Tc = \frac{L}{Vf}$	(min)		

## Workpiece code table

工件材料代码表

材料组 ISO Material Group	MC TAIFENG	工件材料 Workpiece Material	含量 Content	抗拉强度 Tensile Strength (N/mm <sup>2</sup> )	布氏硬度 Brinell Hardness (HB)	洛氏硬度 Rockwell Hardness (HRC)
P 钢 Steels	P1	低碳钢, 长切屑 Low-carbon Steels, Long Chipping	C<0.25%	<530	<125	—
	P2	低碳钢, 短切屑, 易切钢 Low-carbon Steels, Short Chipping, Free-cutting Steels	C<0.25%	<530	<125	—
	P3	高碳钢及中碳钢 High-carbon Steels, Medium-carbon Steels	C>0.25%	>530	<220	<25
	P4	合金钢, 工具钢 Alloy Steels, Tool Steels	C>0.25%	600-850	<330	<35
	P5	合金钢, 工具钢 Alloy Steels, Tool Steels	C>0.25%	850-1400	340-450	35-48
	P6	铁素体不锈钢, 马氏体不锈钢, PH不锈钢 Ferritic Stainless Steels, Martensitic Stainless Steels, Ph Stainless Steels	C=(0-0.4)%	600-900	<330	<35
	P7	高强度铁素体不锈钢, 马氏体不锈钢, PH不锈钢, High-strength Ferritic Stainless Steels, Martensitic Stainless Steels, Ph Stainless Steels	C=(0.1-0.6)%	900-1350	330-450	35-48
M 不锈钢 Stainless Steels	M1	奥氏体不锈钢 Austenitic Stainless Steels	C=(0.05-0.15)%	<600	130-200	—
	M2	高强度的奥氏体和铸造不锈钢 High-strength Austenitic Stainless Steels And Cast Stainless Steels	C=(0.05-0.15)%	600-800	150-230	<25
	M3	双相不锈钢 Duplex Stainless Steels	C=(0.05-0.20)%	<800	135-275	<30
K 铸铁 Cast Iron	K1	灰铸铁 Grey Cast Iron	—	125-500	120-290	<32
	K2	中等加工难度的合金铸铁, 球墨铸铁 Moderately Difficult Alloy Cast Iron, Nodular Cast Iron	—	<600	130-260	<28
	K3	难加工的高合金铸铁, 球墨铸铁 Difficult High-alloy Cast Iron, Nodular Cast Iron	—	>600	180-350	<43
N 有色材料 Non-ferrous Materials	N1	锻造铝合金 Wrought Aluminium Alloys	—	<520	60-90	—
	N2	铸造铝合金 Cast Aluminium Alloys	Si<12%	<350	70-100	—
	N3	铸造铝合金 Cast Aluminium Alloys	Si>12%	200-320	60-120	—
	N4	铜, 铜合金 Copper, Copper Alloys	—	200-650	60-200	—
	N5	石墨, 复合材料 Graphite, CFK, CFRP Graphite, Composite Materials	—	600-1500	—	—
	N6	铝基复合材料(MMCs) GFK, CFK Aluminium-based Composite Materials	—	<700	<210	—
S 耐热合金 钛合金 Heat-resistant Alloys, Titanium Alloys	S1	铁基高温合金 Iron-based Heat-resistant Alloys	—	500-1200	160-260	25-48
	S2	钴基高温合金 Cobalt-based Heat-resistant Alloys	—	1000-1450	250-450	25-48
	S3	镍基高温合金 Nickel-based Heat-resistant Alloys	—	600-1700	160-450	<48
	S4	钛及钛合金 Titanium And Titanium Alloys	—	900-1600	300-400	33-48
H 高硬度材料 High Hardened Materials	H1	淬硬钢 Hardened Steels	—	—	—	45-55
	H2	淬硬钢 Hardened Steels	—	—	—	55-60
	H3	淬硬钢 Hardened Steels	—	—	—	60-65
	H4	淬硬钢 Hardened Steels	—	—	—	>65

# 附录 Appendix

Reference table of workpiece materials  
工件材料常用牌号对照表

工件材料 Workpiece Materials	中国	德国		日本	美国	法国	英国	欧洲
	GB	材料号	DIN	JIS	AISI/SAE	AFNOR	BS	EN
P1	15	1.0401	C 15	S 15 C	1015	C 12	080 M 15	C 15
P1	20; ML20	1.0402	C 22	S 22 C	1020	C 20	050 A 20	1 C 22
P1	15	1.1141	Ck 15	S 15 C	1015	XC 15	080 M 15	2 C 15
P2	Y15	1.0715	9 SMn 28; 11 SMn 30	SUM 22	1213	S 250	230 M 07	11 SMn 28
P2	Y15Pb	1.0718	9 SMnPb 28	SUM 22 L	12L13	S 250 Pb	—	11 SMnPb 28
P2	Y13	1.0736	9 SMn 36; 11 S Mn 37	SUM 25	1215	S 300	240 M 07	11 SMn 37
P2	—	1.0737	9 SMnPb 36; 11 SMnPb 37	—	12L14	S 300 Pb SMnPb 36	—	11 SMnPb 37
P3	35	1.0501	C 35	S 35 C	1035	CC 35	060 A 35	1 C 35
P3	45	1.0503	C 45	S 45 C	1045	CC 45	080 M 46	1 C 45
P3	ZG340-640;55	1.0535	C 55	S 55 C	1055	C 55	070 M 55	1 C 55
P3	60	1.0601	C 60	S 60 C- CSP	1060	AF 70 C 55	080 A 62	1 C 60
P3	Y35; Y30	1.0726	35 S 20	—	1140	35 MF 4	212 M 36	35 S 20
P3	60Si2CrA; 60Si2Mn	1.0961	60 SiCr 7	SUP 7	9262	60 SC 7	250 A 61	60 SiCr 8
P3	40Mn	1.1157	40 Mn 4	—	1039	35 M 5	150 M 36	—
P3	25; ML25	1.1158	Ck 25	S 25 C	1025	XC 25	070 M 26	2 C 25
P3	35Mn2	1.1167	36 Mn 5	SMn 438 (H)	1335	40 M 5	150 M 36	—
P3	30Mn2	1.1170	28 Mn 6	SCMn 1	1330	35 M 5	150 M 28	28 Mn 6
P3	35Mn	1.1183	Cf 35	S 35 C	1035	XC 38 TS	060 A 35	C 35 G
P3	Ck45; 45; Mn45Mn; ZG310-570	1.1191	Ck 45	S 45 C	1045	XC 42	080 M 46	2 C 45
P3	55	1.1203	Ck 55	S 55 C	1055	XC 55 H1	070 M 55	2 C 55
P3	50	1.1213	Cf 53	S 50 C	1050	XC 48 TS	060 A 57	C 53 G
P3	60Mn; 60	1.1221	Ck 60	S 58 C	1060	XC 60	060 A 62	2 C 60

GB—中国国标  
GB—Chinese Standard

DIN—德国化学标准会  
DIN—German Institute for Standardization

JIS—日本工业标准  
JIS—Japanese Industrial Standards

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P3	—	1.1274	Ck 101	SUP_4	1095	XC 100	060 A 96	C 100 S
P3	T10	1.1545	C 105 W1	—	W 110	Y 105	B W 1 A	C 105 U
P3	CrV; 9SiCr; Cr2; 9Cr2	1.2067	100 Cr 6	—	L3	Y 100 C 6	B L 3	102 Cr 6
P3	CrWMo; CrWMn; 9CrWMn	1.2419	105 WCr 6	SKS 31	—	(107 WCr 13)	—	105 WCr 5
P3	5CrNiMo; 5CrW2Si	1.2542	45 WCrV 7	—	S1	45 WCr V 8	BS 1	45 WCrV 8
P3	5CrNiMo	1.2713	55 NiCrMoV 6	SKT 4	L6	55 NCDV 7	BH 224/5	55 NiCrMoV 7
P3	—	1.5415	15 Mo 3	STFA 12-240	A 204 Gr. A	15 D3	1501	16 Mo 3
P3	—	1.5622	14 Ni 6	SL2N26	A 350-LF 5	15 N 6	—	FeE 285 Ni 6
P3	—	1.6511	36 CrNiMo 4	—	9840	40 NCD 3	816 M 40	36 CrNiMo 4
P3	40CrNiMoA	1.6582	34 CrNiMo 6	SNCM 447	4340	35 NCD 6	817 M 40	34 CrNiMo 6
P3	—	1.6587	17 CrNiMo 6	SNCM 815	—	18 NCD 6	820 A 16	17 CrNiMo 7
P3	15Cr	1.7015	15 Cr 3	SCr 415 H	5015	12 C 3	523 M15	15 Cr 2
P3	35Cr	1.7033	34 Cr 4	SCr 430 H	5130 H	32 C 4	530 A 32	34 Cr 4 KD
P3	40Cr	1.7045	42 Cr 4	SCr 440	5140	42 C 4 TS	530 A 40	40 NiCrMo 3
P3	—	1.7035	41Cr4	SCr440(H)	5140	42C4	530M40	24
P3	—	1.7380	Mo910	—	ASTM A182 F.22	12CD9; 12CD10	1501-622 Cr31, 45	—
P3	40Cr	1.7045	42 Cr 4	SCr 440	5140	42 C 4 TS	530 A 40	40 NiCrMo 3
P3	18CrMn;	1.7131	16 MnCr 5	SCR 415	5115	16 MC 5	527 M 17	16 MnCr 5 KD
P3	20CrMn; 50CrMn	1.7176	55 Cr 3	SUP 9 (A)	5155	55 C 3	527 A 60	55 Cr 3
P3	30CrMn;	1.7218	25 CrMo 4	SCM 420	4130	25 CD 4	708 A 25	25 CrMo 4 KD
P3	50CrVA	1.8159	—	SUP 10	6150	50 CV 4	735 A 50	51 CrV 4
P3	35CrMo	1.7220	34CrMo4	SCm432; SCCrM3	4137; 4135	35CD4	708A37	—

AISI/SA—美国钢铁学会/美国汽车工程师协会  
AISI/SA—American Iron and Steel Institute  
Society of Automotive Engineer

BS—英国标准  
BS—British Standards

EN—欧洲标准  
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P3	40CrMoA	1.7223	41 CrMo 4	SCM 440	4142	42 CD 4 TS	708 M 40	41 CrMo 4
P3	42CrMo; 42CrMnMo	1.7225	42 CrMo 4	SCM 440 H	4140	42 CD 4	708 A 42	42 CrMo 4
P3	15CrMo	1.7262	15 CrMo 5	SCM 415 H	—	12 CD 4	—	—
P3	12CrMo	1.7335	13 CrMo 4 4	SFVA F 12	A182-F11	15 CD 4.05	1501-621	13 CrMo 4-5
P3	—	1.7361	32 CrMo 12	—	—	30 CD 12	722 M 24	32 CrMo 12
P4	55Si2Mn	1.0904	55 Si 7	SKH 1; SKT 4	9255	55 S 7	250 A 53	55 NiCrMoV 7
P4	V	1.2833	100 V 1	SKS 43	W 210	Y1 105 V	BW 2	100 V 2
P4	12CrNi2	1.5732	14 NiCr 10	SNC 415 H	3415	14 NC 12	—	—
P4	12CrNi3	1.5752	14 NiCr 14	SNC	E	16 NC 11	655 M 13	13 NiCr 12
P4	20CrNiMo	1.6523	21 NiCrMo 2	SNCM 220 H	8620	20 NCD 2	805 M 20	20 NiCrMo 2 KD
P4	—	1.6546	40 NiCrMo 7 2 KB	SNCM 240	8640	40 NCD 2	—	40 NiCrMo 2 KD
P4	—	1.8523	39 CrMoV 13 9	—	—	—	897 M 39	39 CrMoV 13 9
P4	—	1.5710	36NiCr6	SNC236	3135	35NC6	640A35	111A
P6	ZGMn13-1; ZGMn13-2	1.3401	X 120 Mn 12	SCMnH 1	A 128	Z 120 M 12	BW 10	—
P6	Cr6WV; 100CrMoV5	1.2363	X 100 CrMoV	SKD 12	A-2 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1
P6	Cr12W	1.2436	X 210 CrW 12	SKD 2	—	Z 210 CW 1 2	—	X 210 CrW 12
P6	3Cr2W8V; 30WCrV9; 5CrMnMo	1.2581	X 30 WCrV 93	SKD 5	H 21	Z 30 WCV 9	BH 21	X 30 WCrV 9 3
P6	4Cr5MoVSi1; 40CrMoV5	1.2344	X 40 CrMoV 5 1	SKD 61	H 13	Z 40 CDV 5	BH 13	X 40 CrMoV 5 1
P6	W18Cr4V	1.3355	S 1-8-0-1	SKH 2	T 1	Z80WCV 18-04-01	BT 1	HS 1-8-0-1
P6	W18Cr4VCo5	1.3255	S 1-8-1-2-5	SKH 3	T 4	Z80 WKCV 18-05-04-01	BT 4	(HS18-1-1-5)
P6	W6Mo5Cr4V 2Co5	1.3243	S 6-5-2-5	SKH 55	M 35	KCV 06-05- 05-04-02	BM 35	(HS6-5-2-5)
P6	—	1.5662	X 8 Ni 9	SL 9 N 53	A 353	9 Ni	509	FeE 490 Ni 36

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P6	Cr12MoV	1.2601	X 165 CrMoV 12	—	—	—	—	X 165 CrMoV 12
P6	Cr12	1.2080	X210Cr12	SKD1	D3 ASTM D3	Z200C12	BD3	—
P6	—	1.3343	S6-5-2	SUH3	D3	Z40CSD10	4959BA2	—
P6	M7	1.3348	S 2-9-2	—	M 7	Z100DCWV 09-04-02-02	—	HS 2-9-2
M1	—	1.4408	GX 6 CrNiMo 18 10	SCS 14	CF-8M	GX5CrNiMo 19-11-2	316 C 16	GX 5 CrNiMo 19-11-2
M1	0Cr27Ni12 Mo3	1.4435	X 2 CrNiMo 18 14 3	SCS 16	316 L	Z 2 CND 17.13	316 S 11	X 2 CrNiMo 18 16
M1	1Cr18Ni12 Mo2Ti	1.4581	GX 5 CrNi MoNb 18 10	SCS 22	—	Z 4 CNDNb 18.12 M	318 C 17	GX 5 CrNiMo Nb 19-11-2
M1	1Cr23Ni13; 2Cr23Ni13	1.4828	X 15 CrNiSi 20 12	SUH 309	309	Z 15 CNS 20.12	309 S 24	X 15 CrNiSi 20 12
M1	00Cr18Ni10N; 0Cr19Ni9	1.4311	X 2 CrNiN 18 10	SUS 304 LN	304	Z 8 CN 18.12	304 S 62	X 2 CrNiN 18 10
M1	0Cr25Ni20; 2Cr25Ni21	1.4845	X 12 CrNi 25 21	SUS 310 S	310 S	Z 12 CN 25.20	310 S 24	X 8 CrNi 25 21
M1	0Cr17Ni11Mo2; 0Cr17Ni12Mo2	1.4401	X 5 CrNiMo 17 12 2	SUS 316	316	Z 6 CND 17.11	316 S 16	X6 CrNiMo 17 X 12 2 KD
M1	0Cr17Ni12 Mo2	1.4436	X 5 CrNiMo 17 1 3 3	SUS 316	316	Z 6 CND 17.12	316 S 16	X6 CrNiMo 18 13 3 KD
M1	00Cr17Ni14 Mo2	1.4404	X 2 CrNiMo 17 13 2	SUS 316 L	316 L	Z 3 CND 19.10 M	316 S 12	GX 3 CrNiMo 17 12 2 KD
M1	0Cr17Ni13Mo; 00Cr17Ni13Mo2N	1.4429	X 2 CrNiMoN 17 13 3	SUS 316 LN	316 LN	Z 2 CND 17.13 Az	316 S 62	X 3 CrNiMoN 17 13 3
M1	—	1.4406	X 2 CrNiMoN 17	SUS 316 LN 12 2	316	Z 2 CND 17.12 Az	316 S 61 LN	X 3 CrNiMoN 17 12 2
M1	Cr18Ni12 Mo2Ti	1.4571	X 6 CrNiMoTi 17 12 2	SUS 316 Ti	316 Ti	Z 6 CNDT 17.12	320 S 31	X 6 CrNiMoTi 17 12 2
M1	00Cr19Ni13 Mo3	1.4438	X 2 CrNiMo 18 16 4	SUS 317 L	317 L	Z 2 CND 19.15	317 S 12	X 3 CrNiMo 18 16 4
M1	1Cr18Ni9Ti	1.4541	X 6 CrNiTi 18 10	SUS 321	321	Z 6 CNT 18.10	321 S 12	X 6 CrNiTi 18
M1	1Cr18Ni10Ti; 1Cr18Ni9Ti	1.4878	X 12 CrNiTi 18 9	SUS 321	321	Z 6 CNT 18.12	321 S 20	X 10 CrNiTi 18 10
M1	Cr17Ni12Mo3 Nb	1.4583	X 10 CrNi MoNb 18 12	—	318	—	—	—
M1	—	1.4539	X 1 NiCrMo CuN	—	—	Z 1 NCDU 25-20-5	904 S 13 25 20	X 1 NiCrMoCu
M1	—	1.4003	—	—	405	Z8CA12	405S17	—

AISI/SA—美国钢铁学会/美国汽车工程师协会  
AISI/SA—American Iron and Steel Institute  
Society of Automotive Engineer

BS—英国标准  
BS—British Standards

EN—欧洲标准  
EN—European Standards



## 附录 Appendix

Reference table of workpiece materials  
工件材料常用牌号对照表

工件材料 Workpiece Materials	中国	德国		日本	美国	法国	英国	欧洲
	GB	材料号	DIN	JIS	AISI/SAE	AFNOR	BS	EN
M1	—	1.4521	X1CrMoTi182	—	S44400	—	—	—
M1	—	1.4542	—	—	630	Z7CNU17-04	—	—
M1	00Cr19Ni13Mo3	1.4438	X 2 CrNiMo 18 16 4	SUS 317 L	317 L	Z 2 CND 19.15	317 S 12	X 3 CrNiMo 18 16 4
M1	1Cr18Ni9Ti	1.4541	X 6 CrNiTi 18 10	SUS 321	321	Z 6 CNT 18.10	321 S 12	X 6 CrNiTi 18
M1	1Cr18Ni10Ti; 1Cr18Ni9Ti	1.4878	X 12 CrNiTi 18 9	SUS 321	321	Z 6 CNT 18.12	321 S 20	X 10 CrNiTi 18 10
M1	1Cr18Ni11Nb	1.4550	X 6 CrNiNb 18 10	SUS 347	347	Z 6 CNNb 18.10	347 S 17	X 6 CrNiNb 18 10
M1	1Cr17	1.4016	X6Cr17	SUS 430	430	—	430 S 17; 430 S 18	—
M1	0Cr15NiMo2Al	1.4532	X 8 CrNiMoAl 15 7 2	—	15-7 PH	X15D2	—	X 8 CrNiMoAl 15-7-2
M1	Cr17Ni12Mo3Nb	1.4583	X 10 CrNiMoNb 18 12	—	318	—	—	—
M1	—	1.4539;52662	X 1 NiCrMo CuN	—	—	Z 1 NCDU 25-20-5	904 S 13 25 20	X 1 NiCrMoCu
M1	0Cr17Ni4Cu4Nb	1.4542	X 5 CrNiCuNb 16 4	SUS 630	630	Z6CNU17.04	—	X 5 CrNiCuNb 16-4
M2	0Cr17Ni7Al	1.4568	X 7 CrNiAl 17 7	SUS 631	—	X7CrNiAl17-7; Z9CNA17-07	301 S 81	X 7 CrNiAl 17-7
M2	—	1.4504	—	—	—	—	—	—
M2	—	1.4504	—	—	—	—	—	—
M2	0Cr17Ni7Al	1.4568	X 7 CrNiAl 17 7	SUS 631	—	X7CrNiAl17-7; Z9CNA17-07	301 S 81	X 7 CrNiAl 17-7
M3	0Cr26Ni5Mo2	1.4460	X 4 CrNiMo 27 5 2	SUS 329 J1	329	X 2 CrNiMo 25-7-3	—	X 3 CrNiMo 27 5 2
M3	—	1.4462	X 2 CrNiMoN 22 5 3	SUS 329J 3L	S318 03	Z 3 CND 22.05 AZ	318 S 13	X 2 CrNiMoN 22 5 3
K1	HT300	0.6030	GG- 30	FC 300	A48-45 B	FGL 300	Grade 300	GJL-300
K1	HT350	0.6035	GG- 35	FC 350	A48-50 B	FGL 350	Grade 350	GJL-350
K1	HT400	0.6040	GG- 40	—	A48-55 B	FGL 400	Grade 400	GJL-400
K2	—	0.7033	GGG-35.3	—	—	—	—	GJS-350-22
K2	QT400-18	0.7040	GGG-40	FCD400	60-40-18	FCS 400-12	SNG 420/12	—

GB—中国国标  
GB—Chinese Standard

DIN—德国化学标准会  
DIN—German Institute for Standardization

JIS—日本工业标准  
JIS—Japanese Industrial Standards

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工件材料 Workpiece Materials	中国	德国		日本	美国	法国	英国	欧洲
	GB	材料号	DIN	JIS	AISI/SAE	AFNOR	BS	EN
K2	—	—	GGG-40.3	—	—	FGS 370-17	SNG 370/17	—
K2	QT500-7	0.7050	GGG-50	FCD500	80-55-06	FGS 500-7	SNG 500/7	—
K2	—	0.7660	GGG-NiCr202	—	A43D2	S-NC202	Grade S6	—
K2	—	—	GGG-NiMo137	—	—	L-MN 137	L-NiMn 137	—
K2	QT600-3	—	GGG-60	FCD600	—	FGS 600-3	SNG 600/3	—
K2	QT700-18	0.7070	GGG-70	FCD700	100-70-03	FGS 700-2	SNG 700/2	—
K3	—	0.8145	GTS-45-06	FCMP440	40010	P 45-06	P 440/7	MN 450 - 6
K3	—	0.8155	GTS-55-04	FCMP490	50005	P 55-04	P 510/4	MN 550-4
K3	—	0.8165	GTS-65-02	FCMP540	70003	P 65-02	P 570/3	MN 650-3
K3	—	—	—	FCMB310	—	MN 32-8	56 1/3	—
K3	—	—	GTS-35	FCMW330	GTS-35	MN 35-10	B 340/12	—
K3	—	—	GTS-65	FCMP540	GTS-65	MP60-3	P 570/3	—
K3	—	—	GTS-70-02	FCMP690	GTS-70-02	MN 700-2	P 690/2	—
K3	—	0.8145	GTS-45-06	FCMP440	40010	P 45-06	P 440/7	MN 450 - 6
K3	—	0.8155	GTS-55-04	FCMP490	50005	P 55-04	P 510/4	MN 550-4
K3	—	0.8165	GTS-65-02	FCMP 540	70003	P 65-02	P 570/3	MN 650-3
H	—	0.9620	GX 260 NiCr 42	0512-00	A 532 IB NiCr-LC	—	—	GJH-X260Ni Cr 4-2
	—	0.9625	G-X 330 NiCr 42	0513-00	A 532 IA NiCr-HC	FB Ni 4 Cr2 HC	—	GJH-X330Ni Cr 4-2
	—	0.9630	G-X 300 CrNiSi 95 2	0457-00	A 532 ID Ni-HiCr	—	—	GJH-X300 Cr NiSi 9-5-2
	—	0.9635	G-X 300 CrMo 15 3	—	A 532 IIC15% CrMo-HC	—	—	GJH-X300 CrMo 15-3
	—	0.9640	G-X 300 CrMoNi 15 2 1	—	—	—	—	GJH-X300 CrMoNi 15-2-1
	—	0.9645	GX 260 CrMoNi 20 2 1	—	A 532 IID20% CrMo-HC	—	—	GJH-X260 CrMoNi 20-2-1
	—	0.9650	GX 260 Cr 27	0466-00	A 532 IIA25% Cr	—	—	GJH-X260 Cr 27
	—	0.9655	G-X 300 CrMo 27 1	—	A 532 IIA25% Cr	—	—	GJH-X300 CrMo 27-1

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