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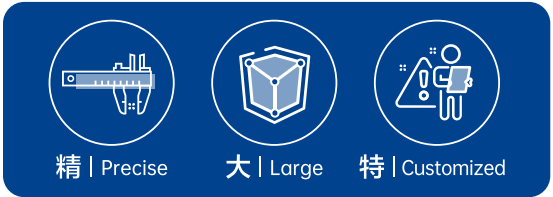
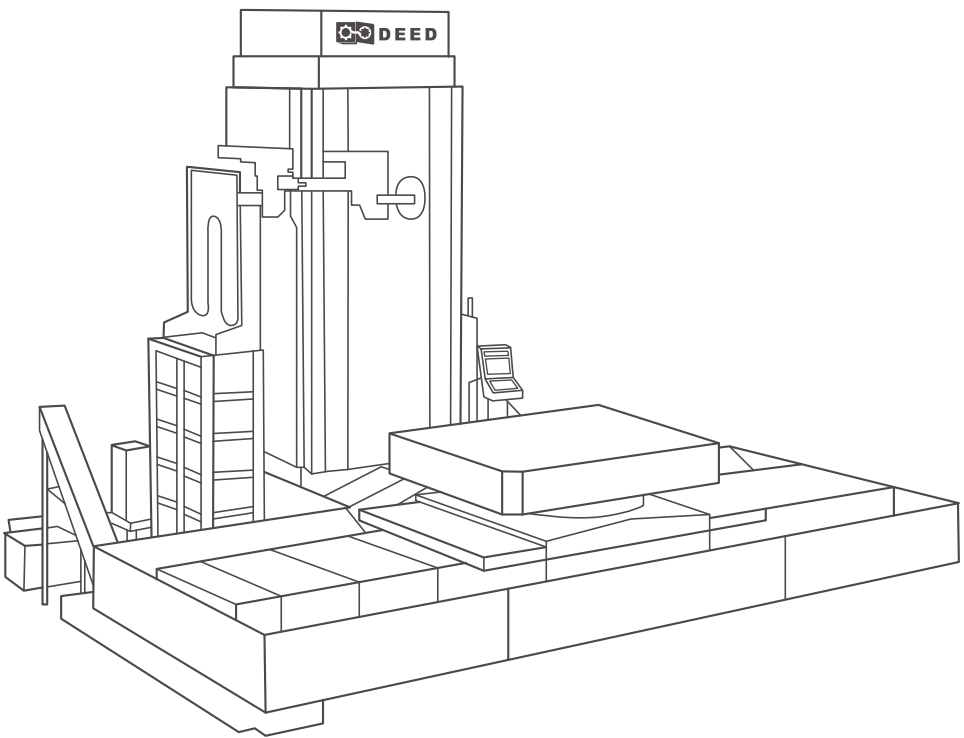
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铣镗加工中心

Milling & Boring Machining Center



山东蒂德精密机床有限公司
SHANDONG DEED PRECISION MACHINE TOOL CO.,LTD.

蒂德简介

COMPANY PROFILE

山东蒂德精密机床有限公司是一家集高档数控机床研发、生产、销售为一体的高端装备企业，位于济宁市兖州区，现有员工500余人，目前是“中国机床工具工业协会理事单位”和“山东机床通用机械工业协会理事单位”。公司以高速立式加工中心、大型龙门加工中心、高效钻攻加工中心、高精度车削加工中心、高精度五轴联动加工中心、卧式铣镗加工中心及卧式加工中心为主导产品，广泛服务于国内外航空、航天、军工、船舶、汽车、工程机械、轨道交通、5G、精密模具等重点领域。公司大力实施“走出去，引进来”的发展战略，与德国知名数控机床制造企业ROTTLER达成全面战略合作，联合开发具有世界领先水平的高档精密机床，共同开拓全球高端市场，并在德国设立了高端机床研发中心及制造基地——“Hipreed Technology GmbH（汉普瑞德科技有限公司）”，全面实施国际化运营，实现了德国技术和中德制造的完美结合。公司建有国内外5大研发中心，拥有6大省市级创新平台，具备高档机床研发、新材料研制、先进技术测试和可靠性提升等全面的研发、实验、测试、制造优势。通过持续创新和不断突破，已承担24项重点政府科技项目，获得各类知识产权200余项（含发明专利9项）、科技成果奖14项，整体开发、创新能力行业领先。凭借强大的技术、创新优势，公司分别通过了ISO9001质量管理体系认证、ISO14001环境管理体系认证和ISO45001职业健康安全管理体系认证，荣获“国家高新技术企业”、“国家级专精特新‘小巨人’企业”、中国机床行业最高奖“春燕奖”、“中国机床工具行业‘产品质量十佳’”、“中国机械工业科技进步二等奖”等80多项重点荣誉。

Shandong Deed Precision Machine Tool Co., Ltd. is a high-end equipment enterprise integratd with R&D, production and sales. It is located in Yanzhou District, Jining City, with more than 500 people, is currently the governing unit of “China Machine Tool Industry Association ” and the governing unit of “Shandong Machine Tool General Machinery Industry Association”. The company takes high-speed vertical machining center, large gantry machining center, high-efficiency drilling and tapping machining center, high-precision turning center, high-precision five-axis linkage machining center, horizontal milling and boring machining center and horizontal machining center as the leading products, and serves a wide range of domestic and foreign key industries such as aviation, aerospace, military, shipbuilding, automobile, construction machinery, rail transit, 5G, precision mold and other key fields. The company vigorously implements the development strategy of "going out and bringing in", and has reached a comprehensive strategic cooperation with the well-known German CNC machine tool manufacturing enterprise ROTTLER to jointly develop high-grade precision machine tools and jointly explore the global high-end market. It has set up a high-end machine tool R & D center and manufacturing base in Germany - "Hipreed Technology GmbH", fully implemented international operations, and achieved perfect combination of German technology and Chinese-German manufacturing. The company has set up five domestic and foreign R & D centers, and six provincial and municipal innovation platforms, with high-grade machine tool research and development, new material development, advanced technology testing and reliability improvement and comprehensive R & D, experiment, testing, manufacturing advantages. Through continuous innovation and breakthrough, it has undertaken 24 key governmental science and technology projects, obtained more than 200 intellectual property rights (including 9 invention patents), and 14 scientific and technological achievement awards, and leading overall development and innovation ability of the industry. With strong technology and innovation advantages, the company has passed the ISO9001 quality management system certification, ISO14001 environmental management system certification and ISO45001 occupational health and safety management system certification. It has won the "National High-Tech Enterprise", "National Special New 'little giant' Enterprise", the highest award of China's machine tool industry "Spring Swallow Award", "China Machine Tool Industry 'Top 10 Product Quality'", "China Machinery Industry Science and Technology Progress 2nd Award" and more than 80 key honors.

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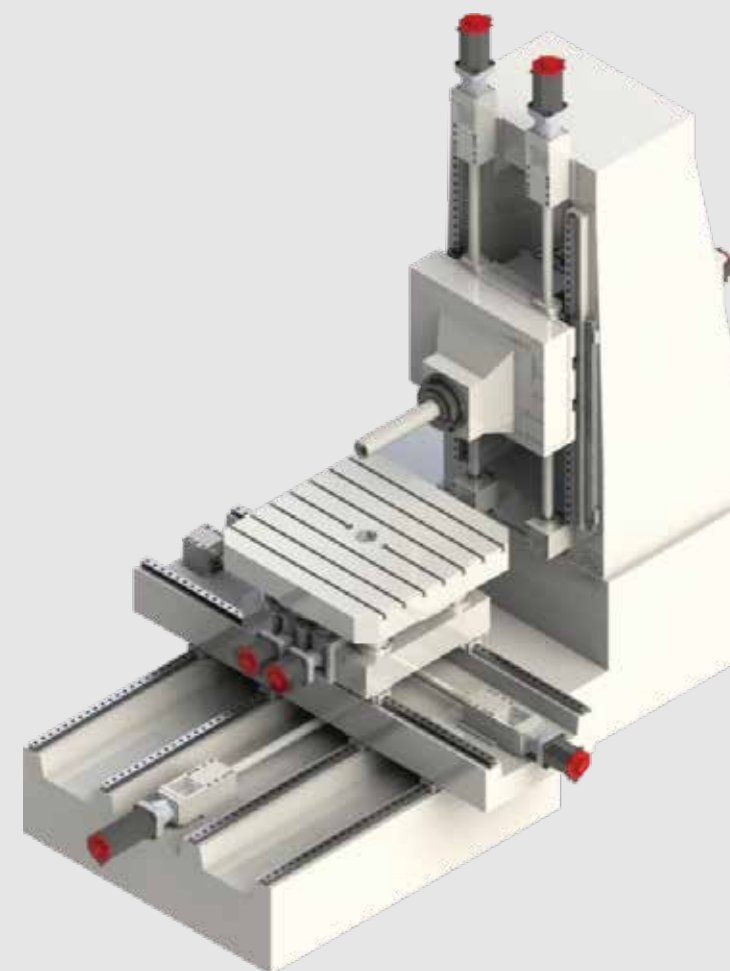
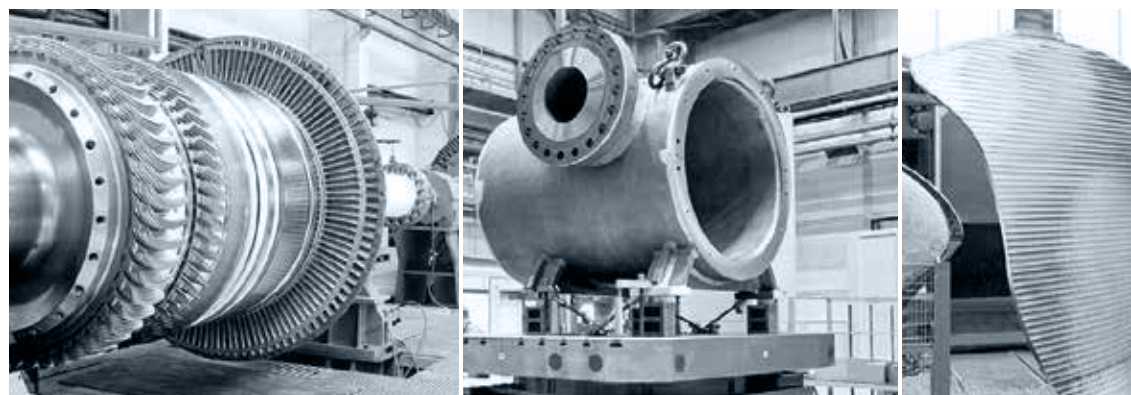
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售后服务 AFTER-SALES SERVICE

24/7 全天候不间断服务

24/7 NON-STOP SERVICE



HBC系列 卧式铣镗加工中心

HBC Series Horizontal Milling & Boring Machining Center

本系列机床为卧式铣镗加工中心，立柱与床身固定，十字滑台结构，工作台左右移动（X轴），主轴箱在立柱上上下下移动（Y轴），工作台前后移动（Z轴），镗轴前后移动（W轴），工作台回转（B轴）。床身采用新型矿物材料，精度更稳定。

该机床广泛应用于船舶、交通、铁路、能源、风电、重型、冶金、矿山、工程机械、石化机械、内燃机、水泵、高压开关、模具等各类通用机械加工行业，是加工箱体类、壳体类、机座类等零件的关键首选设备。

This series of machine is horizontal milling & boring machining center, while the column and bed are fixed, table is in cross-sliding structure, worktable moves left and right (X axis), spindle box moves up and down on the column (Y axis), worktable moves forward and backward (Z axis), boring axis moves forward and backward (W axis), and worktable rotates (B axis). The bed is casted by new mineral material for more stable precision.

It can be widely used in shipbuilding, transportation, railway, energy, wind power, heavy duty, metallurgy, mining, engineering machinery, petrochemical machinery, internal combustion engine, water pump, high pressure switch, molds and other general mechanical processing industries, and it is the key and premier choice to process box-type, housing-type and seats parts etc.

产品优势

PRODUCT ADVANTAGES

■ 基础大件 BASIC LARGE PARTS

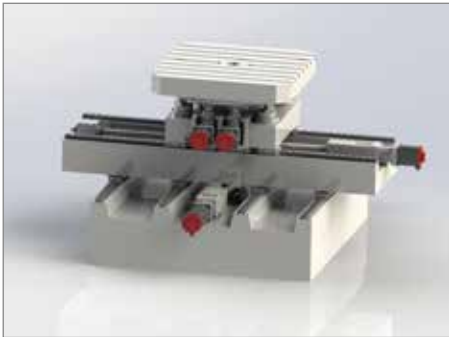
- 1) 床身采用全新矿物质材料，三维同步设计，FEM 有限元分析等一流研发手段，进行合理布局，保证基础大件良好的抗扭曲和抗弯曲能力，具有超强的精度稳定性。

The bed adopts new mineral materials, 3-dimensional synchronous design, FEM finite element analysis and other first-class research and development methods, and carries out reasonable layout to ensure good anti-distortion and anti-bending ability of the basic large components, it has super precision stability.

- 2) 其余基础大件采用优质灰铸铁，树脂砂工艺铸造。采用三维同步设计，FEM 有限元分析等一流研发手段，进行合理的布筋，保证基础大件良好的抗扭曲和抗弯曲能力，具有超强的精度稳定性，加工前均进行二次回火处理，消除应力，保证加工后的精度稳定性。

The other basic large components are casted by high-quality gray cast iron with resin sand process. With help of 3D synchronous design, FEM finite element analysis and other first-class research and development means, reasonable reinforcement are carried out to ensure good anti-distortion and anti-bending ability of the basic large parts, as well as super precision stability. Before processing, all parts will be tempering treated for 2 times to eliminate stress and ensure the precision stability after processing.

■ 床身部 MACHINE BED



- 1) X轴采用两条55规格的高刚性直线滚动导轨副，动静摩擦系数小，响应速度快，高速定位高，低速无爬行。

X axis adopts 2 high rigid linear roller guideways with 55mm width, they have small dynamic and static friction coefficient, fast response speed, high-speed positioning and low speed non-crawling.

- 2) Z轴采用四条55规格的高刚性直线滚动导轨副，动静摩擦系数小，响应速度快，高速定位高，低速无爬行。

Z-axis adopts 4 high rigid linear roller guideways with 55mm width, they have small dynamic and static friction coefficient, fast response speed, high-speed positioning, low speed non-crawling.

- 3) X、Z轴采用交流伺服电机和精密伺服行星减速器通过精密弹性联轴器与滚珠丝杠副联结获得进给运动。

X,Z axes adopt AC servo motor and precise servo planetary reducer,connecting with ball screws through precision elastic coupling to obtain feed movement.

■ 转台部 ROTARY TABLE

工作台采用进口十字交叉滚子轴承（外圈为齿圈），通过双电机双齿轮消隙传动，并标配圆光栅，实现其精确分度定位，具有高精度、任意分度的定位功能。转台夹紧装置采用碟簧夹紧，液压松开，配备压力检测及松开位置检测，双重检测保证了转台平稳无故障的运行。

The worktable adopts imported cross roller bearing (the outer ring is tooth ring), which is anti-backlash driven by double motors and double gears, it is equipped with circular grating as standard configuration to realize its precise indexing positioning, so the whole machine gains the positioning function at high precision and arbitrary indexing. Rotary table clamping device adopts disc spring clamping, hydraulic release, equipped with pressure detection and release position detection, double detection can help ensure the smooth and trouble-free operation of the rotary table.



转台传动结构特点（双电机电气消隙）

Rotary table transmission structure features (double motor electric anti-backlash)

未来数控机床的发展趋势主要是大型和重型，因而机床的行程越来越长，对精度的要求也就越来越高。要消除齿轮齿条传动中产生的背隙，有两种方式，一是机械消隙，二是双电机电气消隙。机械消隙是单个电机输入两个齿轮输出的形式，而双电机消隙属于双电机输入两个齿轮输出的形式。

双电机消隙就是两个电机通过两个齿轮与主齿轮啮合，并按双电机消隙控制曲线进行驱动，永远不会出现两个电机输出转矩同时为零的情况，即任何时候两个电机至少有一个会对主齿轮施加不为零的转矩，在此转矩的作用下，主齿轮的运动间隙就不可能存在。

The development trend of CNC machine tools in the future is mainly large and heavy, so the stroke of the machine tool is getting longer and longer, and the requirements for accuracy are getting higher and higher. There are two ways to eliminate the backlash generated in the pinion and rack drive, one is mechanical anti-backlash, the other is dual motor electrical anti-backlash. Mechanical anti-backlash is the form of single motor input double gear output, and double motor anti-backlash belongs to the form of double motor input double gear output.

Double motor anti-backlash is two-motor match with main gear through two-gear, and drive as per double motor anti-backlash control curve, there will never be the case which the torque of two motor is zero at the same time, that is, at least one of the two motors will apply non-zero torque to the main gear at any time, under the action of this torque, the movement backlash of the main gear is impossible to exist.

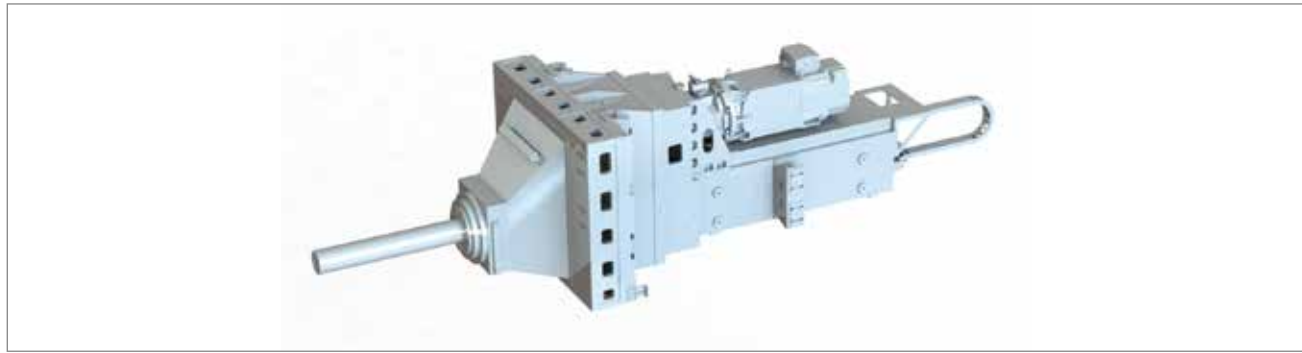
■ 立柱部 COLUMN



Y轴采用前后四条高刚性的直线滚动导轨副，采用带制动功能的交流伺服电机带动精密伺服行星减速器，通过精密联轴器与滚珠丝杠副联结获得进给运动。Y轴采用正挂箱双丝杠对称结构，具有最大热稳定性，配合数控系统实现了伺服轴的主从控制，该结构完全代替了传统的配重结构，降低了系统故障率，提高了机床动态响应性及机床定位精度。

Y-axis adopts 4 high rigid linear guideways in front and back, and adopts AC servo motor with braking function to drive precision servo planetary reducer, and obtains feed movement through precision coupler and ball screw connection. Y-axis adopts symmetrical structure of double ball screws with upright box, which has maximum thermal stability, and realizes the master-slave control of servo shaft with CNC controller system. This structure completely replaced traditional counterweight structure, can help reduce controller failure rate, and improve the dynamic response and positioning accuracy of machines.

■ 主轴箱部 SPINDLE BOX



主轴电机与主轴之间，采用二段齿轮变速箱（恒温油箱冷却），主轴电机与二段齿轮变速箱直联，将动力传递至主轴，充分发挥主轴电机的最大效率，确保在低速档大扭矩输出，特别适合重切削。主轴轴承采用进口主轴专用轴承，配备恒温油箱冷却，使主轴具有良好的精度及使用寿命。镗轴可在主轴孔内沿导向键作轴向移动并与空心主轴一起作旋转运动。镗轴内装有刀具夹紧机构，碟形弹簧通过拉杆将夹爪拉紧，从而拉紧装在镗轴上的刀具，松刀时压力油推动装在尾筒内的油缸中的活塞使其向前运动，推动拉杆带动夹头一起向前运动，使夹头张开、放松刀具。

Between the spindle motor and spindle, a two-stage gear transmission (thermostatic oil tank cooling) is adopted, and the spindle motor is directly connected with the two-stage gear transmission box to transfer power to the spindle, it can help maximize the efficiency of the spindle motor to ensure high torque output at low speed, especially suitable for heavy cutting. The spindle bearing adopts imported spindle special bearings, together with constant temperature oil cooling system, the spindle can get good accuracy and longer service life. The boring shaft can move axially along the guide key in the spindle hole and rotate together with the hollow spindle. The boring shaft is equipped with a tool clamping mechanism, the disc spring pulls the claw tight through a pull rod, thus tightening the tool mounted on the shaft. When the tool is loosened, the oil pressue pushes the piston installed in the oil cylinder in the tail barrel to make it move forward, pushing the pull rod to drive the collet forward, so that the collet can clamp and release the tools.

技术参数

TECHNICAL PARAMETER

配置 Configuration		型号 Model	单位 Unit	HBC1116	HBC1320
加工范围 Processing Range	工作台横向（X轴）行程 Table horizontal (X axis) travel	mm	1600	2000	
	主轴箱垂直（Y轴）行程 Spindle vertical (Y axis) travel	mm	1200	1500	
	立柱纵向（Z轴）行程 Column longitudinal (Z axis) travel	mm	1200	1200	
	镗轴（W轴）行程 Boring shaft (W axis) travel	mm	550	700	
	工作台回转（B轴）行程 Table swing (B axis) travel	°	自动连续360 Continuous 360		
	镗轴中心到工作台面距离范围 Distance range from boring shaft center to table surface	mm	0 ~ 1200	0 ~ 1500	
	镗轴端面距工作台中心距离范围 Distance range from boring shaft end face to table center	mm	-20 ~ 1730	-90 ~ 1810	
工作台 Table	工作台尺寸 Table size	mm	1250×1250	1400×1600	
	T型槽（尺寸×数量×间距） T-slot (Size*Qty*Distance)	mm	22×7×160	22×7×160	
	工作台回转最小角度 Table swing min. degree	°	0.001（任意分度） Arbitrary indexing		
	工作台最大载重 Table max.load	kg	6000		
主轴 Spindle	主轴锥度/拉钉/刀柄规格 Spindle taper/Pull stud/Shank spec.	/	7: 24 (ISO BT50) / BT50-45°		
	镗轴直径 Boring shaft dia.	mm	Φ110	Φ130	
	主轴功率(S1/S6) Spindle power(S1/S6)	kW	22/26		
	镗轴转速 Boring shaft speed	rpm	10 ~ 3000	10 ~ 2500	
	主轴的输出扭矩(S1/S6) Spindle output torque(S1/S6)	Nm	1155/1369		
进给 Feed	进给速度X/Y/Z/W轴 Feed speed X/Y/Z/W axis	mm/min	2 ~ 6000		
	工作台最大回转速度 Table max. swing speed	rpm	5		
	快速移动速度 Fast traverse	m/min	X: 15 Y:15 Z:10 W:5		
整机 Whole machine	电源容量 Power supply capacity	kVA	60	80	
	机床重量 Machine tool weight	kg	25000	30000	
	机床占地面积(长×宽×高) Machine tool floor area (L×W×H)	m	6×7×4.8	7×8×5.5	

*各轴行程及转台参数可根据客户需求订制
*Each shaft travel and rotary table parameters can be customized according to customers' needs.

标准配置

STANDARD CONFIGURATION

名称 Name	产地 Place of origin	品牌 Brand
数控系统 CNC controller	德国 Germany	SIEMENS 828D
主轴轴承 Spindle bearing	德国 Germany	FAG/NSK
转台轴承 Rotary table bearing	捷克 Czech	PSL
转台圆光栅 Rotary table circular grating	西班牙 Spain	FAGOR
线性滑轨 Linear guideway	日本 Japan	THK
滚珠丝杠 Ball screw	日本 Japan	THK
丝杠支撑轴承 Screw support bearing	日本 Japan	NSK
锁紧螺母 Lock nut	台资 Taiwan Region	盈锡 YINSH
行星减速机 Planetary reducer	德国 Germany	斯特博 Stober
双速减速箱 Double speed reducer	台湾 Taiwan Region	GTP
气源过滤净化装置 Air source filtration device	台资 Taiwan Region	亚德客 AirTac
电缆拖链 cable drag chain	德国 Germany	Igus
液压站 Hydraulic station	台湾 Taiwan Region	胜祥 SUNSHINE
主要电气元件 Main elecetric components	德国 Germany	西门子/施耐德 Siemens/Schneider

选购配置

OPTIONS

名称 Name	产地 Place of origin	品牌 Brand
刀库 ATC	台湾 Taiwan Region	吉辅 Gifu（BT50-32T）
中心冲水 CTS	国产 China Mainland	利景享（20/30/50/70bar）
三轴光栅 Grating ruler for 3-axes	西班牙/德国 Spain/Germany	FAGOR/HEIDENHAIN
对刀仪 Tool setter	英国 UK	雷尼绍 Renishaw
工件测量 Workpiece measurement	英国 UK	雷尼绍 Renishaw



HBP系列 刨台式铣镗加工中心

HBP Series Planer Type Milling & Boring Machining Center

本系列机床为刨台式铣镗加工中心，工作台在前床身上左右移动（X轴），主轴箱在立柱上上下移动（Y轴），立柱在后床身上前后移动（Z轴），镗轴前后移动（W轴），工作台回转（B轴）。前后床身采用新型矿物材料，精度更稳定。

该机床广泛应用于船舶、交通、铁路、能源、风电、重型、冶金、矿山、工程机械、石化机械、内燃机、水泵、高压开关、模具等各类通用机械加工行业，是加工箱体类、壳体类、机座类等零件的关键首选设备。

This series of machine is planer type milling & boring machining center. The table moves left and right on the front bed (X axis), spindle box moves up and down on the column (Y axis), column moves front and back on the back bed (Z axis), the boring shaft moves back and forth (W axis), and the table rotates (B axis). The front and rear beds are made of new mineral materials with higher precision stability.

The machine can be widely used in shipbuilding, transportation, railway, energy, wind power, heavy duty, metallurgy, mining, engineering machinery, petrochemical machinery, internal combustion engine, water pump, high pressure switch, molds and other general mechanical processing industries. It can be the first choice to process box-type, housing type, base parts and other types of parts.

产品优势

PRODUCT ADVANTAGES

■ 基础大件 BASIC LARGE PARTS

- 1) 床身采用全新矿物材料，三维同步设计，FEM 有限元分析等一流研发手段，进行合理布局，保证基础大件良好的抗扭曲和抗弯曲能力，具有超强的精度稳定性。

The bed adopts new mineral materials, 3-dimensional synchronous design, FEM finite element analysis and other first-class research and development methods, and carries out reasonable layout to ensure good anti-distortion and anti-bending ability of the basic large components, it has super precision stability.

- 2) 其余基础大件采用优质灰铸铁，树脂砂工艺铸造。采用三维同步设计，FEM 有限元分析等一流研发手段，进行合理的布筋，保证基础大件良好的抗扭曲和抗弯曲能力，具有超强的精度稳定性，加工前均进行二次回火处理，消除应力，保证加工后的精度稳定性。

The other basic large components are casted by high-quality gray cast iron with resin sand process. With help of 3D synchronous design, FEM finite element analysis and other first-class research and development means, reasonable reinforcement are carried out to ensure good anti-distortion and anti-bending ability of the basic large parts, as well as super precision stability. Before processing, all parts will be tempering treated for 2 times to eliminate stress and ensure the precision stability after processing.

■ 床身部 MACHINE BED



- 1) 床身采用“T型”结构，床身截面加大，改善了受力结构，增强了床身刚度

The bed adopts T-shape structure, bigger bed section can help improve the stress structure and increase the machine bed rigidity.

- 2) X、Z轴采用高刚性的直线滚动导轨副，动静摩擦系数小，响应速度快高速定位高，低速无爬行。

X,Z axes adopt high rigid linear roller guideway, they have small dynamic and static friction coefficient, fast response speed, high-speed positioning and low speed non-crawling.

- 3) X、Z轴采用交流伺服电机和精密伺服行星减速器通过精密弹性联轴器与滚珠丝杠副联结获得进给运动。

X,Z axes adopt AC servo motor and precise servo planetary reducer, connecting with ball screws through precision elastic coupling to obtain feed movement.

■ 转台部 ROTARY TABLE

工作台采用进口十字交叉滚子轴承（外圈为齿圈），通过双电机双齿轮消除传动，并标配圆光栅，实现其精确分度定位，具有高精度、任意分度的定位功能。转台夹紧装置采用碟簧夹紧，液压松开，配备压力检测及松开位置检测，双重检测保证了转台平稳无故障的运行。

The worktable adopts imported cross roller bearing (the outer ring is tooth ring), which is anti-backlash driven by double motors and double gears, it is equipped with circular grating as standard configuration to realize its precise indexing positioning, so the whole machine gains the positioning function at high precision and arbitrary indexing. Rotary table clamping device adopts disc spring clamping, hydraulic release, equipped with pressure detection and release position detection, double detection can help ensure the smooth and trouble-free operation of the rotary table.



转台传动结构特点（双电机电气消除）

Rotary table transmission structure features (double motor electric anti-backlash)

未来数控机床的发展趋势主要是大型和重型，因而机床的行程越来越长，对精度的要求也就越来越高。要消除齿轮齿条传动中产生的背隙，有两种方式，一是机械消除，二是双电机电气消除。机械消除是单个电机输入两个齿轮输出的形式，而双电机消除属于双电机输入两个齿轮输出的形式。

双电机消除就是两个电机通过两个齿轮与主齿轮啮合，并按双电机消除控制曲线进行驱动，永远不会出现两个电机输出转矩同时为零的情况，即任何时候两个电机至少有一个会对主齿轮施加不为零的转矩，在此转矩的作用下，主齿轮的运动间隙就不可能存在。



The development trend of CNC machine tools in the future is mainly large and heavy, so the stroke of the machine tool is getting longer and longer, and the requirements for accuracy are getting higher and higher. There are two ways to eliminate the backlash generated in the pinion and rack drive, one is mechanical anti-backlash, the other is dual motor electrical anti-backlash. Mechanical anti-backlash is the form of single motor input double gear output, and double motor anti-backlash belongs to the form of double motor input double gear output.

Double motor anti-backlash is two-motor match with main gear through two-gear, and drive as per double motor anti-backlash control curve, there will never be the case which the torque of two motor is zero at the same time, that is, at least one of the two motors will apply non-zero torque to the main gear at any time, under the action of this torque, the movement backlash of the main gear is impossible to exist.

技术参数

TECHNICAL PARAMETER

配置 Configuration		型号 Model	单位 Unit	HBP1120	HBP1330	HBP1645
加工范围 Processing Range	工作台横向（X轴）行程 Table horizontal (X axis) travel		mm	2000	3000	4500
	主轴箱垂直（Y轴）行程 Spindle box vertical (Y axis) travel		mm	1600	2000	2500
	立柱纵向（Z轴）行程 Column longitudinal (Z axis) travel		mm	1200	1600	2000
	镗轴（W轴）行程 Boring shaft (W axis) travel		mm	550	700	1000
	工作台回转（B轴）行程 Table swing (B axis) travel		°	自动连续360 Continuous 360		
	镗轴中心到工作台面距离范围 Distance range from shaft center to table surface		mm	0 ~ 1600	0 ~ 2000	0 ~ 2500
	镗轴端面距工作台中心距离范围 Distance range from shaft end face to table center		mm	-15 ~ 1735	-15 ~ 2285	-15 ~ 2985
工作台 Table	工作台尺寸 Table size		mm	1400×1600	1800×2200	2500×3000
	T型槽（尺寸×数量×间距） T-slot(Size*Qty*Distance)		mm	22×7×180	28×7×220	36×9×250
	工作台回转最小角度 Table swing min. degree		°	0.001（任意分度） Arbitrary indexing		
	工作台最大载重 Table max. load		kg	10000	20000	35000
主轴 Spindle	主轴锥度/拉钉/刀柄规格 Spindle taper/pull stud/shank spec.		-	7: 24 (ISO BT50) / BT50-45°		
	镗轴直径 Boring shaft dia.		mm	Φ110	Φ130	Φ160
	主轴功率(S1/S6) Spindle power(S1/S6)		kW	22/26	37/45	58/74
	镗轴转速 镗轴转速 Boring shaft speed		rpm	10 ~ 3000	10 ~ 2500	10 ~ 2000
	主轴的输出扭矩(S1/S6) Spindle output torque(S1/S6)		Nm	1155/1369	2500/3020	3976/5065
进给 Feed	进给速度X/Y/Z/W轴 Feedrate X/Y/Z/W axis		mm/min	2 ~ 8000		
	工作台最大回转速度 Table max. swing speed		rpm	5	5	2
	快速移动速度 Fast traverse		m/min	X:16 Y:16 Z:10 W:10		
刀库 ATC	刀库容量 Capacity		把 T	32/40/60		
	刀具最大重量/平均重量 Tool max. weight/average weight		kg	25/15		
	刀具最大尺寸（满刀直径/空临刀直径×长度） Tool max.size(Full tools dia./empty adjacent tool dia.*length)		mm	Φ125/Φ250×400		
整机 Whole Machine	电源容量 Powr capacity		kVA	60	90	150
	机床重量 Weight		kg	35000	50000	90000
	机床占地面积(长×宽×高) Floor area (L×W×H)		m	8×8×5.5	9.5×9.3×6	12×12×7

*各轴行程及转台参数可根据客户需求订制
*Each shaft travel and rotary table parameters can be customized according to customers' needs.

标准配置

STANDARD CONFIGURATION

名称 Name	产地 Place of origin	品牌 Brand
数控系统 CNC controller	德国 Germany	SIEMENS 828D
主轴轴承 Spindle bearing	德国 Germany	FAG
转台轴承 Rotary table bearing	捷克 Czech	PSL
转台圆光栅 Rotary table circular grating	西班牙 Spain	FAGOR
线性滑轨 Linear guideway	日本 Japan	THK
滚珠丝杠 Ball screw	日本 Japan	THK
丝杠支撑轴承 Screw support bearing	日本 Japan	NSK
锁紧螺母 Lock nut	台资 Taiwan Region	盈锡 YINSH
行星减速机 Planetary reducer	德国 Germany	斯特博 Stober
双速减速箱 Double speed reducer	台湾 Taiwan Region	GTP
气源过滤净化装置 Air source filtration device	台资 Taiwan Region	亚德客 AirTac
电缆拖链 cable drag chain	德国 Germany	Igus
液压站 Hydraulic station	台湾 Taiwan Region	胜祥 SUNSHINE
主要电气元件 Main elecetric components	德国 Germany	西门子/施耐德 Siemens/Schneider

选购配置

OPTIONS

名称 Name	产地 Place of origin	品牌 Brand
刀库 ATC	台湾 Taiwan Region	吉辅 Gifu（BT50-32T/40T/60T）
中心出水 CTS	国产 China mainland	利景享（20/30/50/70bar）
三轴光栅 Grating ruler for 3-axes	西班牙/德国 Spain/Germany	FAGOR/HEIDENHAIN
对刀仪 Tool setter	英国 UK	雷尼绍 Renishaw
工件测量 Workpiece measurement	英国 UK	雷尼绍 Renishaw



HBF系列 落地式铣镗加工中心

HBF Series Floor Type Milling & Boring Machining Center

本系列机床为动立柱、正挂主轴箱（主轴直径 $\Phi 200$ 以上为侧挂）、滑枕移动式布局，并配有数控转台（或落地式平台）。机床X轴采用两台伺服电机、精密减速机及高精度齿轮、齿条进行同步驱动，其它各轴均采用伺服电机、精密减速机及高精度滚珠丝杠副进行驱动。

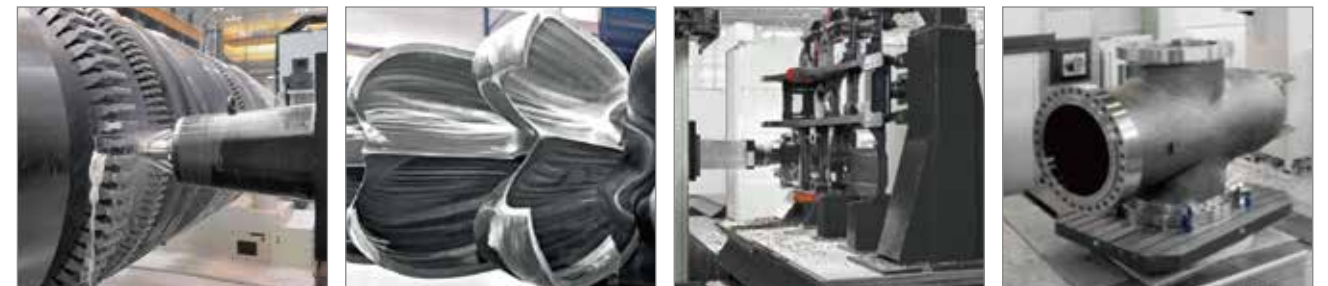
This series of machine is column-moving, spindle box upright hanging (spindle dia. $\Phi 200$ or more will be side hanging), ram movable layout, it is equipped with CNC rotary table (or floor type platform). X-axis is driven synchronously by two servo motors, precise reducer and high-precision gears and racks, while the other axes are driven by servo motors, precise reducer and high-precision ball screws.

产品优势

PRODUCT ADVANTAGE



- 1) 主轴箱采用二级齿轮变速，在低速档，输出扭矩大，适合重切削；在高速档，输出转速高，适合高速切削。
 - 2) 方滑枕采用优质球墨铸铁精铸而成，Z轴导轨采用最新滚滑复合技术，并配备自动伸出补偿，保证了Z轴刚性及动态响应。
 - 3) 立柱采用封闭框型结构，Y轴采用双丝杠四导轨对称结构，该结构具有同规格最强的刚性及热稳定性，使整机高精度得到了保证。
- 1) Spindle box adopts two-stage gear change, in low speed, output torque is big, suitable for heavy cutting; in high speed, output speed is fast, suitable for high-speed cutting.
- 2) The square ram is precisely casted with high-quality ductile iron, and the Z-axis guideway adopts the latest rolling and sliding composite technology, together with automatic extension compensation function, Z-axis rigidity and dynamic response are guaranteed.
- 3) The column adopts closed frame structure, while Y-axis adopts double-screw 4-guideway symmetrical structure, which can get the strongest rigidity and thermal stability among similar specifications, so that the high precision of the whole machine can be guaranteed.



- 4) 转台采用伺服电机驱动十字交叉滚子轴承（轴承外圈为齿圈），双电机消隙控制，实现转台高承载力，并配备角度光栅尺，达到转台任意分度8"高定位精度的要求。
 - 5) 机床采用自动升降操作站，操作方便灵活，安全性好。
 - 6) 基础大件除床身采用新型矿物铸件材料一体铸造外，其余均采用优质灰铸铁，二者结合使整机具备优异的吸振性和热稳定性，具有更加完美的切削表现。
- 4) The rotary table adopts servo motor to drive the cross roller bearing (the outer ring of the bearing is the tooth ring), dual motor anti-backlash control to achieve bigger load capacity of the rotary table, it is equipped with angle grating ruler, to achieve the rotary table arbitrary division 8" high positioning accuracy requirements.
- 5) The machine adopts automatic lifting operation platform, convenient and flexible operation, good safety.
- 6) Besides the application of new mineral casting materials in one piece casting, the rest basic parts are made of high-quality grey cast iron, the combination of the 2 kinds of castings makes the whole machine with excellent vibration absorption and thermal stability, can help achieve perfect cutting performance.

技术参数（选配回转平台）

TECHNICAL PARAMETERS (OPTIONAL ROTARY TABLE)



型号 Model	Configuration 配置	单位 Unit	DRT200	DRT300	DRT400	DRT600	DRT800	DRT1000
工作台尺寸 Table size	mm		1800×2200	2000×2500	2500×3000	3000×3500	3500×4000	3500×5000
承重 load capacity	kg		20000	30000	40000	60000	80000	100000
定位精度 positioning	"		8	8	8	8	8	8
重复定位精度 repeatability	"		4	4	4	4	4	4

技术参数（主机）

TECHNICAL PARAMETERS

配置 Configuration		型号 Model	单位 Unit	HBF20	HBF16	HBF13
加工范围 Processing Range	立柱横向（X轴）行程 Column horizontal (X axis) travel	mm	5000+(N×1000)	4000+(N×1000)	4000+(N×1000)	
	主轴箱垂直（Y轴）行程 Spindle box vertical (Y axis) travel	mm	3000+(N×1000)	2500+(N×1000)	2000+(N×1000)	
	方滑枕纵向（Z轴）行程 Square ram longitudinal (Z axis) travel	mm	1500	1200	1000	
	镗轴（W轴）行程 Boring shaft (W axis) travel	mm	1200	1000	700	
主轴 Spindle	方滑枕截面 Square ram section	mm	600×650	550×600	500×550	
	镗轴直径 Boring shaft dia.	mm	Φ200	Φ160	Φ130	
	主轴功率(S1/S6) Spindle power(S1/S6)	kW	74/93	60/90	37/54	
	镗轴转速 Boring shaft speed	rpm	10 ~ 1500	10 ~ 2000	10 ~ 2500	
	主轴的输出扭矩(S1/S6) Spindle output torque	Nm	5196/9252	3500/5254	2500/3721	
进给 Feed	进给速度 Feedrate	m/min	X:6 Y:6 Z:4 W:4			
	快速移动速度 Fast traverse	m/min	X:10 Y:10 Z:8 W:8			
刀库 ATC	刀库容量 Capacity	把 T	32/40/60/90/120/150			
	刀具最大重量/平均重量 Tool max. weight/average weight	kg	25/15			
	刀具最大尺寸 (满刀直径/空临刀直径×长度) Tool max. Size(Full tools dia./Empty adjacent dia.*length)	mm	Φ125/Φ250×400			
整机 Whole Machine	电源容量 Power capacity	kVA	220	180	150	
	机床重量 Machine tool weight (该重量不包含落地平台及回转平台) (this weight does not include the floor platform and rotary platform)	kg	200000	140000	100000	

*各轴行程及转台参数可根据客户需求订制
*Each axis travel and rotary table parameter can be customized according to customer demands.

24/7 全天候不间断服务

24/7 NON-STOP SERVICE

- 售后服务工程师平均具有 10 年机床维修经验,客户故障 2 小时响应回复;
After-sales engineers averagely have over 10 years machine tool industry service experience, can respond to customer failure within 2 hours ;
- 全国设有 30 个销售及售后服务网点,售后网点覆盖范围 24 小时内到场服务;
30 sales& serve centers inside of China, can give on-site service within 24 hours in near covering range;
- 提供完善的客户培训计划及操作指南;
Comprehensive training system and operation guidance ;
- 标准化的售后交机及售后服务流程;
Standardized machine delivery and after-sales service process;
- 购买机床,终身服务。
1-time purchase, life-time service.



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.[illegible]