KYOCERA

想要改善这些问题?
Want to reduce
these problems?

工业用精密刀具

KYOCERA INDUSTRIAL PRECISION KNIVES

ADVANCING PRODUCTIVITY

致力于生产效率提高的京瓷

京瓷株式会社　KYOCERA Corporation

京瓷集团简介

Kyocera Group Profile

创始人
稻盛 和夫
Kazuo Inamori
Founder and Chairman Emeritus
Kyocera Corporation

社训 [敬天爱人]

Corporate Motto:
"Respect the Divine and Love People"

敬天爱人

始终以光明正大、谦虚之心对待工作，
敬奉天理，关爱世人，热爱工作，
热爱公司，热爱祖国

Preserve the spirit to work fairly and honorably,
respecting people, our work, our company
and our global community.

经营理念

追求全体员工物质与精神两方面幸福的同时，
为人类和社会的进步与发展做出贡献！

Management Rationale:
To provide opportunities for the material
and intellectual growth of all our employees,
and through our joint efforts,
contribute to the advancement
of society and humankind.

京都，日本 Kyoto, Japan
京瓷总部 KYOCERA Headquarters

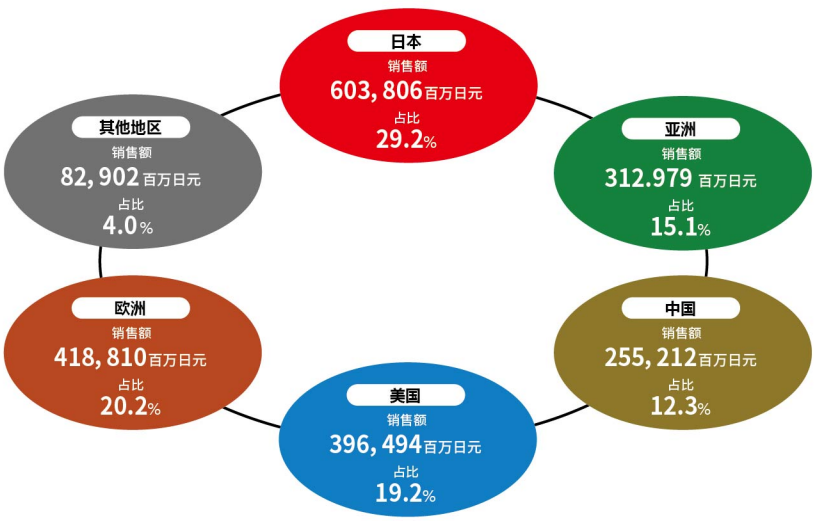
各项业务销售额占比（并表） （截至2026年3月底的会计年度）

核心零部件	31.6%
产业、车载用零部件	12.1%
半导体相关零部件	18.3%
其他	1.2%
电子零部件	17.5%

解决方案	51.7%
机械工具	13.8%
办公文档解决方案	23.1%
信息通信	10.6%
其他	4.2%

其他	0.7%
调整及消除	-1.5%

各地区销售额及占比（并表） （截至2026年3月底的会计年度）



三河技术中心，日本 Sanhe, Japan
分切刀评估机/ 刀具组件

鹿儿岛川内工厂，日本 Kagoshima, Japan
钨钢材料/新刀、翻磨、DLC涂层

赣州，中国 Ganzhou, China
钨钢材料/新刀/翻磨

东莞，中国 Dongguan, China
DLC涂层

珠海，中国 Zhuhai, China
销售

京瓷工业用精密刀具·耐磨损零部件
Industrial Precision Knives / Wear Resistant Parts

京瓷作为精密陶瓷的开拓者，灵活运用长年积累的材料技术・精密加工技术，提供高品质・高精度的工业用精密刀具・耐磨损零部件，致力于产业界品质的提高。

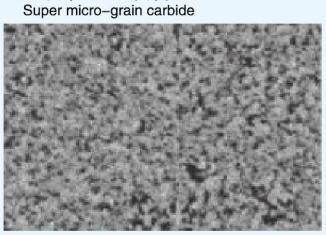
As a pioneer of fine ceramics, Kyocera contributes to improved quality throughout all types of industry by supplying high quality, high precision industrial precision knives and wear resistant parts. Our products are manufactured based on excellent materials and precision machining technologies accumulated through many years of experience.

●超微粒子硬质合金（FW） Super micro-grain carbide

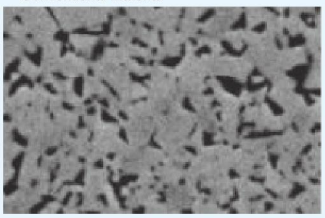
材料具有高强度・高韧性的特点，且耐冲击性较好。
微小结晶构造，广泛应用于各种工业用精密刀具，也可用于放电加工。

A high-strength, tough material, this material provides high shock resistance.
With a minute crystalline structure, used on many industrial precision knives and can be processed using electrical discharge machining.

■超微粒子硬质合金
Super micro-grain carbide



■过去的材质
Conventional Material

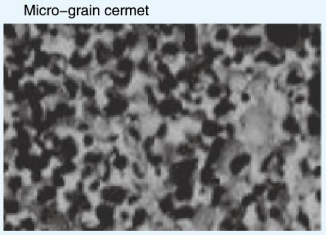


●陶瓷金属 Cermet

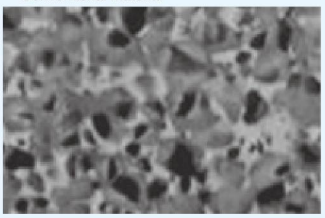
主要成分为TiC、TiN、NbC，是由Co、Ni等金属构成的复合材料。
拥有较好的耐磨损性，且有着与金属的融合性较低的特性（金属较难附着）。
可用于金属焊接及放电加工。

Composite material of Tic, TiN and NbC with Co, Ni, etc. High wear resistant material with low affinity with metals. Can be processed by electrical discharge machining and brazed with metals.

■微粒子陶瓷金属
Micro-grain cermet



■过去的材质
Conventional Material



●耐磨损硬质合金（VW） Wear resistant carbide

作为耐磨损零部件的材料，具有高硬度・高韧性，能发挥出较好的耐磨损性。可用于放电等的精密加工。

The wear resistant parts material provides high hardness and toughness, delivering excellent wear resistance and slidability. Can be fine-processed using electrical discharge machining.

●氧化锆 Zirconium

拥有较好的耐蚀性，是具有非磁性、电绝缘性特点的强韧化陶瓷。
主要广泛应用于剪刀、厨房刀具等方面。

A tough ceramic that has excellent corrosion resistance, with non-magnetic and electrical insulation properties.
Used in a wide variety of cutting instruments, such as scissors and knives.

用于工业用精密刀具·耐磨损零部件的材料特性表
Material Properties of Industrial Precision Knives and Wear Resistant Parts

材质 Material		超微粒子 Super micro-grain carbide							微粒子 Micro-grain carbide	耐磨损・耐冲击 Wear Resistance / Shock Resistance			
项目 Properties	单位 Unit	FW05	FW08	FW25(G)	FW30(G)	FW35(G)	FW35R(G)	FW60R(G)	KW10A	VW30(G)	VW55(G)	VW70(G)	VW80
维氏硬度 Vickers Hardness	Kg/mm²(HV)	2200	1850	1700	1750	1550	1450	1270	1800	1400	1200	1000	900
抗折强度 Transverse Strength	MPa	1470	3920	3900	4410	3250	3250	3500	2050	2950	3350	3050	2800
断裂韧性 Fracture Toughness	MPa·m$^{1/2}$	6.5	9.0	10.3	9.5	12.0	15.0	20.3	10.0	15.0	20.0	>20.0	>20.0
粒径 Grain Size	μm	—	0.3	0.6	0.4	0.7	0.8	0.8	1.0	—	3.8	—	—

材质 Material		非磁性 Non-magnetic	陶瓷金属 Cermet			氧化铝 Alumina	氧化锆 Zirconium	氮化硅 Silicon nitride
项目 Properties	单位 Unit	NW20	TN60	TC60M	FT20	A479	Z201N NO HIP	SN235P
维氏硬度 Vickers Hardness	Kg/mm²(HV)	1500	1600	1500	1500	1650	1250	1500
抗折强度 Transverse Strength	MPa	3250	1764	1666	2450	294	980	883
断裂韧性 Fracture Toughness	MPa·m$^{1/2}$	12.5	9.0	10.5	10.0	3.5	6.7	6.7
粒径 Grain Size	μm	—	—	2.3	0.6	—	0.2～0.5	—

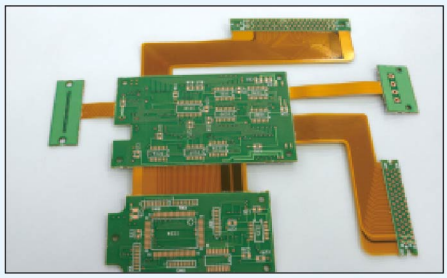
※备注：本目录中所有超微粒和超微粒子是行业内固有名词。

应用实例 Examples of Application

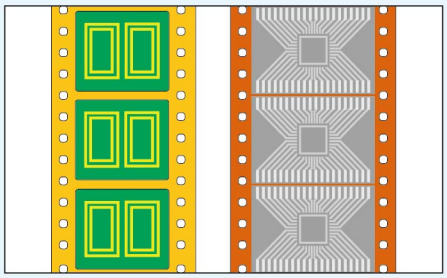
高功能薄膜
High function film

液晶显示器（偏光板）
LCD Display (Polarizing plate)

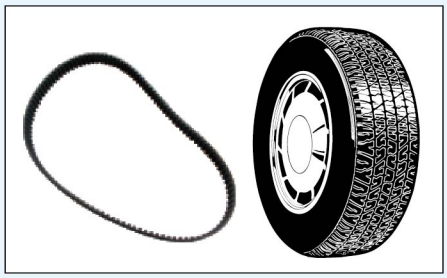
锂离子电池
Lithium ion rechargeable battery



FPC（柔性电路板）
FPC (Flexible printed circuit board)

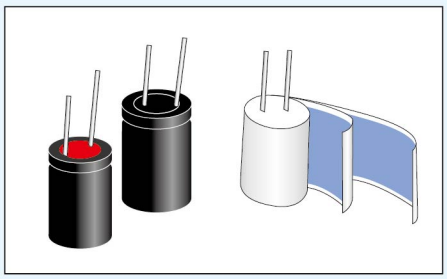


TAB载带・COF带
TAB Tape, COF Tape



橡胶制品（同步带・轮胎）
Rubber Products (Timing belt /Tires)

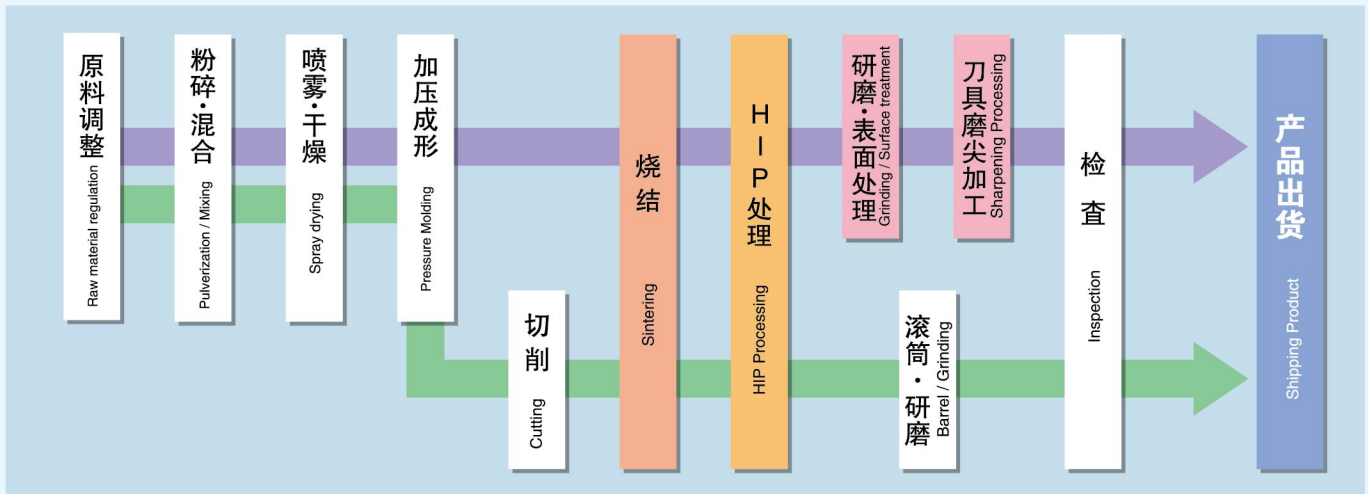
胶带
Adhesive tape



铝电解电容器
Aluminum electrolytic capacitor

纸・瓦楞纸箱
Paper / Cardboard box

制造工程 Manufacturing process



Gable·Gang 刀具

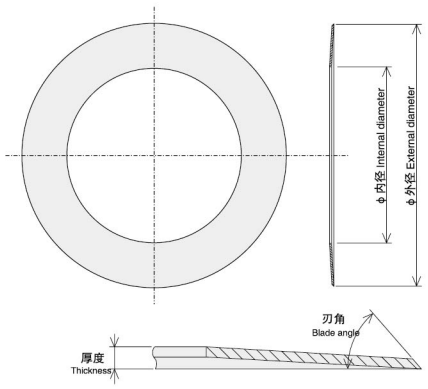
Gable / Gang Blades

利用超微粒子碳化钨、陶瓷金属、氧化锆等多种多样的制造刀具用的材料，
配合各种加工技术，为客户提供满足其需求的精度高、寿命长的分切机刀具。

Our wide range of knife materials including micro-grain carbides, cermet, and zirconium provides customers with high precision and long life slitting knives through various processing technologies.

●标准Gable刀具 Standard gable blades

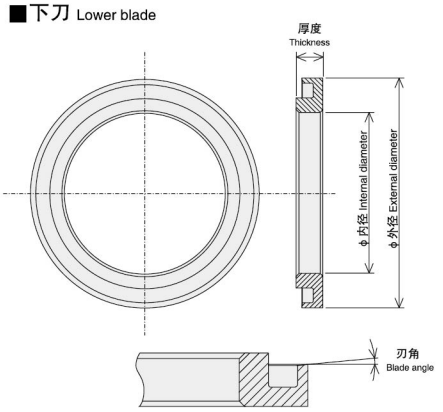
■上刀 Upper blade



（单位 Unit：mm）

NO.	上刀／产品编号 Upper blade / Description	材　质 Material	φ外径 External diameter	φ内径 Internal diameter	厚度 Thickness	刃角 Blade angle
1	GUBD-09807T45DC15	FW35	98	66	0.7	45°
2	GUBD-09807T60DC15					60°
3	GUBD-10807T45DC15		108	75		45°
4	GUBD-10807T60DC15					60°
5	GUBD-11808T45DC15		118	80	0.8	45°
6	GUBD-11808T60DC15					60°

■下刀 Lower blade



（单位 Unit：mm）

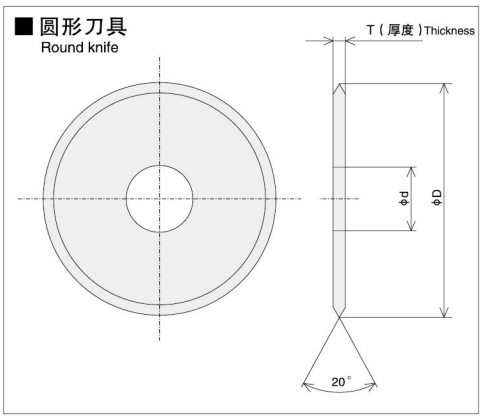
NO.	下刀／产品编号 Lower blade / Description	材　質 Material	φ外径 External diameter	φ内径 Internal diameter	厚度 Thickness	刃角 Blade angle
7	GDBD-08005T	FW35	80	55	5	5°
8	GDBD-08610T		86	60	10	
9	GDBD-09210T		92	65		

圆形刀具

Round knives

运用精密的刀刃加工技术和专业的表面处理技术，
广泛提供由单层膜到各种复合材制作而成的分切刀具。

Our precise edge sharpening technology and professional surface processing technology provides a wide range of slitting knives from single films to various types of composite materials.



（单位 Unit：mm）

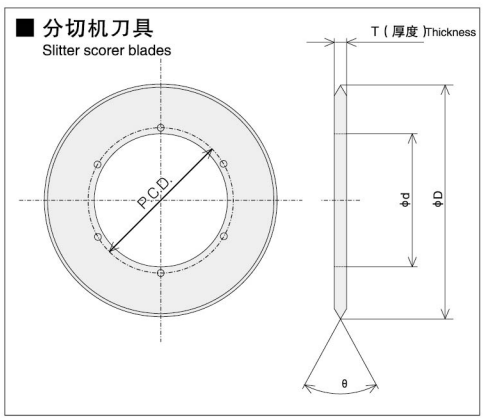
产品编号 Description	材 质 Material	外径 ϕD External diameter	内径 ϕd Internal diameter	厚度（T） Thickness	刃角（°） Blade angle
FRC28L	FW35	28	6.0	0.3	20°
FRC45L		45	8.1 /8.3		
FRC50L		50	10.0		
FRC60L		60			
FRC80L		80	19.0		
FRC100L		100			

分切机刀具

Slitter scorer blades

通过采用高硬度的超微粒子硬质合金和精密的刀刃加工技术，以实现在瓦楞纸箱切割应用方面的寿命的延长。

High hardness micro-grain carbide and precise edge sharpening technology improves tool life at cardboard cutting.



（单位 Unit：mm）

产品编号 Description	材 质 Material	外径 ϕD External diameter	内径 ϕd Internal diameter	厚度(T) Thickness	刃角（°） Blade angle	备注 Remarks
D260XD140X1.5T2003DW	FW35J	260	140	1.5	20°-3°	P.C.D.160, 6-ϕ9
D280XD160X1T20DW	FW35RG	280	160	1.0	20°	P.C.D.175, 6-ϕ7.5

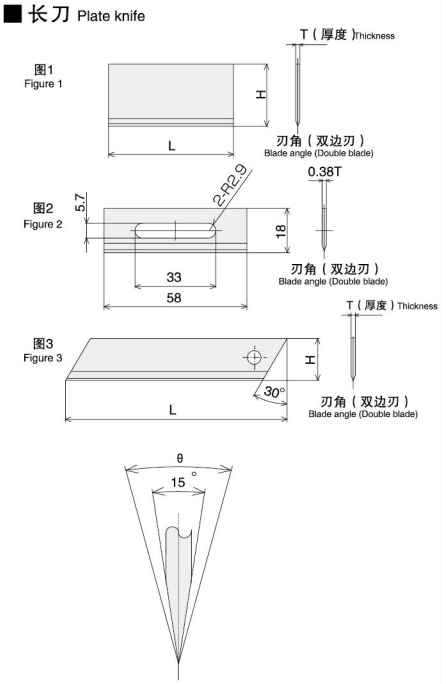
长刀

Plate knives

通过选择合适的材料和运用良好的研磨・表面处理技术来抑制切断面的毛边和粉屑的发生，
以实现提高产品的品质。 并以良好的耐磨性和锋利性来提高短纤维的生产效率。

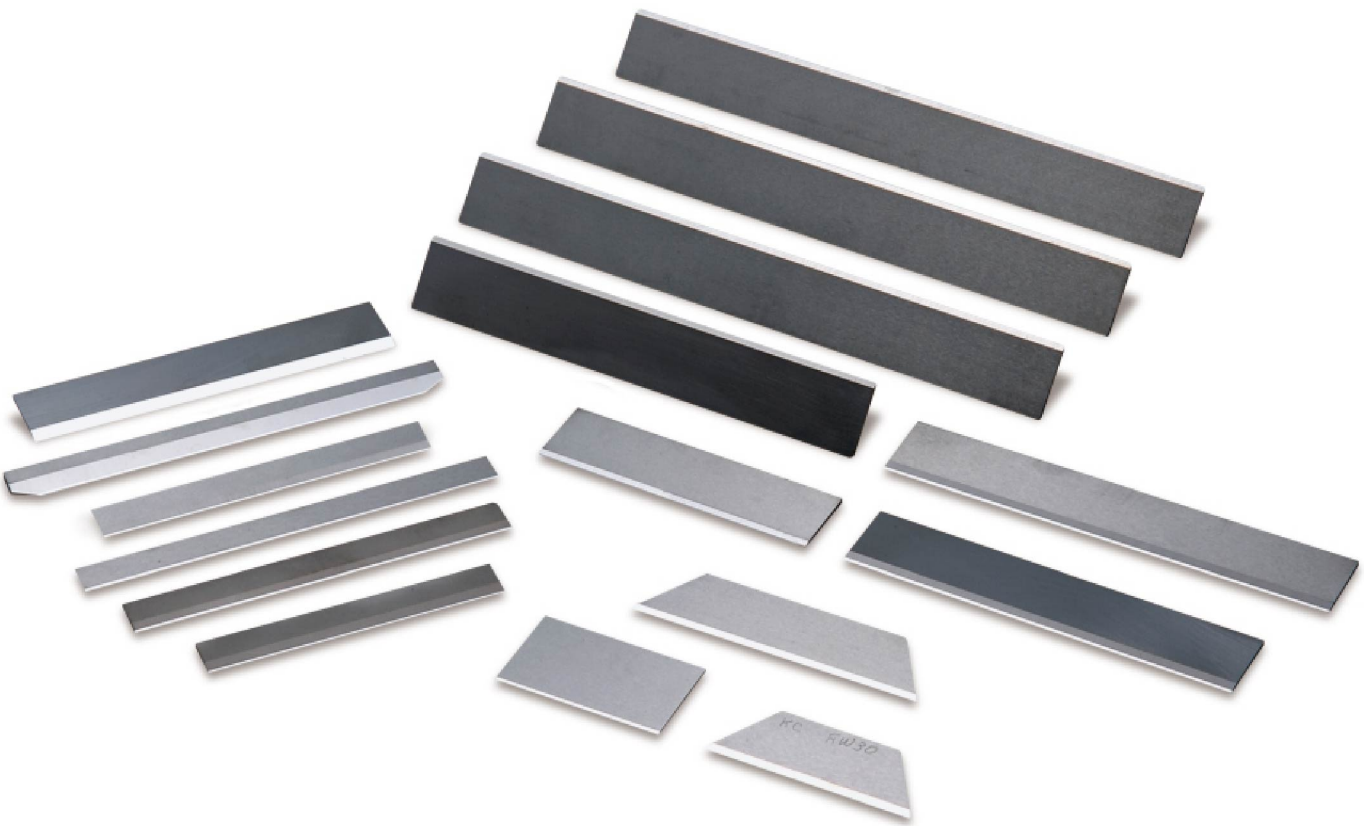
Suitable material choice and advance grinding and surface treatment technologies controls upper dulled edges and residual dust, increasing finished product quality.
Good wear resistance and sharpness provide higher efficiency in producing short fiber.

■ 长刀 Plate knife



（单位 Unit：mm）

产品编号 Description	材 质 Material	长度（L） Length	宽度（H） Width	厚度（T） Thickness	刃角（15× θ°） Blade angle	形状 Shape
FBC4009G	FW30	40	9	0.2	双边刃(15 ×25) Double blade	图1 Figure 1
FBC4019G	FW25		19	0.25		
FBC3515G	FW30	35	15	0.5		
FBC7010G		70	10	0.9	双边刃(15 ×30) Double blade	
FBC9519G		95	19			
FBC5818G		58	18	0.38	双边刃(15 ×25) Double blade	图2 Figure 2
FBC6009G		60	9			图3 Figure 3
FBC6018G			18	0.5		
FBC11018G		110				



特殊刀具
Special shape knives

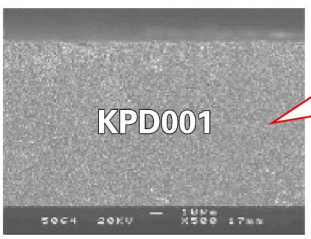
特殊刀具 Special shape knives

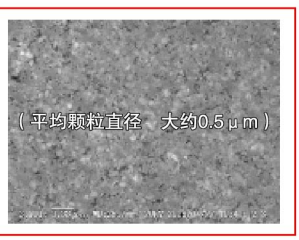
按照各种各样的用途来制造特殊刀具。

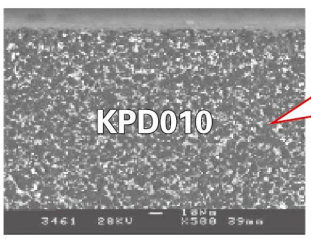
Special shape knives are available for a wide range of applications.

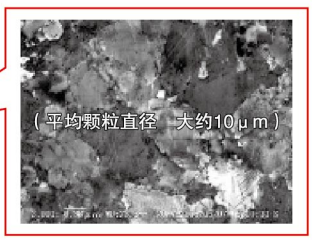
PCD刀具 【KPD系列】特征
PCD tools for KPD Series

材质 Material	KPD001	KPD010
平均颗粒直径 Grain size AVE	0.5 μm	10 μm
破坏韧性破壊靭性 Fracture toughness	12 $MPam^{0.5}$	8 $MPam^{0.5}$
工件 Workpiece	铝合金 / 黄铜等非铁金属 / 硬质合金 / 陶瓷 / 玻璃纤维 / 塑胶等 Aluminum alloy / Non-ferrous like Copper / Carbide / Ceramics / Glass fiber / Plastic e.t.c	
用途 Application	连续加工，轻断续加工 Consecutive, light intermittent processing	轻断续加工，断续加工 Light intermittent, intermittent processing
特征 Feature	高水平的微粒金刚石 较高的刀刃强度，耐磨损性，抗折性、锐度。 High level of micro grain size of diamond High hardness in cutting edge, excellent abrasive-resistance , anti-breakage and good sharpness	可广泛使用于各个领域的通用材料 较好的平衡了耐磨性与韧性。 Widely used for general purpose Good balanced between wear resistance and toughness。





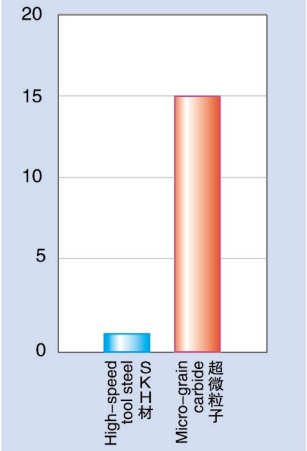




寿命测试对比 Life Evaluation Comparison

（单位：倍率） Unit : Times

胶 带 Adhesive tape



刃物形状: Gable刀具
Edge shapegable blade

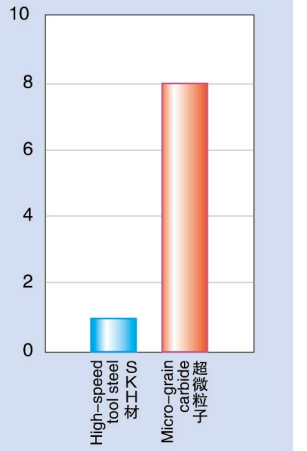
切断方法: 剪切
Cutting method : Shear-cut

材质: SKH→超微粒子
Material : High-speed tool steel→Micro-grain

效果: 15倍
Results : 15 times

其他：减少黏刀
Others : Reduced blade sticking

复合薄膜+金属薄膜 Composite film + Metal foil



刃物形状: Gang形状
Edge shape : Gang blade

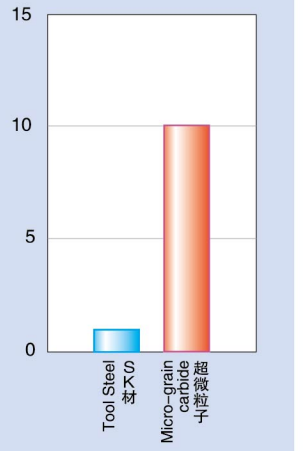
切断方法: 剪切
Cutting method : Shear-cut

材质: SKH→超微粒子
Material : High-speed tool steel→Micro-grain

效果: 8倍
Results : 8 times

其他：切断面良好
Others : Good cutting surface

PET薄膜 PET Film



刃物形状: 长刀
Edge shape : Plate knife

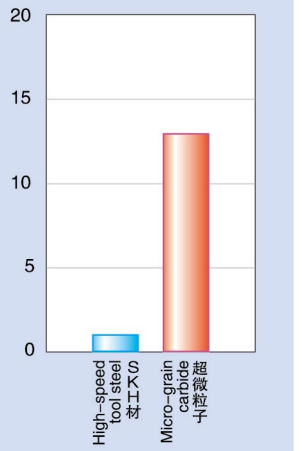
切断方法: 非接触式切削
Cutting method : Cut in the air (Non-contact)

材质: SK→超微粒子
Material : Tool Steel→Micro-grain

效果: 10倍
Results : 10 times

其他：切断面良好
Others : Good cutting surface

铝 膜 Aluminum foil



刃物形状: Gang形状
Edge shape : Gang blade

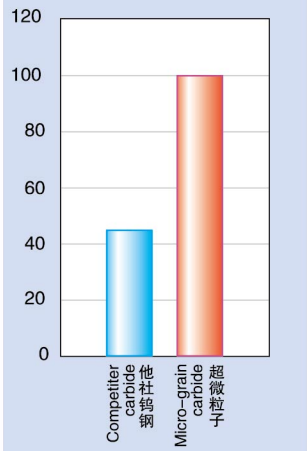
切断方法: 剪切
Cutting method : Shear-cut

材质: SKH→超微粒子
Material : High-speed tool steel→Micro-grain

效果: 13倍
Results : 13 times

其他：品质稳定
Others : Stable quality

纸 箱 Cardboard box



刃物形状: 圆形刀具
Edge shape : Round knife

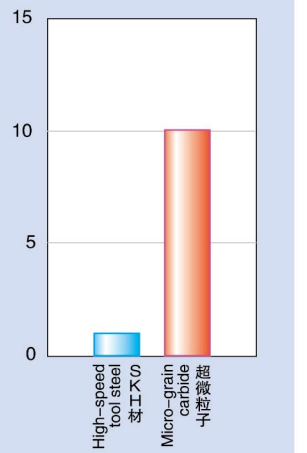
切断方法: 分切机
Cutting method : Slitter scorer

材质: 其他公司→超微粒子
Material : Competiter→Micro-grain carbide

效果: 2.3倍
Results : 2.3 times

其他：提高生产效率
Others : Productivity improvement

铜 箔 Copper foil



刃物形状: Gang形状
Edge shape : Gang blade

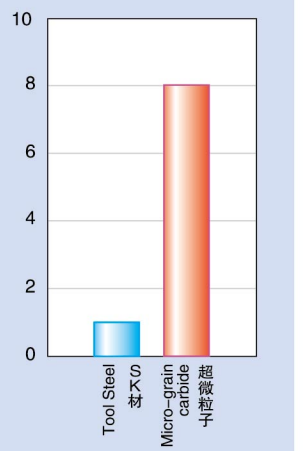
切断方法: 剪切
Cutting method : Shear-cut

材质: SKH→超微粒子
Material : High-speed tool steel→Micro-grain

效果: 10倍
Results : 10 times

其他：品质稳定
Others : Stable quality

胶 片 Rubber sheet



刃物形状: 圆形刀具哑光处理
Edge shape : Round knife with satin finished surface

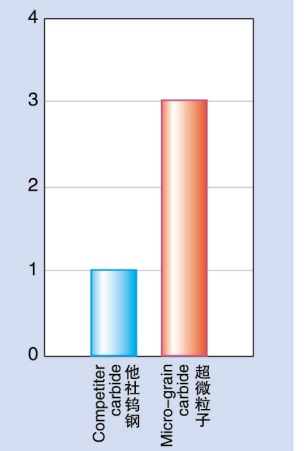
切断方法: 旋转式切削
Cutting method : Rotating cut

材质: SK→超微粒子
Material : Tool Steel → Micro-grain

效果: 8倍
Results : 8 times

其他：减少对刀具的粘附力
Others : Decreased adhesion to blade

纤 维 Fibers



刃物形状: 长刀
Edge shape : Plate knife

切断方法: 砍切
Cutting method : Chopped cut

材质: 其他公司→超微粒子
Material : Competiter→Micro-grain carbide

效果: 3倍
Results : 3 times

其他：提高生产效率
Others : Productivity improvement

（根据客户评价） User's evaluation

日本中部技术中心
Chubu Technical Center

通过使用分切评估机 改善分切面的品质

Improved cut surface using a slitter evaluation machine

为了解决分切面的残屑，毛边，波纹，卷边，拉丝，变形等问题，
以进行分切评估，给客户提供适合刀具式样以及切断加工条件。

We evaluate cut surface and provide suitable proposal for tight specification and cutting conditions to solve problems such as residual dust, burr, flare, everted edge, whisker, and deformation.

想要改善这些问题?
Want to reduce these problems?

分切评估机
Slitter Evaluation Machine

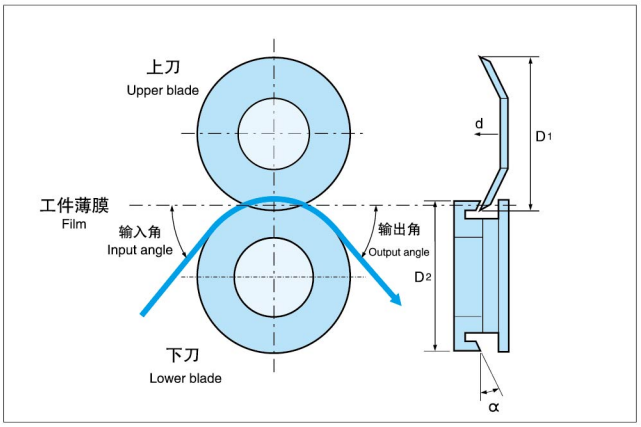
分切条件的设定
Slitting layout Position

Gable刀具，Gang刀具等

Gable / Gang blades, etc.

刀具角，表面处理，重叠，偏移量，
输出输入角，张力，线速等

Blade angle, Surface treatment, Overwrap, Offset, Input / Output angle, Tension, Line speed, etc.



可在评估机上进行评估的工件条件
Evaluation Machine Loadable Material (Workpiece) Size

工件宽 Material width	工件直径 Material diameter	工件内径 Material core diameter
50 ~ 300mm	300mm	ϕ3in、6in

各种表面处理 Surface Treatment Variation

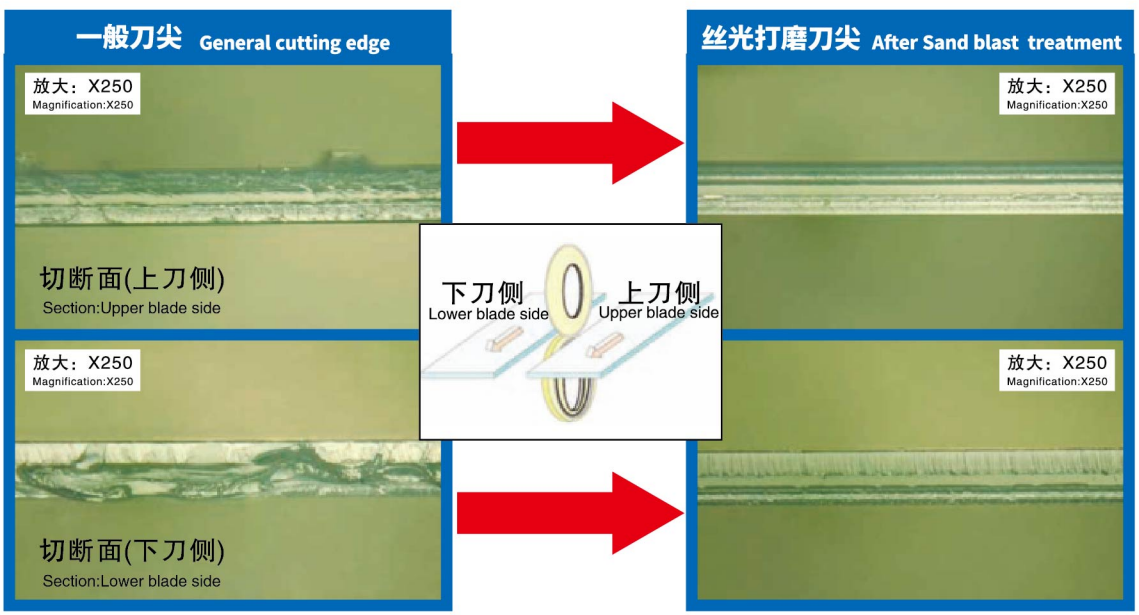
梨地处理 切屑减少、耐附着性加强 Reduced cut off dust, improved adhesion resistance

DCL 涂层 ※ DLC (Diamond-like Carbon) Coated Treatment 耐磨性增强，耐附着性增强，耐药性增强 Wear resistance, adhesion resistance and chemical resistance improved

※DLC涂层类似金刚石涂层 DLC Coating: Diamond-like Carbon Coating

● 梨地处理

➡ 粘性胶带切断后，粘付物对比 Chips attachement comparison after processed adhesive tape



下刀侧切断面也可以实现安定
Stable performance in section of lower blade side

DLC–U涂层 DLC–U Coating

防止铝屑而特别开发的新DLC涂层

New DCL coating developed for preventing attachment of Aluminum chip

特征 Feature

① 应用了物理蒸镀原理的薄膜技术；

② 发挥良好的高硬度、高附着力等特性，高密度保留金刚石构造；

③ 有效改善防熔性、耐热性、光滑性等。

① Advance coating technology with physical vapor deposition

② Remain high dencity of Diamond feature to perform excellent hardness and high adhesion force

③ Improved anti–adhesion, heat resistance, smoothness

	一般的DLC膜 General DCL coating	京瓷的DLC–U膜 Kyocera DCL–U coating
硬度 Hv Hardness	3,000	7,000
耐热温度 Heat resistance	400℃	550℃

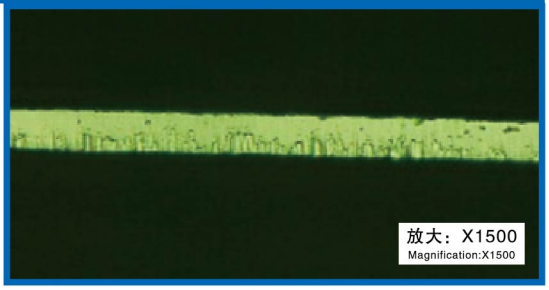
铝箔（厚度＝15μm）切断后的上下刀刃熔化附着情况比较

Comparison of chip attachment after processed Aluminum material(Thickness:15μ)

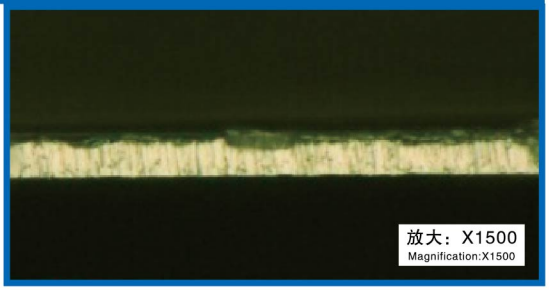
DLC–U涂层会形成一层与铝箔融合度较低的DLC膜，减少刀刃的铝屑情况。

DLC–U coating improves chip attachment by forming low fusion layer with DLC coating

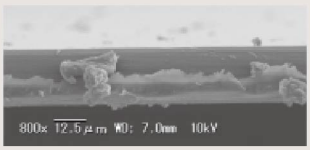
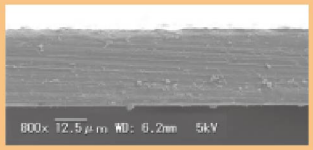
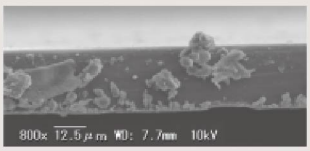
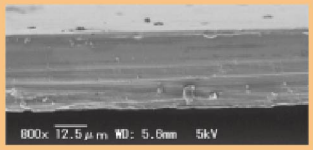
DLC–U涂层（分切15,000m后） DLC–U coating(After processed 15,000M)



无涂层（分切1,000m后） Uncoated(After processed 1,000M)



分切面比较图片 Comparison Photograph of Cut Surfaces

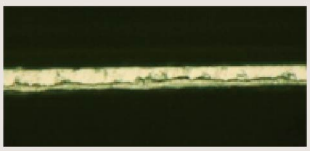
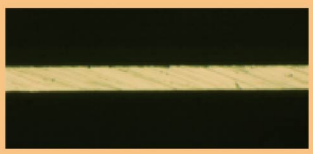
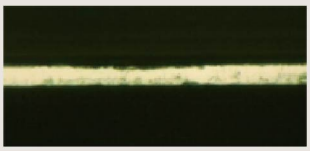
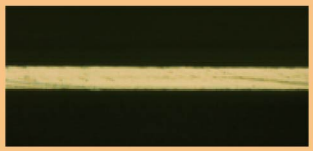
	金属刀具 Metallic blade	京瓷超微粒子硬质合金刀具 Kyocera micro-grain carbide blade
对苯二甲酸乙二醇酯 Polyethylene-telephthalate (PET) 上刀 Upper blade		
对苯二甲酸乙二醇酯 Polyethylene-telephthalate (PET) 下刀 Lower blade		

降低毛须，灰尘的产生！

Reduce whiskers and dust

SEM

金属刀具无法切断，并且会发生毛须和灰尘，但是使用超微粒子硬质合金刀具则会形成良好的切断面。
Metal blades can not cut and create whiskers and dust. Micro-grain carbide blades provide an excellent cut surface.

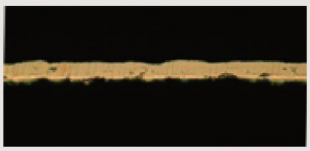
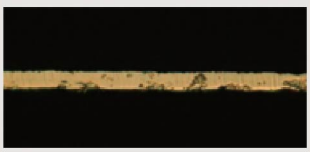
铝箔 Aluminum foil 上刀 Upper blade		
铝箔 Aluminum foil 下刀 Lower blade		

抑制灰尘产生以及变形不良！

Prevent dust and deformation

数字示波器 Digital scope

使用金属刀具，会产生上刀处灰尘和变形，但是使用超微粒子硬质合金刀具，则会形成良好的切断面。
Metal blades create dust and deformation by the upper blade. Micro-grain carbide blades provide an excellent cut surface.

铜箔 Copper foil 上刀 Upper blade		
铜箔 Copper foil 下刀 Lower blade		

抑制灰尘产生以及变形不良！

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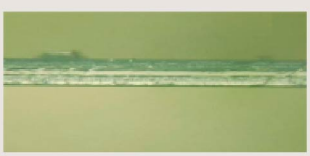
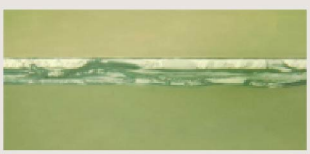
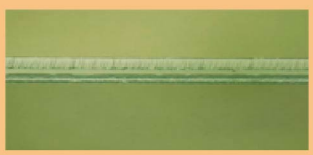
数字示波器 Digital scope

使用金属刀具，会产生上刀处灰尘和变形，但是使用超微粒子硬质合金刀具，则会形成良好的切断面。
Metal blades create dust and deformation by the upper blade. Micro-grain carbide blades provide an excellent cut surface.

粘性薄膜 Adhesive film 上刃 Upper blade		
粘性薄膜 Adhesive film 下刃 Lower blade		

抑制变形和毛边的形成！

Prevent deformation and burr

数字示波器 Digital scope

使用金属刀具，在黏着层产生变形和毛边，使用超微粒硬质合金刀具，则会形成良好的切断面。
Metal blades create deformation of adhesive layer and burr. Micro-grain carbide blades provide an excellent cut surface.

社内评估结果 Internal evaluation

金属刀具和硬质合金刀具的比较
Comparison of Metal Knife and Micro-grain Knife

硬度不同！《长寿命》 Different hardness <Long life>

FW35
HV1550

>

金属 metal （SKD,SKH）
HV770 ~ 800

FW35硬度2倍（金属比）
Double FW35 hardness (compared to metal)

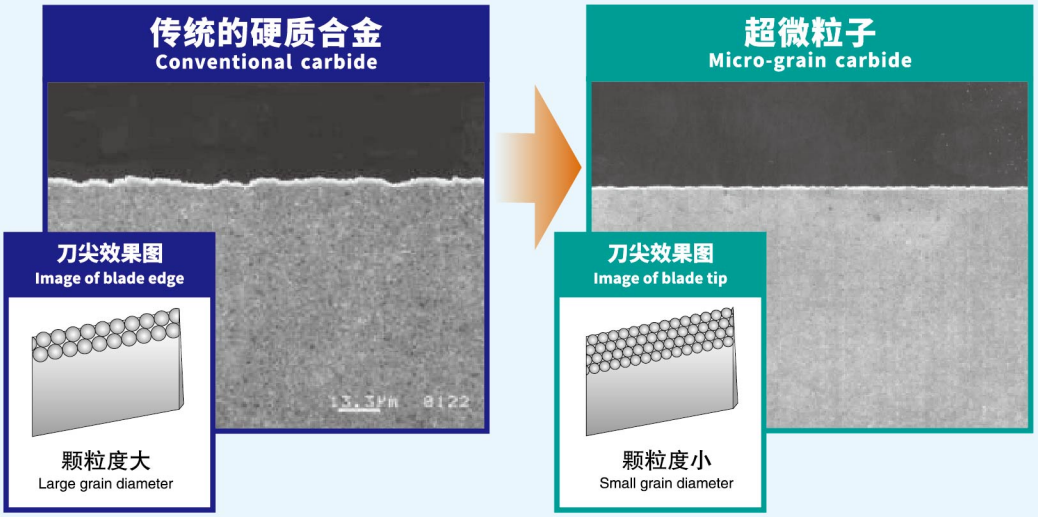
	FW35	SKD	SKH
材 质 Material	超微粒硬质合金 Micro-grain carbide	合金工具钢 Alloy Tool Steel	高速工具钢（高速钢） High-Speed Tool Steel (High-speed steel)
用 途 Application	适用于工业用精密道具 For Industrial Precision Knives	用于切削，冲击部件，模具，拉丝模、冲压模具 For cutting tools, impact parts, wire drawing die, press die, etc.	切削工具用钢穴加工工具、齿切工具等 For cutting tools, drill, end mill, gear cutting tools and others
添加元素 Added chemical element	WC+10Co	C,W,Cr,Mo等 etc.	C,W,Cr,Mo,Co等 etc.
维氏硬度 Vickers hardness	1550（HV）	770（HV）	800（HV）

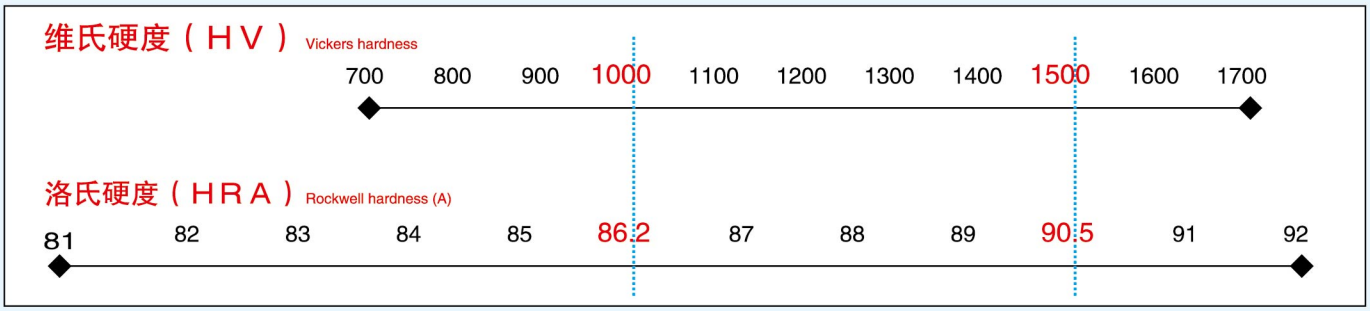
硬质合金刀具 不同颗粒度刀具的刀尖比较
Blade comparison by grain diameters

小颗粒直径形成锐边！！ Smaller diameters create sharp edges

硬质合金材料由小颗粒的集合体构成，颗粒度的大小会直接影响刀具的锋利度，并决定刀具刀尖的锐边。颗粒度越小，则刀具的锋利度越好以及边线越稳定。

Micro-grain carbide is composed of an aggregate of micro grains. The grain size has a large effect to the sharpness of the blade edge.
The smaller the grain diameter, the sharper and more stable blade edge line can be created.





想要改善这些问题?
Want to reduce
these problems?

京瓷精密工具（珠海）有限公司

地址: 珠海市斗门区新青科技工业园东福街30号厂房A
电话:(86)756 511 0160　　传真:(86)756 511 0111
网址: www.kyocera.com.cn/prdct/cuttingtool/

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