



极小径硬质合金钻头系列 Vol.③

UVM Series

UVM-DRL

UVM-LDS

UVM-CERA

Ultra Small Diameter Carbide Drill Series



OSG Corporation

优化的极小径

Ultimate V Micro[®] 系列

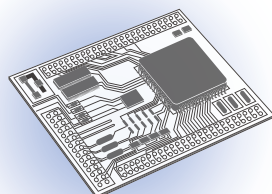
Evolving Ultra Small Tool, Ultimate V Micro[®] Series

广泛的微细加工需求

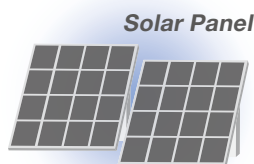
Increasing Needs of Micromachining



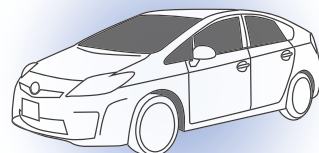
Medical



Electric Parts



Solar Panel



Green Vehicle

OSG致力于

以更高精度

更高品质的钻头

来应对更多加工材料的

『微细』加工解决方案。

OSG strives to provide greater precision and higher quality micro tooling solutions for a wide variety of materials.



实物大小 Size comparison

1. 优化的品质 · 等级 · 精度

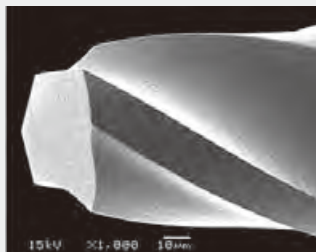
Evolved quality, grade and accuracy

通过研磨技术的优化，对刃尖进行了改进！
品质、等级的优化有助于高精度加工的稳定。

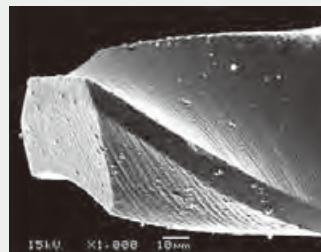
With OSG's advanced grinding know-how, improvements have been made to the tool cutting edge, overall quality and grade to enable stable and accurate machining of micro parts.

φ0.1 Smooth涂层[®] 产品 电子显微镜照片

Images of a φ 0.1 tool with Smooth Coating taken by an electron microscope



最新
Latest



以往
Conventional

2. 采用高精度柄部

Incorporates high precision shank

POINT 1

更高一级的
柄部精度!
Shank precision of
a higher rank!

POINT 2

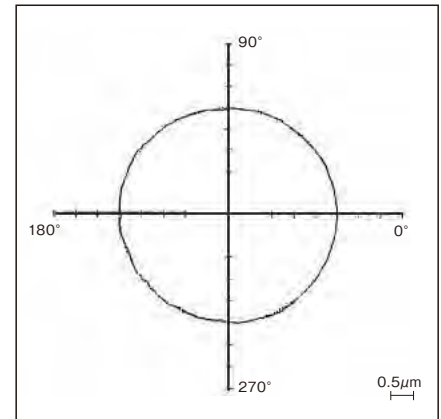
真圆度
0.2 μm 以下!
Roundness
under 0.2 μm

POINT 3

表面粗糙度
Ra0.04 μm 以下!
Surface roughness
under Ra 0.04 μm

所有的精度因素由柄部精度决定。

All precision factors are determined by shank precision.



3. 三种类型的超薄涂层可供选择!

Three types of ultra-thin coatings are available!

◆ Smooth涂层®
Smooth Coating

◆ UVM 专用金刚石涂层
Diamond Coating developed exclusively for UVM

◆ DLC涂层 (非标品)
DLC Coating (Special)

3种类涂层可对应所有加工材料。

Three types of coatings are available to support a wide range of work materials.

涂层外观照片

Enlarged view of surface with individual coatings



Smooth涂层®
Smooth Coating



UVM专用
金刚石涂层
Diamond Coating developed
exclusively for UVM



DLC涂层
DLC Coating

4. 全数检查, 确保高品质

Every tool is inspected to ensure product quality



• UVM系列实行全数检查。

100% inspection on UVM series.

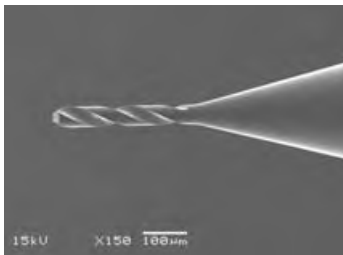
• 标签上表示实测直径公差量。※

Label shows the minus amount to cutting diameter.*

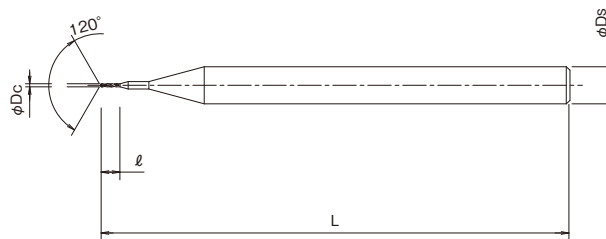
※标签表示仅适用于UVM-DRL。
Applicable only for UVM-DRL

极小径UVM钻头5D型 UVM Ultra Small Carbide Drill:5D

UVM-DRL-5D



实现在前所未有的领域中加工极小径钻孔! 最小直径 $\phi 0.02$!
Ultra micromachining now a reality! Smallest size : 0.02mm



● 外径容许差..... $0 \sim -3\mu m$
Tolerance for drill diameter

● 柄部精度.....h3
Tolerance for shank diameter

● Smooth涂层®
Smooth Coating

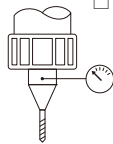
商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
8589002	0.02×3	0.12	38	3	C
8589003	0.03×3	0.18	38	3	C
8589004	0.04×3	0.24	38	3	C
8589005	0.05×3	0.3	38	3	C
	0.06×3	0.36	38	3	□
	0.07×3	0.42	38	3	□
8589008	0.08×3	0.48	38	3	C
	0.09×3	0.54	38	3	□

商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
8589052	0.02×3.175	0.12	38	3.175	C
8589053	0.03×3.175	0.18	38	3.175	C
8589054	0.04×3.175	0.24	38	3.175	C
8589055	0.05×3.175	0.3	38	3.175	C
*	0.06×3.175	0.36	38	3.175	*
*	0.07×3.175	0.42	38	3.175	*
8589058	0.08×3.175	0.48	38	3.175	C
*	0.09×3.175	0.54	38	3.175	*

单位:mm Unit:mm

C=标准库存品 C=Standard stock item * =受注品 * =Special order products
□ = 特定代理店库存品 □ = Stocked by specific distributors. Contact us for price & availability.

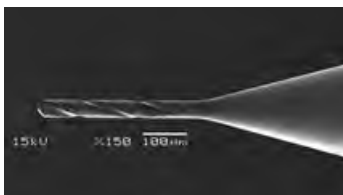
- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于 $0.001mm$ 以下。
- 热膨胀刀柄较为有效。



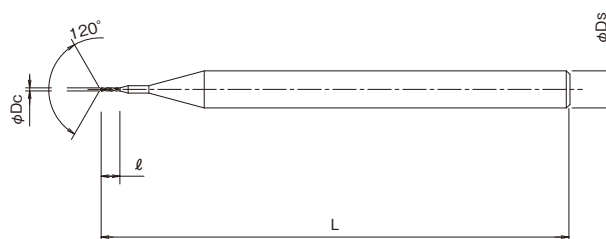
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than $0.001mm$.
- The shrink fit system is effective holder.

极小径UVM钻头5D型 金刚石涂层 UVM Ultra Small Carbide Drill: 5D with Diamond Coating

UVM-DRL-DIA-5D



极小径专用金刚石涂层, 也可对应脆性材料的微细加工。
Special Diamond Coating for ultra small size drills against fragile work materials.



● 外径容许差..... $0 \sim -9\mu m$
Tolerance for drill diameter

● 柄部精度.....h3
Tolerance for shank diameter

● 金刚石涂层
Diamond Coating

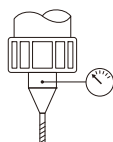
商品号 EDP No.	直径 D_c	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.03	0.18	38	3	□
	0.04	0.24	38	3	□
	0.05	0.3	38	3	□
	0.06	0.36	38	3	□

商品号 EDP No.	直径 D_c	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.07	0.42	38	3	□
	0.08	0.48	38	3	□
	0.09	0.54	38	3	□

单位:mm Unit:mm

□ = 特定代理店库存品 □ = Stocked by specific distributors. Contact us for price & availability.

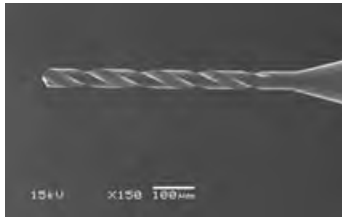
- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于 $0.001mm$ 以下。
- 热膨胀刀柄较为有效。



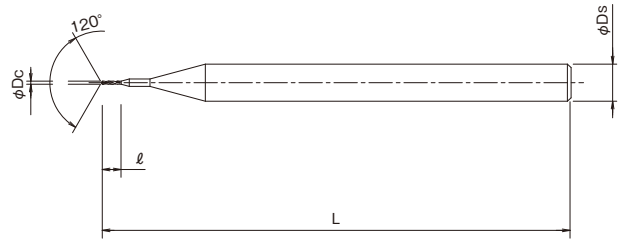
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than $0.001mm$.
- The shrink fit system is effective holder.

极小径UVM钻头10D型 UVM Ultra Small Carbide Drill: 10D

UVM-DRL-10D



实现在前所未有的领域中加工极小径钻孔！最小直径 $\phi 0.02$ ！
Ultra micromachining now a reality! Smallest size : 0.02mm



● 外径容许差..... $0 \sim -3\mu m$
Tolerance for drill diameter

● 柄部精度..... h3
Tolerance for shank diameter

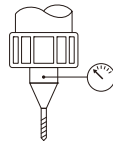
● Smooth涂层®
Smooth Coating

商品号 EDP No.	直径×柄径 Dc×Ds	槽长 l	全长 L	柄径 Ds	库存 Stock
8589102	0.02×3	0.22	38	3	C
8589103	0.03×3	0.33	38	3	C
8589104	0.04×3	0.44	38	3	C
8589105	0.05×3	0.55	38	3	C
	0.06×3	0.66	38	3	□
	0.07×3	0.77	38	3	□
8589108	0.08×3	0.88	38	3	C
	0.09×3	0.99	38	3	□

商品号 EDP No.	直径×柄径 Dc×Ds	槽长 l	全长 L	柄径 Ds	库存 Stock
8589152	0.02×3.175	0.22	38	3.175	C
8589153	0.03×3.175	0.33	38	3.175	C
8589154	0.04×3.175	0.44	38	3.175	C
8589155	0.05×3.175	0.55	38	3.175	C
*	0.06×3.175	0.66	38	3.175	*
*	0.07×3.175	0.77	38	3.175	*
8589158	0.08×3.175	0.88	38	3.175	C
*	0.09×3.175	0.99	38	3.175	*

C=标准库存品 C=Standard stock item *=受注品 *=Special order products
□=特定代理店库存品 □=Stocked by specific distributors. Contact us for price & availability.

- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。



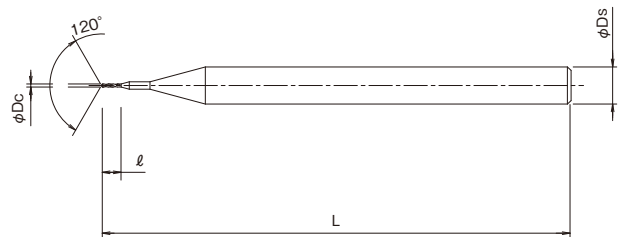
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

极小径UVM钻头10D型 金刚石涂层 UVM Ultra Small Carbide Drill: 10D with Diamond Coating

UVM-DRL-DIA-10D



极小径专用金刚石涂层，也可对应脆性材料的微细加工。
Special Diamond Coating for ultra small size drills against fragile work materials.



● 外径容许差..... $0 \sim -9\mu m$
Tolerance for drill diameter

● 柄部精度..... h3
Tolerance for shank diameter

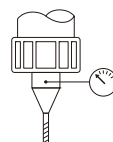
● 金刚石涂层
Diamond Coating

商品号 EDP No.	直径 Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
	0.03	0.33	38	3	□
	0.04	0.44	38	3	□
	0.05	0.55	38	3	□
	0.06	0.66	38	3	□

商品号 EDP No.	直径 Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
	0.07	0.77	38	3	□
	0.08	0.88	38	3	□
	0.09	0.99	38	3	□

□=特定代理店库存品
□=Stocked by specific distributors. Contact us for price & availability.

- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。

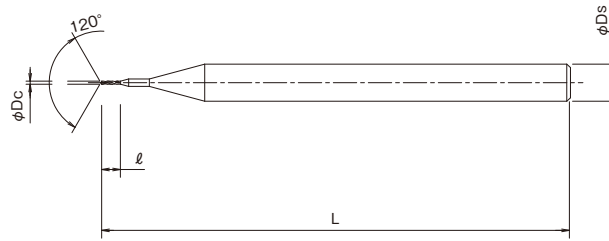


- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

极小径UVM钻头15D型 UVM Ultra Small Carbide Drill: 15D

UVM-DRL-15D

加工深度更深! 可对应最小径 $\phi 0.03$ 。
Deep-hole drilling! Smallest size : 0.03mm



● 外径容许差..... $0 \sim -3\mu m$
Tolerance for drill diameter

● 柄部精度.....h3
Tolerance for shank diameter

● Smooth涂层®
Smooth Coating

商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.03×3	0.48	38	3	☐
	0.04×3	0.64	38	3	☐
	0.05×3	0.8	38	3	☐
	0.06×3	0.96	38	3	☐

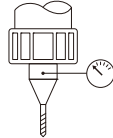
商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.07×3	1.12	38	3	☐
	0.08×3	1.28	38	3	☐
	0.09×3	1.44	38	3	☐

单位:mm Unit:mm

☐ = 特定代理店库存品

☐ = Stocked by specific distributors. Contact us for price & availability.

- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。

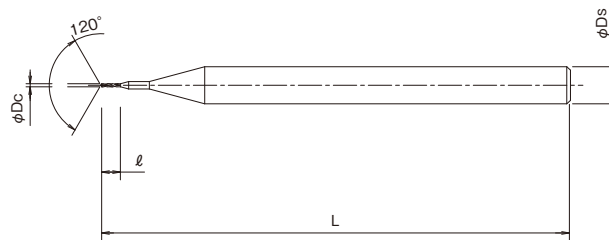


- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

极小径UVM钻头15D型 金刚石涂层 UVM Ultra Small Carbide Drill: 15D with Diamond Coating

UVM-DRL-DIA-15D

加工深度更深! 可对应最小径 $\phi 0.03$ 。
Deep-hole drilling! Smallest size : 0.03mm



● 外径容许差..... $0 \sim -9\mu m$
Tolerance for drill diameter

● 柄部精度.....h3
Tolerance for shank diameter

● 金刚石涂层
Diamond Coating

商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.05×3	0.8	38	3	☐
	0.06×3	0.96	38	3	☐
	0.07×3	1.12	38	3	☐

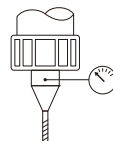
商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.08×3	1.28	38	3	☐
	0.09×3	1.44	38	3	☐

单位:mm Unit:mm

☐ = 特定代理店库存品

☐ = Stocked by specific distributors. Contact us for price & availability.

- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。



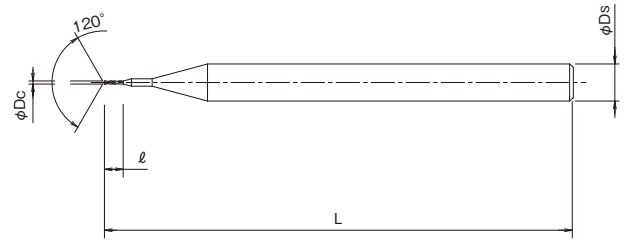
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

极小径UVM钻头20D型 UVM Ultra Small Carbide Drill: 20D

UVM-DRL-20D



加工深度更深! 可对应最小径 $\phi 0.03$ 。
Deep-hole drilling! Smallest size : 0.03mm



● 外径容许差..... $0 \sim -3 \mu m$
Tolerance for drill diameter

● 柄部精度..... h3
Tolerance for shank diameter

● Smooth涂层®
Smooth Coating

商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.03×3	0.63	38	3	☐
	0.04×3	0.84	38	3	☐
	0.05×3	1.05	38	3	☐
	0.06×3	1.26	38	3	☐

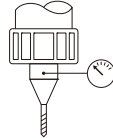
商品号 EDP No.	直径×柄径 $D_c \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.07×3	1.47	38	3	☐
	0.08×3	1.68	38	3	☐
	0.09×3	1.89	38	3	☐

单位:mm Unit:mm

☐ = 特定代理店库存品

☐ = Stocked by specific distributors. Contact us for price & availability.

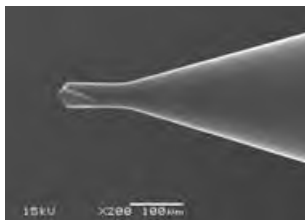
- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。



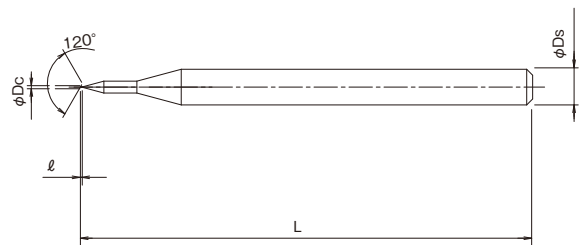
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

极小径中心钻 UVM Ultra Small Carbide Leading Drill

UVM-LDS



与UVM-DRL一起使用，可对应高精度孔加工。
Use together with UVM-DRL, to enable accurate drilling



● 外径容许差..... $0 \sim -3 \mu m$
Tolerance for drill diameter

● 柄部精度..... h3
Tolerance for shank diameter

● Smooth涂层®
Smooth Coating

商品号 EDP No.	直径×先端角×柄径 $D_c \times \alpha^\circ \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.02 × 120° × 3	0.03	38	3	☐
	0.03 × 120° × 3	0.045	38	3	☐
	0.04 × 120° × 3	0.06	38	3	☐
8589205	0.05 × 120° × 3	0.075	38	3	C
	0.06 × 120° × 3	0.09	38	3	☐
	0.07 × 120° × 3	0.105	38	3	☐

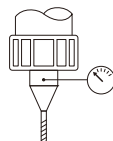
商品号 EDP No.	直径×先端角×柄径 $D_c \times \alpha^\circ \times D_s$	槽长 ℓ	全长 L	柄径 D_s	库存 Stock
	0.08 × 120° × 3	0.12	38	3	☐
	0.09 × 120° × 3	0.135	38	3	☐
	0.1 × 120° × 3	0.15	38	3	☐
*	0.03 × 120° × 3.175	0.045	38	3.175	*
8589255	0.05 × 120° × 3.175	0.075	38	3.175	C
*	0.1 × 120° × 3.175	0.15	38	3.175	*

单位:mm Unit:mm

C=标准库存品 C=Standard stock item * =受注品 * =Special order products

☐ = 特定代理店库存品 ☐ = Stocked by specific distributors. Contact us for price & availability.

- 请在主轴旋转精度良好的机器上使用。
- 安装时的振动精度请如右图所示使柄部处于0.001mm以下。
- 热膨胀刀柄较为有效。



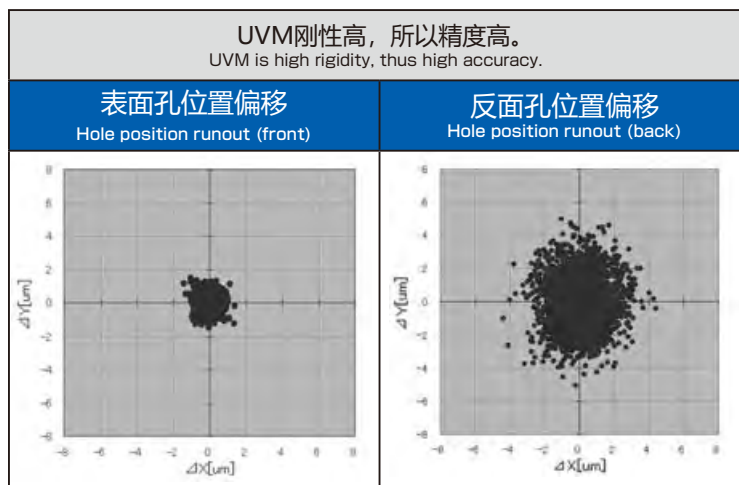
- Please use in a machine with precise spindle rotation.
- The run out with a drill in a spindle should be less than 0.001mm.
- The shrink fit system is effective holder.

■UVM-LDS+UVM-DRL 适用于具有较好被加工性的陶瓷材料

UVM-LDS and UVM-DRL for drilling machineable ceramics

使用工具 Tool	UVM-LDS (非标品) (Special)	UVM-DRL (非标品) (Special)
尺寸 Size	0.04×120°×3.175	0.045×120°×3.175
涂层 Coating	无涂层 Non Coating	
加工材料 Work Material	可加工陶瓷 Machineable Ceramic	
切削速度 Cutting Speed	1.55m/min	1.66m/min
进给量 Feed Rate	0.00033mm/rev	
停顿量 Step Feed	0.04mm	0.045mm
孔深 Depth of Hole	0.065mm	0.45mm (10D 通孔) (Through)
切削油剂 Coolant	气冷式 Air Blow	
使用机械 Machine	高精度立式加工中心 High Precision Vertical Machining Center	

●加工2,000孔时的照片
Photo of after drilling 2,000 holes



即使在10D的通孔加工中，退刀时也能维持5μm以内的高精度孔位置。

High hole position accuracy within 5 μm was maintained even in 10D through hole drilling.

■UVM-DRL STAVAX(53HRC)的加工

UVM-DRL for drilling STAVAX (53HRC)

使用工具 Tool	UVM-DRL
尺寸 Size	φ0.1×10D (非标品) (Special)
涂层 Coating	Smooth涂层® Smooth Coating
加工材料 Work Material	STAVAX (53HRC)
切削速度 Cutting Speed	7.8m/min
进给量 Feed Rate	0.003mm/rev
停顿量 Step Feed	0.02mm
孔深 Depth of Hole	0.8mm (盲孔) (Blind)
切削油剂 Coolant	油雾式 Mist
使用机械 Machine	高精度立式加工中心 Vertical Machining Center

	切削孔数 Number of Holes
	10 20 30
UVM-DRL φ0.1×10D	34孔 (Holes)
其他公司A Competitor A	4孔折损 Broke after 4 holes
其他公司B Competitor B	第1孔折损 Broke in 1 hole

即使STAVAX (53HRC) 的高硬度材料，也可进行超30孔的稳定加工。*加工时请使用中心钻。

Even in Stavax, a material with a high hardness level of 53HRC, the UVM-DRL can machine more than 30 holes in a stable manner. * Use a leading drill for machining.

UVM-DRL 可加工陶瓷的加工

UVM-DRL for drilling machineable ceramics

使用工具 Tool	UVM-DRL $\phi 0.1 \times 13D$ (非标品) (Special)
涂层 Coating	Smooth涂层® Smooth Coating
加工材料 Work Material	HSP Macerite HSP
孔深 Depth of Hole	1.2mm (盲孔) (Blind)
切削油剂 Coolant	油雾式 Mist
使用机械 Machine	高精度立式加工中心 Vertical Machining Center

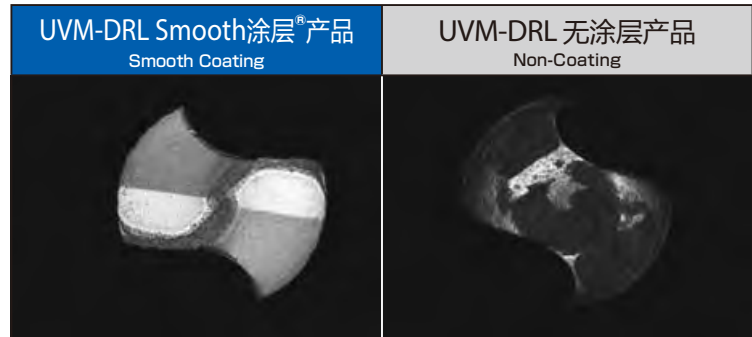
先端横刃部的磨损与孔的曲度有关联。
A worn chisel edge results in a bent hole.

加工条件不对外公开。
Machining conditions: Confidential

*加工时请使用中心钻。 * Use a leading drill for machining.

● UVM-DRL加工3,500孔后的磨损情况

UVM-DRL wear condition after machining 3,500 holes



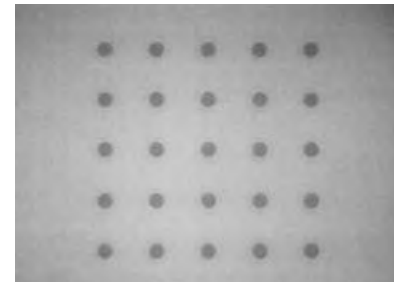
Smooth涂层®, 提高提高钻头耐磨损性!
High wear resistance thanks to the Smooth Coating!

UVM-DRL-DIA-10D 石英玻璃的加工

UVM-DRL-DIA-10D for drilling quartz glass

使用工具 Tool	UVM-DRL-DIA-10D
尺寸 Size	$\phi 0.04$
涂层 Coating	UVM专用金刚石涂层 Diamond Coating made exclusively for UVM
加工材料 Work Material	石英玻璃 SiO_2

加工条件不对外公开。
Machining conditions: Confidential



工件状态 Work conditions

使用UVM专用金刚石涂层, 可进行脆性材料的孔加工!

Developed exclusively for UVM, the diamond coating enables the drilling of holes into fragile materials!

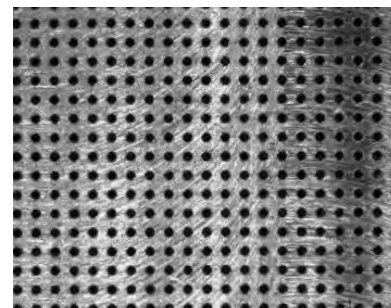
UVM-DRL SUS430的加工

UVM-DRL for drilling SUS430

使用工具 Tool	UVM-LDS	UVM-DRL-10D
尺寸 Size	$0.07 \times 120^\circ \times 3$	$0.07 \times 10D \times 3$
涂层 Coating	Smooth 涂层® Smooth Coating	
加工材料 Work Material	SUS430	
切削速度 Cutting Speed	2.6m/min	
进给量 Feed Rate	0.001mm/rev	0.0007mm/rev
停顿量 Step Feed	0.05mm	0.008mm
孔深 Depth of Hole	0.05mm	0.5mm (通孔) (Through)
切削油剂 Coolant	油雾式 Mist	
使用机械 Machine	高精度立式加工中心 High Precision Vertical Machining Center	

● UVM-DRL可加工1,500个通孔

UVM-Drill capable of drilling 1,500 holes



即使进行薄板得通孔加工, 高刚性的UVM也不会折损。

Rigid UVM can withstand against thin plate through hole drilling.

精密陶瓷用极小径钻头

UVM-CERA (非标品)

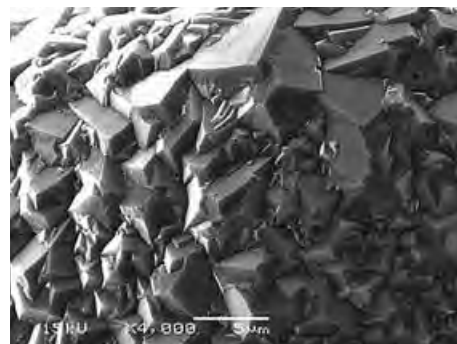
Ultra Small Diameter Drill for Fine Ceramic (Special)

1. 小径专用金刚石涂层

A special diamond coating for small diameter tool

- 采用适合加工精密陶瓷的金刚石涂层。

Applied a diamond coating fit for cutting fine ceramic.



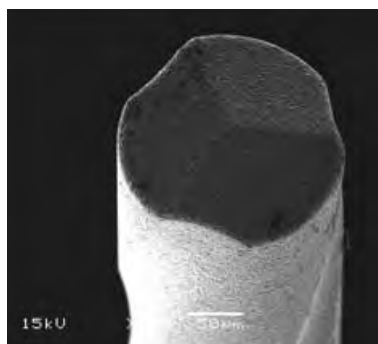
刃尖放大照片 Enlarged picture of the cutting edge

2. 高刚性3刃设计

High rigidity 3-flutes design

- 采用不输硬陶瓷的高刚性3刃。

Applied 3-flute design to withstand against tough ceramic.



精密陶瓷用金刚石涂层 极小径UVM钻头 UVM Ultra Small Carbide Drill with Diamond Coating for Fine Ceramics

UVM-CERA

用于烧结后的精密陶瓷加工。
For sintered fine ceramic machining.

单位:mm Unit:mm

商品号 EDP No.	直径×柄径 Dc×Ds	槽长 ℓ	全长 L	柄径 Ds	应存 Stock
*	0.03 × 3	0.3	38	3	*
*	0.04 × 3	0.4	38	3	*
*	0.05 × 3	0.5	38	3	*
*	0.06 × 3	0.6	38	3	*
*	0.07 × 3	0.7	38	3	*
*	0.08 × 3	0.8	38	3	*
*	0.09 × 3	0.9	38	3	*
*	0.1 × 3	1	38	3	*
*	0.11 × 3	1.1	38	3	*
*	0.12 × 3	1.2	38	3	*
*	0.13 × 3	1.3	38	3	*
*	0.14 × 3	1.4	38	3	*

商品号 EDP No.	直径×柄径 Dc×Ds	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
*	0.15 × 3	1.5	38	3	*
*	0.16 × 3	1.6	38	3	*
*	0.17 × 3	1.7	38	3	*
*	0.18 × 3	1.8	38	3	*
*	0.19 × 3	1.9	38	3	*
*	0.2 × 3	2	38	3	*
*	0.21 × 3	2.1	38	3	*
*	0.22 × 3	2.2	38	3	*
*	0.23 × 3	2.3	38	3	*
*	0.24 × 3	2.4	38	3	*
*	0.25 × 3	2.5	38	3	*

UVM-CERA全部都为非标品。请咨询本公司营业人员。
UVM-CERA is available on a special order basis. Please contact us for price & availability.

加工事例 Cutting Data

氧化锆的加工

Drilling in Zirconium ceramics

使用工具 Tool	UVM-CERA (非标品) (Special)
尺寸 Size	$\phi 0.2 \times 10D$
涂层 Coating	金刚石涂层 Diamond Coating
加工材料 Work Material	氧化锆陶瓷 Zirconium ceramics
切削速度 Cutting Speed	12.57m/min ($20,000\text{min}^{-1}$)
进给量 Feed Rate	0.00005mm/rev ($F=1\text{mm/min}$)
停顿量 Step Feed	0.002mm
孔深 Depth of Hole	1.4mm
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机械 Machine	高精度立式加工中心 High Precision Vertical Machining Center

	切削孔数 Number of Holes
	50 100 150 200
UVM-CERA	200孔 (Holes)
其他公司 金刚石涂层2刃钻头 Competitor's Diamond coated 2-flute drill	3孔 (Holes)
无涂层 2刃钻头 Non-coated 2-flute drill	0孔 (Hole)

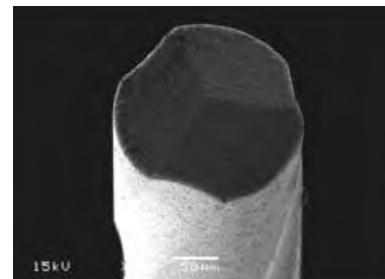


单晶硅的加工

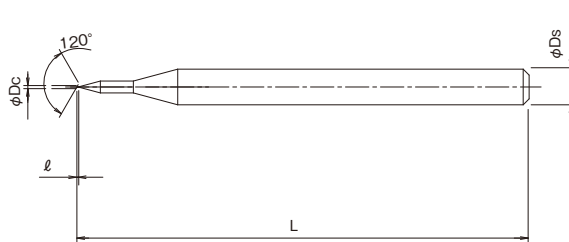
Single crystal silicon machining

使用工具 Tool	UVM-CERA (非标品) (Special)
尺寸 Size	$\phi 0.2 \times 10D$
涂层 Coating	金刚石涂层 Diamond Coating
加工材料 Work Material	单晶硅 Single crystal silicon

加工条件不对外公开。
Machining conditions: Confidential



UVM可定制非标品！ (UVM-DRL, UVM-CERA) Specials are available on UVM !



Smooth涂层® Smooth Coating	用于钢材加工的高耐磨性超薄涂层。 For steel machining with ultra thick coating with anti-wear property.
UVM专用 金刚石涂层 Diamond Coating developed exclusively for UVM	用于脆性材料的加工。 For fragile work materials.
DLC涂层 DLC Coating	用于铝、非铁金属系材料加工的超薄涂层。 Thin coating for Aluminum and nonferrous materials.
无涂层 Non-Coating	用于需要更严格孔径公差管理的情况下。 For tighter tolerance control.

	非标对应范围 Available size range
直径 Dc	$\phi 0.02 \sim \phi 0.2$
槽长 l	$\sim 15D$
柄径 Ds	$\phi 3$ 或 $\phi 3.175$
涂层 Coating	Smooth/DIA/DLC/无 (*1) Smooth/Diamond/DLC/Non
外径容许差 Tolerance of Shank Dia.	基本 : $0 \sim -3\mu m$ (*2) Basic

※1. 详情请至最近的事务所确认。

Please contact our sales office for details.

※2. 除了 UVM-DIA、UVM-CERA 外。

Exclude UVM-DIA, UVM-CERA.



欧士机 (上海) 精密工具有限公司

OSG Corporation

[Http://www.chinaosg.com](http://www.chinaosg.com)

OSG 免费技术热线

400 888 2086

9:00 ~ 12:00 / 13:00 ~ 17:00 双休日除外

E-mail: business@chinaosg.com



样本印刷使用
环保植物性大豆油墨



微信关注我们