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FOCUS · PRAGMATIC

高效 · 包容

EFFICIENCY · INCLUSIVENESS



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AEO CODE : AEOCN711361590



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 **CORTOOL**[®]
ISO 9001:2015

SOLID CARBIDE
END MILLS
整体硬质合金
立铣刀



大连托福科技发展有限公司
CORTOOL MANUFACTURING GROUP
SINCE 1999

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硬质合金立铣刀

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刀具选型

TOOL SELECTION

硬质合金立铣刀
Carbide End Mill

参考页 Reference Page	用途 Use	型号 Type	特点 Pecularity	形状 Shape	涂层 Coating	刃数 Number of Flut	螺旋角 Helix Angle
03	适用于碳钢、铸铁、合金钢等材料的粗加工和半精加工 Suitable for Roughing and Semi-Finishing of Materials such as Carbon Steel, Cast Iron, and Alloy Steel	ST100-4S	通用加工 Universal processing		TA	4	35°
04		ST100-4SL				4	35°
11	适用于碳钢、铸铁、合金钢、预硬钢等材料的强力粗铣和高速加工 Suitable for High-Power Rough Milling and High-Speed Machining of Materials such as Carbon Steel, Cast Iron, Stainless, Alloy Steel, and Pre-Hardened Steel	HP100-4S	重切高效，金属去除率高 High efficiency in heavy cutting with a high metal removal rate.		TX	4	45°
12		HP100-4SL				4	45°
13		HP100-2B			TX	2	30°
14		HP100-2BL				2	30°
15		HP100-4R			TX	4	45°
16		HP100-4RL				4	45°
18	适用于铝合金材质的粗加工和半精加工 Suitable for rough and semi-finish machining of aluminum alloy materials.	ALS100-3S	高效 High efficiency		-	3	45°
19		ALS100-3SL					
22	适用于预硬钢、调制钢和高硬钢 (HRC<65°) 的高效加工 Suitable for efficient machining of pre-hardened steel, tempered steel, and high-hardness steel (HRC<65°)	HR100-4S	高硬度材料加工 Machining of high-hardness materials		DR	4	42°
23		HR100-4SL				4	42°
24		HR100-2B				2	30°
25		HR100-2BL				2	30°
26		HR100-4R				4	45°
27		HR100-4RL				4	45°

被加工材料适用表 Applicable Work Materials

P				H	M	K	N		S	
碳素钢 Carbon Steel	合金钢 Alloy Steel	预硬钢 Prehardening Steel	调制钢 Modulated Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
										
										
										
										
										
										
										
										
										
										
										
										
										
										
										
										

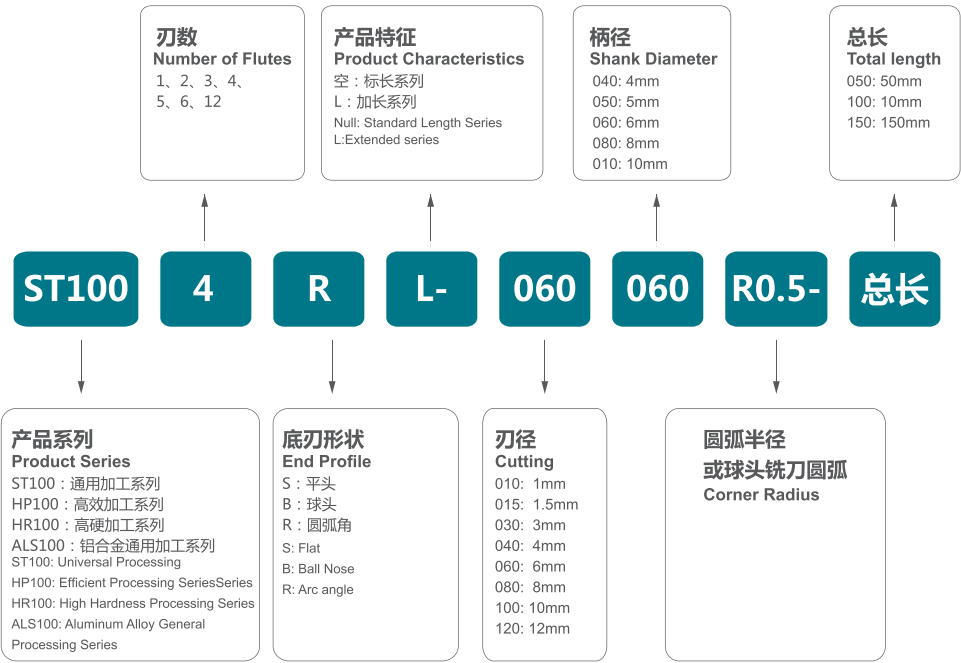
◎ 最适合加工 most suitable ○ 适合加工 suit

刀具选型

TOOL SELECTION

硬质合金立铣刀
Carbide End Mill

型号表示的确认方法 Unequal Spacing Teeth



图标的确认方法 Icon Guide

合金材质 Carbide Material



涂层种类 Coating Type



刀具刃数 Number Of Flute



切削边缘 Corner of Edges



螺旋角 Helix Angle



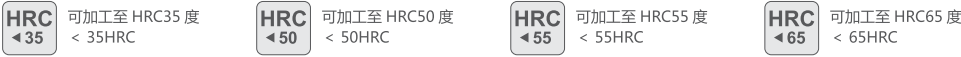
长度 Lengths



柄部精度 Tolerance for Shank Diameter



可加工硬度 Machinable Hardness



加工形态 Processing Pattern



ST100 系列通用型立铣刀

ST100 Series Universal End Mills



大芯径设计，大幅增加刀具刚性与抗震性
Bigger core diameter design greatly increases tool stiffness and shock resistance

曲线型刃口经过钝化后增强了刃口强度和抗氧化性，降低切屑阻力，提高耐磨性和抗崩能力
After passivation, the curvilinear edge enhances the edge strength and oxidation resistance, reduces chip resistance, and improves wear resistance and collapse resistance

优质复合涂层（TA）
High quality composite coating (TA)

采用高韧性基体，提高耐破损性
High toughness matrix for improved damage resistance

差别在于可持续稳定加工

The difference lies in sustainable and stable processing



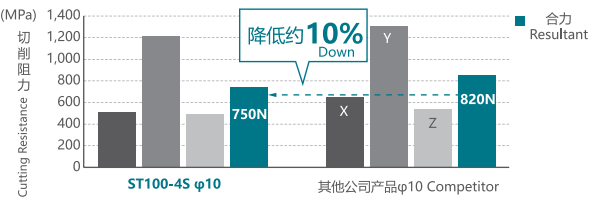
持续加工一小时后，我们的铣刀外周刃磨损宽度只有市场上同类型铣刀的一半。
After one hour of continuous processing, the wear width of the peripheral edge of our milling cutter is only half of that of the same type of milling cutter on the market.



使用工具 Tool	ST100-4S Φ10	其他公司产品 Φ10 Competitor
加工材料 Work Material	SUS304	
加工方法 Milling Method	槽铣 Slot Milling	
切削速度 Cutting Speed	70m/min(2,250min ⁻¹)	
进给速度 Feed	475mm/min(0.053mm/t)	
切削深度 Depth of Cut	ap=10mm	
切削油剂 Coolant	水溶性切削油剂 Water-Soluble	
使用机械 Machine	立式加工中心 (BT40) Vertical Machining Center	

低切削阻力 LOW CUTTING FORCE

- 锋利性优良的正前角刃形，可以降低切削阻力。
- 兼顾工具刚性与排屑性的新型排屑槽形状，可以实现稳定加工，并抑制毛刺产生。
- Sharp positive rake angle reduces cutting force.
- New flute form with high tool rigidity and excellent chip evacuation properties enables stable milling and the suppression of burrs.

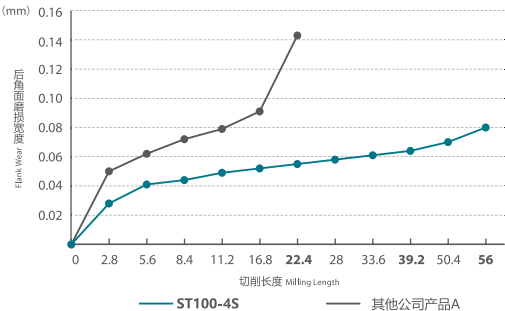


与其他公司产品相比
减少约 **10%** 切削阻力

10% lower cutting force versus the competitors

槽铣加工实测 MEASURED SLOT MILLING PROCESSING

使用工具 Tool	ST100- 4S Φ10×75
加工材料 Work Material	SUS304
加工方法 Milling Method	槽铣 Slot Milling
切削速度 Cutting Speed	70m/min (2,250min ⁻¹)
进给速度 Feed	475mm/min (0.053mm/t)
切削深度 Depth of Cut	ap=10mm
切削油剂 Coolant	水溶性切削油剂 Water-Soluble
使用机械 Machine	立式加工中心 (BT40) Vertical Machining Center



即使是槽铣加工也只是正常的磨损，不会发生崩刃
Consistent tool wear with no chipping even in slot milling

TA 涂层 TA COATING

- 润滑性、耐磨损性、高温耐氧化性。优良的复合多层结构可以有效抑制裂纹传播。
- Provides excellent lubricity, superior friction-resistance and high oxidation temperature. Multi-layer construction minimizes the thermal cracks that often occurred while using watersoluble oil.
- 涂层表面进行了平滑处理以提高加工面精度。
- Smoothing surface coating treatment made an excellent quality of surface finishing.

ST100 系列通用型立铣刀

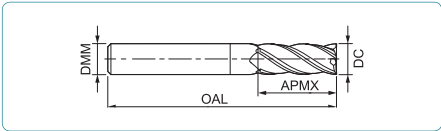
Universal End Mills

ST100-4S

4 刃平头 - 标准长

4-flute square end mills

Diameter: 1~20mm 1/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
ST100-4S-010040-050	1	3	50	4	4	0~-0.015
ST100-4S-015040-050	1.5	5	50	4	4	0~-0.015
ST100-4S-020040-050	2	6	50	4	4	0~-0.015
ST100-4S-025040-050	2.5	8	50	4	4	0~-0.015
ST100-4S-030040-050	3	9	50	4	4	0~-0.015
ST100-4S-035040-050	3.5	11	50	4	4	0~-0.015
ST100-4S-040040-050	4	12	50	4	4	0~-0.015
ST100-4S-050060-050	5	13	50	6	4	0~-0.015
ST100-4S-060060-050	6	15	50	6	4	0~-0.015
ST100-4S-080080-060	8	20	60	8	4	0~-0.015
ST100-4S-100100-075	10	25	75	10	4	0~-0.015
ST100-4S-120120-075	12	30	75	12	4	0~-0.015
ST100-4S-140140-100	14	35	100	14	4	0~-0.025
ST100-4S-160160-100	16	45	100	16	4	0~-0.025
ST100-4S-180180-100	18	50	100	18	4	0~-0.025
ST100-4S-200200-100	20	50	100	20	4	0~-0.025

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○		○	◎				

◎最适合 most suitable ○适合 suit

ST100 系列通用型立铣刀

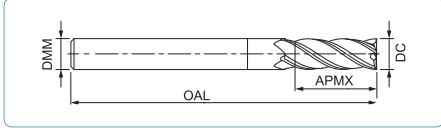
Universal End Mills

ST100-4SL

4 刃平头 - 加长

4-flute square end mills - long length

Diameter: 4~12mm 5/32"~15/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
ST100-4SL-040040-075	4	16	75	4	4	0~-0.015
ST100-4SL-040040-100	4	20	75	4	4	0~-0.015
ST100-4SL-060060-075	6	25	75	6	4	0~-0.015
ST100-4SL-060060-100	6	30	75	6	4	0~-0.015
ST100-4SL-080080-075	8	32	75	8	4	0~-0.015
ST100-4SL-080080-100	8	32	100	8	4	0~-0.015
ST100-4SL-100100-100	10	40	100	10	4	0~-0.015
ST100-4SL-100100-150	10	50	100	10	4	0~-0.015
ST100-4SL-120120-100	12	50	150	12	4	0~-0.015
ST100-4SL-120120-150	12	60	150	12	4	0~-0.015

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○			○	◎			

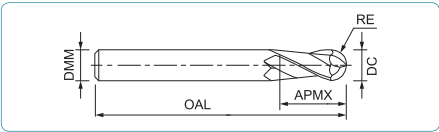
◎最适合 most suitable ○适合 suit

ST100-2B

2 刃球头 - 标准长

2-flute ball nose end mills

Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
ST100-2B-010040R0.5-050	1	2	0.5	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-015040R0.75-050	1.5	3	0.75	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-020040R1-050	2	4	1	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-025040R1.25-050	2.5	5	1.25	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-030040R1.5-050	3	6	1.5	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-040040R2-050	4	8	2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-050060R2.5-050	5	10	2.5	6	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-060060R3-050	6	12	3	6	50	0 ~ -0.015	0 ~ -0.020
ST100-2B-080080R4-060	8	16	4	8	60	0 ~ -0.015	0 ~ -0.020
ST100-2B-100100R5-075	10	20	5	10	75	0 ~ -0.015	0 ~ -0.020
ST100-2B-120120R6-075	12	24	6	12	75	0 ~ -0.015	0 ~ -0.020
ST100-2B-140140R7-100	14	28	7	14	100	0 ~ -0.020	0 ~ -0.030
ST100-2B-160160R8-100	16	32	8	16	100	0 ~ -0.020	0 ~ -0.030

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○			○	◎			

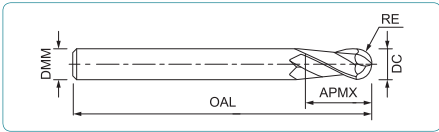
◎最适合 most suitable ○适合 suit

ST100-2BL

2 刃球头 - 加长

2-flute ball nose end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
SP100-2BL-040040R2-075	4	8	2	4	75	0 ~ -0.015	0 ~ -0.020
ST100-2BL-060060R3-075	6	12	3	6	75	0 ~ -0.015	0 ~ -0.020
ST100-2BL-060060R3-100	6	12	3	6	100	0 ~ -0.015	0 ~ -0.020
ST100-2BL-080080R4-075	8	16	4	8	75	0 ~ -0.015	0 ~ -0.020
ST100-2BL-080080R4-100	8	16	4	8	100	0 ~ -0.015	0 ~ -0.020
ST100-2BL-080080R4-150	8	16	4	8	150	0 ~ -0.015	0 ~ -0.020
ST100-2BL-100100R5-100	10	20	5	10	100	0 ~ -0.015	0 ~ -0.020
ST100-2BL-100100R5-150	10	20	5	10	150	0 ~ -0.015	0 ~ -0.020
ST100-2BL-120120R6-100	12	24	6	12	100	0 ~ -0.015	0 ~ -0.020
ST100-2BL-120120R6-150	12	24	6	12	150	0 ~ -0.015	0 ~ -0.020

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○			○	◎			

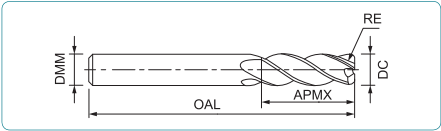
◎最适合 most suitable ○适合 suit

ST100-4R

4 刃圆鼻刀 - 标准长

4-flute corner radius end mills

Diameter:1~12mm 1/32"~15/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
ST100-4R-010040R0.2-050	1	3	0.2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-015040R0.2-050	1.5	4	0.2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-020040R0.2-050	2	6	0.2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-020040R0.5-050	2	6	0.5	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-030040R0.2-050	3	8	0.2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-040040R0.2-050	4	10	0.2	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-040040R0.5-050	4	10	0.5	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-040040R1-050	4	10	1	4	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-050060R0.2-050	5	12	0.2	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-050060R0.5-050	5	12	0.5	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-050060R1-050	5	12	1	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-060060R0.2-050	6	16	0.2	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-060060R0.5-050	6	16	0.5	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-060060R1-050	6	16	1	6	50	0 ~ -0.015	0 ~ -0.020
ST100-4R-080080R0.2-060	8	20	0.2	8	60	0 ~ -0.015	0 ~ -0.020
ST100-4R-080080R0.5-060	8	20	0.5	8	60	0 ~ -0.015	0 ~ -0.020
ST100-4R-080080R1-060	8	20	1	8	60	0 ~ -0.015	0 ~ -0.020
ST100-4R-100100R0.5-075	10	25	0.5	10	75	0 ~ -0.015	0 ~ -0.020
ST100-4R-100100R1-075	10	25	1	10	75	0 ~ -0.015	0 ~ -0.020
ST100-4R-120120R0.5-075	12	30	0.5	12	75	0 ~ -0.015	0 ~ -0.020
ST100-4R-120120R1-075	12	30	1	12	75	0 ~ -0.015	0 ~ -0.020

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○			○	◎			

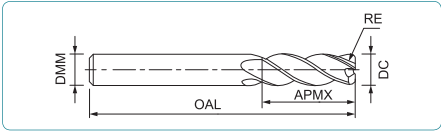
◎最适合 most suitable ○适合 suit

ST100-4RL

4 刃圆鼻刀 - 加长

4-flute corner radius end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
ST100-4RL-040040R0.5-075	4	10	0.5	4	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-040040R1-075	4	10	1	4	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-060060R0.5-075	6	16	0.5	6	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-060060R1-075	6	16	1	6	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-080080R0.5-075	8	20	0.5	8	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-080080R1-075	8	20	1	8	75	0 ~ -0.015	0 ~ -0.020
ST100-4RL-040040R0.5-100	4	11	0.5	4	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-060060R0.5-100	6	16	0.5	6	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-060060R1-100	6	16	1	6	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-080080R0.5-100	8	20	0.5	8	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-080080R1-100	8	20	1	8	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-100100R0.5-100	10	25	0.5	10	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-100100R1-100	10	25	1	10	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-120120R0.5-100	12	30	0.5	12	100	0 ~ -0.015	0 ~ -0.020
ST100-4RL-120120R1-100	12	30	1	12	100	0 ~ -0.015	0 ~ -0.020

P				M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~60HRC	~65HRC	~35HRC				
◎	◎	○			○	◎			

◎最适合 most suitable ○适合 suit

HP100 系列高效型立铣刀

HP100 Series High Efficiency End Mills



采用不等分设计，抑制高频震颤，在高效加工中保证其稳定性
Variable helix design to suppress high-frequency tremor and ensure its stability in efficient machining

曲线型刃口经过钝化后增强了刃口强度和抗氧化性，降低切屑阻力，提高耐磨性和抗崩能力
After passivation, the curvilinear edge enhances the edge strength and oxidation resistance, reduces chip resistance, and improves wear resistance and collapse resistance

优质复合涂层（TX）
High quality composite coating (TX)

极细超微粒硬质合金
Ultra fine Carbide Rod

出色的精加工面

Excellent precision machined surface

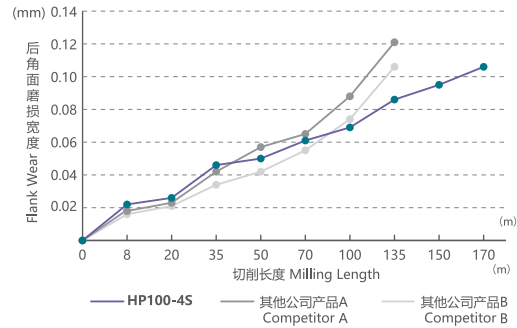


使用工具 Tool	HP100-4S Φ10	其他公司产品 Φ10 Competitor
加工材料 Work Material	NAK80(40HRC)	
切削速度 Cutting Speed	195m/min(5,175min ⁻¹)	
进给速度 Feed	600mm/min(0.03mm/t)	
切削深度 Depth of Cut	ap=36mm ae=0.3mm	
使用机械 Machine	立式加工中心 Vertical Machining Center	
表面粗糙度 Surface Roughness	Ra=0.09μm Rz=0.55μm	

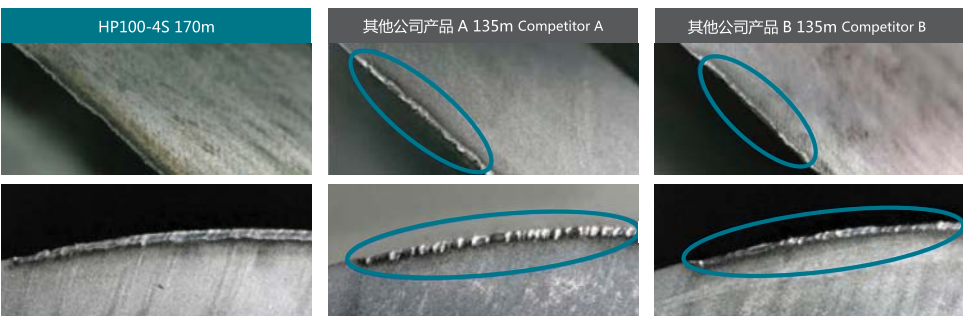
长寿命 LONG TOOL LIFE

采用 TX 涂层，即使使用水溶性切削油剂，刀具磨损量也能稳定进行。
TX coating greatly reduces tool wear progression even with the use of water-soluble coolant.

使用工具 Tool	HP100-4S Φ10×75
加工材料 Work Material	SCM440(30HRC)
加工方法 Milling Method	侧铣 Side Milling
切削速度 Cutting Speed	180m/min (5,700min ⁻¹)
进给速度 Feed	1,400mm/min(0.06mm/t)
切削深度 Depth of Cut	ap=25mm ae=1.0mm
切削油剂 Coolant	水溶性切削油剂 Water-Soluble
使用机械 Machine	立式加工中心 (BT40) Vertical Machining Center



外周刃的磨损状态
Wear comparison of the peripheral cutting edge



稳定排屑 TROUBLE-FREE CHIP EVACUATION

即使是高效率槽铣也能稳定排屑
Even high efficiency slot milling provides stable chip removal

使用工具 Tool	HP100-4S Φ10×75
加工材料 Work Material	SCM440
加工方法 Milling Method	槽铣 Slot Milling
切削速度 Cutting Speed	80m/min
进给速度 Feed	660mm/min (0.057mm/t)
切削深度 Depth of Cut	ap=6mm
切削油剂 Coolant	无 None
使用机械 Machine	立式加工中心 (HSK63) Vertical Machining Center

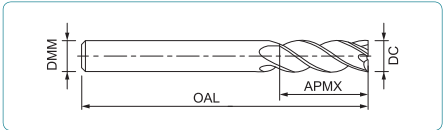


HP100-4S

4 刃平头 - 标准长

4-flute square end mills

Diameter: 1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
HP100-4S-010040-050	1	3	50	4	4	0 ~ -0.015
HP100-4S-015040-050	1.5	5	50	4	4	0 ~ -0.015
HP100-4S-020040-050	2	6	50	4	4	0 ~ -0.015
HP100-4S-025040-050	2.5	8	50	4	4	0 ~ -0.015
HP100-4S-030040-050	3	9	50	4	4	0 ~ -0.015
HP100-4S-035040-050	3.5	11	50	4	4	0 ~ -0.015
HP100-4S-040040-050	4	12	50	4	4	0 ~ -0.015
HP100-4S-050060-050	5	13	50	6	4	0 ~ -0.015
HP100-4S-060060-050	6	15	50	6	4	0 ~ -0.015
HP100-4S-080080-060	8	20	60	8	4	0 ~ -0.015
HP100-4S-100100-075	10	25	75	10	4	0 ~ -0.015
HP100-4S-120120-075	12	30	75	12	4	0 ~ -0.015
HP100-4S-140140-100	14	35	100	14	4	0 ~ -0.020
HP100-4S-160160-100	16	45	100	16	4	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬火钢 Hardened Steel				球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
◎	◎	◎	○			○	◎		○	

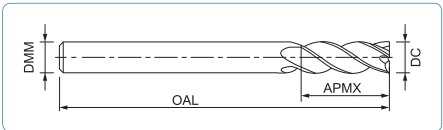
◎最适合 most suitable ○适合 suit

HP100-4SL

4 刃平头 - 加长

4-flute square end mills - long length

Diameter: 4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
HP100-4SL-040040-075	4	16	75	4	4	0 ~ -0.015
HP100-4SL-040040-100	4	20	100	4	4	0 ~ -0.015
HP100-4SL-050060-075	5	20	75	6	4	0 ~ -0.015
HP100-4SL-060060-075	6	25	75	6	4	0 ~ -0.015
HP100-4SL-060060-100	6	30	100	6	4	0 ~ -0.015
HP100-4SL-080080-075	8	32	75	8	4	0 ~ -0.015
HP100-4SL-080080-100	8	32	100	8	4	0 ~ -0.015
HP100-4SL-100100-100	10	40	100	10	4	0 ~ -0.015
HP100-4SL-100100-150	10	50	150	10	4	0 ~ -0.015
HP100-4SL-120120-100	12	50	100	12	4	0 ~ -0.015
HP100-4SL-120120-150	12	60	150	12	4	0 ~ -0.015

P					M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬火钢 Hardened Steel				球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
◎	◎	◎	○			○	◎		○	

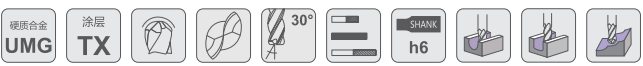
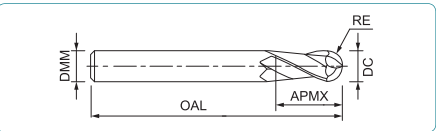
◎最适合 most suitable ○适合 suit

HP100-2B

2 刃球头 - 标准长

2-flute ball nose end mills

Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HP100-2B-010040R0.5-050	1	2	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-015040R0.75-050	1.5	3	0.75	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-020040R1-050	2	4	1	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-025040R1.25-050	2.5	5	1.25	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-030040R1.5-050	3	6	1.5	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-040040R2-050	4	8	2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-050060R2.5-050	5	10	2.5	6	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-060060R3-050	6	12	3	6	50	0 ~ -0.015	0 ~ -0.020
HP100-2B-080080R4-060	8	16	4	8	60	0 ~ -0.015	0 ~ -0.020
HP100-2B-100100R5-075	10	20	5	10	75	0 ~ -0.015	0 ~ -0.020
HP100-2B-120120R6-075	12	24	6	12	75	0 ~ -0.015	0 ~ -0.020
HP100-2B-140140R7-100	14	28	7	14	100	0 ~ -0.020	0 ~ -0.030
HP100-2B-160160R8-100	16	32	8	16	100	0 ~ -0.020	0 ~ -0.030

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	○			○	○		○	

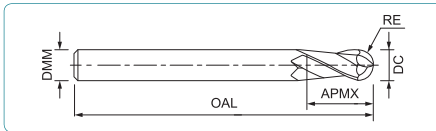
○最适合 most suitable ○适合 suit

HP100-2BL

2 刃球头 - 加长

2-flute ball nose end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HP100-2BL-040040R2-075	4	8	2	4	75	0 ~ -0.015	0 ~ -0.020
HP100-2BL-060060R3-075	6	12	3	6	75	0 ~ -0.015	0 ~ -0.020
HP100-2BL-060060R3-100	6	12	3	6	100	0 ~ -0.015	0 ~ -0.020
HP100-2BL-080080R4-075	8	16	4	8	75	0 ~ -0.015	0 ~ -0.020
HP100-2BL-080080R4-100	8	16	4	8	100	0 ~ -0.015	0 ~ -0.020
HP100-2BL-080080R4-150	8	16	4	8	150	0 ~ -0.015	0 ~ -0.020
HP100-2BL-100100R5-100	10	20	5	10	100	0 ~ -0.015	0 ~ -0.020
HP100-2BL-100100R5-150	10	20	5	10	150	0 ~ -0.015	0 ~ -0.020
HP100-2BL-120120R6-100	12	24	6	12	100	0 ~ -0.015	0 ~ -0.020
HP100-2BL-120120R6-150	12	24	6	12	150	0 ~ -0.015	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	○			○	○		○	

○最适合 most suitable ○适合 suit

HP100 系列高效型立铣刀

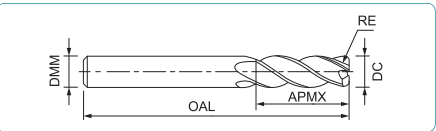
High Efficiency End Mills

HP100-4R

4 刃圆鼻刀 - 标准长

4-flute corner radius end mills

Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刀径 (DC) Diameter	刀长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HP100-4R-010040R0.2-050	1	3	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-015040R0.2-050	1.5	4	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-020040R0.2-050	2	5	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-025040R0.2-050	2.5	7	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-025040R0.5-050	2.5	7	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-030040R0.2-050	3	8	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-030040R0.5-050	3	8	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-030040R1-050	3	8	1	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-040040R0.2-050	4	10	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-040040R0.5-050	4	10	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-040040R1-050	4	10	1	4	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-050060R0.5-050	5	13	0.5	6	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-050060R1-050	5	13	1	6	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-060060R0.5-050	6	15	0.5	6	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-060060R1-050	6	15	1	6	50	0 ~ -0.015	0 ~ -0.020
HP100-4R-080080R0.5-060	8	20	0.5	8	60	0 ~ -0.015	0 ~ -0.020
HP100-4R-080080R1-060	8	20	1	8	60	0 ~ -0.015	0 ~ -0.020
HP100-4R-100100R0.5-075	10	25	0.5	10	75	0 ~ -0.015	0 ~ -0.020
HP100-4R-100100R1-075	10	25	1	10	75	0 ~ -0.015	0 ~ -0.020
HP100-4R-120120R0.5-075	12	30	0.5	12	75	0 ~ -0.015	0 ~ -0.020
HP100-4R-120120R1-075	12	30	1	12	75	0 ~ -0.015	0 ~ -0.020
HP100-4R-160160R0.5-100	16	45	0.5	16	100	0 ~ -0.020	0 ~ -0.030

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	○			○	○		○	

○最适合 most suitable ○适合 suit

HP100 系列高效型立铣刀

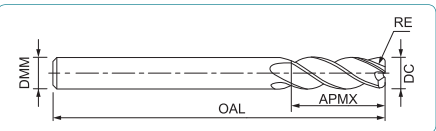
High Efficiency End Mills

HP100-4RL

4 刃圆鼻刀 - 加长

4-flute corner radius end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刀径 (DC) Diameter	刀长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HP100-4RL-040040R0.5-075	4	10	0.5	4	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-040040R0.5-100	4	20	0.5	4	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-040040R1-075	4	10	1	4	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-040040R1-100	4	20	1	4	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-060060R0.5-075	6	15	0.5	6	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-060060R0.5-100	6	24	0.5	6	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-060060R1-075	6	15	1	6	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-060060R1-100	6	24	1	6	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-080080R0.5-075	8	20	0.5	8	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-080080R0.5-100	8	32	0.5	8	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-080080R1-075	8	20	1	8	75	0 ~ -0.015	0 ~ -0.020
HP100-4RL-080080R1-100	8	32	1	8	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-100100R0.5-100	10	25	0.5	10	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-100100R1-100	10	25	1	10	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-120120R0.5-100	12	30	0.5	12	100	0 ~ -0.015	0 ~ -0.020
HP100-4RL-120120R1-100	12	30	1	12	100	0 ~ -0.015	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	○			○	○		○	

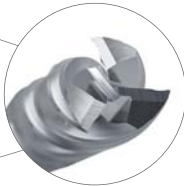
○最适合 most suitable ○适合 suit

ALS100 系列铝用立铣刀

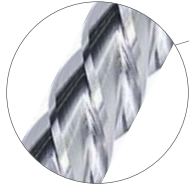
ALS100 Series End Mills for Aluminum



抑制毛刺 Inhibition of burr
大前角和小棱边实现优秀的切削效果。
Large front angle and small edge achieve excellent cutting effect.



大容屑槽 Bigger chip pocket
在高进给加工中，刀具的切削与排屑更加流畅。
The cutting and chip removal are more smooth and stable in the high feed processing.



锋利切削刃 Sharp cutting edge
锋利的切削刃及大螺旋角设计有效防止机屑瘤的产生。
Sharp cutting edge and large spiral angle design can effectively prevent the generation of built-up edge.

高光 · HIGHLIGHT

适用于铝合金材料的粗加工和半精细加工。
Suitable for rough and semi fine machining of aluminum alloy materials.
特殊的刃型设计，配合先进的抛光钝化工艺，有效防止振动并解决粘屑问题。
Special blade design, combined with advanced polishing and passivation technology, effectively prevents vibration and solves chip sticking problems.

特殊的刃口设计，有效解决刀具刃口沾屑问题

Special blade design effectively solves the problem of chip sticking at the cutting edge of the tool

使用工具 Tool	ALS100-3S Φ6
被加工材料 Work Material	LC4
转速 Speed	1300r/min(250m/min)
进给速度 Feed	1950mm/min (0.15mm/r)
切削深度 Depth of Cut	ap=9.0mm ae=1.0mm
切削油剂 Coolant	气冷 Air Blow
使用机械 Machine	MIKRON UCP 1000

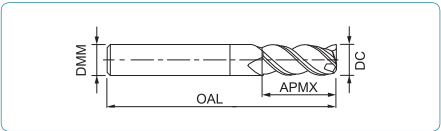


ALS100 系列铝用立铣刀

Aluminum End Mills

ALS100-3S

3 刃平头 - 标准长
3-flute square end mills
Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
ALS100-3S-010040-050	1	3	50	4	3	0 ~ 0.015
ALS100-3S-015040-050	1.5	4.5	50	4	3	0 ~ 0.015
ALS100-3S-020040-050	2	6	50	4	3	0 ~ 0.015
ALS100-3S-025040-050	2.5	7.5	50	4	3	0 ~ 0.015
ALS100-3S-030030-050	3	9	50	3	3	0 ~ 0.015
ALS100-3S-030040-050	3	9	50	4	3	0 ~ 0.015
ALS100-3S-035040-050	3.5	10.5	50	4	3	0 ~ 0.015
ALS100-3S-040040-050	4	12	50	4	3	0 ~ 0.015
ALS100-3S-050050-050	5	15	50	5	3	0 ~ 0.015
ALS100-3S-050060-050	5	15	50	6	3	0 ~ 0.015
ALS100-3S-060060-050	6	18	50	6	3	0 ~ 0.015
ALS100-3S-080080-060	8	24	60	8	3	0 ~ 0.015
ALS100-3S-100100-075	10	30	75	10	3	0 ~ 0.015
ALS100-3S-120120-075	12	36	75	12	3	0 ~ 0.015
ALS100-3S-140140-100	14	45	100	14	3	0 ~ 0.020
ALS100-3S-160160-100	16	50	100	16	3	0 ~ 0.020

P				M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel		不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬硬钢 Hardened Steel			球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC			
							○	◎	

◎ 最适合 most suitable ○ 适合 suit

ALS100 系列铝用立铣刀

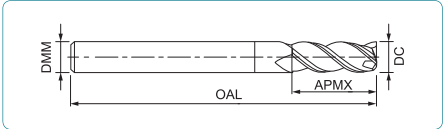
Aluminum End Mills

ALS100-3SL

3 刃平头 - 加长

3-flute square end mills - long length

Diameter:3~12mm 1/8"~25/32"



单位 (unit):mm						
产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
ALS100-3SL-030030-075	3	12	75	3	3	0 ~ 0.015
ALS100-3SL-040040-075	4	15	75	4	3	0 ~ 0.015
ALS100-3SL-060060-075	6	20	75	6	3	0 ~ 0.015
ALS100-3SL-080080-075	8	25	75	8	3	0 ~ 0.015
ALS100-3SL-040040-100	4	16	100	4	3	0 ~ 0.015
ALS100-3SL-060060-100	6	25	100	6	3	0 ~ 0.015
ALS100-3SL-080080-100	8	32	100	8	3	0 ~ 0.015
ALS100-3SL-100100-100	10	45	100	10	3	0 ~ 0.020
ALS100-3SL-120120-100	12	55	100	12	3	0 ~ 0.020

P						M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel				不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬火钢 Hardened Steel					球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC					
								○	◎		

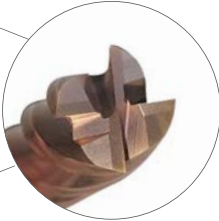
◎ 最适合 most suitable ○ 适合 suit

HR100 系列高硬型立铣刀

HR100 Series High Performance mould tools



特殊的刃口处理工艺,有效减少切削粘
接,延缓刀具磨损
Special cutting edge treatment technology effectively reduces
cutting adhesion and delays tool wear



独特的槽型设计,兼顾刀具刚性与容屑空间
Unique groove design, taking into account tool
rigidity and chip space



DR 纳米涂层,耐高温,高抗氧化性,高耐磨性
DR Nano coating, high temperature resistance, high oxidation
resistance, high wear resistance

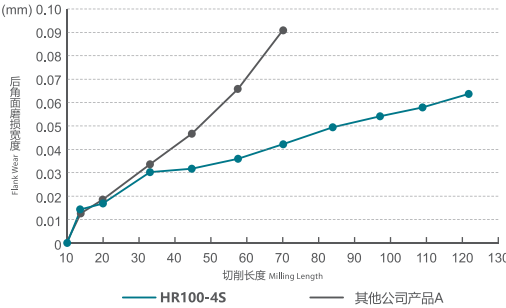


特极细超微粒硬质合金
Super micro grain carbide

在高硬度钢的高速加工中,发挥优秀的耐久性

Demonstrates excellent durability in high-speed machining of high-hardness steel

使用工具 Tool	HR100-4S Φ10	其他公司产品 Φ10 Competitor
加工材料 Work Material	SKD11(60HRC)	
切削速度 Cutting Speed	125m/min □ 9950min ⁻¹	
进给速度 Feed	1,200mm/min □ 0.03mm/t	
切削深度 Depth of Cut	ap=4mm ae=0.08mm	
切削油剂 Coolant	气冷 Air Blow	
使用机械 Machine	立式加工中心 Vertical Machining Center	



涂层构造 COATING STRUCTURE

支持高硬度钢加工的创新涂层 Innovative coating that supports high-hardness steel machining



超耐热层 Super Heat Resistant Layer

通过含有 SiC 的超耐热材料和结晶微小化，实现表面平滑化、高硬化化、高韧性及耐溶着强化。
Smoothering of surface, high toughness and adhesion resistance due to the SiC containing ultra-heat-resistance material and crystal miniaturization.

超微细纳米周期积层结构 Ultra-Fine Periodic Nano-Layered Structure

含有 SiC 的超耐热层和超微细纳米周期积层结构，具有高耐热性和耐磨损性的同时，发挥优异的韧性。
Super heat resistant layer and ultra-fine periodic nano-layered structure provide superior toughness while maintaining high heat resistance and abrasion resistance.

DR 涂层具有优异的抗氧化性能、红硬性以及突出的耐磨损性能，能够降低切削中因积屑瘤引起刀具的磨粒磨损，即使在高硬度加工中也可抑制崩刃，实现工具的长寿命化
DR Coating has excellent oxidation resistance, red hardness and outstanding wear resistance, which can reduce the abrasive wear of the tool caused by chip nodules in cutting, even in high hardness processing, can inhibit the edge breakage, and achieve the long life of the tool

涂层色 Coating Color	涂层构造 Coating Structure	硬度 (GPa) Hardness	氧化开始温度 (°C) Oxidation Temperature	耐热性 Heat Resistance
古铜色 Copper	超微细纳米周期积层 Ultra-Fine Periodic Nano-Layered	41	1,300	☆
附着力 Adhesion Strength	表面粗糙度 Surface Roughness	耐磨损性 Wear Resistance	耐溶着性 Welding Resistance	韧性 Toughness
◎	○	☆	◎	◎

(标准 Fair) ○→◎→☆ (最佳 Best)

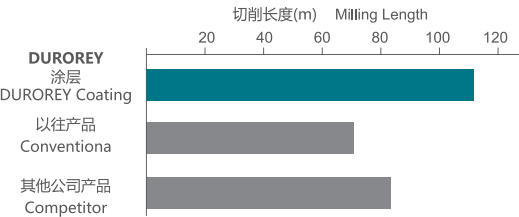
涂层性能 COATING PERFORMANCE

硬度 60HRC SKD11 加工数据。
Cutting data of SKD11 60 HRC.

使用工具 Tool	HR100-4S Φ10×75
加工材料 Work Material	SKD11(60HRC)
加工方法 Milling Method	侧铣 Side Milling
切削速度 Cutting Speed	250m/min(7,950min ⁻¹)
进给速度 Feed	4,800mm/min(0.1mm/t)
切削深度 Depth of Cut	ap=10mm ae=0.1mm
切削油剂 Coolant	气冷 Air Blow

外周磨损宽度达 0.1mm 时的切削长度

Cutting length up to 0.1mm outer circumference wear width



HR100 系列高硬型立铣刀

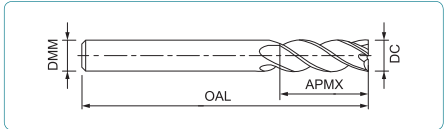
High Hard End Mills

HR100-4S

4 刃平刀 - 标准长

4-flute square end mills

Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
HR100-4S-010040-050	1	3	50	4	4	0 ~ -0.015
HR100-4S-015040-050	1.5	4	50	4	4	0 ~ -0.015
HR100-4S-020040-050	2	6	50	4	4	0 ~ -0.015
HR100-4S-025040-050	2.5	8	50	4	4	0 ~ -0.015
HR100-4S-030040-050	3	8	50	4	4	0 ~ -0.015
HR100-4S-035040-050	3.5	10	50	4	4	0 ~ -0.015
HR100-4S-040040-050	4	11	50	4	4	0 ~ -0.015
HR100-4S-050060-050	5	13	50	6	4	0 ~ -0.015
HR100-4S-060060-050	6	16	50	6	4	0 ~ -0.015
HR100-4S-080080-060	8	20	60	8	4	0 ~ -0.015
HR100-4S-100100-075	10	25	75	10	4	0 ~ -0.015
HR100-4S-120120-075	12	30	75	12	4	0 ~ -0.015
HR100-4S-140140-100	14	35	100	14	4	0 ~ -0.020
HR100-4S-160160-100	16	45	100	16	4	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬火钢 Hardened Steel				球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	◎	◎	○					

◎最适合 most suitable ○适合 suit

HR100 系列高硬型立铣刀

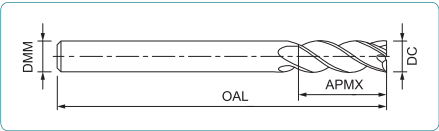
High Hard End Mills

HR100-4SL

4 刃平刀 - 加长

4-flute square end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm						
产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	全长 (OAL) Overall Length	柄径 (DMM) Shank Diameter	刃数 Flutes	外径公差 Outer Diameter Tolerance
HR100-4SL-040040-075	4	16	75	4	4	0 ~ -0.015
HR100-4SL-040040-100	4	20	100	4	4	0 ~ -0.015
HR100-4SL-050060-075	5	20	75	6	4	0 ~ -0.015
HR100-4SL-060060-075	6	25	75	6	4	0 ~ -0.015
HR100-4SL-060060-100	6	30	100	6	4	0 ~ -0.015
HR100-4SL-080080-075	8	32	75	8	4	0 ~ -0.015
HR100-4SL-080080-100	8	32	100	8	4	0 ~ -0.015
HR100-4SL-100100-100	10	40	100	10	4	0 ~ -0.015
HR100-4SL-100100-150	10	50	150	10	4	0 ~ -0.015
HR100-4SL-120120-100	12	50	100	12	4	0 ~ -0.015
HR100-4SL-120120-150	12	60	150	12	4	0 ~ -0.015

P						M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel				不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC					
○	○	○	◎	◎	○						

◎最适合 most suitable ○适合 suit

HR100 系列高硬型立铣刀

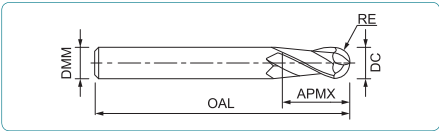
High Hard End Mills

HR100-2B

2 刃球刀 - 标准长

2-flute ball nose end mills

Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm							
产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HR100-2B-010040R0.5-050	1	2	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-015040R0.75-050	1.5	3	0.75	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-020040R1-050	2	4	1	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-025040R1.25-050	2.5	5	1.25	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-030040R1.5-050	3	6	1.5	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-040040R2-050	4	8	2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-050060R2.5-050	5	10	2.5	6	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-060060R3-050	6	12	3	6	50	0 ~ -0.015	0 ~ -0.020
HR100-2B-080080R4-060	8	16	4	8	60	0 ~ -0.015	0 ~ -0.020
HR100-2B-100100R5-075	10	20	5	10	75	0 ~ -0.015	0 ~ -0.020
HR100-2B-120120R6-075	12	24	6	12	75	0 ~ -0.015	0 ~ -0.020
HR100-2B-140140R7-100	14	28	7	14	100	0 ~ -0.020	0 ~ -0.030
HR100-2B-160160R8-100	16	32	8	16	100	0 ~ -0.020	0 ~ -0.030

P						M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel				不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC					
○	○	○	◎	◎	○						

◎最适合 most suitable ○适合 suit

HR100-2BL

2 刃球刀 - 加长
2-flute ball nose end mills - long length
Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

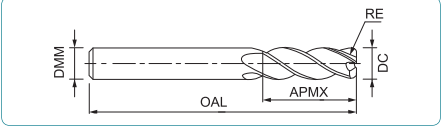
产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HR100-2BL-040040R2-075	4	8	2	4	75	0 ~ -0.015	0 ~ -0.020
HR100-2BL-060060R3-075	6	12	3	6	75	0 ~ -0.015	0 ~ -0.020
HR100-2BL-060060R3-100	6	12	3	6	100	0 ~ -0.015	0 ~ -0.020
HR100-2BL-080080R4-075	8	16	4	8	75	0 ~ -0.015	0 ~ -0.020
HR100-2BL-080080R4-100	8	16	4	8	100	0 ~ -0.015	0 ~ -0.020
HR100-2BL-080080R4-150	8	16	4	8	150	0 ~ -0.015	0 ~ -0.020
HR100-2BL-100100R5-100	10	20	5	10	100	0 ~ -0.015	0 ~ -0.020
HR100-2BL-100100R5-150	10	20	5	10	150	0 ~ -0.015	0 ~ -0.020
HR100-2BL-120120R6-100	12	24	6	12	100	0 ~ -0.015	0 ~ -0.020
HR100-2BL-120120R6-150	12	24	6	12	150	0 ~ -0.015	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	◎	◎	○					

◎最适合 most suitable ○适合 suit

HR100-4R

4 刃圆鼻刀 - 标准长
4-flute corner radius end mills
Diameter:1~16mm 1/32"~5/8"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HR100-4R-010040R0.2-050	1	3	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-015040R0.2-050	1.5	4	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-020040R0.2-050	2	5	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-025040R0.2-050	2.5	7	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-025040R0.5-050	2.5	7	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-030040R0.2-050	3	8	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-030040R0.5-050	3	8	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-030040R1-050	3	8	1	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-040040R0.2-050	4	10	0.2	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-040040R0.5-050	4	10	0.5	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-040040R1-050	4	10	1	4	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-050060R0.5-050	5	13	0.5	6	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-050060R1-050	5	13	1	6	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-060060R0.5-050	6	15	0.5	6	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-060060R1-050	6	15	1	6	50	0 ~ -0.015	0 ~ -0.020
HR100-4R-080080R0.5-060	8	20	0.5	8	60	0 ~ -0.015	0 ~ -0.020
HR100-4R-080080R1-060	8	20	1	8	60	0 ~ -0.015	0 ~ -0.020
HR100-4R-100100R0.5-075	10	25	0.5	10	75	0 ~ -0.015	0 ~ -0.020
HR100-4R-100100R1-075	10	25	1	10	75	0 ~ -0.015	0 ~ -0.020
HR100-4R-120120R0.5-075	12	30	0.5	12	75	0 ~ -0.015	0 ~ -0.020
HR100-4R-120120R1-075	12	30	1	12	75	0 ~ -0.015	0 ~ -0.020
HR100-4R-160160R0.5-100	16	45	0.5	16	100	0 ~ -0.020	0 ~ -0.030

P					M	K	N		S	
碳素钢 Carbon Steel 合金钢 Alloy Steel	预硬钢 Prehardened Steel 工具钢 Tool Steel	预硬钢 Prehardened Steel 淬火钢 Hardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron 球墨铸铁 Ductile Cast	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	◎	◎	○					

◎最适合 most suitable ○适合 suit

HR100 系列高硬型立铣刀

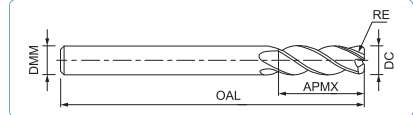
High Hard End Mills

HR100-4RL

4 刃圆鼻刀 - 加长

4-flute corner radius end mills - long length

Diameter:4~12mm 5/32"~25/32"



单位 (unit):mm

产品编号 Product Number	刃径 (DC) Diameter	刃长 (APMX) Cutting Length	角半径 (RE) Angular Radius	柄径 (DMM) Shank Diameter	全长 (OAL) Overall Length	圆弧角精度 Arc Angle Accuracy	外径公差 Outer Diameter Tolerance
HR100-4RL-040040R0.5-075	4	10	0.5	4	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-040040R0.5-100	4	20	0.5	4	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-040040R1-075	4	10	1	4	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-040040R1-100	4	20	1	4	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-060060R0.5-075	6	15	0.5	6	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-060060R0.5-100	6	24	0.5	6	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-060060R1-075	6	15	1	6	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-060060R1-100	6	24	1	6	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-080080R0.5-075	8	20	0.5	8	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-080080R0.5-100	8	32	0.5	8	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-080080R1-075	8	20	1	8	75	0 ~ -0.015	0 ~ -0.020
HR100-4RL-080080R1-100	8	32	1	8	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-100100R0.5-100	10	25	0.5	10	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-100100R1-100	10	25	1	10	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-120120R0.5-100	12	30	0.5	12	100	0 ~ -0.015	0 ~ -0.020
HR100-4RL-120120R1-100	12	30	1	12	100	0 ~ -0.015	0 ~ -0.020

P					M	K	N		S	
碳素钢 Carbon Steel	预硬钢 Prehardened Steel	预硬钢 Prehardened Steel			不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy
合金钢 Alloy Steel	工具钢 Tool Steel	淬火钢 Hardened Steel				球墨铸铁 Ductile Cast				
~40HRC		~45HRC	~55HRC	~60HRC	~65HRC	~35HRC				
○	○	○	◎	◎	○					

◎最适合 most suitable ○适合 suit

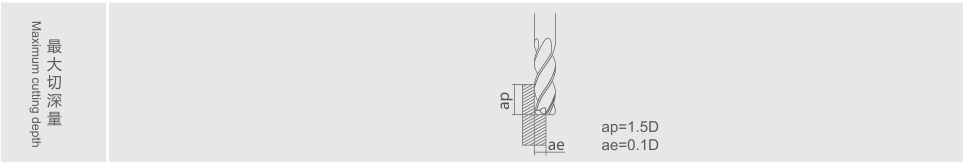
ST100 系列通用型立铣刀

Universal End Mills

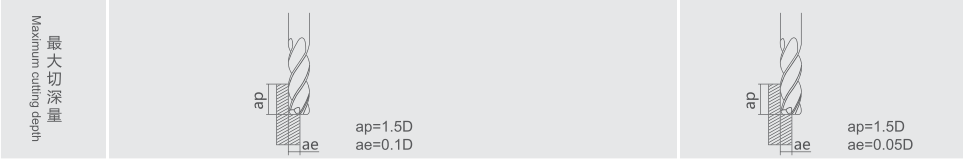
ST100-4S 四刃平头立铣刀加工参数参考表 (侧铣)

ST100-4S 4-Flute Square End Mill Machining Parameters Reference Table (Side Milling)

被加工材料 Processed Materials	铸铁、球墨铸铁 (~750N/mm ²) Cast Iron, Ductile Iron (~750N/mm ²)		碳素钢、合金钢 (~24HRC) Carbon Steel, Alloy Dteel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon Dteel, Alloy Dteel (~30HRC)	
切削速度 VC Cutting Speed VC	80~120m/min		80~120m/min		70~100m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	20000	160	20000	160	20000	125
2	15000	250	15000	250	15000	230
3	14000	430	14000	430	13000	400
4	10800	440	10800	440	10000	400
5	8200	460	8200	460	7600	420
6	7000	470	7000	470	6400	435
8	5200	465	5200	465	4800	430
10	4200	460	4200	460	3800	420
12	3500	460	3500	460	3200	420
14	3000	430	3000	430	2700	400
16	2600	430	2600	430	2400	400
18	2300	420	2300	420	2100	390
20	2050	420	2050	420	1900	390



被加工材料 Processed Materials	预硬钢、调制钢 (30~40HRC) Prehardening Steel, Modulated Steel		不锈钢 Stainless Steel		预硬钢、调制钢 (40~50HRC) Prehardened Steel, Modulated Steel(40~50HRC)	
切削速度 VC Cutting Speed VC	60~90m/min		60~90m/min		45~75m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	20000	125	20000	55	20000	95
2	15000	220	11150	65	13000	140
3	10600	330	7500	80	8500	260
4	8000	335	5500	80	6500	265
5	6400	355	4500	80	5000	280
6	5300	360	3700	85	4200	285
8	4000	360	2800	85	3200	290
10	3200	355	2200	85	2500	275
12	2650	355	1850	80	2100	275
14	2300	330	1600	80	1800	260
16	2000	330	1400	80	1600	260
18	1800	325	1250	70	1400	255
20	1600	325	1100	70	1250	255



ST100 系列通用型立铣刀

Universal End Mills

ST100-4S 四刃平底立铣刀加工参数参考表 (槽铣)

ST100-4S 4-Flute Square End Mill Machining Parameters Reference Table (Slotting)

被加工材料 Processed Materials	铸铁、球墨铸铁 (~750N/mm ²) Cast Iron, Ductile Iron (~750N/mm ²)		碳素钢、合金钢 (~24HRC) Carbon Steel, Alloy Steel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon Steel, Alloy Steel (~30HRC)	
切削速度 VC Diameter	30~70m/min		30~70m/min		30~60m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	10000	80	10000	80	10000	63
2	7500	125	7500	125	7500	115
3	7000	215	7000	215	6500	200
4	5400	220	5400	220	5000	200
5	4100	230	4100	230	3800	210
6	3500	235	3500	235	3200	215
8	2600	235	2600	235	2400	215
10	2100	230	2100	230	1900	210
12	3500	230	3500	230	1600	210
14	3000	215	3000	215	1350	200
16	1300	215	1300	215	1200	200
18	1150	210	1150	210	1050	195
20	1050	210	1050	210	950	195
最大切深量 Maximum cutting depth	 D<3, ap=0.15D D≥3, ap=0.3D					

被加工材料 Processed Materials	预硬钢、调质钢 (30~40HRC) Prehardened Steel, Modulated Steel		不锈钢 Stainless Steel		预硬钢、调质钢 (40~50HRC) Prehardened Steel, Modulated Steel(40~50HRC)	
切削速度 VC Diameter	60~90m/min		60~90m/min		45~75m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	10000	65	10000	30	10000	50
2	7500	110	5600	30	6500	70
3	5300	165	3700	40	4200	130
4	4000	175	2700	40	3200	130
5	3200	175	2250	40	2500	140
6	2650	180	1900	45	2100	140
8	2000	180	1400	45	1600	145
10	1600	175	1100	45	1200	140
12	1350	175	900	40	1100	135
14	1150	165	800	40	900	130
16	1000	165	700	40	800	130
18	900	160	600	35	1400	125
20	800	160	500	35	1250	125
最大切深量 Maximum cutting depth	 D<3, ap=0.15D D≥3, ap=0.3D		 ap=0.05D			

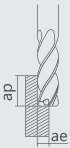
HP100 系列通用型立铣刀

High Efficiency End Mills

HP100-4S 四刃平头立铣刀加工参数参考表 (侧铣)

HP100-4S 4-Flute Square End Mill Machining Parameters Reference Table (Side Milling)

被加工材料 Processed Materials	铸铁、球墨铸铁 (~750N/mm ²) Cast Iron, Ductile Iron (~750N/mm ²)		碳素钢、合金钢 (~24HRC) Carbon Steel, Alloy Steel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon Steel, Alloy Steel (~30HRC)	
切削速度 VC Cutting Speed VC	80~120m/min		80~120m/min		70~100m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	23850	1049	20670	1049	20670	827
2	11925	1049	10335	1049	10335	827
3	8480	1018	7950	1018	7950	859
4	7155	1288	6758	1288	6758	1081
5	6360	1526	5724	1526	5724	1145
6	6360	1781	5300	1781	5300	1272
8	4770	1717	3975	1717	3975	1272
10	3816	1679	3180	1679	3180	1208
12	3180	1526	2650	1526	2650	1166
14	2700	1390	2300	1390	2300	1000
16	2385	1240	1988	1240	1988	954
18	2100	2100	1760	1100	1760	870
20	1908	1908	1590	1068	1590	827
最大切深量 Maximum cutting depth	 ap≤1.5D ae≤0.3D					

被加工材料 Processed Materials	预硬钢、调质钢 (30~40HRC) Prehardened Steel, Modulated Steel		碳素钢、合金钢 (~24HRC) Carbon Steel, Alloy Steel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon Steel, Alloy Steel (~30HRC)		钛合金、镍基合金 Titanium Alloy, Nickel Based Alloy	
切削速度 VC Cutting Speed VC	60~90m/min		60~90m/min		45~75m/min		35~70m/min	
刃径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) Rotational Speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) Rotational Speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) Rotational Speed	进给速度 (mm/min) Feed Speed
1	15900	509	15900	509	14000	400	11130	267
2	8745	560	8745	560	7000	450	5565	267
3	7420	712	7420	712	6300	550	4770	382
4	6360	890	6360	890	5700	650	4373	455
5	5406	930	5406	930	5000	800	4134	562
6	4770	1011	4770	1011	4300	900	3710	668
8	3578	973	3578	973	3200	800	2783	646
10	2862	916	2862	916	2500	750	2226	579
12	2385	954	2385	954	2000	700	1855	594
14	2000	855	2000	855	1800	680	1600	570
16	1789	787	1789	787	1500	650	1391	557
18	1600	737	1600	737	1400	630	1250	525
20	1431	687	1431	687	1200	600	1113	490
最大切深量 Maximum cutting depth	 ap≤1.5D ae≤0.2D		 ap≤1.5D ae≤0.05D		 ap≤1.5D ae≤0.1D			

HP100 系列通用型立铣刀

High Efficiency End Mills

HP100-4S 四刃平底立铣刀加工参数参考表 (槽铣)

HP100-4S 4-Flute Square End Mill Machining Parameters Reference Table (Slotting)

被加工材料 Processed Materials	铸铁、球墨铸铁 (~750N/mm ²) Cast Iron, Ductile Iron (~750N/mm ²)		碳素钢、合金钢 (~24HRC) Carbon Steel, Alloy Steel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon Steel, Alloy Steel (~30HRC)	
切削速度 VC Cutting Speed VC	30~70m/min		30~70m/min		30~60m/min	
刀径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	9540	305	9540	305	7950	191
2	4770	305	4770	305	3975	223
3	4240	407	4240	407	4240	373
4	3975	509	3975	509	3578	429
5	3816	611	3816	611	3816	580
6	3445	661	3445	661	3180	572
8	2783	712	2783	712	2385	572
10	2226	712	2226	712	1908	550
12	1855	668	1855	668	1590	509
14	1500	600	1500	600	1400	470
16	1391	557	1391	557	1193	429
18	1250	540	1250	540	1070	400
20	1113	534	1113	534	954	382

最大切深量
Maximum cutting depth

2≤D, ap=0.5D
D>2, ap=1.0D

被加工材料 Processed materials	预硬钢、调制钢 (30~40HRC) Prehardening Steel, Modulated steel		碳素钢、合金钢 (~24HRC) Carbon steel, Alloy steel (~24HRC)		碳素钢、合金钢 (~30HRC) Carbon steel, Alloy steel (~30HRC)		钛合金、镍基合金 Titanium alloy, Nickel based alloy	
切削速度 VC Cutting Speed VC	25~60m/min		25~60m/min		20~50m/min		20 ~ 50m/min	
刀径 DC(mm) Diameter(mm)	转速 (min ⁻¹) rotational speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) rotational speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) rotational speed	进给速度 (mm/min) Feed Speed	转速 (min ⁻¹) rotational speed	进给速度 (mm/min) Feed Speed
1	7950	191	7950	191	7000	175	7950	127
2	3975	223	3975	223	3500	200	3975	159
3	4240	373	4240	373	4000	350	3180	254
4	3578	429	3578	429	3300	400	2385	267
5	3816	580	3816	580	3500	530	2544	326
6	3180	572	3180	572	3000	540	2120	339
8	2385	572	2385	572	2000	550	1590	318
10	1908	550	1908	550	1800	530	1272	331
12	1590	509	1590	509	1450	480	1060	318
14	1400	470	1400	470	1300	450	930	305
16	1193	429	1193	429	1100	400	795	286
18	1070	400	1070	400	950	380	715	270
20	954	382	954	382	900	360	636	254

最大切深量
Maximum cutting depth

2≤D, ap=0.3D
D>2, ap=0.5D

ap=0.05D

2≤D, ap=0.2D
D>2, ap=0.3D

ALS100 系列铝用立铣刀

Aluminum End Mills

ALS100-3S 三刃平底立铣刀加工参数参考表 (侧铣)

ALS100-3S 3-Flute Square End Mill Machining Parameters Reference Table (Side Milling)

被加工材料 Processed Materials	铝合金 Aluminum Alloy		硅铝合金 Si=10% Silicon Aluminum Alloy Si=10%	
	刀径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational speed (min ⁻¹)
1	40000	800	40000	600
2	40000	1200	40000	900
3	26500	1500	21000	1200
4	20000	1650	16000	1300
5	16000	1750	13000	1300
6	13000	1800	10600	1300
8	10000	1900	8000	1500
10	8000	1950	6500	1500
12	6600	2000	5300	1550
14	5700	2000	4600	1600
16	5000	2000	40000	1600
18	4400	2000	3500	1600
20	4000	2000	3200	1600

最大切深量
Maximum cutting depth

ap=1.5D
ae=0.1D

ap=0.5D
ae=1.0D

1. 上表是侧铣加工的标准值，刀具切槽时，转速要以上表的 50%~70%，进给速度要以 40%~60% 为标准值。
2. 请使用高精度的机床和刀柄。
3. 请使用空气冷却或不易产生烟雾的切削液。
4. 侧面铣削推荐顺铣加工。
5. 机床与工件安装刚性较差的情况下，会产生振动和异常声音，此时应将上表的转速与进给速度同比例降低。
6. 在不干涉的条件下尽可能使刀具悬长最短。

1. The above table shows the standard values for side milling machining. When cutting grooves with the tool, the speed should be 50%~70% of the above table, and the feed rate should be 40%~60% as the standard value.
2. Please use high-precision machine tools and tool holders.
3. Please use air cooling or cutting fluid that is less likely to produce smoke.
4. Side milling is recommended for sequential milling.
5. When the rigidity of the machine tool and workpiece installation is poor, vibration and abnormal sound may occur. In this case, the speed and feed rate in the table above should be reduced year-on-year.
6. Minimize the tool suspension length as much as possible without interference.

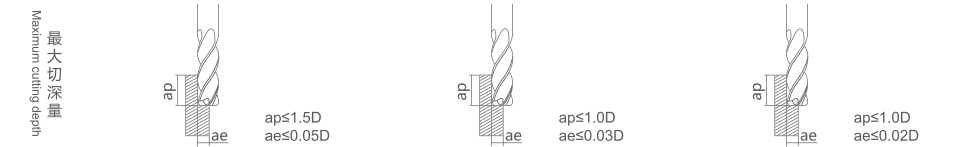
HR100 系列高硬型立铣刀

High Hard End Mills

HR100-4S 四刃平头立铣刀加工参数参考表（侧铣）

HR100-4S Four-Flute Square End Milling Cutter Machining Parameters Reference Table (Side Milling)

加工参数参考表（侧铣） Processing parameter reference table (side milling)						
被加工材料 Processed Materials	预硬钢、淬硬钢（40~50HRC） Prehardened Steel, Hardened Steel (40~50HRC)		淬硬钢（50~60HRC） Hardened Steel (50~60HRC)		淬硬钢（60~65HRC） Hardened Steel (60~65HRC)	
刀径 DC(mm) Diameter(mm)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)	转速 (min ⁻¹) Rotational Speed (min ⁻¹)	进给速度 (mm/min) Feed Speed (mm/min)
1	40000	320	40000	320	32000	260
2	40000	800	24000	480	16000	320
3	32000	1020	16000	510	11000	350
4	24000	1250	12000	620	8000	420
5	19000	1360	9500	680	6400	460
6	16000	1540	8000	770	5300	510
8	12000	1540	6000	770	4000	510
10	9600	1540	4800	770	3200	510
12	8000	1600	4000	800	2700	540
14	6800	1340	3400	680	2300	460
16	6000	1200	3000	600	2000	400
18	5300	1060	2700	530	1800	360
20	4800	960	2400	480	1600	320



1. 上表是侧铣加工的标准值，刀具切槽时，转速要以上表的 50%~70%，进给速度要以 40%~60% 为标准值。
2. 请使用高精度的机床和刀柄。
3. 请使用空气冷却或不易产生烟雾的切削液。
4. 侧面铣削推荐顺铣加工。
5. 机床与工件安装刚性较差的情况下，会产生振动和异常声音，此时应将上表的转速与进给速度同比降低。
6. 在不干涉的条件下尽可能使刀具悬长最短。

1. The above table shows the standard values for side milling machining. When cutting grooves with the tool, the speed should be 50%~70% of the above table, and the feed rate should be 40%~60% as the standard value.
2. Please use high-precision machine tools and tool holders.
3. Please use air cooling or cutting fluid that is less likely to produce smoke.
4. Side milling is recommended for sequential milling.
5. When the rigidity of the machine tool and workpiece installation is poor, vibration and abnormal sound may occur. In this case, the speed and feed rate in the table above should be reduced year-on-year.
6. Minimize the tool suspension length as much as possible without interference.

硬度对照表（附录）

Hardness Comparison Table (Appendix)

黑色金属硬度及强度近似换算值

Approximate Conversion Values of Hardness and Strength of Black Metals

硬度 Hardness				抗拉强度 N/mm2 Tensile Strength	硬度 Hardness				抗拉强度 N/mm2 Tensile Strength
洛氏 Rockwell		维氏 Vickers	布氏 Brinell		洛氏 Rockwell		维氏 Vickers	布氏 Brinell	
HRC	HRA	HV	HB		HRC	HRA	HV	HB	
70.0	86.6	1037	-	-	51.5	76.6	534	-	1815
69.5	86.3	1017	-	-	51.0	76.3	525	501	1780
69.0	86.1	997	-	-	50.5	76.1	517	494	1750
68.5	85.8	978	-	-	50.0	75.8	509	488	1720
68.0	85.5	959	-	-	49.5	75.5	501	481	1690
67.5	85.2	941	-	-	49.0	75.3	493	474	1660
67.0	85.0	923	-	-	48.5	75.0	485	468	1630
66.5	84.7	906	-	-	48.0	74.7	478	461	1605
66.0	84.4	889	-	-	47.5	74.5	470	455	1575
65.5	84.1	872	-	-	47.0	74.2	463	449	1550
65.0	83.9	856	-	-	46.5	73.9	456	442	1525
64.5	83.6	840	-	-	46.0	73.7	449	436	1500
64.0	83.3	825	-	-	45.5	73.4	443	430	1475
63.5	83.1	810	-	-	45.0	73.2	436	424	1450
63.0	82.8	795	-	-	44.5	72.9	429	418	1430
62.5	82.5	780	-	-	44.0	72.6	423	413	1405
62.0	82.2	766	-	-	43.5	72.4	417	407	1385
61.5	82.0	752	-	-	43.0	72.1	411	401	1360
61.0	81.7	739	-	-	42.5	71.8	405	396	1340
60.5	81.4	726	-	-	42.0	71.6	399	391	1320
60.0	81.2	713	-	2555	41.5	71.3	393	385	1300
59.5	80.9	700	-	2500	41.0	71.1	388	380	1280
59.0	80.6	688	-	2450	40.5	70.8	382	375	1260
58.5	80.3	676	-	2395	40.0	70.5	377	370	1245
58.0	80.1	664	-	2345	39.5	70.3	372	365	1225
57.5	79.8	653	-	2295	39.0	70.0	367	360	1210
57.0	79.5	642	-	2250	38.5	-	362	355	1190
56.5	79.3	631	-	2205	38.0	-	357	350	1175
56.0	79.3	620	-	2160	37.5	-	352	345	1160
55.5	79.0	609	-	2115	37.0	-	347	341	1140
55.0	78.7	599	-	2075	36.5	-	342	336	1125
54.5	78.2	589	-	2035	36.0	-	338	332	1110
54.0	77.9	579	-	1995	35.5	-	333	327	1095
53.5	77.7	570	-	1955	35.0	-	329	323	1080
53.0	77.4	561	-	1920	34.5	-	324	318	1065
52.5	77.1	551	-	1885	34.0	-	320	314	1035
52.0	76.9	543	-	1850	33.5	-	316	310	1035



Date:

