



STANDARD **A**

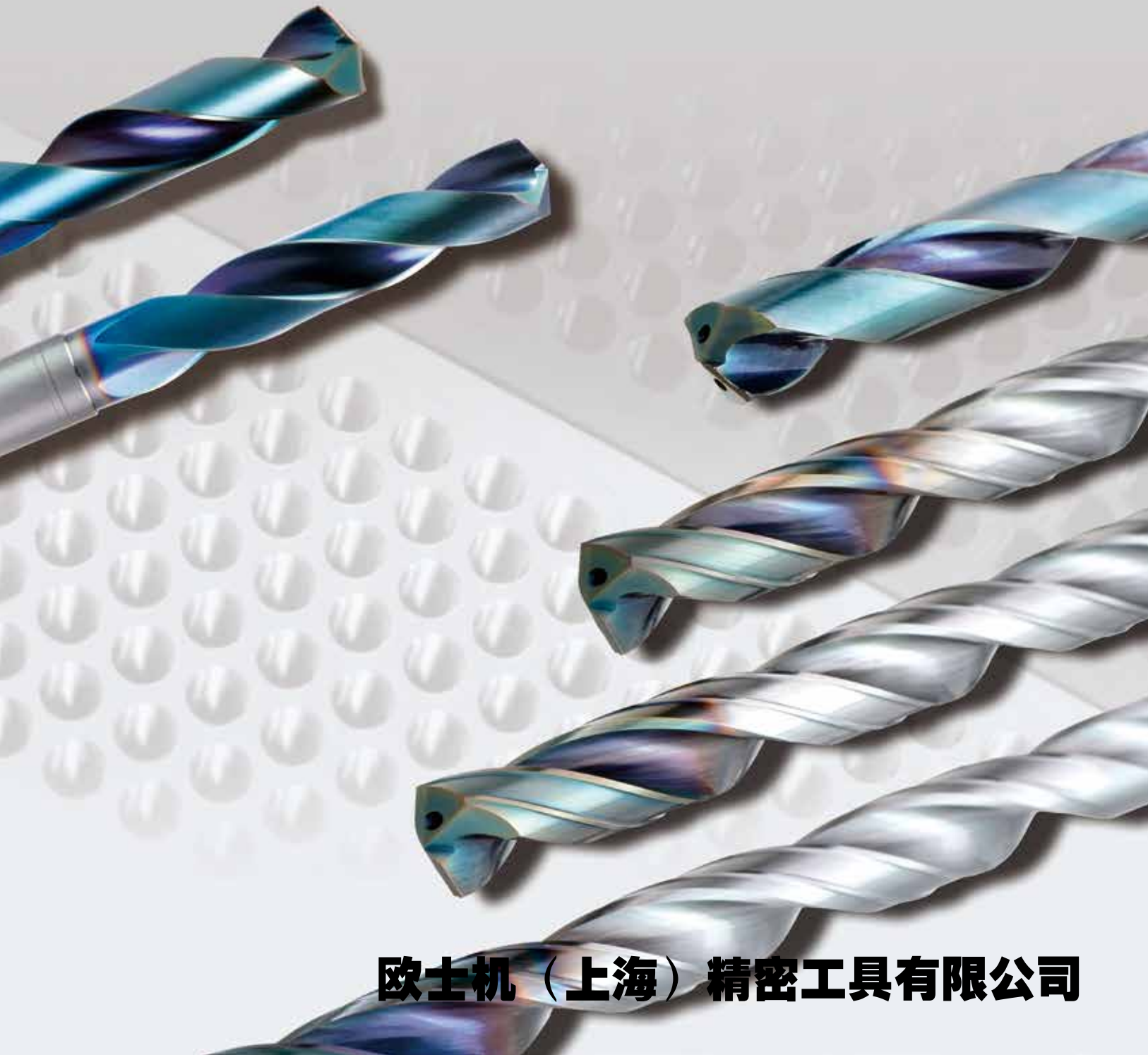
硬质合金钻头系列

WD/WDO 系列

WD

WDO

WD / WDO Carbide Drill Series



欧士机（上海）精密工具有限公司

抑制肩部及刃带磨损

采用新开发的钻头专用 WDI®涂层

The WDI® Coating has been adopted specially for the newly developed drill to inhibit wear at the cutting edge and margin.

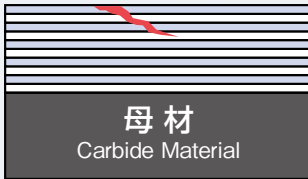


复合多层构造

Multi-Layer Construction

可抑制钻孔加工时导致的裂纹传播。加工碳素钢、铸铁时效果显著。

The WD/WDO minimizes the occurrences of cracks, which have high tendency to occur during the drilling of carbon steel and cast iron.



3,300HV的高硬度涂层

3,300HV Coating Hardness

这是WDO系列具有优异的耐磨损性,能实现稳定、长寿命加工的重要因素。

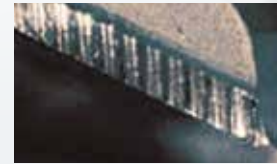
WD/WDO shows consistent longer tool life with superior friction-resistance which is one of the major factor of WD/WDO series drills.

大幅抑制对研磨量(工具费)有很大影响的外周横刃的磨损。

WD/WDO controls dramatically the wear amount at outer diameter margin which will effect major regrinding cost.



WDI® 涂层
WDI® coating



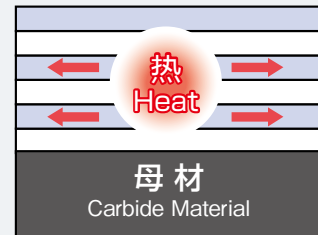
TiAlN 涂层(传统涂层)
TiAlN coating (previous coating)

1,100°C高温氧化开始温度

1,100°C Oxidation Temperature

独特的热扩散性涂层构造,可以防止切削热滞留在切削刃上,在针对高硬度材料的高速加工、高进给加工、MQL加工中发热量增大,涂层性能能被最好的体现出来。

The WD/WDO prevents buildup heat generated by cutting with OSG's patented WDI® coating for great heat diffusion capability. The WDI® coating demonstrates superior performance even under high-speed, high-feed, and MQL operations.

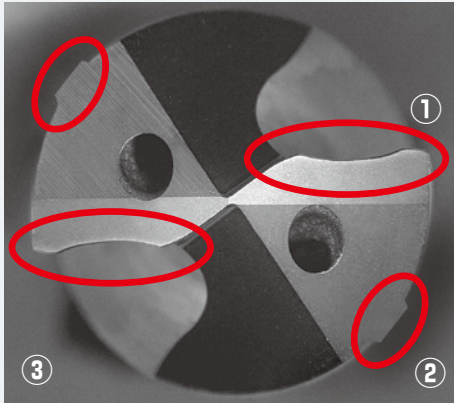


高热导率涂层
High thermal conductivity coating

	涂层构造 Coating Structure	硬度(HV) Surface Hardness	氧化开始温度(°C) Oxidation Temperature
WDI®涂层 WDI® coating	复合多层 Multiple layer	3,300	1,100
TiAlN系涂层 TiAlN coating	2层 Dual layer	2,700	800

WD-2D/4D、WDO-3D/5D/8D 的特点

Special characteristics of WD-2D/4D, WDO-3D/5D/8D



降低工具成本的王牌!

The trump card for reducing tool costs!

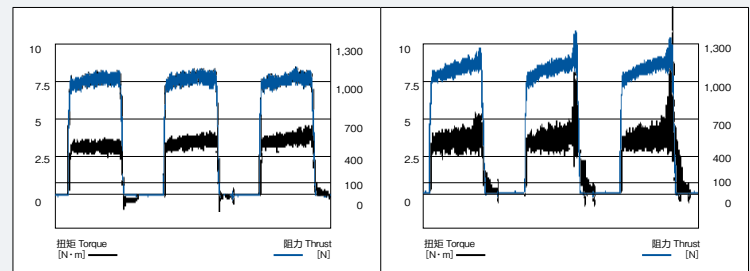
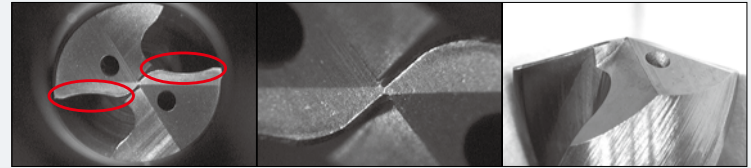
① 采用了重视切削性能的“波浪形”刃型

A new wave point form that emphasizes sharpness has been adopted

新“波浪形”刃型，切削刃的切削力会根据切削速度的改变而变化，提高各个部位切削刃的锋利度，实现了「低阻抗」，「工具的长寿命」。

The new wave point form improves the sharpness of the cutting edge at various areas where the cutting force fluctuates with the cutting speed, thereby achieving "low thrust", "stable torque", and a "long tool life".

加工材质 Work Material	SCM440 (30HRC)
切削速度 Cutting Speed	80m/min (4,246min ⁻¹)
进给速度 Feed Rate	764mm/min (0.18mm/rev)
切深量 Depth of Hole	30mm (通孔) (Blind)
切削油剂 Coolant	MQL MQL ECO MQL= Environmentally friendly
使用机械 Machine	立式加工中心 Vertical Machining Center



WDO-5D $\phi 6$

其他公司 $\phi 6$ Competitor

WDO-8D

中等刃长(8D)特殊的加工式样

Engineered specifically for mid-range(8D) work.

锋利性及稳定性并存

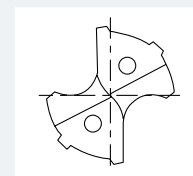
Greater Cutting Edge Sharpness & Stable Low Torque Drilling

② 采用 M(Middle) 刃带

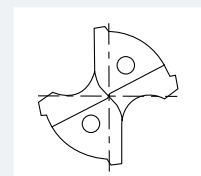
Adoption of M (Middle) Margin

与一般的双刃带设计在外周中心部设计第二刃带所不同，从切入部位开始形成双刃带，缩短了钻头到达四点定位的时间。另外，采用交叉孔。斜面贯通等设计提高了断续切削时的稳定性。

Unlike the conventional double margin, the second margin has been placed in the center of the peripheral land. This has shortened the time from the start of the bite to the four-point restraint by the double margin. Furthermore, it has improved stability during intermittent cutting such as cross-drilling or when penetrating an angled surface.



M 刃带
M (Middle) Margin



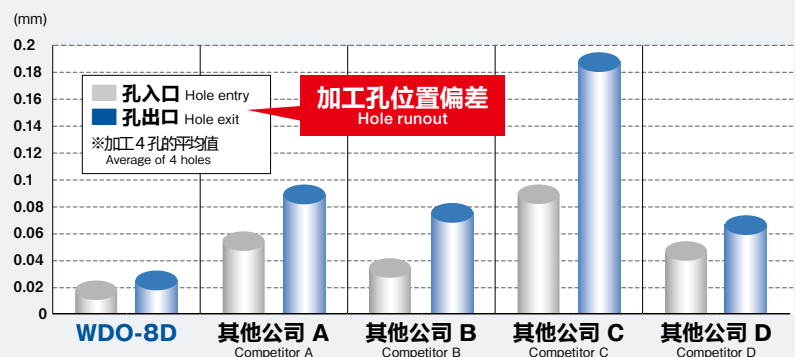
双刃带
Double Margin

③ 高刚性刀身 Highly rigid body

尺寸 Size	$\phi 10$
加工材质 Work Material	S50C
切削速度 Cutting Speed	100m/min (3,185min ⁻¹)
进给速度 Feed Rate	956mm/min (0.3mm/rev)
切深量 Depth of Hole	80mm (8D 通孔) (Through)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机械 Machine	立式加工中心 Vertical Machining Center

根据加工深度采用最适合的方法

The most suitable specifications based on drilling depth have been adopted.



WDO-10D/15D/20D/25D/30D 的特点

Special characteristics of WDO-10D, 15D, 20D, 25D, 30D

稳定加工的极限

Extremely stable machining

① 直线形切削刃，保证切削刃的强度

The linear cutting edge ensures superior point strength

对于悬长较长的长钻头，解决刃尖负荷的对策就是采用直线形切削刃和外周正前角。由此将切削刃的研磨量最优化，实现刃尖强度和低切削抵抗的平衡。

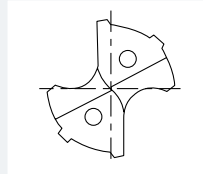
As a countermeasure against loads applied to the point of long drills with long projection lengths, a linear cutting edge and a negative peripheral rake angle have been adopted. This results in optimizing the honing amount of the cutting edge, as well as achieving both superior point strength and low cutting resistance.

② 采用M(Middle)刃带

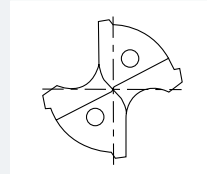
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M刃带
M (Middle) Margin

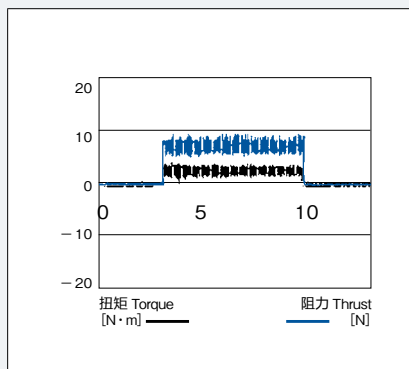


双刃带
Double Margin

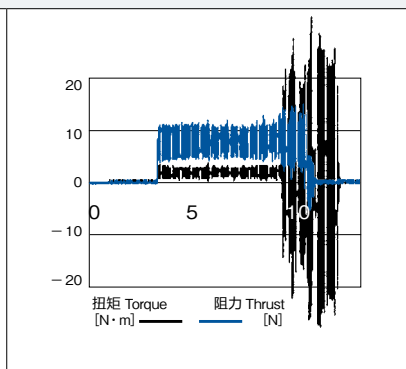
③ 控制排屑并且实现稳定的低阻抗

Controls chip generation and achieves low thrust and stable torque

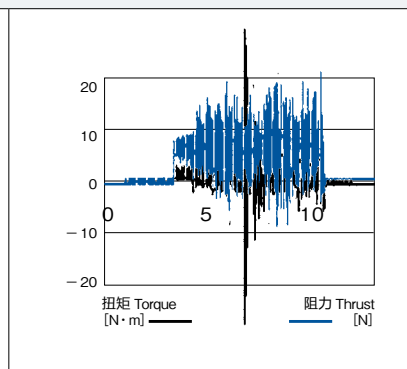
加工材质 Work Material	S50C
切削速度 Cutting Speed	100m/min (6,369min ⁻¹)
进给速度 Feed Rate	1,273mm/min (0.2mm/rev)
切深量 Depth of Hole	150mm (盲孔) (Blind)
切削油剂 Coolant	MQL  MQL= Environmentally friendly
使用机床 Machine	卧式加工中心 Horizontal Machining Center



WDO-30D φ5



其他公司 A φ5 Competitor A



其他公司 B φ5 Competitor B

降低工具成本的王牌

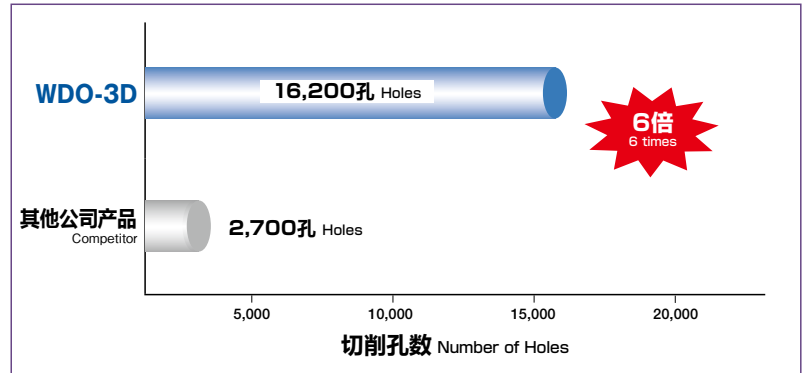
The trump card for reducing tool costs

90%大幅降低工具成本! Tool cost reduction of over 90%

在使用以前,“工具成本降低那么多是不可能的吧”,这是我们的一个客户在看到加工案例后觉得不可置信的反应。6倍的耐久寿命可以降低大约91.7%的成本。尽管这是一个极限加工案例,但是在实际加工中仍旧可以大幅的降低成本。我们OSG想要为顾客实现更多这样的例子。

Here is an example of a paradigm shift experienced by one of our customers who was pleasantly surprised after being skeptical about achieving further cost reductions. The six-fold improvement in durability resulted in a running cost reduction of 91.7%. Although this may be an extreme example, a greater amount of cost reduction is also possible. At OSG, we aim to support to our customers with more examples such as this.

使用工具 Tool	WDO-3D ϕ 10.8
加工材质 Work Material	S53C
切削速度 Cutting Speed	80m/min (2,369min ⁻¹)
进给速度 Feed Rate	590mm/min (0.25mm/rev)
切深量 Depth of Hole	15.25mm (1.4D 通孔) (Through)
切削油剂 Coolant	非水溶性切削油剂 Water Soluble
使用机床 Machine	复合车床 Multifunction Lathe



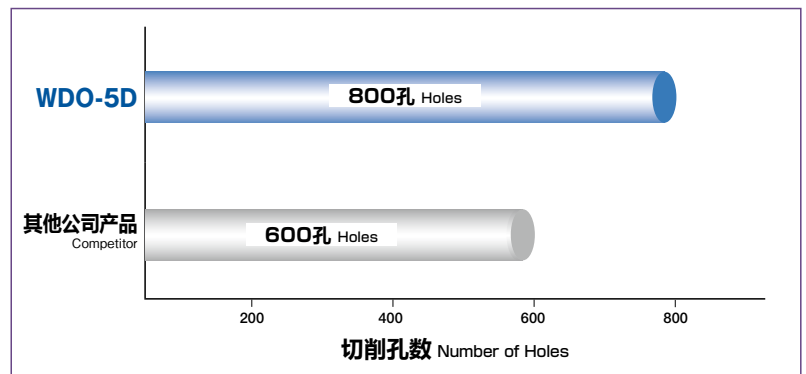
	工具寿命 (孔) Tool Life (Hole)	再研磨次数(次) Regrinding frequency (Time)	每台孔数(孔) Number of holes per piece (Hole)
WDO-3D	16,200	16	4
其他公司产品 Competitor	2,700	8	4

针对轴承钢加工工具成本减半! Tool cost halved even in bearing steel!

采用切削锋利性好的“波浪形”刃型后,即使在加工SUJ2中,仍然可以很好的控制切屑形状,并且流畅的排屑。并且,刃尖及外周部的磨损亦得到有效抑制。刀具寿命耐久性达到1.3倍,再研磨次数可以多1.75倍,工具成本可以达到50%削减!

Thanks to the wavy form of the point, even when drilling sticky SUJ2, better chips were produced and evacuation was smoother. As a result, wear on the point and peripheral edge were suppressed. Durability was increased 1.3 times, regrinding frequency improved 1.75 times, and tool costs were reduced 50%!

使用工具 Tool	WDO-5D ϕ 5.7
加工材质 Work Material	SUJ2
切削速度 Cutting Speed	80m/min (4,469min ⁻¹)
进给速度 Feed Rate	536mm/min (0.11mm/rev)
切深量 Depth of Hole	30mm (5D 通孔) (Through)
切削油剂 Coolant	油性切削剂 Non-Water Soluble
使用机床 Machine	立式加工中心 Vertical Machining Center



	工具寿命 (孔) Tool Life (Hole)	再研磨次数 Regrinding frequency (Time)	每台孔数 (孔) Number of holes per piece (Hole)
WDO-5D	800	14	1
其他公司产品 Competitor	600	8	1

特点
Feature

加工事例
Processing Data

W/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table by Drill Diameter

降低工具成本的王牌

The trump card for reducing tool costs

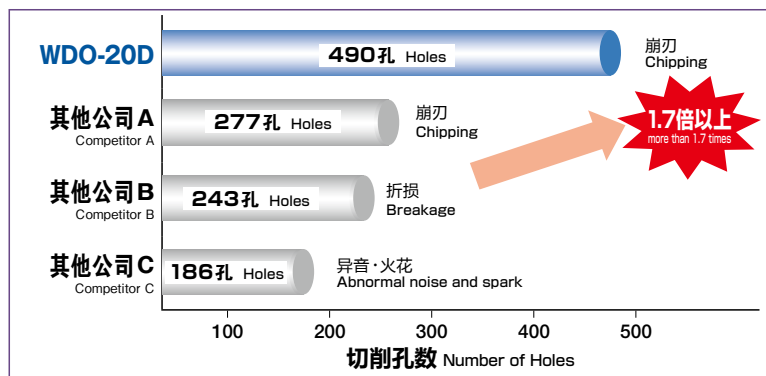
深孔加工有着如此的不同！1.7倍的耐久寿命可以相差3~5倍的工具成本！

What a difference in drilling deep holes! The durability difference of 1.7 times results in a tool cost differential of 3 to 5 times!

这是工序改善后的试验结果，这个案例很好的展示了钻头优异的排屑性能以及耐磨耗性。工具相差1.7倍的耐久寿命，折合到每个孔上的工具成本可以降低3-5倍(请参照下表)。这不仅仅因为工具的长寿命，也因为损耗量稳定的再研磨是循环成本减少的重要因素之一。

Here are the results of a process improvement trial. It is a good example demonstrating the drill's superior chip evacuation and wear inhibiting properties at the margin. The durability difference of over 1.7 times converts into 3 to 5 times of tool cost advantage per hole (see the table below). This does not simply indicate longer tool life; it results in even wear allowing the drill to be reground in a stable manner, an important factor in reducing the running cost.

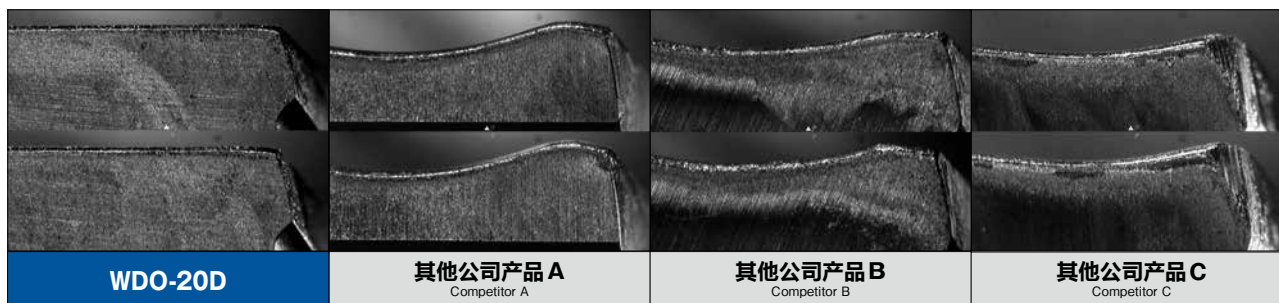
使用工具 Tool	WDO-20D $\phi 6$
加工材质 Work Material	SCM440 (30HRC)
切削速度 Cutting Speed	60m/min (3,184min ⁻¹)
进给速度 Feed Rate	764mm/min (0.24mm/rev)
切深量 Depth of Hole	120mm (20D 盲孔) (Blind)
切削油剂 Coolant	MQL MQL ECO MQL= Environmentally friendly
使用机床 Machine	卧式加工中心 Horizontal Machining Center



	工具寿命 (孔) Tool Life (Hole)	再研磨次数(次) Regrinding frequency (Time)	每台孔数(孔) Number of holes per piece (Hole)
WDO-20D	490	20	4
其他公司 A Competitor A	277	10	4
其他公司 B Competitor B	243	1	4
其他公司 C Competitor C	186	10	4

加工210孔后后刀面磨损比较

Comparison of flank wear after drilling 210 holes.



降低工具成本的王牌

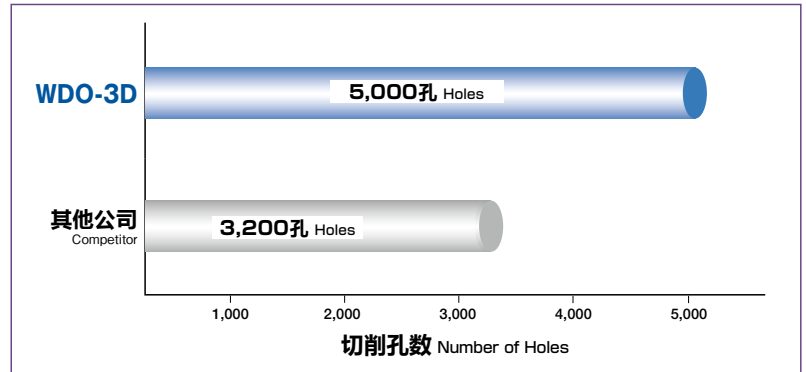
The trump card for reducing tool costs

■ 总切削长度200m，工具成本削减74% Drills 200 meters on a lathe! Tool cost reduced by 74%.

这是一个WDI®涂层能很好抑制刃带磨损的加工案例。工具相差1.56倍的耐久寿命，折合到每个孔上工具成本相差了3.91倍。由此可以得出，到钻头报废为止前进行的再研磨次数也是考量工具成本不可忽视的重要因素。

Here is a good example of the WDI® Coating's ability to inhibit wear at the margin. The durability difference example of 1.56 times converts into a tool cost differential per hole of 3.91 times. The regrinding frequency, which indicates the number of times a drill can be reground until it is discarded, is also an important factor that should not be ignored in calculating the running cost.

使用工具 Tool	WDO-3D ϕ 13
加工材质 Work Material	S15C
切削速度 Cutting Speed	102m/min (2,500min ⁻¹)
进给速度 Feed Rate	500mm/min (0.2mm/rev)
切深量 Depth of Hole	40mm (3D 盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂(稀释倍率15倍) Water Soluble (14:1 RATIO)
使用机床 Machine	NC 车床 NC Lathe



	工具寿命 (孔) Tool Life (Hole)	再研磨次数(次) Regrinding frequency (Time)	每台孔数(孔) Number of holes per piece (Hole)
WDO-3D	5,000	20	1
其他公司 Competitor	3,200	8	1

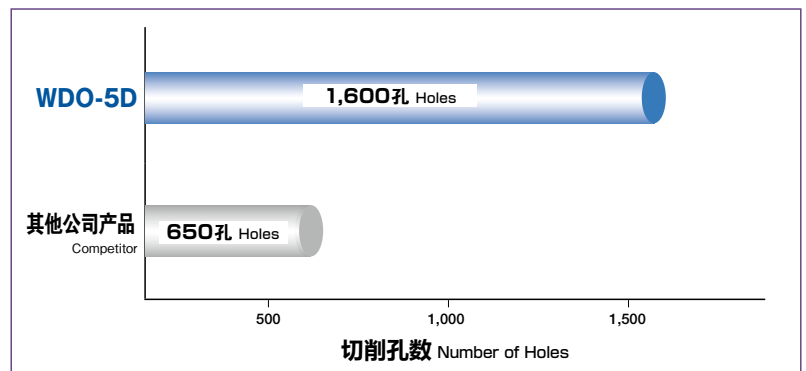
■ 工具成本降低，稳定加工—这是世界共通的需求

The need for reduction and stability in tool costs is common throughout the world

这是一个来自于美国的加工案例，由于折损导致寿命的不稳定，工具费难以预算。按这种状况给予解决方案，以钻头报废为止的平均再研磨次数5次作比较，大约可以降低85%的工具费。钻头的磨损稳定，可以达到预计寿命，甚是欣慰。

These examples are from the United States. OSG was able to provide a solution to a situation in which the tool cost could not be calculated due to erratic durability associated with broken drills. Compared to the average regrinding frequency of five times until the drill was discarded, a tool cost reduction of approximately 85% was achieved. Our customers around the world have truly appreciated the arrival of drills that exhibit stable wear.

使用工具 Tool	WDO-5D 1 1/32inch
加工材质 Work Material	S30C 相当材 Equivalent of S30C
切削速度 Cutting Speed	122m/min (4,454min ⁻¹)
进给速度 Feed Rate	44mm/min (0.009mm/rev)
切深量 Depth of Hole	1.562inch (4.5D 盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机床 Machine	卧式加工中心 Horizontal Machining Center



	工具寿命 (孔) Tool Life (Hole)	再研磨次数(次) Regrinding frequency (Time)	每台孔数(孔) Number of holes per piece (Hole)
WDO-5D	1,600	13	5
其他公司产品 Competitor	650	5	5

特点
Feature

加工事例
Processing Data

W/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

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Cutting Conditions

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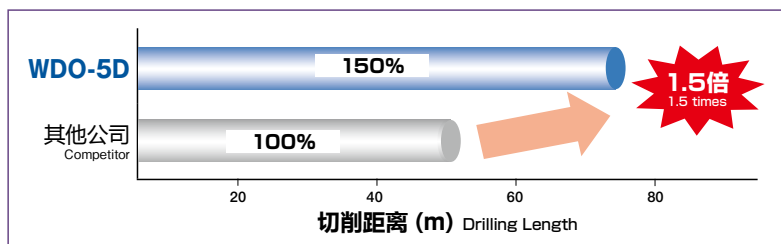
The trump card for reducing tool costs

低成本及高效率的铸铁加工！ Low-cost and high-efficiency drilling of cast iron

有效抑制钻头外周磨损，增加工具1.5倍的耐久寿命，降低55%的工具成本。钻头外周磨损的抑制可以消除再研磨的成本(研磨费用及研磨时间)。请注意比较在规定的孔数以及规定孔数1.5倍加工时，其它公司钻头以及WDO-5D钻头的磨损状态。

Inhibiting the wear at the periphery of the drill increases durability 1.5 times and reduces the tool cost by 55%. The effect of inhibiting periphery wear increases the regrinding frequency by 1.5 times, eliminating the grinding cost (grinding expense and time). Please compare the distinct difference in the wear conditions between the competitor's constant machining time and WDO-5D's machining time of 1.5 times.

使用工具 Tool	WDO-5D ϕ 8.5
加工材质 Work Material	FC250
切削速度 Cutting Speed	120m/min (4,500min ⁻¹)
进给速度 Feed Rate	1,485mm/min (0.33mm/rev)
切深量 Depth of Hole	35mm (4D 盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂(稀释倍率20倍) Water Soluble (5%)
使用机床 Machine	立式加工中心(HSK) Vertical Machining Center

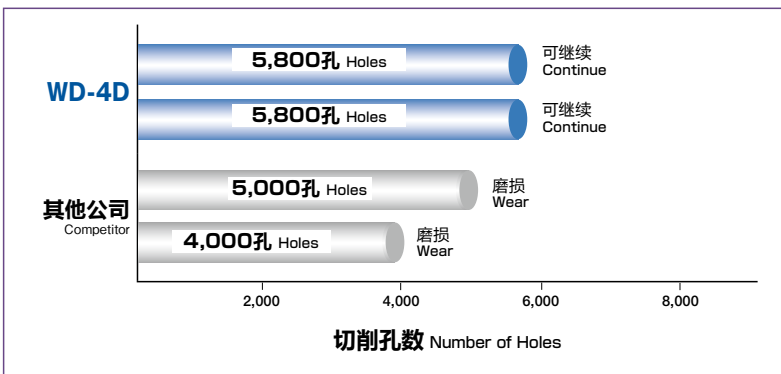


SCM440 (30HRC)的加工 Application of SCM440(30HRC)

3300HV的高硬度涂层可以有效抑制横刀部的磨损，减少切削刃受损使在研磨量稳定。

3,300HV high hardness coating is effective against margin area friction wear. The coating will minimize a damage at cutting edge and gives stable wear margin for easy regrinding.

使用工具 Tool	WD-4D ϕ 3
加工材质 Work Material	SCM440 [DIN 42CrMo4] (30HRC) [AISI 4140]
切削速度 Cutting Speed	70m/min (7,427min ⁻¹)
进给速度 Feed Rate	743mm/min (0.1mm/rev)
切深量 Depth of Hole	12mm (盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机床 Machine	立式加工中心 Vertical Machining Center

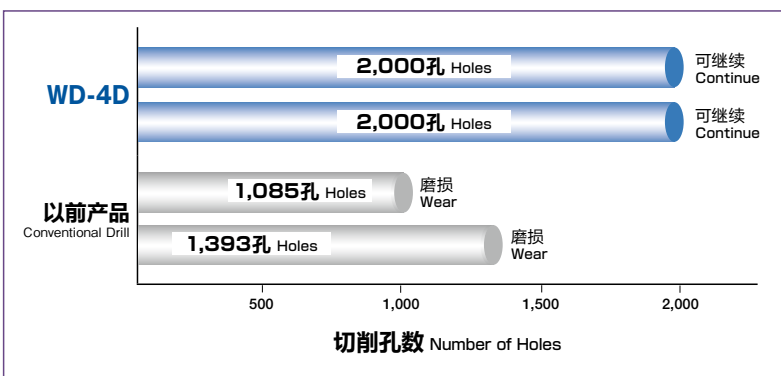


S50C 的加工 Application of S50C

高耐磨损性的WDI涂层，针对碳素钢也可防止横刀部的崩损。

Against Carbon Steel, WDI® coating hold from chipping at margin area against friction resistance.

使用工具 Tool	WD-4D ϕ 12
加工材质 Work Material	S50C [DIN CK50] [AISI 1050]
切削速度 Cutting Speed	100m/min (2,653min ⁻¹)
进给速度 Feed Rate	637mm/min(0.24mm/rev)
切深量 Depth of Hole	47mm (盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机床 Machine	立式加工中心 Vertical Machining Center



稳定加工的极限

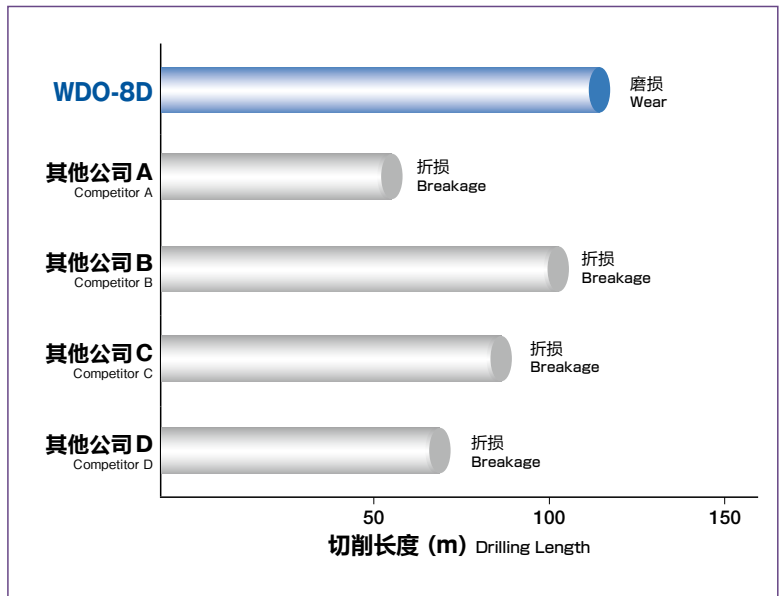
Extremely stable machining

■ 中距(8D)加工稳定! Stable performance in middle range (8D) work!

锋利性及稳定加工并存的高刚性式样，抑制了加工中的折损，回避了突发的折损问题从而实现稳定加工。

Cutting wear can be greatly minimized due to the tool's high rigidity, increased sharpness and stable low torque drilling. Its superior wear resistance prevents abrupt tool breakage, enables stable performance.

使用工具 Tool	WDO-8D ϕ 10
加工材质 Work Material	S50C
切削速度 Cutting Speed	100m/min (3,185min ⁻¹)
进给速度 Feed Rate	956mm/min (0.3mm/rev)
切深量 Depth of Hole	80mm (8D盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机床 Machine	立式加工中心 Vertical Machining Center

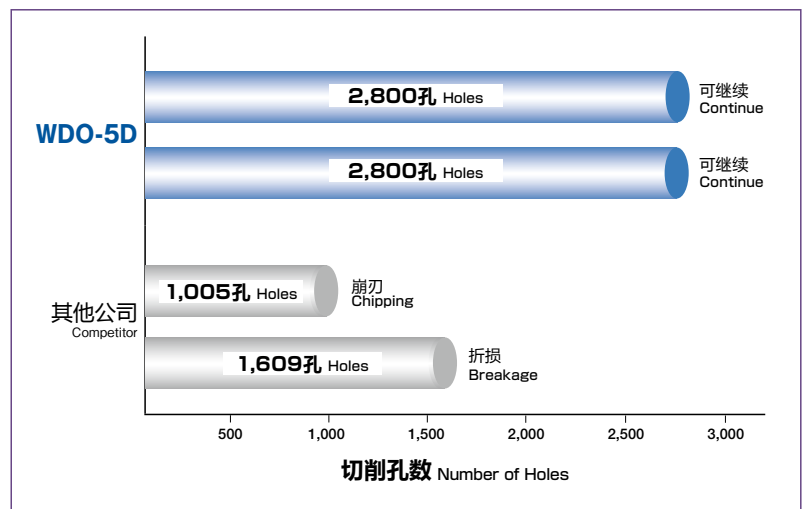


■ 预硬钢的稳定加工! Stable drilling of pre-hardened steel!

这是一个树脂模具生产企业提供的加工案例。优异的涂层性能以及最佳的切削刃型可以抑制由于钻头崩损而造成的寿命不稳定，实现加工现场的稳定加工。稳定的加工条件也可以实现无人化加工，并且使加工设备自由度大大提高。

Here is an example provided by a plastic mold manufacturer. The superior coating performance and optimization of the cutting edge form helped reduce durability variances associated with broken drills, thereby bringing stable machining conditions to the shop floor. Moreover, the stable working conditions of the drills that do not break enabled unmanned operations and improved the flexibility of the machines.

使用工具 Tool	WDO-5D ϕ 5
加工材质 Work Material	NAK80 (40HRC)
切削速度 Cutting Speed	60m/min (3,821 min ⁻¹)
进给速度 Feed Rate	382mm/min (0.1mm/rev)
切深量 Depth of Hole	15mm (3D盲孔) (Blind)
切削油剂 Coolant	水溶性切削油剂(20倍) Water Soluble (5%)
使用机床 Machine	立式加工中心 Vertical Machining Center

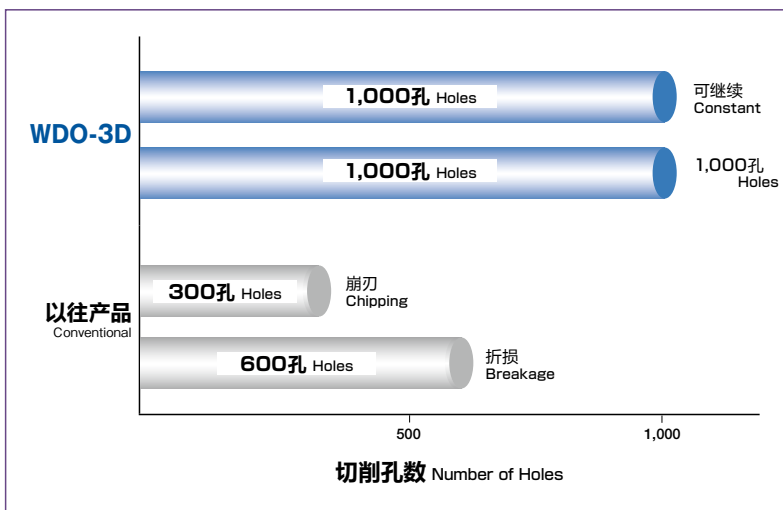


奥氏体不锈钢的稳定加工! Stable drilling of austenitic stainless steel!

以前的钻头,通常在加工300-600个孔时,尚可进行比较稳定持久的加工。但是由于WDO-3D的优异排屑性能以及低阻抗,使它可以实现1000个孔的稳定加工,并且可以进行切削速度50m/min,每转进给量为钻头直径3.2%的高效率加工。

Conventional drills, which drill 300 to 600 holes, should be improved in terms of stable durability. The better chip evacuation and low thrust of the WDO-3D enable the stable drilling of up to 1,000 holes. Furthermore, the WDO-3D is highly efficient, resulting in a feed rate of 3.2% of drill diameter at the cutting speed of 50m/min.

使用工具 Tool	WDO-3D 1 1/32inch
加工材质 Work Material	SUS303
切削速度 Cutting Speed	50m/min (1,850min ⁻¹)
进给速度 Feed Rate	203mm/min (0.11mm/rev)
切深量 Depth of Hole	1inch (2.9D 通孔) (Through)
切削油剂 Coolant	水溶性切削油剂 Water Soluble
使用机床 Machine	立式加工中心 Vertical Machining Center

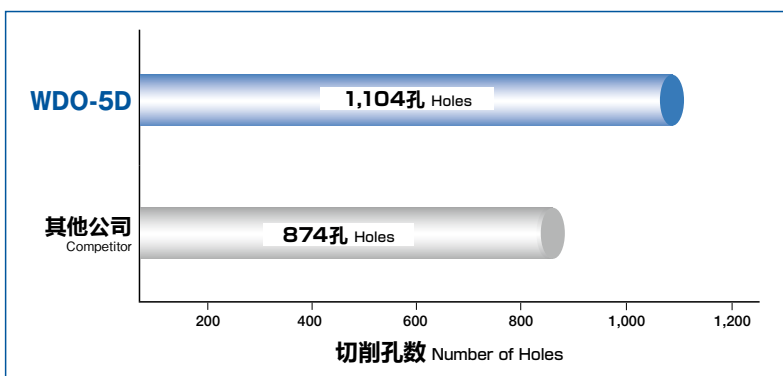


大孔径MQL加工! Drilling large-diameter holes using MQL (Minimum Quantity Lubrication)

软钢的MQL加工。WD I®涂层具有耐热性及热传导性好的特点。这可以使有WD I®涂层的钻头比其它公司的钻头寿命耐久性好1.25倍。这是经济且环保的。OSG致力于为低碳化加工提供支援。

MQL drilling of mild steel. The heat resistance and heat dissipation effects of the WDI® Coating resulted in 1.25 times the durability of our competitor's product. This is both economical and ecological. OSG supports machining processes geared towards a carbon-free society.

使用工具 Tool	WDO-5D φ 17.5
加工材质 Work Material	SS400
切削速度 Cutting Speed	72m/min (1,300min ⁻¹)
进给速度 Feed Rate	390mm/min (0.3mm/rev)
切深量 Depth of Hole	55mm (3D 通孔) (Through)
切削油剂 Coolant	MQL MQL ECO MQL = Environmentally friendly
使用机床 Machine	立式加工中心 Vertical Machining Center



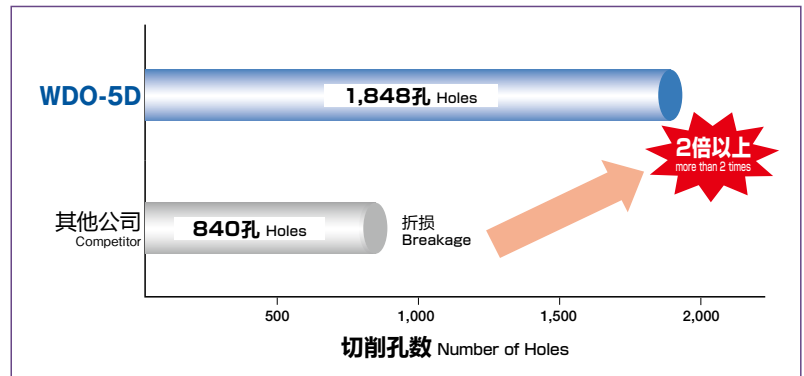
SCM440的加工材料每孔对应的工具费用也可削减75%以上

The tool cost per hole has been reduced more than 75% in SCM440!

这是耐久度及再研磨次数延长2倍以上的案例。2X2也就是可以达到削减4倍成本的效果。刀具费用也可削减75%以上，尽管工具成本可以削减75%以上，但需要确认设备是否能达到针对30HRC 硬度，切削速度70m/min，进给为钻头直径的3%”的高效率加工的要求。

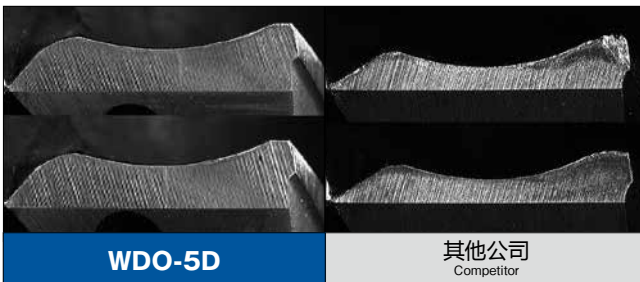
Here is an example of more than doubling the durability and the frequency of regrinding. 2x2 equals a four-fold cost reduction. Also note that while reducing the tool cost by more than 75%, it efficiently achieves "a feed rate of 3% of the diameter at a speed of 70m/min in 30HRC material".

使用工具 Tool	WDO-5D ϕ 10
加工材质 Work Material	SCM440 (30HRC)
切削速度 Cutting Speed	70m/min (2,229min ⁻¹)
进给速度 Feed Rate	668mm/min (0.3mm/rev)
切深量 Depth of Hole	50mm (5D 通孔) (Through)
切削油剂 Coolant	水溶性切削油剂 (稀释倍率20倍) Water Soluble (5%)
使用机床 Machine	立式加工中心 (HSK) Vertical Machining Center



	工具寿命 (孔) Tool Life (Hole)	再研磨次数(次) Regrinding frequency (Time)	每台孔数(孔) Number of holes per piece (Hole)
WDO-5D	1,848	16	4
其他公司 Competitor	840	8	4

42m(840孔)加工时刀背面磨损比较 Wear condition after drilling 42m (840 holes)



标示种类

Guide for Icons

1 材质 Tool Materials



超微粒子硬质合金
Micro Grain Carbide

2 表面处理 Surface Treatment



WDI® 涂层
WDI® Coating



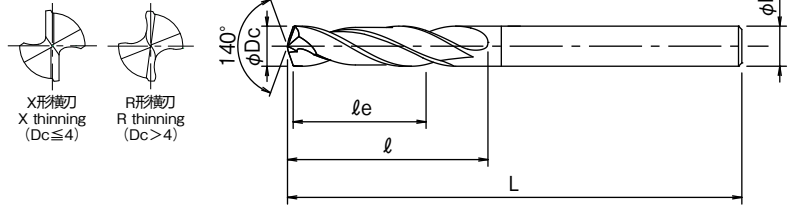
FX (TiAlN 多层复合材料) 涂层
FX (composite multi-layered TiAlN) coating

WD-2D/4D

WD-2D



WD-4D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.



单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325200	2 - 3	2D	10	14	62	3	B
3327200		4D	16	20	66		
3320200	2	2D	10	14	62	4	B
3322200		4D	16	20	66		
3325210	2.1 - 3	2D	10	14	62	3	B
3327210		4D	16	20	66		
3320210	2.1	2D	10	14	62	4	B
3322210		4D	16	20	66		
3325220	2.2 - 3	2D	10	14	62	3	B
3327220		4D	16	20	66		
3320220	2.2	2D	10	14	62	4	B
3322220		4D	16	20	66		
3325230	2.3 - 3	2D	9	14	62	3	B
3327230		4D	15	20	66		
3320230	2.3	2D	9	14	62	4	B
3322230		4D	15	20	66		
3325240	2.4 - 3	2D	9	14	62	3	B
3327240		4D	15	20	66		
3320240	2.4	2D	9	14	62	4	B
3322240		4D	15	20	66		

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325250	2.5 - 3	2D	9	14	62	3	B
3327250		4D	15	20	66		
3320250	2.5	2D	9	14	62	4	B
3322250		4D	15	20	66		
3325260	2.6 - 3	2D	9	14	62	3	B
3327260		4D	15	20	66		
3320260	2.6	2D	9	14	62	4	B
3322260		4D	15	20	66		
3325270	2.7 - 3	2D	9	14	62	3	B
3327270		4D	15	20	66		
3320270	2.7	2D	9	14	62	4	B
3322270		4D	15	20	66		
3320276	2.76	2D	9	14	62	4	B
3320278	2.78	2D	8	14	62	4	B
3325280	2.8 - 3	2D	8	14	62	3	B
3327280		4D	14	20	66		
3320280	2.8	2D	8	14	62	4	B
3322280		4D	14	20	66		
3325290	2.9 - 3	2D	8	14	62	3	B
3327290		4D	14	20	66		

■标示的说明请参考P.10。

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

FROM

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3320290	2.9	2D	8	14	62	4	B
3322290		4D	14	20	66		
3325300	3 - 3	2D	14	20	66	3	B
3327300		4D	22	28	74		
3320300	3	2D	14	20	66	4	B
3322300		4D	22	28	74		
3320310	3.1	2D	14	20	66	4	B
3322310		4D	22	28	74		
3320320	3.2	2D	14	20	66	4	B
3322320		4D	22	28	74		
3320330	3.3	2D	13	20	66	4	B
3322330		4D	21	28	74		
3320340	3.4	2D	13	20	66	4	B
3322340		4D	21	28	74		
3320350	3.5	2D	13	20	66	4	B
3322350		4D	21	28	74		
3320360	3.6	2D	13	20	66	4	B
3322360		4D	21	28	74		
3320366	3.66	2D	13	20	66	4	B
3320368	3.68	2D	13	20	66	4	B
3320370	3.7	2D	13	20	66	4	B
3322370		4D	21	28	74		
3320380	3.8	2D	16	24	66	4	B
3322380		4D	28	36	74		
3320390	3.9	2D	16	24	66	4	B
3322390		4D	28	36	74		
3320400	4	2D	16	24	66	4	B
3322400		4D	28	36	74		
3325410	4.1 - 5	2D	16	24	66	5	B
3327410		4D	28	36	74		
3320410	4.1	2D	16	24	66	6	B
3322410		4D	28	36	74		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325420	4.2 - 5	2D	16	24	66	5	B
3327420		4D	28	36	74		
3320420	4.2	2D	16	24	66	6	B
3322420		4D	28	36	74		
3325430	4.3 - 5	2D	15	24	66	5	B
3327430		4D	27	36	74		
3320430	4.3	2D	15	24	66	6	B
3322430		4D	27	36	74		
3325440	4.4 - 5	2D	15	24	66	5	B
3327440		4D	27	36	74		
3320440	4.4	2D	15	24	66	6	B
3322440		4D	27	36	74		
3325450	4.5 - 5	2D	15	24	66	5	B
3327450		4D	27	36	74		
3320450	4.5	2D	15	24	66	6	B
3322450		4D	27	36	74		
3325460	4.6 - 5	2D	15	24	66	5	B
3327460		4D	27	36	74		
3320460	4.6	2D	15	24	66	6	B
3322460		4D	27	36	74		
3320462	4.62	2D	15	24	66	6	B
3320464	4.64	2D	15	24	66	6	B
3325470	4.7 - 5	2D	15	24	66	5	B
3327470		4D	27	36	74		
3320470	4.7	2D	15	24	66	6	B
3322470		4D	27	36	74		
3325480	4.8 - 5	2D	18	28	66	5	B
3327480		4D	34	44	82		
3320480	4.8	2D	18	28	66	6	B
3322480		4D	34	44	82		
3325490	4.9 - 5	2D	18	28	66	5	B
3327490		4D	34	44	82		

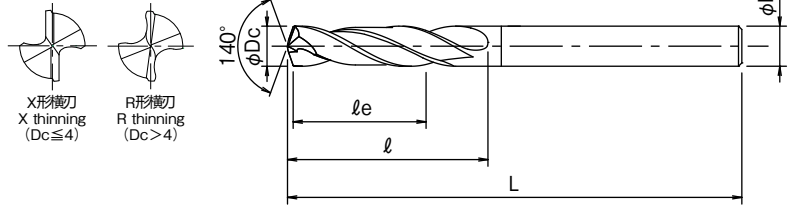
B = 标准库存品 B = Standard stock item

WD-2D/4D

WD-2D



WD-4D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.36

单位:mm Unit:mm

商品号 EDP No.	直径 $D_c - D_s$	刃长 L/D_c	有效加工深度 l_e	槽长 l	全长 L	柄径 D_s	库存 Stock
3320490	4.9	2D	18	28	66	6	B
3322490		4D	34	44	82		
3325500	5 - 5	2D	18	28	66	5	B
3327500		4D	34	44	82		
3320500	5	2D	18	28	66	6	B
3322500		4D	34	44	82		
3320510	5.1	2D	18	28	66	6	B
3322510		4D	34	44	82		
3320520	5.2	2D	18	28	66	6	B
3322520		4D	34	44	82		
3320530	5.3	2D	17	28	66	6	B
3322530		4D	33	44	82		
3320540	5.4	2D	17	28	66	6	B
3322540		4D	33	44	82		
3320550	5.5	2D	17	28	66	6	B
3322550		4D	33	44	82		
3320552	5.52	2D	17	28	66	6	B
3320554	5.54	2D	17	28	66	6	B
3320560	5.6	2D	17	28	66	6	B
3322560		4D	33	44	82		

商品号 EDP No.	直径 $D_c - D_s$	刃长 L/D_c	有效加工深度 l_e	槽长 l	全长 L	柄径 D_s	库存 Stock
3320570	5.7	2D	17	28	66	6	B
3322570		4D	33	44	82		
3320580	5.8	2D	17	28	66	6	B
3322580		4D	33	44	82		
3320590	5.9	2D	16	28	66	6	B
3322590		4D	32	44	82		
3320600	6	2D	16	28	66	6	B
3322600		4D	32	44	82		
3325610	6.1 - 7	2D	22	34	79	7	B
3327610		4D	41	53	91		
3320610	6.1	2D	22	34	79	8	B
3322610		4D	41	53	91		
3325620	6.2 - 7	2D	22	34	79	7	B
3327620		4D	41	53	91		
3320620	6.2	2D	22	34	79	8	B
3322620		4D	41	53	91		
3325630	6.3 - 7	2D	22	34	79	7	B
3327630		4D	41	53	91		
3320630	6.3	2D	22	34	79	8	B
3322630		4D	41	53	91		

■标示的说明请参考P.10.

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

FROM

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325640	6.4 - 7	2D	21	34	79	7	B
3327640		4D	40	53	91		
3320640	6.4	2D	21	34	79	8	B
3322640		4D	40	53	91		
3325650	6.5 - 7	2D	21	34	79	7	B
3327650		4D	40	53	91		
3320650	6.5	2D	21	34	79	8	B
3322650		4D	40	53	91		
3325660	6.6 - 7	2D	21	34	79	7	B
3327660		4D	40	53	91		
3320660	6.6	2D	21	34	79	8	B
3322660		4D	40	53	91		
3325670	6.7 - 7	2D	21	34	79	7	B
3327670		4D	40	53	91		
3320670	6.7	2D	21	34	79	8	B
3322670		4D	40	53	91		
3325680	6.8 - 7	2D	21	34	79	7	B
3327680		4D	40	53	91		
3320680	6.8	2D	21	34	79	8	B
3322680		4D	40	53	91		
3325690	6.9 - 7	2D	20	34	79	7	B
3327690		4D	39	53	91		
3320690	6.9	2D	20	34	79	8	B
3322690		4D	39	53	91		
3325700	7 - 7	2D	20	34	79	7	B
3327700		4D	39	53	91		
3320700	7	2D	20	34	79	8	B
3322700		4D	39	53	91		
3320710	7.1	2D	27	41	79	8	B
3322710		4D	39	53	91		
3320720	7.2	2D	27	41	79	8	B
3322720		4D	39	53	91		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3320730	7.3	2D	27	41	79	8	B
3322730		4D	39	53	91		
3320736	7.36	2D	26	41	79	8	B
3320738	7.38	2D	26	41	79	8	B
3320740	7.4	2D	26	41	79	8	B
3322740		4D	38	53	91		
3320750	7.5	2D	26	41	79	8	B
3322750		4D	38	53	91		
3320752	7.52	2D	26	41	79	8	B
3320754	7.54	2D	26	41	79	8	B
3320760	7.6	2D	26	41	79	8	B
3322760		4D	38	53	91		
3320770	7.7	2D	26	41	79	8	B
3322770		4D	38	53	91		
3320780	7.8	2D	26	41	79	8	B
3322780		4D	38	53	91		
3320790	7.9	2D	25	41	79	8	B
3322790		4D	37	53	91		
3320800	8	2D	25	41	79	8	B
3322800		4D	37	53	91		
3325810	8.1 - 9	2D	31	47	89	9	B
3327810		4D	45	61	103		
3320810	8.1	2D	31	47	89	10	B
3322810		4D	45	61	103		
3325820	8.2 - 9	2D	31	47	89	9	B
3327820		4D	45	61	103		
3320820	8.2	2D	31	47	89	10	B
3322820		4D	45	61	103		
3325830	8.3 - 9	2D	31	47	89	9	B
3327830		4D	45	61	103		
3320830	8.3	2D	31	47	89	10	B
3322830		4D	45	61	103		

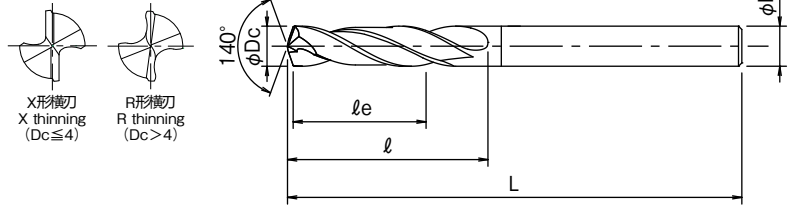
B = 标准库存品 B = Standard stock item

WD-2D/4D

WD-2D



WD-4D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.36

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 le	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325840	8.4 - 9	2D	30	47	89	9	B
3327840		4D	44	61	103		
3320840	8.4	2D	30	47	89	10	B
3322840		4D	44	61	103		
3325850	8.5 - 9	2D	30	47	89	9	B
3327850		4D	44	61	103		
3320850	8.5	2D	30	47	89	10	B
3322850		4D	44	61	103		
3325860	8.6 - 9	2D	30	47	89	9	B
3327860		4D	44	61	103		
3320860	8.6	2D	30	47	89	10	B
3322860		4D	44	61	103		
3325870	8.7 - 9	2D	30	47	89	9	B
3327870		4D	44	61	103		
3320870	8.7	2D	30	47	89	10	B
3322870		4D	44	61	103		
3325880	8.8 - 9	2D	30	47	89	9	B
3327880		4D	44	61	103		
3320880	8.8	2D	30	47	89	10	B
3322880		4D	44	61	103		

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 le	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3325890	8.9 - 9	2D	29	47	89	9	B
3327890		4D	43	61	103		
3320890	8.9	2D	29	47	89	10	B
3322890		4D	43	61	103		
3325900	9 - 9	2D	29	47	89	9	B
3327900		4D	43	61	103		
3320900	9	2D	29	47	89	10	B
3322900		4D	43	61	103		
3320910	9.1	2D	29	47	89	10	B
3322910		4D	43	61	103		
3320920	9.2	2D	29	47	89	10	B
3322920		4D	43	61	103		
3320924	9.24	2D	29	47	89	10	B
3320926	9.26	2D	29	47	89	10	B
3320930	9.3	2D	29	47	89	10	B
3322930		4D	43	61	103		
3320936	9.36	2D	28	47	89	10	B
3320938	9.38	2D	28	47	89	10	B
3320940	9.4	2D	28	47	89	10	B
3322940		4D	42	61	103		

■ 标示的说明请参考P.10.

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

FROM

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3320950	9.5	2D	28	47	89	10	B
3322950		4D	42	61	103		
3320952	9.52	2D	28	47	89	10	B
3320954	9.54	2D	28	47	89	10	B
3320960	9.6	2D	28	47	89	10	B
3322960		4D	42	61	103		
3320970	9.7	2D	28	47	89	10	B
3322970		4D	42	61	103		
3320980	9.8	2D	28	47	89	10	B
3322980		4D	42	61	103		
3320990	9.9	2D	27	47	89	10	B
3322990		4D	41	61	103		
3321000	10	2D	27	47	89	10	B
3323000		4D	41	61	103		
3326010	10.1 - 11	2D	35	55	102	11	B
3328010		4D	51	71	118		
3321010	10.1	2D	35	55	102	12	B
3323010		4D	51	71	118		
3326020	10.2 - 11	2D	35	55	102	11	B
3328020		4D	51	71	118		
3321020	10.2	2D	35	55	102	12	B
3323020		4D	51	71	118		
3326030	10.3 - 11	2D	35	55	102	11	B
3328030		4D	51	71	118		
3321030	10.3	2D	35	55	102	12	B
3323030		4D	51	71	118		
3326040	10.4 - 11	2D	34	55	102	11	B
3328040		4D	50	71	118		
3321040	10.4	2D	34	55	102	12	B
3323040		4D	50	71	118		
3326050	10.5 - 11	2D	34	55	102	11	B
3328050		4D	50	71	118		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3321050	10.5	2D	34	55	102	12	B
3323050		4D	50	71	118		
3326060	10.6 - 11	2D	34	55	102	11	B
3328060		4D	50	71	118		
3321060	10.6	2D	34	55	102	12	B
3323060		4D	50	71	118		
3326070	10.7 - 11	2D	34	55	102	11	B
3328070		4D	50	71	118		
3321070	10.7	2D	34	55	102	12	B
3323070		4D	50	71	118		
3326080	10.8 - 11	2D	34	55	102	11	B
3328080		4D	50	71	118		
3321080	10.8	2D	34	55	102	12	B
3323080		4D	50	71	118		
3326090	10.9 - 11	2D	33	55	102	11	B
3328090		4D	49	71	118		
3321090	10.9	2D	33	55	102	12	B
3323090		4D	49	71	118		
3326100	11 - 11	2D	33	55	102	11	B
3328100		4D	49	71	118		
3321100	11	2D	33	55	102	12	B
3323100		4D	49	71	118		
3321110	11.1	2D	33	55	102	12	B
3323110		4D	49	71	118		
3321120	11.2	2D	33	55	102	12	B
3323120		4D	49	71	118		
3321122	11.22	2D	33	55	102	12	B
3321124	11.24	2D	33	55	102	12	B
3321130	11.3	2D	33	55	102	12	B
3323130		4D	49	71	118		
3321136	11.36	2D	32	55	102	12	B
3321138	11.38	2D	32	55	102	12	B

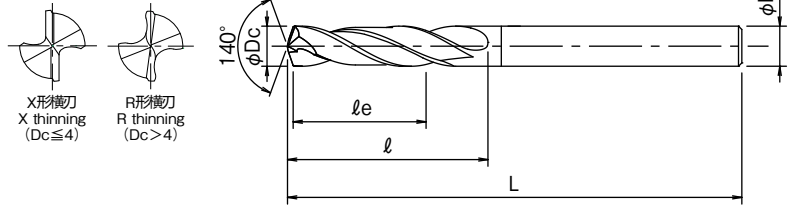
B = 标准库存品 B = Standard stock item

WD-2D/4D

WD-2D



WD-4D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.36

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 le	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3321140	11.4	2D	32	55	102	12	B
3323140		4D	48	71	118		
3321150	11.5	2D	32	55	102	12	B
3323150		4D	48	71	118		
3321160	11.6	2D	32	55	102	12	B
3323160		4D	48	71	118		
3321170	11.7	2D	32	55	102	12	B
3323170		4D	48	71	118		
3321180	11.8	2D	32	55	102	12	B
3323180		4D	48	71	118		
3321190	11.9	2D	31	55	102	12	B
3323190		4D	47	71	118		
3321200	12	2D	31	55	102	12	B
3323200		4D	47	71	118		
3328210	12.1 - 13	4D	53	77	124	13	B
3323210	12.1	4D	53	77	124	14	B
3328220	12.2 - 13	4D	53	77	124	13	B
3323220	12.2	4D	53	77	124	14	B
3328230	12.3 - 13	4D	53	77	124	13	B
3323230	12.3	4D	53	77	124	14	B

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 le	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3328240	12.4 - 13	4D	52	77	124	13	B
3323240	12.4	4D	52	77	124	14	B
3328250	12.5 - 13	4D	52	77	124	13	B
3323250	12.5	4D	52	77	124	14	B
3328260	12.6 - 13	4D	52	77	124	13	B
3323260	12.6	4D	52	77	124	14	B
3328270	12.7 - 13	4D	52	77	124	13	B
3323270	12.7	4D	52	77	124	14	B
3328280	12.8 - 13	4D	52	77	124	13	B
3323280	12.8	4D	52	77	124	14	B
3328290	12.9 - 13	4D	51	77	124	13	B
3323290	12.9	4D	51	77	124	14	B
3328300	13 - 13	4D	51	77	124	13	B
3323300	13	4D	51	77	124	14	B
3323310	13.1	4D	51	77	124	14	B
3323320	13.2	4D	51	77	124	14	B
3323330	13.3	4D	51	77	124	14	B
3323340	13.4	4D	50	77	124	14	B
3323350	13.5	4D	50	77	124	14	B
3323360	13.6	4D	50	77	124	14	B

■标示的说明请参考P.10.

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

FROM

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3323370	13.7	4D	50	77	124	14	B
3323380	13.8	4D	50	77	124	14	B
3323390	13.9	4D	49	77	124	14	B
3323400	14	4D	49	77	124	14	B
3328410	14.1 - 15	4D	55	83	133	15	B
3323410	14.1	4D	55	83	133	16	B
3328420	14.2 - 15	4D	55	83	133	15	B
3323420	14.2	4D	55	83	133	16	B
3328430	14.3 - 15	4D	55	83	133	15	B
3323430	14.3	4D	55	83	133	16	B
3328440	14.4 - 15	4D	54	83	133	15	B
3323440	14.4	4D	54	83	133	16	B
3328450	14.5 - 15	4D	54	83	133	15	B
3323450	14.5	4D	54	83	133	16	B
3328460	14.6 - 15	4D	54	83	133	15	B
3323460	14.6	4D	54	83	133	16	B
3328470	14.7 - 15	4D	54	83	133	15	B
3323470	14.7	4D	54	83	133	16	B
3328480	14.8 - 15	4D	54	83	133	15	B
3323480	14.8	4D	54	83	133	16	B
3328490	14.9 - 15	4D	53	83	133	15	B
3323490	14.9	4D	53	83	133	16	B
3328500	15 - 15	4D	53	83	133	15	B

单位:mm Unit:mm

商品号 EDP No.	直径 Dc - Ds	刃长 L/Dc	有效加工深度 ℓe	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
3323500	15	4D	53	83	133	16	B
3323510	15.1	4D	53	83	133	16	B
3323520	15.2	4D	53	83	133	16	B
3323530	15.3	4D	53	83	133	16	B
3323540	15.4	4D	52	83	133	16	B
3323550	15.5	4D	52	83	133	16	B
3323560	15.6	4D	52	83	133	16	B
3323570	15.7	4D	52	83	133	16	B
3323580	15.8	4D	52	83	133	16	B
3323590	15.9	4D	51	83	133	16	B
3323600	16	4D	51	83	133	16	B
3328650	16.5 - 17	4D	60	93	143	17	B
3323650	16.5	4D	60	93	143	18	B
3328700	17 - 17	4D	59	93	143	17	B
3323700	17	4D	59	93	143	18	B
3323750	17.5	4D	58	93	143	18	B
3323800	18	4D	57	93	143	18	B
3328850	18.5 - 19	4D	64	101	153	19	B
3323850	18.5	4D	64	101	153	20	B
3328900	19 - 19	4D	63	101	153	19	B
3323900	19	4D	63	101	153	20	B
3323950	19.5	4D	62	101	153	20	B
3324000	20	4D	61	101	153	20	B

B = 标准库存品 B = Standard stock item

硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-3D/5D/8D

WDO-3D



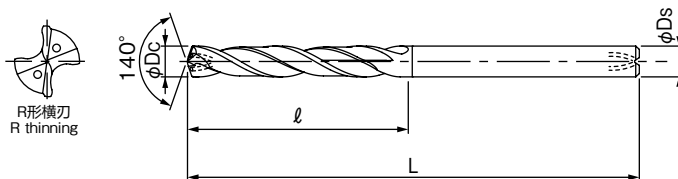
WDO-5D



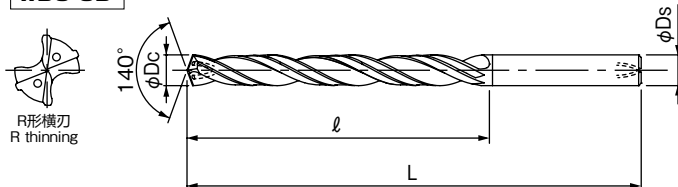
WDO-8D



WDO-3D / WDO-5D



WDO-8D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

WDI 切削条件 P.37

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
※ 8630230	2.3	3D	14	66	3	B
※ 8632230		5D	21	78		
※ 8630250	2.5	3D	15	66	3	B
※ 8632250		5D	23	78		
※ 8630260	2.6	3D	16	66	3	B
※ 8632260		5D	24	78		
※ 8630265	2.65	3D	16	66	3	B
※ 8632265		5D	24	78		
8632276	2.76	5D	25	78	3	B
8632278	2.78	5D	26	78	3	B
8630280	2.8	3D	17	66	3	B
8632280		5D	26	78		
8630290	2.9	3D	18	66	3	B
8632290		5D	27	78		
8630300	3	3D	18	66	3	B
8632300		5D	27	78		
8634300		8D	33	80		
8630310	3.1	3D	19	74	4	B
8632310		5D	28	86		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
※ 8630315	3.15	3D	19	74	4	B
※ 8632315		5D	29	86		
8630320	3.2	3D	20	74	4	B
8632320		5D	29	86		
8630330	3.3	3D	20	74	4	B
8632330		5D	30	86		
8630340	3.4	3D	21	74	4	B
8632340		5D	31	86		
8630350	3.5	3D	21	74	4	B
8632350		5D	32	86		
8634350		8D	39	95		
8630360	3.6	3D	22	74	4	B
8632360		5D	33	86		
8632366	3.66	5D	33	86	4	B
8632368	3.68	5D	34	86	4	B
8630370	3.7	3D	23	74	4	B
8632370		5D	34	86		
※ 8630375	3.75	3D	23	74	4	B
※ 8632375		5D	34	86		

※ 标示预定2015年夏天发售。 ※ Available from Summer 2015.

为了冷却液的稳定供给,在柄部端面留有缝隙。 To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

■ 标示的说明请参考P.10。

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径,长度的非标品(请参照P.1-2)。也可制作如铝合金加工用等其他特殊加工材质的专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

NEXT

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8630380	3.8	3D	23	74	4	B
8632380		5D	35	86		
8630390	3.9	3D	24	74	4	B
8632390		5D	36	86		
8630400	4	3D	24	74	4	B
8632400		5D	36	86		
8634400		8D	44	95		
8630410	4.1	3D	25	80	5	B
8632410		5D	37	95		
8630420	4.2	3D	26	80	5	B
8632420		5D	38	95		
8630430	4.3	3D	26	80	5	B
8632430		5D	39	95		
8630440	4.4	3D	27	80	5	B
8632440		5D	40	95		
8630450	4.5	3D	27	80	5	B
8632450		5D	41	95		
8634450		8D	50	105		
8630460	4.6	3D	28	80	5	B
8632460		5D	42	95		
8632462	4.62	5D	42	95	5	B
8632464	4.64	5D	42	95	5	B
8630470	4.7	3D	29	80	5	B
8632470		5D	43	95		
8630480	4.8	3D	29	80	5	B
8632480		5D	44	95		
8630490	4.9	3D	30	80	5	B
8632490		5D	45	95		
8630500	5	3D	25	80	5	B
8632500		5D	45	95		
8634500		8D	55	105		
8630510	5.1	3D	26	82	6	B
8632510		5D	41	100		
8630520	5.2	3D	26	82	6	B
8632520		5D	42	100		

※标示预 定2015年夏天发售。※ Available from Summer 2015.

为了冷却液的稳定供给,在柄部端面留有缝隙。

To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
※ 8630525	5.25	3D	27	82	6	B
※ 8632525		5D	42	100		
8630530	5.3	3D	27	82	6	B
8632530		5D	43	100		
8630540	5.4	3D	27	82	6	B
8632540		5D	44	100		
8630550	5.5	3D	28	82	6	B
8632550		5D	44	100		
8634550		8D	61	115		
8632552	5.52	5D	45	100	6	B
8632554	5.54	5D	45	100	6	B
8630560	5.6	3D	28	82	6	B
8632560		5D	45	100		
8630570	5.7	3D	29	82	6	B
8632570		5D	46	100		
8630580	5.8	3D	29	82	6	B
8632580		5D	47	100		
8630590	5.9	3D	30	82	6	B
8632590		5D	48	100		
8630600	6	3D	30	82	6	B
8632600		5D	48	100		
8634600		8D	66	115		
8630610	6.1	3D	31	88	7	B
8632610		5D	49	109		
8630620	6.2	3D	31	88	7	B
8632620		5D	50	109		
※ 8630625	6.25	3D	32	88	7	B
※ 8632625		5D	50	109		
8630630	6.3	3D	32	88	7	B
8632630		5D	51	109		
8630640	6.4	3D	32	88	7	B
8632640		5D	52	109		
8630650	6.5	3D	33	88	7	B
8632650		5D	52	109		
8634650		8D	72	125		

B = 标准库存品 B = Standard stock item

特点
Feature加工事例
Processing DataWD无油孔钻头
2D/4D

3D/5D/8D

WDO内冷却孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions直径选定表
Flute Length by Drill Diameter非标品对应表
Production Table by Drill Diameter

WDO-3D/5D/8D

WDO-3D



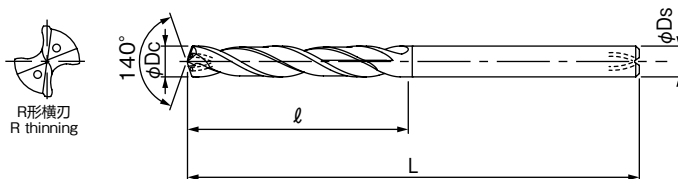
WDO-5D



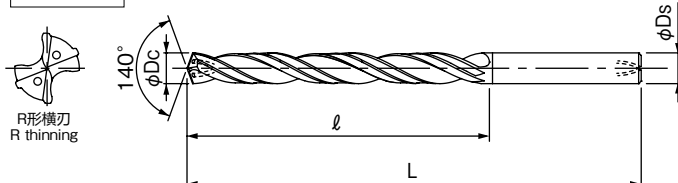
WDO-8D



WDO-3D / WDO-5D



WDO-8D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。
Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.37

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8630660	6.6	3D	33	88	7	B
8632660		5D	53	109		
8630670	6.7	3D	34	88	7	B
8632670		5D	54	109		
※ 8630675	6.75	3D	34	88	7	B
※ 8632675		5D	54	109		
8630680	6.8	3D	34	88	7	B
8632680		5D	55	109		
8630690	6.9	3D	35	88	7	B
8632690		5D	56	109		
8630700	7	3D	35	88	7	B
8632700		5D	56	109		
8634700		8D	77	125		
8630710	7.1	3D	36	94	8	B
8632710		5D	57	118		
8630720	7.2	3D	36	94	8	B
8632720		5D	58	118		
※ 8630725	7.25	3D	37	94	8	B
※ 8632725		5D	58	118		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8630730	7.3	3D	37	94	8	B
8632730		5D	59	118		
8632736	7.36	5D	59	118	8	B
8632738	7.38	5D	60	118	8	B
8630740	7.4	3D	37	94	8	B
8632740		5D	60	118		
8630750	7.5	3D	38	94	8	B
8632750		5D	60	118		
8634750		8D	83	140		
8632752	7.52	5D	61	118	8	B
8632754	7.54	5D	61	118	8	B
8630760	7.6	3D	38	94	8	B
8632760		5D	61	118		
8630770	7.7	3D	39	94	8	B
8632770		5D	62	118		
※ 8630775	7.75	3D	39	94	8	B
※ 8632775		5D	62	118		
8630780	7.8	3D	39	94	8	B
8632780		5D	63	118		

※ 标示预定2015年夏天发售。 ※ Available from Summer 2015.

B = 标准库存品 B = Standard stock item

为了冷却液的稳定供给,在柄部端面留有缝隙。 To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

■ 标示的说明请参考P.10。

■ See page 10 for explanation of marks.

请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径,长度的非标品(请参照P.1-2)。
也可制作如铝合金加工用等其他特殊加工材质的
专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8630790	7.9	3D	40	94	8	B
8632790		5D	64	118		
8630800	8	3D	40	94	8	B
8632800		5D	64	118		
8634800	8.1	3D	41	101	9	B
8630810		5D	65	128		
8632810	8.2	3D	41	101	9	B
8630820		5D	66	128		
8632820	8.25	3D	42	101	9	B
※ 8630825		5D	66	128		
※ 8632825	8.3	3D	42	101	9	B
8630830		5D	67	128		
8632830	8.4	3D	42	101	9	B
8630840		5D	68	128		
8632840	8.5	3D	43	101	9	B
8630850		5D	68	128		
8632850	8.6	3D	43	101	9	B
8634850		5D	69	128		
8630860	8.7	3D	44	101	9	B
8632860		5D	70	128		
8630870	8.75	3D	44	101	9	B
8632870		5D	70	128		
※ 8630875	8.8	3D	44	101	9	B
※ 8632875		5D	71	128		
8630880	8.9	3D	45	101	9	B
8632880		5D	72	128		
8630890	9	3D	45	101	9	B
8632890		5D	72	128		
8630900	9.1	3D	46	106	10	B
8632900		5D	73	136		
8634900	9.2	3D	46	106	10	B
8630910		5D	74	136		
8632910	9.2	3D	46	106	10	B
8630920		5D	74	136		
8632920	9.24	3D	47	106	10	B
8630930		5D	75	136		
8632930	9.25	3D	47	106	10	B
※ 8630925		5D	75	136		
※ 8632925	9.26	3D	47	106	10	B
8630930		5D	75	136		
8632926	9.3	3D	47	106	10	B
8630930		5D	75	136		
8632930	9.36	3D	47	106	10	B
8630930		5D	75	136		
8632936	9.38	3D	47	106	10	B
8630930		5D	75	136		
8632938	9.4	3D	47	106	10	B
8630940		5D	76	136		
8632940	9.5	3D	48	106	10	B
8630950		5D	76	136		
8632950	9.52	3D	48	106	10	B
8630950		5D	76	136		
8634950	9.54	3D	48	106	10	B
8630950		5D	77	136		
8632952	9.6	3D	48	106	10	B
8630960		5D	77	136		
8632954	9.7	3D	49	106	10	B
8630960		5D	77	136		
8632960	9.75	3D	49	106	10	B
8630970		5D	78	136		
8632970	9.8	3D	49	106	10	B
※ 8630975		5D	78	136		
※ 8632975	9.8	3D	49	106	10	B
8630980		5D	79	136		
8632980	9.9	3D	50	106	10	B
8630990		5D	80	136		
8632990	10	3D	50	106	10	B
8631000		5D	80	136		
8633000	10.1	3D	51	113	11	B
8635000		5D	81	146		
8631010	10.2	3D	51	113	11	B
8633010		5D	82	146		
8631020	10.25	3D	52	113	11	B
8633020		5D	82	146		
※ 8631025	10.25	3D	52	113	11	B
※ 8633025		5D	82	146		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8632924	9.24	5D	74	136	10	B
※ 8630925	9.25	3D	47	106	10	B
※ 8632925		5D	74	136		
8632926	9.26	5D	75	136	10	B
8630930	9.3	3D	47	106	10	B
8632930		5D	75	136		
8632936	9.36	5D	75	136	10	B
8632938	9.38	5D	76	136	10	B
8630940	9.4	3D	47	106	10	B
8632940		5D	76	136		
8630950	9.5	3D	48	106	10	B
8632950		5D	76	136		
8634950	9.52	3D	48	106	10	B
8630950		5D	76	136		
8632952	9.54	3D	48	106	10	B
8630960		5D	77	136		
8632954	9.6	3D	48	106	10	B
8630960		5D	77	136		
8632960	9.7	3D	49	106	10	B
8630970		5D	77	136		
8632970	9.75	3D	49	106	10	B
※ 8630975		5D	78	136		
※ 8632975	9.8	3D	49	106	10	B
8630980		5D	78	136		
8632980	9.8	3D	49	106	10	B
8630980		5D	79	136		
8630990	9.9	3D	50	106	10	B
8632990		5D	80	136		
8631000	10	3D	50	106	10	B
8633000		5D	80	136		
8635000	10.1	3D	51	113	11	B
8631010		5D	81	146		
8633010	10.2	3D	51	113	11	B
8631020		5D	82	146		
8633020	10.25	3D	52	113	11	B
※ 8631025		5D	82	146		
※ 8633025	10.25	3D	52	113	11	B
8633025		5D	82	146		

※标示预 定2015年夏天发售。※ Available from Summer 2015.

为了冷却液的稳定供给,在柄部端面留有缝隙。

To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

B = 标准库存品 B = Standard stock item

特点
Feature加工事例
Processing DataW/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷却孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions直径选定表
Flute Length by Drill Diameter非标品对应表
Production Table by Diameter

硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-3D/5D/8D

WDO-3D



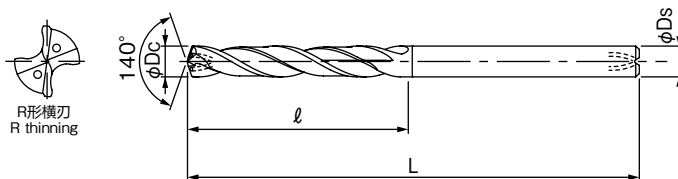
WDO-5D



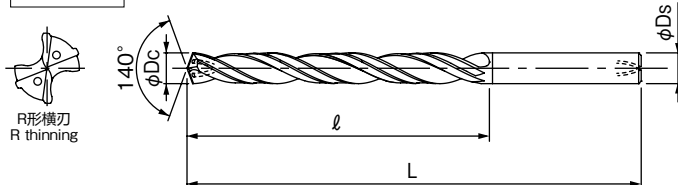
WDO-8D



WDO-3D / WDO-5D



WDO-8D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。
Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.37

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8631030	10.3	3D	52	113	11	B
8633030		5D	83	146		
8631040	10.4	3D	52	113	11	B
8633040		5D	84	146		
8631050	10.5	3D	53	113	11	B
8633050		5D	84	146		
8635050		8D	116	182		
8631060	10.6	3D	53	113	11	B
8633060		5D	85	146		
8631070	10.7	3D	54	113	11	B
8633070		5D	86	146		
※ 8631075	10.75	3D	54	113	11	B
※ 8633075		5D	86	146		
8631080	10.8	3D	54	113	11	B
8633080		5D	87	146		
8631090	10.9	3D	55	113	11	B
8633090		5D	88	146		
8631100	11	3D	55	113	11	B
8633100		5D	88	146		
8635100		8D	121	182		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8631110	11.1	3D	56	120	12	B
8633110		5D	89	156		
8631120	11.2	3D	56	120	12	B
8633120		5D	90	156		
8633122	11.22	5D	90	156	12	B
8633124	11.24	5D	90	156	12	B
8631130	11.3	3D	57	120	12	B
8633130		5D	91	156		
8633136	11.36	5D	91	156	12	B
8633138	11.38	5D	92	156	12	B
8631140	11.4	3D	57	120	12	B
8633140		5D	92	156		
8631150	11.5	3D	58	120	12	B
8633150		5D	92	156		
8635150		8D	127	194		
8631160	11.6	3D	58	120	12	B
8633160		5D	93	156		
8631170	11.7	3D	59	120	12	B
8633170		5D	94	156		

B = 标准库存品 B = Standard stock item

※ 标示预 定2015年夏天发售。 ※ Available from Summer 2015.

为了冷却液的稳定供给,在柄部端面留有缝隙。 To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

■ 标示的说明请参考P.10.

■ See page 10 for explanation of marks.

请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径,长度的非标品(请参照P.1-2)。
也可制作如铝合金加工用等其他特殊加工材质的
专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

FROM

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8631180	11.8	3D	59	120	12	B
8633180		5D	95	156		
8631190	11.9	3D	60	120	12	B
8633190		5D	96	156		
8631200	12	3D	60	120	12	B
8633200		5D	96	156		
8635200		8D	132	194		
8631210	12.1	3D	61	128	13	B
8633210		5D	97	167		
8631220	12.2	3D	61	128	13	B
8633220		5D	98	167		
8631230	12.3	3D	62	128	13	B
8633230		5D	99	167		
8631240	12.4	3D	62	128	13	B
8633240		5D	100	167		
8631250	12.5	3D	63	128	13	B
8633250		5D	100	167		
8635250		8D	138	206		
8631260	12.6	3D	63	128	13	B
8633260		5D	101	167		
8631270	12.7	3D	64	128	13	B
8633270		5D	102	167		
※ 8631275	12.75	3D	64	128	13	B
※ 8633275		5D	103	167		
8631280	12.8	3D	64	128	13	B
8633280		5D	103	167		
8631290	12.9	3D	65	128	13	B
8633290		5D	104	167		
8631300	13	3D	65	128	13	B
8633300		5D	104	167		
8635300		8D	143	206		
8631310	13.1	3D	66	134	14	B
8633310		5D	105	176		
8631320	13.2	3D	66	134	14	B
8633320		5D	106	176		
8633325	13.25	5D	106	176	14	B

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8631330	13.3	3D	67	134	14	B
8633330		5D	107	176		
8631340	13.4	3D	67	134	14	B
8633340		5D	108	176		
8631350	13.5	3D	68	134	14	B
8633350		5D	108	176		
8631360	13.6	3D	68	134	14	B
8633360		5D	109	176		
8631370	13.7	3D	69	134	14	B
8633370		5D	110	176		
8631380	13.8	3D	69	134	14	B
8633380		5D	111	176		
8631390	13.9	3D	70	134	14	B
8633390		5D	112	176		
8631400	14	3D	70	134	14	B
8633400		5D	112	176		
8631410	14.1	3D	71	140	15	B
8633410		5D	113	185		
8631420	14.2	3D	71	140	15	B
8633420		5D	114	185		
8631430	14.3	3D	72	140	15	B
8633430		5D	115	185		
8631440	14.4	3D	72	140	15	B
8633440		5D	116	185		
8631450	14.5	3D	73	140	15	B
8633450		5D	116	185		
8631460	14.6	3D	73	140	15	B
8633460		5D	117	185		
8631470	14.7	3D	74	140	15	B
8633470		5D	118	185		
8631480	14.8	3D	74	140	15	B
8633480		5D	119	185		
8631490	14.9	3D	75	140	15	B
8633490		5D	120	185		
8631500	15	3D	75	140	15	B
8633500		5D	120	185		

※ 标示预 定2015年夏天发售。 ※ Available from Summer 2015.

为了冷却液的稳定供给,在柄部端面留有缝隙。

To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

B = 标准库存品 B = Standard stock item

特点
Feature

加工事例
Processing Data

W/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标准品对应表
Production Table by Drill Diameter

WDO-3D/5D/8D

WDO-3D



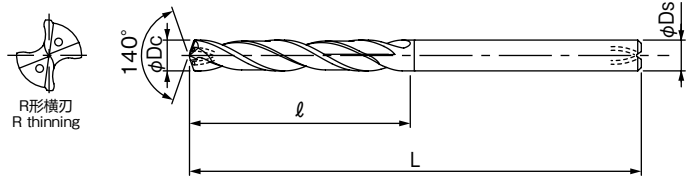
WDO-5D



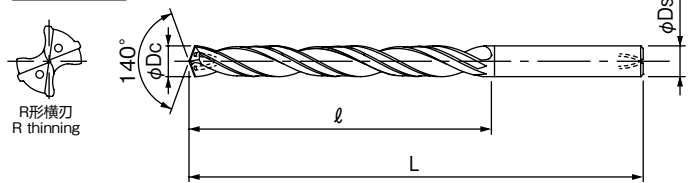
WDO-8D



WDO-3D / WDO-5D



WDO-8D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.37

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8631510	15.1	3D	76	145	16	B
8633510		5D	121	193		
8631520	15.2	3D	76	145	16	B
8633520		5D	122	193		
8633525	15.25	5D	122	193	16	B
8631530	15.3	3D	77	145	16	B
8633530		5D	123	193		
8631540	15.4	3D	77	145	16	B
8633540		5D	124	193		
8631550	15.5	3D	78	145	16	B
8633550		5D	124	193		
8631560	15.6	3D	78	145	16	B
8633560		5D	125	193		
8631570	15.7	3D	79	145	16	B
8633570		5D	126	193		
8631580	15.8	3D	79	145	16	B
8633580		5D	127	193		
8631590	15.9	3D	80	145	16	B
8633590		5D	128	193		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8631600	16	3D	80	145	16	B
8633600		5D	128	193		
8631650	16.5	3D	83	150	17	B
8633650		5D	132	201		
8631700	17	3D	85	150	17	B
8633700		5D	136	201		
8631750	17.5	3D	88	155	18	B
8633750		5D	140	209		
8631800	18	3D	90	155	18	B
8633800		5D	144	209		
8631850	18.5	3D	93	160	19	B
8633850		5D	148	217		
8631900	19	3D	95	160	19	B
8633900		5D	152	217		
8631950	19.5	3D	98	165	20	B
8633950		5D	156	225		
8632000	20	3D	100	165	20	B
8634000		5D	160	225		

为了冷却液的稳定供给,在柄部端面留有缝隙。

To ensure a stable flow of coolant, there is a groove on the bottom of the shank.

■ 标示的说明请参考P.10.

■ See page 10 for explanation of marks.

B = 标准库存品 B = Standard stock item

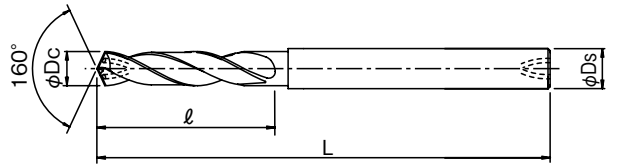
请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径,长度的非标品(请参照P.1-2)。
也可制作如铝合金加工用等其他特殊加工材质的
专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

超长钻头用导向钻 Pilot Drill for Extra Long Drill

WDO-PLT



CARBIDE WDI or FX 切削条件 P.38

商品号 EDP No.	直径 Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8568903	3.03	15	65	3	C
8568923	3.53	18	70	4	C
8568904	4.03	20	70	4	C
8568924	4.53	23	75	5	C
8568905	5.03	25	75	5	C
8568925	5.53	28	80	6	C
8568906	6.03	30	80	6	C
8568926	6.53	33	85	7	C

可制作不同直径, 长度的非标品。
Different diameters and length are available as specials.

■ 标示的说明请参考 P.10。 ■ See page 10 for explanation of marks.

注) 逐步以 WDI® 替层替代生产。
Start manufacturing with WDI® Coating.

单位: mm Unit: mm

商品号 EDP No.	直径 Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8568907	7.03	35	85	7	C
8568908	8.03	40	90	8	C
8568928	8.53	43	95	9	C
8568909	9.03	45	95	9	C
8568910	10.03	50	100	10	C
8568911	11.03	55	115	11	C
8568912	12.03	60	120	12	C

C=标准库存品 C=Standard stock item

特点
Feature

加工事例
Processing Data

WDI无油孔钻头
2D/4D

3D/5D/8D

WDO内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table by Drill Diameter

硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-10D/15D/20D/25D/30D

WDO-10D



WDO-15D



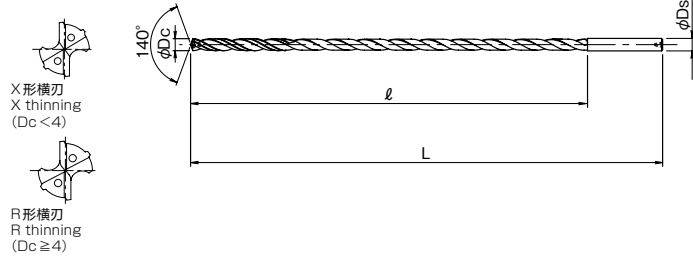
WDO-20D



WDO-25D



WDO-30D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.



商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	2.8	10D	40	90	3	<input type="checkbox"/>
	2.9	10D	40	90	3	<input type="checkbox"/>
8636300	3	10D	40	90	3	B
8638300		15D	55	105		
8646300		20D	70	120		
		25D	85	135		
	3.1	10D	45	100	4	<input type="checkbox"/>
		15D	60	125		
		20D	80	140		
		25D	95	165		
	3.2	10D	45	100	4	<input type="checkbox"/>
		15D	60	125		
		20D	80	140		
		25D	95	165		
	3.3	10D	45	100	4	<input type="checkbox"/>
		15D	60	125		
		20D	80	140		
		25D	95	165		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	3.4	10D	50	100	4	<input type="checkbox"/>
		15D	65	125		
		20D	85	140		
		25D	105	165		
8636350	3.5	10D	50	100	4	B
8638350		15D	65	125		
8646350		20D	85	140		
		25D	105	165		
8648350		30D	116	185		
	3.6	10D	50	100	4	<input type="checkbox"/>
		15D	65	125		
		20D	85	140		
		25D	105	165		
		30D	116	185		

B=标准库存品 =特定代理店库存品

B = Standard stock item

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

导孔钻的推荐进给速度及进给率, 请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

■ 标示说明请参考P.10.

■ See page 10 for explanation of marks.

请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径, 长度的非标品(请参照P.1-2), 也可制作如铝合金加工用等其他特殊加工材质的专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

NEXT

FROM

单位 :mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	3.7	10D	50	100	4	□
		15D	65	125		
		20D	85	140		
		25D	105	165		
		30D	116	185		
	3.8	10D	50	100	4	□
		15D	75	125		
		20D	90	140		
		25D	115	165		
		30D	132	185		
	3.9	10D	50	100	4	□
		15D	75	125		
		20D	90	140		
		25D	115	165		
		30D	132	185		
8636400	4	10D	50	100	4	B
8638400		15D	75	125		
8646400		20D	90	140		
		25D	115	165		
8648400		30D	132	185		
	4.1	10D	55	115	5	□
		15D	75	140		
		20D	100	165		
		25D	120	190		
		30D	140	215		
	4.2	10D	55	115	5	□
		15D	75	140		
		20D	100	165		
		25D	120	190		
		30D	140	215		
	4.3	10D	60	115	5	□
		15D	85	140		
		20D	110	165		
		25D	135	190		
		30D	150	215		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	4.4	10D	60	115	5	□
		15D	85	140		
		20D	110	165		
		25D	135	190		
		30D	150	215		
8636450	4.5	10D	60	115	5	B
8638450		15D	85	140		
8646450		20D	110	165		
		25D	135	190		
8648450		30D	150	215		
	4.6	10D	60	115	5	□
		15D	85	140		
		20D	110	165		
		25D	135	190		
		30D	150	215		
	4.7	10D	60	115	5	□
		15D	85	140		
		20D	110	165		
		25D	135	190		
		30D	150	215		
	4.8	10D	65	115	5	□
		15D	90	140		
		20D	115	165		
		25D	140	190		
		30D	165	215		
	4.9	10D	65	115	5	□
		15D	90	140		
		20D	115	165		
		25D	140	190		
		30D	165	215		
8636500	5	10D	65	115	5	B
8638500		15D	90	140		
8646500		20D	115	165		
		25D	140	190		
8648500		30D	165	215		

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特点
Feature

加工事例
Processing Data

W/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标准品对应表
Production Policy Drill Diameter

NEXT

硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-10D/15D/20D/25D/30D

WDO-10D



WDO-15D



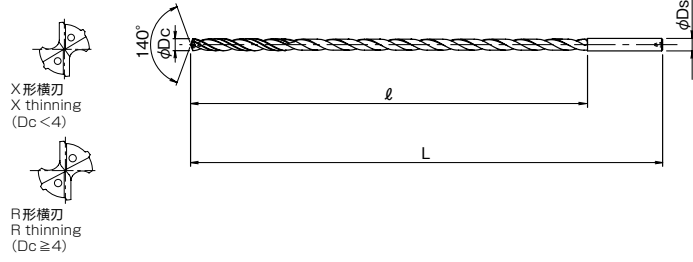
WDO-20D



WDO-25D



WDO-30D



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单位:mm Unit:mm

FROM CARBIDE WDI 切削条件 P.39

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
	5.1	10D	70	128	6	□
		15D	95	160		
		20D	120	190		
		25D	150	220		
		30D	180	250		
	5.2	10D	70	128	6	□
		15D	95	160		
		20D	120	190		
		25D	150	220		
		30D	180	250		
	5.3	10D	70	128	6	□
		15D	95	160		
		20D	120	190		
		25D	150	220		
		30D	180	250		
	5.4	10D	78	128	6	□
		15D	110	160		
		20D	140	190		
		25D	170	220		
		30D	200	250		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8636550	5.5	10D	78	128	6	B
8638550		15D	110	160		
8646550		20D	140	190		
		25D	170	220		
8648550		30D	200	250		
	5.6	10D	78	128	6	□
		15D	110	160		
		20D	140	190		
		25D	170	220		
		30D	200	250		
	5.7	10D	78	128	6	□
		15D	110	160		
		20D	140	190		
		25D	170	220		
		30D	200	250		
	5.8	10D	78	128	6	□
		15D	110	160		
		20D	140	190		
		25D	170	220		
		30D	200	250		

B=标准库存品 □=特定代理店库存品

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导孔钻的推荐进给速度及进给率, 请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

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FROM

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	5.9	10D	78	128	6	<input type="checkbox"/>
		15D	110	160		
		20D	140	190		
		25D	170	220		
		30D	200	250		
8636600	6	10D	78	128	6	B
8638600		15D	110	160		
8646600		20D	140	190		
		25D	170	220		
8648600		30D	200	250		
	6.1	10D	87	140	7	<input type="checkbox"/>
		15D	120	175		
		20D	155	210		
		25D	190	250		
		30D	215	280		
8636620	6.2	10D	87	140	7	B
8638620		15D	120	175		
8646620		20D	155	210		
		25D	190	250		
8648620		30D	215	280		
	6.3	10D	87	140	7	<input type="checkbox"/>
		15D	120	175		
		20D	155	210		
		25D	190	250		
		30D	215	280		
	6.4	10D	87	140	7	<input type="checkbox"/>
		15D	120	175		
		20D	155	210		
		25D	190	250		
		30D	215	280		

导孔钻的推荐进给速度及进给率，请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8636650	6.5	10D	87	140	7	B
8638650		15D	120	175		
8646650		20D	155	210		
		25D	190	250		
8648650		30D	215	280		
	6.6	10D	87	140	7	<input type="checkbox"/>
		15D	120	175		
		20D	155	210		
		25D	190	250		
		30D	215	280		
	6.7	10D	87	140	7	<input type="checkbox"/>
		15D	120	175		
		20D	155	210		
		25D	190	250		
		30D	215	280		
	6.8	10D	90	140	7	<input type="checkbox"/>
		15D	125	175		
		20D	160	210		
		25D	200	250		
		30D	230	280		
	6.9	10D	90	140	7	<input type="checkbox"/>
		15D	125	175		
		20D	160	210		
		25D	200	250		
		30D	230	280		
8636700	7	10D	90	140	7	B
8638700		15D	125	175		
8646700		20D	160	210		
		25D	200	250		
8648700		30D	230	280		

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硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-10D/15D/20D/25D/30D

WDO-10D



WDO-15D



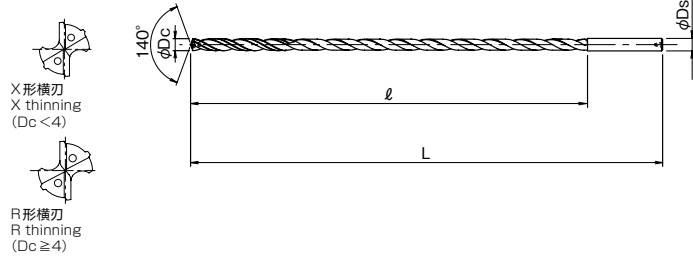
WDO-20D



WDO-25D



WDO-30D



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FROM CARBIDE WDI 切削条件 P.39

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
	7.1	10D	100	155	8	□
		15D	135	195		
		20D	170	230		
		25D	210	275		
		30D	250	315		
	7.2	10D	100	155	8	□
		15D	135	195		
		20D	170	230		
		25D	210	275		
		30D	250	315		
	7.3	10D	100	155	8	□
		15D	135	195		
		20D	170	230		
		25D	210	275		
		30D	250	315		
	7.4	10D	100	155	8	□
		15D	135	195		
		20D	170	230		
		25D	210	275		
		30D	250	315		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 l	全长 L	柄径 Ds	库存 Stock
8636750	7.5	10D	100	155	8	□
8638750		15D	135	195		
8646750		20D	170	230		
8648750		25D	210	275		
		30D	250	315		
	7.6	10D	105	155	8	□
		15D	145	195		
		20D	180	230		
		25D	225	275		
		30D	265	315		
	7.7	10D	105	155	8	□
		15D	145	195		
		20D	180	230		
		25D	225	275		
		30D	265	315		
	7.8	10D	105	155	8	□
		15D	145	195		
		20D	180	230		
		25D	225	275		
		30D	265	315		

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导孔钻的推荐进给速度及进给率,请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

■标示说明请参考P.10.

■ See page 10 for explanation of marks.

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FROM

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	7.9	10D	105	155	8	<input type="checkbox"/>
		15D	145	195		
		20D	180	230		
		25D	225	275		
		30D	265	315		
8636800	8	10D	105	155	8	B
8638800		15D	145	195		
8646800		20D	180	230		
		25D	225	275		
8648800		30D	265	315		
	8.1	10D	110	165	9	<input type="checkbox"/>
		15D	155	210		
		20D	195	260		
		25D	240	305		
		30D	280	350		
	8.2	10D	110	165	9	<input type="checkbox"/>
		15D	155	210		
		20D	195	260		
		25D	240	305		
		30D	280	350		
8636830	8.3	10D	110	165	9	B
8638830		15D	155	210		
8646830		20D	195	260		
		25D	240	305		
8648830		30D	280	350		
	8.4	10D	110	165	9	<input type="checkbox"/>
		15D	155	210		
		20D	195	260		
		25D	240	305		
		30D	280	350		

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单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8636850	8.5	10D	110	165	9	B
8638850		15D	155	210		
8646850		20D	195	260		
		25D	240	305		
8648850		30D	280	350		
	8.6	10D	115	165	9	<input type="checkbox"/>
		15D	160	210		
		20D	210	260		
		25D	255	305		
		30D	300	350		
	8.7	10D	115	165	9	<input type="checkbox"/>
		15D	160	210		
		20D	210	260		
		25D	255	305		
		30D	300	350		
	8.8	10D	115	165	9	<input type="checkbox"/>
		15D	160	210		
		20D	210	260		
		25D	255	305		
		30D	300	350		
	8.9	10D	115	165	9	<input type="checkbox"/>
		15D	160	210		
		20D	210	260		
		25D	255	305		
		30D	300	350		
8636900	9	10D	115	165	9	B
8638900		15D	160	210		
8646900		20D	210	260		
		25D	255	305		
8648900		30D	300	350		

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硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-10D/15D/20D/25D/30D

WDO-10D



WDO-15D



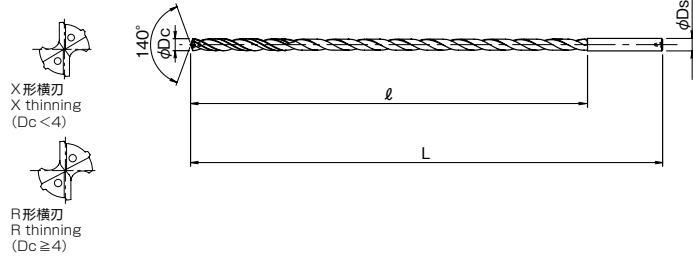
WDO-20D



WDO-25D



WDO-30D



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单位:mm Unit:mm

FROM CARBIDE WDI 切削条件 P.39

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	9.1	10D	125	190	10	□
		15D	170	240		
		20D	220	290		
		25D	270	340		
		30D	315	390		
	9.2	10D	125	190	10	□
		15D	170	240		
		20D	220	290		
		25D	270	340		
		30D	315	390		
	9.3	10D	125	190	10	□
		15D	170	240		
		20D	220	290		
		25D	270	340		
		30D	315	390		
	9.4	10D	125	190	10	□
		15D	170	240		
		20D	220	290		
		25D	270	340		
		30D	315	390		

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
8636950	9.5	10D	125	190	10	B
8638950		15D	170	240		
8646950		20D	220	290		
		25D	270	340		
8648950		30D	315	390		
	9.6	10D	130	190	10	□
		15D	180	240		
		20D	230	290		
		25D	280	340		
		30D	330	390		
	9.7	10D	130	190	10	□
		15D	180	240		
		20D	230	290		
		25D	280	340		
		30D	330	390		
	9.8	10D	130	190	10	□
		15D	180	240		
		20D	230	290		
		25D	280	340		
		30D	330	390		

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Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

FROM

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	9.9	10D	130	190	10	<input type="checkbox"/>
		15D	180	240		
		20D	230	290		
		25D	280	340		
		30D	330	390		
8637000	10	10D	130	190	10	B
8639000		15D	180	240		
8647000		20D	230	290		
		25D	280	340		
8649000		30D	330	390		
	10.1	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		
	10.2	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		
	10.3	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		
	10.4	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		
	10.5	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		

导孔钻的推荐进给速度及进给率，请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	10.6	10D	140	205	11	<input type="checkbox"/>
		15D	190	260		
		20D	250	310		
		25D	310	370		
	10.7	10D	145	205	11	<input type="checkbox"/>
		15D	200	260		
		20D	250	310		
	10.8	10D	145	205	11	<input type="checkbox"/>
		15D	200	260		
		20D	250	310		
	10.9	10D	145	205	11	<input type="checkbox"/>
		15D	200	260		
		20D	250	310		
	11	10D	145	205	11	B
8637100		15D	200	260		
8639100		20D	250	310		
8647100		25D	310	370		
	11.1	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
	11.2	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		

B=标准库存品 =特定代理店库存品

B=Standard stock item

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

特点
Feature

加工事例
Processing Data

W/D无油孔钻头
2D/4D

W/D内冷油孔钻头
3D/5D/8D

导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标准品对应表
Production Table by Drill Diameter

NEXT

硬质合金内冷油孔WDO钻头 Coolant-Through WDO Carbide Drill

WDO-10D/15D/20D/25D/30D

WDO-10D



WDO-15D



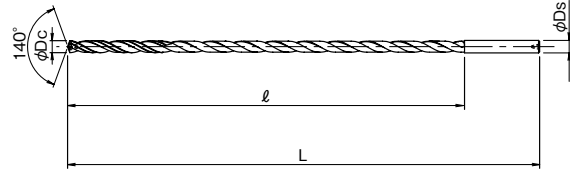
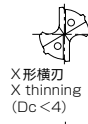
WDO-20D



WDO-25D



WDO-30D



在少数钻头上涂层会有色差的情况,但是这不妨碍钻头的性能。

Drills may have some discoloration, but it does not cause any performance problems.

FROM CARBIDE WDI 切削条件 P.39

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	11.3	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		
	11.4	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		
	11.5	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		
	11.6	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		

单位:mm Unit:mm

商品号 EDP No.	直径 Dc	刃长 L/Dc	槽长 ℓ	全长 L	柄径 Ds	库存 Stock
	11.7	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		
	11.8	10D	155	215	12	<input type="checkbox"/>
		15D	210	280		
		20D	270	330		
		25D	340	400		
	11.9	10D	155	215	12	<input type="checkbox"/>
		15D	215	280		
		20D	270	330		
		25D	340	400		
8637200	12	10D	155	215	12	B
8639200		15D	215	280		
8647200		20D	270	330		
		25D	340	400		

B=标准库存品 =特定代理店库存品

B = Standard stock item

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

导孔钻的推荐进给速度及进给率, 请参照P40页。

About the recommended speed and feed rate for Pilot Drill, please refer Page 40.

■ 标示说明请参考P.10.

■ See page 10 for explanation of marks.

请咨询我司营业人员。
Please contact our sales staff for more information.

可制作不同直径, 长度的非标品(请参照P.1-2)。
也可制作如铝合金加工用等其他特殊加工材质的
专用非标钻头。

Special orders are accepted for your diverse diameter and length needs (see pages 49 and 50). Also, orders are accepted for special types of drills for a particular work material types, such as aluminum alloys, etc.

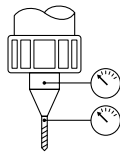
切削条件基准表 Recommended Drilling Conditions

WD-2D/4D

加工材料 Work Material	软钢·低炭素钢 Low Carbon Steel · Alloy Steel (C<0.3%) SS400·SCM ~710N/mm ²		炭素钢 Carbon Steel S35C·S50C ~210HB ~710N/mm ²		合金钢 Alloy Steel SCM·SCr·SNCM 16~28HRC 710~900N/mm ²	
切削速度 Cutting Speed	70~120m/min		60~120m/min		60~120m/min	
直径 Drill Dia. (mm)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
2	12,000	0.06 ~ 0.08	10,400	0.06 ~ 0.08	10,400	0.06 ~ 0.08
4	8,000	0.08 ~ 0.16	7,200	0.08 ~ 0.16	7,200	0.08 ~ 0.16
6	5,300	0.12 ~ 0.24	4,800	0.12 ~ 0.24	4,800	0.12 ~ 0.24
8	4,000	0.16 ~ 0.28	3,600	0.16 ~ 0.28	3,600	0.16 ~ 0.28
10	3,200	0.2 ~ 0.3	2,900	0.2 ~ 0.3	2,900	0.2 ~ 0.3
12	2,700	0.21 ~ 0.3	2,400	0.21 ~ 0.3	2,400	0.21 ~ 0.3
14	2,300	0.22 ~ 0.35	2,050	0.22 ~ 0.35	2,050	0.22 ~ 0.35
16	2,000	0.25 ~ 0.36	1,800	0.25 ~ 0.36	1,800	0.25 ~ 0.36
18	1,800	0.28 ~ 0.38	1,600	0.28 ~ 0.38	1,600	0.28 ~ 0.38
20	1,600	0.3 ~ 0.4	1,450	0.3 ~ 0.4	1,450	0.3 ~ 0.4

加工材料 Work Material	合金钢 Alloy Steel SCM·SCr·SNCM 28~35HRC 900~1,100N/mm ²		铸铁 Cast Iron FC250 ~350N/mm ²		球墨铸铁 Ductile Cast Iron FCD450 FCD600 400~600N/mm ²	
切削速度 Cutting Speed	50~90m/min		60~120m/min		50~100m/min	
直径 Drill Dia. (mm)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
2	8,800	0.06 ~ 0.08	10,400	0.06 ~ 0.08	9,600	0.06 ~ 0.08
4	5,600	0.08 ~ 0.16	7,200	0.08 ~ 0.16	6,000	0.08 ~ 0.16
6	3,700	0.12 ~ 0.24	4,800	0.12 ~ 0.24	4,000	0.12 ~ 0.24
8	2,800	0.16 ~ 0.28	3,600	0.16 ~ 0.28	3,000	0.16 ~ 0.28
10	2,200	0.2 ~ 0.3	2,900	0.2 ~ 0.3	2,400	0.2 ~ 0.3
12	1,900	0.21 ~ 0.3	2,400	0.21 ~ 0.3	2,000	0.21 ~ 0.3
14	1,400	0.22 ~ 0.35	2,050	0.22 ~ 0.35	1,700	0.22 ~ 0.35
16	1,200	0.25 ~ 0.36	1,800	0.25 ~ 0.36	1,500	0.25 ~ 0.36
18	1,050	0.28 ~ 0.38	1,600	0.28 ~ 0.38	1,350	0.28 ~ 0.38
20	950	0.3 ~ 0.4	1,450	0.3 ~ 0.4	1,200	0.3 ~ 0.4

1. 此切削条件基准表适用于，水溶性切削油剂或油雾式冷却加工。
 2. 请使用稀释20倍以下的优质水溶性切削油剂。
 3. 使用油性切削油剂或者稀释倍率超过20倍时，切削速度请下调30%。
 4. 此切削条件基准表适用于，孔深5D以下的加工。
 5. 装夹钻头时，请使用无损伤，无油污的弹簧夹头，并将径向跳动控制在0.02mm以下。
 6. 请保持加工材料在不变形、不弯曲、不震动的状态下。
- 注1：机器转速无法达到上述切削速度时，请尽可能使用高转速。另外，此情况可能会导致寿命降低。



1. The indicated speeds and feeds are for drilling with **water soluble oil**.
 2. Suitable cutting fluid is water-emulsifiable high density oil (less than 20times dilution).
 3. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
 4. These conditions are for drilling depth under 3 times the drill diameter.
 5. When attaching drill to the machine, use a collet that does not have any scratch or dust. Also, **reduce run-out of drill under 0.02mm**.
 6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
- Note 1. For machines that cannot achieve the speeds indicated in the table please set rotation as high as possible. Tool life may be decreased.

特点
Feature

加工事例
Processing Data

WD无油孔钻头
2D/4D

3D/5D/8D

WDO内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table by Drill Diameter

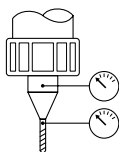
切削条件基准表 Recommended Drilling Conditions

WDO-3D/5D/8D

加工材料 Work Material	软钢·低碳素钢 Mild Steel Low Carbon Steel SS400·S10C ~150HB ~500N/mm ²		炭素钢 Carbon Steel S35C·S50C ~210HB ~710N/mm ²		合金钢 Alloy Steel SCM·SCr·SNCM 16~28HRC 710~900N/mm ²		合金钢 Alloy Steel SCM·SCr·SNCM 28~35HRC 900~1,100N/mm ²	
	80~120m/min		80~120m/min		80~120m/min		60~90m/min	
切削速度 Cutting Speed	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3	10,600	0.06 ~ 0.12	10,600	0.06 ~ 0.12	10,600	0.06 ~ 0.12	7,400	0.06 ~ 0.12
4	8,000	0.08 ~ 0.16	8,000	0.08 ~ 0.16	8,000	0.08 ~ 0.16	5,600	0.08 ~ 0.16
5	6,400	0.1 ~ 0.2	6,400	0.1 ~ 0.2	6,400	0.1 ~ 0.2	4,500	0.1 ~ 0.2
6	5,300	0.12 ~ 0.24	5,300	0.12 ~ 0.24	5,300	0.12 ~ 0.24	3,700	0.12 ~ 0.24
7	4,500	0.14 ~ 0.26	4,500	0.14 ~ 0.26	4,500	0.14 ~ 0.26	3,200	0.14 ~ 0.26
8	4,000	0.16 ~ 0.28	4,000	0.16 ~ 0.28	4,000	0.16 ~ 0.28	2,800	0.16 ~ 0.28
9	3,500	0.18 ~ 0.3	3,500	0.18 ~ 0.3	3,500	0.18 ~ 0.3	2,500	0.18 ~ 0.3
10	3,200	0.2 ~ 0.3	3,200	0.2 ~ 0.3	3,200	0.2 ~ 0.3	2,200	0.2 ~ 0.3
11	2,900	0.2 ~ 0.3	2,900	0.2 ~ 0.3	2,900	0.2 ~ 0.3	2,000	0.2 ~ 0.3
12	2,700	0.21 ~ 0.3	2,700	0.21 ~ 0.3	2,700	0.21 ~ 0.3	1,900	0.21 ~ 0.3
13	2,400	0.21 ~ 0.33	2,400	0.21 ~ 0.33	2,400	0.21 ~ 0.33	1,700	0.21 ~ 0.33
14	2,300	0.22 ~ 0.35	2,300	0.22 ~ 0.35	2,300	0.22 ~ 0.35	1,600	0.22 ~ 0.35
16	2,000	0.25 ~ 0.36	2,000	0.25 ~ 0.36	2,000	0.25 ~ 0.36	1,400	0.25 ~ 0.36
18	1,800	0.28 ~ 0.38	1,800	0.28 ~ 0.38	1,800	0.28 ~ 0.38	1,200	0.28 ~ 0.38
20	1,600	0.3 ~ 0.4	1,600	0.3 ~ 0.4	1,600	0.3 ~ 0.4	1,100	0.3 ~ 0.4

加工材料 Work Material	铸铁 Cast Iron FC250 ~350N/mm ²		球墨铸铁 Ductile Cast Iron FCD450 FCD600 400~600N/mm ²		不锈钢 Stainless Steel SUS300系 SUS400系 480~800N/mm ²		特殊钢·调质钢·预硬钢 Special Alloy Steel·Hardened Steel·Prehardened Steel SKD61(非调质)(unquenched) 34~40HRC 1,060~1,250N/mm ²	
	80~120m/min		60~100m/min		40~80m/min		30~60m/min	
切削速度 Cutting Speed	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3	10,600	0.06 ~ 0.12	8,500	0.06 ~ 0.12	6,400	0.06 ~ 0.12	4,800	0.06 ~ 0.09
4	8,000	0.08 ~ 0.16	6,400	0.08 ~ 0.16	4,800	0.08 ~ 0.16	3,600	0.08 ~ 0.12
5	6,400	0.1 ~ 0.2	5,100	0.1 ~ 0.2	3,800	0.1 ~ 0.2	2,900	0.1 ~ 0.15
6	5,300	0.12 ~ 0.24	4,200	0.12 ~ 0.24	3,200	0.12 ~ 0.24	2,400	0.12 ~ 0.18
7	4,500	0.14 ~ 0.26	3,600	0.14 ~ 0.26	2,700	0.14 ~ 0.26	2,000	0.14 ~ 0.21
8	4,000	0.16 ~ 0.28	3,200	0.16 ~ 0.28	2,400	0.16 ~ 0.28	1,800	0.16 ~ 0.24
9	3,500	0.18 ~ 0.3	2,800	0.18 ~ 0.3	2,100	0.18 ~ 0.3	1,600	0.18 ~ 0.27
10	3,200	0.2 ~ 0.3	2,500	0.2 ~ 0.3	1,900	0.2 ~ 0.3	1,400	0.2 ~ 0.3
11	2,900	0.2 ~ 0.3	2,300	0.2 ~ 0.3	1,700	0.2 ~ 0.3	1,300	0.2 ~ 0.3
12	2,700	0.21 ~ 0.3	2,100	0.21 ~ 0.3	1,600	0.21 ~ 0.3	1,200	0.21 ~ 0.3
13	2,400	0.21 ~ 0.33	2,000	0.21 ~ 0.33	1,500	0.21 ~ 0.33	1,100	0.21 ~ 0.33
14	2,300	0.22 ~ 0.35	1,800	0.22 ~ 0.35	1,400	0.22 ~ 0.35	1,000	0.22 ~ 0.35
16	2,000	0.25 ~ 0.36	1,600	0.25 ~ 0.36	1,200	0.25 ~ 0.36	900	0.25 ~ 0.36
18	1,800	0.28 ~ 0.38	1,400	0.28 ~ 0.38	1,100	0.28 ~ 0.38	800	0.28 ~ 0.38
20	1,600	0.3 ~ 0.4	1,300	0.3 ~ 0.4	1,000	0.3 ~ 0.4	700	0.3 ~ 0.4

1. 此切削条件基准表适用于，水溶性切削油剂或油雾式冷却加工。
2. 请使用稀释20倍以下的优质水溶性切削油剂。
3. 使用油性切削油剂或者稀释倍率超过20倍时，切削速度请下调30%。
4. 此切削条件基准表适用于，孔深5D以下的加工。
5. 装夹钻头时，请使用无损伤，无油污的弹簧夹头，并将径向跳动控制在0.02mm以下。
6. 请保持加工材料在不变形、不弯曲、不震动的状态下。
7. 油污堵塞会造成折损，因此供油装置务必安装过滤网。
8. 加工高硬度材质时，请用1D~2D台阶式加工。



1. The indicated speeds and feeds are for water soluble oil or MQL.
2. Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
3. When using non-water soluble oil or water-emulsifiable (over 20times dilution), reduce cutting speed by 30%.
4. These conditions are for drilling depth less than 8 times the drill diameter.
5. When inserting a drill into the machine, use a collet that does not have any scratches or dust located within internal bore. Also, reduce deflection of drill to less than 0.02mm.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.
8. 1D ~ 2D step feeding may be required for drilling high hardened steels and mid-range (8D) work.

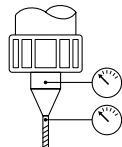
切削条件基准表 Recommended Drilling Conditions

WDO-PLT

加工材料 Work Material	软钢·低碳素钢 Mild Steel Low Carbon Steel SS400·S10C ~150HB ~500N/mm ²		炭素钢 Carbon Steel S35C·S50C ~210HB ~710N/mm ²		合金钢 Alloy Steel SCM·Scr·SNCM 16~28HRC 710~900N/mm ²		合金钢·预硬钢 Alloy Steel·Prehardened Steel (C ≥ 0.3%) SCM440 28~34HRC 900~1,060N/mm ²	
	切削速度 Cutting Speed	60~125m/min		60~80m/min		60~80m/min		40~60m/min
直径 Drill Dia. (mm)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3.03	7,400	0.06 ~ 0.09	7,400	0.06 ~ 0.09	7,400	0.06 ~ 0.09	5,200	0.06 ~ 0.09
4.03	5,600	0.08 ~ 0.12	5,600	0.08 ~ 0.12	5,600	0.08 ~ 0.12	3,900	0.08 ~ 0.12
5.03	4,500	0.1 ~ 0.15	4,500	0.1 ~ 0.15	4,500	0.1 ~ 0.15	3,100	0.1 ~ 0.15
6.03	3,700	0.12 ~ 0.18	3,700	0.12 ~ 0.18	3,700	0.12 ~ 0.18	2,600	0.12 ~ 0.18
7.03	3,200	0.14 ~ 0.2	3,200	0.14 ~ 0.2	3,200	0.14 ~ 0.2	2,300	0.14 ~ 0.2
8.03	2,800	0.14 ~ 0.2	2,800	0.14 ~ 0.2	2,800	0.14 ~ 0.2	2,000	0.14 ~ 0.2
9.03	2,500	0.14 ~ 0.22	2,500	0.14 ~ 0.22	2,500	0.14 ~ 0.22	1,800	0.14 ~ 0.22
10.03	2,200	0.15 ~ 0.24	2,200	0.15 ~ 0.24	2,200	0.15 ~ 0.24	1,600	0.15 ~ 0.24
11.03	2,000	0.16 ~ 0.26	2,000	0.16 ~ 0.26	2,000	0.16 ~ 0.26	1,500	0.17 ~ 0.24
12.03	1,800	0.18 ~ 0.28	1,800	0.18 ~ 0.28	1,800	0.18 ~ 0.28	1,350	0.18 ~ 0.24

加工材料 Work Material	铸铁 Cast Iron FC250 ~350N/mm ²		球墨铸铁 Ductile Cast Iron FCD450 FCD600 400~600N/mm ²		不锈钢 Stainless Steel SUS400系 480~800N/mm ²		特殊钢·调质钢·预硬钢 Special Alloy Steel·Hardened Steel·Prehardened Steel SKD61(非调质) (unquenched) 34~40HRC 1,060~1,250N/mm ²	
	切削速度 Cutting Speed	60~80m/min		60~80m/min		40~60m/min		30~50m/min
直径 Drill Dia. (mm)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3.03	7,400	0.06 ~ 0.09	7,400	0.06 ~ 0.09	5,200	0.06 ~ 0.09	4,200	0.06 ~ 0.09
4.03	5,600	0.08 ~ 0.12	5,600	0.08 ~ 0.12	3,900	0.08 ~ 0.12	3,100	0.08 ~ 0.12
5.03	4,500	0.1 ~ 0.15	4,500	0.1 ~ 0.15	3,100	0.1 ~ 0.15	2,500	0.1 ~ 0.15
6.03	3,700	0.12 ~ 0.18	3,700	0.12 ~ 0.18	2,600	0.12 ~ 0.18	2,100	0.12 ~ 0.18
7.03	3,200	0.14 ~ 0.2	3,200	0.14 ~ 0.2	2,300	0.14 ~ 0.2	1,800	0.14 ~ 0.2
8.03	2,800	0.14 ~ 0.2	2,800	0.14 ~ 0.2	2,000	0.14 ~ 0.2	1,600	0.14 ~ 0.2
9.03	2,500	0.14 ~ 0.22	2,500	0.14 ~ 0.22	1,800	0.14 ~ 0.22	1,400	0.14 ~ 0.22
10.03	2,200	0.15 ~ 0.24	2,200	0.15 ~ 0.24	1,600	0.15 ~ 0.24	1,300	0.15 ~ 0.24
11.03	2,000	0.16 ~ 0.26	2,000	0.16 ~ 0.26	1,400	0.16 ~ 0.26	1,150	0.17 ~ 0.24
12.03	1,800	0.18 ~ 0.28	1,800	0.18 ~ 0.28	1,300	0.18 ~ 0.28	1,100	0.18 ~ 0.24

1. 此切削条件基准表适用于, 水溶性切削油剂或油雾式冷却加工。(MQL加工场合, 不锈钢加工除外)
2. 请使用稀释20倍以下的优质水溶性切削油剂。
3. 使用超过20倍稀释的水溶性油剂时, 请下调30%的切削速度, 请勿在高速加工中使用。
4. 使用油性切削油剂时, 请选择标准条件的切削速度, 请勿在高速加工中使用。
5. 此切削条件基准表适用于孔深在3D以下的情况。
6. 安装钻头时, 请将钻头振动抑制0.02mm以下。
7. 油污堵塞会造成折损, 因此供油装置务必安装过滤网。
8. 加工高硬度材质时, 请用1D~2D台阶式加工。



1. The indicated speeds and feeds are for drilling with water-soluble oil or MQL. (We do not recommend mist drilling with stainless steels.)
2. Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
3. When using water soluble fluid with over 20 times dilution, reduce cutting speed by 30% below the standard conditions. Do not use the high speed cutting conditions in this case.
4. When using non-water soluble oil, the lower cutting speed in the table should be selected. Do not use the high speed drilling conditions in this case.
5. These conditions are for drilling depth less than 3 times the drill diameter.
6. When clamping a drill into the machine, use a collet that does not have any scratches or dust in the internal bore. Also, reduce the tool runout to less than 0.02mm.
7. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
8. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

特点
Feature

加工事例
Processing Data

WD无油孔钻头
2D/4D

3D/5D/8D

WDO内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table by Diameter

切削条件基准表 Recommended Drilling Conditions

WDO-10D/15D/20D/25D/30D

加工材料 Work Material	软钢·低炭素钢 Mild Steel Low Carbon Steel SS400·S10C ~150HB ~500N/mm ²		炭素钢 Carbon Steel S35C·S50C ~210HB ~710N/mm ²		合金钢 Alloy Steel SCM·SCr·SNCM 16~28HRC 710~900N/mm ²		合金钢·预硬钢 Alloy Steel·Prehardened Steel (C ≥ 0.3%) SCM440 28~34HRC 900~1,060N/mm ²	
	60~125m/min		60~125m/min		60~125m/min		50~70m/min	
切削速度 Cutting Speed	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3	7,500	0.06 ~ 0.12	7,500	0.06 ~ 0.12	7,500	0.06 ~ 0.12	6,300	0.08 ~ 0.11
4	6,400	0.08 ~ 0.16	6,400	0.08 ~ 0.16	6,400	0.08 ~ 0.16	4,700	0.1 ~ 0.15
5	5,800	0.1 ~ 0.2	5,800	0.1 ~ 0.2	5,800	0.1 ~ 0.2	3,800	0.12 ~ 0.18
6	4,800	0.12 ~ 0.24	4,800	0.12 ~ 0.24	4,800	0.12 ~ 0.24	3,100	0.14 ~ 0.2
8	3,600	0.16 ~ 0.28	3,600	0.16 ~ 0.28	3,600	0.16 ~ 0.28	2,300	0.16 ~ 0.24
10	2,900	0.2 ~ 0.35	2,900	0.2 ~ 0.35	2,900	0.2 ~ 0.35	1,900	0.18 ~ 0.27
12	2,400	0.24 ~ 0.42	2,400	0.24 ~ 0.42	2,400	0.24 ~ 0.42	1,500	0.24 ~ 0.3

加工材料 Work Material	铸铁 Cast Iron FC250 ~350N/mm ²		球墨铸铁 Ductile Cast Iron FCD450 FCD600 400~600N/mm ²		不锈钢 Stainless Steel SUS400系 480~800N/mm ²		特殊钢·调质钢·预硬钢 Special Alloy Steel·Hardened Steel· Prehardened Steel SKD61(非调质) (unquenched) 34~40HRC 1,060~1,250N/mm ²	
	60~125m/min		50~80m/min		40~80m/min		30~50m/min	
切削速度 Cutting Speed	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)	速度 Speed (min ⁻¹)	进给量 Feed (mm/rev)
3	7,500	0.06 ~ 0.12	7,500	0.06 ~ 0.12	5,300	0.06 ~ 0.12	4,200	0.08 ~ 0.11
4	6,400	0.08 ~ 0.16	5,600	0.08 ~ 0.16	4,400	0.08 ~ 0.16	3,100	0.1 ~ 0.15
5	5,800	0.1 ~ 0.2	4,500	0.1 ~ 0.2	3,800	0.1 ~ 0.2	2,500	0.12 ~ 0.18
6	4,800	0.12 ~ 0.24	3,800	0.12 ~ 0.24	3,200	0.12 ~ 0.24	2,100	0.14 ~ 0.2
8	3,600	0.16 ~ 0.28	2,800	0.16 ~ 0.28	2,400	0.16 ~ 0.28	1,500	0.16 ~ 0.24
10	2,900	0.2 ~ 0.35	2,300	0.2 ~ 0.35	1,900	0.2 ~ 0.35	1,200	0.18 ~ 0.27
12	2,400	0.24 ~ 0.42	1,900	0.24 ~ 0.42	1,600	0.24 ~ 0.42	1,000	0.24 ~ 0.3

1. 此切削条件基准表适用于,水溶性切削油剂或油雾式冷却加工。(MQL加工场合不锈钢加工除外)
2. 请使用稀释倍率为20倍~30倍的优质水溶性切削油。
3. 使用非水溶性切削油剂时,请把切削速度设置在上述速度的最低速度到70%之间。
4. 请对照《WDO-10D / WDO-15D / WDO-20D / WDO-30D 的推荐加工方法》资料进行定位孔加工。
5. 油污堵塞会造成折损,因此供油装置务必安装过滤网。
6. 加工高硬度材质时,请用1D~2D台阶式加工。

1. The indicated speeds and feeds are for drilling with water-soluble oil or MQL (We do not recommend mist drilling with stainless steels.).
2. Water-soluble oil (20-30 times dilution) is recommended.
3. When using non-water soluble oil, set the cutting speed between 70-100% of the lowest limit.
4. Make a pilot hole before using WDO-10D/15D/20D/25D/30D in accordance with recommended operation.
5. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.
6. Peck drilling of 1X to 2X diameter is strongly recommended.

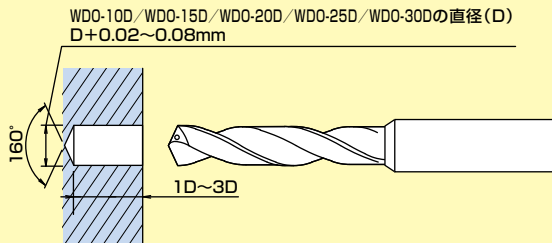
WDO-10D/15D/20D/25D/30D

① WDO-PLT, WDO-3D导向孔加工

Make a pilot hole.

●导向孔加工用工具请选择比WDO-10D/WDO-15D/WDO-20D/WDO-30D的直径(D)+0.02~0.08mm的钻头,推荐在加工时将导向孔尽量加深。

For a pilot hole, select 0.02~0.08mm larger size drill than WDO-10D/WDO-15D/WDO-20D/WDO-25D/WDO-30D.

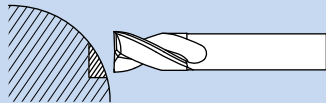


若WDO-PLT标准品没有适合的尺寸,也可使用同样直径的WDO-3D钻头。

If the size is no available from standard WDO-PLT, we recommend the same diameter drill from WDO-3D.

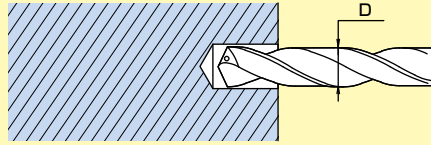
★弯曲部加工时,在定位孔加工前请先用FX-ZDS沉孔加工铣刀进行如图所示的沉孔加工。

When working on a curved surface, use the FX-ZDS (end mill for counterboring) to counterbore a pilot hole.



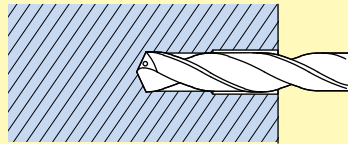
② 以静止或低转速状态下将深孔钻插入(参照下图)

Insert the extra long drill into a pilot hole with zero or low revolution. (Refer below)



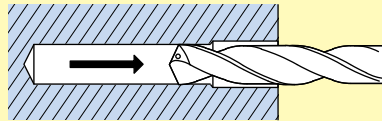
③ 加速至规定转速后开始加工

Increase the revolution to the designated speed and start drilling.



④ 加工后,拔出钻头时,在钻头离开孔后,请降低转速拔出

After drilling, move the drill away from the bottom of the hole; then reduce its speed while pulling it out of the hole.



※加工时请务必使用内冷方式

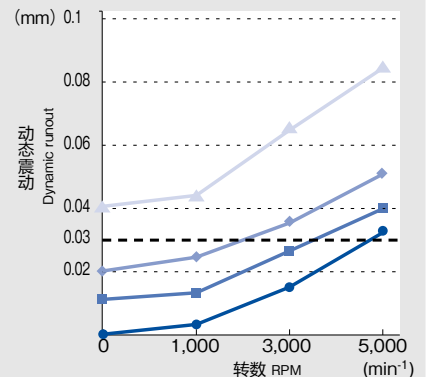
Make sure to use an internal coolant supply when drilling.

深孔钻实现稳定加工的关键

Key point for stable drilling with long drills

工具装夹时的跳动会随着提高而上升。右为上升量的示意图。OSG为了实现更加稳定的加工,推荐使用“+0.02~0.08mm的导向孔钻头”及“深孔钻以停止或低转速状态插入”两种方法。其理由正如右图所示,转速提高后,加工时跳动随之增大,有超出导向孔公差的风险性。因此不仅要抑制其静态震动,还要根据上述加工方法进行加工才能有效控制跳动。

The runout of a gripped cutting tool increases with the speed. The graph on the right indicates this increase. To ensure a higher level of work stability, OSG recommends "making +0.02~0.08mm pilot holes" and "inserting long drills stopped or at low speeds". The reason for this is made evident in the graph on the right: increasing the speed increases the dynamic runout, posing a higher risk of the drill not fitting properly in the pilot hole. Therefore, this is effective not only for inhibiting static runout, but is also the recommended drilling method for long drills.



转数 RPM (min ⁻¹)	静态震动 Static runout (mm)	0mm	0.01mm	0.02mm	0.04mm
1,000		0.003	0.013	0.024	0.046
3,000		0.014	0.026	0.036	0.066
5,000		0.033	0.04	0.049	0.087

使用工具 tool: φ6×30D

直径槽长选定表 Flute Length by Drill Diameter

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-2D	2 - 3	14	62		11
WD-2D	2	14	62		11
WD-4D	2 - 3	20	66		11
WD-4D	2	20	66		11
WD-2D	2.1 - 3	14	62		11
WD-2D	2.1	14	62		11
WD-4D	2.1 - 3	20	66		11
WD-4D	2.1	20	66		11
WD-2D	2.2 - 3	14	62		11
WD-2D	2.2	14	62		11
WD-4D	2.2 - 3	20	66		11
WD-4D	2.2	20	66		11
WD-2D	2.3 - 3	14	62		11
WD-2D	2.3	14	62		11
WDO-3D	2.3	14	66	○	19
WD-4D	2.3 - 3	20	66		11
WD-4D	2.3	20	66		11
WDO-5D	2.3	21	78	○	19
WD-2D	2.4 - 3	14	62		11
WD-2D	2.4	14	62		11
WD-4D	2.4 - 3	20	66		11
WD-4D	2.4	20	66		11
WD-2D	2.5 - 3	14	62		11
WD-2D	2.5	14	62		11
WDO-3D	2.5	15	66	○	19
WD-4D	2.5 - 3	20	66		11
WD-4D	2.5	20	66		11
WDO-5D	2.5	23	78	○	19
WD-2D	2.6 - 3	14	62		11
WD-2D	2.6	14	62		11
WDO-3D	2.6	16	66	○	19
WD-4D	2.6 - 3	20	66		11
WD-4D	2.6	20	66		11
WDO-5D	2.6	24	78	○	19
WDO-3D	2.65	16	66	○	19
WDO-5D	2.65	24	78	○	19
WD-2D	2.7 - 3	14	62		11
WD-2D	2.7	14	62		11
WD-4D	2.7 - 3	20	66		11
WD-4D	2.7	20	66		11
WD-2D	2.76	14	62		11
WDO-5D	2.76	25	78	○	19
WD-2D	2.78	14	62		11
WDO-5D	2.78	26	78	○	19
WD-2D	2.8 - 3	14	62		11
WD-2D	2.8	14	62		11
WDO-3D	2.8	17	66	○	19
WD-4D	2.8 - 3	20	66		11
WD-4D	2.8	20	66		11
WDO-5D	2.8	26	78	○	19

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-10D	2.8	40	90	○	27
WD-2D	2.9 - 3	14	62		11
WD-2D	2.9	14	62		12
WDO-3D	2.9	18	66	○	19
WD-4D	2.9 - 3	20	66		11
WD-4D	2.9	20	66		12
WDO-5D	2.9	27	78	○	19
WDO-10D	2.9	40	90	○	27
WDO-3D	3	18	66	○	19
WD-2D	3 - 3	20	66		12
WD-2D	3	20	66		12
WDO-5D	3	27	78	○	19
WD-4D	3 - 3	28	74		12
WD-4D	3	28	74		12
WDO-8D	3	33	80	○	19
WDO-10D	3	40	90	○	27
WDO-15D	3	55	105	○	27
WDO-20D	3	70	120	○	27
WDO-25D	3	85	135	○	27
WDO-3D	3.1	19	74	○	19
WD-2D	3.1	20	66		12
WD-4D	3.1	28	74		12
WDO-5D	3.1	28	86	○	19
WDO-10D	3.1	45	100	○	27
WDO-15D	3.1	60	125	○	27
WDO-20D	3.1	80	140	○	27
WDO-25D	3.1	95	165	○	27
WDO-3D	3.15	19	74	○	19
WDO-5D	3.15	29	86	○	19
WD-2D	3.2	20	66		12
WDO-3D	3.2	20	74	○	19
WD-4D	3.2	28	74		12
WDO-5D	3.2	29	86	○	19
WDO-10D	3.2	45	100	○	27
WDO-15D	3.2	60	125	○	27
WDO-20D	3.2	80	140	○	27
WDO-25D	3.2	95	165	○	27
WD-2D	3.3	20	66		12
WDO-3D	3.3	20	74	○	19
WD-4D	3.3	28	74		12
WDO-5D	3.3	30	86	○	19
WDO-10D	3.3	45	100	○	27
WDO-15D	3.3	60	125	○	27
WDO-20D	3.3	80	140	○	27
WDO-25D	3.3	95	165	○	27
WD-2D	3.4	20	66		12
WDO-3D	3.4	21	74	○	19
WD-4D	3.4	28	74		12
WDO-5D	3.4	31	86	○	19
WDO-10D	3.4	50	100	○	27

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-15D	3.4	65	125	○	27
WDO-20D	3.4	85	140	○	27
WDO-25D	3.4	105	165	○	27
WD-2D	3.5	20	66		12
WDO-3D	3.5	21	74	○	19
WD-4D	3.5	28	74		12
WDO-5D	3.5	32	86	○	19
WDO-8D	3.5	39	95	○	19
WDO-10D	3.5	50	100	○	27
WDO-15D	3.5	65	125	○	27
WDO-20D	3.5	85	140	○	27
WDO-25D	3.5	105	165	○	27
WDO-30D	3.5	116	185	○	27
WD-2D	3.6	20	66		12
WDO-3D	3.6	22	74	○	19
WD-4D	3.6	28	74		12
WDO-5D	3.6	33	86	○	19
WDO-10D	3.6	50	100	○	27
WDO-15D	3.6	65	125	○	27
WDO-20D	3.6	85	140	○	27
WDO-25D	3.6	105	165	○	27
WDO-30D	3.6	116	185	○	27
WD-2D	3.66	20	66		12
WDO-5D	3.66	33	86	○	19
WD-2D	3.68	20	66		12
WDO-5D	3.68	34	86	○	19
WD-2D	3.7	20	66		12
WDO-3D	3.7	23	74	○	19
WD-4D	3.7	28	74		12
WDO-5D	3.7	34	86	○	19
WDO-10D	3.7	50	100	○	27
WDO-15D	3.7	65	125	○	27
WDO-20D	3.7	85	140	○	27
WDO-25D	3.7	105	165	○	27
WDO-30D	3.7	116	185	○	27
WDO-3D	3.75	23	74	○	19
WDO-5D	3.75	34	86	○	19
WDO-3D	3.8	23	74	○	20
WD-2D	3.8	24	66		12
WDO-5D	3.8	35	86	○	20
WD-4D	3.8	36	74		12
WDO-10D	3.8	50	100	○	27
WDO-15D	3.8	75	125	○	27
WDO-20D	3.8	90	140	○	27
WDO-25D	3.8	115	165	○	27
WDO-30D	3.8	132	185	○	27
WD-2D	3.9	24	66		12
WDO-3D	3.9	24	74	○	20
WD-4D	3.9	36	74		12
WDO-5D	3.9	36	86	○	20

特定代理店库存品
Stocked by specific distributors

NEXT 

■ 导向孔加工用刀具请参考 P.26

■ Refer to p.26 for pilot drill offering

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-10D	3.9	50	100	○	28
WDO-15D	3.9	75	125	○	28
WDO-20D	3.9	90	140	○	28
WDO-25D	3.9	115	165	○	28
WDO-30D	3.9	132	185	○	28
WD-2D	4	24	66		12
WDO-3D	4	24	74	○	20
WD-4D	4	36	74		12
WDO-5D	4	36	86	○	20
WDO-8D	4	44	95	○	20
WDO-10D	4	50	100	○	28
WDO-15D	4	75	125	○	28
WDO-20D	4	90	140	○	28
WDO-25D	4	115	165	○	28
WDO-30D	4	132	185	○	28
WD-2D	4.1 - 5	24	66		12
WD-2D	4.1	24	66		12
WDO-3D	4.1	25	80	○	20
WD-4D	4.1 - 5	36	74		12
WD-4D	4.1	36	74		12
WDO-5D	4.1	37	95	○	20
WDO-10D	4.1	55	115	○	28
WDO-15D	4.1	75	140	○	28
WDO-20D	4.1	100	165	○	28
WDO-25D	4.1	120	190	○	28
WDO-30D	4.1	140	215	○	28
WD-2D	4.2 - 5	24	66		12
WD-2D	4.2	24	66		12
WDO-3D	4.2	26	80	○	20
WD-4D	4.2 - 5	36	74		12
WD-4D	4.2	36	74		12
WDO-5D	4.2	38	95	○	20
WDO-10D	4.2	55	115	○	28
WDO-15D	4.2	75	140	○	28
WDO-20D	4.2	100	165	○	28
WDO-25D	4.2	120	190	○	28
WDO-30D	4.2	140	215	○	28
WD-2D	4.3 - 5	24	66		12
WD-2D	4.3	24	66		12
WDO-3D	4.3	26	80	○	20
WD-4D	4.3 - 5	36	74		12
WD-4D	4.3	36	74		12
WDO-5D	4.3	39	95	○	20
WDO-10D	4.3	60	115	○	28
WDO-15D	4.3	85	140	○	28
WDO-20D	4.3	110	165	○	28
WDO-25D	4.3	135	190	○	28
WDO-30D	4.3	150	215	○	28
WD-2D	4.4 - 5	24	66		12
WD-2D	4.4	24	66		12

特定代理店库存品
Stocked by specific distributors

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-3D	4.4	27	80	○	20
WD-4D	4.4 - 5	36	74		12
WD-4D	4.4	36	74		12
WDO-5D	4.4	40	95	○	20
WDO-10D	4.4	60	115	○	28
WDO-15D	4.4	85	140	○	28
WDO-20D	4.4	110	165	○	28
WDO-25D	4.4	135	190	○	28
WDO-30D	4.4	150	215	○	28
WD-2D	4.5 - 5	24	66		12
WD-2D	4.5	24	66		12
WDO-3D	4.5	27	80	○	20
WD-4D	4.5 - 5	36	74		12
WD-4D	4.5	36	74		12
WDO-5D	4.5	41	95	○	20
WDO-8D	4.5	50	105	○	20
WDO-10D	4.5	60	115	○	28
WDO-15D	4.5	85	140	○	28
WDO-20D	4.5	110	165	○	28
WDO-25D	4.5	135	190	○	28
WDO-30D	4.5	150	215	○	28
WD-2D	4.6 - 5	24	66		12
WD-2D	4.6	24	66		12
WDO-3D	4.6	28	80	○	20
WD-4D	4.6 - 5	36	74		12
WD-4D	4.6	36	74		12
WDO-5D	4.6	42	95	○	20
WDO-10D	4.6	60	115	○	28
WDO-15D	4.6	85	140	○	28
WDO-20D	4.6	110	165	○	28
WDO-25D	4.6	135	190	○	28
WDO-30D	4.6	150	215	○	28
WD-2D	4.62	24	66		12
WDO-5D	4.62	42	95	○	20
WD-2D	4.64	24	66		12
WDO-5D	4.64	42	95	○	20
WD-2D	4.7 - 5	24	66		12
WD-2D	4.7	24	66		12
WDO-3D	4.7	29	80	○	20
WD-4D	4.7 - 5	36	74		12
WD-4D	4.7	36	74		12
WDO-5D	4.7	43	95	○	20
WDO-10D	4.7	60	115	○	28
WDO-15D	4.7	85	140	○	28
WDO-20D	4.7	110	165	○	28
WDO-25D	4.7	135	190	○	28
WDO-30D	4.7	150	215	○	28
WD-2D	4.8 - 5	28	66		12
WD-2D	4.8	28	66		12
WDO-3D	4.8	29	80	○	20

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-4D	4.8 - 5	44	82		12
WD-4D	4.8	44	82		12
WDO-5D	4.8	44	95	○	20
WDO-10D	4.8	65	115	○	28
WDO-15D	4.8	90	140	○	28
WDO-20D	4.8	115	165	○	28
WDO-25D	4.8	140	190	○	28
WDO-30D	4.8	165	215	○	28
WD-2D	4.9 - 5	28	66		12
WD-2D	4.9	28	66		13
WDO-3D	4.9	30	80	○	20
WD-4D	4.9 - 5	44	82		12
WD-4D	4.9	44	82		13
WDO-5D	4.9	45	95	○	20
WDO-10D	4.9	65	115	○	28
WDO-15D	4.9	90	140	○	28
WDO-20D	4.9	115	165	○	28
WDO-25D	4.9	140	190	○	28
WDO-30D	4.9	165	215	○	28
WDO-3D	5	25	80	○	20
WD-2D	5 - 5	28	66		13
WD-2D	5	28	66		13
WD-4D	5 - 5	44	82		13
WD-4D	5	44	82		13
WDO-5D	5	45	95	○	20
WDO-8D	5	55	105	○	20
WDO-10D	5	65	115	○	28
WDO-15D	5	90	140	○	28
WDO-20D	5	115	165	○	28
WDO-25D	5	140	190	○	28
WDO-30D	5	165	215	○	28
WDO-3D	5.1	26	82	○	20
WD-2D	5.1	28	66		13
WDO-5D	5.1	41	100	○	20
WD-4D	5.1	44	82		13
WDO-10D	5.1	70	128	○	29
WDO-15D	5.1	95	160	○	29
WDO-20D	5.1	120	190	○	29
WDO-25D	5.1	150	220	○	29
WDO-30D	5.1	180	250	○	29
WDO-3D	5.2	26	82	○	20
WD-2D	5.2	28	66		13
WDO-5D	5.2	42	100	○	20
WD-4D	5.2	44	82		13
WDO-10D	5.2	70	128	○	29
WDO-15D	5.2	95	160	○	29
WDO-20D	5.2	120	190	○	29
WDO-25D	5.2	150	220	○	29
WDO-30D	5.2	180	250	○	29
WDO-3D	5.25	27	82	○	20

NEXT

特点
Feature

加工事例
Processing Data

WD无油孔钻头
2D/4D

3D/5D/8D

WDO内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table for Dr Diameter

直径槽长选定表 Flute Length by Drill Diameter

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-5D	5.25	42	100	○	20
WDO-3D	5.3	27	82	○	20
WD-2D	5.3	28	66		13
WDO-5D	5.3	43	100	○	20
WD-4D	5.3	44	82		13
WDO-10D	5.3	70	128	○	29
WDO-15D	5.3	95	160	○	29
WDO-20D	5.3	120	190	○	29
WDO-25D	5.3	150	220	○	29
WDO-30D	5.3	180	250	○	29
WDO-3D	5.4	27	82	○	20
WD-2D	5.4	28	66		13
WD-4D	5.4	44	82		13
WDO-5D	5.4	44	100	○	20
WDO-10D	5.4	78	128	○	29
WDO-15D	5.4	110	160	○	29
WDO-20D	5.4	140	190	○	29
WDO-25D	5.4	170	220	○	29
WDO-30D	5.4	200	250	○	29
WD-2D	5.5	28	66		13
WDO-3D	5.5	28	82	○	20
WD-4D	5.5	44	82		13
WDO-5D	5.5	44	100	○	20
WDO-8D	5.5	61	115	○	20
WDO-10D	5.5	78	128	○	29
WDO-15D	5.5	110	160	○	29
WDO-20D	5.5	140	190	○	29
WDO-25D	5.5	170	220	○	29
WDO-30D	5.5	200	250	○	29
WD-2D	5.52	28	66		13
WDO-5D	5.52	45	100	○	20
WD-2D	5.54	28	66		13
WDO-5D	5.54	45	100	○	20
WD-2D	5.6	28	66		13
WDO-3D	5.6	28	82	○	20
WD-4D	5.6	44	82		13
WDO-5D	5.6	45	100	○	20
WDO-10D	5.6	78	128	○	29
WDO-15D	5.6	110	160	○	29
WDO-20D	5.6	140	190	○	29
WDO-25D	5.6	170	220	○	29
WDO-30D	5.6	200	250	○	29
WD-2D	5.7	28	66		13
WDO-3D	5.7	29	82	○	20
WD-4D	5.7	44	82		13
WDO-5D	5.7	46	100	○	20
WDO-10D	5.7	78	128	○	29
WDO-15D	5.7	110	160	○	29
WDO-20D	5.7	140	190	○	29
WDO-25D	5.7	170	220	○	29

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-30D	5.7	200	250	○	29
WD-2D	5.8	28	66		13
WDO-3D	5.8	29	82	○	20
WD-4D	5.8	44	82		13
WDO-5D	5.8	47	100	○	20
WDO-10D	5.8	78	128	○	29
WDO-15D	5.8	110	160	○	29
WDO-20D	5.8	140	190	○	29
WDO-25D	5.8	170	220	○	29
WDO-30D	5.8	200	250	○	29
WD-2D	5.9	28	66		13
WDO-3D	5.9	30	82	○	20
WD-4D	5.9	44	82		13
WDO-5D	5.9	48	100	○	20
WDO-10D	5.9	78	128	○	30
WDO-15D	5.9	110	160	○	30
WDO-20D	5.9	140	190	○	30
WDO-25D	5.9	170	220	○	30
WDO-30D	5.9	200	250	○	30
WD-2D	6	28	66		13
WDO-3D	6	30	82	○	20
WD-4D	6	44	82		13
WDO-5D	6	48	100	○	20
WDO-8D	6	66	115	○	20
WDO-10D	6	78	128	○	30
WDO-15D	6	110	160	○	30
WDO-20D	6	140	190	○	30
WDO-25D	6	170	220	○	30
WDO-30D	6	200	250	○	30
WDO-3D	6.1	31	88	○	20
WD-2D	6.1 - 7	34	79		13
WD-2D	6.1	34	79		13
WDO-5D	6.1	49	109	○	20
WD-4D	6.1 - 7	53	91		13
WD-4D	6.1	53	91		13
WDO-10D	6.1	87	140	○	30
WDO-15D	6.1	120	175	○	30
WDO-20D	6.1	155	210	○	30
WDO-25D	6.1	190	250	○	30
WDO-30D	6.1	215	280	○	30
WDO-3D	6.2	31	88	○	20
WD-2D	6.2 - 7	34	79		13
WD-2D	6.2	34	79		13
WDO-5D	6.2	50	109	○	20
WD-4D	6.2 - 7	53	91		13
WD-4D	6.2	53	91		13
WDO-10D	6.2	87	140	○	30
WDO-15D	6.2	120	175	○	30
WDO-20D	6.2	155	210	○	30
WDO-25D	6.2	190	250	○	30

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-30D	6.2	215	280	○	30
WDO-3D	6.25	32	88	○	20
WDO-5D	6.25	50	109	○	20
WDO-3D	6.3	32	88	○	20
WD-2D	6.3 - 7	34	79		13
WD-2D	6.3	34	79		13
WDO-5D	6.3	51	109	○	20
WD-4D	6.3 - 7	53	91		13
WD-4D	6.3	53	91		13
WDO-10D	6.3	87	140	○	30
WDO-15D	6.3	120	175	○	30
WDO-20D	6.3	155	210	○	30
WDO-25D	6.3	190	250	○	30
WDO-30D	6.3	215	280	○	30
WDO-3D	6.4	32	88	○	20
WD-2D	6.4 - 7	34	79		14
WD-2D	6.4	34	79		14
WDO-5D	6.4	52	109	○	20
WD-4D	6.4 - 7	53	91		14
WD-4D	6.4	53	91		14
WDO-10D	6.4	87	140	○	30
WDO-15D	6.4	120	175	○	30
WDO-20D	6.4	155	210	○	30
WDO-25D	6.4	190	250	○	30
WDO-30D	6.4	215	280	○	30
WDO-3D	6.5	33	88	○	20
WD-2D	6.5 - 7	34	79		14
WD-2D	6.5	34	79		14
WDO-5D	6.5	52	109	○	20
WD-4D	6.5 - 7	53	91		14
WD-4D	6.5	53	91		14
WDO-8D	6.5	72	125	○	20
WDO-10D	6.5	87	140	○	30
WDO-15D	6.5	120	175	○	30
WDO-20D	6.5	155	210	○	30
WDO-25D	6.5	190	250	○	30
WDO-30D	6.5	215	280	○	30
WDO-3D	6.6	33	88	○	21
WD-2D	6.6 - 7	34	79		14
WD-2D	6.6	34	79		14
WD-4D	6.6 - 7	53	91		14
WD-4D	6.6	53	91		14
WDO-5D	6.6	53	109	○	21
WDO-10D	6.6	87	140	○	30
WDO-15D	6.6	120	175	○	30
WDO-20D	6.6	155	210	○	30
WDO-25D	6.6	190	250	○	30
WDO-30D	6.6	215	280	○	30
WD-2D	6.7 - 7	34	79		14
WD-2D	6.7	34	79		14

NEXT

特定代理店库存品
Stocked by specific distributors

■导向孔加工用刀具请参考 P.26

■Refer to p.26 for pilot drill offering

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-3D	6.7	34	88	○	21
WD-4D	6.7 - 7	53	91		14
WD-4D	6.7	53	91		14
WDO-5D	6.7	54	109	○	21
WDO-10D	6.7	87	140	○	30
WDO-15D	6.7	120	175	○	30
WDO-20D	6.7	155	210	○	30
WDO-25D	6.7	190	250	○	30
WDO-30D	6.7	215	280	○	30
WDO-3D	6.75	34	88	○	21
WDO-5D	6.75	54	109	○	21
WD-2D	6.8 - 7	34	79		14
WD-2D	6.8	34	79		14
WDO-3D	6.8	34	88	○	21
WD-4D	6.8 - 7	53	91		14
WD-4D	6.8	53	91		14
WDO-5D	6.8	55	109	○	21
WDO-10D	6.8	90	140	○	30
WDO-15D	6.8	125	175	○	30
WDO-20D	6.8	160	210	○	30
WDO-25D	6.8	200	250	○	30
WDO-30D	6.8	230	280	○	30
WD-2D	6.9 - 7	34	79		14
WD-2D	6.9	34	79		14
WDO-3D	6.9	35	88	○	21
WD-4D	6.9 - 7	53	91		14
WD-4D	6.9	53	91		14
WDO-5D	6.9	56	109	○	21
WDO-10D	6.9	90	140	○	30
WDO-15D	6.9	125	175	○	30
WDO-20D	6.9	160	210	○	30
WDO-25D	6.9	200	250	○	30
WDO-30D	6.9	230	280	○	30
WD-2D	7 - 7	34	79		14
WD-2D	7	34	79		14
WDO-3D	7	35	88	○	21
WD-4D	7 - 7	53	91		14
WD-4D	7	53	91		14
WDO-5D	7	56	109	○	21
WDO-8D	7	77	125	○	21
WDO-10D	7	90	140	○	30
WDO-15D	7	125	175	○	30
WDO-20D	7	160	210	○	30
WDO-25D	7	200	250	○	30
WDO-30D	7	230	280	○	30
WDO-3D	7.1	36	94	○	21
WD-2D	7.1	41	79		14
WD-4D	7.1	53	91		14
WDO-5D	7.1	57	118	○	21
WDO-10D	7.1	100	155	○	31

特定代理店库存品
Stocked by specific distributors

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-15D	7.1	135	195	○	31
WDO-20D	7.1	170	230	○	31
WDO-25D	7.1	210	275	○	31
WDO-30D	7.1	250	315	○	31
WDO-3D	7.2	36	94	○	21
WD-2D	7.2	41	79		14
WD-4D	7.2	53	91		14
WDO-5D	7.2	58	118	○	21
WDO-10D	7.2	100	155	○	31
WDO-15D	7.2	135	195	○	31
WDO-20D	7.2	170	230	○	31
WDO-25D	7.2	210	275	○	31
WDO-30D	7.2	250	315	○	31
WDO-3D	7.25	37	94	○	21
WDO-5D	7.25	58	118	○	21
WDO-3D	7.3	37	94	○	21
WD-2D	7.3	41	79		14
WD-4D	7.3	53	91		14
WDO-5D	7.3	59	118	○	21
WDO-10D	7.3	100	155	○	31
WDO-15D	7.3	135	195	○	31
WDO-20D	7.3	170	230	○	31
WDO-25D	7.3	210	275	○	31
WDO-30D	7.3	250	315	○	31
WD-2D	7.36	41	79		14
WDO-5D	7.36	59	118	○	21
WD-2D	7.38	41	79		14
WDO-5D	7.38	60	118	○	21
WDO-3D	7.4	37	94	○	21
WD-2D	7.4	41	79		14
WD-4D	7.4	53	91		14
WDO-5D	7.4	60	118	○	21
WDO-10D	7.4	100	155	○	31
WDO-15D	7.4	135	195	○	31
WDO-20D	7.4	170	230	○	31
WDO-25D	7.4	210	275	○	31
WDO-30D	7.4	250	315	○	31
WDO-3D	7.5	38	94	○	21
WD-2D	7.5	41	79		14
WD-4D	7.5	53	91		14
WDO-5D	7.5	60	118	○	21
WDO-8D	7.5	83	140	○	21
WDO-10D	7.5	100	155	○	31
WDO-15D	7.5	135	195	○	31
WDO-20D	7.5	170	230	○	31
WDO-25D	7.5	210	275	○	31
WDO-30D	7.5	250	315	○	31
WD-2D	7.52	41	79		14
WDO-5D	7.52	61	118	○	21
WD-2D	7.54	41	79		14

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-5D	7.54	61	118	○	21
WDO-3D	7.6	38	94	○	21
WD-2D	7.6	41	79		14
WD-4D	7.6	53	91		14
WDO-5D	7.6	61	118	○	21
WDO-10D	7.6	105	155	○	31
WDO-15D	7.6	145	195	○	31
WDO-20D	7.6	180	230	○	31
WDO-25D	7.6	225	275	○	31
WDO-30D	7.6	265	315	○	31
WDO-3D	7.7	39	94	○	21
WD-2D	7.7	41	79		14
WD-4D	7.7	53	91		14
WDO-5D	7.7	62	118	○	21
WDO-10D	7.7	105	155	○	31
WDO-15D	7.7	145	195	○	31
WDO-20D	7.7	180	230	○	31
WDO-25D	7.7	225	275	○	31
WDO-30D	7.7	265	315	○	31
WDO-3D	7.75	39	94	○	21
WDO-5D	7.75	62	118	○	21
WDO-3D	7.8	39	94	○	21
WD-2D	7.8	41	79		14
WD-4D	7.8	53	91		14
WDO-5D	7.8	63	118	○	21
WDO-10D	7.8	105	155	○	31
WDO-15D	7.8	145	195	○	31
WDO-20D	7.8	180	230	○	31
WDO-25D	7.8	225	275	○	31
WDO-30D	7.8	265	315	○	31
WDO-3D	7.9	40	94	○	22
WD-2D	7.9	41	79		14
WD-4D	7.9	53	91		14
WDO-5D	7.9	64	118	○	22
WDO-10D	7.9	105	155	○	32
WDO-15D	7.9	145	195	○	32
WDO-20D	7.9	180	230	○	32
WDO-25D	7.9	225	275	○	32
WDO-30D	7.9	265	315	○	32
WDO-3D	8	40	94	○	22
WD-2D	8	41	79		14
WD-4D	8	53	91		14
WDO-5D	8	64	118	○	22
WDO-8D	8	88	140	○	22
WDO-10D	8	105	155	○	32
WDO-15D	8	145	195	○	32
WDO-20D	8	180	230	○	32
WDO-25D	8	225	275	○	32
WDO-30D	8	265	315	○	32
WDO-3D	8.1	41	101	○	22

NEXT特点
Feature加工事例
Processing DataW/D无油孔钻头
2D/4D

3D/5D/8D

W/D内冷油孔钻头
导向孔用钻头
Pilot Drill切削条件表
Cutting Conditions直径选定表
Flute Length by Drill Diameter非标准品对应表
Production Table by Diameter

直径槽长选定表 Flute Length by Drill Diameter

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-2D	8.1 - 9	47	89		14
WD-2D	8.1	47	89		14
WD-4D	8.1 - 9	61	103		14
WD-4D	8.1	61	103		14
WDO-5D	8.1	65	128	○	22
WDO-10D	8.1	110	165	○	32
WDO-15D	8.1	155	210	○	32
WDO-20D	8.1	195	260	○	32
WDO-25D	8.1	240	305	○	32
WDO-30D	8.1	280	350	○	32
WDO-3D	8.2	41	101	○	22
WD-2D	8.2 - 9	47	89		14
WD-2D	8.2	47	89		14
WD-4D	8.2 - 9	61	103		14
WD-4D	8.2	61	103		14
WDO-5D	8.2	66	128	○	22
WDO-10D	8.2	110	165	○	32
WDO-15D	8.2	155	210	○	32
WDO-20D	8.2	195	260	○	32
WDO-25D	8.2	240	305	○	32
WDO-30D	8.2	280	350	○	32
WDO-3D	8.25	42	101	○	22
WDO-5D	8.25	66	128	○	22
WDO-3D	8.3	42	101	○	22
WD-2D	8.3 - 9	47	89		14
WD-2D	8.3	47	89		14
WD-4D	8.3 - 9	61	103		14
WD-4D	8.3	61	103		14
WDO-5D	8.3	67	128	○	22
WDO-10D	8.3	110	165	○	32
WDO-15D	8.3	155	210	○	32
WDO-20D	8.3	195	260	○	32
WDO-25D	8.3	240	305	○	32
WDO-30D	8.3	280	350	○	32
WDO-3D	8.4	42	101	○	22
WD-2D	8.4 - 9	47	89		15
WD-2D	8.4	47	89		15
WD-4D	8.4 - 9	61	103		15
WD-4D	8.4	61	103		15
WDO-5D	8.4	68	128	○	22
WDO-10D	8.4	110	165	○	32
WDO-15D	8.4	155	210	○	32
WDO-20D	8.4	195	260	○	32
WDO-25D	8.4	240	305	○	32
WDO-30D	8.4	280	350	○	32
WDO-3D	8.5	43	101	○	22
WD-2D	8.5 - 9	47	89		15
WD-2D	8.5	47	89		15
WD-4D	8.5 - 9	61	103		15
WD-4D	8.5	61	103		15

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-5D	8.5	68	128	○	22
WDO-8D	8.5	94	150	○	22
WDO-10D	8.5	110	165	○	32
WDO-15D	8.5	155	210	○	32
WDO-20D	8.5	195	260	○	32
WDO-25D	8.5	240	305	○	32
WDO-30D	8.5	280	350	○	32
WDO-3D	8.6	43	101	○	22
WD-2D	8.6 - 9	47	89		15
WD-2D	8.6	47	89		15
WD-4D	8.6 - 9	61	103		15
WD-4D	8.6	61	103		15
WDO-5D	8.6	69	128	○	22
WDO-10D	8.6	115	165	○	32
WDO-15D	8.6	160	210	○	32
WDO-20D	8.6	210	260	○	32
WDO-25D	8.6	255	305	○	32
WDO-30D	8.6	300	350	○	32
WDO-3D	8.7	44	101	○	22
WD-2D	8.7 - 9	47	89		15
WD-2D	8.7	47	89		15
WD-4D	8.7 - 9	61	103		15
WD-4D	8.7	61	103		15
WDO-5D	8.7	70	128	○	22
WDO-10D	8.7	115	165	○	32
WDO-15D	8.7	160	210	○	32
WDO-20D	8.7	210	260	○	32
WDO-25D	8.7	255	305	○	32
WDO-30D	8.7	300	350	○	32
WDO-3D	8.75	44	101	○	22
WDO-5D	8.75	70	128	○	22
WDO-3D	8.8	44	101	○	22
WD-2D	8.8 - 9	47	89		15
WD-2D	8.8	47	89		15
WD-4D	8.8 - 9	61	103		15
WD-4D	8.8	61	103		15
WDO-5D	8.8	71	128	○	22
WDO-10D	8.8	115	165	○	32
WDO-15D	8.8	160	210	○	32
WDO-20D	8.8	210	260	○	32
WDO-25D	8.8	255	305	○	32
WDO-30D	8.8	300	350	○	32
WDO-3D	8.9	45	101	○	22
WD-2D	8.9 - 9	47	89		15
WD-2D	8.9	47	89		15
WD-4D	8.9 - 9	61	103		15
WD-4D	8.9	61	103		15
WDO-5D	8.9	72	128	○	22
WDO-10D	8.9	115	165	○	32
WDO-15D	8.9	160	210	○	32

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-20D	8.9	210	260	○	32
WDO-25D	8.9	255	305	○	32
WDO-30D	8.9	300	350	○	32
WDO-3D	9	45	101	○	22
WD-2D	9 - 9	47	89		15
WD-2D	9	47	89		15
WD-4D	9 - 9	61	103		15
WD-4D	9	61	103		15
WDO-5D	9	72	128	○	22
WDO-8D	9	99	150	○	22
WDO-10D	9	115	165	○	32
WDO-15D	9	160	210	○	32
WDO-20D	9	210	260	○	32
WDO-25D	9	255	305	○	32
WDO-30D	9	300	350	○	32
WDO-3D	9.1	46	106	○	22
WD-2D	9.1	47	89		15
WD-4D	9.1	61	103		15
WDO-5D	9.1	73	136	○	22
WDO-10D	9.1	125	190	○	33
WDO-15D	9.1	170	240	○	33
WDO-20D	9.1	220	290	○	33
WDO-25D	9.1	270	340	○	33
WDO-30D	9.1	315	390	○	33
WDO-3D	9.2	46	106	○	22
WD-2D	9.2	47	89		15
WD-4D	9.2	61	103		15
WDO-5D	9.2	74	136	○	22
WDO-10D	9.2	125	190	○	33
WDO-15D	9.2	170	240	○	33
WDO-20D	9.2	220	290	○	33
WDO-25D	9.2	270	340	○	33
WDO-30D	9.2	315	390	○	33
WD-2D	9.24	47	89		15
WDO-5D	9.24	74	136	○	22
WDO-3D	9.25	47	106	○	22
WDO-5D	9.25	74	136	○	22
WD-2D	9.26	47	89		15
WDO-5D	9.26	75	136	○	22
WD-2D	9.3	47	89		15
WDO-3D	9.3	47	106	○	22
WD-4D	9.3	61	103		15
WDO-5D	9.3	75	136	○	22
WDO-10D	9.3	125	190	○	33
WDO-15D	9.3	170	240	○	33
WDO-20D	9.3	220	290	○	33
WDO-25D	9.3	270	340	○	33
WDO-30D	9.3	315	390	○	33
WD-2D	9.36	47	89		15
WDO-5D	9.36	75	136	○	22

NEXT

■ 特定代理店库存品
Stocked by specific distributors

■ 导向孔加工用刀具请参考 P.26

■ Refer to p.26 for pilot drill offering

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-2D	9.38	47	89		15
WDO-5D	9.38	76	136	○	22
WD-2D	9.4	47	89		15
WDO-3D	9.4	47	106	○	22
WD-4D	9.4	61	103		15
WDO-5D	9.4	76	136	○	22
WDO-10D	9.4	125	190	○	33
WDO-15D	9.4	170	240	○	33
WDO-20D	9.4	220	290	○	33
WDO-25D	9.4	270	340	○	33
WDO-30D	9.4	315	390	○	33
WD-2D	9.5	47	89		16
WDO-3D	9.5	48	106	○	22
WD-4D	9.5	61	103		16
WDO-5D	9.5	76	136	○	22
WDO-8D	9.5	105	160	○	22
WDO-10D	9.5	125	190	○	33
WDO-15D	9.5	170	240	○	33
WDO-20D	9.5	220	290	○	33
WDO-25D	9.5	270	340	○	33
WDO-30D	9.5	315	390	○	33
WD-2D	9.52	47	89		16
WDO-5D	9.52	77	136	○	22
WD-2D	9.54	47	89		16
WDO-5D	9.54	77	136	○	22
WD-2D	9.6	47	89		16
WDO-3D	9.6	48	106	○	22
WD-4D	9.6	61	103		16
WDO-5D	9.6	77	136	○	22
WDO-10D	9.6	130	190	○	33
WDO-15D	9.6	180	240	○	33
WDO-20D	9.6	230	290	○	33
WDO-25D	9.6	280	340	○	33
WDO-30D	9.6	330	390	○	33
WD-2D	9.7	47	89		16
WDO-3D	9.7	49	106	○	22
WD-4D	9.7	61	103		16
WDO-5D	9.7	78	136	○	22
WDO-10D	9.7	130	190	○	33
WDO-15D	9.7	180	240	○	33
WDO-20D	9.7	230	290	○	33
WDO-25D	9.7	280	340	○	33
WDO-30D	9.7	330	390	○	33
WDO-3D	9.75	49	106	○	22
WDO-5D	9.75	78	136	○	22
WD-2D	9.8	47	89		16
WDO-3D	9.8	49	106	○	22
WD-4D	9.8	61	103		16
WDO-5D	9.8	79	136	○	22
WDO-10D	9.8	130	190	○	33

特定代理店库存品
Stocked by specific distributors

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-15D	9.8	180	240	○	33
WDO-20D	9.8	230	290	○	33
WDO-25D	9.8	280	340	○	33
WDO-30D	9.8	330	390	○	33
WD-2D	9.9	47	89		16
WDO-3D	9.9	50	106	○	22
WD-4D	9.9	61	103		16
WDO-5D	9.9	80	136	○	22
WDO-10D	9.9	130	190	○	34
WDO-15D	9.9	180	240	○	34
WDO-20D	9.9	230	290	○	34
WDO-25D	9.9	280	340	○	34
WDO-30D	9.9	330	390	○	34
WD-2D	10	47	89		16
WDO-3D	10	50	106	○	22
WD-4D	10	61	103		16
WDO-5D	10	80	136	○	22
WDO-8D	10	110	160	○	22
WDO-10D	10	130	190	○	34
WDO-15D	10	180	240	○	34
WDO-20D	10	230	290	○	34
WDO-25D	10	280	340	○	34
WDO-30D	10	330	390	○	34
WDO-3D	10.1	51	113	○	22
WD-2D	10.1 - 11	55	102		16
WD-2D	10.1	55	102		16
WD-4D	10.1 - 11	71	118		16
WD-4D	10.1	71	118		16
WDO-5D	10.1	81	146	○	22
WDO-10D	10.1	140	205	○	34
WDO-15D	10.1	190	260	○	34
WDO-20D	10.1	250	310	○	34
WDO-25D	10.1	310	370	○	34
WDO-3D	10.2	51	113	○	22
WD-2D	10.2 - 11	55	102		16
WD-2D	10.2	55	102		16
WD-4D	10.2 - 11	71	118		16
WD-4D	10.2	71	118		16
WDO-5D	10.2	82	146	○	22
WDO-10D	10.2	140	205	○	34
WDO-15D	10.2	190	260	○	34
WDO-20D	10.2	250	310	○	34
WDO-25D	10.2	310	370	○	34
WDO-3D	10.25	52	113	○	22
WDO-5D	10.25	82	146	○	22
WDO-3D	10.3	52	113	○	23
WD-2D	10.3 - 11	55	102		16
WD-2D	10.3	55	102		16
WD-4D	10.3 - 11	71	118		16
WD-4D	10.3	71	118		16

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-5D	10.3	83	146	○	23
WDO-10D	10.3	140	205	○	34
WDO-15D	10.3	190	260	○	34
WDO-20D	10.3	250	310	○	34
WDO-25D	10.3	310	370	○	34
WDO-3D	10.4	52	113	○	23
WD-2D	10.4 - 11	55	102		16
WD-2D	10.4	55	102		16
WD-4D	10.4 - 11	71	118		16
WD-4D	10.4	71	118		16
WDO-5D	10.4	84	146	○	23
WDO-10D	10.4	140	205	○	34
WDO-15D	10.4	190	260	○	34
WDO-20D	10.4	250	310	○	34
WDO-25D	10.4	310	370	○	34
WDO-3D	10.5	53	113	○	23
WD-2D	10.5 - 11	55	102		16
WD-2D	10.5	55	102		16
WD-4D	10.5 - 11	71	118		16
WD-4D	10.5	71	118		16
WDO-5D	10.5	84	146	○	23
WDO-8D	10.5	116	182	○	23
WDO-10D	10.5	140	205	○	34
WDO-15D	10.5	190	260	○	34
WDO-20D	10.5	250	310	○	34
WDO-25D	10.5	310	370	○	34
WDO-3D	10.6	53	113	○	23
WD-2D	10.6 - 11	55	102		16
WD-2D	10.6	55	102		16
WD-4D	10.6 - 11	71	118		16
WD-4D	10.6	71	118		16
WDO-5D	10.6	85	146	○	23
WDO-10D	10.6	140	205	○	34
WDO-15D	10.6	190	260	○	34
WDO-20D	10.6	250	310	○	34
WDO-25D	10.6	310	370	○	34
WDO-3D	10.7	54	113	○	23
WD-2D	10.7 - 11	55	102		16
WD-2D	10.7	55	102		16
WD-4D	10.7 - 11	71	118		16
WD-4D	10.7	71	118		16
WDO-5D	10.7	86	146	○	23
WDO-10D	10.7	145	205	○	34
WDO-15D	10.7	200	260	○	34
WDO-20D	10.7	250	310	○	34
WDO-25D	10.7	310	370	○	34
WDO-3D	10.75	54	113	○	23
WDO-5D	10.75	86	146	○	23
WDO-3D	10.8	54	113	○	23
WD-2D	10.8 - 11	55	102		16

NEXT

直径槽长选定表 Flute Length by Drill Diameter

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-2D	10.8	55	102		16
WD-4D	10.8 - 11	71	118		16
WD-4D	10.8	71	118		16
WDO-5D	10.8	87	146	○	23
WDO-10D	10.8	145	205	○	34
WDO-15D	10.8	200	260	○	34
WDO-20D	10.8	250	310	○	34
WDO-25D	10.8	310	370	○	34
WD-2D	10.9 - 11	55	102		16
WD-2D	10.9	55	102		16
WDO-3D	10.9	55	113	○	23
WD-4D	10.9 - 11	71	118		16
WD-4D	10.9	71	118		16
WDO-5D	10.9	88	146	○	23
WDO-10D	10.9	145	205	○	34
WDO-15D	10.9	200	260	○	34
WDO-20D	10.9	250	310	○	34
WDO-25D	10.9	310	370	○	34
WD-2D	11 - 11	55	102		16
WD-2D	11	55	102		16
WDO-3D	11	55	113	○	23
WD-4D	11 - 11	71	118		16
WD-4D	11	71	118		16
WDO-5D	11	88	146	○	23
WDO-8D	11	121	182	○	23
WDO-10D	11	145	205	○	34
WDO-15D	11	200	260	○	34
WDO-20D	11	250	310	○	34
WDO-25D	11	310	370	○	34
WD-2D	11.1	55	102		16
WDO-3D	11.1	56	120	○	23
WD-4D	11.1	71	118		16
WDO-5D	11.1	89	156	○	23
WDO-10D	11.1	155	215	○	34
WDO-15D	11.1	210	280	○	34
WDO-20D	11.1	270	330	○	34
WDO-25D	11.1	340	400	○	34
WD-2D	11.2	55	102		16
WDO-3D	11.2	56	120	○	23
WD-4D	11.2	71	118		16
WDO-5D	11.2	90	156	○	23
WDO-10D	11.2	155	215	○	34
WDO-15D	11.2	210	280	○	34
WDO-20D	11.2	270	330	○	34
WDO-25D	11.2	340	400	○	34
WD-2D	11.22	55	102		16
WDO-5D	11.22	90	156	○	23
WD-2D	11.24	55	102		16
WDO-5D	11.24	90	156	○	23
WD-2D	11.3	55	102		16

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-3D	11.3	57	120	○	23
WD-4D	11.3	71	118		16
WDO-5D	11.3	91	156	○	23
WDO-10D	11.3	155	215	○	35
WDO-15D	11.3	210	280	○	35
WDO-20D	11.3	270	330	○	35
WDO-25D	11.3	340	400	○	35
WD-2D	11.36	55	102		16
WDO-5D	11.36	91	156	○	23
WD-2D	11.38	55	102		16
WDO-5D	11.38	92	156	○	23
WD-2D	11.4	55	102		17
WDO-3D	11.4	57	120	○	23
WD-4D	11.4	71	118		17
WDO-5D	11.4	92	156	○	23
WDO-10D	11.4	155	215	○	35
WDO-15D	11.4	210	280	○	35
WDO-20D	11.4	270	330	○	35
WDO-25D	11.4	340	400	○	35
WD-2D	11.5	55	102		17
WDO-3D	11.5	58	120	○	23
WD-4D	11.5	71	118		17
WDO-5D	11.5	92	156	○	23
WDO-8D	11.5	127	194	○	23
WDO-10D	11.5	155	215	○	35
WDO-15D	11.5	210	280	○	35
WDO-20D	11.5	270	330	○	35
WDO-25D	11.5	340	400	○	35
WD-2D	11.6	55	102		17
WDO-3D	11.6	58	120	○	23
WD-4D	11.6	71	118		17
WDO-5D	11.6	93	156	○	23
WDO-10D	11.6	155	215	○	35
WDO-15D	11.6	210	280	○	35
WDO-20D	11.6	270	330	○	35
WDO-25D	11.6	340	400	○	35
WD-2D	11.7	55	102		17
WDO-3D	11.7	59	120	○	23
WD-4D	11.7	71	118		17
WDO-5D	11.7	94	156	○	23
WDO-10D	11.7	155	215	○	35
WDO-15D	11.7	210	280	○	35
WDO-20D	11.7	270	330	○	35
WDO-25D	11.7	340	400	○	35
WD-2D	11.8	55	102		17
WDO-3D	11.8	59	120	○	24
WD-4D	11.8	71	118		17
WDO-5D	11.8	95	156	○	24
WDO-10D	11.8	155	215	○	35
WDO-15D	11.8	210	280	○	35

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-20D	11.8	270	330	○	35
WDO-25D	11.8	340	400	○	35
WD-2D	11.9	55	102		17
WDO-3D	11.9	60	120	○	24
WD-4D	11.9	71	118		17
WDO-5D	11.9	96	156	○	24
WDO-10D	11.9	155	215	○	35
WDO-15D	11.9	215	280	○	35
WDO-20D	11.9	270	330	○	35
WDO-25D	11.9	340	400	○	35
WD-2D	12	55	102		17
WDO-3D	12	60	120	○	24
WD-4D	12	71	118		17
WDO-5D	12	96	156	○	24
WDO-8D	12	132	194	○	24
WDO-10D	12	155	215	○	35
WDO-15D	12	215	280	○	35
WDO-20D	12	270	330	○	35
WDO-25D	12	340	400	○	35
WDO-3D	12.1	61	128	○	24
WD-4D	12.1 - 13	77	124		17
WD-4D	12.1	77	124		17
WDO-5D	12.1	97	167	○	24
WDO-3D	12.2	61	128	○	24
WD-4D	12.2 - 13	77	124		17
WD-4D	12.2	77	124		17
WDO-5D	12.2	98	167	○	24
WDO-3D	12.3	62	128	○	24
WD-4D	12.3 - 13	77	124		17
WD-4D	12.3	77	124		17
WDO-5D	12.3	99	167	○	24
WDO-3D	12.4	62	128	○	24
WD-4D	12.4 - 13	77	124		17
WD-4D	12.4	77	124		17
WDO-5D	12.4	100	167	○	24
WDO-3D	12.5	63	128	○	24
WD-4D	12.5 - 13	77	124		17
WD-4D	12.5	77	124		17
WDO-5D	12.5	100	167	○	24
WDO-8D	12.5	138	206	○	24
WDO-3D	12.6	63	128	○	24
WD-4D	12.6 - 13	77	124		17
WD-4D	12.6	77	124		17
WDO-5D	12.6	101	167	○	24
WDO-3D	12.7	64	128	○	24
WD-4D	12.7 - 13	77	124		17
WD-4D	12.7	77	124		17
WDO-5D	12.7	102	167	○	24
WDO-3D	12.75	64	128	○	24
WDO-5D	12.75	103	167	○	24

NEXT

特定代理店库存品
Stocked by specific distributors

■导向孔加工用刀具请参考 P.26

■Refer to p.26 for pilot drill offering

FROM

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-3D	12.8	64	128	○	24
WD-4D	12.8 - 13	77	124		17
WD-4D	12.8	77	124		17
WDO-5D	12.8	103	167	○	24
WDO-3D	12.9	65	128	○	24
WD-4D	12.9 - 13	77	124		17
WD-4D	12.9	77	124		17
WDO-5D	12.9	104	167	○	24
WDO-3D	13	65	128	○	24
WD-4D	13 - 13	77	124		17
WD-4D	13	77	124		17
WDO-5D	13	104	167	○	24
WDO-8D	13	143	206	○	24
WDO-3D	13.1	66	134	○	24
WD-4D	13.1	77	124		17
WDO-5D	13.1	105	176	○	24
WDO-3D	13.2	66	134	○	24
WD-4D	13.2	77	124		17
WDO-5D	13.2	106	176	○	24
WDO-5D	13.25	106	176	○	24
WDO-3D	13.3	67	134	○	24
WD-4D	13.3	77	124		17
WDO-5D	13.3	107	176	○	24
WDO-3D	13.4	67	134	○	24
WD-4D	13.4	77	124		17
WDO-5D	13.4	108	176	○	24
WDO-3D	13.5	68	134	○	24
WD-4D	13.5	77	124		17
WDO-5D	13.5	108	176	○	24
WDO-3D	13.6	68	134	○	24
WD-4D	13.6	77	124		17
WDO-5D	13.6	109	176	○	24
WDO-3D	13.7	69	134	○	24
WD-4D	13.7	77	124		18
WDO-5D	13.7	110	176	○	24
WDO-3D	13.8	69	134	○	24
WD-4D	13.8	77	124		18
WDO-5D	13.8	111	176	○	24
WDO-3D	13.9	70	134	○	24
WD-4D	13.9	77	124		18
WDO-5D	13.9	112	176	○	24
WDO-3D	14.1	71	140	○	24
WD-4D	14.1 - 15	83	133		18
WD-4D	14.1	83	133		18
WDO-5D	14.1	113	185	○	24
WDO-3D	14.2	71	140	○	24
WD-4D	14.2 - 15	83	133		18

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WD-4D	14.2	83	133		18
WDO-5D	14.2	114	185	○	24
WDO-3D	14.3	72	140	○	24
WD-4D	14.3 - 15	83	133		18
WD-4D	14.3	83	133		18
WDO-5D	14.3	115	185	○	24
WDO-3D	14.4	72	140	○	24
WD-4D	14.4 - 15	83	133		18
WD-4D	14.4	83	133		18
WDO-5D	14.4	116	185	○	24
WDO-3D	14.5	73	140	○	24
WD-4D	14.5 - 15	83	133		18
WD-4D	14.5	83	133		18
WDO-5D	14.5	116	185	○	24
WDO-3D	14.6	73	140	○	24
WD-4D	14.6 - 15	83	133		18
WD-4D	14.6	83	133		18
WDO-5D	14.6	117	185	○	24
WDO-3D	14.7	74	140	○	24
WD-4D	14.7 - 15	83	133		18
WD-4D	14.7	83	133		18
WDO-5D	14.7	118	185	○	24
WDO-3D	14.8	74	140	○	24
WD-4D	14.8 - 15	83	133		18
WD-4D	14.8	83	133		18
WDO-5D	14.8	119	185	○	24
WDO-3D	14.9	75	140	○	24
WD-4D	14.9 - 15	83	133		18
WD-4D	14.9	83	133		18
WDO-5D	14.9	120	185	○	24
WDO-3D	15	75	140	○	24
WD-4D	15 - 15	83	133		18
WD-4D	15	83	133		18
WDO-5D	15	120	185	○	24
WDO-3D	15.1	76	145	○	25
WD-4D	15.1	83	133		18
WDO-5D	15.1	121	193	○	25
WDO-3D	15.2	76	145	○	25
WD-4D	15.2	83	133		18
WDO-5D	15.2	122	193	○	25
WDO-5D	15.25	122	193	○	25
WDO-3D	15.3	77	145	○	25
WD-4D	15.3	83	133		18
WDO-5D	15.3	123	193	○	25
WDO-3D	15.4	77	145	○	25
WD-4D	15.4	83	133		18
WDO-5D	15.4	124	193	○	25
WDO-3D	15.5	78	145	○	25
WD-4D	15.5	83	133		18
WDO-5D	15.5	124	193	○	25

商品记号 Abbreviation	直径 (柄径) Dc-Ds	槽长 ℓ	全长 L	油孔 Oil Hole	页码 Page
WDO-3D	15.6	78	145	○	25
WD-4D	15.6	83	133		18
WDO-5D	15.6	125	193	○	25
WDO-3D	15.7	79	145	○	25
WD-4D	15.7	83	133		18
WDO-5D	15.7	126	193	○	25
WDO-3D	15.8	79	145	○	25
WD-4D	15.8	83	133		18
WDO-5D	15.8	127	193	○	25
WDO-3D	15.9	80	145	○	25
WD-4D	15.9	83	133		18
WDO-5D	15.9	128	193	○	25
WDO-3D	16	80	145	○	25
WD-4D	16	83	133		18
WDO-5D	16	128	193	○	25
WDO-3D	16.5	83	150	○	25
WD-4D	16.5 - 17	93	143		18
WD-4D	16.5	93	143		18
WDO-5D	16.5	132	201	○	25
WDO-3D	17	85	150	○	25
WD-4D	17 - 17	93	143		18
WD-4D	17	93	143		18
WDO-5D	17	136	201	○	25
WDO-3D	17.5	88	155	○	25
WD-4D	17.5	93	143		18
WDO-5D	17.5	140	209	○	25
WDO-3D	18	90	155	○	25
WD-4D	18	93	143		18
WDO-5D	18	144	209	○	25
WDO-3D	18.5	93	160	○	25
WD-4D	18.5 - 19	101	153		18
WD-4D	18.5	101	153		18
WDO-5D	18.5	148	217	○	25
WDO-3D	19	95	160	○	25
WD-4D	19 - 19	101	153		18
WD-4D	19	101	153		18
WDO-5D	19	152	217	○	25
WDO-3D	19.5	98	165	○	25
WD-4D	19.5	101	153		18
WDO-5D	19.5	156	225	○	25
WDO-3D	20	100	165	○	25
WD-4D	20	101	153		18
WDO-5D	20	160	225	○	25

特点
Feature

加工事例
Processing Data

WD无油孔钻头
2D/4D

3D/5D/8D

WDO内冷油孔钻头
导向孔用钻头
Pilot Drill

10D/15D/20D/25D/30D

切削条件表
Cutting Conditions

直径选定表
Flute Length by Drill Diameter

非标品对应表
Production Table by Drill Diameter

应对更广泛的加工环境，提供更丰富的产品种类！

The wide product lineup provides ideal machining conditions for every application!

【钻头直径对应表】 Production Table by Drill Diameter

标准库存品、特定代理店库存品
Standard stock item,
Stocked by specific distributors

接受订单对应 (根据情况可能无法对应).
Special order item
(Under certain circumstances, some drills cannot be produced.)

请咨询我司营业。 (根据情况可能无法对应.)
Please contact our sales staff for more information.
(Under certain circumstances, some drills cannot be produced.)

直径 Dc	L/D	10D	15D	20D	25D	30D	35D	40D	45D	50D
2.8						93				
2.9						96				
3						100				
3.1								134		
3.2								138		
3.3								142		
3.4								147		
3.5								151		
3.6								155		
3.7								160		
3.8								164		
3.9								168		
4								172		
4.1								177		
4.2								181		
4.3								185		
4.4								190		
4.5								195		
4.6								198		
4.7								203		
4.8								207		
4.9								211		
5								215		
5.1								220		
5.2								224		
5.3								228		
5.4								233		
5.5								240		
5.6								241		
5.7								246		
5.8								249		
5.9								254		
6								260		
6.1								263		
6.2								267		
6.3								271		

单位:mm Unit:mm

直径 Dc	L/D	10D	15D	20D	25D	30D	35D	40D	45D	50D
6.4								276		
6.5								280		
6.6								284		
6.7								289		
6.8								293		
6.9								297		
7								301		
7.1								306		
7.2								310		
7.3								314		
7.4								319		
7.5								323		
7.6								327		
7.7								332		
7.8								336		
7.9								340		
8								344		
8.1								349		
8.2								353		
8.3								357		
8.4								362		
8.5								366		
8.6								370		
8.7								375		
8.8								379		
8.9								383		
9								387		
9.1							346			
9.2							350			
9.3							354			
9.4							358			
9.5							361			
9.6							365			
9.7							369			
9.8							373			
9.9							377			

表中数值为可制作最大槽长。 The values in the table indicate the maximum possible flute lengths.

目标是“为客户塑造梦想！”

- 对应客户各种高冷需求，进行最合适的设计。
- 对于通用性的产品需求，我司丰富的标准品产品线可以及时对应。

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Aimed at "Shaping your dreams" and "Exceeding potential!"
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 · An abundant lineup of standard products can be delivered immediately to meet the wide range of general-purpose needs.
 That is OSG's Coolant-Through WDO Carbide Drill Series

通用性 General-Purpose

标准库存品、特定代理店库存品
 Standard stock item,
 Stocked by specific distributors

接受订单对应(根据情况可能无法对应).
 Special order item
 (Under certain circumstances, some drills cannot be produced.)

请咨询我司营业。(根据情况可能无法对应.)
 Please contact our sales staff for more information.
 Under certain circumstances, some drills cannot be produced.

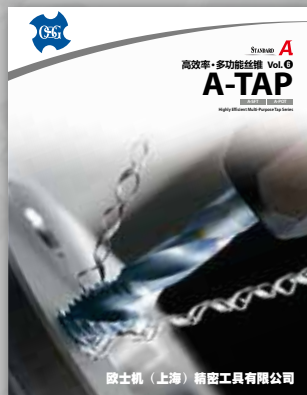
单位:mm Unit:mm

直径 Dc	L/D	10D	15D	20D	25D	30D	35D	40D	45D	50D
10							380			
10.1						334				
10.2						337				
10.3						340				
10.4						344				
10.5						347				
10.6						350				
10.7						354				
10.8						357				
10.9						360				
11						363				
11.1						367				
11.2						370				
11.3						373				
11.4						377				
11.5						380				
11.6						383				
11.7						387				
11.8						390				
11.9					340					
12					340					
12.1					339					
12.2					342					
12.3					345					
12.4					348					
12.5					350					
12.6					353					
12.7					356					
12.8					359					
12.9					362					
13					364					
13.1					367					
13.2					370					
13.3					373					
13.4					376					
13.5					378					

直径 Dc	L/D	10D	15D	20D	25D	30D	35D	40D	45D	50D
13.6					381					
13.7					384					
13.8					387					
13.9					390					
14					390					
14.1			324							
14.2			327							
14.3			329							
14.4			331							
14.5			334							
14.6			336							
14.7			338							
14.8			340							
14.9			343							
15			345							
15.1		272								
15.2		274								
15.3		275								
15.4		277								
15.5		279								
15.6		281								
15.7		283								
15.8		284								
15.9		286								
16		288								
16.5		297								
17		306								
17.5		315								
18		324								
18.5										
19										
19.5										
20										
20~										

表中数值为可制作最大槽长。 The values in the table indicate the maximum possible flute lengths.

底孔加工后 Machining Solutions after Drilling



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Revamped lineup with a total of 727 items!

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欧士机(上海)营业本部

地址: 上海市浦东新区浦东南路360号新上海国际大厦17楼
电话: 021-58886600; 传真: 021-58883300; 邮编: 200120

欧士机(上海)物流中心

地址: 上海市外高桥保税区希雅路69号15号厂房楼5楼E部
电话: 021-50462266; 传真: 021-50462626; 邮编: 200131

欧士机(上海)北京分公司

地址: 北京市朝阳区建国门外大街19号国际大厦A座18-05C
电话: 010-85261018; 传真: 010-85261016; 邮编: 100004

欧士机(上海)广州分公司

地址: 广州市东风东路767号东宝大厦1808 & 1809室
电话: 020-38210423; 传真: 020-38210425; 邮编: 510600

欧士机(上海)大连分公司

地址: 大连开发区凯伦国际大厦B2006
电话: 0411-87655185; 传真: 0411-87655186; 邮编: 116600

欧士机(上海)天津分公司

地址: 天津市和平区南马路11号和平创新大厦10层1018室
电话: 022-23037566; 传真: 022-23037577; 邮编: 300020

欧士机(上海)重庆分公司

地址: 重庆市渝北区龙溪街道新溉大道18号山顶道国宾城11栋2301
电话: 023-65408030; 传真: 023-65402088; 邮编: 401120

欧士机(上海)青岛分公司

地址: 青岛市市北区龙城路30号万达广场3号楼1单元2803室
电话: 0532-66775787; 传真: 0532-66775797; 邮编: 266034

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电话: 024-22852762; 021-25871348 传真: 024-22852763

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电话: 028-65783992; 传真: 028-85005292; 邮编: 610042

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电话: 0772-8250338; 传真: 0772-8250328; 邮编: 545006

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地址: 湖南长沙市车站北路649号天都大厦1栋15013
电话: 0731-82258102; 传真: 0731-82258302; 邮编: 410000

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地址: 西安市高新区唐延路35号旺座现代城A座15层1521室
电话: 029-88860594; 传真: 029-88860594; 邮编: 710075

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地址: 丹东市振兴区立交新路33号万达广场华府小区23号楼2单元1307室
电话: 0415-2235643; 邮编: 118000

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