Small Diameter Carbide Drills

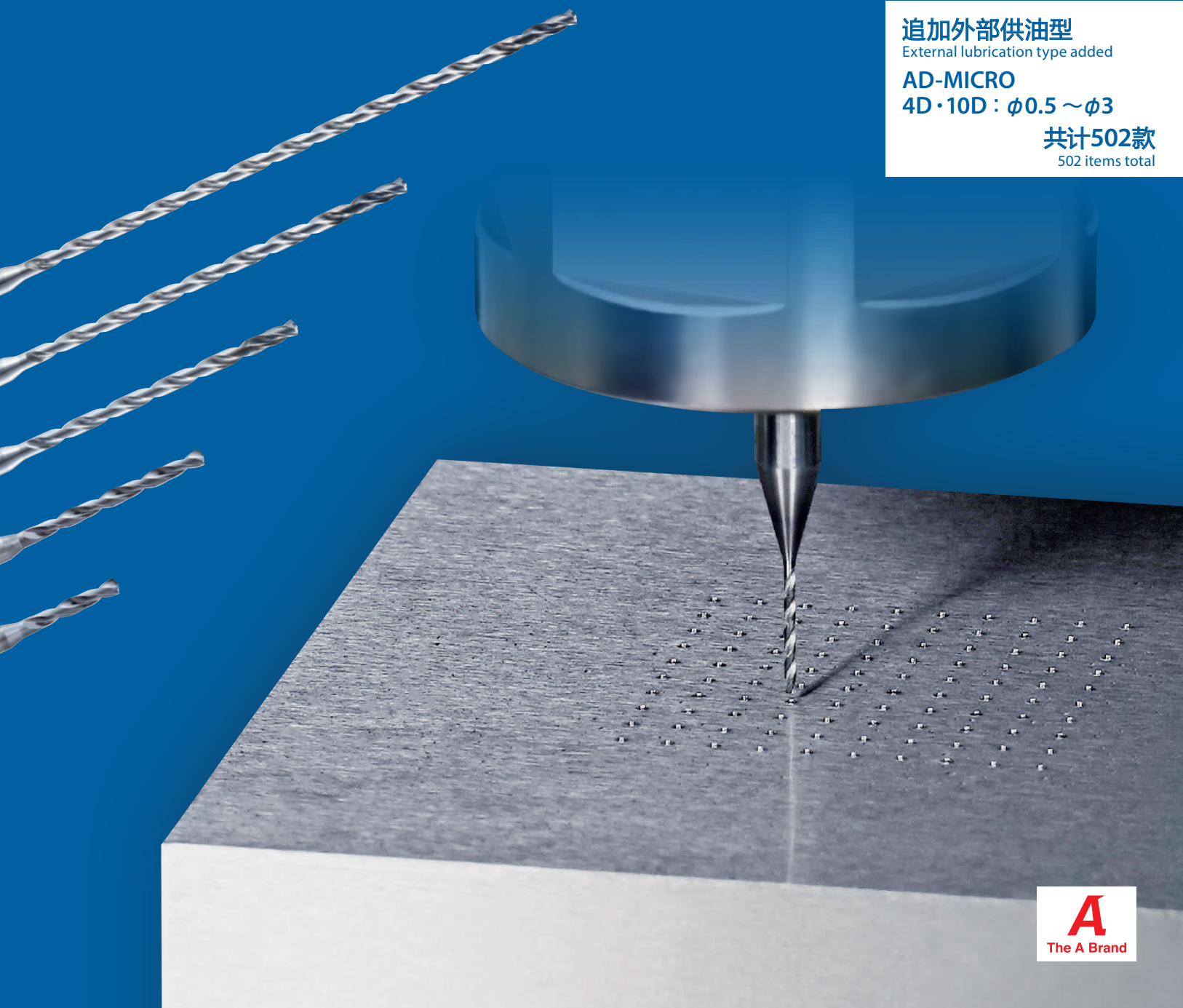
Vol.4

小径硬质合金钻头

AD-MICRO 4D·10D
ADO-MICRO 2D·5D·12D·20D·30D

追加外部供油型
External lubrication type added

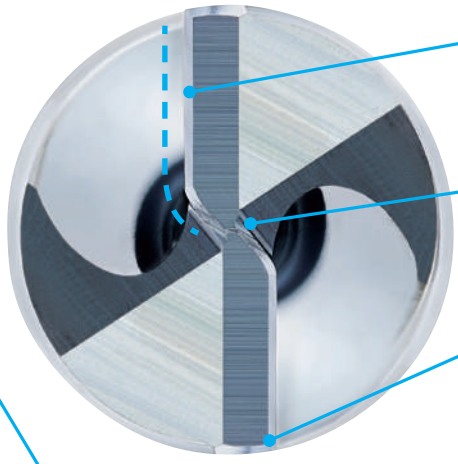
AD-MICRO
4D·10D：ϕ0.5～ϕ3
共计502款
502 items total



The A Brand

可以进行小径孔的连续加工!

Facilities stable, uninterrupted machining of small diameter holes!



刃口钝化处理 Cutting edge honing

实现耐磨损性和耐崩损性
Enables high wear and chipping resistance

横刃修磨 Thining

降低轴向阻力，实现切屑分断
Reduces thrust resistance and enables effective chip breaking

SEG 处理 Shoulder Edge Guard (SEG)

Pat.P. in Japan

抑制外周圆弧角的崩损
Prevents chipping of peripheral corners

※适用于φ2以上尺寸
Applicable to sizes over ø2

KeptA 涂层 coating

Pat.P. in Japan

适合小径刀具的最佳涂层
Optimal coating for small diameter tools

可实现连续加工的稳定切屑形状

Stable chip control that enables uninterrupted machining

小径孔加工的主要问题根源在于排屑的不稳定。
AD-MICRO 凭借其稳定的切屑形状和出色的排屑性能，
可以兼容广泛的加工材料与机床设备，实现稳定地连续加工。

Problems in small diameter hole machining predominantly stem from unstable chip evacuation. The AD-MICRO addresses this with its optimized chip shape and superior chip evacuation properties. This design facilitates consistent, uninterrupted machining across a broad spectrum of work Materials and machine tools.

·小径孔加工中最佳的切削刃式样和槽形设计

Cutting edge specifications and flute shape optimized for small diameter holes

稳定的切屑形状可实现小径孔的连续加工

Enables uninterrupted machining of small diameter holes with stable chip formation

使用工具 Tool	AD-MICRO 4D φ1.6
加工材料 Work Material	SUS316
加工方法 Machining Method	0.32mm 阶梯加工 Step Drilling (0.32mm step)
切削速度 Cutting Speed	20.1m/min (4,000min^{-1})
进给速度 Feed	130mm/min (0.0325mm/rev)
切削油剂 Coolant	水溶性切削油剂(外部供油) Water-soluble (External)

AD-MICRO 4D φ1.6	以往产品 Conventional
	

Versatility
通用性

丰富的尺寸规格
Abundant size variations

4D型、10D型各251款、共计502款
251 items each for the 4D and 10D types, totaling 502 items

钻头直径范围从φ0.5至φ3，尺寸以0.01mm为增量展开，适用于各种小径孔加工
Available in drill diameters from φ0.5 to φ3, with increments of 0.01mm, to support a wide range of small diameter hole machining applications

High Precision
高精度

稳定的小径孔加工
Stable small diameter hole machining

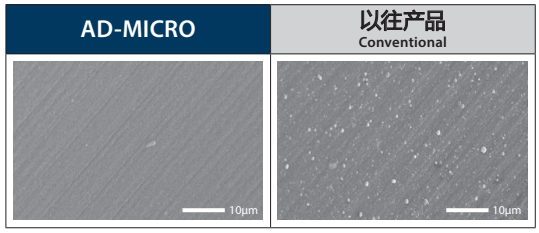
经过高精度管理的钻头式样，能够实现稳定的孔加工
Precisely controlled drill specifications enable stable hole machining

·可实现钻头直径容许差4μm的KeptA涂层 Pat.P. in Japan
High-precision KeptA coating that achieves a drill diameter tolerance of 4μm

专为小径孔加工优化的KeptA涂层，通过优良的表面光滑性和稳定的涂层厚度，实现高效排屑与高精度直径容许差，确保稳定加工

Optimized for small diameter hole machining, KeptA coating ensures stable machining by delivering excellent surface smoothness and consistent film thickness control, which leads to superior chip evacuation and high-precision diameter tolerance.

涂层表面 Surface of Coating



KeptA是OSG株式会社的注册商标。
KeptA is a registered trademark of OSG Corporation.

·实现稳定装夹跳动精度的柄部精度
Shank accuracy allowing for stable runout precision when mounted

柄部精度对应h4公差(0/-0.003)
Supports shank accuracy h4 tolerance (0/-0.003)

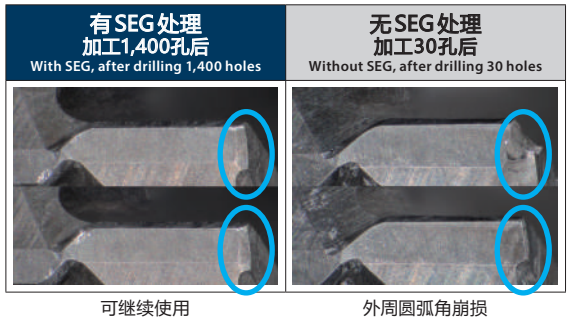
Stable Performance
稳定加工

抑制钻肩部的崩损，延长使用寿命
Suppresses chipping at the drill shoulder for extended tool life

通过SEG处理※ [Pat.P. in Japan] 抑制外周圆弧角的崩损。即使是小径的深孔也可稳定加工
SEG minimizes outer corner chipping, enabling stable machining even in small diameter deep holes.

※适用于φ2以上尺寸
Applicable to sizes over ø2

使用工具 Tool	AD-MICRO 10D φ3
加工材料 Work Material	SUS304
加工方法 Machining Method	0.6mm阶梯加工 Step Drilling(0.6mm step)
切削速度 Cutting Speed	9.4m/min (1,000min^{-1})
进给速度 Feed	60mm/min (0.06mm/rev)
切削深度 Depth of Hole	21mm (盲孔) Blind
切削油剂 Coolant	水溶性切削油剂(外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心 (BT30) Vertical Machining Center

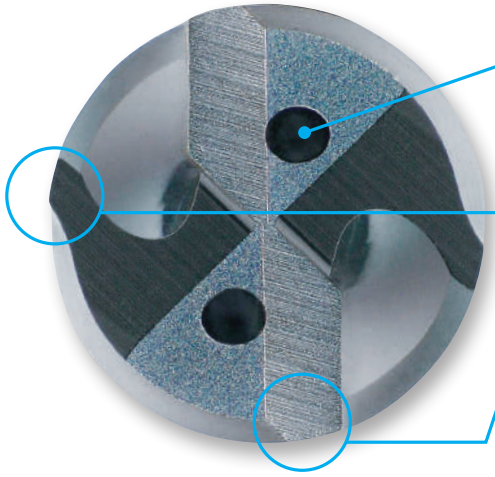


可继续使用
Still good for use

外周圆弧角崩损
Damage to outer corner

小径深孔加工中「稳定」且「高效率」

"Stable" and "high efficiency" small diameter deep-hole drilling



油孔 Oil Hole

喷油量大，排屑性大

Large flow volume enables superior chip evacuation

双刃带 Double Margin

提高直进稳定性

Supports straightness of drill direction

IchAda涂层 Coating

优良的表面光滑性

Provides excellent surface smoothness

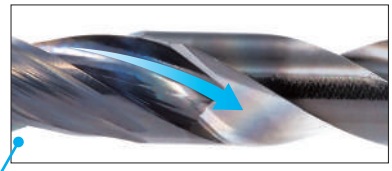
致力于出众的排屑性

Features that enable outstanding chip evacuation performance

• 槽结构 Flute Structure

效果请看 P.7 事例!
See the benefit of this feature on p.7!

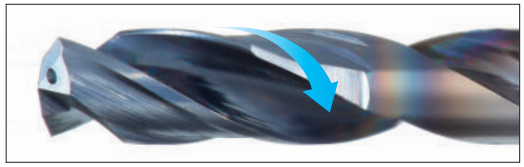
困难的小径深孔也可实现稳定加工 Stable performance even in difficult small diameter deep-hole applications



①槽扩大 Extended Flute

切屑从先端槽排向扩大槽处，具有更强的排屑性

Chips are discharged from the tip of the flute to the extended flute with enhanced evacuation capability



②去除刃带末端 Removed End of Margin

能够顺畅排出容易堆积在刀具外周的微小切屑，这是导致突发折损的关键原因之一

Capability to smoothly discharge "micro sludges" that can be easily accumulated around the outer periphery of the tool, which is a key cause of abrupt tool breakage.

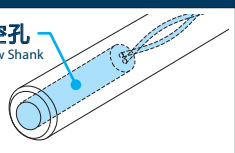
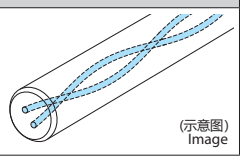
• 油孔 Oil Holes

效果请看 P.7 事例!
See the benefit of this feature on p.7!

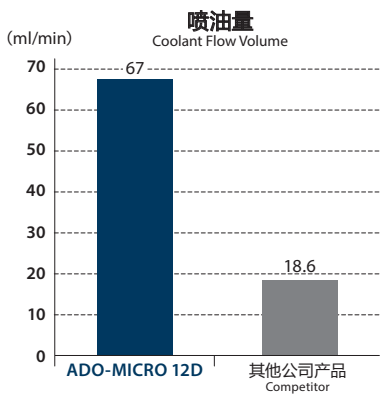
柄部带有中空孔，喷油量大，实现顺畅的排屑

Greater coolant flow volume achieved by the hollow shank design to enable smooth chip evacuation

使用工具 Tool	ADO-MICRO 12D ϕ1.5	其他公司产品 ϕ1.5 Competitor
中空孔 Hollow Shank	有 Hollow	无 Solid
切削油剂 Coolant	水溶性切削油剂(内部供油) Water-soluble (Internal)	
内冷压力 Coolant Pressure	1.5Mpa	
供油时间 Time of Lubricant Supply	60秒 sec.	

ADO-MICRO	其他公司产品 Competitor
中空孔 Hollow Shank 	 (示意图) Image

喷油量 Coolant Flow Volume

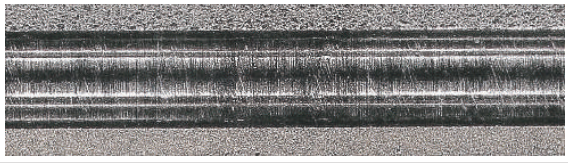
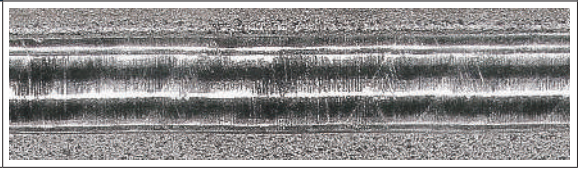


Stable Performance
稳定加工

即使深孔也能稳定加工
Stable performance even in deep-hole applications

双刃带设计使钻头自身的直进稳定性提高，可稳定加工
→缓解加工孔里面的来复线痕迹

The double margin enhances the straightness stability of drill to enable stable drilling performance > Also reduces the rifle marks on the inner surface of hole

ADO-MICRO(双刃带) double margin	以往产品(单刃带) Conventional (single margin)
	

使用工具：ADO-MICRO 20D ϕ2 Tool　加工材料：SUS304 Work Material　加工深度：40mm Depth of Hole

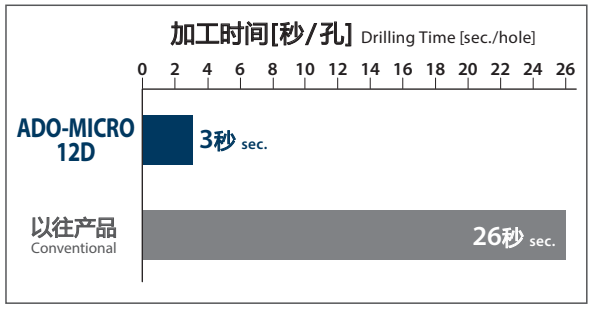
High Efficiency
高效率

无阶梯式加工，加工效率提高9倍
Approximately 9 times the drilling efficiency by non-step drilling

即使是深孔也能进行无阶梯式加工，实现高效率加工

Non-step drilling is possible even for deep holes, enabling high efficiency processing

使用工具 Tool	ADO-MICRO 12D ϕ1.5	以往产品 Conventional
加工材料 Work Material	SUS304	
加工方法 Machining Method	无阶梯加工 Non-step Drilling	阶梯加工 (每次进给0.5mm) Step Drilling (0.5mm step)
切削速度 Cutting Speed	50m/min (10,610min^{-1})	28m/min (5,940min^{-1})
进给速度 Feed	318mm/min (0.03mm/rev)	89mm/min (0.015mm/rev)
切削深度 Depth of Hole	12mm (盲孔) 有导向孔 Blind with pilot hole	
切削油剂 Coolant	水溶性切削油剂 (内部供油) Water-soluble (Internal)	水溶性切削油剂 (外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心(HSK-A40) Vertical Machining Center	



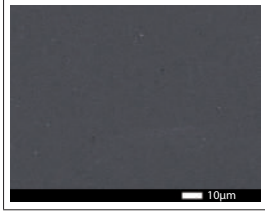
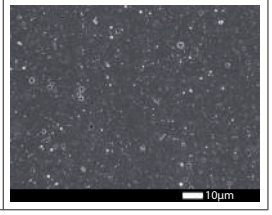
Coating
涂层

具有卓越表面光洁度的IchAda涂层
IchAda coating with excellent surface smoothness

具有高耐磨性和耐热性，出色的光洁度，以实现小径工具的长寿命化。

The excellent smoothness in conjunction with high abrasion resistance and heat resistance enable small diameter tools to achieve long tool life

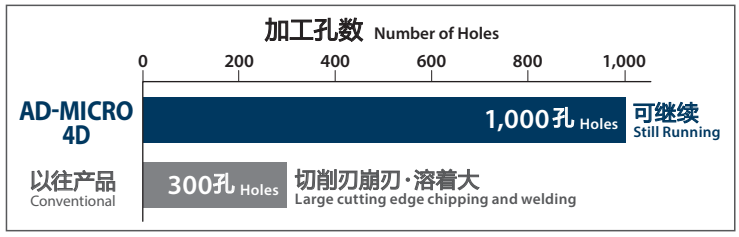
涂层表面 Surface of Coating

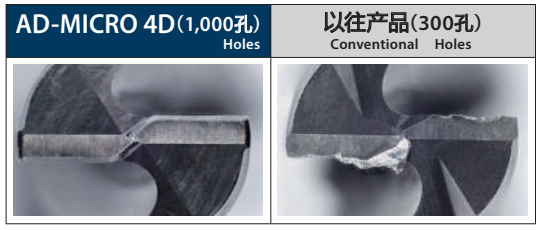
ADO-MICRO	以往产品 Conventional
	

IchAda是OSG株式会社的注册商标。 IchAda is a registered trademark of OSG Corporation.

通过自动车床的外部供油，实现稳定加工不锈钢
Stable machining of stainless steel on automatic lathe with external lubrication

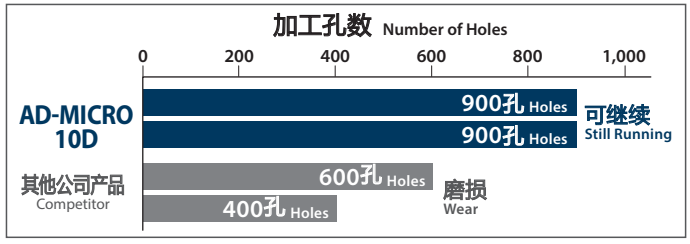
使用工具 Tool	AD-MICRO 4D ϕ3
加工材料 Work Material	SUS304
加工方法 Machining Method	0.9mm阶梯加工 Step Drilling(0.9mm step)
切削速度 Cutting Speed	18.8m/min (2,000min^{-1})
进给速度 Feed	120mm/min (0.06mm/rev)
切削深度 Depth of Hole	9mm (盲孔) Blind
切削油剂 Coolant	油性切削油剂 (外部供油) Non-Water-soluble (External)
使用机械 Machine	CNC自动车床 CNC Automatic Lathe

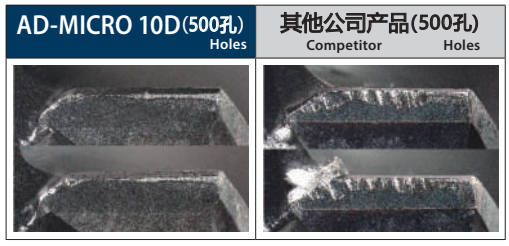




即使加工马氏体不锈钢也能拥有长寿命
Long tool life even in martensitic stainless steel

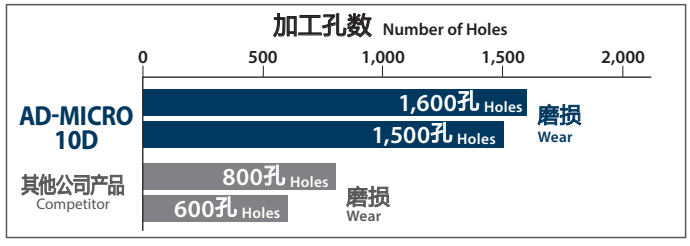
使用工具 Tool	AD-MICRO 10D ϕ1.6
加工材料 Work Material	SUS420J2
加工方法 Machining Method	0.48mm阶梯加工 Step Drilling(0.48mm step)
切削速度 Cutting Speed	30.2m/min (6,000min^{-1})
进给速度 Feed	195mm/min (0.0325mm/rev)
切削深度 Depth of Hole	16mm (盲孔) Blind
切削油剂 Coolant	水溶性切削油剂 (外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心(HSK-A40) Vertical Machining Center

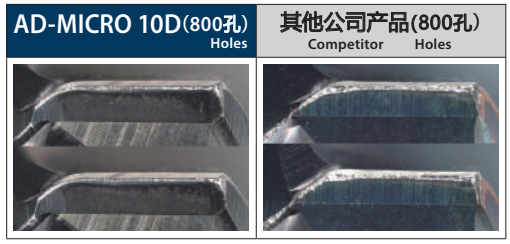




通过外部供油，实现合金钢深孔的稳定加工
Stable deep hole machining of alloy steel with external lubrication

使用工具 Tool	AD-MICRO 10D ϕ1.6
加工材料 Work Material	SCM440(原材料) SCM440 (Raw Material)
加工方法 Machining Method	0.56mm阶梯加工 Step Drilling(0.56mm step)
切削速度 Cutting Speed	40.2m/min (8,000min^{-1})
进给速度 Feed	384mm/min (0.048mm/rev)
切削深度 Depth of Hole	16mm (盲孔) Blind
切削油剂 Coolant	水溶性切削油剂 (外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心 (BT30) Vertical Machining Center





Environmental Considerations
环境保护

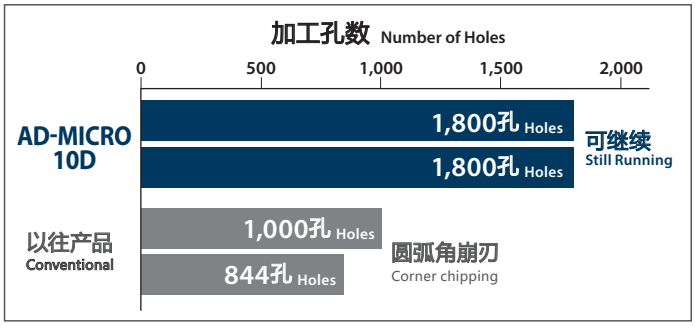
减少机械停止时间，节约能源

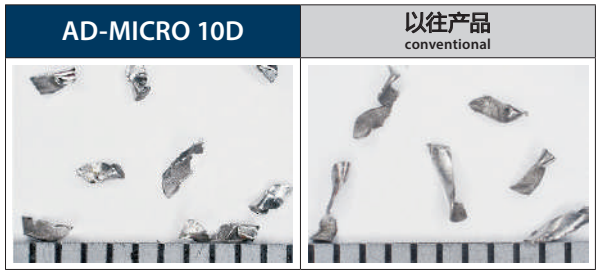
Energy conservation by reducing machine downtime

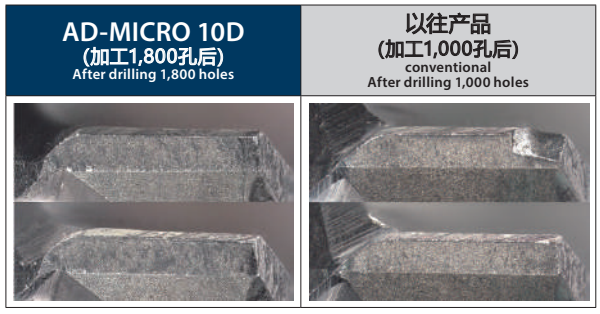
稳定的切屑形状能够减少因排屑问题导致的机械停止时间，从而缩短总加工时间，降低耗电量。
稳定的刀具长寿命有助于废弃物的减少，实现节约资源。

Stable cutting chip formation reduces machine downtime caused by chip issues, leading to shorter overall machining time and lower power consumption. This consistent tool life also minimizes waste, promoting resource conservation.

使用工具 Tool	AD-MICRO 10D ϕ1.6
加工材料 Work Material	SUS316
加工方法 Machining Method	0.32mm阶梯加工 Step Drilling (0.32mm step)
切削速度 Cutting Speed	20.1m/min (4,000min^{-1})
进给速度 Feed	130mm/min (0.0325mm/rev)
切削深度 Depth of Hole	16mm (盲孔) Blind
切削油剂 Coolant	水溶性切削油剂 (外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心(BT30) Vertical Machining Center







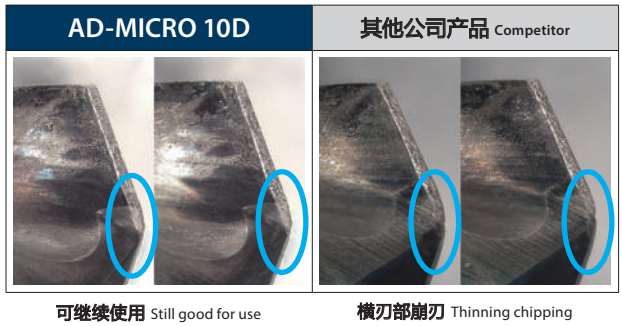
采用外部供油，在钛合金的深孔加工中实现长寿命

Achieves long tool life in deep hole drilling of Titanium Alloy through external Lubrication

使用工具 Tool	AD-MICRO 10D ϕ1.6
加工材料 Work Material	Ti-6Al-4V
加工方法 Machining Method	0.4mm阶梯加工 Step Drilling (0.4mm step)
切削速度 Cutting Speed	27.1m/min (5,394min^{-1})
进给速度 Feed	129mm/min (0.024mm/rev)
切削深度 Depth of Hole	16mm(盲孔) Blind
切削油剂 Coolant	水溶性切削油剂 (外部供油) Water-soluble (External)
使用机械 Machine	立式加工中心(BT30) Vertical Machining Center

加工1,400孔后

After drilling 1,400 holes

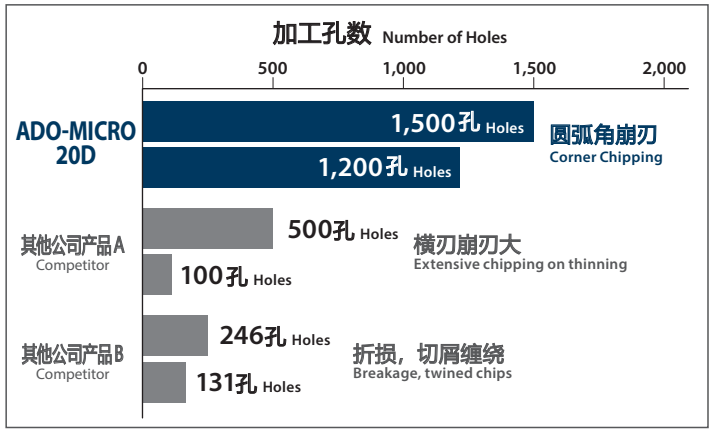


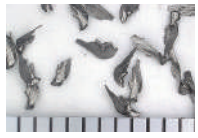
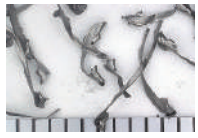
可继续使用 Still good for use　　横刃部崩刃 Thinning chipping

加工稳定，实现长寿命 Long tool life achieved by stable drilling

槽结构的效果!
Benefit of unique flute geometry

使用工具 Tool	ADO-MICRO 20D ϕ2
加工材料 Work Material	SCM440
切削速度 Cutting Speed	50m/min (7,960min^{-1})
进给速度 Feed	557mm/min (0.07mm/rev)
切削深度 Depth of Hole	38mm (盲孔) 有导向孔 Blind with pilot hole
切削油剂 Coolant	水溶性切削油剂 (内部供油) Water-soluble (Internal)
内冷压力 Coolant Pressure	3MPa
使用机械 Machine	立式加工中心 (HSK-A40) Vertical Machining Center

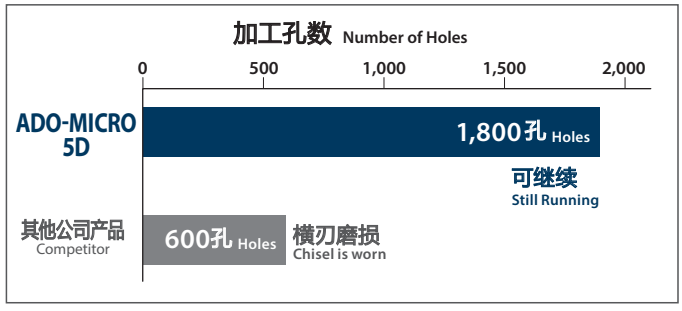


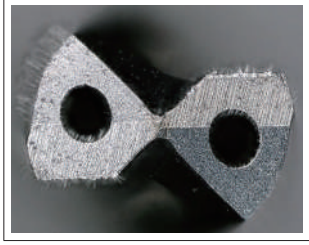
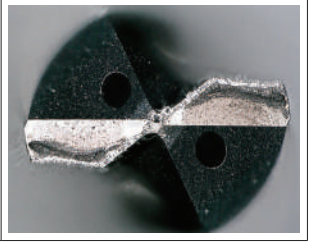
ADO-MICRO 20D	其他公司产品A Competitor	其他公司产品B Competitor
		

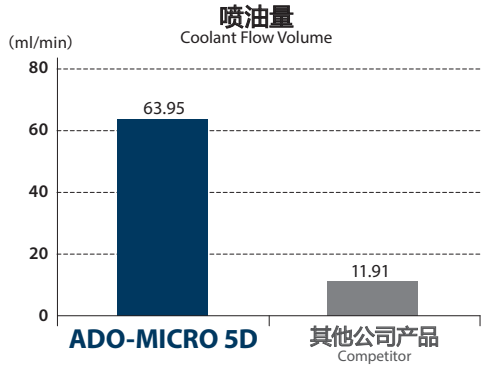
喷油量大，加工稳定 Large coolant flow volume to enable stable drilling

油孔的效果!
Benefit of enlarged oil holes

使用工具 Tool	ADO-MICRO 5D ϕ0.7
加工材料 Work Material	SUS304
切削速度 Cutting Speed	30m/min (13,640min^{-1})
进给速度 Feed	136mm/min (0.01mm/rev)
切削深度 Depth of Hole	3.5mm (盲孔) Blind
切削油剂 Coolant	水溶性切削油剂 (内部供油) Water-soluble (Internal)
内冷压力 Coolant Pressure	5MPa
使用机械 Machine	立式加工中心 (HSK-A63) Vertical Machining Center

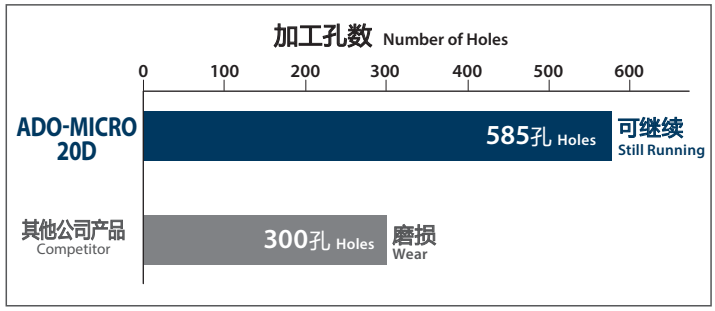


ADO-MICRO 5D(1,800孔) Holes	其他公司产品(600孔) Competitor Holes
	



改善钛合金螺栓的加工效率 Efficiency improvement in the machining of titanium alloy bolts

使用工具 Tool	ADO-MICRO 20D ϕ1.2	其他公司产品 ϕ1.2 Competitor
加工材料 Work Material	Ti-6Al-4V	
加工方法 Machining Method	无阶梯加工 Non-step Drilling	阶梯加工 (每次进给0.12mm) Step Drilling (0.12mm step)
切削速度 Cutting Speed	35m/min (9,300min^{-1})	10m/min (2,600min^{-1})
进给速度 Feed	167mm/min (0.02mm/rev) 约5倍 Approx. 5 times	30mm/min (0.01mm/rev)
切削深度 Depth of Hole	15mm (盲孔) 有导向孔 Blind with pilot hole	
切削油剂 Coolant	水溶性切削油剂 (内部供油) Water-soluble (Internal)	
内冷压力 Coolant Pressure	2MPa	
使用机械 Machine	立式加工中心 (BT30) Vertical Machining Center	



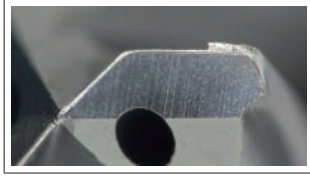
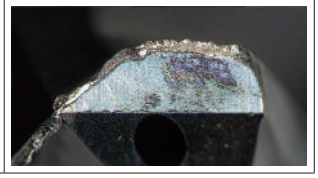
通过自动车床的内部供油，实现无阶梯式高效率加工

Highly efficient non-step drilling on automatic lathe with internal lubrication

使用工具 Tool	ADO-MICRO 30D ϕ1.6
加工材料 Work Material	SUS440C
切削速度 Cutting Speed	20m/min (4,000min^{-1})
进给速度 Feed	120mm/min (0.03mm/rev)
切削深度 Depth of Hole	45mm (盲孔) 有导向孔 Blind with pilot hole
切削油剂 Coolant	油性切削油剂 (内部供油) Oil-based coolant (Internal)
内冷压力 Coolant Pressure	7MPa
使用机械 Machine	CNC自动车床 Automatic Lathe

加工1,200孔后的刃尖磨损状态

Wear condition of cutting edge after drilling 1,200 holes

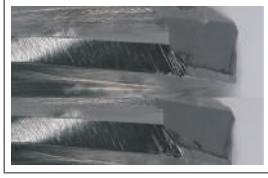
ADO-MICRO 30D	其他公司产品 Competitor
	

加工特殊钢时的刃尖状态 Cutting edge condition in special steel drilling application

使用工具 Tool	ADO-MICRO 12D ϕ1.5
加工材料 Work Material	SUJ2
切削速度 Cutting Speed	45m/min (9,550min^{-1})
进给速度 Feed	430mm/min (0.045mm/rev)
切削深度 Depth of Hole	9mm (盲孔) 有导向孔 Blind with pilot hole
切削油剂 Coolant	水溶性切削油剂 (内部供油) Water-soluble (Internal)
内冷压力 Coolant Pressure	1.5MPa
使用机械 Machine	立式加工中心 (HSK-A40) Vertical Machining Center

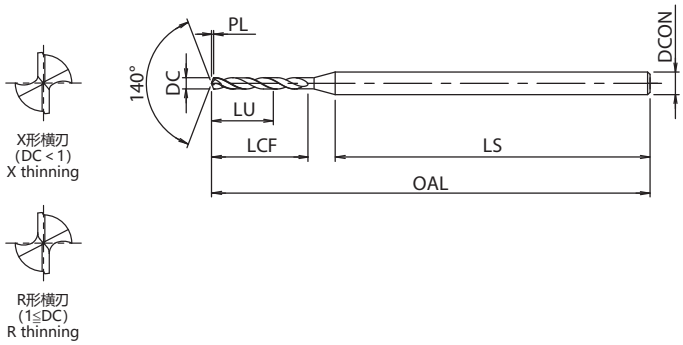
加工900孔后的刃尖磨损状态

Cutting edge wear condition after drilling 900 holes

ADO-MICRO 12D	其他公司产品 Competitor
	
可继续使用 Still good for use	刃带全部磨损 Margin is totally worn

NEW

AD-MICRO 4D



CARBIDE | KeptA | 0~-0.004 | 约30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750050	0.5	2	3	38	3	30.1	0.1	●
8750051	0.51	2.1	3	38	3	30.2	0.1	●
8750052	0.52	2.1	3	38	3	30.2	0.1	●
8750053	0.53	2.2	3	38	3	30.2	0.1	●
8750054	0.54	2.2	3.5	38	3	29.7	0.1	●
8750055	0.55	2.2	3.5	38	3	29.7	0.1	●
8750056	0.56	2.3	3.5	38	3	29.7	0.1	●
8750057	0.57	2.3	3.5	38	3	29.8	0.1	●
8750058	0.58	2.4	3.5	38	3	29.8	0.1	●
8750059	0.59	2.4	3.5	38	3	29.8	0.1	●
8750060	0.6	2.4	3.5	38	3	29.8	0.1	●
8750061	0.61	2.5	4	38	3	29.3	0.1	●
8750062	0.62	2.5	4	38	3	29.4	0.1	●
8750063	0.63	2.6	4	38	3	29.4	0.1	●
8750064	0.64	2.6	4	38	3	29.4	0.1	●
8750065	0.65	2.6	4	38	3	29.4	0.1	●
8750066	0.66	2.7	4	38	3	29.4	0.1	●
8750067	0.67	2.7	4	38	3	29.5	0.1	●
8750068	0.68	2.8	4.5	38	3	29	0.1	●
8750069	0.69	2.8	4.5	38	3	29	0.1	●
8750070	0.7	2.8	4.5	38	3	29	0.1	●
8750071	0.71	2.9	4.5	38	3	29	0.1	●
8750072	0.72	2.9	4.5	38	3	29	0.1	●
8750073	0.73	3	4.5	38	3	29.1	0.1	●
8750074	0.74	3	4.5	38	3	29.1	0.1	●
8750075	0.75	3	4.5	38	3	29.1	0.1	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750076	0.76	3.1	5	38	3	28.6	0.1	●
8750077	0.77	3.1	5	38	3	28.6	0.1	●
8750078	0.78	3.2	5	38	3	28.7	0.1	●
8750079	0.79	3.2	5	38	3	28.7	0.1	●
8750080	0.8	3.2	5	38	3	28.6	0.1	●
8750081	0.81	3.3	5	38	3	28.6	0.1	●
8750082	0.82	3.3	5	38	3	28.6	0.1	●
8750083	0.83	3.4	5	38	3	28.7	0.2	●
8750084	0.84	3.4	5	38	3	28.7	0.2	●
8750085	0.85	3.4	5	38	3	28.7	0.2	●
8750086	0.86	3.5	5.5	38	3	28.2	0.2	●
8750087	0.87	3.5	5.5	38	3	28.2	0.2	●
8750088	0.88	3.6	5.5	38	3	28.2	0.2	●
8750089	0.89	3.6	5.5	38	3	28.3	0.2	●
8750090	0.9	3.6	5.5	38	3	28.3	0.2	●
8750091	0.91	3.7	5.5	38	3	28.3	0.2	●
8750092	0.92	3.7	5.5	38	3	28.3	0.2	●
8750093	0.93	3.8	5.5	38	3	28.3	0.2	●
8750094	0.94	3.8	5.5	38	3	28.4	0.2	●
8750095	0.95	3.8	5.5	38	3	28.4	0.2	●
8750096	0.96	3.9	6	42	3	31.9	0.2	●
8750097	0.97	3.9	6	42	3	31.9	0.2	●
8750098	0.98	4	6	42	3	31.9	0.2	●
8750099	0.99	4	6	42	3	31.9	0.2	●
8750100	1	4	6	42	3	31.8	0.2	●
8750101	1.01	4.1	6	42	3	31.8	0.2	●

●=标准库存品 ●=Standard Stock item

・标识说明请参考 p.10。
・可作为长刃型(AD-MICRO 10D)的导向孔用钻头。
・See p.10 for explanation of icons.
・Can be used as a guide hole drill for long type drills (AD-MICRO 10D).

NEXT

■ 标识种类 Guide for Icons

1 材质 Tool Materials

CARBIDE — **硬质合金** Tungsten Carbide

2 表面处理 Surface Treatment

KeptA — **KeptA 涂层** KeptA Coating

IchAda — **IchAda 涂层** IchAda Coating

3 直径的容许差 Tolerance for Drill Diameter

0~ −0.004 — **表示钻头直径的容许差** Tolerance for drill diameter

4 螺旋角 Helix Angle

约30° — **表示钻头排屑槽的螺旋角** Helix angle of flute for drilLS

ABOUT 30°

5 柄部 Shank

SHANK h4 — **表示柄部精度** Tolerance for shank diameter

6 热缩 shrink

SHRINK FIT — **也推荐热膨胀刀具系列** Suitable for the shrink holder system

7 切削条件 Cutting Conditions

SPEED FEED — **表示切削条件基准表所在页码** Indicates page number for cutting conditions

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750102	1.02	4.1	6	42	3	31.8	0.2	●
8750103	1.03	4.2	6	42	3	31.8	0.2	●
8750104	1.04	4.2	6	42	3	31.8	0.2	●
8750105	1.05	4.2	6	42	3	31.9	0.2	●
8750106	1.06	4.3	6	42	3	31.9	0.2	●
8750107	1.07	4.3	7	42	3	30.9	0.2	●
8750108	1.08	4.4	7	42	3	30.9	0.2	●
8750109	1.09	4.4	7	42	3	30.9	0.2	●
8750110	1.1	4.4	7	42	3	31	0.2	●
8750111	1.11	4.5	7	42	3	31	0.2	●
8750112	1.12	4.5	7	42	3	31	0.2	●
8750113	1.13	4.6	7	42	3	31	0.2	●
8750114	1.14	4.6	7	42	3	31	0.2	●
8750115	1.15	4.6	7	42	3	31	0.2	●
8750116	1.16	4.7	7	42	3	31.1	0.2	●
8750117	1.17	4.7	7	42	3	31.1	0.2	●
8750118	1.18	4.8	7	42	3	31.1	0.2	●
8750119	1.19	4.8	8	42	3	30.1	0.2	●
8750120	1.2	4.8	8	42	3	30.1	0.2	●
8750121	1.21	4.9	8	42	3	30.2	0.2	●
8750122	1.22	4.9	8	42	3	30.2	0.2	●
8750123	1.23	5	8	42	3	30.2	0.2	●
8750124	1.24	5	8	42	3	30.2	0.2	●
8750125	1.25	5	8	42	3	30.2	0.2	●
8750126	1.26	5.1	8	42	3	30.3	0.2	●
8750127	1.27	5.1	8	42	3	30.3	0.2	●

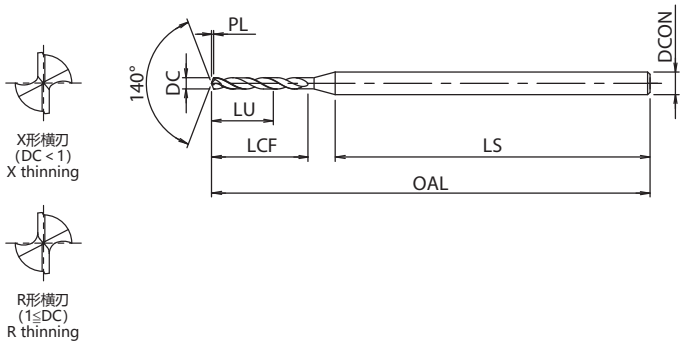
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750128	1.28	5.2	8	42	3	30.3	0.2	●
8750129	1.29	5.2	8	42	3	30.3	0.2	●
8750130	1.3	5.2	8	42	3	30.3	0.2	●
8750131	1.31	5.3	8	42	3	30.3	0.2	●
8750132	1.32	5.3	8	42	3	30.4	0.2	●
8750133	1.33	5.4	9	42	3	29.4	0.2	●
8750134	1.34	5.4	9	42	3	29.4	0.2	●
8750135	1.35	5.4	9	42	3	29.4	0.2	●
8750136	1.36	5.5	9	42	3	29.4	0.2	●
8750137	1.37	5.5	9	42	3	29.5	0.2	●
8750138	1.38	5.6	9	42	3	29.5	0.3	●
8750139	1.39	5.6	9	42	3	29.5	0.3	●
8750140	1.4	5.6	9	42	3	29.5	0.3	●
8750141	1.41	5.7	9	42	3	29.5	0.3	●
8750142	1.42	5.7	9	42	3	29.6	0.3	●
8750143	1.43	5.8	9	42	3	29.6	0.3	●
8750144	1.44	5.8	9	42	3	29.6	0.3	●
8750145	1.45	5.8	9	42	3	29.6	0.3	●
8750146	1.46	5.9	9	42	3	29.6	0.3	●
8750147	1.47	5.9	9	42	3	29.6	0.3	●
8750148	1.48	6	9	42	3	29.7	0.3	●
8750149	1.49	6	9	42	3	29.7	0.3	●
8750150	1.5	6	9	42	3	29.7	0.3	●
8750151	1.51	6.1	10	42	3	28.7	0.3	●
8750152	1.52	6.1	10	42	3	28.7	0.3	●
8750153	1.53	6.2	10	42	3	28.8	0.3	●

●=标准库存品 ●=Standard Stock item

NEXT

NEW

AD-MICRO 4D



CARBIDE | KeptA | 0~-0.004 | 约30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750154	1.54	6.2	10	42	3	28.8	0.3	●
8750155	1.55	6.2	10	42	3	28.8	0.3	●
8750156	1.56	6.3	10	42	3	28.8	0.3	●
8750157	1.57	6.3	10	42	3	28.8	0.3	●
8750158	1.58	6.4	10	42	3	28.9	0.3	●
8750159	1.59	6.4	10	42	3	28.9	0.3	●
8750160	1.6	6.4	10	42	3	28.9	0.3	●
8750161	1.61	6.5	10	42	3	28.9	0.3	●
8750162	1.62	6.5	10	42	3	28.9	0.3	●
8750163	1.63	6.6	10	42	3	28.9	0.3	●
8750164	1.64	6.6	10	42	3	29	0.3	●
8750165	1.65	6.6	10	42	3	29	0.3	●
8750166	1.66	6.7	10	42	3	29	0.3	●
8750167	1.67	6.7	10	42	3	29	0.3	●
8750168	1.68	6.8	10	42	3	29	0.3	●
8750169	1.69	6.8	10	42	3	29.1	0.3	●
8750170	1.7	6.8	10	42	3	29.1	0.3	●
8750171	1.71	6.9	11	42	3	28.1	0.3	●
8750172	1.72	6.9	11	42	3	28.1	0.3	●
8750173	1.73	7	11	42	3	28.1	0.3	●
8750174	1.74	7	11	42	3	28.1	0.3	●
8750175	1.75	7	11	42	3	28.2	0.3	●
8750176	1.76	7.1	11	42	3	28.2	0.3	●
8750177	1.77	7.1	11	42	3	28.2	0.3	●
8750178	1.78	7.2	11	42	3	28.2	0.3	●
8750179	1.79	7.2	11	42	3	28.2	0.3	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750180	1.8	7.2	11	42	3	28.3	0.3	●
8750181	1.81	7.3	11	42	3	28.3	0.3	●
8750182	1.82	7.3	11	42	3	28.3	0.3	●
8750183	1.83	7.4	11	42	3	28.3	0.3	●
8750184	1.84	7.4	11	42	3	28.3	0.3	●
8750185	1.85	7.4	11	42	3	28.4	0.3	●
8750186	1.86	7.5	11	42	3	28.4	0.3	●
8750187	1.87	7.5	11	42	3	28.4	0.3	●
8750188	1.88	7.6	11	42	3	28.4	0.3	●
8750189	1.89	7.6	11	42	3	28.4	0.3	●
8750190	1.9	7.6	11	42	3	28.4	0.3	●
8750191	1.91	7.7	12	46	3	31.5	0.3	●
8750192	1.92	7.7	12	46	3	31.5	0.3	●
8750193	1.93	7.8	12	46	3	31.5	0.4	●
8750194	1.94	7.8	12	46	3	31.5	0.4	●
8750195	1.95	7.8	12	46	3	31.5	0.4	●
8750196	1.96	7.9	12	46	3	31.6	0.4	●
8750197	1.97	7.9	12	46	3	31.6	0.4	●
8750198	1.98	8	12	46	3	31.6	0.4	●
8750199	1.99	8	12	46	3	31.6	0.4	●
8750200	2	8	12	46	3	31.6	0.4	●
8750201	2.01	8.1	12	46	3	31.7	0.4	●
8750202	2.02	8.1	12	46	3	31.7	0.4	●
8750203	2.03	8.2	12	46	3	31.7	0.4	●
8750204	2.04	8.2	12	46	3	31.7	0.4	●
8750205	2.05	8.2	12	46	3	31.7	0.4	●

●=标准库存品 ●=Standard Stock item

・标识说明请参考 p.10。
・可作为长刃型(AD-MICRO 10D) 的导向孔用钻头。
・See p.10 for explanation of icons.
・Can be used as a guide hole drill for long type drills (AD-MICRO 10D).

NEXT

FROM

单位:mm Unit:mm

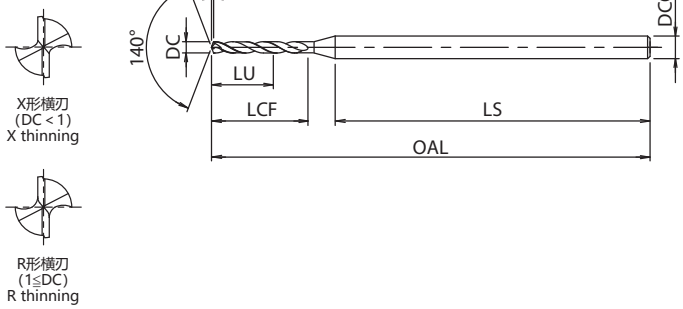
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750206	2.06	8.3	12	46	3	31.7	0.4	●
8750207	2.07	8.3	12	46	3	31.8	0.4	●
8750208	2.08	8.4	12	46	3	31.8	0.4	●
8750209	2.09	8.4	12	46	3	31.8	0.4	●
8750210	2.1	8.4	12	46	3	31.8	0.4	●
8750211	2.11	8.5	13	46	3	30.8	0.4	●
8750212	2.12	8.5	13	46	3	30.9	0.4	●
8750213	2.13	8.6	13	46	3	30.9	0.4	●
8750214	2.14	8.6	13	46	3	30.9	0.4	●
8750215	2.15	8.6	13	46	3	30.9	0.4	●
8750216	2.16	8.7	13	46	3	30.9	0.4	●
8750217	2.17	8.7	13	46	3	31	0.4	●
8750218	2.18	8.8	13	46	3	31	0.4	●
8750219	2.19	8.8	13	46	3	31	0.4	●
8750220	2.2	8.8	13	46	3	31	0.4	●
8750221	2.21	8.9	13	46	3	31	0.4	●
8750222	2.22	8.9	13	46	3	31	0.4	●
8750223	2.23	9	13	46	3	31.1	0.4	●
8750224	2.24	9	13	46	3	31.1	0.4	●
8750225	2.25	9	13	46	3	31.1	0.4	●
8750226	2.26	9.1	13	46	3	31.1	0.4	●
8750227	2.27	9.1	13	46	3	31.1	0.4	●
8750228	2.28	9.2	13	46	3	31.2	0.4	●
8750229	2.29	9.2	13	46	3	31.2	0.4	●
8750230	2.3	9.2	13	46	3	31.2	0.4	●
8750231	2.31	9.3	13	46	3	31.2	0.4	●
8750232	2.32	9.3	13	46	3	31.2	0.4	●
8750233	2.33	9.4	13	46	3	31.2	0.4	●
8750234	2.34	9.4	13	46	3	31.3	0.4	●
8750235	2.35	9.4	13	46	3	31.3	0.4	●
8750236	2.36	9.5	13	46	3	31.3	0.4	●
8750237	2.37	9.5	13	46	3	31.3	0.4	●
8750238	2.38	9.6	13	46	3	31.3	0.4	●
8750239	2.39	9.6	13	46	3	31.4	0.4	●
8750240	2.4	9.6	14	46	3	30.4	0.4	●
8750241	2.41	9.7	14	46	3	30.4	0.4	●
8750242	2.42	9.7	14	46	3	30.4	0.4	●
8750243	2.43	9.8	14	46	3	30.4	0.4	●
8750244	2.44	9.8	14	46	3	30.5	0.4	●
8750245	2.45	9.8	14	46	3	30.5	0.4	●
8750246	2.46	9.9	14	46	3	30.5	0.4	●
8750247	2.47	9.9	14	46	3	30.5	0.4	●
8750248	2.48	10	14	46	3	30.5	0.5	●
8750249	2.49	10	14	46	3	30.5	0.5	●
8750250	2.5	10	14	46	3	30.6	0.5	●
8750251	2.51	10.1	14	46	3	30.6	0.5	●
8750252	2.52	10.1	14	46	3	30.6	0.5	●
8750253	2.53	10.2	14	46	3	30.6	0.5	●
8750254	2.54	10.2	14	46	3	30.6	0.5	●
8750255	2.55	10.2	14	46	3	30.7	0.5	●
8750256	2.56	10.3	14	46	3	30.7	0.5	●
8750257	2.57	10.3	14	46	3	30.7	0.5	●

●=标准库存品 ●=Standard Stock item

NEXT

NEW

AD-MICRO 4D



CARBIDE | KeptA | 0~-0.004 | 约30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750258	2.58	10.4	14	46	3	30.7	0.5	●
8750259	2.59	10.4	14	46	3	30.7	0.5	●
8750260	2.6	10.4	14	46	3	30.8	0.5	●
8750261	2.61	10.5	14	46	3	30.8	0.5	●
8750262	2.62	10.5	14	46	3	30.8	0.5	●
8750263	2.63	10.6	14	46	3	30.8	0.5	●
8750264	2.64	10.6	14	46	3	30.8	0.5	●
8750265	2.65	10.6	14	46	3	30.8	0.5	●
8750266	2.66	10.7	16	46	3	28.9	0.5	●
8750267	2.67	10.7	16	46	3	28.9	0.5	●
8750268	2.68	10.8	16	46	3	28.9	0.5	●
8750269	2.69	10.8	16	46	3	28.9	0.5	●
8750270	2.7	10.8	16	46	3	28.9	0.5	●
8750271	2.71	10.9	16	46	3	29	0.5	●
8750272	2.72	10.9	16	46	3	29	0.5	●
8750273	2.73	11	16	46	3	29	0.5	●
8750274	2.74	11	16	46	3	29	0.5	●
8750275	2.75	11	16	46	3	29	0.5	●
8750276	2.76	11.1	16	46	3	29.1	0.5	●
8750277	2.77	11.1	16	46	3	29.1	0.5	●
8750278	2.78	11.2	16	46	3	29.1	0.5	●
8750279	2.79	11.2	16	46	3	29.1	0.5	●

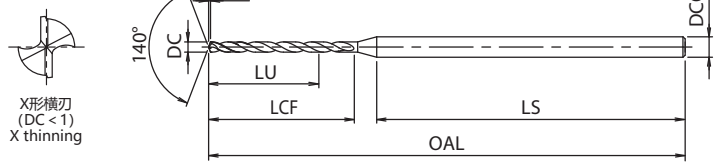
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8750280	2.8	11.2	16	46	3	29.1	0.5	●
8750281	2.81	11.3	16	46	3	29.1	0.5	●
8750282	2.82	11.3	16	46	3	29.2	0.5	●
8750283	2.83	11.4	16	46	3	29.2	0.5	●
8750284	2.84	11.4	16	46	3	29.2	0.5	●
8750285	2.85	11.4	16	46	3	29.2	0.5	●
8750286	2.86	11.5	16	46	3	29.2	0.5	●
8750287	2.87	11.5	16	46	3	29.3	0.5	●
8750288	2.88	11.6	16	46	3	29.3	0.5	●
8750289	2.89	11.6	16	46	3	29.3	0.5	●
8750290	2.9	11.6	16	46	3	29.3	0.5	●
8750291	2.91	11.7	16	46	3	29.3	0.5	●
8750292	2.92	11.7	16	46	3	29.4	0.5	●
8750293	2.93	11.8	16	46	3	29.4	0.5	●
8750294	2.94	11.8	16	46	3	29.4	0.5	●
8750295	2.95	11.8	16	46	3	29.4	0.5	●
8750296	2.96	11.9	16	46	3	29.4	0.5	●
8750297	2.97	11.9	16	46	3	29.4	0.5	●
8750298	2.98	12	16	46	3	29.5	0.5	●
8750299	2.99	12	16	46	3	29.5	0.5	●
8750300	3	12	16	46	3	29.5	0.5	●

●=标准库存品 ●=Standard Stock item

・标识说明请参考 p.10。
・可作为长刃型(AD-MICRO 10D) 的导向孔用钻头。
・See p.10 for explanation of icons.
・Can be used as a guide hole drill for long type drills (AD-MICRO 10D).

NEW

AD-MICRO 10D



X形横刃
(DC < 1)
X thinning

R形横刃
(1≦DC)
R thinning

CARBIDE | KeptA | 0~-0.004 | 约30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760050	0.5	5	5.8	42	3	31.3	0.1	●
8760051	0.51	5.1	5.8	42	3	31.4	0.1	●
8760052	0.52	5.2	5.8	42	3	31.4	0.1	●
8760053	0.53	5.3	5.8	42	3	31.4	0.1	●
8760054	0.54	5.4	6.5	42	3	30.7	0.1	●
8760055	0.55	5.5	6.5	42	3	30.7	0.1	●
8760056	0.56	5.6	6.5	42	3	30.7	0.1	●
8760057	0.57	5.7	6.5	42	3	30.8	0.1	●
8760058	0.58	5.8	6.5	42	3	30.8	0.1	●
8760059	0.59	5.9	6.5	42	3	30.8	0.1	●
8760060	0.6	6	6.5	42	3	30.8	0.1	●
8760061	0.61	6.1	7	42	3	30.3	0.1	●
8760062	0.62	6.2	7	42	3	30.4	0.1	●
8760063	0.63	6.3	7	42	3	30.4	0.1	●
8760064	0.64	6.4	7	42	3	30.4	0.1	●
8760065	0.65	6.5	7	42	3	30.4	0.1	●
8760066	0.66	6.6	7	42	3	30.4	0.1	●
8760067	0.67	6.7	7	42	3	30.5	0.1	●
8760068	0.68	6.8	8	42	3	29.5	0.1	●
8760069	0.69	6.9	8	42	3	29.5	0.1	●
8760070	0.7	7	8	42	3	29.5	0.1	●
8760071	0.71	7.1	8	42	3	29.5	0.1	●
8760072	0.72	7.2	8	42	3	29.5	0.1	●
8760073	0.73	7.3	8	42	3	29.6	0.1	●
8760074	0.74	7.4	8	42	3	29.6	0.1	●
8760075	0.75	7.5	8	42	3	29.6	0.1	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760076	0.76	7.6	9	42	3	28.6	0.1	●
8760077	0.77	7.7	9	42	3	28.6	0.1	●
8760078	0.78	7.8	9	42	3	28.7	0.1	●
8760079	0.79	7.9	9	42	3	28.7	0.1	●
8760080	0.8	8	9	42	3	28.6	0.1	●
8760081	0.81	8.1	9	42	3	28.6	0.1	●
8760082	0.82	8.2	9	42	3	28.6	0.1	●
8760083	0.83	8.3	9	42	3	28.7	0.2	●
8760084	0.84	8.4	9	42	3	28.7	0.2	●
8760085	0.85	8.5	9	42	3	28.7	0.2	●
8760086	0.86	8.6	10.5	46	3	31.2	0.2	●
8760087	0.87	8.7	10.5	46	3	31.2	0.2	●
8760088	0.88	8.8	10.5	46	3	31.2	0.2	●
8760089	0.89	8.9	10.5	46	3	31.3	0.2	●
8760090	0.9	9	10.5	46	3	31.3	0.2	●
8760091	0.91	9.1	10.5	46	3	31.3	0.2	●
8760092	0.92	9.2	10.5	46	3	31.3	0.2	●
8760093	0.93	9.3	10.5	46	3	31.3	0.2	●
8760094	0.94	9.4	10.5	46	3	31.4	0.2	●
8760095	0.95	9.5	10.5	46	3	31.4	0.2	●
8760096	0.96	9.6	11.5	46	3	30.4	0.2	●
8760097	0.97	9.7	11.5	46	3	30.4	0.2	●
8760098	0.98	9.8	11.5	46	3	30.4	0.2	●
8760099	0.99	9.9	11.5	46	3	30.4	0.2	●
8760100	1	10	11.5	46	3	30.3	0.2	●
8760101	1.01	10.1	11.5	46	3	30.3	0.2	●

●=标准库存品 ●=Standard Stock item

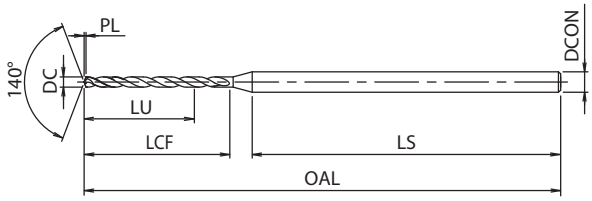
・标识说明请参考 p.10。
・推荐使用 ADO-MICRO 4D 作为导向孔用钻头。
・See p.10 for explanation of icons.
・AD-MICRO 4D is the recommended pilot hole drill.

特点 Feature
加工数据 Cutting Data
无油孔 Non Oil Hole
AD-MICRO 4D
AD-MICRO 10D
有油孔 with Oil Hole
ADO-MICRO 2D
ADO-MICRO 5D
ADO-MICRO 12D
ADO-MICRO 20D
ADO-MICRO 30D
切削条件表 Cutting Conditions
NEXT

NEW

AD-MICRO 10D

X形横刃
(DC < 1)
X thinning



R形横刃
(1≦DC)
R thinning

CARBIDE | KeptA | 0~-0.004 | 約30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

FROM

単位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760102	1.02	10.2	11.5	46	3	30.3	0.2	●
8760103	1.03	10.3	11.5	46	3	30.3	0.2	●
8760104	1.04	10.4	11.5	46	3	30.3	0.2	●
8760105	1.05	10.5	11.5	46	3	30.4	0.2	●
8760106	1.06	10.6	11.5	46	3	30.4	0.2	●
8760107	1.07	10.7	13	46	3	28.9	0.2	●
8760108	1.08	10.8	13	46	3	28.9	0.2	●
8760109	1.09	10.9	13	46	3	28.9	0.2	●
8760110	1.1	11	13	46	3	29	0.2	●
8760111	1.11	11.1	13	50	3	33	0.2	●
8760112	1.12	11.2	13	50	3	33	0.2	●
8760113	1.13	11.3	13	50	3	33	0.2	●
8760114	1.14	11.4	13	50	3	33	0.2	●
8760115	1.15	11.5	13	50	3	33	0.2	●
8760116	1.16	11.6	13	50	3	33.1	0.2	●
8760117	1.17	11.7	13	50	3	33.1	0.2	●
8760118	1.18	11.8	13	50	3	33.1	0.2	●
8760119	1.19	11.9	14	50	3	32.1	0.2	●
8760120	1.2	12	14	50	3	32.1	0.2	●
8760121	1.21	12.1	14	50	3	32.2	0.2	●
8760122	1.22	12.2	14	50	3	32.2	0.2	●
8760123	1.23	12.3	14	50	3	32.2	0.2	●
8760124	1.24	12.4	14	50	3	32.2	0.2	●
8760125	1.25	12.5	14	50	3	32.2	0.2	●
8760126	1.26	12.6	14	50	3	32.3	0.2	●
8760127	1.27	12.7	14	50	3	32.3	0.2	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760128	1.28	12.8	14	50	3	32.3	0.2	●
8760129	1.29	12.9	14	50	3	32.3	0.2	●
8760130	1.3	13	14	50	3	32.3	0.2	●
8760131	1.31	13.1	14	50	3	32.3	0.2	●
8760132	1.32	13.2	14	50	3	32.4	0.2	●
8760133	1.33	13.3	15	50	3	31.4	0.2	●
8760134	1.34	13.4	15	50	3	31.4	0.2	●
8760135	1.35	13.5	15	50	3	31.4	0.2	●
8760136	1.36	13.6	15	50	3	31.4	0.2	●
8760137	1.37	13.7	15	50	3	31.5	0.2	●
8760138	1.38	13.8	15	50	3	31.5	0.3	●
8760139	1.39	13.9	15	50	3	31.5	0.3	●
8760140	1.4	14	16.5	50	3	30	0.3	●
8760141	1.41	14.1	16.5	50	3	30	0.3	●
8760142	1.42	14.2	16.5	50	3	30.1	0.3	●
8760143	1.43	14.3	16.5	50	3	30.1	0.3	●
8760144	1.44	14.4	16.5	50	3	30.1	0.3	●
8760145	1.45	14.5	16.5	50	3	30.1	0.3	●
8760146	1.46	14.6	16.5	50	3	30.1	0.3	●
8760147	1.47	14.7	16.5	50	3	30.1	0.3	●
8760148	1.48	14.8	16.5	50	3	30.2	0.3	●
8760149	1.49	14.9	16.5	50	3	30.2	0.3	●
8760150	1.5	15	16.5	50	3	30.2	0.3	●
8760151	1.51	15.1	17.5	50	3	29.2	0.3	●
8760152	1.52	15.2	17.5	50	3	29.2	0.3	●
8760153	1.53	15.3	17.5	50	3	29.3	0.3	●

●=标准库存品 ●=Standard Stock item

・标识说明请参考 p.10。
・推荐使用ADO-MICRO 4D 作为导向孔用钻头。
・See p.10 for explanation of icons.
・AD-MICRO 4D is the recommended pilot hole drill.

NEXT

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760154	1.54	15.4	17.5	50	3	29.3	0.3	●
8760155	1.55	15.5	17.5	50	3	29.3	0.3	●
8760156	1.56	15.6	17.5	50	3	29.3	0.3	●
8760157	1.57	15.7	17.5	50	3	29.3	0.3	●
8760158	1.58	15.8	17.5	50	3	29.4	0.3	●
8760159	1.59	15.9	17.5	50	3	29.4	0.3	●
8760160	1.6	16	17.5	50	3	29.4	0.3	●
8760161	1.61	16.1	18.5	50	3	28.4	0.3	●
8760162	1.62	16.2	18.5	50	3	28.4	0.3	●
8760163	1.63	16.3	18.5	50	3	28.4	0.3	●
8760164	1.64	16.4	18.5	50	3	28.5	0.3	●
8760165	1.65	16.5	18.5	50	3	28.5	0.3	●
8760166	1.66	16.6	18.5	50	3	28.5	0.3	●
8760167	1.67	16.7	18.5	50	3	28.5	0.3	●
8760168	1.68	16.8	18.5	50	3	28.5	0.3	●
8760169	1.69	16.9	18.5	50	3	28.6	0.3	●
8760170	1.7	17	18.5	50	3	28.6	0.3	●
8760171	1.71	17.1	20.5	54	3	30.6	0.3	●
8760172	1.72	17.2	20.5	54	3	30.6	0.3	●
8760173	1.73	17.3	20.5	54	3	30.6	0.3	●
8760174	1.74	17.4	20.5	54	3	30.6	0.3	●
8760175	1.75	17.5	20.5	54	3	30.7	0.3	●
8760176	1.76	17.6	20.5	54	3	30.7	0.3	●
8760177	1.77	17.7	20.5	54	3	30.7	0.3	●
8760178	1.78	17.8	20.5	54	3	30.7	0.3	●
8760179	1.79	17.9	20.5	54	3	30.7	0.3	●
8760180	1.8	18	20.5	54	3	30.8	0.3	●
8760181	1.81	18.1	20.5	54	3	30.8	0.3	●
8760182	1.82	18.2	20.5	54	3	30.8	0.3	●
8760183	1.83	18.3	20.5	54	3	30.8	0.3	●
8760184	1.84	18.4	20.5	54	3	30.8	0.3	●
8760185	1.85	18.5	20.5	54	3	30.9	0.3	●
8760186	1.86	18.6	20.5	54	3	30.9	0.3	●
8760187	1.87	18.7	20.5	54	3	30.9	0.3	●
8760188	1.88	18.8	20.5	54	3	30.9	0.3	●
8760189	1.89	18.9	20.5	54	3	30.9	0.3	●
8760190	1.9	19	20.5	54	3	30.9	0.3	●
8760191	1.91	19.1	23	54	3	28.5	0.3	●
8760192	1.92	19.2	23	54	3	28.5	0.3	●
8760193	1.93	19.3	23	54	3	28.5	0.4	●
8760194	1.94	19.4	23	54	3	28.5	0.4	●
8760195	1.95	19.5	23	54	3	28.5	0.4	●
8760196	1.96	19.6	23	54	3	28.6	0.4	●
8760197	1.97	19.7	23	54	3	28.6	0.4	●
8760198	1.98	19.8	23	54	3	28.6	0.4	●
8760199	1.99	19.9	23	54	3	28.6	0.4	●
8760200	2	20	23	54	3	28.6	0.4	●
8760201	2.01	20.1	23	54	3	28.7	0.4	●
8760202	2.02	20.2	23	54	3	28.7	0.4	●
8760203	2.03	20.3	23	54	3	28.7	0.4	●
8760204	2.04	20.4	23	54	3	28.7	0.4	●
8760205	2.05	20.5	23	54	3	28.7	0.4	●

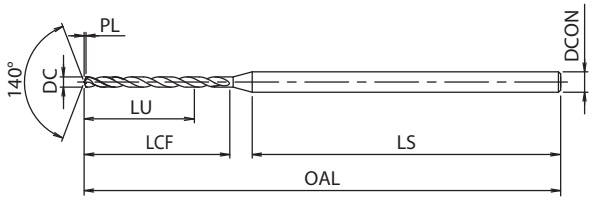
●=标准库存品 ●=Standard Stock item

NEXT

NEW

AD-MICRO 10D

X形横刃
(DC < 1)
X thinning



R形横刃
(1≦DC)
R thinning

CARBIDE | KeptA | 0~-0.004 | 約30° ABOUT 30° | SHANK h4 | SHRINK FIT | SPEED FEED P22

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760206	2.06	20.6	23	54	3	28.7	0.4	●
8760207	2.07	20.7	23	54	3	28.8	0.4	●
8760208	2.08	20.8	23	54	3	28.8	0.4	●
8760209	2.09	20.9	23	54	3	28.8	0.4	●
8760210	2.1	21	23	54	3	28.8	0.4	●
8760211	2.11	21.1	24.5	58	3	31.3	0.4	●
8760212	2.12	21.2	24.5	58	3	31.4	0.4	●
8760213	2.13	21.3	24.5	58	3	31.4	0.4	●
8760214	2.14	21.4	24.5	58	3	31.4	0.4	●
8760215	2.15	21.5	24.5	58	3	31.4	0.4	●
8760216	2.16	21.6	24.5	58	3	31.4	0.4	●
8760217	2.17	21.7	24.5	58	3	31.5	0.4	●
8760218	2.18	21.8	24.5	58	3	31.5	0.4	●
8760219	2.19	21.9	24.5	58	3	31.5	0.4	●
8760220	2.2	22	24.5	58	3	31.5	0.4	●
8760221	2.21	22.1	24.5	58	3	31.5	0.4	●
8760222	2.22	22.2	24.5	58	3	31.5	0.4	●
8760223	2.23	22.3	24.5	58	3	31.6	0.4	●
8760224	2.24	22.4	24.5	58	3	31.6	0.4	●
8760225	2.25	22.5	24.5	58	3	31.6	0.4	●
8760226	2.26	22.6	26	58	3	30.1	0.4	●
8760227	2.27	22.7	26	58	3	30.1	0.4	●
8760228	2.28	22.8	26	58	3	30.2	0.4	●
8760229	2.29	22.9	26	58	3	30.2	0.4	●
8760230	2.3	23	26	58	3	30.2	0.4	●
8760231	2.31	23.1	26	58	3	30.2	0.4	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760232	2.32	23.2	26	58	3	30.2	0.4	●
8760233	2.33	23.3	26	58	3	30.2	0.4	●
8760234	2.34	23.4	26	58	3	30.3	0.4	●
8760235	2.35	23.5	26	58	3	30.3	0.4	●
8760236	2.36	23.6	26	58	3	30.3	0.4	●
8760237	2.37	23.7	26	58	3	30.3	0.4	●
8760238	2.38	23.8	26	58	3	30.3	0.4	●
8760239	2.39	23.9	26	58	3	30.4	0.4	●
8760240	2.4	24	29	62	3	31.4	0.4	●
8760241	2.41	24.1	29	62	3	31.4	0.4	●
8760242	2.42	24.2	29	62	3	31.4	0.4	●
8760243	2.43	24.3	29	62	3	31.4	0.4	●
8760244	2.44	24.4	29	62	3	31.5	0.4	●
8760245	2.45	24.5	29	62	3	31.5	0.4	●
8760246	2.46	24.6	29	62	3	31.5	0.4	●
8760247	2.47	24.7	29	62	3	31.5	0.4	●
8760248	2.48	24.8	29	62	3	31.5	0.5	●
8760249	2.49	24.9	29	62	3	31.5	0.5	●
8760250	2.5	25	29	62	3	31.6	0.5	●
8760251	2.51	25.1	29	62	3	31.6	0.5	●
8760252	2.52	25.2	29	62	3	31.6	0.5	●
8760253	2.53	25.3	29	62	3	31.6	0.5	●
8760254	2.54	25.4	29	62	3	31.6	0.5	●
8760255	2.55	25.5	29	62	3	31.7	0.5	●
8760256	2.56	25.6	29	62	3	31.7	0.5	●
8760257	2.57	25.7	29	62	3	31.7	0.5	●

●=标准库存品 ●=Standard Stock item

・标识说明请参考 p.10。
・推荐使用ADO-MICRO 4D 作为导向孔用钻头。
・See p.10 for explanation of icons.
・AD-MICRO 4D is the recommended pilot hole drill.

NEXT

FROM

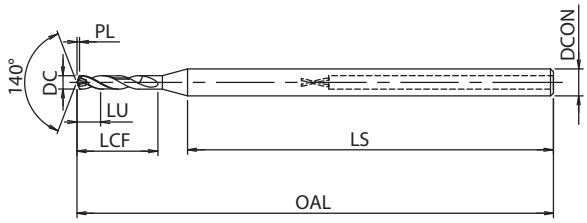
单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760258	2.58	25.8	29	62	3	31.7	0.5	●
8760259	2.59	25.9	29	62	3	31.7	0.5	●
8760260	2.6	26	29	62	3	31.8	0.5	●
8760261	2.61	26.1	29	62	3	31.8	0.5	●
8760262	2.62	26.2	29	62	3	31.8	0.5	●
8760263	2.63	26.3	29	62	3	31.8	0.5	●
8760264	2.64	26.4	29	62	3	31.8	0.5	●
8760265	2.65	26.5	29	62	3	31.8	0.5	●
8760266	2.66	26.6	31	62	3	29.9	0.5	●
8760267	2.67	26.7	31	62	3	29.9	0.5	●
8760268	2.68	26.8	31	62	3	29.9	0.5	●
8760269	2.69	26.9	31	62	3	29.9	0.5	●
8760270	2.7	27	31	62	3	29.9	0.5	●
8760271	2.71	27.1	31	62	3	30	0.5	●
8760272	2.72	27.2	31	62	3	30	0.5	●
8760273	2.73	27.3	31	62	3	30	0.5	●
8760274	2.74	27.4	31	62	3	30	0.5	●
8760275	2.75	27.5	31	62	3	30	0.5	●
8760276	2.76	27.6	31	62	3	30.1	0.5	●
8760277	2.77	27.7	31	62	3	30.1	0.5	●
8760278	2.78	27.8	31	62	3	30.1	0.5	●
8760279	2.79	27.9	31	62	3	30.1	0.5	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8760280	2.8	28	31	62	3	30.1	0.5	●
8760281	2.81	28.1	33	62	3	28.1	0.5	●
8760282	2.82	28.2	33	62	3	28.2	0.5	●
8760283	2.83	28.3	33	62	3	28.2	0.5	●
8760284	2.84	28.4	33	62	3	28.2	0.5	●
8760285	2.85	28.5	33	62	3	28.2	0.5	●
8760286	2.86	28.6	33	62	3	28.2	0.5	●
8760287	2.87	28.7	33	62	3	28.3	0.5	●
8760288	2.88	28.8	33	62	3	28.3	0.5	●
8760289	2.89	28.9	33	62	3	28.3	0.5	●
8760290	2.9	29	33	62	3	28.3	0.5	●
8760291	2.91	29.1	33	62	3	28.3	0.5	●
8760292	2.92	29.2	33	62	3	28.4	0.5	●
8760293	2.93	29.3	33	62	3	28.4	0.5	●
8760294	2.94	29.4	33	62	3	28.4	0.5	●
8760295	2.95	29.5	33	62	3	28.4	0.5	●
8760296	2.96	29.6	33	62	3	28.4	0.5	●
8760297	2.97	29.7	33	62	3	28.4	0.5	●
8760298	2.98	29.8	33	62	3	28.5	0.5	●
8760299	2.99	29.9	33	62	3	28.5	0.5	●
8760300	3	30	33	62	3	28.5	0.5	●

●=标准库存品 ●=Standard Stock item

ADO-MICRO 2D



CARBIDE | IchAda | +0.001~+0.010 | 约30° ABOUT 30° | SHRINK FIT | SPEED FEED P23

单位:mm Unit:mm

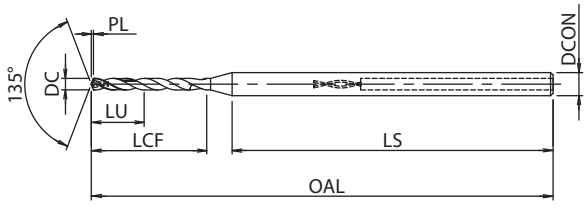
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732001	0.7	1.4	4.2	47	3	38.5	0.1	●
8732002	0.75	1.5	4.5	47	3	38.3	0.1	●
8732003	0.8	1.6	4.8	50	3	41.1	0.1	●
8732004	0.85	1.7	5.1	50	3	40.9	0.2	●
8732005	0.9	1.8	5.4	50	3	40.7	0.2	●
8732006	0.95	1.9	5.7	50	3	40.5	0.2	●
8732007	1	2	6	53	3	42.8	0.2	●
8732008	1.1	2.2	6.6	53	3	42.4	0.2	●
8732009	1.2	2.4	7.2	53	3	41.9	0.2	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732010	1.3	2.6	7.8	53	3	41.5	0.2	●
8732011	1.4	2.8	8.4	53	3	41.1	0.3	●
8732012	1.5	3	9	53	3	40.7	0.3	●
8732013	1.6	3.2	9.6	53	3	40.3	0.3	●
8732014	1.7	3.4	10.2	53	3	39.9	0.3	●
8732015	1.8	3.6	10.8	53	3	39.5	0.3	●
8732016	1.9	3.8	11.4	53	3	39	0.3	●
8732017	2	4	12	58	3	43.6	0.4	●

●=标准库存品 ●=Standard Stock item

· 标识说明请参考 p.10。
· 可作为长刃型(ADO-MICRO 12D,20D,30D) 的导向孔用钻头。
· See p.10 for explanation of icons.
· Can be used as a guide hole drill for long type drills (ADO-MICRO 12D, 20D and 30D).

ADO-MICRO 5D



CARBIDE | IchAda | 0~-0.009 | 约30° ABOUT 30° | SHRINK FIT | SPEED FEED P23

单位:mm Unit:mm

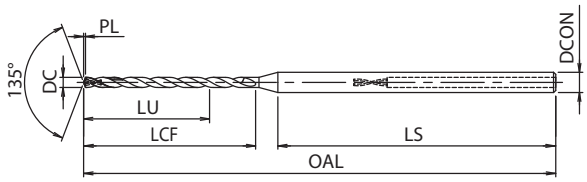
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732018	0.7	3.5	7	47	3	35.7	0.1	●
8732019	0.75	3.8	7.5	47	3	35.3	0.2	●
8732020	0.8	4	8	50	3	37.9	0.2	●
8732021	0.85	4.3	8.5	50	3	37.5	0.2	●
8732022	0.9	4.5	9	50	3	37.1	0.2	●
8732023	0.95	4.8	9.5	50	3	36.7	0.2	●
8732024	1	5	10	55	3	40.8	0.2	●
8732025	1.1	5.5	11	55	3	40	0.2	●
8732026	1.2	6	12	60	3	44.1	0.2	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732027	1.3	6.5	13	60	3	43.3	0.3	●
8732028	1.4	7	14	60	3	42.5	0.3	●
8732029	1.5	7.5	15	60	3	41.7	0.3	●
8732030	1.6	8	16	60	3	40.9	0.3	●
8732031	1.7	8.5	17	60	3	40.1	0.4	●
8732032	1.8	9	18	65	3	44.3	0.4	●
8732033	1.9	9.5	19	65	3	43.4	0.4	●
8732034	2	10	20	65	3	42.6	0.4	●

●=标准库存品 ●=Standard Stock item

· 标识说明请参考 p.10。
· See p.10 for explanation of icons.

ADO-MICRO 12D



CARBIDE | IchAda | 0~-0.009 | 约30° ABOUT 30° | SHRINK FIT | SPEED FEED P24

单位:mm Unit:mm

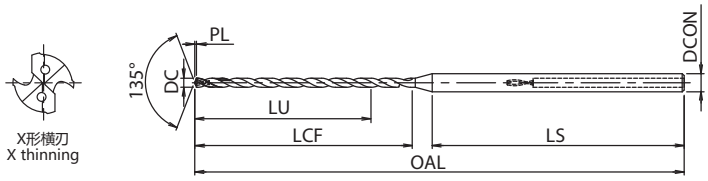
商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732035	1	12	17	60	3	38.8	0.2	●
8732036	1.1	13.2	18.7	65	3	42.3	0.2	●
8732037	1.2	14.4	20.4	65	3	40.7	0.2	●
8732038	1.3	15.6	22.1	65	3	39.2	0.3	●
8732039	1.4	16.8	23.8	70	3	42.7	0.3	●
8732040	1.5	18	25.5	70	3	41.2	0.3	●

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732041	1.6	19.2	27.2	70	3	39.7	0.3	●
8732042	1.7	20.4	28.9	73	3	41.2	0.4	●
8732043	1.8	21.6	30.6	73	3	39.7	0.4	●
8732044	1.9	22.8	32.3	73	3	38.1	0.4	●
8732045	2	24	34	77	3	40.6	0.4	●

●=标准库存品 ●=Standard Stock item

· 标识说明请参考 p.10。
· 推荐使用ADO-MICRO 2D作为导向孔用钻头。
· See p.10 for explanation of icons.
· ADO-MICRO 2D is the recommended pilot hole drill.

ADO-MICRO 20D



CARBIDE | IchAda | 0~-0.009 | 约30° ABOUT 30° | SHRINK FIT | SPEED FEED P24

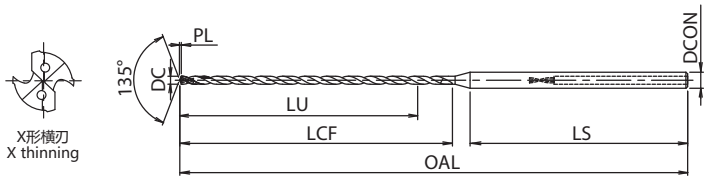
单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732046	1	20	24	68	3	39.8	0.2	●
8732047	1.1	22	26.4	75	3	44.6	0.2	●
8732048	1.2	24	28.8	75	3	42.3	0.2	●
8732049	1.3	26	31.2	75	3	40.1	0.3	●
8732050	1.4	28	33.6	81	3	43.9	0.3	●
8732051	1.5	30	36	81	3	41.7	0.3	●
8732052	1.6	32	38.4	81	3	39.5	0.3	●
8732053	1.7	34	40.8	88	3	44.3	0.4	●
8732054	1.8	36	43.2	88	3	42.1	0.4	●
8732055	1.9	38	45.6	88	3	39.8	0.4	●
8732056	2	40	48	95	3	44.6	0.4	●

●=标准库存品 ●=Standard Stock item

· 标识说明请参考 p.10。
· 推荐使用ADO-MICRO 2D作为导向孔用钻头。
· See p.10 for explanation of icons.
· ADO-MICRO 2D is the recommended pilot hole drill.

ADO-MICRO 30D



CARBIDE | IchAda | 0~-0.009 | 约30° ABOUT 30° | SHRINK FIT | SPEED FEED P24

单位:mm Unit:mm

商品号 EDP No.	直径 DC	有效槽长 LU	槽长 LCF	全长 OAL	柄径 DCON	柄长 LS	先端 PL	库存 Stock
8732057	1	30	34	77	3	38.8	0.2	●
8732058	1.1	33	37.4	86	3	44.6	0.2	●
8732059	1.2	36	40.8	86	3	41.3	0.2	●
8732060	1.3	39	44.2	86	3	38.1	0.3	●
8732061	1.4	42	47.6	95	3	43.9	0.3	●
8732062	1.5	45	51	95	3	40.7	0.3	●
8732063	1.6	48	54.4	101	3	43.5	0.3	●
8732064	1.7	51	57.8	101	3	40.3	0.4	●
8732065	1.8	54	61.2	107	3	43.1	0.4	●
8732066	1.9	57	64.6	107	3	39.8	0.4	●
8732067	2	60	68	112	3	41.6	0.4	●

●=标准库存品 ●=Standard Stock item

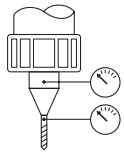
· 标识说明请参考 p.10。
· 推荐使用ADO-MICRO 2D作为导向孔用钻头。
· See p.10 for explanation of icons.
· ADO-MICRO 2D is the recommended pilot hole drill.

AD-MICRO 4D/10D

加工材料 Work Material	软钢・低碳素钢 Mild Steel・Low Carbon Steel SS400・S10C ～150HB ～500N/mm²		碳素钢 Carbon Steel S35C・S50C ～210HB ～710N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 16～28HRC 710～900N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 28～35HRC 900～1,100N/mm²		特殊钢・调质钢 Special Alloy Steel・Hardened steel・Prehardend steel SUJ2・SUS440・SKD 34～40HRC		不锈钢 Stainless Steel SUS300/400系	
切削速度 Cutting Speed	20～70m/min		20～65m/min		15～55m/min		15～25m/min		15～20m/min		10～20m/min	
直径 Drill Dia. (mm)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)
0.5	12,000	0.01～0.025	12,000	0.008～0.025	9,500	0.008～0.025	8,500	0.008～0.02	8,000	0.008～0.015	8,000	0.008～0.025
1	11,000	0.02～0.05	11,500	0.015～0.05	9,000	0.015～0.05	6,000	0.015～0.04	6,000	0.015～0.03	6,000	0.015～0.05
1.5	10,000	0.03～0.06	10,000	0.023～0.075	8,000	0.023～0.075	5,000	0.023～0.06	4,000	0.023～0.045	4,000	0.023～0.075
2	9,000	0.04～0.08	7,500	0.03 ～0.1	6,000	0.03 ～0.1	3,800	0.03 ～0.08	3,200	0.03 ～0.06	3,200	0.03 ～0.08
2.5	8,500	0.05～0.1	7,000	0.05 ～0.1	6,000	0.05 ～0.1	2,500	0.038～0.1	2,400	0.038～0.075	1,300	0.038～0.075
3	7,500	0.06～0.12	7,000	0.06 ～0.12	6,000	0.06 ～0.12	2,500	0.045～0.12	2,200	0.045～0.09	1,100	0.045～0.09

加工材料 Work Material	析出硬化体不锈钢 Precipitation Stainless Steel SUS630		铸铁・球墨铸铁 Cast Iron・Ductile Cast Iron FC250・FCD450・FCD600 ～600N/mm²		铝合金铸件 Aluminum Alloy AC4C・ADC		变形铝 Aluminum A5052・A7075		钛合金 Titanium Alloy		耐热合金 Heat Resistant Alloy Inconel 718	
切削速度 Cutting Speed	10～15m/min		20~70m/min		20~70m/min		20~70m/min		15～25m/min		5～8m/min	
直径 Drill Dia. (mm)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)
0.5	7,000	0.008～0.025	12,000	0.01～0.025	12,000	0.01～0.03	12,000	0.01～0.02	10,000	0.008～0.018	4,000	0.005～0.015
1	5,000	0.015～0.05	11,000	0.02～0.05	11,000	0.02～0.06	11,000	0.02～0.04	7,500	0.015～0.035	2,200	0.01 ～0.03
1.5	3,500	0.023～0.075	10,000	0.03～0.06	10,000	0.03～0.09	10,000	0.03～0.06	5,500	0.023～0.045	1,500	0.015～0.045
2	2,500	0.03 ～0.08	9,000	0.04～0.08	9,000	0.04～0.12	9,000	0.04～0.08	4,000	0.03 ～0.06	1,100	0.02 ～0.06
2.5	1,300	0.038～0.075	8,500	0.05～0.1	8,500	0.05～0.15	8,500	0.05～0.1	3,000	0.038～0.075	900	0.025～0.075
3	1,100	0.045～0.09	7,500	0.06～0.12	7,500	0.06～0.18	7,500	0.06～0.12	2,500	0.045～0.09	750	0.03 ～0.09

1. 请使用主轴旋转精度良好的机械。
2. 此切削条件基准表适用于水溶性切削油剂。
3. 请使用稀释倍率20倍的优质水溶性切削油剂。
4. 调整切削油剂，使其始终保持在刀具先端和孔口处。
5. 无论钻头直径或切削深度如何，均应以0.2DC~0.5DC为基准进行阶梯加工。
6. AD-MICRO 10D DC＜1时，请按照资料「AD-MICRO 10D的推荐加工方法」进行导向孔加工。(请参考P.25)
7. 安装钻头时，请使用无划痕无污垢的夹头，跳动精度如右图所示，刀体圆筒部分或刀柄端请以0.002mm以下为标准。
8. 请牢固固定加工材料，确保其不发生变形,弯曲或振动
9. 上表数值仅供参考。实际加工时请根据具体情况参考上表设定切削条件。



1. Please use a carbide drill in a machine with precise spindle rotation.
2. The indicated speeds and feeds are for drilling with water-soluble coolant.
3. Water-soluble high density coolant (less than 20 times dilution) is recommended.
4. Adjust the cutting fluid to consistently reach the tool tip and the hole opening.
5. Regardless of hole depth, perform step drilling using 0.2DC to 0.5DC as a guideline.
6. For AD-MICRO 10D DC<1, perform pilot hole machining according to the guideline "AD-MICRO 10D Recommended Drilling Method" (see p.25).
7. When mounting the drill, use a collet free of scratches and dirt. Ensure the runout accuracy is 0.002 mm or less at the cylindrical body or shank end, as shown in the illustrated figure.
8. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
9. Refer to the table above to set the milling conditions in accordance with the actual situation.

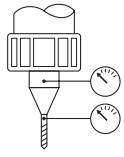
切削条件基准表 Cutting Conditions

ADO-MICRO 2D/5D

加工材料 Work Material	软钢・低碳素钢 Mild Steel・Low Carbon Steel SS400・S10C ~150HB ~500N/mm²		碳素钢 Carbon Steel S35C・S50C ~210HB ~710N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 16~28HRC 710~900N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 28~35HRC 900~1,100N/mm²		奥氏体不锈钢 Austenitic Stainless Steel SUS303・SUS304 SUS316・SUS316L		特殊钢 Special Alloy Steel SUJ2・SUS440	
切削速度 Cutting Speed	20~40~60m/min		20~40~60m/min		20~40~60m/min		20~30~40m/min		20~30~70m/min		25~35~45m/min	
直径 Drill Dia. (mm)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)
0.7	18,200	0.007 ~ 0.021	18,200	0.007 ~ 0.021	18,200	0.014 ~ 0.028	13,600	0.014 ~ 0.028	13,600	0.007 ~ 0.021	15,900	0.007 ~ 0.021
1	12,700	0.01 ~ 0.03	12,700	0.01 ~ 0.03	12,700	0.02 ~ 0.04	9,500	0.02 ~ 0.04	9,500	0.01 ~ 0.03	11,100	0.01 ~ 0.03
1.5	8,500	0.015 ~ 0.045	8,500	0.015 ~ 0.045	8,500	0.03 ~ 0.06	6,400	0.03 ~ 0.06	6,400	0.015 ~ 0.045	7,400	0.015 ~ 0.045
2	6,400	0.02 ~ 0.06	6,400	0.02 ~ 0.06	6,400	0.04 ~ 0.08	4,800	0.04 ~ 0.08	4,800	0.02 ~ 0.06	5,600	0.02 ~ 0.06

加工材料 Work Material	铸铁 Cast Iron FC250 ~350N/mm²		球墨铸铁 Ductile Cast Iron FCD450・FCD600 400~600N/mm²		铝合金铸件 Aluminum Alloy AC4C・ADC		变形铝 Aluminum A5052・A7075		钛合金 Titanium Alloy		耐热合金 Heat Resistant Alloy Inconel 718	
切削速度 Cutting Speed	40~50~60m/min		30~40~50m/min		30~50~70m/min		20~40~60m/min		40~50~60m/min		5~10~15m/min	
直径 Drill Dia. (mm)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)	转速 Speed (min⁻¹)	进给量 Feed Rate (mm/rev)
0.7	22,700	0.014~0.028	18,200	0.014~0.028	22,700	0.014~0.042	18,200	0.007~0.021	22,700	0.011~0.018	4,500	0.004~0.014
1	15,900	0.02 ~0.04	12,700	0.02 ~0.04	15,900	0.02 ~0.06	12,700	0.01 ~0.03	15,900	0.015~0.025	3,200	0.005~0.02
1.5	10,600	0.03 ~0.06	8,500	0.03 ~0.06	10,600	0.03 ~0.09	8,500	0.015~0.045	10,600	0.023~0.038	2,100	0.008~0.03
2	8,000	0.04 ~0.08	6,400	0.04 ~0.08	8,000	0.04 ~0.12	6,400	0.02 ~0.06	8,000	0.03 ~0.05	1,600	0.01 ~0.04

1. 此切削条件基准表适用于水溶性切削油剂及内部供油。
2. 请使用稀释倍率20倍的优质水溶性切削油剂。
3. 为了防止油孔堵塞，请使用精密过滤器。(参考值3μm~5μm)
4. 推荐内冷压力为3MPa，但根据所使用的切削油剂种类・浓度，喷油不充分的情况下请调整压力。
5. 安装时的跳动精度如右图所示，刀体圆筒部分或刀柄端请以0.002mm以下为标准。
6. 排屑难的加工材料，请适当进行阶梯式加工。
7. 加工镁合金时，请务必使用切削油剂厂家推荐的切削油剂。另外，请注意切屑的处理。可能会引起火灾。



1. This cutting condition chart is based on the usage of water-soluble coolant and internal oil supply.
2. Please use quality water-soluble coolant with a dilution factor of approximately 20 times.
3. Please use a precision filter (approximation of 3μm to 5μm) to prevent the oil holes from clogging.
4. Although the recommended coolant pressure is 3 MPa or more, please adjust accordingly if the level of flow volume is unsatisfactory due to the type and concentration of cutting oil used.
5. For accurate mounting, acceptable deflection of the body cylindrical part at the shank end should be less than 0.002mm, as shown in the illustrated figure.
6. For work material with poor chip evacuation characteristic, please perform step drilling as required.
7. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

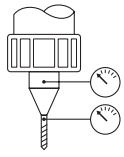
切削条件基准表 Cutting Conditions

ADO-MICRO 12D/20D/30D

加工材料 Work Material	软钢・低碳素钢 Mild Steel・Low Carbon Steel SS400・S10C ～150HB ～500N/mm²		碳素钢 Carbon Steel S35C・S50C ～210HB ～710N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 16～28HRC 710～900N/mm²		合金钢 Alloy Steel SCM・SCr・SNCM 28～35HRC 900～1,100N/mm²		奥氏体不锈钢 Austenitic Stainless Steel SUS303・SUS304 SUS316・SUS316L		特殊钢 Special Alloy Steel SUJ2・SUS440	
切削速度 Cutting Speed	20～40～60m/min		20～40～60m/min		20～40～60m/min		20～30～40m/min		20～30～70m/min		25～35～45m/min	
直径 Drill Dia. (mm)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)
1	12,700	0.01 ～0.03	12,700	0.01 ～0.03	12,700	0.02 ～0.04	9,500	0.02 ～0.04	9,500	0.01 ～0.03	11,100	0.01 ～0.03
1.5	8,500	0.015～0.045	8,500	0.015～0.045	8,500	0.03 ～0.06	6,400	0.03 ～0.06	6,400	0.015～0.045	7,400	0.015～0.045
2	6,400	0.02 ～0.06	6,400	0.02 ～0.06	6,400	0.04 ～0.08	4,800	0.04 ～0.08	4,800	0.02 ～0.06	5,600	0.02 ～0.06

加工材料 Work Material	铸铁 Cast Iron FC250 ～350N/mm²		球墨铸铁 Ductile Cast Iron FCD450・FCD600 400～600N/mm²		铝合金铸件 Aluminum Alloy AC4C・ADC		变形铝 Aluminum A5052・A7075		钛合金 Titanium Alloy		耐热合金 Heat Resistant Alloy Inconel 718	
切削速度 Cutting Speed	40～50～60m/min		30～40～50m/min		30～50～70m/min		20～40～60m/min		40～50～60m/min		5～10～15m/min	
直径 Drill Dia. (mm)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)	转速 Speed (min^{-1})	进给量 Feed Rate (mm/rev)
1	15,900	0.02 ～0.04	12,700	0.02 ～0.04	15,900	0.02 ～0.06	12,700	0.01 ～0.03	15,900	0.015～0.025	3,200	0.005～0.02
1.5	10,600	0.03 ～0.06	8,500	0.03 ～0.06	10,600	0.03 ～0.09	8,500	0.015～0.045	10,600	0.023～0.038	2,100	0.008～0.03
2	8,000	0.04 ～0.08	6,400	0.04 ～0.08	8,000	0.04 ～0.12	6,400	0.02 ～0.06	8,000	0.03 ～0.05	1,600	0.01 ～0.04

1. 此切削条件基准表适用于水溶性切削油剂及内部供油。
2. 请使用稀释倍率20倍的优质水溶性切削油剂。
3. 为了防止油孔堵塞，请使用精密过滤器。(参考值3μm～5μm)
4. 推荐内冷压力为3MPa，但根据所使用的切削油剂种类・浓度，喷油不充分的情况下请调整压力。
5. 安装时的跳动精度如右图所示，刀体圆筒部分或刀柄端请以0.002mm以下为标准。
6. 排屑难的加工材料，请适当进行阶梯式加工。
7. ADO-MICRO 12D以上，请按照资料「ADO-MICRO 12D/20D/30D的推荐加工方法」进行导向孔加工。(请参考P.25)
8. 加工镁合金时，请务必使用切削油剂厂家推荐的切削油剂。另外，请注意切屑的处理。可能会引起火灾。



1. This cutting condition chart is based on the usage of water-soluble coolant and internal oil supply.
2. Please use quality water-soluble coolant with a dilution factor of approximately 20 times.
3. Please use a precision filter (approximation of 3μm to 5μm) to prevent the oil holes from clogging.
4. Although the recommended coolant pressure is 3 MPa or more, Please adjust accordingly if the level of flow volume is unsatisfactory due to the type and concentration of cutting oil used.
5. For accurate mounting, acceptable deflection of the body cylindrical part at the shank end should be less than 0.002mm, as shown in the illustrated figure.
6. For work material with poor chip evacuation characteristic, please perform step drilling as required.
7. For ADO-MICRO 12D and above, perform pilot hole machining according to the guideline "ADO-MICRO 12D/20D/30D Recommended Drilling Method" (see p.25).
8. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

长刃型推荐加工方法 Recommended drilling method for deep-holes

AD-MICRO 10D

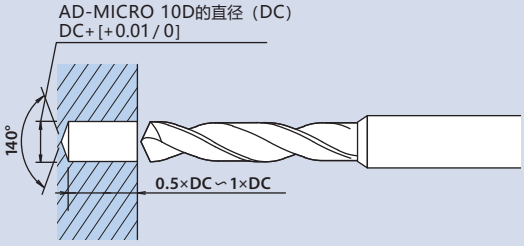
DC < 1 推荐进行导向孔加工。 Pilot hole is recommended for DC < 1.

①使用AD-MICRO 4D进行导向孔加工

Make a pilot hole with the AD-MICRO 4D.

推荐使用AD-MICRO 4D(先端角140°) 作为AD-MICRO 10D的导向孔孔加工用刀具。

The AD-MICRO 4D (140°point angle) is the recommended pilot hole drills of the AD-MICRO 10D.

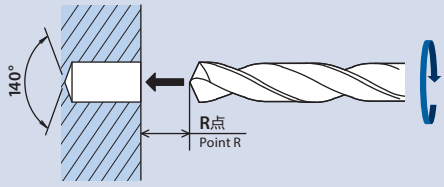


②请使用长刃型钻头从R点开始，采用钻孔循环G83，以规定的切削条件※(转速・进给速度・阶梯量)开始加工，并保持相同切削条件直至加工完成。

For long drills, use drill cycle G83 from point R. Begin and complete machining under the specified cutting conditions* (Speed, feed Rate, and step amount).

※请参考P.22切削参数表设定加工条件。**无论钻头直径或切削深度如何，均应以0.2DC~0.5DC为基准进行阶梯加工。**

*Please refer to the cutting conditions table on p.22 for setting the parameters. Regardless of drill diameter or hole depth, perform step drilling using 0.2DC to 0.5DC as a guideline.



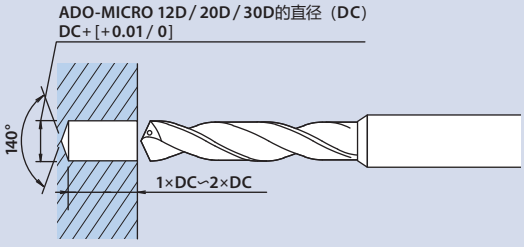
ADO-MICRO 12D/20D/30D

①使用ADO-MICRO 2D进行导向孔加工

Make a pilot hole with the ADO-MICRO 2D.

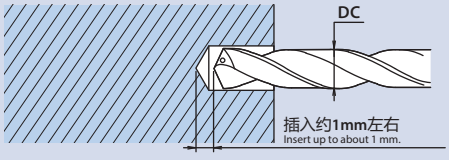
推荐使用ADO-MICRO 2D(先端角140°) 作为ADO-MICRO 12D / 20D / 30D 的导向孔加工用刀具。

The ADO-MICRO 2D (140°point angle) is the recommended pilot hole drills of the ADO-MICRO 12D／20D／30D.



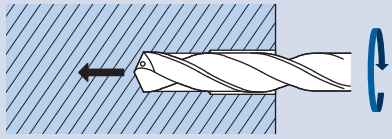
②长刃型钻头以转速(n) = 300 ~ 500min^{-1}左右、进给速度(Vf) =300 ~ 500mm/min插入

Insert the long drill at a speed of (n) = 300 to 500 min^{-1} and a feed rate of (Vf) = 300 to 500 mm/min.



③加速至规定转速后开始加工

Increase the revolution to the designated speed and start drilling.

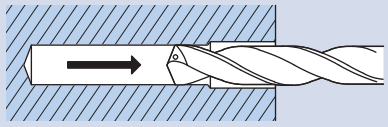


加工通孔时，请在拔出时降低进给量至（f） = 0.05 ~ 0.1mm/rev.

When drilling through holes, reduce the feed rate to (f) 0.05 to 0.1 mm/rev.

④加工后，拔出钻头时，请降低转速至(n)=300～500min^{-1}・进给速度(Vf)=1,000～3,000mm/min左右拔出

After drilling, reduce the speed to (n) = 300 to 500 min^{-1} and a feed rate of (Vf) = 1,000 to 3,000 mm/min and pull the drill out of the hole.



※加工时请务必使用内冷方式

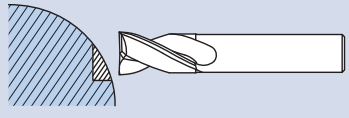
Make sure to use internal coolant supply when drilling.

★弯曲部加工时，请在导向孔加工前请先进行沉孔加工。

When machining curved sections, counterbore before pilot hole drilling.

请使用沉孔加工铣刀FX-ZDS或硬质合金平头钻ADF进行沉孔加工。

When working on a curved surface, use the FX-ZDS (end mill for counterboring) or the ADF (carbide flat drill) to counterbore a flat surface before drilling a pilot hole.



ＯＳＧ一直致力于环境保护政策

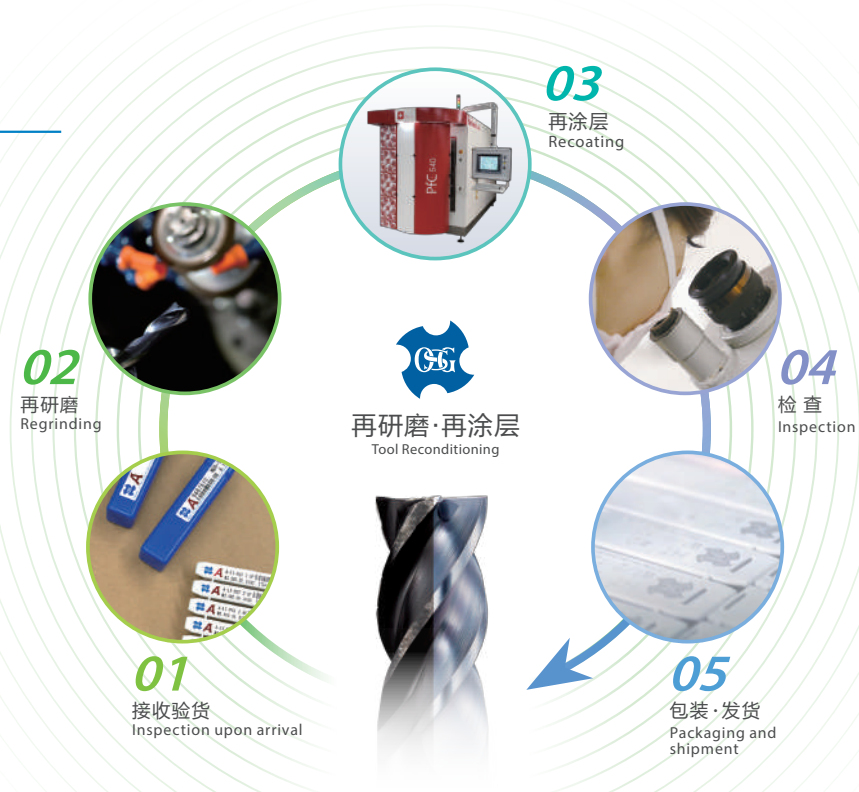
OSG's Environmental Initiatives

再研磨·再涂层

Tool Reconditioning

无法再使用的工具的翻新和再利用，有助于节约资源和全球环境保护活动。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



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