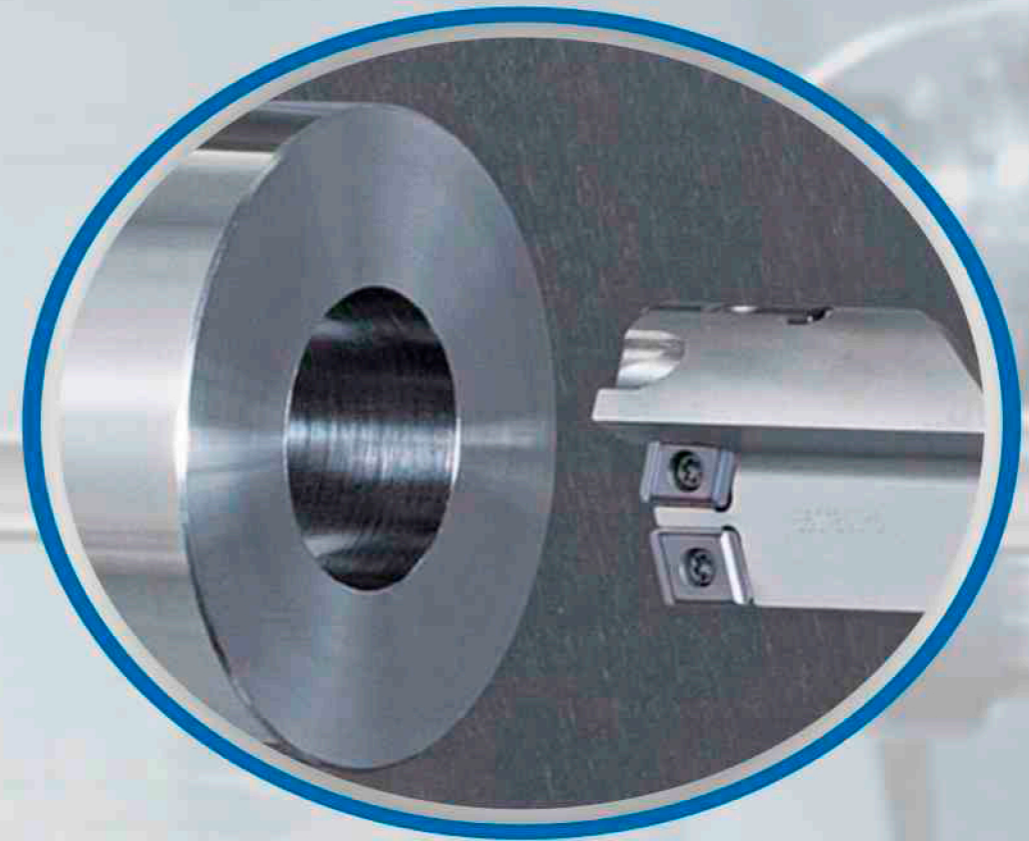


S.A.T.

Deep Hole Drill Special Equipment And Machine
Clamp Type Grab Drill Manufacturer

深孔钻专用设备及机夹式枪钻厂家



ENTERPRISE HONOR

企业荣誉

我们追求的不仅仅是荣誉，

更追求客户的高度认可，更关注客户的满意度。

What we pursue is not only honor,

Pursue the high degree of customer recognition and pay more attention to customer satisfaction.



COMPANY PROFILE

公司简介

东莞市元昌机床有限公司成立于2007年，是一家专业研制和销售深孔钻专用设备及机夹式枪钻的厂家，公司位于享有“中国模具之都”之称的中国制造业名城广东省东莞市长安镇，是一家集设计研发、制造、加工、销售和技术服务为一体的综合性生产企业。本公司拥有二十年圆棒深孔钻加工经验。

近几年来应市场需求结合本公司二十年来专业机床设计、制造水平及生产圆棒深孔钻机械的丰富经验和多年的技术实力，结合国内实际情况，同时引进吸收国外先进技术，公司致力于圆棒深孔钻的研发及制造，元昌深孔钻可加工材料：S136、SKD61、SKH51、DAC、汽车零件、医疗器械、玻璃、铍铜、不锈钢、如钛合金、笔模、运水孔、热流道等。并独立研发筒筒枪钻机械、NC深孔钻机床、小孔深孔钻专用机床。

元昌深孔钻专心制造、不断创新改进，用心实现“以专业服务客户，用服务传递专业”的服务承诺，元昌深孔钻得到越来越多的业界内客户的认可和信赖，我们一直努力，只为做得更好更专业的产品服务于同行业。

Established in 2007,Dongguan Yuanchang Machine Tool Co.,Ltd.is a professional manufacturer of deep hole drilling equipment and machine clamp gun drill.The company is located in the famous manufacturing city of Guangdong Province,which is known as the "China Mould Capital".Chang'an Town,Dongguan City is a comprehensive production enterprise integrating design,development,manufacturing,processing,sales and technical services.The company has 20 years of experience in round bar deep hole drilling.

In recent years,in response to market demand ,the company has combined the company's 20 years of professional machine tool design,manufacturing level and production of round rod deep hole drilling machinery with rich experience and years of technical strength,combined with domestic actual conditions,while introducing and absorbing foreign advanced technology,the company is committed to Development and manufacture of round bar deep hole drilling,Yuanchang deep hole drilling processable materials:S136,SKD61,SKH51,DAC,automotive parts,medical equipment,glass,beryllium copper,stainless steel,such as titanium alloy,pen mold,water hole,hot runners,etc.And independently developed the barrel gun drilling machine,NC deep hole drilling machine,small hole deep hole drilling machine.

Yuanchang deep hole drilling concentrates on manufacturing,continuous innovation and improvement,and realizes the service promise of "Professional service to customers and service delivery".Yuanchang deep hole drilling has been recognized and trusted by more and more customers in the industry.In the effort,we only serve the same industry for better and more professional products.



元昌深孔钻YC2-16mm Yuanchang Deep Hole Drill Yc2-16mm



- 机床床身和导轨铸造成一体，机床床身经过两年以上自然时效处理，确保机器性能稳定
 - 主要配件为：欧、美、日及台湾进口
 - 控制系统：日本欧姆龙NC或新代CNC
 - 代理：伊斯卡深孔钻系列刀片枪钻
- The machine bed and the guide rail are cast into one body, and the machine bed is treated with natural aging for more than two years to ensure the stable performance of the machine
 - Main accessories: imported from Europe, America, Japan and Taiwan
 - Control system: Omron NC or new generation CNC
 - Agent: Iska deep hole drill series blade gun drill

机床配置参数 Machine configuration parameters

型号 Model	YC2-16mm	
加工能力 Capacity	钻孔直径 Drilling diameter	2-16mm
	单边钻孔深度 Depth of single side borehole	650mm
	卡盘最大夹持外径 Maximum clamping diameter of chuck	45mm (可加大卡盘内孔) (can enlarge chuck bore)
	卡盘最小夹持外径 Minimum clamping outer diameter of chuck	3.5mm
速度 Speed	入口同心度标准 Inlet concentricity standard	0.05以内 (within)
	进给速度 Feed rate	0-600
	主轴转速 Spindle speed	0-8000r/min
	主轴伺服 Spindle servo	3.75KW
	进给伺服 Sled Channel	1KW
	工件变频 Frequency conversion of workpiece	0.75KW
	总功率 Total power	11KW
油压系统 Hydraulic system	切削油泵压力 Cutting oil pump pressure	6-120kg/cm ²
	油泵输出流量 Output flow of oil pump	0-25L/min
	切削油箱容量 Cutting oil tank capacity	600L
机器尺寸 Machine size	L*W*H=3.6*1.5*1.8m (非占地) (non occupied)	机身净重Net weight: 2000KG

本表数据仅供参考，因技术不断进步，请以本厂实际出品为标准！
The data in this table is for reference only. Due to the continuous progress of technology, please take the actual products of our factory as the standard!

元昌深孔钻YC2-25mm Yuanchang Deep Hole Drill Yc2-25mm



- 机床床身和导轨铸造成一体，机床床身经过两年以上自然时效处理，确保机器性能稳定
 - 主要配件为：欧、美、日及台湾进口
 - 控制系统：日本欧姆龙NC或新代CNC
 - 代理：伊斯卡深孔钻系列刀片枪钻
- The machine bed and the guide rail are cast into one body, and the machine bed is treated with natural aging for more than two years to ensure the stable performance of the machine
 - Main accessories: imported from Europe, America, Japan and Taiwan
 - Control system: Omron NC or new generation CNC
 - Agent: Iska deep hole drill series blade gun drill

机床配置参数 Machine configuration parameters

型号 Model	YC2-25mm	
加工能力 Capacity	钻孔直径 Drilling diameter	2-25mm
	单边钻孔深度 Depth of single side borehole	650mm
	卡盘最大夹持外径 Maximum clamping diameter of chuck	70mm (可加大卡盘内孔) (can enlarge chuck bore)
	卡盘最小夹持外径 Minimum clamping outer diameter of chuck	3.5mm
速度 Speed	入口同心度标准 Inlet concentricity standard	0.05以内 (within)
	进给速度 Feed rate	0-600
	主轴转速 Spindle speed	0-8000r/min
	主轴伺服 Spindle servo	5.5KW
	进给伺服 Sled Channel	2KW
	工件变频 Frequency conversion of workpiece	0.75KW
	总功率 Total power	13.5KW
油压系统 Hydraulic system	切削油泵压力 Cutting oil pump pressure	6-120kg/cm ²
	油泵输出流量 Output flow of oil pump	0-25L/min
	切削油箱容量 Cutting oil tank capacity	600L
机器尺寸 Machine size	L*W*H=3.6*1.5*1.8m (非占地) (non occupied)	机身净重Net weight: 2100KG

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元昌深孔钻YC2-12偏心 Eccentricity Of Yc2-12 Of Yuanchang Deep Hole Drill



- 机床床身和导轨铸造成一体，机床床身经过两年以上自然时效处理，确保机器性能稳定
 - 主要配件为：欧、美、日及台湾进口
 - 控制系统：日本欧姆龙NC 或新代CNC
 - 代理：伊斯卡深孔钻系列刀片枪钻
- The machine bed and the guide rail are cast into one body, and the machine bed is treated with natural aging for more than two years to ensure the stable performance of the machine
 - Main accessories: imported from Europe, America, Japan and Taiwan
 - Control system: Omron NC or new generation CNC
 - Agent: Iska deep hole drill series blade gun drill

机床配置参数 Machine configuration parameters

型号 Model	YC2-12mm	
加工能力 Capacity	钻孔直径 Drilling diameter	2-12mm
	单边钻孔深度 Depth of single side borehole	650mm
	卡盘最大夹持外径 Maximum clamping diameter of chuck	45mm (可加大卡盘内孔) (can enlarge chuck bore)
	卡盘最小夹持外径 Minimum clamping outer diameter of chuck	3.5mm
	入口同心度标准 Inlet concentricity standard	0.05以内 (within)
速度 Speed	进给速度 Feed rate	0-600
	主轴转速 Spindle speed	0-8000r/min
	主轴伺服 Spindle servo	3.75KW
	进给伺服 Sled Channel	1KW
	工件变频 Frequency conversion of workpiece	0.75KW
	总功率 Total power	11KW
油压系统 Hydraulic system	切削油泵压力 Cutting oil pump pressure	6-120kg/cm ²
	油泵输出流量 Output flow of oil pump	0-25L/min
	切削油箱容量 Cutting oil tank capacity	600L
机器尺寸 Machine size	L*W*H=3.6*1.5*1.8m (非占地) (non occupied)	机身净重Net weight: 2100KG

本表数据仅供参考，因技术不断进步，请以本厂实际出品为标准！
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元昌深孔钻YC-900NC Yuanchang Deep Hole Drill Yc-900nc



- 机床床身和导轨铸造成一体，机床床身经过两年以上自然时效处理，确保机器性能稳定
 - 主要配件为：欧、美、日及台湾进口
 - 控制系统：日本欧姆龙NC 或新代CNC
 - 代理：伊斯卡深孔钻系列刀片枪钻
- The machine bed and the guide rail are cast into one body, and the machine bed is treated with natural aging for more than two years to ensure the stable performance of the machine
 - Main accessories: imported from Europe, America, Japan and Taiwan
 - Control system: Omron NC or new generation CNC
 - Agent: Iska deep hole drill series blade gun drill

机床配置参数 Machine configuration parameters

型号 Model	YC-900nc	
加工能力 Capacity	钻孔直径 Drilling diameter	3-40mm
	单边钻孔深度 Depth of single side borehole	900mm
	卡盘最大夹持外径 Maximum clamping diameter of chuck	105mm (可加大卡盘内孔) (can enlarge chuck bore)
	卡盘最小夹持外径 Minimum clamping outer diameter of chuck	5.0mm
	入口同心度标准 Inlet concentricity standard	0.05以内 (within)
速度 Speed	进给速度 Feed rate	0-600
	主轴转速 Spindle speed	0-4000r/min
	主轴伺服 Spindle servo	11KW
	进给伺服 Sled Channel	3KW
	工件变频 Frequency conversion of workpiece	3.75KW
	总功率 Total power	26KW
油压系统 Hydraulic system	切削油泵压力 Cutting oil pump pressure	6-120kg/cm ²
	油泵输出流量 Output flow of oil pump	0-67L/min
	切削油箱容量 Cutting oil tank capacity	600L
机器尺寸 Machine size	L*W*H=4.3*2*2m	机身净重Net weight: 4000KG

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十台深孔钻机器对外加工 Ten Deep Hole Drilling Machines For External Processing

加工产品样式 Processing Product Style



加工实拍 Real time processing



元昌深孔钻胶套：自主开模定制 Yuanchang Deep Hole Drilling Rubber Sleeve: Self Mold Opening And Customization

元昌深孔钻采用更优质的橡胶自主开模生产、制造而成、好用耐磨、规格齐全、为深孔钻钻头专用固定减阻作用，通用各种深孔钻加工机床的橡胶套，外径50mm 40mm 30mm 25mm 20mm 15mm 8mm,内径从2.0-44.0mm,甚至更大内径如下图。货源充足，规格齐全，广泛用于规格不一的钻头。

Yuanchang deep hole drill is produced and manufactured by using higher quality rubber. It is easy to use and wear-resistant, with complete specifications. It is a special fixed drag reducing function for deep hole drill bit. It is the rubber sleeve of all kinds of deep hole drilling machine tools. Its outer diameter is 50mm 40mm, 30mm, 25mm, 20mm, 15mm, 8mm, and its inner diameter is from 2.0 to 25.0mm, or even larger, as shown in the figure. Sufficient supply, complete specifications, widely used in different specifications of drill bit.



外径: Outer diameter 50 mm 40 mm 30 mm 25 mm 20 mm 15 mm 8 mm
Outer diameter: 50 mm 40 mm 30 mm 25 mm 20 mm 15 mm 8 mm

外径8mm胶套
内径2.0-4.9mm
Outer diameter of rubber sleeve: 8mm
Inner diameter range: 2.0-4.9mm



外径15mm胶套
内径4.9-10.6mm
Outer diameter of rubber sleeve: 15mm
Inner diameter range: 4.9-10.6mm



外径20mm胶套
内径10.6-12.30mm
Outer diameter of rubber sleeve: 20mm
Inner diameter range: 10.6-12.3mm



外径25mm胶套
内径2-16mm
Outer diameter of rubber sleeve: 25mm
Inner diameter range: 2-16mm



外径15mm胶套
内径4.9-10.6mm
Outer diameter of rubber sleeve: 30mm
Inner diameter range: 2-20mm



外径20mm胶套
内径10.6-12.30mm
Outer diameter of rubber sleeve: 40mm
Inner diameter range: 3-32mm



外径25mm胶套
内径2-16mm
Outer diameter of rubber sleeve: 50mm
Inner diameter range: 3-44mm

元昌深孔钻导向套

Guide Sleeve For Yuanchang Deep Hole Drilling

元昌深孔钻导向套是自主生产加工，使用的材质是轴承钢；轴承钢的特点是具有高而均匀的硬度和耐磨性，以及高的弹性极限。制作经过车床加工，线割，热处理，内、外圆无心研磨多个工艺制作而成，具有精度高，耐用。深孔钻导向套是装在卡工件位置和装卡钻头之间做装夹导向套支架，用此支持和导向钻头的方向。它使用的材质是轴承钢；轴承钢的特点是具有高而均匀的硬度和耐磨性，以及高的弹性极限。我司长期供应的导向套，规格在2.0-60.0货源充足，可成套购买或者批量购买！

The guide sleeve of Yuanchang deep hole drilling is produced and processed by ourselves. The bearing steel is characterized by high and uniform hardness, wear resistance and high elastic limit. After lathe processing, line cutting, heat treatment, inner and outer circle centerless grinding and grinding, it has high precision and durability. The guide sleeve of deep hole drilling is installed between the clamping position of the workpiece and the clamping bit, which is used to support and guide the direction of the drill bit. The material used is bearing steel, which is characterized by high and uniform hardness, wear resistance and high elastic limit.

Our long-term supply of guide sleeve, specification in 2.0-60.0, sufficient supply, can be purchased in sets or batch!



元昌镶刀粒枪钻钻头

Yuanchang Inlaid Grain Gun Drill Bit

刀头规格 $\phi 11.5-\phi 65$ （接受非标定制）

刀头类型有：双导条单刀片、三刀片双导条、四导条单刀片、五导条单刀片、台阶式刀头等等。

元昌镶刀粒枪钻钻头具有加工效率高，比如：钛合金、不锈钢、铝合金、铸件等等，切削速度比普通合金枪钻高俩倍以上，光洁度好

Cutter head specification $\phi 11.5-\phi 65$ (non-standard customization)

The types of cutter head are: double guide single blade, three blade double guide bar, four guide strip single blade, five guide strip single blade, step type cutter head and so on.

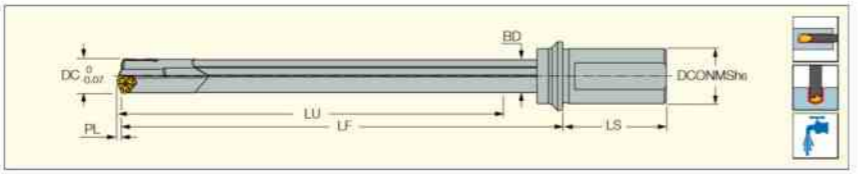
Yuanchang inlaid grain gun drill head has the advantages of high machining efficiency, good finish, stable service life and convenient clamping. It can be processed only by replacing the blade, thus saving more welding time.



GD-DH

枪钻携带三角形刀片，具有3个切屑分切刃和一个用于高孔表面质量的刮片

Gundrills Carrying Triangular Inserts with 3 Chip Splitting Cutting Edges and a Wiper for High Hole Surface Quality



Designation	DC	LU	DCONMS	BD	LF	PL	LS
GD-DH 14.00-15D-M25-07	14.00	255.00	25.00	13.50	261.00	1.95	56.00
GD-DH 14.00-20D-M25-07	14.00	300.00	25.00	13.50	336.00	1.95	56.00
GD-DH 14.00-25D-M25-07	14.00	375.00	25.00	13.50	411.00	1.95	56.00
GD-DH 14.50-15D-M25-07	14.50	225.00	25.00	14.00	262.00	1.95	56.00
GD-DH 14.50-20D-M25-07	14.50	300.00	25.00	14.00	337.00	1.95	56.00
GD-DH 14.50-25D-M25-07	14.50	375.00	25.00	14.00	412.00	1.95	56.00
GD-DH 15.00-15D-M25-07	15.00	240.00	25.00	14.50	278.00	1.95	56.00
GD-DH 15.00-20D-M25-07	15.00	320.00	25.00	14.50	358.00	1.95	56.00
GD-DH 15.00-25D-M25-07	15.00	400.00	25.00	14.50	438.00	1.95	56.00
GD-DH 16.00-10D-M25-08	16.00	170.00	25.00	15.50	209.00	2.20	56.00
GD-DH 16.00-15D-M25-08	16.00	225.00	25.00	15.50	294.00	2.20	56.00
GD-DH 16.00-25D-M25-08	16.00	425.00	25.00	15.50	464.00	2.20	56.00
GD-DH 16.50-10D-M25-08	16.50	170.00	25.00	15.50	209.00	2.20	56.00
GD-DH 16.50-15D-M25-08	16.50	225.00	25.00	15.50	294.00	2.20	56.00
GD-DH 16.50-25D-M25-08	16.50	425.00	25.00	15.50	464.00	2.20	56.00
GD-DH 17.00-10D-M25-08	17.00	180.00	25.00	16.20	220.00	2.20	56.00
GD-DH 17.00-15D-M25-08	17.00	270.00	25.00	16.20	310.00	2.20	56.00
GD-DH 17.00-25D-M25-08	17.00	450.00	25.00	16.20	490.00	2.20	56.00
GD-DH 17.50-25D-M25-08	17.50	450.00	25.00	16.20	490.00	2.20	56.00
GD-DH 18.00-10D-M25-08	18.00	190.00	25.00	16.20	232.00	3.00	56.00
GD-DH 18.00-15D-M25-08	18.00	285.00	25.00	17.20	327.00	3.00	56.00
GD-DH 18.00-25D-M25-08	18.00	475.00	25.00	17.20	517.00	3.00	56.00
GD-DH 18.50-15D-M25-09	18.50	285.00	25.00	17.20	327.00	3.00	56.00
GD-DH 18.50-25D-M25-09	18.50	475.00	25.00	17.20	517.00	3.00	56.00
GD-DH 19.00-10D-M25-09	19.00	200.00	25.00	18.20	243.00	3.00	56.00
GD-DH 19.00-15D-M25-09	19.00	300.00	25.00	18.20	343.00	3.00	56.00
GD-DH 19.00-25D-M25-09	19.00	500.00	25.00	18.20	543.00	3.00	56.00
GD-DH 19.50-15D-M25-09	19.50	300.00	25.00	18.20	343.00	3.00	56.00
GD-DH 19.50-25D-M25-09	19.50	500.00	25.00	18.20	543.00	3.00	56.00
GD-DH 20.00-10D-M32-09	20.00	210.00	32.00	19.00	255.00	3.20	60.00
GD-DH 20.00-15D-M32-09	20.00	315.00	32.00	19.00	360.00	3.20	60.00
GD-DH 20.00-25D-M32-09	20.00	525.00	32.00	19.00	570.00	3.20	60.00
GD-DH 21.00-10D-M32-10	21.00	220.00	32.00	20.00	266.00	3.20	60.00
GD-DH 21.00-15D-M32-10	21.00	330.00	32.00	20.00	376.00	3.20	60.00
GD-DH 21.00-25D-M32-10	21.00	550.00	32.00	20.00	596.00	3.20	60.00
GD-DH 22.00-10D-M32-11	22.00	230.00	32.00	21.00	278.00	3.40	60.00
GD-DH 22.00-15D-M32-11	22.00	345.00	32.00	21.00	393.00	3.40	60.00
GD-DH 22.00-25D-M32-11	22.00	575.00	32.00	21.00	623.00	3.40	60.00
GD-DH 23.00-10D-M32-11	23.00	240.00	32.00	22.00	289.00	3.40	60.00
GD-DH 23.00-15D-M32-11	23.00	360.00	32.00	22.00	409.00	3.40	60.00
GD-DH 23.00-25D-M32-11	23.00	600.00	32.00	22.00	649.00	3.40	60.00
GD-DH 24.00-10D-M32-11	24.00	250.00	32.00	23.00	301.00	3.40	60.00
GD-DH 24.00-15D-M32-11	24.00	375.00	32.00	23.00	426.00	3.40	60.00
GD-DH 24.00-25D-M32-11	24.00	625.00	32.00	23.00	676.00	3.40	60.00
GD-DH 25.00-10D-M32-11	25.00	260.00	32.00	24.00	321.00	3.60	60.00
GD-DH 25.00-15D-M32-11	25.00	390.00	32.00	24.00	442.00	3.60	60.00
GD-DH 25.00-25D-M32-11	25.00	650.00	32.00	24.00	702.00	3.60	60.00
GD-DH 26.00-10D-M40-12	26.00	270.00	40.00	25.00	324.00	3.60	70.00
GD-DH 26.00-15D-M40-12	26.00	405.00	40.00	25.00	459.00	3.60	70.00
GD-DH 26.00-25D-M40-12	26.00	675.00	40.00	25.00	729.00	3.60	70.00
GD-DH 27.00-10D-M40-12	27.00	280.00	40.00	26.00	335.00	3.60	70.00
GD-DH 27.00-15D-M40-12	27.00	420.00	40.00	26.00	475.00	3.60	70.00
GD-DH 27.00-25D-M40-12	27.00	700.00	40.00	26.00	755.00	3.60	70.00
GD-DH 28.00-10D-M40-12	28.00	280.00	40.00	27.00	377.00	3.60	70.00
GD-DH 28.00-15D-M40-12	28.00	420.00	40.00	27.00	477.00	3.60	70.00
GD-DH 28.00-25D-M40-12	28.00	700.00	40.00	27.00	757.00	3.60	70.00

注：根据要求，可提供最长2400 mm的枪钻。 插入件和导向垫应单独订购（不包括在工具中）。 有关用户指南和切削条件，请参阅第2-6页

预防措施：在接合导向孔之前，请勿全速操作深孔钻。 以50-100 rpm的速度缓慢进入导孔。有关插页，请参阅页码：TOGT (2)

Note: Gundrills can be supplied with up to 2400 mm length on request. Inserts and guide pads should be ordered separately (they are not included with the tools).

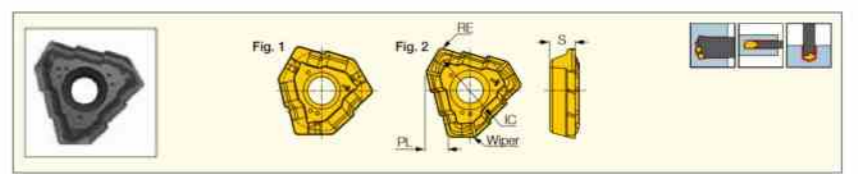
For user guide and cutting conditions, see pages 2-6. Preventative measures: Do NOT operate the deep hole drill at full speed before engaging the guide hole.

Enter the guide hole slowly at a speed of 50 - 100 rpm. For inserts, see pages: TOGT (2)

TOGT

具有3个切屑分切刃、正把碎屑器和刮水器的深钻孔刀片

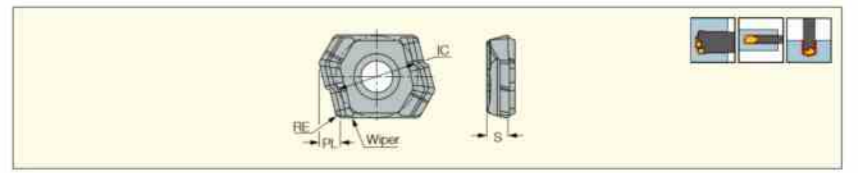
Deep Drilling Inserts with 3 Chip Splitting Cutting Edges, Positive Rake Chipbreaker and a Wiper



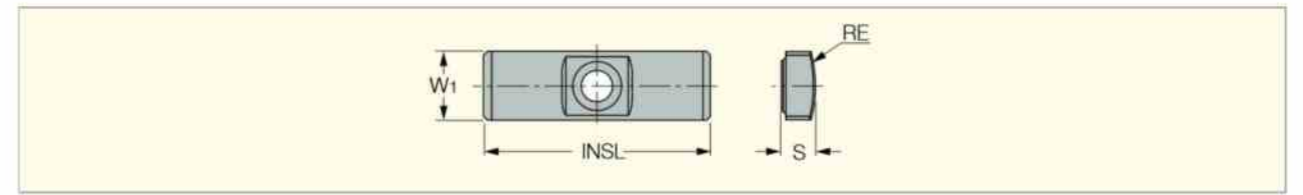
TOGT

带有2个切屑切割刃口的深钻刀片，正把碎屑器和刮水器

Deep Drilling Inserts with 2 Chip Splitting Cutting Edges, Positive Rake Chipbreaker and a Wiper



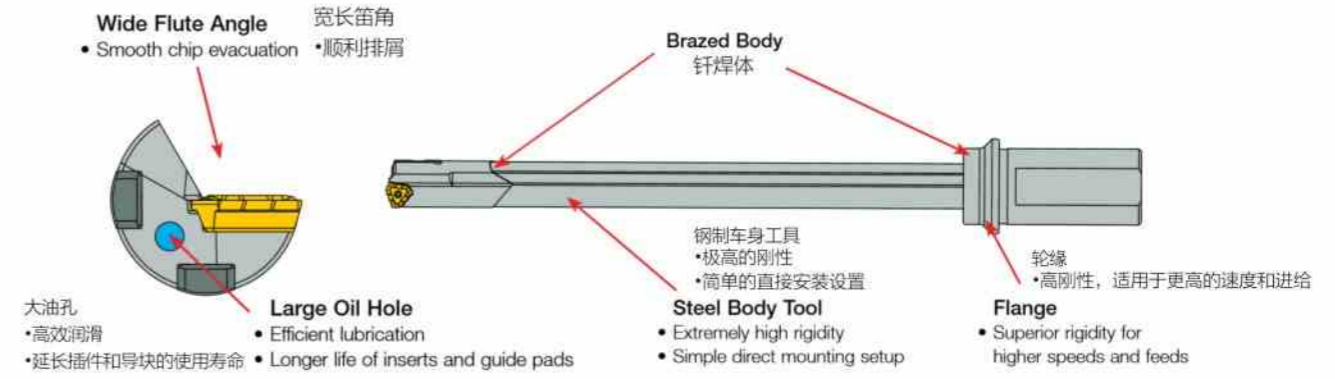
名称 Designation	Dimensions 尺寸				
	IC	RE	PL	S	Fig.
LOGT 060204R-DT	7.00	0.40	1.80	2.00	0
TOGT 070304-DT	7.69	0.40	1.95	2.30	1
TOGT 080305-DT	8.55	0.50	2.20	2.80	1
TOGT 090305-DT	8.32	0.50	3.00	3.00	2
TOGT 100305-DT	9.23	0.50	3.20	3.30	2
TOGT 110405-DT	10.40	0.50	3.40	3.80	2
TOGT 120405-DT	11.59	0.50	3.60	4.30	2



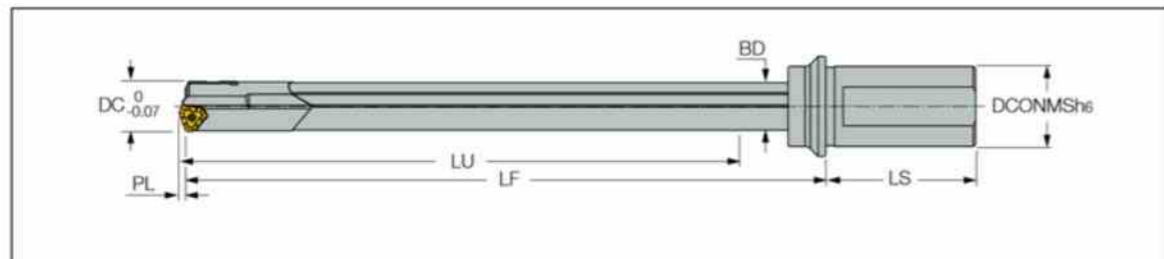
下表列出了所有可用的焊盘及其新名称，所用工具以及优先使用建议：

Following is a table of all the available pads with their new designations, the tools they are used on and priority recommendations for use:

	刀具直径 Tool Diameter		尺寸 Dimensions (mm)				固体碳化物说明 Solid Carbide Description	第一个选项 1st option	第二个选项 2st option	第三个选项 (钎焊) 说明 3st option (brazed) Description
	Min	Max	b	L	R	h				
TRIDEEP	14.00	15.99	5	18	6	2.5	GPS-05-18-060	●		
	16.00	18.00	6	20	7.5	3	GPS-06-20-075	●	●	GPB-06-20-075 CDZAP
	18.01	21.00	6	20	8.5	3	GPS-06-20-085	●	●	GPB-06-20-085 CDZAP
	21.01	25.00	6	20	10	3	GPS-06-20-100	●	●	GPB-06-20-100 CDZAP
	25.01	28.00	6	20	12	3	GPS-06-20-120	●	●	GPB-06-20-120 CDZAP



询价单 Inquiry Form



1. Tool 工具

Quantity 数量.....
 Nominal diameter and tolerance 公称直径和公差.....
 Please fill in dimensions on the sketch below.
 请在下面的草图上填写尺寸。

Driver 驱动器

Driver: for standard drivers please use code
 驱动程序: 对于标准驱动程序.....
 Code No. 代码编号:
 Special, please attach sketch and specifications.
 特别的, 请附上草图和规格。

2. Workpiece 工件

(If possible, attach a drawing) (如果可能, 请附着图形) 2.1
 Material 材料描述
 Material description (DIN material number or any other
 standard): (德国工业标准材料编号或任何其他标准):

 Hardness and Properties: 硬度和性能:

2.2 Hole Type 孔型

- ◆ Blind Hole 盲孔
- ◆ Drilling into Pre-hole 钻入预孔
- ◆ Angled Entry 斜入
- ◆ Drilling into Solid 钻入实心
- ◆ Boring 钻孔
- ◆ Angled Exit Drilling Depth mm Hole.Tolerance
 斜出钻孔深度mm孔容限

2.3 Application: 用途:

Workpiece工件: ◆ Stationary 静止 ◆ Rotating 旋转
 Tool工具: ◆ Stationary 静止 ◆ Rotating 旋转

2.3 Application: 用途:

Workpiece工件: ◆ Stationary 静止 ◆ Rotating 旋转
 Tool工具: ◆ Stationary 静止 ◆ Rotating 旋转

Sketch of drilling application

钻孔应用示意图



注意: 根据我们对您的应用程序的经验, 可能需要更改您指定的几个参数。
 Note: It may be necessary to change several of the parameters that you indicated
 based on our experience with your application.

3. Machine 机器

3.1 Technical Data 技术数据
 Machine Type 机器类型
 Power 功率..... kW
 Specially Tailored TRIDEEP Code Key
 特制的TRIDEEP密码钥匙
 GD - DH ###.## - #### - ##



3.2 Cutting Data: 切削数据:

Cutting Speed Vc 切削速度 Vc..... m/min 米/分钟
 Revolutions Nmin RPM, Nmax RPM
 机转每分钟转数, 最大值..... 每分钟转数
 Feed Fmin..... mm/rev, Fmax..... mm/rev.....
 进给 F 每分钟..... 毫米/转, F 最大每分钟..... 毫米/转
 Feed Rate VF mm/min
 进给速度 VF 毫米/分钟

Coolant: 冷却剂:

◆ Oil 油 ◆ Soluble Oil 可溶油 ◆ Other Coolant 其他冷却剂
 Pressure Bar
 压力..... bar.....

ISO	Material (材料)	Condition (条件)	Tensile Strength [N/mm ²] (抗拉强度 [牛顿/平方毫米])	Hardness HB (硬度 HB)	
P	Non-alloy steel and cast steel, free cutting steel (非合金钢和铸钢、易切削钢)	<0.25%C	Annealed(退火)	420	125
		>=0.25%C	Annealed(退火)	650	190
		<0.55%C	Quenched and tempered (淬火和回火)	850	250
		>=0.55%C	Annealed(退火)	750	220
	Low alloy steel and cast steel (less than 5% of alloying elements) 低合金钢和铸钢 (低于合金元素的5%)	Annealed(退火)	600	200	
		Quenched and tempered (淬火和回火)	930	275	
		Quenched and tempered (淬火和回火)	1000	300	
		Quenched and tempered (淬火和回火)	1200	350	
	High alloyed steel, cast steel, and tool steel (高合金钢、铸钢和工具钢)	Annealed(退火)	680	200	
		Quenched and tempered (淬火和回火)	1100	325	
Stainless steel (不锈钢)	Ferritic/martensitic (铁素体/马氏体)	680	200		
	Martensitic (马氏体不锈钢)	820	240		
K	Stainless steel (不锈钢)	Austenitic(奥氏体)	600	180	
K	Grey cast iron (GG) 灰铸铁 (GG)	Ferritic/pearlitic (铁素体/珠光体)		180	
		Pearlitic(珠光体)		260	
	Nodular cast iron (GGG) 球墨铸铁 (GGG)	Ferritic (铁素体)		160	
		Pearlitic(珠光体)		250	
Malleable cast iron (可锻铸铁)	Ferritic (铁素体)		130		
	Pearlitic(珠光体)		230		
N	Alumin-umwrought alloy(铝变形合金)	Not cureable (不固化)		60	
		Cured (固化)		100	
	Aluminum-cast, alloyed (铝铸件, 合金)	<=12% Si	Not cureable (不固化)		75
		>12% Si	Cured (固化)		90
	Copper alloys (铜合金)	>1% Pb	high temperature (高温)		130
		Free cutting (自由切削)			110
	Non-metallic (非金属)	Brass (黄铜)			90
		Electrolytic copper (化学铜)			100
S	High temp. alloys (高温合金)	Duroplastics, fiber plastics (硬塑性塑料、纤维塑料)			
		Hard rubber (硬橡胶)			
		Fe based(铁基)	Annealed (退火)		200
		Cured(固化)		280	
	Ni or Co based (镍基或钴基)	Annealed (退火)		250	
		Cured(固化)		350	
Titanium Ti alloys (钛合金)	Cast (铸造)		320		
	Alpha+beta alloys cured (α+β合金固化)		RM 400		
			RM 1050		

Material No. (材料编号)	TRIDEEP Gundrills(三刃深孔钻)				TRIDEEP BTA Drilling Heads(三深BTA钻头)
	Cutting Speed (m/min) 切削速度 (m/min)	Drill Dia. Dc (mm) 12.00-15.99 钻孔直径.直流(mm)	Drill Dia. Dc (mm) 16.00-28.00 钻孔直径.直流(mm)	Cutting Speed (m/min) 切削速度 (m/min)	Feed Rate (mm/rev)进给速度 (mm/rev) Drill Dia. Dc (mm) 16.00-28.00 钻孔直径.直流 (mm) 16.00-28.00
1	80-140	0.05-0.10	0.10-0.20	90-130	
2	80-140	0.05-0.10	0.10-0.20	90-130	
3	80-140	0.05-0.16	0.10-0.20	90-130	
4	80-140	0.05-0.16	0.10-0.20	70-130	
5	80-140	0.05-0.16	0.10-0.20	70-130	
6	80-120	0.05-0.10	0.10-0.20	70-120	
7	80-120	0.05-0.16	0.10-0.20	60-120	
8	80-120	0.05-0.16	0.10-0.20	60-120	
9	80-120	0.05-0.16	0.10-0.20	60-120	
10	80-120	0.05-0.10	0.10-0.20	70-130	
11	80-120	0.05-0.16	0.10-0.20	70-130	
12	80-140	0.05-0.10	0.08-0.10	80-130	
13	80-140	0.05-0.10	0.08-0.10	80-130	
14	80-140	0.05-0.10	0.08-0.10	80-130	
15	80-140	0.05-0.25	0.10-0.30	50-110	
16	80-140	0.05-0.25	0.10-0.30	50-110	
17	80-140	0.05-0.25	0.10-0.30	60-110	
18	80-140	0.05-0.25	0.10-0.30	60-110	
19	80-140	0.05-0.25	0.10-0.30	70-110	
20	80-140	0.05-0.25	0.10-0.30	70-110	
21	65-130	0.05-0.20	0.10-0.20	65-130	
22	65-130	0.05-0.20	0.08-0.18	65-130	
23	65-130	0.05-0.20	0.08-0.18	65-130	
24	65-130	0.05-0.20	0.08-0.18	65-130	
25	65-130		0.08-0.18	65-130	
26	65-130		0.08-0.18	65-130	
27	65-130		0.08-0.18	65-130	
28	65-130		0.08-0.18	65-130	0.08-0.18
29	65-130		0.08-0.18	65-130	0.08-0.18
30	65-130		0.08-0.18	65-130	0.08-0.18
31	20-50	0.04-0.08	0.08-0.18	20-50	0.08-0.18
32	20-50	0.04-0.08	0.08-0.18	20-50	0.08-0.18
33	20-50	0.04-0.08	0.08-0.18	20-50	0.08-0.18
34	20-50	0.04-0.08	0.08-0.18	20-50	0.08-0.18
35	20-50	0.04-0.08	0.08-0.18	20-50	0.08-0.18
36	20-60	0.05-0.13	0.08-0.18	30-60	0.08-0.18
37	20-60	0.05-0.13	0.08-0.18	30-60	0.08-0.18

刀柄 Knife handle

用于加工中心、车床等的标准枪钻驱动器。

Standard Gundrill Drivers for Machining Centers, Lathes, etc.

驱动器 Drivers

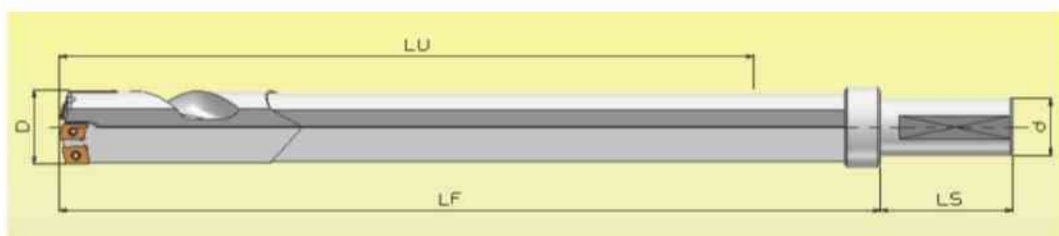
驱动器可用于专用和数控机床，适用于任何指定的直径和长度。以下是驾驶员代码和技术数据。

Drivers are available for dedicated and CNC machines, for any specified diameter and length. Below are the driver codes and technical data.

Driver Type (驱动程序类型)	Drawing(绘图)	øDxL	Driver Code (驱动程序代码)
Cylindrical DIN1835A DIN6535HA (圆柱形) DIN1835A DIN6535HA)		.75x2.03"	95
		25x50	10
		25x56	11
		1.00x2.28"	96
		1.25x2.28"	97
		32x60	12
Weldon DIN1835B DIN6535HB (焊件) DIN1835B DIN6535HB)		.75x2.03"	99
		20x50	22
		25x56	23
		1.00x2.28"	100
		1.25x2.28"	101
		32x60	24
Whistle Notch DIN1835E (口哨形) DIN1835E)		40x70	25
		20x50	34
		25x56	35
		32x60	36
		40x70	37

枪钻的标准驱动器 Standard Drivers for Gundrill Machines

Driver Type (驱动程序类型)	Drawing(绘图)	øDxL	Driver Code (驱动程序代码)
DIN228AK		CM1	45
		CM2	46
		CM3	47
		CM4	48
DIN228BK		CM1	49
		CM2	50
		CM3	51
		CM4	52
Central Clamping Surface 15° (中心夹紧面15°)		.750x2.75	56
		25x70	57
		1.00x2.75"	58
		1.25x2.75"	59
		1.50x2.75"	60
Frontal Clamping Surface 15° (正面夹紧面15°)		16x50	61
Cylindrical with Thread (圆柱螺纹)		25x100 M16x1.5	66
		36x120 M24x1.5	67
		25x112 M16x1.5	70
VDI Design (VDI设计)		36x135 M24x1.5	71
Central Clamping Hexagonal (中心夹紧六角形)		25x70	72
		32x70	73
Central Clamping Tapered (中心夹紧锥)		.75x2.75"	76
		20x70	77
Frontal Clamping Surface 2° (正面夹紧面2°)		1.00x2.75"	80
		1.00x3.94"	81
		1.25x2.75"	82
		1.25x3.94"	83
		1.50x2.75"	84
Trapezoidal Thread (梯形螺纹)		28x126 Tr 28x2	88
		36x162 Tr 36x2	89
Spraymist Driver (喷雾驱动柄)		25x50	91
		35x60	92



序号	直径 (D)	外刀片	内刀片	中心刀片	导向条	刀片螺丝	导向条螺丝	扳手	LF	LS	LU	d
1	D30.02	FBH07504R	FBM06504R	FBM06504L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
2	D31.02	FBH07504R	FBM06504R	FBM06504L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
3	D32.02	FBH07504R	FBM06504R	FBM06504L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
4	D33.02	FBH07504R	FBM06504R	FBM06504L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
5	D34.02	FBH07504R	FBM06504R	FBM06504L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
6	D35.02	FBH07504R	FBM06504R	FBM08004L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
7	D36.02	FBH07504R	FBM06504R	FBM08004L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
8	D37.02	FBH07504R	FBM06504R	FBM08004L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
9	D38.02	FBH09004R	FBM06504R	FBM08004L	GP07	M2.5x6.5	M3x6.5	T8	200-2500	70	20-2500	25/32
10	D39.02	FBH09004R	FBM06504R	FBM08004L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
11	D40.02	FBH09004R	FBM06504R	FBM08004L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
12	D41.02	FBH09004R	FBM08004R	FBM08004L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
13	D42.02	FBH09004R	FBM08004R	FBM08004L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
14	D43.02	FBH09004R	FBM08004R	FBM08004L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
15	D44.02	FBH09004R	FBM08004R	FBM09504L	GP08	M2.5x6.5	M3x8	T8/T10	200-2500	70	20-2500	25/32
16	D45.02	FBH09004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
17	D46.02	FBH09004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
18	D47.02	FBH11004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
19	D48.02	FBH11004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
20	D49.02	FBH11004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
21	D50.02	FBH11004R	FBM08004R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
22	D51.02	FBH11004R	FBM09504R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
23	D52.02	FBH11004R	FBM09504R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
24	D53.02	FBH11004R	FBM09504R	FBM09504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
25	D54.02	FBH11004R	FBM09504R	FBM12504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
26	D55.02	FBH11004R	FBM09504R	FBM12504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
27	D56.02	FBH11004R	FBM09504R	FBM12504L	GPS-10	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
28	D57.02	FBH11004R	FBM09504R	FBM12504L	GP-12	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
29	D58.02	FBH11004R	FBM09504R	FBM12504L	GP-12	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
30	D59.02	FBH11004R	FBM09504R	FBM12504L	GP-12	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32
31	D60.02	FBH13004R	FBM09504R	FBM12504L	GP-12	M2.5x6.5	M3.5x9	T8/T15	200-2500	70	20-2500	25/32

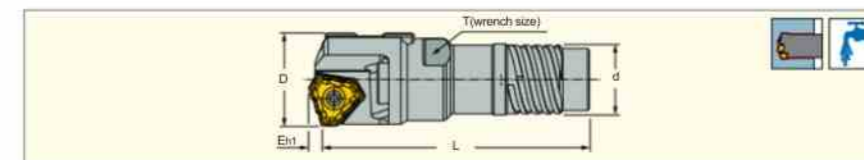
标准切削条件

ISO	工件材料	切削速度 Vc(m/min)	进给 f(mm/rev)
P	碳钢 (C<0.3) SS400、SM490、S25C、等E275A、E355D、C25等	80-140	0.05-0.1
	碳钢 (C>0.3) S45C、S55C等C45、C55等	80-140	0.05-0.2
	低合金钢 (C<0.3) SCM415等18CrMo4等	80-140	0.05-0.2
	合金钢 (C>0.3) SCM440、SCr420等42CrMo4、20Cr4等	80-120	0.05-0.2
	不锈钢 (奥氏体) SUS304、SUS316等X5CrNi18-9、X5CrNiMo17-12-3	60-100	0.05-0.1
M	不锈钢 (马氏体和铁素体) SUS430、SUS416等X6Cr17、X12CrS13等	60-100	0.05-0.1
	不锈钢 (析出硬化) SUS630等X5CrNiCuNb16-4等	60-100	0.05-0.1
K	灰口铸铁 FC250等250等	80-140	0.05-0.3
	球墨铸铁 FCD700等600-3等	80-140	0.05-0.3
N	铝合金	100-200	0.05-0.2
S	耐热合金 Inco nel 718等	20-50	0.04-0.1
	钛合金 Ti-6Al-4V等	30-60	0.05-0.15
H	高硬度材料 ≥40HRC	50-100	0.04-0.1

内排屑 Internal Chip Removal

DSD-EF-FT

Deep Single Tube Drills with External 4 Start Thread Connection Carrying Triangular Inserts



Designation	D _{min}	D _{max}	L	E _{ht}	d	Ts ⁽¹⁾
DSD-EF 16.00-16.70-FT	16.00	16.70	55.00	2.20	12.60	TS-10
DSD-EF 16.71-17.70-FT	16.71	17.70	55.00	2.20	13.60	TS-11
DSD-EF 17.71-18.90-FT	17.71	18.90	56.00	3.00	14.50	TS-12
DSD-EF 18.91-20.00-FT	18.91	20.00	56.00	3.00	15.50	TS-13
DSD-EF 20.01-21.80-FT	20.01	21.80	60.00	3.20	16.00	TS-14
DSD-EF 21.81-21.99-FT	21.81	21.99	63.50	3.20	18.00	TS-15
DSD-EF 22.00-24.10-FT	22.00	24.10	65.50	3.40	18.00	TS-15
DSD-EF 24.11-25.00-FT	24.11	25.00	65.50	3.40	19.50	TS-16
DSD-EF 25.01-26.40-FT	25.01	26.40	67.50	3.60	19.50	TS-16
DSD-EF 26.41-28.00-FT	26.41	28.00	67.50	3.60	21.00	TS-17

- Note: Each item in the attached catalog page represents a diameter range
- For spare parts, insert information and user guide, see pages 616, 630-647
- Inserts and guide pads should be ordered separately
- Ordering example: DSD-EF016.50-FT

(1) Tube designation

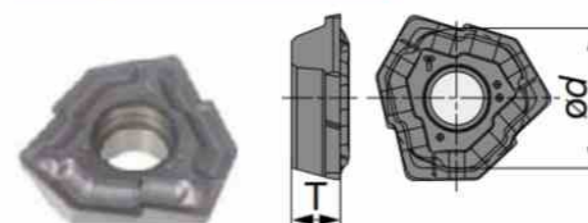
For inserts, see pages: TOGT(650)

For holders, see pages: TS-I**(626)

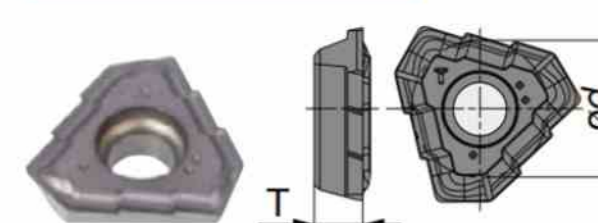


刀片 Blade

TOGT-DT(080...)



TOGT-DT(090...-120...)



型号	∅Dc	AH725	∅d	T
TOGT 080305-DT	16-18	●	8.55	2.8
TOGT 090305-DT	18.01-20	●	8.32	3
TOGT 100305-DT	20.01-21.99	●	9.23	3.3
TOGT 110405-DT	22-25	●	10.4	3.8
TOGT 120405-DT	25.01-28	●	11.59	4.3

CAOD

Boring Head Peripheral Cartridge



Designation	Adjustment Screw	Key	Locking Screw	Key	Insert	Insert Clamping Screw
CAOD-080	SR11201755-7	H1.5	SR11201756-11	HW2.0	NPMX 0803RG	SR 11201753-2
CAOD-0845	SR11201755-6	H2.0	SR11201756-10	HW2.5	TPMX 1403RG	SR 11201753-3
CAOD-085	SR11201755-7	H2.0	SR11201756-10	HW2.5	TPMX 1403RG	SR 11201753-3
CAOD-103	SR11201755-8	H2.5	SR11201756-12	HW3.0	TPMX 1704RG	SR 11201753-7
CAOD-142	SR11201755-9	H2.5	SR11201756-15	HW4.0	TPMX 2405RG	SR 11201753-9
CAOD-170	SR11201755-11	H3.0	SR11201756-15	HW4.0	TPMX 2807RG	SR 11201753-10

CAID

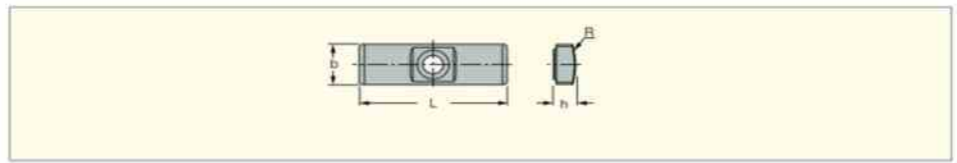
Boring Head Inner Cartridge



Designation	Key	Locking Screw	Key	Insert	Insert Clamping Screw
CAID-080	HW1.5	SR11201753-5	T-9/51	NPMX 0803RG	SR 11201753-2
CAID-0845	HW2.0	SR11201753-5	T-15/51	TPMX 1403RG	SR 11201753-3
CAID-085	HW2.0	SR11201753-5	T-15/51	TPMX 1403RG	SR 11201753-3
CAID-103	HW2.5	SR11201752-1	T-15/51	TPMX 1704RG	SR 11201753-7
CAID-142	HW2.5	SR11201756-7	HW 3.0	TPMX 2405RG	SR 11201753-9
CAID-170	HW2.5	SR11201756-7	HW 3.0	TPMX 2807RG	SR 11201753-10

GPS

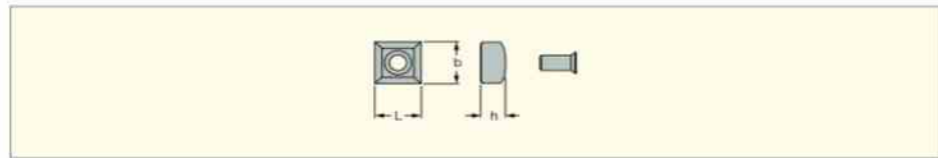
Deep Drilling Head Solid Carbide Guide Pads



Designation	Dimensions				Tough → Hard	
	b	R	L	h	IC950	IC908
GPS-05-18-060	5.0	6.00	18.00	2.5	•	•
GPS-06-20-075	6.0	7.50	20.00	3.0	•	•
GPS-06-20-085	6.0	8.50	20.00	3.0	•	•
GPS-06-20-100	6.0	10.00	20.00	3.0	•	•
GPS-06-20-120	6.0	12.00	20.00	3.0	•	•
GPS-07-20-120	7.0	12.00	20.00	3.5	•	•
GPS-08-25-155	8.0	15.50	25.00	4.5	•	•
GPS-10-30-200	10.0	20.00	30.00	4.5	•	•
GPS-10-35-200	10.0	20.00	35.00	6.0	•	•
GPS-12-35-250	12.0	25.00	35.00	5.5	•	•
GPS-14-40-250	14.0	25.00	40.00	7.5	•	•
GPS-18-40-300	18.0	30.00	40.00	9.0	•	•

GPP

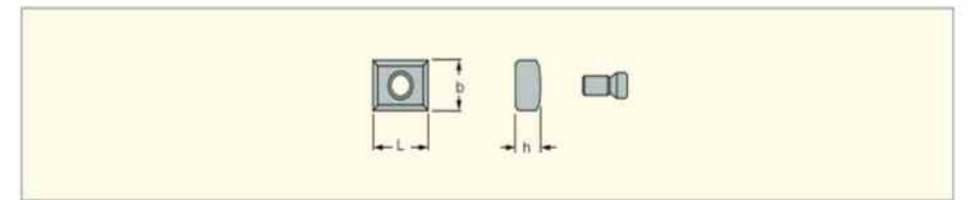
Boring Head Guide Pad Protectors



Designation	L	b	h	Clamping Screw	Key
GPP-01	6.00	6.0	3.3	SR 11201753-1	T-7/15
GPP-02	6.00	6.0	3.8	SR 11201753-1	T-7/15
GPP-03	6.00	6.0	3.9	SR 11201753-1	T-7/15
GPP-04	8.00	8.0	4.4	SR 11201753-4	T-9/15
GPP-05	8.00	8.0	3.5	SR 11201753-4	T-9/15
GPP-06	8.00	8.0	4.5	SR 11201753-4	T-9/15
GPP-07	10.00	10.0	6.0	SR 11201753-8	T-15/51
GPP-08	14.00	14.0	7.5	SR 11201752-2	T-15/51
GPP-09	18.00	18.0	9.0	SR 11201756-15	HW3.0

SGP

Boring Head Sub-Guide Pads

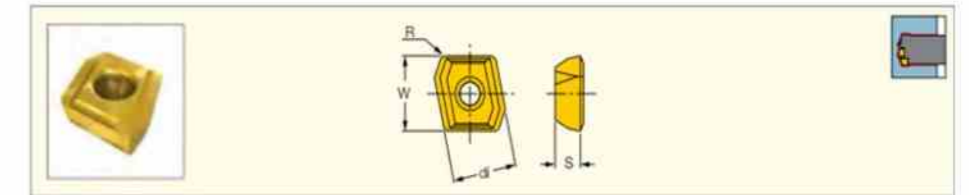


Designation	L	b	h	Clamping Screw	Key
SGP-01	10.00	6.0	3.0	SR 11201753-1	T-7/15
SGP-02	10.00	8.0	4.5	SR 11201753-4	T-9/15
SGP-03	10.00	10.0	5.0	SR 11201753-4	T-9/15
SGP-04	20.00	14.0	7.0	SR 11201752-2	T-15/51

Select an outer cartridge and pad for the required enlarged diameter.

NPMX 0803 RB/RG

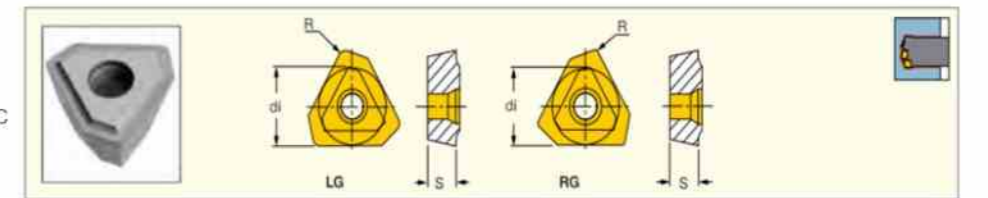
Inserts for Drilling Heads
DSD-EC/DDD-EC/DSD-IC



Designation	Dimensions				Tough → Hard		
	di	S	R	W	IC950	IC908	IC520
NPMX 0803RB	8.00	3.18	0.40	8.36	•	•	•
NPMX 0803RG	8.00	3.18	0.80	8.36	•	•	•

TPMX

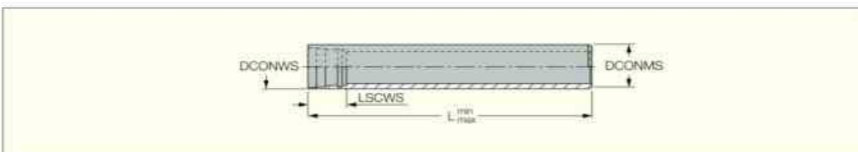
Inserts Drilling Heads DSD-EC/
DDD-EC/DSD-IC/DSC-EC/DSC-IC



Designation	Dimensions			Tough → Hard			
	di	S	R	IC9025	IC508	IC908	IC520
TPMX 1403R/LG	8.45	3.50	0.80	•	•	•	•
TPMX 1403R-DT	8.45	3.50	0.80	•	•	•	•
TPMX 1403RB	8.45	3.50	0.40	•	•	•	•
TPMX 1704R/LBG	10.30	4.00	0.80	•	•	•	•
TPMX 1704R/LG	10.30	4.00	0.80	•	•	•	•
TPMX 1704R-DT	10.30	4.00	0.80	•	•	•	•
TPMX 1704RBG	10.30	4.00	0.80	•	•	•	•
TPMX 2405R/LBG	14.20	5.50	1.20	•	•	•	•
TPMX 2405R/LG	14.20	5.50	1.20	•	•	•	•
TPMX 2405R-DT	14.20	5.50	1.20	•	•	•	•
TPMX 2405RBG	14.20	5.50	1.20	•	•	•	•
TPMX 2807R/LG	17.00	7.50	1.60	•	•	•	•
TPMX 2807R-DT	17.00	7.50	1.60	•	•	•	•
TPMX 2807RB	17.00	7.50	0.80	•	•	•	•
TPMX 2807RBG	17.00	7.50	1.60	•	•	•	•

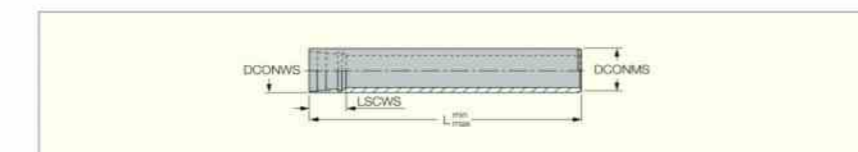
元昌内排屑枪钻刀杆 Yuanchang Internal Chip Gun Drill Shaft

TS-I**
 Drill Tubes - STS System - Inner
 4 Start Thread Connection
TS-I型**
 钻杆-STs系统-内部; 4开始螺纹连接



Designation	d Range	DCONMS	DCONMS	LSCWS	Lmin	Lmax
TS-101 L=(0-1749)MM	12.60-13.60	11.00	9.60	22.00	0.0	1749.0
TS-101 L=(1750-2600)MM	12.60-13.60	11.00	9.60	22.00	1750.0	2600.0
TS-102 L=(0-1749)MM	13.61-14.60	12.00	10.60	22.00	0.0	1749.0
TS-102 L=(1750-2600)MM	13.61-14.60	12.00	10.60	22.00	1750.0	2600.0
TS-103 L=(0-1749)MM	14.61-15.59	13.00	11.60	22.00	0.0	1749.0
TS-103 L=(1750-2600)MM	14.61-15.59	13.00	11.60	22.00	1750.0	2600.0
TS-10 L=(0-1749)MM	15.60-16.70	14.00	12.60	21.00	0.0	1749.0
TS-10 L=(1750-2600)MM	15.60-16.70	14.00	12.60	21.00	1750.0	2600.0
TS-11 L=(0-1749)MM	16.61-17.70	15.00	13.60	21.00	0.0	1749.0
TS-11 L=(1750-2600)MM	16.61-17.70	15.00	13.60	21.00	1750.0	2600.0
TS-12 L=(0-1749)MM	17.71-18.90	16.00	14.50	22.00	0.0	1749.0
TS-12 L=(1750-2600)MM	17.71-18.90	16.00	14.50	22.00	1750.0	2600.0
TS-13 L=(0-1749)MM	18.91-20.00	17.00	15.50	22.00	0.0	1749.0
TS-13 L=(1750-2600)MM	18.91-20.00	17.00	15.50	22.00	1750.0	2600.0
TS-14 L=(0-1749)MM	20.01-21.80	18.00	16.00	27.50	0.0	1749.0
TS-14 L=(1750-2600)MM	20.01-21.80	18.00	16.00	27.50	1750.0	2600.0
TS-15 L=(0-1749)MM	21.81-24.10	20.00	18.00	30.00	0.0	1749.0
TS-15 L=(1750-2600)MM	21.81-24.10	20.00	18.00	30.00	1750.0	2600.0
TS-16 L=(0-1749)MM	24.11-26.40	22.00	19.50	30.00	0.0	1749.0
TS-16 L=(1750-2600)MM	24.11-26.40	22.00	19.50	30.00	1750.0	2600.0
TS-17 L=(0-1749)MM	26.41-28.70	24.00	21.00	30.00	0.0	1749.0
TS-17 L=(1750-2600)MM	26.41-28.70	24.00	21.00	30.00	1750.0	2600.0
TS-18 L=(0-1749)MM	28.71-31.00	26.00	23.50	33.00	0.0	1749.0
TS-18 L=(1750-2600)MM	28.71-31.00	26.00	23.50	33.00	1750.0	2600.0
TS-19 L=(0-1749)MM	31.01-33.30	28.00	25.50	33.00	0.0	1749.0
TS-19 L=(1750-2600)MM	31.01-33.30	28.00	25.50	33.00	1750.0	2600.0
TS-110 L=(0-1749)MM	33.31-36.20	30.00	28.00	33.00	0.0	1749.0
TS-110 L=(1750-2600)MM	33.31-36.20	30.00	28.00	33.00	1750.0	2600.0
TS-111 L=(0-1749)MM	36.21-39.60	33.00	30.00	40.00	0.0	1749.0
TS-111 L=(1750-2600)MM	36.21-39.60	33.00	30.00	40.00	1750.0	2600.0
TS-112 L=(0-1749)MM	39.61-43.00	36.00	33.00	40.00	0.0	1749.0
TS-112 L=(1750-2600)MM	39.61-43.00	36.00	33.00	40.00	1750.0	2600.0
TS-113 L=(0-1749)MM	43.01-47.00	39.00	36.00	40.00	0.0	1749.0
TS-113 L=(1750-2600)MM	43.01-47.00	39.00	36.00	40.00	1750.0	2600.0
TS-114 L=(0-1749)MM	47.01-51.70	43.00	39.00	40.00	0.0	1749.0
TS-114 L=(1750-2600)MM	47.01-51.70	43.00	39.00	40.00	1750.0	2600.0
TS-115 L=(0-1749)MM	51.71-56.20	47.00	43.00	44.00	0.0	1749.0
TS-115 L=(1750-2600)MM	51.71-56.20	47.00	43.00	44.00	1750.0	2600.0
TS-116 L=(0-1749)MM	56.21-60.60	51.00	47.00	44.00	0.0	1749.0
TS-116 L=(1750-2600)MM	56.21-60.60	51.00	47.00	44.00	1750.0	2600.0
TS-117 L=(0-1749)MM	60.61-64.99	56.00	51.00	44.00	0.0	1749.0
TS-117 L=(1750-2600)MM	60.61-64.99	56.00	51.00	44.00	1750.0	2600.0
TS-118 L=(0-1749)MM	65.00-66.99	56.00	52.00	75.00	0.0	1749.0
TS-118 L=(1750-2600)MM	65.00-66.99	56.00	52.00	75.00	1750.0	2600.0
TS-119 L=(0-1749)MM	67.00-72.99	62.00	58.00	75.00	0.0	1749.0
TS-119 L=(1750-2600)MM	67.00-72.99	62.00	58.00	75.00	1750.0	2600.0
TS-120 L=(0-1749)MM	73.00-79.99	68.00	63.00	75.00	0.0	1749.0
TS-120 L=(1750-2600)MM	73.00-79.99	68.00	63.00	75.00	1750.0	2600.0
TS-121 L=(0-1749)MM	80.00-86.99	75.00	70.00	97.00	0.0	1749.0
TS-121 L=(1750-2600)MM	80.00-86.99	75.00	70.00	97.00	1750.0	2600.0
TS-122 L=(0-1749)MM	87.00-99.99	82.00	77.00	97.00	0.0	1749.0
TS-122 L=(1750-2600)MM	87.00-99.99	82.00	77.00	97.00	1750.0	2600.0
TS-123 L=(0-1749)MM	100.00-111.99	94.00	89.00	97.00	0.0	1749.0
TS-123 L=(1750-2600)MM	100.00-111.99	94.00	89.00	97.00	1750.0	2600.0
TS-124 L=(0-1749)MM	112.00-123.99	100.00	101.00	118.00	0.0	1749.0
TS-124 L=(1750-2600)MM	112.00-123.99	100.00	101.00	118.00	1750.0	2600.0
TS-125 L=(0-1749)MM	124.00-135.99	118.00	113.00	118.00	0.0	1749.0
TS-125 L=(1750-2600)MM	124.00-135.99	118.00	113.00	118.00	1750.0	2600.0
TS-126 L=(0-1749)MM	136.00-147.99	130.00	125.00	118.00	0.0	1749.0
TS-126 L=(1750-2600)MM	136.00-147.99	130.00	125.00	118.00	1750.0	2600.0
TS-127 L=(0-1749)MM	148.00-159.99	142.00	137.00	139.00	0.0	1749.0
TS-127 L=(1750-2600)MM	148.00-159.99	142.00	137.00	139.00	1750.0	2600.0
TS-128 L=(0-1749)MM	160.00-171.99	154.00	149.00	139.00	0.0	1749.0
TS-128 L=(1750-2600)MM	160.00-171.99	154.00	149.00	139.00	1750.0	2600.0

TS-I(continued)**
 Drill Tubes - STS System - Inner
 4 Start Thread Connection
TS-I型 (续)**
 钻杆-STs系统-内部; 4开始螺纹连接



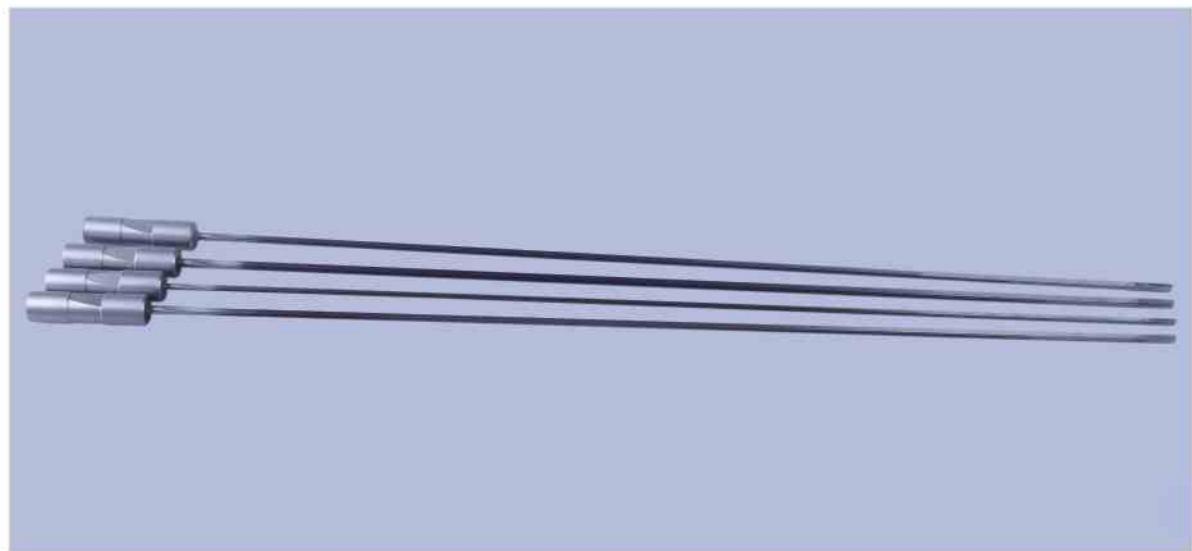
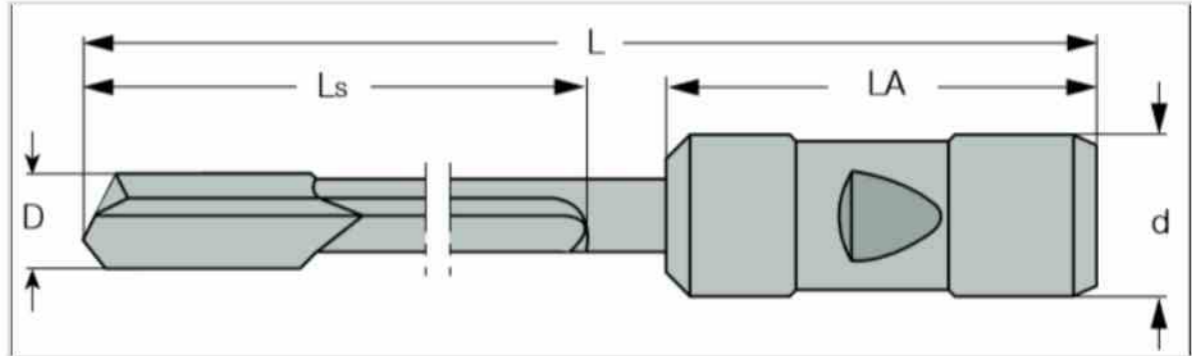
Designation	d Range	DCONMS	DCONMS	LSCWS	Lmin	Lmax
TS-129 L=(0-1749)MM	172.00-183.99	166.00	161.00	139.00	0.0	1749.0
TS-129 L=(1750-2600)MM	172.00-183.99	166.00	161.00	139.00	1750.0	2600.0
TS-130 L=(0-1749)MM	184.00-195.99	178.00	173.00	144.00	0.0	1749.0
TS-130 L=(1750-2600)MM	184.00-195.99	178.00	173.00	144.00	1750.0	2600.0
TS-131 L=(0-1749)MM	196.00-207.99	190.00	185.00	144.00	0.0	1749.0
TS-131 L=(1750-2600)MM	196.00-207.99	190.00	185.00	144.00	1750.0	2600.0
TS-132 L=(0-1749)MM	208.00-219.99	202.00	197.00	144.00	0.0	1749.0
TS-132 L=(1750-2600)MM	208.00-219.99	202.00	197.00	144.00	1750.0	2600.0
TS-133 L=(0-1749)MM	220.00-231.99	214.00	208.00	164.00	0.0	1749.0
TS-133 L=(1750-2600)MM	220.00-231.99	214.00	208.00	164.00	1750.0	2600.0
TS-134 L=(0-1749)MM	232.00-243.99	226.00	220.00	164.00	0.0	1749.0
TS-134 L=(1750-2600)MM	232.00-243.99	226.00	220.00	164.00	1750.0	2600.0

元昌普通合金焊接式枪钻 Yuanchang Common Alloy Bit

普通合金枪钻接受非标定制 □3.0mm-45mm
 Ordinary alloy drill bit accepts non-standard custom-made □3.0mm-45mm

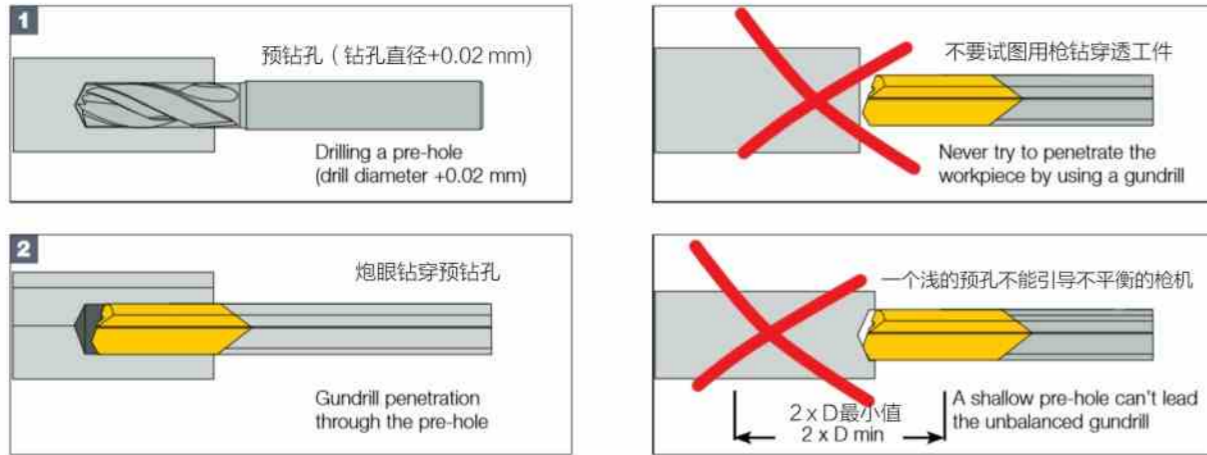
元昌深孔钻合金钻头, 此钻头性价比高, 耐磨损, 质量非常好, 可以钻各种易切削的材料; 采用德国优质枪钻杆, 满足不同切削需求, 钻头耐用稳定性好。

Yuanchang deep hole drilling alloy drill bit, this bit cost-effective, wear-resistant, quality is very good, can drill a variety of easy cutting materials; using German high-quality steel to meet different cutting needs, the drill has good durability and stability.



在车床上使用枪钻时，应在枪钻之前使用短硬质合金定心钻。一旦炮眼钻入预先钻孔，它是自动引导的。

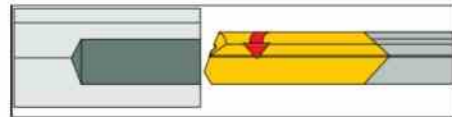
When using a gundrill on a lathe machine, a short solid carbide centering drill should be used prior to the gundrill. Once the gundrill enters the pre-drilled hole, it is self-guided.



(钻穿说明) Drill Penetration Instructions

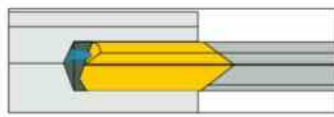
(逆时针旋转钻头在钻孔过程中)

Rotate the drill counterclockwise prior to and during hole penetration



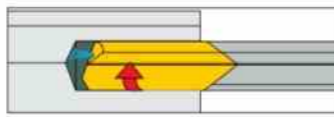
(停止钻头旋转并启动冷却液)

Stop the drill rotation and start the coolant

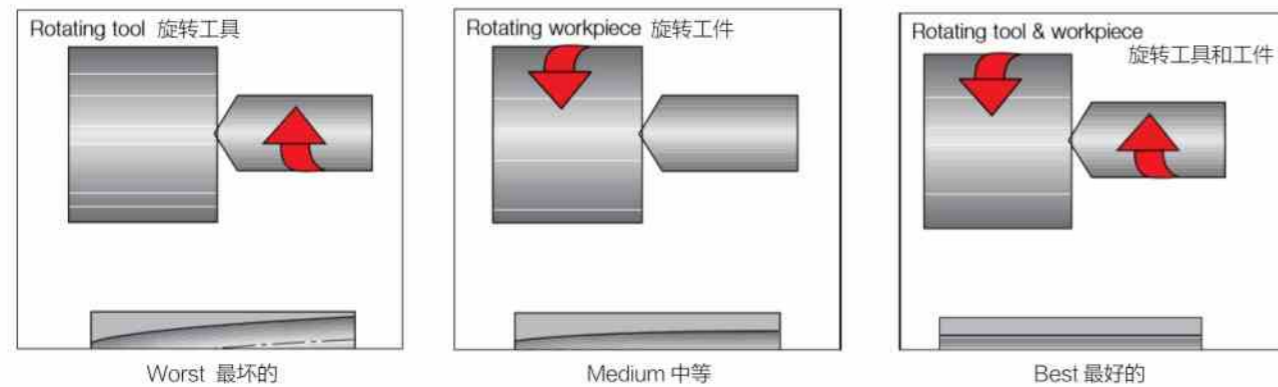


(钻孔前顺时针旋转钻机)

Rotate the drill clockwise prior to drilling operation

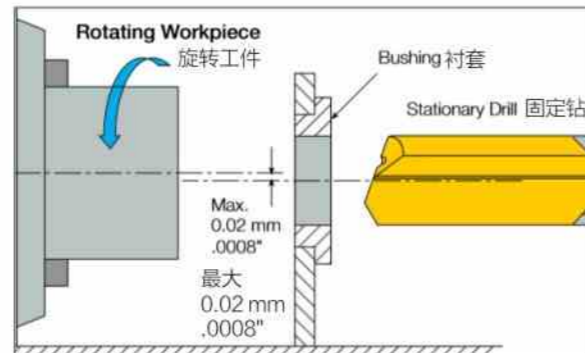


(工具对工件旋转的影响) The Influence of Tool vs. Workpiece Rotation



钻孔衬套和工件中心线之间的最大偏差不应超过0.02 mm (.0008")。

The maximum misalignment between the drill bushing and the workpiece center line should not exceed 0.02 mm (.0008").



(单槽枪钻) Single Flute Gundrill

ISCAR的枪钻由一个整体硬质合金头、一个流线型柄和一个驱动器组成，冷却液通过该驱动器流向最需要的工作端。切屑沿V形外槽排出。

ISCAR's gundrill consists of a single piece carbide head, a streamlined shank and a driver through which coolant flows to the working end where it is most needed. Chips are evacuated along the V-shaped external flute.

(钻头) Drilling Head

硬质合金头部在其长度上呈锥形以减少摩擦，锥角取决于要钻孔的材料类型。对于高精度钻孔，锥度应减小到最小。

注意，当头部重新刻划时，钻头的直径会改变，从而影响孔的公差。

The carbide head is tapered on its length to reduce friction. The taper angle depends on the type of material to be drilled. For high precision drilling, the taper should be reduced to a minimum.

Note that when the head is resharpened, the diameter of the drill changes, affecting the hole tolerance.

(长柄) Shank

柄的横截面为V形，带有冷却孔。它是由高抗扭的硬化钢制成的。该截面为扭转阻力、冷却液流量和排屑提供了最佳条件。

The cross-section of the shank is V-shaped with coolant holes. It is made of hardened steel that is highly resistant to twisting. This cross-section provides the optimal conditions for twist resistance, coolant flow and chip evacuation.

(刀柄) Driver

刀柄确保枪钻和机床之间的连接

The driver ensures the connection between the gundrill and the machine tool.

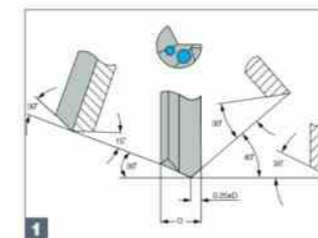
(优势) Advantages

- 钻孔精度可达到IT7至IT9公差
- 良好的直线度和同心度
- 保持高精度孔中心对准
- 表面粗糙度R0.4-R1.6很容易获得
- 通常不需要重新启动操作
- Drilling precision of IT7 to IT9 tolerances can be reached
- Excellent straightness and concentricity
- Maintains high precision hole center alignment
- Surface roughness of R0.4 - R1.6 is easily obtained
- Reboring operations are often unnecessary

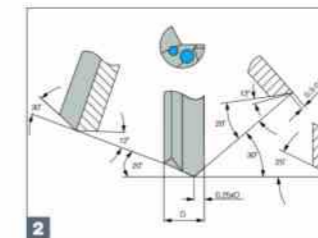
单槽硬质合金实心钻 Single Flute Solid Carbide Gundrills

另一种类型的枪钻是用整体式的刀尖和刀柄制成的。由整体硬质合金制成，带有钢或硬质合金驱动器。这些钻头是为传统机器、加工中心和车床设计的。这种类型的枪钻可从0.9-16毫米，可用于各种材料。它提供卓越的刚性和最佳的冷却液流量。由于它的刚性，可以达到高达100%的进给率。使用小直径钻头时，必须严格遵守推荐的钻孔参数。

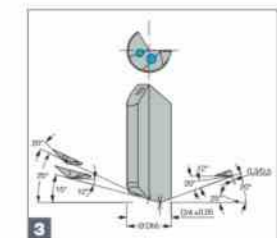
Another type of gundrill is made with integral tip and shank, made of solid carbide with either a steel or a carbide driver. These drills are designed for conventional machines, machining centers and lathes. This style of gundrill is available from 0.9-16 mm and can be used on various types of materials. It provides superior rigidity and optimal coolant flow rates. As a result of its rigidity, up to 100% higher feed rate can be reached. When using the small diameter drills, it is crucial to adhere closely to the recommended drilling parameters.



直径为0.9至4 mm的钻头的标准锐化
Standard sharpening for 0.9 to 4 mm drill diameters



4-32mm钻头直径的标准锐化
Standard sharpening for 4 to 32 mm drill diameters



32到40毫米钻头直径的标准锐化
Standard sharpening for 32 to 40 mm drill diameters

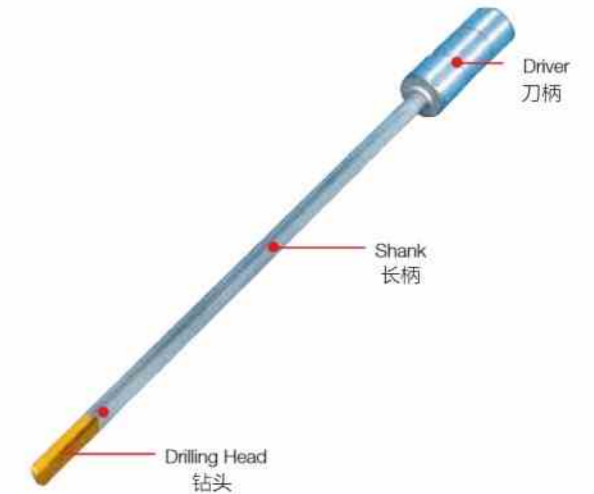
注：对于特殊或半标准炮眼钻，将提供与应用相匹配的特殊几何形状。

Note: For special or semi-standard gundrills, special geometries will be offered to match the application.

硬质合金枪钻靶场 Carbide Tipped Gundrill Range

钻头直径 Drill Diameter	最大凹槽长度 Max. Flute Length
2.50 to 3.09	1100
3.10 to 5.99	2500
6.00 to 11.39	3000
11.40 to 40.00	3500

总长度=凹槽长度+驱动器长度
Overall length=flute length+driver length



ISCAR先进的炮眼钻技术为深钻和浅钻提供了卓越的几何和尺寸质量。

钻头的可用范围为2.5至40毫米。

ISCAR's advanced gundrill technology provides superior geometric and dimensional quality for both deep and shallow drilling.

The drills are available in the range of 2.5 to 40 mm.

硬质合金枪钻靶场 Solid Carbide Gundrill Range
带或不带钎焊钢驱动器 with or without brazed steel driver

钻头直径 Drill Diameter	最大凹槽长度 Max. Flute Length
0.9 to 16.00	300mm

标准枪钻头锐化角 Standard Gundrill Head Sharpening Angles

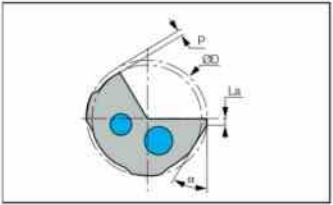
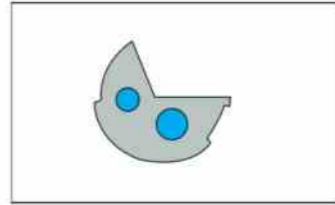
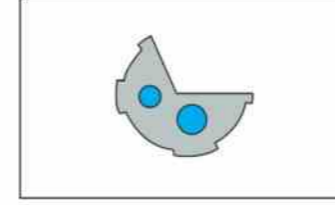
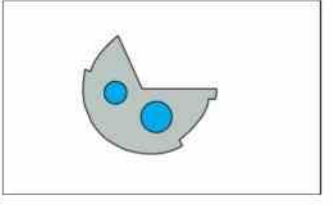
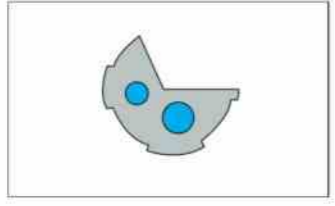
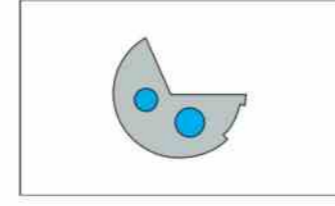
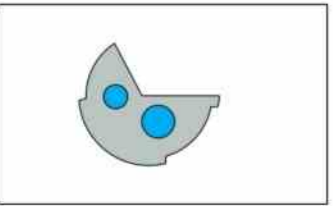
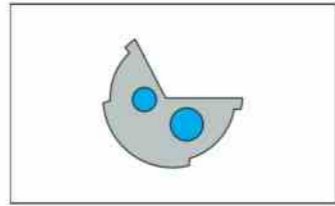
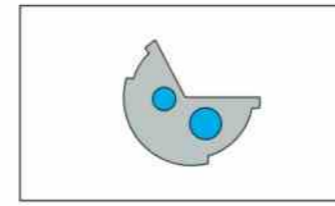
据所需的公差、切削性能和所需的切屑形状，建议采用以下标准锐化角度（如图1和图2所示）

Subject to the required tolerance, cutting performance and desired chip shape, the following standard sharpening angles are recommended (shown in figures 1 and 2).

标准枪钻头剖面图 Standard Gundrill Head Profiles

钻削能力和钻孔的光洁度取决于钻头的几何形状。轮廓和锐化都必须与工件材料匹配。当工具是制造出来的。尽管重磨可能会改变切削几何结构，但轮廓应保持不变。

Drilling capacity and finish of the drilled hole are dependent on the geometrical shape of the drill head. Both the profile and the sharpening must be matched to the workpiece material. The profile is defined when the tool is manufactured. Although regrinding may change the cutting geometry, the profile should remain the same.

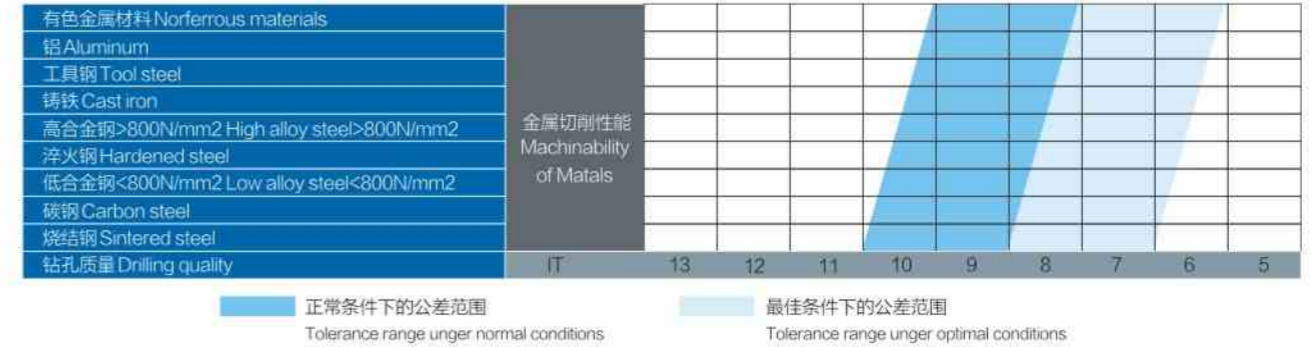
总图 General Sketch	剖面图G(通用) Profile G(Universal)	剖面图A Profile A
<p>所有截面轮廓参数，如：P、La，必须与工件材料特性精确匹配。</p> <p>All cross section profile parameters such as:P,La and must be precisely matched to the workpiece material properties.</p> 	<p>大多数材料类型的标准形式，特别是有收缩倾向的材料。推荐用于高精度孔公差和直线度。保持精确的出口孔尺寸。建议在需要额外抛光时使用。</p> <p>Standard form for most material types, particularly for materials with a tendency to shrink. Recommended for high precision bore tolerance and straightness. Maintains precise exit hole size. Recommended when extra burnishing is required.</p> 	<p>适用于铸铁（通常有涂层）和铝合金。可用于交叉钻孔、角度进入或退出以及间断切割。衬垫之间存在较大的冷却液间隙。</p> <p>Suitable for cast iron (usually coated) and aluminum alloys. Can be used for cross drilling, angular entry or exit and for interrupted cut. Large coolant gaps between pads.</p> 
剖面图B Profile B	剖面图C Profile C	剖面图D Profile D
<p>卓越的尺寸控制，高精度的孔公差。用于铸铁和铝合金。</p> <p>Excellent size control, for high precision hole tolerance. Used for cast iron and aluminum alloys.</p> 	<p>用于有角度的入口或出口。大的后锥度，用于收缩材料，如合金和不锈钢。衬垫之间存在较大的冷却液间隙。</p> <p>Used for angled entry or exit. Large back taper, for shrinking materials such as types of alloys and stainless steel. Large coolant gaps between pads.</p> 	<p>仅适用于铸铁。对灰铸铁非常有效（通常有涂层）。</p> <p>Suitable for cast iron only. Very effective in grey cast iron (usually coated).</p> 
剖面图E Profile E	剖面图H Profile H	剖面图I Profile I
<p>一般用途，用于合金和不锈钢。这种轮廓消除了在外角变钝后工具卡在孔中的问题。特别适用于曲轴等锻造材料。推荐用于精确的孔直线度。</p> <p>General use, for alloys and stainless steel. This profile eliminates the problem of the tool sticking in the hole after the outer corner dulls. Especially suitable for crankshaft and other forged materials. Recommended for accurate hole straightness.</p> 	<p>建议用于直径大于5 mm的所有有色金属和铸铁材料。有时用于大锥度的木材和塑料。</p> <p>Recommended for all nonferrous and cast iron materials up to 5 mm diameter. Sometimes used for wood and plastic with larger back taper.</p> 	<p>用于铝和黄铜，以获得最佳的孔光洁度。用于交叉孔和间断切割或需要额外外径支撑和抛光时。</p> <p>Used for aluminum and brass for best hole finish. For intersecting holes and interrupted cut or when extra outer diameter support and burnishing is required.</p> 

深孔钻削中可获得的钻削公差
Drilling Tolerances Obtainable In Deep Hole Drilling

深度钻孔公差 Deep Drilling Tolerances

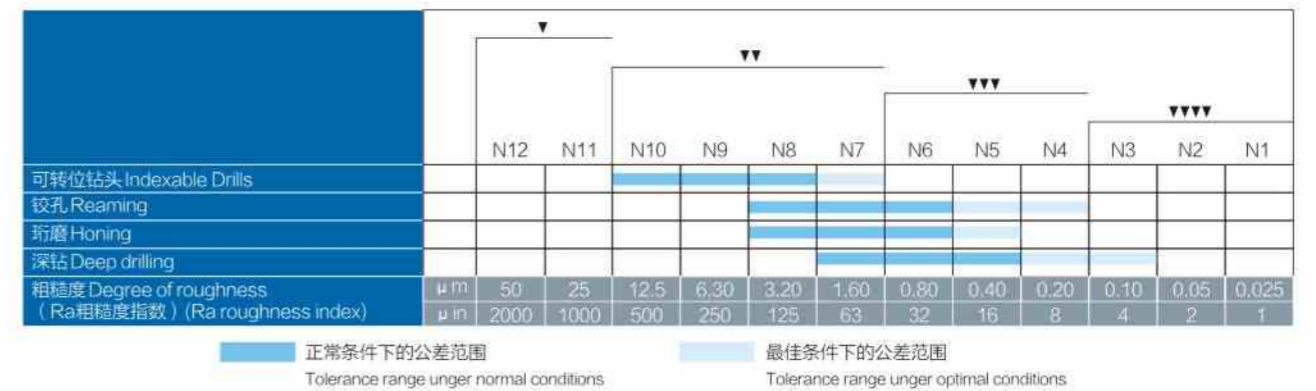
在推荐条件下使用时，炮钻配置可产生公差为IT8-IT9的孔。Gundrill configurations when used under recommended conditions can produce holes with tolerances of IT8-IT9.

当在最佳条件下运行时，甚至可以获得更好的公差。When operating under optimal conditions, even better tolerances can be achieved.



表面质量 Surface Quality

在推荐条件下使用枪钻可获得0.2 Ra的表面质量。Surface quality of 0.2 Ra can be achieved when using gundrills under recommended conditions.



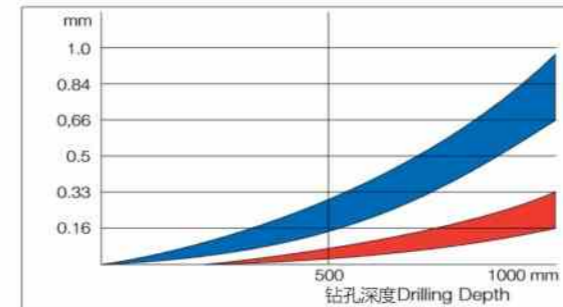
同心度和直线度 Concentricity and Straightness

结果质量取决于不同的因素，例如：
 • 钻孔深度和直径 • 加工类型和切削参数
 • 工件材料的质量和均匀性 • 机床状况口炮眼支架
 The resulting quality depends on different factors such as:
 • Drilling depth and diameter
 • Type of machining and cutting parameters
 • Quality and uniformity of the workpiece material
 • Machine tool conditions □ Gundrill support

圆度 Circularity

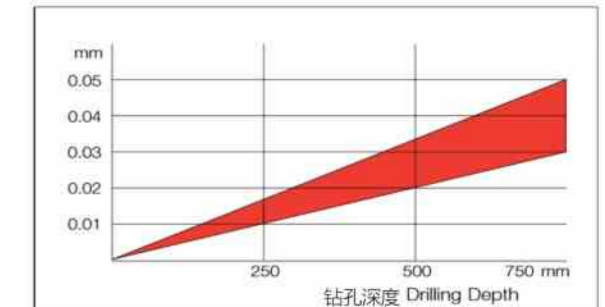
深孔钻头钻孔的几何质量明显高于麻花钻。可以获得偏差小于4 μm的精度。
 The geometric quality of bores obtained from deep hole drill bits is clearly higher than that obtained with the use of twist drills. It is possible to obtain precision with deviations of less than 4 μm.

Concentricity 同心度



■ Stationary workpiece – rotating tool 固定工件-旋转工具
■ Rotating workpiece – stationary tool 旋转工件-固定刀具

Straightness 直线度



用于加工中心、车床等的标准枪钻刀柄。
Standard Gundrill Drivers for Machining Centers, Lathes, etc.

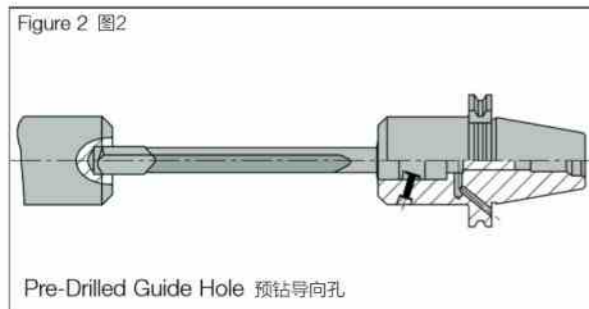
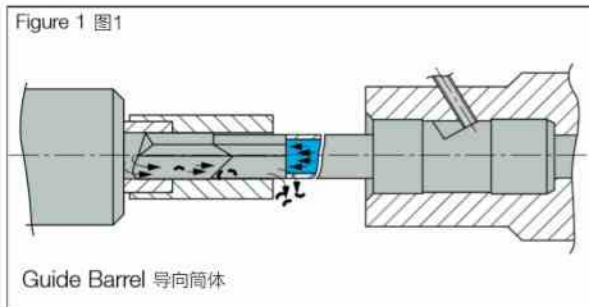
驱动程序类型 Driver Type	绘图 Drawing	DXL	驱动程序代码 Driver code	钎焊枪钻 BRAZED GUNDRILL			硬质合金牙钻 SOLID CARBIDE GUNDRILL		
				最大切削直径 Max. cutting diameter	F=圆柱管 F=CYLINDRICAL TUBE				
					等于或小于最大切削直径 Equal or less than max. cutting diameter	大于最大直径 More than max. diameter			
圆柱形 DIN1835A DIN6535HA Cylindrical DIN1835A DIN6535HA		4x28	N° 1	2.749	10	20	18		
		5x28	N° 2	3.249	10	20	15		
		6x36	N° 3	4.249	10	20	14		
		8x36	N° 4	5.749	10	20	14		
		10x40	N° 5	7.299	10	20	15		
		12x45	N° 6	8.999	10	20	15		
		.50x1.78"	N° 94	9.699	10	20	15		
		14x45	N° 7	10.999	10	20	15		
		16x48	N° 8	12.399	10	20	15		
		18x48	N° 9	14.399	10	20	15		
		.75x2.03"	N° 95	14.899	10	20	15		
		20x50	N° 10	15.899	10	20	15		
		25x56	N° 11	19.509	10	25	15		
		1.00x2.28"	N° 96	19.509	10	25	15		
		1.25x2.28"	N° 97	25.609	10	25	15		
焊件DIN1835B DIN6535HB Weldon DIN1835B DIN6535HB		6x36	N° 16	2.749	10	20	15		
		8x36	N° 17	3.249	10	20	15		
		10x40	N° 18	7.299	10	20	15		
		12x45	N° 19	8.999	10	20	15		
		.50x1.78"	N° 98	9.699	10	20	15		
		16x48	N° 20	12.399	10	20	15		
		18x48	N° 21	14.399	10	20	15		
		.75x2.03"	N° 99	14.899	10	20	15		
		20x50	N° 22	15.899	10	20	15		
		25x56	N° 23	19.509	10	25	15		
		1.00x2.28"	N° 100	19.509	10	25	15		
		1.25x2.28"	N° 101	25.609	10	25	15		
		32x60	N° 24	25.609	10	25	15		
		40x70	N° 25	32.609	10	25	15		
		口哨音 DIN1835E Whistle Notch DIN1835E		6x36	N° 28	2.749	10	20	15
8x36	N° 29			3.249	10	20	15		
10x40	N° 30			7.299	10	20	15		
12x45	N° 31			8.999	10	20	15		
16x48	N° 32			12.399	10	20	15		
18x48	N° 33			14.399	10	20	15		
20x50	N° 34			15.899	10	20	15		
25x56	N° 35			19.509	10	25	15		
32x60	N° 36			25.609	10	25	15		
40x70	N° 37			32.609	10	25	15		
口哨缺口 DIN6535HE Whistle Notch DIN6535HE				6x36	N° 38	2.749	10	20	15
				8x36	N° 39	3.249	10	20	15
				10x40	N° 40	7.299	10	20	15
				12x45	N° 41	8.999	10	20	15
				16x48	N° 42	12.399	10	20	15
		18x48	N° 43	14.399	10	20	15		
		20x50	N° 44	15.899	10	20	15		

枪钻床用标准驱动器
Standard Drivers for Gundrill Machines

驱动程序类型 Driver Type	绘图 Drawing	DXL	驱动程序代码 Driver code	钎焊枪钻 BRAZED GUNDRILL			硬质合金牙钻 SOLID CARBIDE GUNDRILL
				最大切削直径 Max. cutting diameter	F=圆柱管 F=CYLINDRICAL TUBE		
					等于或小于最大切削直径 Equal or less than max. cutting diameter	大于最大直径 More than max. diameter	
DIN228AK		CM1	N° 45	9.599	10	20	
		CM2	N° 46	14.599	10	20	
		CM3	N° 47	21.499	10	25	
		CM4	N° 48	29.499	10	25	
DIN228BK		CM1	N° 49	9.599	10	20	20
		CM2	N° 50	14.599	10	20	15
		CM3	N° 51	21.499	10	25	
		CM4	N° 52	29.499	10	25	
中心夹紧面15° Central Clamping Surface 15°		6x30	N° 53	2.749	10	20	
		10x40	N° 54	7.299	10	20	
		16x45	N° 55	12.399	10	20	
		.750x2.75"	N° 56	14.899	10	20	
		25x70	N° 57	19.509	10	25	
		1.00x2.75"	N° 58	19.509	10	25	
		1.25x2.75"	N° 59	25.609	10	25	
正面夹紧面15° Frontal Clamping Surface 15°		16x50	N° 61	12.399	10	20	
圆柱螺纹 Cylindrical with Thread		10x50 M6X0.5	N° 62	7.299	10	20	15
		10x50 M6X0.5	N° 63	7.299	10	20	
		.50x1.97" M6x0.5	N° 64	8.999	10	20	15
		16x80 M10X1	N° 65	12.399	10	20	15
		25x100 M16x1.5	N° 66	19.509	10	25	
VDI Design		36x120 M24x1.5	N° 67	30.609	10	25	
		10x68 M6x0.5	N° 68	6.749	10	20	
		16x90 M10x1	N° 69	10.799	10	20	15
		25x112 M16x1.5	N° 70	19.509	10	25	
		36x135 M24x1.5	N° 71	30.609	10	25	
中心夹紧六角形 Central Clamping Hexagonal		25x70	N° 72	19.509	10	25	
		32x70	N° 73	25.609	10	25	
中心夹紧锥 Central Clamping Tapered		.50x1.50"	N° 74	8.599	10	20	15
		16x70	N° 75	12.099	10	20	15
		.75x2.75"	N° 76	14.099	10	20	
		20x70	N° 77	16.099	10	20	15
正面夹紧面2° Frontal Clamping Surface 2°		.50x1.50"	N° 78	9.699	10	20	
		.75x2.75"	N° 79	14.899	10	20	
		1.00x2.75"	N° 80	19.509	10	25	
		1.00x3.94"	N° 81	19.509	10	25	
		1.25x2.75"	N° 82	25.609	10	25	
		1.25x3.94"	N° 83	25.609	10	25	
		1.50x2.75"	N° 84	32.609	10	25	
梯形螺纹 Trapezoidal Thread		16x112 Tr 16x1.5	N° 86	13.599	10	20	
		20x126 Tr 20x2	N° 87	17.099	10	20	
		28x126 Tr 28x2	N° 88	25.599	10	25	
		36x162 Tr 36x2	N° 89	32.599	10	25	
Spraymist Driver		16x40	N° 90	12.399	10	20	
		25x50	N° 91	19.509	10	25	
		35x60	N° 92	26.599	10	25	

典型的枪钻应用
Typical Gundrill Applications

主要钻探方法
Main Drilling Methods



User Guide 用户指南

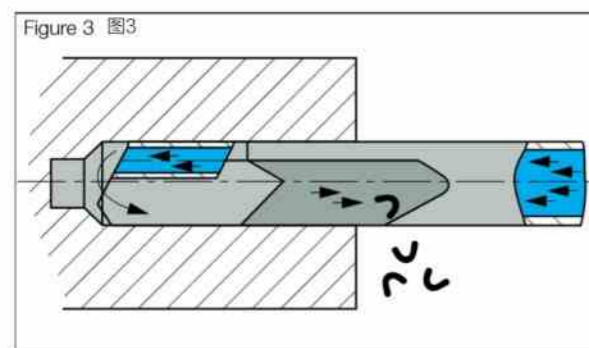
The gundrill is not a self-centering tool. Therefore an external means must be used to guide it to the point of entry into the workpiece. It is recommended that the machine tool be equipped with a means for guiding the gundrill, preferably during the entire drilling process.

An alternative method is a pre-drilled guide hole (figure 2), which is common for machining centers. Once the drill has been fully engaged into this hole, it continues to be self-guided. The guide pads contribute to the high degree of calibration and provide burnishing of the drilled hole.

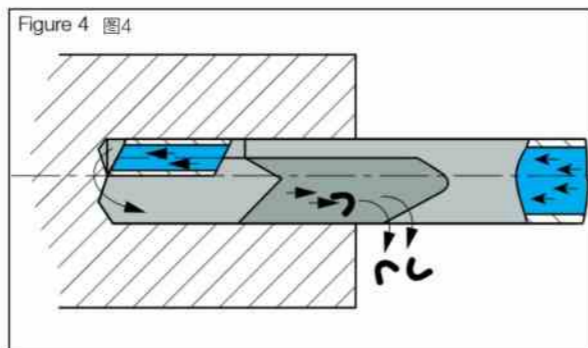
枪钻不是自动定心工具。因此，必须使用外部手段将其引导至进入工件的点。建议机床配备引导炮钻的装置，最好是在整个钻孔过程中。

另一种方法是预钻导向孔（图2），这是加工中心常见的方法。一旦钻头完全进入该孔，它将继续自动导向。导向垫有助于实现高度校准，并为钻孔提供抛光。

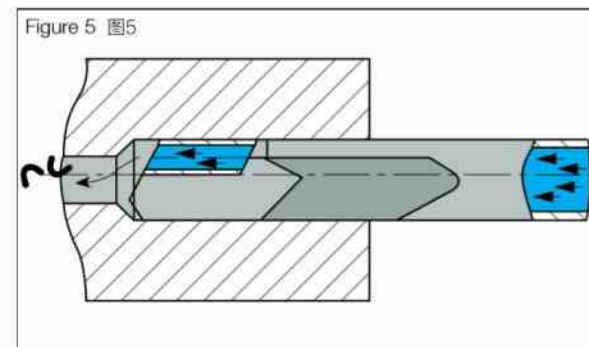
典型的枪钻应用—排屑和冷却液流动
Typical Gundrill Applications – Chip Evacuation and Coolant Flow



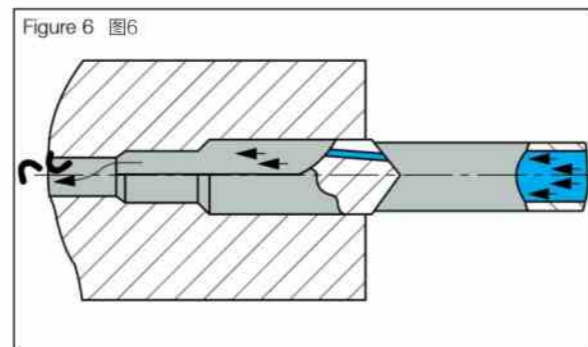
Boring with chip evacuation and coolant flowing opposite the boring direction
排屑和冷却液与钻孔方向相反的钻孔



Drilling of solid material with chip evacuation and coolant flow opposite the drilling direction
固体材料的钻孔，排屑和冷却剂流动与钻孔方向相反



Boring with chip evacuation in the boring direction
在钻孔方向用排屑器钻孔



Boring with a staged tool
Chip evacuation and coolant flow in the boring direction
采用分级刀具排屑和冷却液沿钻孔方向流动进行钻孔

枪钻故障排除指南
Gundrill Troubleshooting Guide

Possible Causes 问题原因	Hole Problems 孔的问题				Drill Problems 钻头问题			
	Curved hole axis 弯曲孔轴	Contact entrance Runout 锥形入口	Rough surface finish 表面粗糙度粗糙	Undersize 尺寸过小	Chipping 崩边	Poor drill life 钻头寿命差	Excessive corner wear 拐角过度磨损	Excessive flank wear 侧面前缘过度磨损
Poor clamping 夹紧不良	+	+		+				
Insufficient coolant flow 冷却液流量不足				+			+	+
Low coolant pressure 冷却液压力低				+				
Incorrent coolant type 冷却液类型不正确				+			+	+
Feed fluctuations 进料波动	+	+	+				+	+
Tool high feed 进料过高	+	+	+	+			+	+
Tool low feed 进料过低							+	+
Spindle speed too high 主轴转速过高							+	+
Spindle speed too low 主轴转速过低							+	+
Material structure 材料结构	+	+					+	+
Material shrinking due to heat 材料受热收缩				+			+	+
Workpiece thin wall section 工件薄壁截面	+	+						
Misalignment 未对准	+	+					+	+
Undersized hole 尺寸过小的孔				+			+	+
Rough cutting edge finish 切削刃光洁度粗	+	+					+	+
Built up edge 堆积边缘				+			+	+
Worn out edge 磨损边缘	+	+					+	+
Interrupted chip flow 中断芯片流	+	+					+	+
Tool small flute clearance 凹槽间隙太小	+	+					+	+
Incorrect drill profile 钻孔剖面不正确	+	+					+	+
Incorrect head angles 头部角度不正确	+	+					+	+
Vibrations 振动	+	+					+	+
Oversized bushing 超大衬套	+	+					+	+
A gap between bushing and workpiece 衬套与工件之间的间隙	+	+					+	+
Bushing undersize 衬套尺寸过小				+			+	+
Loss of coolant pressure 冷却液压力损失				+			+	+
High coolant pressure 冷却液压力高	+							
Overheating coolant 冷却液过热							+	+
Insufficient coolant 冷却液不足	+	+					+	+
Head inside angle excessive wear 头部内角过度磨损							+	+
Head outside angle excessive wear 头部外角过度磨损							+	+
Too short carbide head 硬质合金头太短	+	+					+	+
Too heal drag 工具治疗拖动	+	+					+	+
Worn supporting pads 支撑垫磨损							+	+

ISO	Material (材料)	Condition (条件)	Tensile Strength [N/mm ²] (抗拉强度 [牛顿/平方毫米])	Hardness HB (硬度HB)	
P	Non-alloy steel and cast steel, free cutting steel (非合金钢和铸钢、易切削钢)	<0.25%C	Annealed(退火)	420	125
		>=0.25%C	Annealed(退火)	650	190
		<0.55%C	Quenched and tempered (淬火和回火)	850	250
		>=0.55%C	Annealed(退火)	750	220
	Low alloy steel and cast steel (less than 5% of alloying elements) 低合金钢和铸钢 (低于合金元素的5%)		Quenched and tempered (淬火和回火)	1000	300
			Annealed(退火)	600	200
			Quenched and tempered (淬火和回火)	930	275
	High alloyed steel, cast steel, and tool steel (高合金钢、铸钢和工具钢)		Quenched and tempered (淬火和回火)	1000	300
				1200	350
	Stainless steel (不锈钢)		Annealed(退火)	680	200
			Quenched and tempered (淬火和回火)	1100	325
	M	Stainless steel (不锈钢)	Ferritic/martensitic (铁素体/马氏体)	680	200
			Martensitic (马氏体不锈钢)	820	240
K	Grey cast iron (GG) 灰铸铁 (GG)	Ferritic/pearlitic (铁素体/珠光体)		180	
K	Nodular cast iron (GGG) 球墨铸铁 (GGG)	Pearlitic(珠光体)		260	
		Ferritic (铁素体)		160	
	Malleable cast iron (可锻铸铁)	Pearlitic(珠光体)		250	
		Ferritic (铁素体)		130	
N	Alumin-umwrought alloy(铝变形合金)	Not cureable (不固化)		60	
		Cured (固化)		100	
	Aluminum-cast, alloyed (铝铸件, 合金)	<=12% Si	Not cureable (不固化)		75
			Cured (固化)		90
		>12% Si	high temperature (高温)		130
	Copper alloys (铜合金)	>1% Pb	Free cutting (自由切割)		110
			Brass (黄铜)		90
	Non-metallic (非金属)		Electrolitic copper (化学铜)		100
			Duroplastics, fiber plastics (硬塑性塑料、纤维塑料)		
	S	High temp. alloys (高温合金)	Fe based(铁基)	Annealed (退火)	
Cured(固化)					280
Ni or Co based (镍基或钴基)			Annealed (退火)		250
			Cured(固化)		350
			Cast (铸造)		320
Titanium Ti alloys (钛钛合金)			RM 400		
	Alpha+beta alloys cured (α+β合金固化)		RM 1050		
H	Hardened steel 淬火钢	Hardened (硬化)		55 HRC	
		Hardened (硬化)		60 HRC	
	Chilled cast iron 冷硬铸铁	Cast (铸造)		400	
	Cast iron 铸铁	Hardened (硬化)		55 HRC	

Material No. (材料编号)	Cutting Speed (m/min) 切削速度 (m/min)	Feed vs. mm/rev Drill Diameter mm 进给与毫米/转钻头直径mm				
		2.0-9.79	9.8-11.69	11.7-13.19	13.2-16.19	16.2-40
1	70-110					
2	80-110					
3	70-100	0.01-0.03	0.03-0.05	0.03-0.06	0.04-0.07	0.02-0.10
4	70-110					
5	70-90					
6	80-110					
7	70-110	0.01-0.03	0.03-0.05	0.03-0.06	0.04-0.07	0.02-0.10
8	60-90					
9	50-80					
10	50-70	0.01-0.03	0.025-0.04	0.03-0.045	0.035-0.05	0.02-0.10
11						
12	40-70	0.01-0.03	0.025-0.04	0.03-0.045	0.035-0.05	0.02-0.10
13						
14	40-80	0.01-0.03	0.025-0.04	0.03-0.045	0.035-0.05	0.02-0.10
15	70-100					
16	70-100					
17	80-110	0.01-0.40	0.04-0.1	0.05-0.12	0.06-0.14	0.05-0.20
18	80-110					
19	90-115					
20	90-115					
21						
22	80-160	0.02-0.04	0.03-0.17	0.03-0.18	0.035-0.19	0.03-0.15
23						
24						
25	80-120					
26						
27						
28	80-180	0.02-0.04	0.02-0.13	0.03-0.16	0.04-0.18	0.03-0.15
29						
30						
31						
32						
33						
34	25-60	0.01-0.03	0.025-0.03	0.03-0.035	0.03-0.04	0.02-0.10
35						
36						
37						
38	20-50		0.025-0.03	0.03-0.035	0.03-0.04	
39		0.01-0.03				0.02-0.10
40						
41						

配件 ACCESSORIES

切削油 Cutting oil

专业配方为深孔钻研发的切削油，有效提高加工光洁度及精度，为加工深孔长期稳定性提高必需条件。

The professional formula is the cutting oil developed for deep hole drilling, which effectively improves the processing finish and precision, and is a necessary condition for improving the long-term stability of processing deep holes.



枪钻磨刀机 Gun drill sharpener

本机适用于修磨枪钻，最小能研磨 $\phi 1$ mm钻头，标准化修模刀刃，确保枪钻加工的稳定性，本机设计独特，操作简易，便于现代化管理。

This machine is suitable for grinding gun drills. The smallest drill bit can be $\phi 1$ mm. The standardized cutting edge ensures the stability of gun drill processing. The machine is unique in design, easy to operate, and convenient for modern management.



铁屑甩油机 Scraping oil machine

采用强力马达，稳固机身设计，大量减少被铁屑带走的切削油，使切削油能够循环使用，降低切削油损失，节约成本，提高能源环保作用。

It adopts powerful motor and stable body design, which greatly reduces the cutting oil carried away by iron filings, enables the cutting oil to be recycled, reduces cutting oil loss, saves costs, and improves energy and environmental protection.



磨刀机工装图片 re-sharpening machine&fixture



枪钻使用过程中客户需自主修磨，我们不提倡手工随意修磨角度，事实证明采用正确规范的修磨方式方法使得枪钻耐用性比随意修磨提高20%以上。

Gun drills re-sharp must use grinding fixtures, not only by hand, it was proved to prolong gun drills life by the right re-sharpening.

加长杆 supporting pin



图一加长杆应用在枪钻加工到极限深度后延长枪钻加工的一种方法。

图二加长杆则是元昌转为小规格枪钻研制的，它减短了小规格枪钻的刀杆长度，将主轴油压向刀头方向移动了350-500甚至更长的距离，从而保证了小规格枪钻也可以高速进给而不至于排屑不畅。加长杆的应用，大大增强了支撑刚性，而且装夹更为简单经济。元昌已库存有一定量的小规格短枪钻（含超硬枪钻），对于硬度（HRC）达48-52度的超硬材料可以有效克服。

Pic 1 is the application of prolong drilling depth, after gun drill reach its drilling length capacity.

Pic 2 was developed for Yuanchang small size drills, the supporting pin shorten the length of drill tubes, resulted in higher oil pressure, and chips removal smooth. The application increase drilling rigidity, resulted in high drilling efficiency. Yuanchang stocks some small size gun drills and supporting pins, it all can apply on hard materials like 48-52 HRC.