



HU系列 HU-SERIES

五轴联动加工中心
5-AXIS UNIVERSAL MACHINING CENTER

黄鹄（浙江）精密机床有限公司
Huanghu (Zhejiang) Precison Machine Tool Co., Ltd

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企业介绍 COMPANY INTRODUCTION



黄鹄（浙江）精密机床有限公司成立于2021年，工厂位于浙江湖州，是一家集机床设计研发、生产，销售和工业服务为一体的高端设备制造企业，专注于五轴技术研发，致力于做好高端工业母机，我们以先进的技术为驱动力，面向市场目前主要经营产品为：HU系列立卧转换五轴联动加工中心、A系列摇篮式五轴联动加工中心、G系列航空发动机、叶盘专用机、HST系列卧式五轴联动加工中心，为包括航空航天、新能源半导体、精密医疗器械、能源动力、模具制造等各类制造业提供定制化服务。

Huanghu (Zhejiang) Precision Machine Tool Co.,Ltd established in 2021, located in Huzhou city, Zhejiang. We are a high-tech enterprise focusing on the research and development, production, sales and engineering services of 5-Axis precision machine tools, producing vertical and horizontal universal 5-Axis machining center and technology of core components. As a leading manufacture in China, we are supplying comprehensive customized service for our customers from Aerospace、Automotive、Die&mold、Medical、Semiconductor and other industries.

HU1000E

SMART-T型床身结构 SMART-T BED STRUCTURE

最高的刚性，最高的加工优越性能，
床身底座采用整体铸造工艺，整体刚性极大提高。

High rigidity, high performance, casting machine bed
improves entire rigidity.

海德汉五轴闭环测量系统，
机床高精密度的保障。

HEIDENHAIN close loop feedback system
guarantees higher precision.

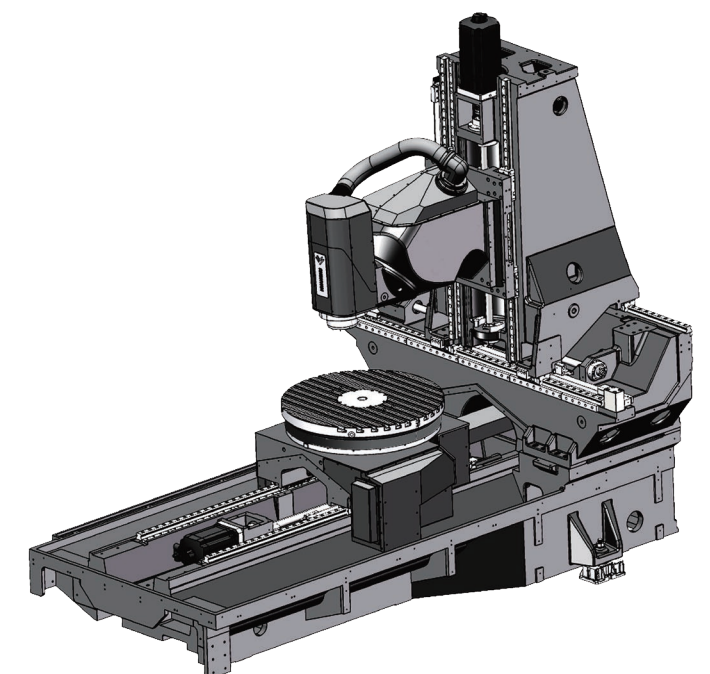


三点支撑的高刚性床身底座，
对地基无特殊要求，
床身不容易扭曲，精度保持性好。

Inherently rigid machine bed with three point support
for best stability and precision of machine bed.

德国INA/瑞士SCHNEEBERGER直线导轨、加宽滑块，
精度更持久。

Germany INA/ Swiss SCHNEEBERGER liner ways,
wider slider for long-term precision.



HU1300/1600

墙背式床身结构

WALL-BACK LATHE BED STRUCTURE

更高的刚性，
更快的速度，
更小的倾覆力矩。

Higher rigidity,
Higher speed,
Lower overturning moment.

海德汉五轴闭环测量系统，
机床高精密度的保障。

Higher accuracy is guaranteed by
HEIDENHAIN close loop feedback
system.

三点支撑的高刚性床身底座，
对地基无特殊要求，
床身不容易扭曲，精度保持性好。

High rigidity machine bed with three-point support
shows excellent stability in any situation.



采用SHUTON加长型螺母结构丝杆，有效提高了预紧力，
大大提高了定位精度和切削性能。

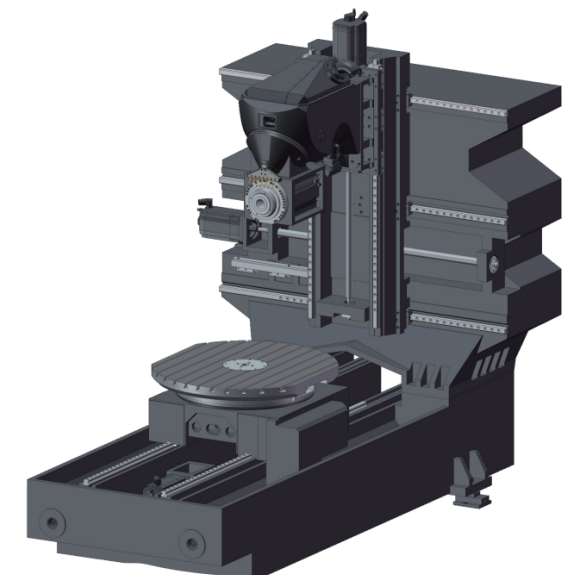
SPAIN SHUTON double nut screws effectively improve
the thickness, position precision and cutting capacity.

德国INA直线导轨、加宽滑块，精度更持久。

Germany INA guideways , wider slider for long-term
precision.

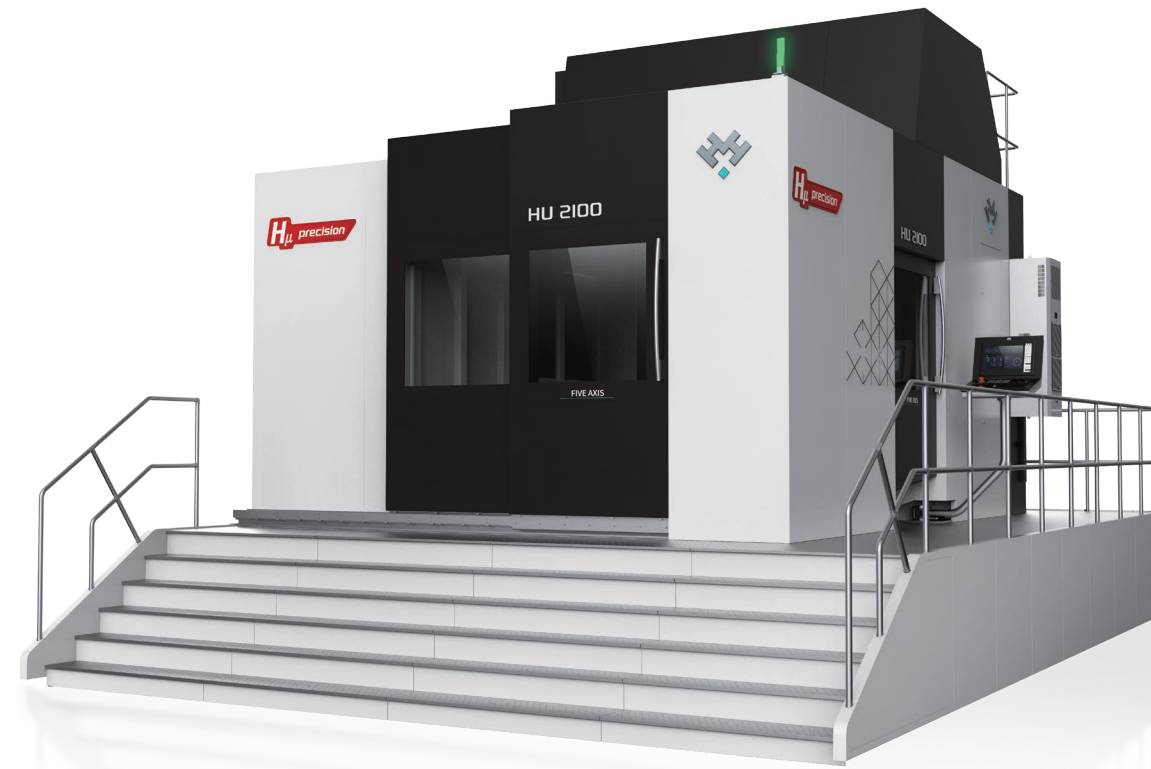
西门子1FT系列高动态响应电机。

SIEMENS 1FT servo motor for high
dynamic reaction capacity.



HU2100/2300

龙门动梁式床身结构 GANTRY BED STRUCTURE



床身三点支撑，不受地基扭曲影响，精度保持性好。

Inherently rigid machine bed with three point support for best stability in any situation.

采用45度斜五轴头结构，闭环系统。刚性足，定位精度高。

The closed-loop system with a 45-degree inclined five-axis head structure is adopted. The rigid foot has good positioning accuracy.

X、Y轴行程2300毫米，适合加工航空机匣等产品。

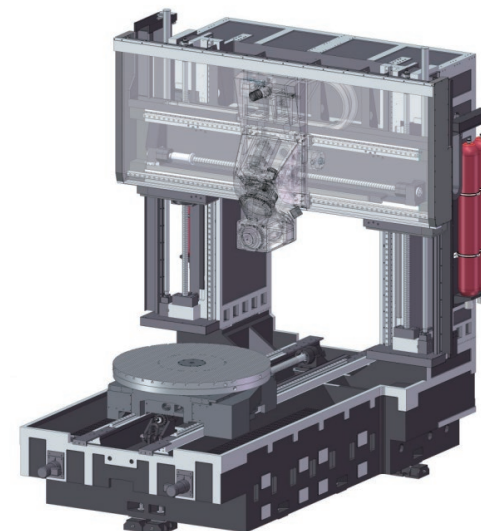
X、Y axis stroke 2300 mm, suitable for processing aerospace casing and other products.

转台可以移动到龙门框内，让机床悬臂更小。

The turntable can go into the gantry frame to make the cantilever of the machine tool smaller.

YRT转台轴承+推力轴承，转台承载性优秀。

YRT table bearings and thrust bearings perform excellent table load capacity.



直线轴丝杆传动，丝杆固定不旋转，螺母副旋转，让机床实现了大而不笨重，真正的高性能五轴机床。

Nuts rotary replaces the screw rotary by servo motor drive, realising the real high-performance five-axis machine tool which is large but not heavy.

采用光栅尺全闭环控制。

Adopt scales encoder close loop feedback system.

中空内冷丝杆，带走运动产生的热量，精度有保证。

A hollow shaft screw with cooling equipment inside, reduce the error caused by heating deformation to ensure the accuracy.

所有导轨都采用恒温冷却系统，减少发热变形，进一步提高精度。

A comprehensive cooling system of linear guide for the highest continuous accuracy reduce the deformation caused by heating during working.

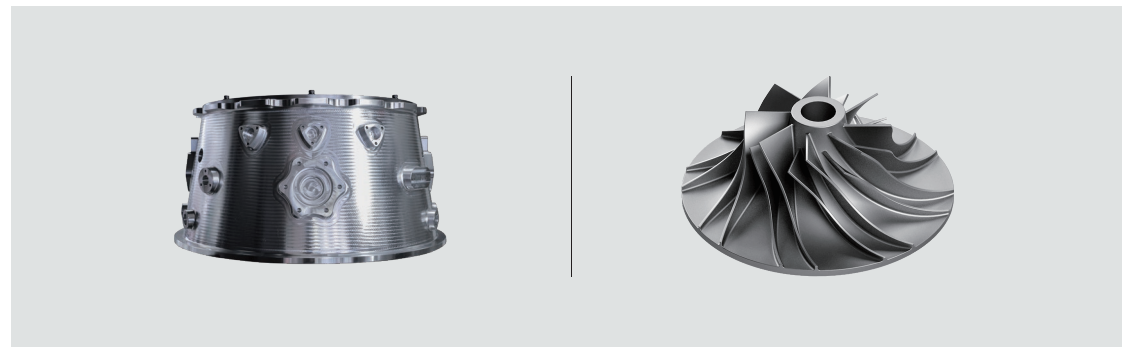
选用水冷1FT系列高性能电机，具有高动态响应和运动控制精度。

High-performance Siemens servo motor with water cooling system for high dynamic reaction capacity and motion control precision.

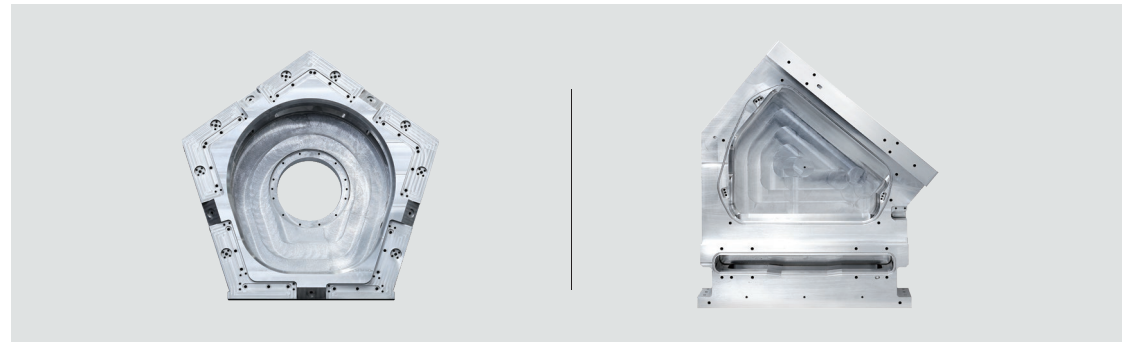
我们的加工中心服务于航天航空、半导体、精密医疗器械、能源动力、模具制造等。

We are supplying comprehensive customized service for our customers from Aerospace、Semiconductor、Medical、Die&mold and other industries.

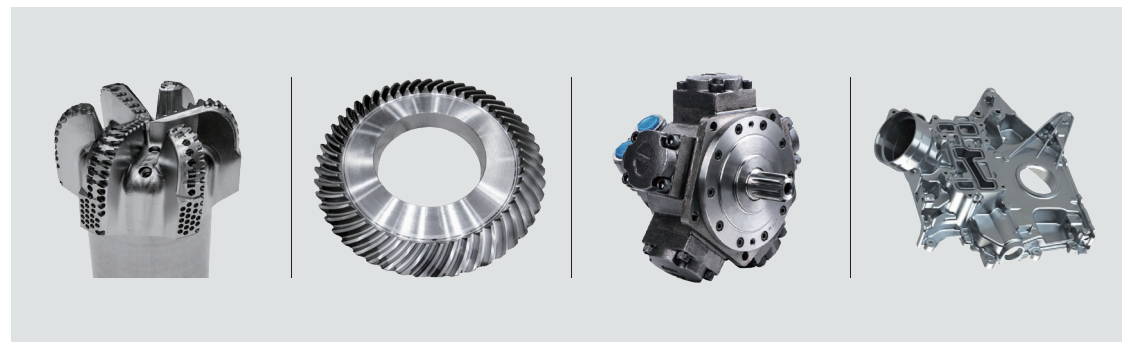
● 航空航天 AEROSPACE



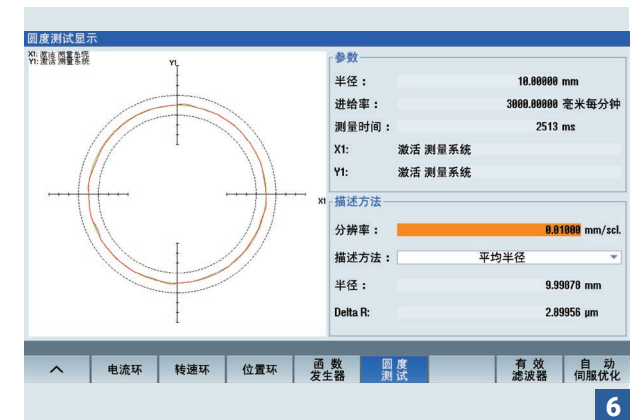
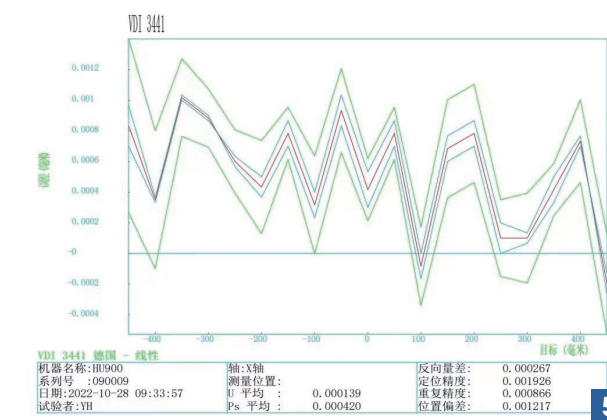
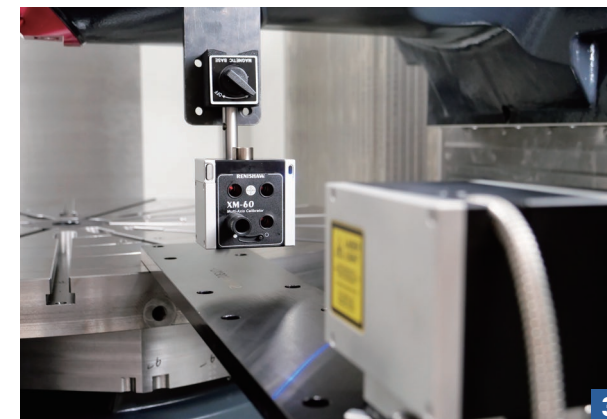
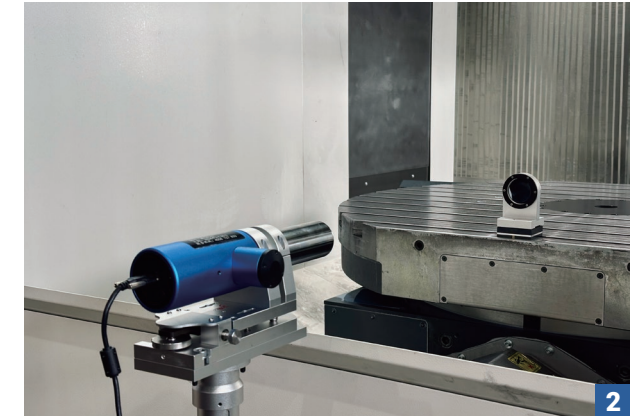
● 半导体 SEMICONDUCTOR



● 能源动力 ENERGY TECHNOLOGY



生产装配与调试 PRODUCTION & ASSEMBLY



1 雷尼绍QC20球杆仪高效评估机床性能
RENISHAW QC20 ballbar for machine tool performance verification

3 雷尼绍XM-60激光干涉仪，精度可溯源至国际标准
Smart RENISHAW 5-axis measurement with XM-60 multi-axis calibrator

5 装机实测-VDI3441
Installed measured data-VDI3441

2 双轴光电自准直仪多维度完成动态测量
Highly improves machine measurement with EAutocollimator

4 人工刮研实现几近标准平面
Building accurate, reliable, long-lasting machine tools by manual scraping

6 装机实测-圆度测试
Installed measured data-Delta R for roundness test after servo optimization

技术数据 TECHNICAL DATA

直线轴 Linear Axis	HU1000E	HU1300	HU1600	HU2100	HU2300
机床行程X/Y/Z轴(毫米) Traverse X/Y/Z (mm)	1050/1100/850	1300/1300/1100	1600/1500/1250	2100/2100/1600	2300/2300/1600
快速移动速度X/Y/Z(米/分钟) Rapid Traverse (m/min)	40/40/40	40/40/40	40/40/40	40/30/40	40/30/40
测量系统 Measuring System	海德汉光栅尺 HEIDENHAIN Linear Encoders		海德汉光栅尺 HEIDENHAIN Linear Encoders		
控制系统 Control System	西门子 SIEMENS SINUMERIK ONE		西门子 SIEMENS SINUMERIK ONE		
主轴 Spindle	HU1000E	HU1300	HU1600	HU2100	HU2300
主轴 Spindle	HSK-63A/15000 rpm/min	HSK100A/8000 rpm/min	HSK100A/8000 rpm/min	HSK100A/8000 rpm/min	HSK100A/8000 rpm/min
	HSK-63A/18000 rpm/min	HSK100A/10000 rpm/min	HSK100A/10000 rpm/min	HSK100A/10000 rpm/min	HSK100A/10000 rpm/min
		HSK100A/12000 rpm/min	HSK100A/12000 rpm/min	HSK100A/12000 rpm/min	HSK100A/12000 rpm/min
		HSK100A/15000 rpm/min	HSK100A/15000 rpm/min	HSK100A/15000 rpm/min	HSK100A/15000 rpm/min
B轴(45度摆头)数据 Milling Unit B Axis	HU1000E	HU1300	HU1600	HU2100	HU2300
测量系统 Measuring System	海德汉磁栅闭环控制 HEIDENHAIN Linear Encoder Close Loop Feedback System		海德汉磁栅闭环控制 HEIDENHAIN Linear Encoder Close Loop Feedback System		
分辨率 Resolution	0.001°	0.001°	0.001°	0.001°	0.001°
控制方式 Control Method	联动控制/任意分度 Simultaneous Control /Any Degree		联动控制/任意分度 Simultaneous Control /Any Degree		
最大进给 Max Feed Rate	15rpm	12rpm	12rpm	12rpm	12rpm
行程 Swivel Range (°)	-30° ~180°	-30° ~180°	-30° ~180°	-30° ~180°	-30° ~180°
C轴(转台)数据 C-axis Table	HU1000E	HU1300	HU1600	HU2100	HU2300
测量系统 Measuring System	海德汉光栅闭环控制 HEIDENHAIN Linear Encoder Close Loop Feedback System		海德汉光栅闭环控制 HEIDENHAIN Linear Encoder Close Loop Feedback System		
分辨率 Resolution	0.001°	0.001°	0.001°	0.001°	0.001°
控制方式 Control Method	联动控制/任意分度 Simultaneous Control /Any Degree		联动控制/任意分度 Simultaneous Control /Any Degree		
最高转速 Max Rotating Speed rpm	12rpm	12rpm	12rpm	10rpm	10rpm
行程 Travel(°)	360°	360°	360°	360°	360°
转台尺寸 Table Size	φ1000mm	φ1250-1100mm	φ1500mm	φ1700mm	φ1700mm
承重 Loading Capacity(KG)	2000KG	2500KG	5000KG	8000KG	8000KG
最高转速(带车削功能) Max Rotating Speed rpm	/	400rpm	400rpm	250rpm	250rpm
额定扭矩(带车削功能) Norminal Torque(Nm)	/	5400Nm	7200Nm	7900Nm	7900Nm

技术数据 TECHNICAL DATA

A轴(叉式铣头)数据 A-axis	HU1000E	HU1300	HU1600	HU2100	HU2300
传动方式 Transmission	精密齿轮 High Precision Gears		精密齿轮 High Precision Gears		精密齿轮 Precise gears
轴承 Bearing	INA YRT系列轴承 INA YRT Series Bearings	INA YRT系列轴承 INA YRT Series Bearings	INA YRT系列轴承 INA YRT Series Bearings	INA YRT系列轴承 INA YRT Series Bearings	INA YRT系列轴承 INA YRT Series Bearings
最大进给 Max Feed Rate r/min	/	15	15	15	15
进给扭矩 Feeding Torque(Nm)	/	4100Nm	4100Nm	4100Nm	4100Nm
行程 Travel(°)	/	-120° ~ 40°	-120° ~ 40°	-120° ~ 40°	-120° ~ 40°
刀库 Tool magazine	HU1000E	HU1300	HU1600	HU2100	HU2300
刀具数量 Tool Capacity	50/60	40/60/120	40/60/120	40/60/120	40/60/120
刀链旋转 Tool Chain Driven	伺服电机 Servo Motor		伺服电机 Servo Motor		伺服电机 Servo Motor
换刀时间(刀-刀) Tool Changing Time(Tool to Tool)	3s	8s	8s	12s	12s
其他数据 Other	HU1000E	HU1300	HU1600	HU2100	HU2300
重量 Weight(T)	16T	28T	38T	53T	55T
占地面积 Footprint(㎡)	5.5m*4m	6.5m*4.5m	8.5m*7.5m	12m*9m	12m*9m
高度 Height(m)	3.5m	4m	4.1m	6m	6.5m
电压 Voltage(V)	400V	400V	400V	400V	400V
容量 Power Capacity(KVA)	70KVA	100KVA	120KVA	150KVA	150KVA
压缩空气压力 Compressed Air Pressure(MP)	0.6-0.8MP	0.6MP	0.6MP	0.6MP	0.6MP
压缩空气最大流量 Compressed Air Pressure Max Flow(L/min)	650L/min	650L/min	650L/min	650L/min	650L/min
选项 Optional					
大功率主轴 High Speed Spindle	交钥匙工程 Turn-key Project				
工件测头 Workpiece Probe	自适应切削功能 Adaptive Machining Function				
机内对刀仪 Tool Pre-setter	震动监控 Process Monitoring System/Collision Detection System				
主轴中心出水 Coolant Through Spindle	FMS系统 FMS System				
远程诊断服务 Remote Diagnosis Service					