



德州冠鲁精密机械制造有限公司  
Dexhou Guanlu Precision Machinery Co., Ltd.

## 外排屑数控深孔钻床(枪钻机床) CNC Gundrilling machine

### 枪钻类主要产品：

ZSK三坐标深孔钻床系列

GL4000复合钻系列

ZSK单坐标多主轴深孔钻床系列

ZSK经济型深孔钻床系列

我公司深孔枪钻，采用外排屑法（枪钻法）钻削，通过一次连续钻削即可达到一般需要钻，扩，铰工序才能保证的加工质量。

孔径精度为 IT7-IT11

表面粗糙度Ra0.4-Ra6.3

孔中心直线度 $\leq 0.5-1/1000\text{mm}$ (加工孔深)

钻孔直径范围为3mm-40mm

枪钻主轴数量最多可达6轴

钻孔深度最深可达4000mm

工作台最大承重可达40吨

我公司研发出的复合钻机床，运用外排屑和BTA两种加工方式，加工直径范围5mm-100mm，为有此要求的企业（如深孔加工企业，水泥机械，矿山机械等）节约成本，节省空间，实现一机多用。

我公司可以根据客户不同的行业特点，量身订做性能最优，性价比最高的深孔机床，同时也可根据客户的投资预算，设计不同的机床方案。无论您是大型集团公司，还是小型个体加工厂，我们都有一款合适的机床适合您。

应用行业

模具行业：模具的水道孔、顶针孔、流道孔、导柱孔等

液压行业：油缸、活塞杆、缸壁等上面的油路孔

汽车行业：气缸体（内燃机）、曲轴、转向器齿条、齿轮轴、阀芯等的深孔加工

纺织机械行业：各种锭子中心孔加工

医疗器械行业：钛合金、不锈钢等轴类件深孔加工

电力、汽轮机行业中的转子、芯轴、阀杆、机组外缸、冷凝器管板的深孔加工

油泵油嘴行业：喷油气嘴、针阀体、柱塞套等零件的深孔加工

深孔机床制造专家 We Are Deep Hole Machine Expert

## 品质追求, 永不止步

Main machines of Gun drilling series:

ZSK Three-dimensional deep hole drilling machines

GL4000 Combination deep hole drilling machines

ZSK Single-dimensional multi-spindle deep hole drilling machines

ZSK Economical deep hole drilling machines

Our gun drilling machines, adopts gun drill chips remove methods, though one time continue drilling, can get the processing quality of drilling, expanding and reaming.

Diameter accuracy IT7-IT11

Surface roughness: Ra0.4-Ra6.3

Diameter central linear less than 0.5-1/1000mm

Drilling diameter range: 3mm -40mm

Gun drilling spindle quantity maximum 6 spindles.

Deep hole maximum depth 4000mm

Working table maximum loading limit 40tons

Our company has designed the combination deep hole drilling machines, adopts both gun drilling and BTA processing method, deep hole range from 5mm to 100mm, providing the most useful equipments for some factories.

We also can design different solutions according to customers budget, whatever you are group company or small factory, there must be a right model for you.

Application fields:

Moulds: water holes, centre hole, sprue hole, guide pillar hole and so on.

Hydraulic fields: cylinder, piston rod, the oil hole on the cylinder wall.

Automobile fields: cylinder block (internal-combustion engine), crank axle, steering rack, gear shaft, valve core.

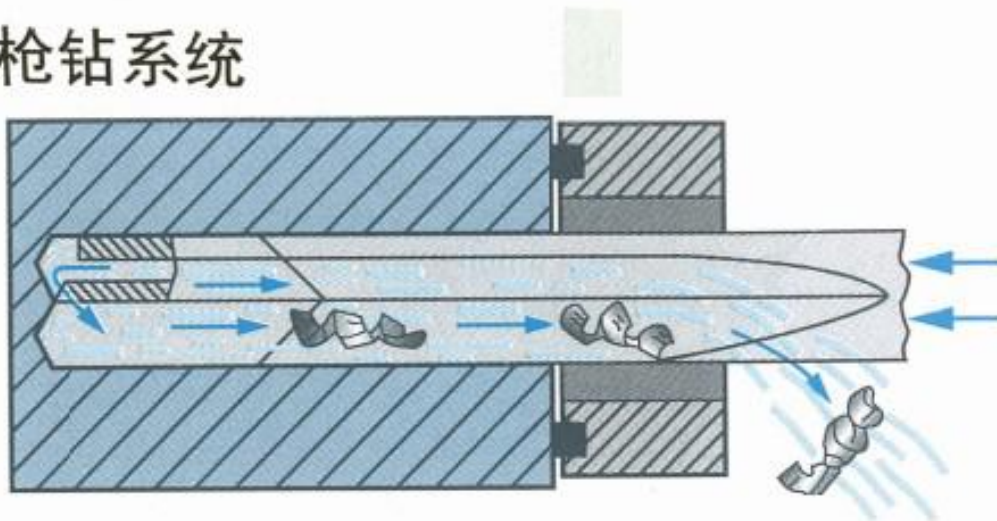
Textile field: all kinds of spindles center holes.

Medical apparatus and instruments: titanium alloy, stainless steel and other shaft parts deep hole processing.

Electric and turbine fields: rotors, dabber, valve bar, The outer cylinder unit, Condenser tube plate

Fuel injection equipment, fuel injection nozzle, needle valve, plunger bushing.

## 枪钻系统







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## 单轴数控深孔钻床 Single coordinate CNC Gundrilling machine



机床主要特点:

- 箱体、床体、进给滑台等基础件采用优质铸铁铸造;
- 刀具进给导轨采用滚动直线导轨;
- 钻杆箱主轴驱动前置,利于保护主电机、方便换刀;
- 床头箱主轴驱动前置,方便装卸工件、利于保护主电机;
- 床体回油槽倾斜设计,不会存油;
- 钻杆支架和钻杆箱之间可以联动,在任意位置钻杆支架之间的间距相等;
- 伺服主轴电机驱动刀具旋转,刀具转速可以实现无级调速;
- 刀具进给采用伺服电机驱动滚珠丝杠来实现,刀具进给量可以实现无级调速;
- 在数控系统操作站上,装配冷却系统压力调整旋钮和流量调整面板;
- 排屑机前置,方便观察排屑情况。

Machine mainly parameters:

- The chamber box,machine bed,infeeding slide table and other basic parts casted by super iron;
- The cutter tool infeeding guide rail adopts roller guide linear rail ;
- The drill box spindle front drive,which could protect the main motor and convinently to change tool.;
- Headstock spindle front drive,convinently to load and unload the workpieces,could protect the main motor.;
- The machine bed oil returning chute is designed slantly,which will not store oil;
- The drill bar support rest and drill bar box is linked,in any pcsition,the space in between the two drill bar support rest is same distance;
- The servo spindle motor drive the tool rotate,the tool rotating speed is stepless;
- The tool infeed adopts servo motor to drive ball screw,so the tool infeeding volume can be stepless controlled;
- Fit the coolant system pressure adjusting knob and flow adjusting panel on the CNC system operation panel.

深孔机床制造专家 We Are Deep Hole Machine Expert

## 机床主要参数 Machine Main Parameters

型号 Models		ZSK2102系列 ZSK2102 Series			ZSK2103系列 ZSK2103 Series		ZSK2104系列 ZSK2104 Series	
		单主轴 Single Spindle	双主轴 Double spindle	四主轴 Four spindle	单主轴 Single Spindle	双主轴 Double spindle	单主轴 Single Spindle	双主轴 Double spindle
主参数 Main Parameters	钻孔直径范围 Drill hole Diameter	Φ4-Φ20mm			Φ4-Φ30mm		Φ6-Φ40mm	
	钻大钻孔深度 Max.drill depth	500/1000/1500/2000/2500mm						
	主轴数量 Main Spindle quantity	1	2	4	1	2	1	2
	主轴间距 Main Spindle space	140mm						
钻杆箱 Drill box	主电机功率 Main motor power	3.7KW	7.5KW	7.5KW×2	5.5KW	11KW	7.5KW	7.5KW×2
	最高转速 Max.speed	5000r/min					3500 r/min	
床头箱 Headstock	功率 power	1.5 KW		1.5KW×2	1.5 KW	1.5 KW	1.5 KW	1.5KW×2
	转速 speed	120r/min						
刀具进给 Tool infeeding	进给速度范围 Infeed speed range	5-500mm/min						
	快移速度 Rapid speed	4m/min						
	进给电机扭矩 Infeeding motor torque	7.5Nm		10Nm	7.5Nm	10Nm	10Nm	
冷却系统 Coolant system	最大流量 Max.flow	100L/min	100L/min	200L/min	100L/min	150L/min	100L/min	200L/min
	最大压力 Max pressure	10MPa					8MPa	
	过滤精度 Filtering accuracy	20 μm						
加工精度 Processing accuracy	孔径精度 Hole size accuracy	IT7-IT10						
	粗糙度 Roughness	Ra0.8 μm-3.2 μm						
	孔中心偏差 Hole deviation tolerance	工件不转, 工件转0.5mm/1000mm, 最大长径比≤100:1 Workpiece fixed 1mm/1000mm, Max L-D ratio is less than 100:1						
其他 Others	机床总功率(约) Machien general power	20.5KW	25KW	42KW	22KW	33KW	25KW	42KW
	占地面积 Floor space	0.5m机床: 4.2m×3.1m; 1m机床: 4.8m×3.1m 1.5m机床: 5.8m×3.1m; 2m机床: 7m×3.1m 2.5m机床: 8.5m×3.1m						
	机床重量(约) Machine weight	0.5m机床: 5吨; 1m机床: 6吨 1.5m机床: 7吨; 2m机床: 8.2吨 2.5m机床: 9.5吨						

### ●机床主要配置 Machine mainly configuration:

链板排屑机、油冷机、纸袋过滤器、钻杆箱伺服主电机、刀具进给用直线导轨、主机全防护、刀具供油泵组、T型槽工作台、液压站、钻杆支架、两组工件托架、恒速床头箱、电箱空调、一套说明书

Chain plate type chip conveyor, oil chiller, paper filter, drill bar box servo main motor, cutter tool infeed linear guide rail, machine fully safety guard, cutter tool oil provide pump group, T slot working table, hydraulic station, drill bar rest, two group workpiece support rest, constant speed headstock, electrical air conditioning, one set manual book.

### ●机床选配件 Machine Accessories optional

刀具、辅具、切削油、自动脱油机、磨刀机、油雾收集器、用户指定的其他配件。

Cutter tool, auxiliary and accessories, cutting oil, automatic chips oil washer, cutter tool grinding machine, oil mist collector and others accessories.



## 三轴数控深孔钻床(Three coordinate CNC Gundrilling machine)



机床主要特点:

- 箱体、床体、进给滑台、立柱、工作台等基础件采用优质铸铁铸造;
- 刀具进给导轨采用滚动直线导轨,其他伺服轴采用滑动导轨或者直线导轨;
- 床体回油槽倾斜设计,不会存油;
- 伺服主轴电机驱动刀具旋转,刀具转速可以实现无级调速;
- 刀具进给采用伺服电机驱动滚珠丝杠来实现,刀具进给量可以实现无级调速;
- 在数控系统操作站上,装配冷却系统压力调整旋钮和流量调整面板;
- 排屑机前置,方便观察排屑情况。

Machine mainly parameters:

- The chamber box,machine bed,infeeding slide table,upright column,working table and other basic parts casted by super iron;
- The tool cutter infeeding guide rail adopts roller guide linear rail, others servoaxis adopts slide guide rail or linear guide rail;
- The machine bed oil returning chute is designed slantly,which will not store oil;
- The servo spindle motor drive the tool rotate,the tool rotating speed is stepless;
- The cutter tool infeed adopts servo motor to drive ball screw,so the cutter tool infeeding volume can be stepless controlled;
- Fit the coolant system pressure adjusting knob and flow adjusting panel on the CNC system operation panel;
- The chips conveyor is in front,conviently to check the chips condition.

## 机床主要参数 Machine Main Parameters

Technical specification 技术规格		参数 Parameters				
工作范围 Working capacity	钻孔直径范围 (mm) Drilling range	Φ3 - Φ35				
	钻孔最大深度 (mm) Max. Drilling length	1000	1500	2000	2500	
机床性能 Machine character	Z轴	进给速度范围 (mm/min) Infeed speed range	5 - 500			
		快速移动速度 (m/min) Rapid movement speed	5			
		进给电机扭矩 (Nm) Infeed motor torque	7.5	10		
	X轴	快速移动速度 (m/min) Rapid movement speed	3			
		行程 (mm) Travel stroke	1000	1500	2000	2500
		电机扭矩 (Nm) Motor torque	15	18	22	30
	Y轴	快速移动速度 (m/min) Rapid movement speed	3			
		行程 (mm) Travel stroke	1000			
		电机扭矩 (Nm) Motor torque	15	22		
	钻杆箱 Drill bar box	最高转速 (r/min) Max. speed	5000			
		电机功率 (KW) Motor power	7.5			
	工作台 Working table	尺寸 (X向×Z向, m) Dimension(X×Z)	1.5X1	1.8X1.2	2.2X1.5	3X2
		工作台承重 (吨) Working table loading capacity	6	8	10	
冷却系统 Coolant system	最大压力 (MPa) Max. pressure	10				
	最大流量 (L/min) Max. flow	1000				
	过滤精度 (μm) Filtering accuracy	20				
其它 Others	最大钻孔长径比 Max.D-L ratio	100:1				
	机床总功率(约, KW) Machine General power	26	26	27	29	
	占地面积(长×宽, m) Machine floor space	5.3X3.5	6.3X4.5	7.4X5.8	8.9X7.5	
	机床总重量(约, 吨) Machine general weight	10	14	19	25	

● 机床主要配置 Machine mainly configuration

链板排屑机、油冷机、纸袋过滤机、钻杆箱伺服主电机、刀具进给用直线导轨、主机全防护、刀具供油泵组、T型槽工作台、液压站、钻杆支架、电箱空调、一套说明书

Chain plate type chip conveyor, oil chiller, paper filter, drill bar box servo main motor, cutter tool infeed linear guide rail, machine fully safety guard, cutter tool oil provide pump group, T slot working table, hydraulic station, drill bar rest, electrical air conditioning, one set manual book.

● 机床选配件 Machine optional parts:

刀具、辅具、切削油、自动脱油机、磨刀机、油雾收集器、用户指定的其他配件。

Cutter tool, auxiliary and accessories, cutting oil, automatic chips oil washer, cutter tool grinding machine, oil mist collector and others accessories.