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新品册

New Products Brochure

2023





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FM904 series vertical square shoulder milling

05 整硬刀具 Solid cutting tools

ODP高性能通用钻头
ODP High Performance Universal Drills

OMS高温合金铣刀
OMS high temperature alloy milling tools

OMM不锈钢高效加工铣刀
OMM stainless steel high efficiency milling tools

15 标准粗镗刀 Standard rough boring tools

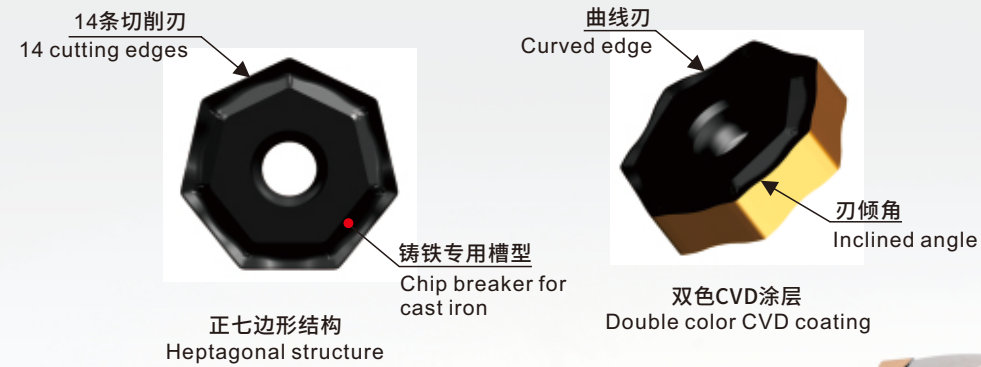
BRU系列可调双刃镗刀
BRU series adjustable double-edge boring tools



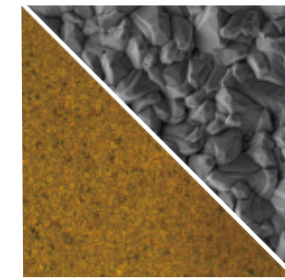
FM497 系列铸铁面铣刀具

FM497 series cast iron face milling tool

- ✓ 高韧性基体, 高耐磨性细晶 Al_2O_3 涂层;
- ✓ 大切深结构设计, 更高的粗加工铣削效率;
- ✓ 密齿、超密齿刀盘, 更多的齿数, 更高的加工效率;
- ✓ 铸铁专用铣削槽型, 重负荷槽型-KM, 轻负荷槽型-KL, 修光槽型-W;
- ✓ 双面七边形结构, 14条切削刃, 超高性价比;
- ✓ High toughness substrate, high wear resistance of fine grain Al_2O_3 coating;
- ✓ Large cutting depth structure design, higher rough machining milling efficiency;
- ✓ Thick flute, super dense tooth cutter, more tooth number, higher processing efficiency;
- ✓ Milling chip breaker for cast iron, heavy load chip breaker -KM, light load chip breaker -KL, wiper chip breaker -W
- ✓ Double sided heptagonal structure, 14 cutting edges, super high cost performance



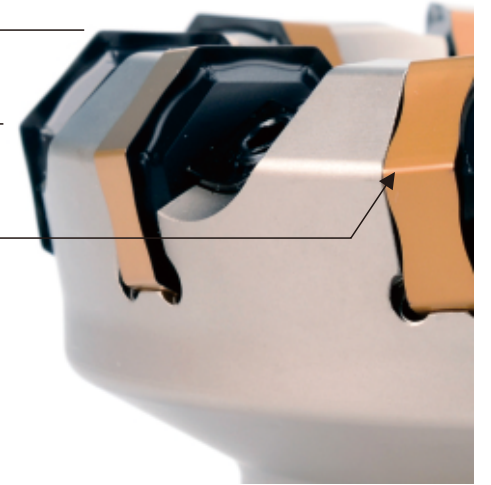
高耐磨性涂层
High wear resistance coating



高韧性基体
High toughness substrate

更大的切深
Large cutting depth

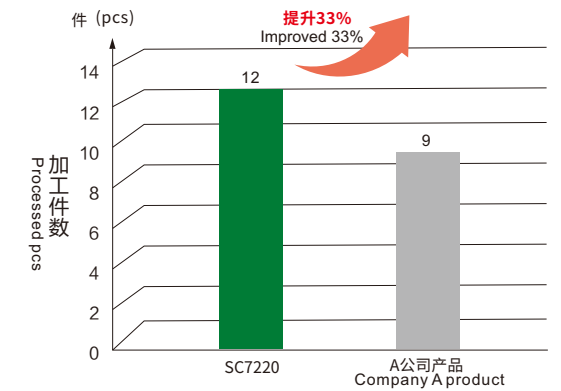
更多的齿数
More teeth



应用案例 1 Application cases 1

加工产品: Processed product	转向机壳体 Steering mechanism housing
刀具型号: Tool type	FM497-A27-80-10-XN09 XNMU0906ANN-KL/SC7220
工件材料: Work piece material	QT500
切削参数: Cutting parameter	Vc=276m/min fz=0.1mm/z Ap=3.5mm
切削方式: Cutting method	湿切 Wet cutting

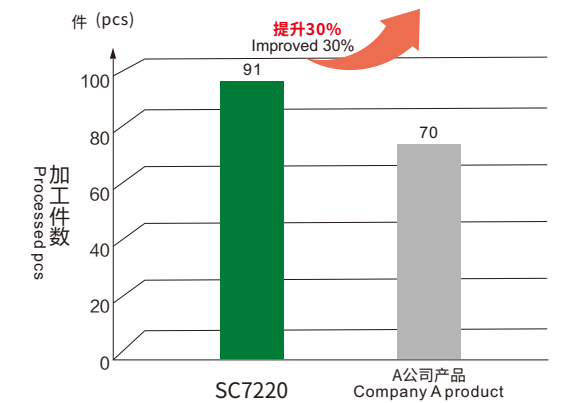
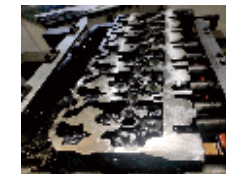
工件图片:
Work piece



应用案例 2 Application cases 2

加工产品: Processed product	柴油发动机 Diesel engine
刀具型号: tool type	FM497-B40-125-14-XN09 XNMU0906ANN-KM/SC7220
工件材料: Work piece material	HT250
切削参数: Cutting parameter	Vc= 250m/min fz= 0.2mm/fz Ap=3mm
切削方式: Cutting method	湿切 wet cutting

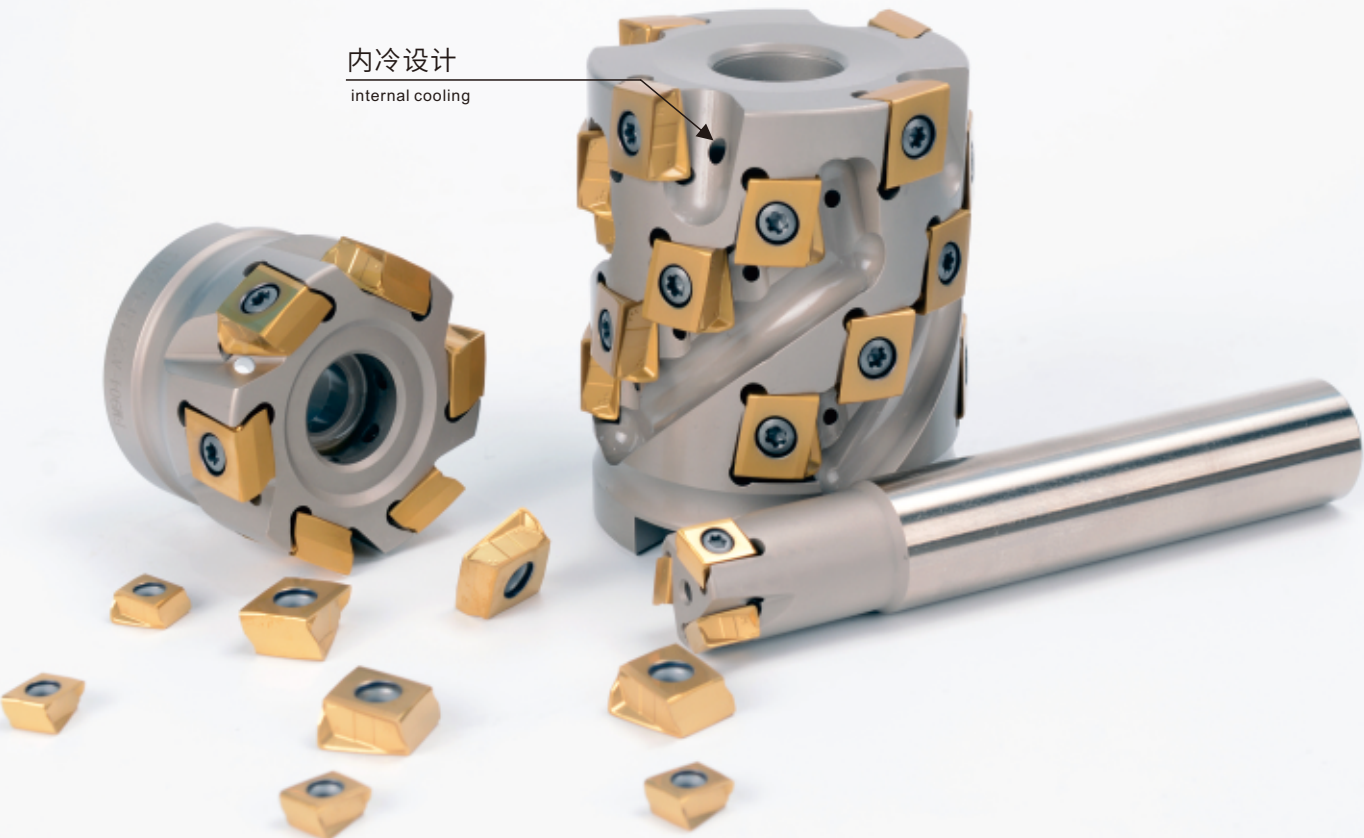
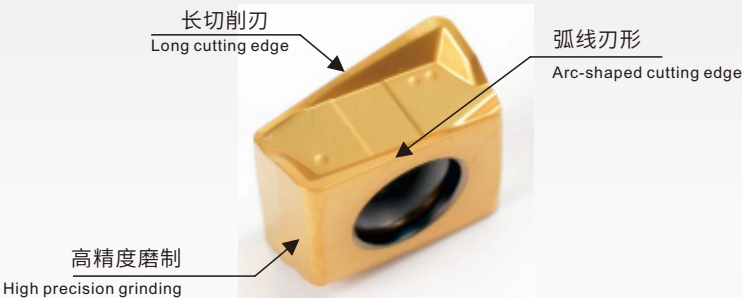
工件图片:
work piece



FM904 立装方肩系列铣削刀具

FM904 vertical square shoulder series milling tools

- ✓ 长切削刃、大切深，高效率；
- ✓ 弧线刃形设计，高精度磨制级刀片，更高的表面质量和垂直精度；
- ✓ 提供玉米铣刀盘，更多的齿数，更高的加工效率；
- ✓ 密齿结构刀盘设计，带内冷孔结构，高效率，高寿命；
- ✓ Long cutting edge, large cutting depth, high efficiency;
- ✓ Arc edge design, high precision ground insert, higher surface quality and vertical accuracy;
- ✓ Provide corn-shaped milling cutter, more teeth, higher processing efficiency;
- ✓ Dense teeth cutter design, with internal cooling structure, high efficiency, high life;



玉米铣刀
Corn milling cutter



密齿刀盘
Dense tooth cutter



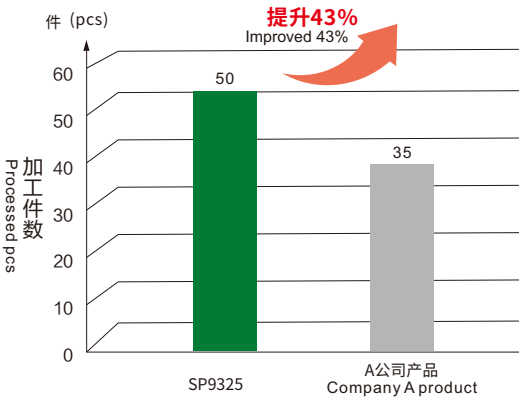
高表面质量和垂直精度
higher surface quality and vertical accuracy

应用案例 1 Application cases 1

工件图片:
work piece



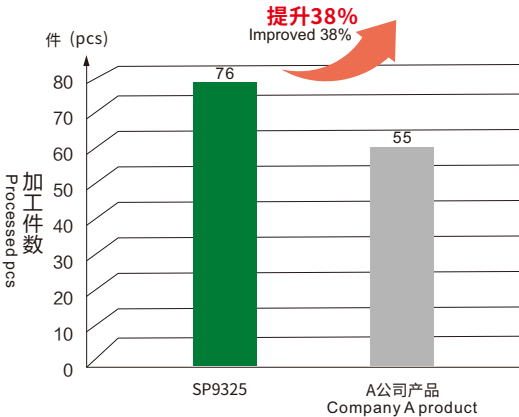
加工产品: Processed product	鼓风机壳体 Product: Blower casing
刀具型号: Tool type	FM904-A27-80-7-LN13 LNGX130608PR-LM/SP9325
工件材料: Work piece material	HT250
切削参数: Cutting parameter	Vc= 180m/min fz= 0.18mm/fz
切削方式: Cutting method	Ap=3mm 湿切 Wet cutting



应用案例 2 Application cases 2

加工产品: Processed product	车桥 Vehicle bridge
刀具型号: Tool type	D80玉米铣刀-BT50 LNGX130608PR-LM/SP9325
工件材料: work piece material	40Cr
切削参数: Cutting parameter	Vc= 276m/min fz= 0.18mm/fz
切削方式: Cutting method	Ap=100mm 湿切 Wet cutting

工件图片:
Work piece



ODP
高性能通用加工钻头系列

ODP High Performance Universal Drills

- ✓ 新一代通用钻头专用TiSiN复合涂层,兼备优良的耐磨损性、耐热性、耐 溶着性;
 - ✓ 采用新型沟槽形状,降低切削阻力和提高钻头强度,铁屑处理优异排屑流畅,通 用性强;
 - ✓ 高效率加工的实现,生产能力的大幅度提高。
 - ✓ 良好的刃口处理,加工表面质量提高,加工纹路减少,粘刀现象减少,连续加 工时间增加,刀具使用寿命提升。
- ✓ TiSiN composite coating for the new generation of general purpose drill , with excellent wear resistance, heat resistance, solubility resistance;
- ✓ Adopt new groove shape, reduce cutting resistance and improve drill strength, iron chip treatment is excellent and smooth chip removal, strong general use;
- ✓ The realization of high efficiency processing, the production capacity is greatly improved.
- ✓ Good cutting edge treatment, machining surface quality is improved, processing marks are reduced, insert sticking phenomenon is reduced, continuous working time is increased and the service life of the tool is improved.



适用范围:

Application scope:

刀具直径范围3mm~20mm

孔深3D~5D内冷、外冷

适用于通用钢材和铸铁加工

Tool diameter range 3mm~20mm

Hole depth 3D~5D, internal cooling and external cooling

Suitable for general purpose steel and cast iron processing



产品系列构成

Product series

冷却方式 Cooling method	形 式 Type	刃径 (mm) Flute diameter	孔深 (L/D) Hole depth
外冷 External cooling	ODP-03EXXXX	Φ3~Φ20	~3
	ODP-05EXXXX		~5
内冷 Internal cooling	ODP-03IXXXX	Φ3~Φ20	~3
	ODP-05IXXXX		~5

钻尖刃型

Cutting edge shape of the drill tip

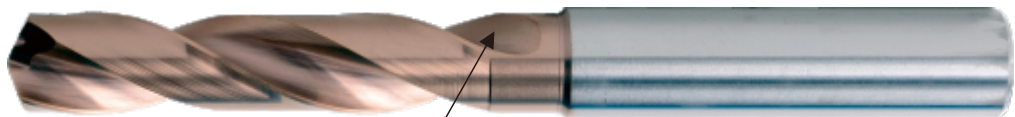
优化的月牙形切削刃口, 可实现良好的孔精度和切屑处理。

Optimized crescent cutting edge, achieving good hole accuracy and effective chip evacuation



流畅性槽型

Fluid chip breaker

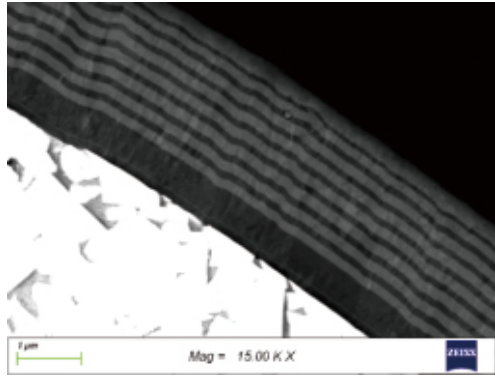


采用新型沟槽形状, 降低切削阻力和提高钻头强度, 铁屑处理优异排屑流畅, 通用性强。

The new groove shape reduces cutting resistance and improves the drill strength, make the chip removal smooth, with strong versatility.

优异复合涂层技术

Excellent composite coating technology



特有的多层膜涂层技术
兼备优良的耐磨损性、耐热性、耐溶着性。

Unique multi-layer coating technology
Excellent wear resistance, heat resistance, resistance Solubility.

新一代通用钻头专用TiSiN复合涂层
New generation of TiSiN composite coating for general purpose drills



应用案例 ①

加工产品:	汽车零件螺纹底孔
Processed product	Thread Bottom Hole of auto parts
刀具型号:	ODP-03E0800
Tool type	
工件材料:	42CrMo (HRC40+)
Work piece material	
切削参数:	N= 2790r/min
Cutting parameter	
	Vc= 70m/min
	Fn=0.14mm/r
	H= 24mm
冷却方式:	内冷 (皂化液)
Cooling method	Internal cooling (Saponification liquid)
加工机床:	三轴立式加工中心
Machine tool	Three axis vertical machining center
加工寿命:	40m, 达到客户加工要求
Processing life	40m, met customer requirements

钻头刃口磨损:

Drill cutting edge wearness



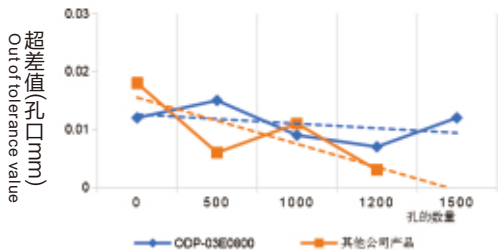
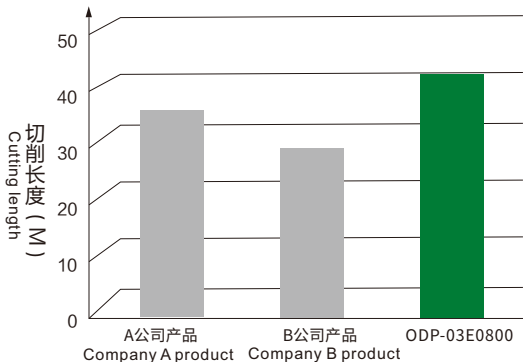
ODP-03E0800



A公司



B公司



孔圆柱面情况:

Hole cylinder condition



ODP-03E0800



A公司产品

应用案例 ②

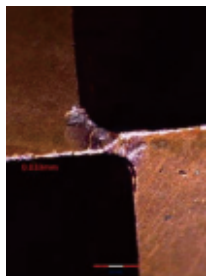
加工产品:	汽车转向系统-法兰盘
Processed product	Automotive steering system - flange
刀具型号:	ODP-03E1260 ODP-03E1080
Tool type	
工件材料:	1055#、45# (HRC30、局部热处理HRC58-62)
Work piece material	
切削参数:	N= 1800r/min
Cutting parameter	
	Vc= 70m/min
	F= 0.16mm/r
	H= 12.5mm
冷却方式:	油冷
Cooling method	
加工机床:	三轴立式加工中心
Machine tool	Three axis vertical machining center
加工寿命:	80m, 达到客户加工要求
Processing life	80m, met customer requirements

刀具磨损对比图:

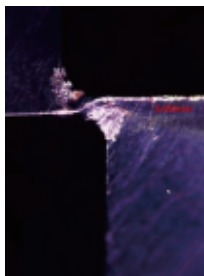
Tool wear comparison



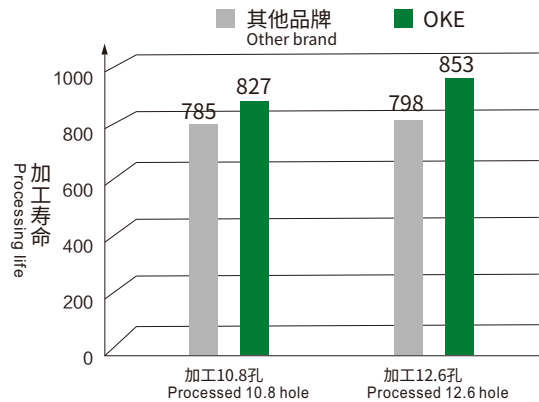
ODP-03E0800



A公司

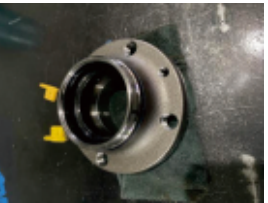


B公司



现场工件图:

On-site workpiece photos



OMS
高温合金铣刀系列

OMS High Temperature Alloy Milling Series

- ✓ 优异基材搭配耐高温磨损的复合涂层, 适用于 $V \leq 60\text{m/min}$ 高效切削 GH4169和粉末高温合金K424;
- ✓ 针对航空发动机叶盘、叶轮、叶片提供多种配套整体刀具解决方案;
- ✓ 高抗震刀刃结构可以完全胜任高温合金摆线铣、槽铣和仿形铣;
- ✓ 刃口采用超细抛光技术, 减小切削阻力, 避免刀具刃口粘结磨损。

An excellent combination of base materials with high-temperature wear-resistant composite coating, suitable for efficient cutting of GH4169 and powder high temperature alloy K424 at $V \leq 60\text{m/min}$;

Provides a range of integrated tool solutions for aviation engine disks, impellers, and blades;

The high anti-vibration cutting edge structure excels in high-temperature alloy trochoidal milling, slotting, and profile milling;

Utilizes ultra-fine polishing technology on the cutting edge to reduce cutting resistance and prevent tool edge adhesion wear.



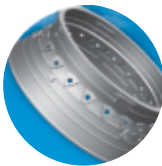
高温合金加工铣刀产品系列与加工应用

High Temperature Alloy Milling Series and Applications

OMS高温合金平头铣刀
OMS High Temperature Alloy Flat End Mill
(4刃、5刃、6刃)
(4 flutes, 5 flutes, 6 flutes)



发动机机匣
Engine Case



OMS高温合金圆角铣刀
OMS High Temperature Alloy Corner Radius End Mill
(4刃、5刃、6刃)
(4 flutes, 5 flutes, 6 flutes)



发动机叶片
Engine Blades



OMS高温合金球头铣刀
OMS High Temperature Alloy Ball Head End Mill
(3刃、4刃、5刃)
(3 flutes, 4 flutes, 5 flutes)



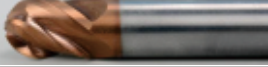
发动机叶片、叶盘叶轮
Engine Blades, Disks, Impellers

产品系列构成

Product Series

OMS系列高温合金加工铣刀产品型号和图形如下表所示

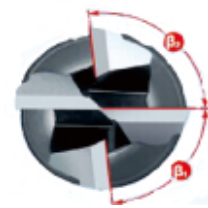
OMS High temperature alloy milling series types and geometries are as follows

型 号 Type	刀具类型 Geometries		刃 数 Flutes
OMS-4E、5E		平头铣刀 Flat end mill 圆角铣刀 Corner Radius mill	
OMS-4R			
OMS-4B		球头铣刀 Ball head mill	

产品特点

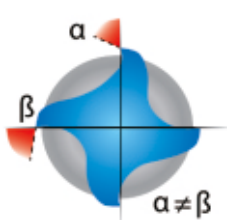
Product Features

齿距 pitch



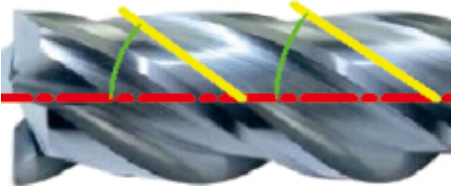
$\beta_1 \neq \beta_2$

前角 Rake angle



$\alpha \neq \beta$

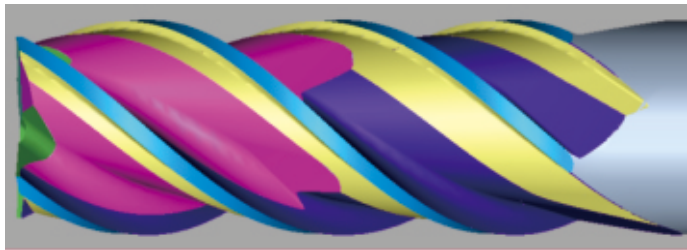
不等螺旋角 Unequal helical angles



$\alpha_1 \neq \alpha_2$

(1) 如图1, 不等螺旋角和不等齿距设计, 可以减小振动, 提高刀具抗崩缺能力, 槽前角不等分布设计, 可以进一步提高抗振能力。

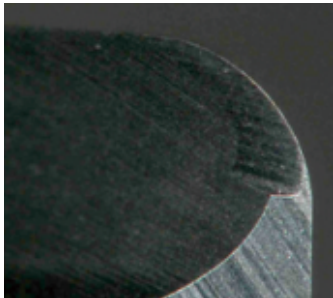
As in Figure 1, unequal helix angles and variable pitch design reduce vibration, enhancing the tool's resistance to breakage. Additionally, uneven distribution of the lead angle further improves vibration resistance.



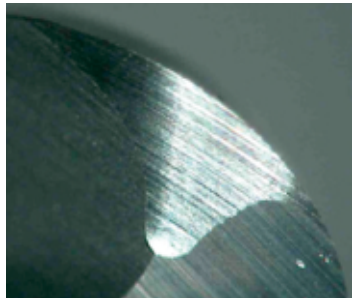
2 变芯厚槽型
Variable core thickness groove

变芯厚槽型设计，适应复杂工况，在弱刚性或薄壁加工时提高刀具刚性

Variable core thickness groove design adapts to complex conditions, enhancing tool rigidity during machining of poor rigidity or thin-walled materials



高强度带起
High strength edge protection
Improved edge protection

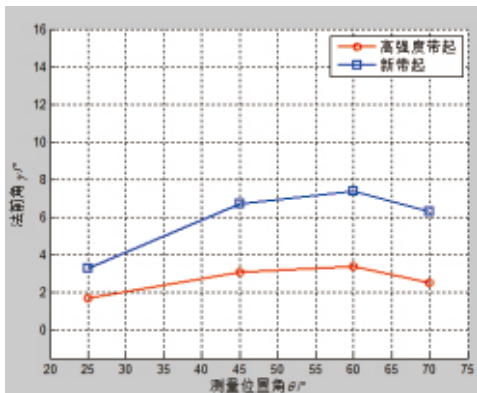


3 最新带起
Improved edge protection

刃口前后刀面抛光处理工艺，避免刀具产生粘结磨损；

新型圆弧前刀面结构，圆弧前角均匀变化，圆弧刃整体强度和抗崩缺性能提高。

Polishing treatment on the cutting edge surfaces prevents adhesive wear of the tool; Innovative curved rake face structure with uniformly changing curved lead angles enhances overall strength and resistance to breakage of the curved edge



4

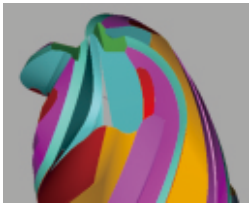
两种带起结构不同位置的前角变化规律
Rake angle variations at different positions for two edge protection designs

新带起的法前角较大，锋利性增加，更适合钛合金，高温合金加工。

The larger normal rake angle of the new designed edge protection enhances sharpness, making it more suitable for machining titanium alloys and high temperature alloys



改进前球头容屑槽形状倒
Chip groove before improvement



梯形容屑槽形状
Trapezoid chip groove

5

球头处容屑槽呈现倒梯形，发挥优异的容排屑能力；
球头刃前刀面呈凸圆弧设计，提高刀具的抗崩缺性能，保证刀具高效平稳加工；

球头刃刀型凸圆弧设计，提高刃口耐磨性和抗崩缺性能，延长刀具寿命。

The chip groove at the spherical end exhibits a trapezoidal shape, delivering excellent chip evacuation capabilities. The convex rounded design of the front face of the spherical end enhances the tool's resistance to breakage, ensuring efficient and stable machining. The convex rounded design of the spherical end's cutting edge improves wear resistance and resistance to breakage, extending the tool's lifespan.

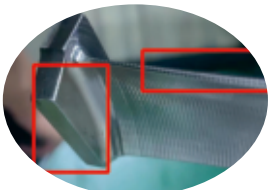
应用案例 1 Application cases 1

加工产品: Processed product	叶片 Impellers
刀具型号: Tool type	OMS-4B-120R6.0
工件材料: Work piece material	GH4133B
切削参数: Cutting parameter	叶根(Blade root) S=1320 F=318 AP=15-20mm AE=1mm 叶面(Blade surface) S=1320 F=520 AP=15-20mm AE=1mm
失效形式: Type of failures	刀具磨损、负载增大、加工声音大 Tool wear, increased load, and higher machining noise
刀具使用部位: Processing content	端刃+侧刃 End edge + side edge
冷却方式: Cooling method	水冷 Liquid cooling
加工机床: Machine tool	宝鸡三轴立加无转台 Baoji Three-axis vertical machining center without rotary table
加工寿命: Processing life	40m, 达到客户加工要求 Meeting customer's requirements

达到客户目前刀具寿命：单面6-7个
Single side for 6 to 7 pieces



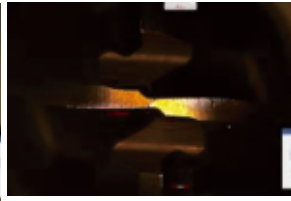
叶片毛坯
Raw material



成品毛坯
Finished part



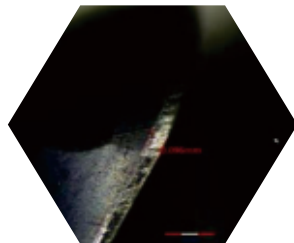
竞争对手刀具VB=0.092mm
Competitor's cutting tool



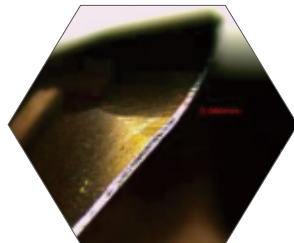
OKE刀具VB=0.063mm
OKE cutting tool

应用案例 2 Application cases 2

加工产品: Processed product	六角螺帽 Hexagon nut
刀具型号: Tool type	OMS-4R-100R0.2
工件材料: Work piece material	A286 (GH2132)
切削参数: Cutting parameter	S=2000 F=400 AP=6 AE=0.05
失效形式: Type of failures	刀具磨损、粗糙度差 Tool wear, poor surface roughness
刀具使用部位: Processing content	端刃+侧刃 End edge + side edge
冷却方式: Cooling method	水冷 Liquid cooling
加工机床: Machine tool	三轴立加 Three-axis vertical machining center
加工寿命: Processing life	达到客户目前刀具寿命: 144件产品 Meeting customer's requirements



竞争刀具VB=0.082mm
Competitor's cutting tool



OKE刀具VB=0.056mm
OKE cutting tool



成品六角螺帽
Finished hexagon nut

应用案例 3 Application cases 3

加工产品: Processed product	耳座 Support
刀具型号: Tool type	OMS-5R-080R1.0
工件材料: Work piece material	Gh3128 侧铣粗加工 Side milling roughing
切削参数: Cutting parameter	S=2400 F=1200 AP=5 AE=0.2
失效形式: Type of failures	刀具磨损工件有毛刺、粗糙度差 Tool wear, workpiece with burrs poor surface roughness
刀具使用部位: Processing content	端刃+侧刃 End edge + side edge
冷却方式: Cooling method	水冷 Liquid cooling
加工机床: Machine tool	三轴立加+转台 Three-axis vertical machining center + rotary table
加工寿命: Processing life	45个产品达到客户加工要求 43 pieces, meeting customer's requirements



耳座毛坯
Raw material



耳座成品
Finished parts

OMM
不锈钢高效加工铣刀系列

OMM Stainless Steel High-efficiency Milling Series

系列加工材料种类: 不锈钢、合金钢、铸铁、钛合金、低碳钢等
加工硬度: ≤HRC50
加工方式: 端铣、侧铣、动态铣、摆线铣、螺旋插补铣、坡铣等
加工类型: 适合粗精加工, 特别适合大切深、小切宽暴力开粗, 每转进给量能达到1mm

Suitable for: stainless steel, alloy steel, cast iron, titanium alloy, low carbon steel, etc.
Machining hardness: ≤ HRC50
Machining methods: End milling, side milling, dynamic milling, trochoidal milling, helical interpolation milling, ramping milling, etc
Machining type: suitable for rough and finish machining, particularly suitable for aggressive roughing with large depth of cut and small width, with a feed rate of up to 1mm per revolution.

直径范围: Diameter range:

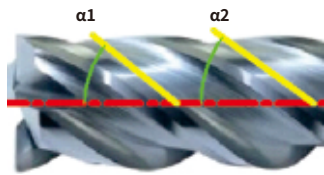
型 号 Type	刃 数 Flutes	形 状 Geometry	刃 径 (mm) Diameter
OMM-4E	4 刃		Φ1~Φ20
OMM-4R	4 刃		Φ1~Φ12



特点描述 Features:

1. 结构设计:
端齿采用特殊的双圆弧GASH圆弧结构, 增加端铣和槽铣加工容屑空间
端齿采用不等齿结构, 增加刀具端铣抗振性能;
开槽采用不等螺旋结构, 增强刀具在大切深侧铣的抗振性能;
螺旋槽采用U型槽结构设计, 增加容屑空间, 利于切屑排出。

1. Structure design:
The end mill adopts a unique dual-arc GASH structure, increasing chip space for end milling and slot milling operations.
The end mill features an uneven flute structure, enhancing the tool's vibration resistance.
The slotting utilizes an uneven helix structure, reinforcing the tool's vibration resistance during deep side milling.
The helical groove adopts a U-groove structural design, increasing chip space to facilitate chip removal.



$\alpha 1 \neq \alpha 2$

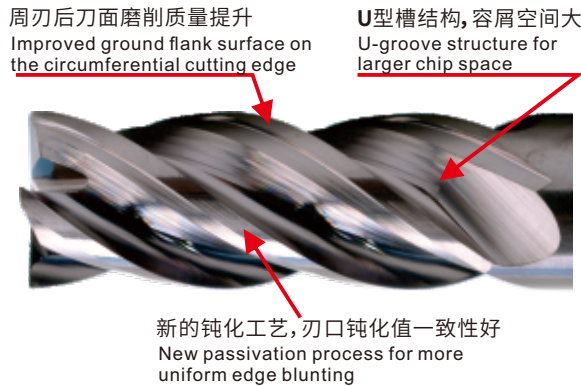


成型槽结构
Profiled groove structure

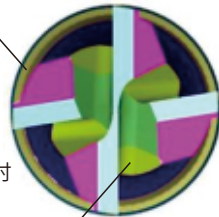
标准槽结构
Standard groove structure

2. 刃口处理:
采用喷砂钝化工艺刃口钝化值更均匀, 刀具寿命更稳定;
刀具螺旋槽和刃口前、后刀面表面粗糙度更好, 摩擦系数低, 排屑更顺畅。
涂层: 采用PVD全新的ALTIXN复合结构涂层设计, 使刀具表面具有更高的致密性和抗氧化性, 且硬度和韧性得到提升, 加工过程中涂层不易脱落, 寿命长。

2. Edge Treatment:
Utilizing a sandblasting passivation process for more uniform edge blunting, ensuring a more stable tool lifespan;
Better surface roughness on the tool's helical groove and edge surfaces, reducing friction coefficients and enabling smoother chip evacuation.
Coating: Utilizing a new PVD ALTIXN composite structure coating design, enhancing surface density and oxidation resistance of the tool. Additionally, it increases hardness and toughness, minimizing coating detachment during machining, hence extending its lifespan.



不等齿结构, 增加抗振性能
Unequal flute design for better vibration resistance

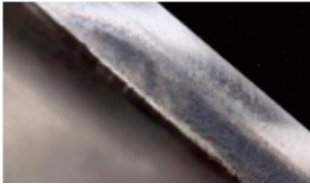


双GASH结构, 保证刚性的同时增加容屑空间
Dual GASH structure to ensure both rigidity and bigger chip space

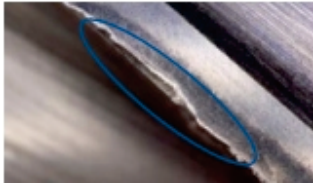
应用案例 1 Application cases 1

加工产品: Workpiece	非标刀体 Non-standard tool holder
刀具型号: Tool Type	OMM-4E-100
工件材料: Workpiece material	4Cr13 (HRC45)
切削参数: Cutting parameters	N= 2550r/min
	Vc= 80mm/min
	Fr= 0.13mm/r
	Ap=10~14mm
	Ae=4mm
冷却方式: Cooling method	乳化液 Emulsified liquid
铣削方式: Milling method	侧铣 Side milling

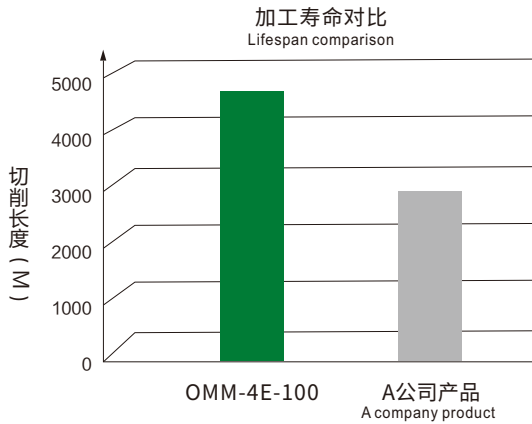
加工100件刀具磨损状态
Tool wear status after processing 100 pieces of parts



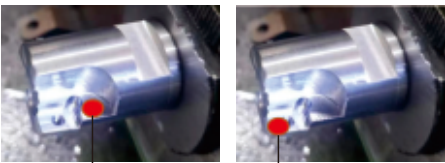
OMM-4E-100



A公司产品
A company product



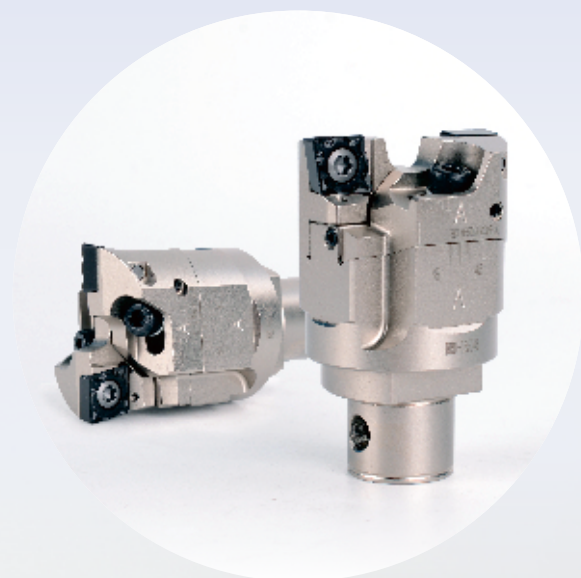
工件图 Workpiece



加工区域
Machining area

BRU 系列可调双刃镗刀

BRU Series Adjustable double-edge Boring Tool

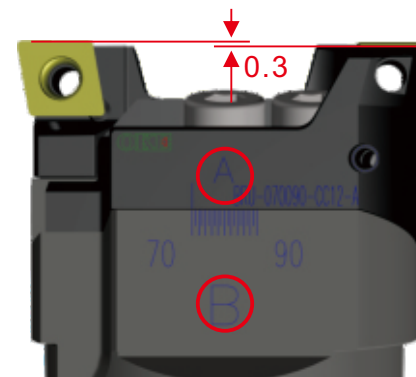


竞争优势:

Advantages:

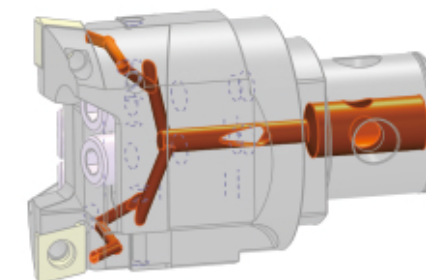


特殊刀夹定位面, 定位精准
Special tool clamp positioning surface
for precise positioning



刀夹可轴向落差0.3, 实现大跨度切深粗镗

The axial difference of the cartridges is 0.3 mm, enabling rough boring in diameter over a wide range.



内冷供应
Internal cooling available



高刚性刀夹结构, 不易振刀
High-rigidity tool clamp structure,
resistant to vibration



简易的刀柄接口, 装卸更方便
Simple shank connector for easier
plugging and removing.

应用案例 1

刀柄型号: Holder type	BT40-BRU-035045-100
基础柄型号: Basic holder No.	BRU-035045
刀夹型号: Cartridge NO.	BRU-035045-CC09-A BRU-035045-CC09-B
切削参数: cutting parameter	Vc=140m/min Fn=0.4mm
内冷方式: Internal cooling method	湿切 Wet cutting
工件图片: Workpiece	

