专注你的成功 FOCUSED ON YOUR SUCCESS

ZHIZHEN

至臻五轴机械(昆山)有限公司

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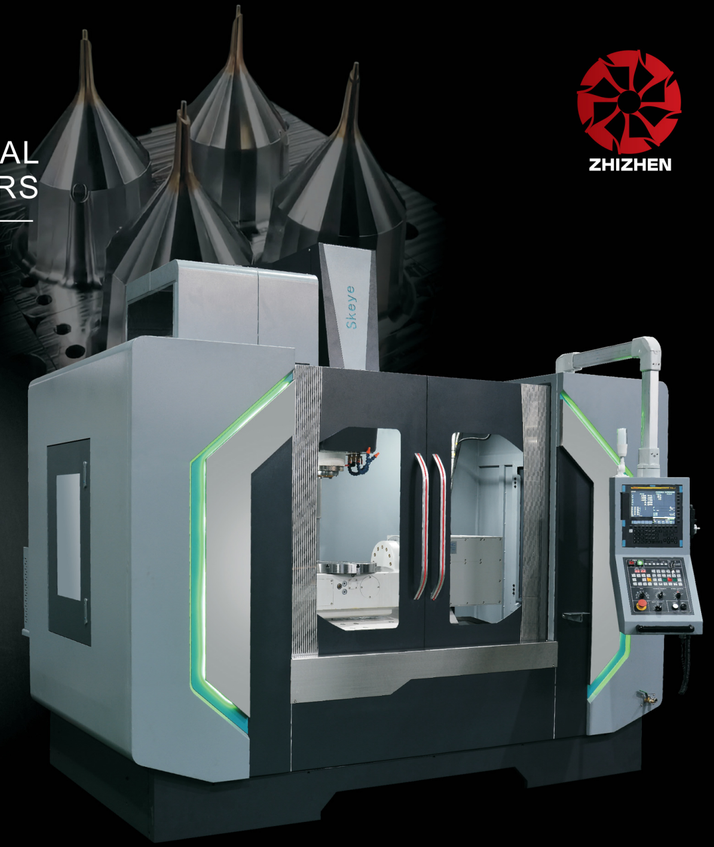
5 AXIS VERTICAL MACHINING CENTERS

五轴加工中心机

ZHIZHEN



CE APPROVED ISO 9001 ANAB IAF

源於台湾设计技術 制造工艺

Originated from Taiwan design technology manufacturing process

至臻是致力於生产五轴加工中心的专业公司，拥有完整、科学的质量管理体系。公司始终恪守诚信经营，共创价值的经营宗旨，将与合作方以及客户一道，协力发展，共同进步。

公司始终秉承“以专业为基础，以创新为动力，以服务为保障”的理念，专注于各系列机种的研究与开发，持续不断地研发出适应市场需求的新机种，并赢得了广大用户的青睐与好评。

公司的产品坚持做到品质稳定，且经过完善的研发、制造、品管、检测之生产流程，持续进行产品研究创新、严格要求进料检验、组装品质并Renishaw镭射干涉仪及循圆测量仪检验，以确保每一台机台之精度。

ZHIZHEN is a professional company dedicated to the production of five axis machining centers,. It has a complete and scientific quality management system. The company always abides by the business principle of integrity management and creating value together, and will work together with partners and customers to develop together and customers to develop together and make progress together.

The company has always been adhering to the "professional–based, innovation–driven, service–oriented" philosophy, focusing on the research and development of various series of models, and constantly develop new models to meet market demand, and won the majority User's favor and praise.

The company's products adhere to the quality stability, and after the perfect production process of R & D, manufacturing, quality control, testing, continuous product research and innovation, strict requirements for incoming inspection, assembly quality and Renishaw laser interferometer and round measuring instrument inspection To ensure the accuracy of each machine.

公司拥有强大的售后服务力量和充足的维修零配件库存，并与国内外知名厂商密切合作，为您的企业提供全套的设备采购方案。

公司在上海、江苏、广东、浙江、安徽等地区均设有分支机构，力求在最短的时间内，为你提供最快捷、最高效、最优质的服务。

研发是公司发展的源动力，我们以全方位的思考做更深度的发展。研发人员掌握产品最新的发展趋势，并根据客户的需求做快速反应。以模组化的设计理念创新产品，达到兼具产品功能与生产效率的要求。用心创新是我们的宗旨，企业迈向世界顶尖是我们努力的目标。

The company has strong after–sales service strength and sufficient spare parts inventory, and works closely with well–known domestic and foreign manufacturers to provide a complete equipment procurement plan for your business.

The company has branches in Shanghai, Jiangsu, Guangdong, Zhejiang, Anhui and other regions, and strives to provide you with the fastest, most efficient and best service in the shortest time.

R&D is the source of the company's development, and we do more in–depth development with all–round thinking. R&D personnel grasp the latest development trends of products and respond quickly according to customer needs. Innovate products with a modular design concept to meet the requirements of both product function and production efficiency. Innovative intention is our aim, and the company is at the top of the world is the goal of our efforts.

高速·高精

实 现 出 色 的 五 轴 加 工

Precision And Height Excellent Five Axis Machining

高效的生产手段，配备高性能的控制系统，具有高速的轮廓控制能力，在最短的加工时间，获得最佳的表面精度。
高动态性能的五轴驱动加工，能提供加工生产复杂的工件，满足五轴加工要求。

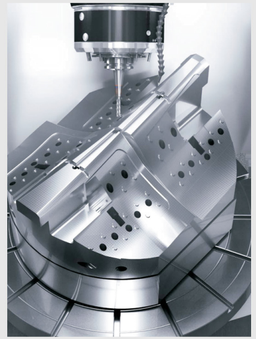
Efficient production means, equipped with a high-performance control system, with high-speed contour control ability, to obtain the best surface accuracy in the shortest processing time.
Five axis drive machining with high dynamic performance can provide complex workpiece processing and meet the requirements of five axis machining.

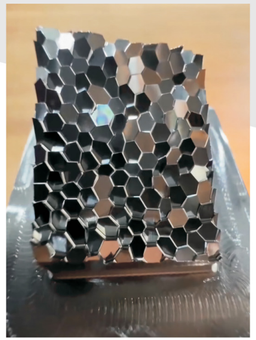
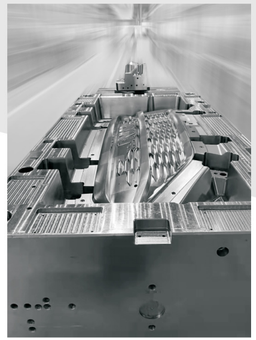
您的应用-我们的经验
Your application - our experience

根据客户需求，能够提供量身定制和面向客户的解决方案。广泛应用于航天航空、能源核电、船舶、汽车工业、模具、复杂零件的精密加工。

According to customer needs, it can provide customized and customer-oriented solutions. It is widely used in precision machining of aerospace, energy and nuclear power, shipbuilding, automotive industry, molds and complex parts.





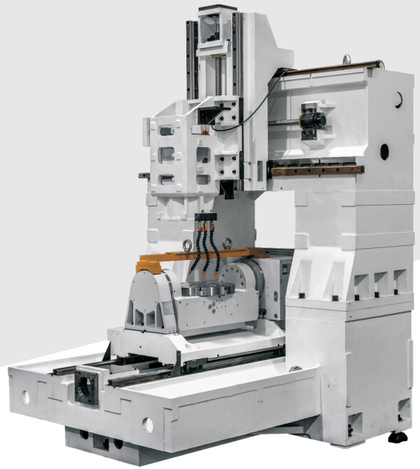
高刚性的结构设计
High rigidity structural design

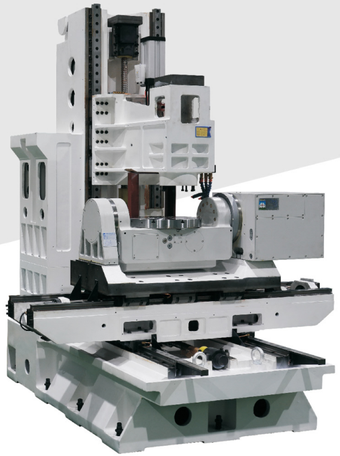
采用高刚性底座，以支撑单摇摆的A(B)、C轴旋转，X\Y轴使用龙门架的设计，保证了加工精度和表面质量所需要的最佳稳定度，提供最高的生产效率。

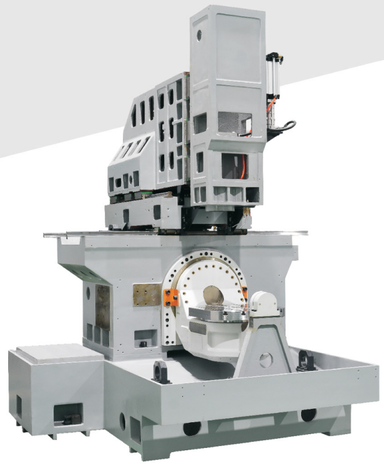
所有铸件均采用重型加强肋条强化加固，以降低变形，提高减震能力。每一批铸件在加工前后都会通过自然时效等方式去除铸件内应力。

The high rigid base is used to support the rotation of single swing A(B) and C axes, and the design of gantry is used for x\y axis, which ensures the best stability required for machining accuracy and surface quality, and provides the highest production efficiency.

All castings are reinforced with heavy reinforced ribs to reduce deformation and improve shock absorption capacity. The internal stress of each batch of castings will be removed by natural aging before and after processing.


U420

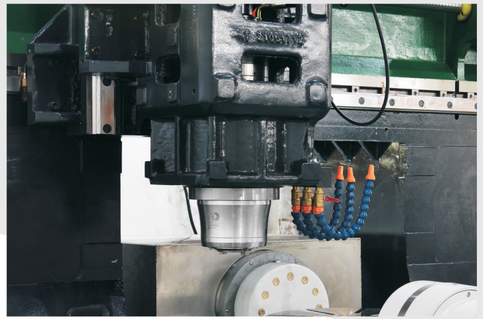

M420


U650

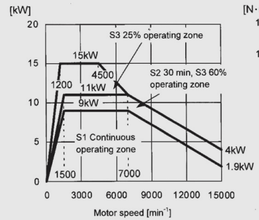
主轴单元
Spindle unit

先进的主轴设计，可大幅提升切削效率与表面精度，特别适用於大量生产与精密加工需求。

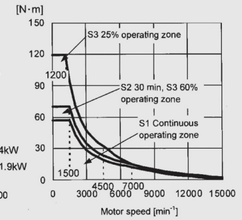
The advanced spindle design can greatly improve the cutting efficiency and surface accuracy, especially for mass production and precision machining.



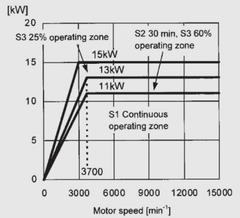
低速线圈输出特性
Low-speed winding output (Y connection)



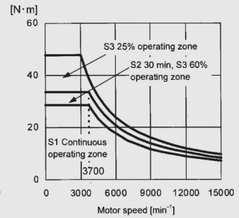
Low-speed winding torque (Y connection)



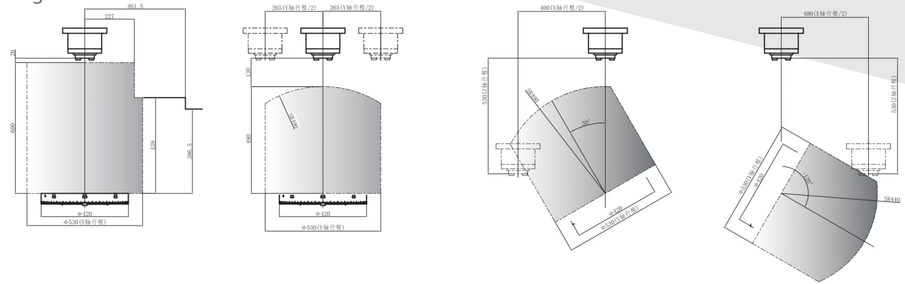
高速线圈输出特性
High-speed winding output (Δ connection)



High-speed winding torque (Δ connection)



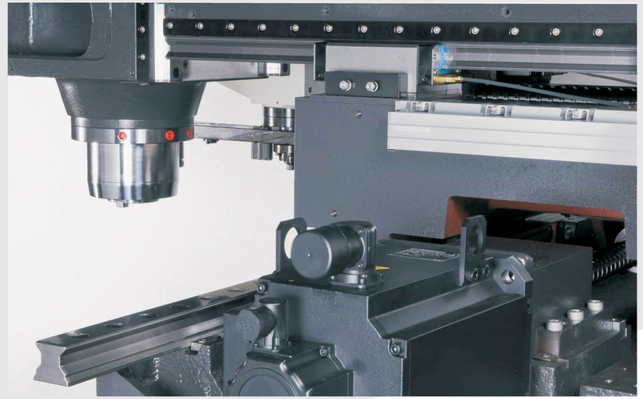
行程干涉图
Stroke interferogram



高精度的传动系统
High precision transmission system

在极高水准的加工生产中，线性技术可以提高加工效率和精度，这种机床以稳定紧凑的结构设立了新的标准，由于使用高科技部件，切削速度高，并具有最佳重复精度和最佳动态性能。

In the extremely high level of processing and production, linear technology can improve the processing efficiency and accuracy. This machine tool has set a new standard with a stable and compact structure. Due to the use of high-tech components, it has high cutting speed, and has the best repetition accuracy and the best dynamic performance.



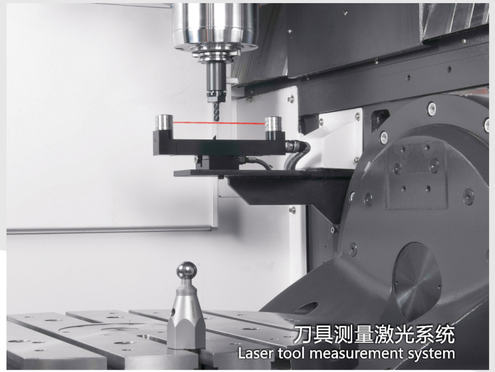
X\Y\Z轴可加装光学尺系统，可检知机台因快速位移，产后热变位，并将热变位的值回馈给控制器后作补偿，适合高精密的零件的加工使用。

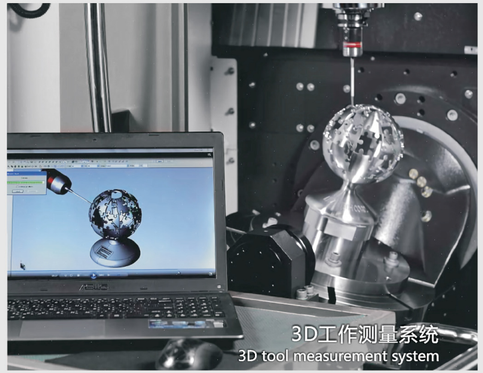
The x\y\z axis can be equipped with an optical ruler system, which can detect the postpartum thermal displacement of the machine due to rapid displacement, and feed back the value of thermal displacement to the controller for compensation. It is suitable for the processing of high-precision parts.

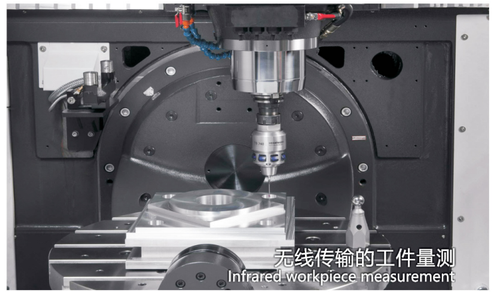
品质控制
Quality control

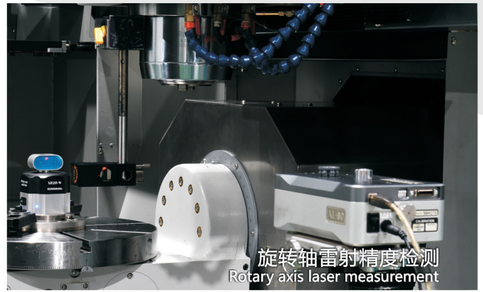
每部机器皆经过全面检查，使用雷射校准系统和高科技软件，以确保每部机器都能以高精度和最佳动态性能运行。

Each machine has been thoroughly checked and laser calibration system and high-tech software are used to ensure that each machine can operate with high precision and optimal dynamic performance.


刀具测量激光系统
Laser tool measurement system


3D工作测量系统
3D tool measurement system


无线传输的工件量测
Infrared workpiece measurement


旋转轴雷射精度检测
Rotary axis laser measurement

技术参数 Technical parameter

项目Item	单位Unit	U420	M420	U650
行程 Travels				
X轴行程 X-axis	mm	800	1100	800
Y轴行程 Y-axis	mm	500	600	520
Z轴行程 Z-axis	mm	530	550	500
B轴转动范围 B rotation range of tilt axis	度	+30~-120	+30~-120(A轴)	±120
C轴转动范围 Rotation range of axis C	度	360	360	360
B/C轴定位精度(VDI3441) B/C axis positioning (VDI3441)	"	45 / 15	45(A轴) / 15	10
B/C轴重复定位精度(VDI3441) B/c axis repeatability (VDI3441)	"	8 / 6	8(A轴) / 6	4
主轴中心至导轨距离 Distance from spindle center to column guide surface	mm	205	664	187
主轴鼻端至工作台面距离 Distance from spindle end to worktable	mm	80-610	120-670	150-650
工作台 Worktable				
工作台面积 Worktable area	mm	Φ420	Φ420	Φ650
基准孔径 Reference aperture	mm	Φ25H7	Φ25H7	Φ50H8
T型槽宽 T-slots width	mm	12H7	12H7	14H8
最大加工工件体积 Maximum machining workpiece volume	mm	Φ420*（100+R210）L	Φ420*（100+R210）L	Φ650*（100+R325）L
工作台最大荷重 (45-90°/水平) Max. weight on table (45-90 ° / horizontal)	Kg	150/200	150/200	300
主轴 Spindle				
主轴转速 Spindle speed	rpm			
主轴鼻端锥度 Taper of spindle nose		BT40/A63	BT40	BT40
自动换刀机构ATC Auto Tool Magazine				
刀具规格 Tool taper		BT40/A63	BT40	BT40
刀库形式 Magazine type		机械刀臂式 Mechanical cutter arm type	机械刀臂式 Mechanical cutter arm type	机械刀臂式 Mechanical cutter arm type
刀具数量 Tools Capacity	Pcs	24T	24T	24T
最大刀具直径（无邻刀）Maximum tool diameter (no adjacent tool)	mm	75/150	75/150	75/150
最大刀具长度 Maximum tool length	mm	300	300	300
最大刀具重量 Maximum tool weight	kg	7	7	7
精度 VDI3441 (JISB6338)				
定位精度 Positioning	mm	P0.008 (±0.003/300)	P0.01 (±0.004/300)	P0.008 (±0.003/300)
重复定位精度 Repeatability	mm	Ps0.006(±0.002)	Ps0.008(±0.003)	Ps0.006(±0.002)
基本参数 Basic parameters				
主轴马达 Spindle motor	kw	7.5/11	7.5/11	7.5/11
X/Y/Z轴马达 X/Y/Z axis motor	kw	4.0/4.0/4.0	4.0/4.0/4.0	4.0/4.0/7.0
B/C轴马达 B/C axis motor	kw	3.0/1.6	3.0/1.6(A/C轴)	12.6/6.3
X/Y/Z轴快速移位 X/Y/Z axis rapid speed	m/min	36/36/30	30/30/30	24/24/24
B/C轴最大转速 B/C axis rapid speed	rpm	16.7/22.2	16.7/22.2(A/C轴)	60/100
切削进给速度 Feed rate	mm/min	1-15000	1-12000	1-12000
控制器 Controller	FANUC	0i-MF	0i-MF	0i-MF
电源需求 Power requersted	KVA	25	25	45
空压源 Air consumption	Kg/cm²	6	6	6
机器重量 Machine weight	Kg	约9000	约8000	约10000
水箱容量 Water tank capacity	L	250L	300L	350L
外观尺寸（长/宽/高）约 Dimension (L / W / h)	mm	3350*2900*2850	3100*2280*2800	3700*3510*3260

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标准附件与功能 Standard proximity and function

1.FANUC 0i-MF Plus控制系统
FANUC 0i-MF Plus control system
（5 轴4+1含TCP）(5 Axis 4+1 with TCP)
2.BT40-150-15000RPM直联主轴
BT40-150 inclined spindle on 15000rpm
3.主轴头油冷却系统 Oil coolant system
4.主轴切削吹气 Spindle blushing
5.切削冷却液系统 Cutting coolant system
6.铁屑盘及水箱 Tank and waterbox
7.自动润滑油系统 Automatic lubrication system
8.三轴滑轨伸缩护罩 Telescopic cover of triaxial rail
9.电气箱空调 Electric box air conditioner
10.移动式手轮 Handwheel
11.工作灯 Work light
12.警示灯 Warm light
13.变压器 Transformer
14.水枪 Water gun
15.气枪 Air gun
16.刚性攻牙 Rigid tapping
17.手动松刀装置 Manual loosening device

选购附件与功能 Optional proximity and function

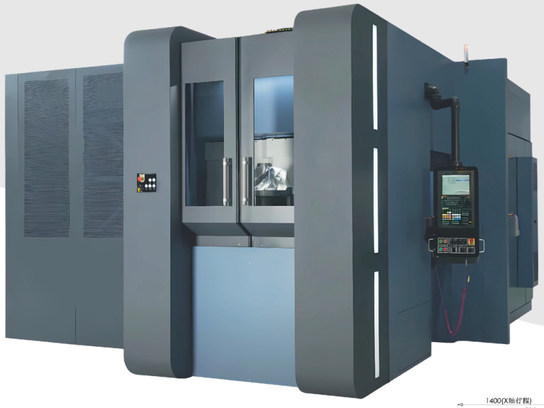
1.光学尺 Optical ruler
2.刀长量测TM26D Tool length measurement tm26D
3.工件量测OMP60 Workpiece measurement OMP60
4.校正用球规 Ball gauge for calibration
5.工作台中心校正软体
Workbench center correction software
6.HSK-A63主轴15000rpm/20000rpm
HSK-A63 spindle 15000rpm/20000rpm
7.40把刀库 40 pcs magazine
8.吹气冷却 Blowing cooling
9.冷却液温度控制器 Coolant temperature controller
10.油雾收集器接口(直径200mm)
Oil mist collector interface (diameter 200mm)
11.空气干燥器 Air dryer
12.粘结式地脚螺栓 Bonded anchor bolt
13.空气干燥器的金属过滤外壳
Metal filter housing of air dryer

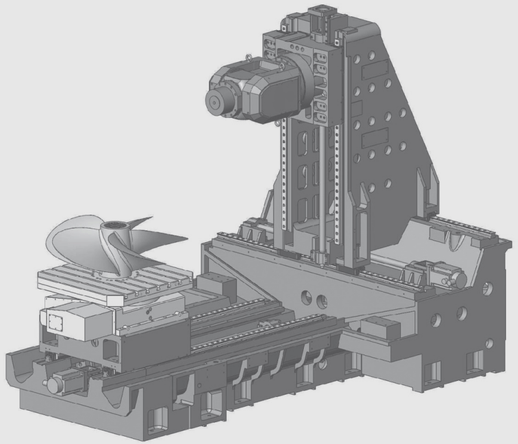
A1000 五轴卧式加工中心

A1000 5 Axis Horizontal Vertical Machining Center

数控转台采用高精度交叉磙子轴承，满足数控转台高速旋转要求,大大提高了转台径向承载能力，增大了工作台动静态刚性和运转稳定性。

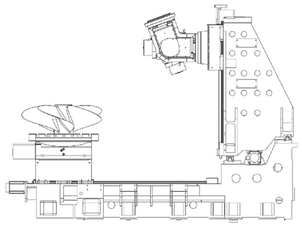
The CNC turntable adopts high-precision cross roller bearing, which meets the requirements of high-speed rotation of the CNC turntable, greatly improves the radial bearing capacity of the turntable, and increases the dynamic and static rigidity and running stability of the turntable.

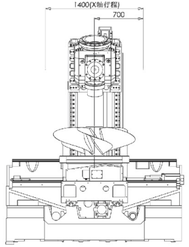


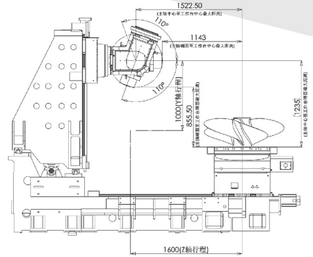


机床基础大件均进行 FEM 有限元分析设计，米汉那铸铁制成，树脂砂工艺铸造，进行合理的布筋，保证铸件良好的抗扭曲能力。机床整体布局采用正 T 形结构，三点支撑。

The large parts of the machine tool foundation are all designed by FEM finite element analysis. They are made of Mihanna cast iron and cast by resin sand process. Reasonable reinforcement arrangement is carried out to ensure the good anti-twist ability of the casting. The overall layout of the machine tool adopts a positive T-shaped structure with three-point support.







技术参数 Technical parameter

项目Item	单位Unit	A1000
行程 Travels		
X 轴行程 X travels	mm	1400
Y 轴行程 Y travels	mm	1000
Z 轴行程 Z travels	mm	1600
工作台 Worktable		
工作台面尺寸 Worktable size	mm	1000*1000
工作台最小分度单位 Minimum indexing unit of worktable	°	0.001°
工作台 T 型槽(数目-尺寸*间距) Worktable T-slots（No.-W*distance）	mm	7-22*125
工作台承重 Max. weight on worktable	kg	2000
最大工件回转直径 Maximum workpiece rotation diameter	mm	Φ1800
工作台旋转角度 Worktable rotation angle	°	360
工作台功率 Worktable power	kw	7.0
工作台最高转速 Maximum speed of worktable	rpm	13.88
工作台定位精度(VDI3441) Worktable positioning (VDI3441)	"	15
工作台重复定位精度(VDI3441) Worktable repeatability (VDI3441)	"	4
主轴端面至工作台中心距离 Distance from spindle end to worktable	mm	"A=0° 235-1235 A=90° -80～1520"
主轴中心至工作台面距离 Distance from spindle center to worktable	mm	"A=0° -450～1150 A=90°-145～855"
摆头 Swing head		
摆头旋转角度 Swinging head rotation angle		±110°
摆头功率 Swing head power	kw	6.28
摆头最高转速 Maximum rotational speed of swinging head	rpm	60
摆头定位精度(VDI3441) Positioning accuracy of swing head (VDI3441)	"	8
摆头重复定位精度 (VDI3441) Repeatability accuracy of swing head (VDI3441)	"	4
主轴 Spindle		
主轴规格 Spindle specification		HSK A100
主轴传动 Spindle drive		电主轴
主轴功率 Spindle power	kw	54（200Nm）
主轴转速 Spindle speed	rpm	10000
自动换刀机构ATC Auto Tool Magazine		
刀具规格 Tool taper		HSK-A100
刀具数量 Tools Capacity	pcs	24
最大刀具直径 Maximum tool diameter	mm	100
最大刀具长度 Maximum tool length	mm	300
最大刀具重量 Maximum tool weight	kg	15
精度 VDI3441 (JISB6338)		
定位精度 Positioning	mm	P0.015
重复定位精度 Repeatability	mm	Ps0.012
基本参数 Basic parameters		
X/Y/Z 轴伺服电机 X / Y / Z axis servo motor	kw	7.0
X/Y/Z 轴快移速度 X / Y / Z axis rapid speed	m/min	20
X/Y/Z 轴导轨规格 X / Y / Z-axis rail specification		55 滚柱
X/Y/Z 轴滚珠丝杆规格 Specification of X / Y / Z-axis ball screw		5010
机床重量约 Machine weight	kg	15500
机床占地面积约 Dimension(L*W*)	mm	5500*6300
机床高约 Machine height	mm	3200

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标准附件与功能 Standard proximity and function

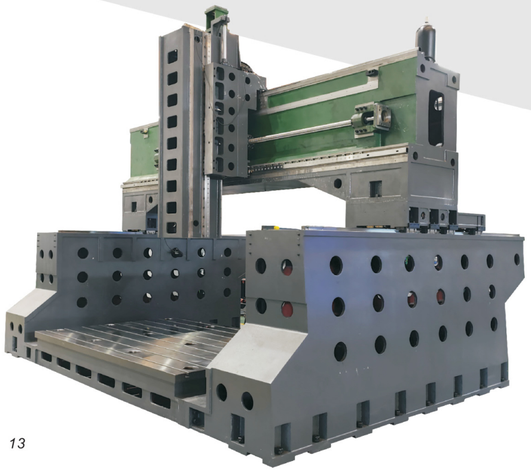
1.日本发那科 0i-MF Plus (1)系统
FANUC 0i-MF Plus (1) control system
2.HSK-A100-10000RPM 电主轴
HSK-A100-10000RPM electric spindle
3.主轴头油冷却系统 Oil coolant system
4.主轴切削吹气 Spindle blushing
5.三轴滑轨伸缩护罩 Telescopic cover of triaxial rail
6.移动式手轮 Handwheel
7.自动润滑油系统 Automatic lubrication system
8.油冷机 Oil cooler
9.变压器 Transformer
10.工作灯 Work light
11.警示灯 Warm light
12.手动松刀装置 Manual loosening device
13.电气箱热交换器 Heat exchanger
14.水枪 Water gun
15.气枪 Air gun
16.基础螺丝及水平垫块
Foundation screw and horizontal cushion block
17.HSK A100 刀库 24T HSK A100 type ATC of 24 tools
18.螺旋排屑器 Spiral type chip conveyor
19.链式排屑器 Chain type chip conveyor

U3020 龙门加工中心

U3020 Gantry Machining Center

该机床主要由工作台、左右床身、横梁、拖板、液压系统、润滑系统、冷却排屑装置、导轨防护装置、电气控制系统等部件组成。其结构型式为横梁移动。机床的左右床身分别安装在工作台的两侧，横梁固定在左右床身上，横梁上配置拖板及双摆铣头。机床的横梁沿左右床身导轨作前后 X 轴移动，滑座在横梁上左右 Y 轴移动，主轴箱体在滑座上上下 Z 轴移动。

The machine tool is mainly composed of worktable, left and right bed, beam, carriage, hydraulic system, lubrication system, cooling and chip removal device, guide rail protection device, electrical control system and other components. Its structural type is beam movement. The left and right bed of the machine tool are installed on both sides of the workbench, and the beam is fixed on the left and right bed. The beam is equipped with a carriage and a double-swing milling head. The cross beam of the machine tool moves along the left and right bed rails along the front and rear X axes, the slide seat moves on the cross beam along the left and right Y axes, and the spindle box moves up and down Z axes on the slide seat.



紧凑式 U 型结构设计：跨轨式结构设计，机台占地面积较传统龙门机节省 50%。全密闭式力流回路设计，大幅提升切削刚性与稳定性；U 型结构设计减少自切削力点至进给力点 间之传递力流。因力流传递途径缩短，可降低移动件重量并达到高速动态行为；桥式龙门加工中心机，跨轨式龙门加工中心机的设计搭配固定式工作台，不同的工件重量时，能提供相同的 动态特性；该机床采用先进的对称式结构设计和先进的机械 / 电气部件，从而确保了高加工进给速度、高加工效率、高刚性和高可靠性。

Compact U-shaped structure design: cross-rail structure design, the floor area of the machine is 50% less than that of the traditional gantry crane. Fully closed force-flow circuit design greatly improves cutting rigidity and stability; The U-shaped structure is designed to reduce the transmission force flow from the cutting force point to the feed force point. Because the force flow transmission path is shortened, the weight of moving parts can be reduced and high-speed dynamic behavior can be achieved; The design of bridge-type gantry machining center machine and cross-rail gantry machining center machine is matched with fixed worktable, which can provide the same dynamic characteristics with different workpiece weights; The machine tool adopts advanced symmetrical structure design and advanced mechanical/ electrical components to ensure high machining feed speed, high machining efficiency, high rigidity and high reliability.

技术参数 Technical parameter

项目Item	单位Unit	U3020	
行程 Travels			
龙门框架前后移动 X 轴 Gantry frame moves forward and backward X-axis	mm	2000	
主轴滑座左右移动 Y 轴 Main shaft slide moves left and right Y-axis	mm	3000	
主轴上下移动方向行程 Z 轴 Up and down travel direction of spindle Z axis	mm	1000	
A/C 轴定位精度(VDI3441) A/C axis positioning (VDI3441)	"	8	
A/C 轴重复定位精度(VDI3441) A/C axis repeatability (VDI3441)	"	4	
工作台 Worktable			
工作台面尺寸 Worktable size	mm	2000*3000	
主轴端面至工作台面距离 Distance from spindle end to worktable	mm	450-1450	
工作台 T 型槽(数目-尺寸*间距) Worktable T-slots（No.-W*distance）	mm	9-22*200	
工作台承重 Max. weight on worktable	T/m²	7	
龙门宽度 Gantry width	mm	3700	
主轴 Spindle			
主轴规格 Spindle specification		HSK-A63	
主轴传动 Spindle drive		电主轴	
		Y 接法	△ 接法
主轴额定转速 Spindle speed	rpm	3280	6000
主轴最高转速 Maximum spindle speed	rpm	8000	20000
主轴功率 Spindle power	kw	11	15
精度 VDI3441 (JISB6338)			
定位精度 Positioning	mm	P0.03 (±0.004/300)	
重复定位精度 Repeatability	mm	Ps0.028 (±0.003)	
基本参数 Basic parameters			
A/C 轴功率 Spindle power	kw	3.7/6.3	
A/C 轴摆角度 A/C axis rotation angle	°	±110/±360	
A/C 轴最高转速 A/C axis maximum speed	rpm	60	
X 轴导轨规格 X-axis rail specification		4 条 45 滚柱	
Y 轴导轨规格 Y-axis rail specification		55 滚柱	
Z 轴导轨规格 Z-axis rail specification		4 条 45 滚柱	
X 轴滚珠丝杆规格 Specification of X-axis ball screw		6320	
Y 轴滚珠丝杆规格 Specification of Y-axis ball screw		6320	
Z 轴滚珠丝杆规格 Specification of Z-axis ball screw		5010	
X 轴伺服电机 X-axis servo motor	kw	4.0*2 个	
Y 轴伺服电机 Y-axis servo motor	kw	7.0	
Z 轴伺服电机 Z-axis servo motor	kw	7.0	
机床重量约 Machine weight	T	42	

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8.油冷机 Oil cooler
9.变压器 Transformer
10.工作灯 Work light
11.警示灯 Warm light
12.手动松刀装置 Manual loosening device
13.电柜空调 Electric cabinet air conditioner
14.水枪 Water gun
15.气枪 Air gun
16.基础螺丝及水平垫块
Foundation screw and horizontal cushion block
17.螺旋排屑器 Spiral type chip conveyor
18.链式排屑器 Chain type chip conveyor