

GMU-900

GMU-900D

GMU-900T

## 东莞市埃弗米数控设备科技有限公司

东莞总部

Dongguan Headquarters

地址:广东省东莞市大岭山镇连环路35号2号楼202室/201室

Add: Room 202/201, Building 2, No. 35 Lianhuan Road, Dalingshan Town, Dongguan City, Guangdong Province

国际事业部

International Business Office

地址:广州市番禺区石壁街石兴大道南319号2112

Add: Room 2112, 319 Shixing Avenue South, Shibi Street,

Panyu District, Guangzhou City

Phone: +86 1990713 1374

Whatsapp: +90 533 574 5351

E-mail: mariya@afmingglobal.com



Website



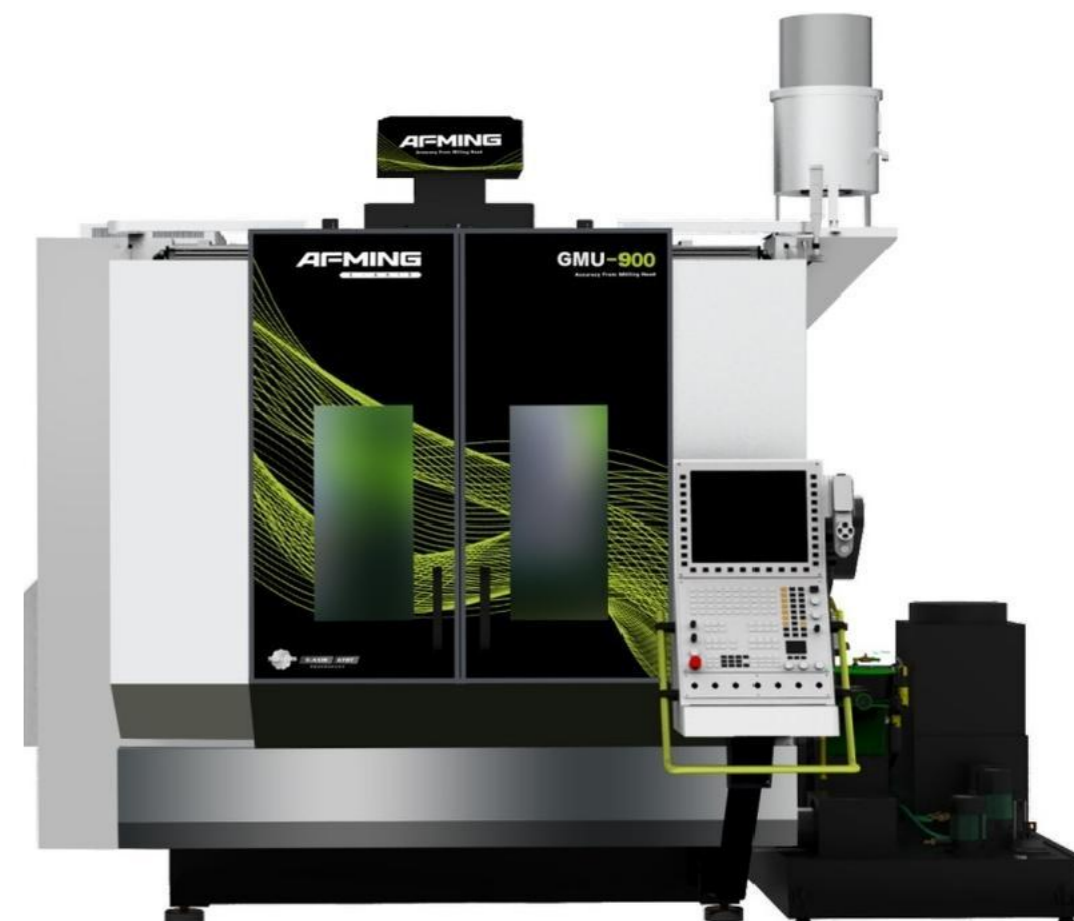
Wechat



Whatspp

# GMU-900

五轴联动加工中心





Dongguan AFMING Numerical Control Equipment Technology Co., Ltd.(abbr. AFMING), established in 2015, is a high-tech enterprise integrating R&D, production, sales, and service, focusing on high-end CNC machine tools. It is a holding subsidiary of Guangdong Topstar Technology Co., Ltd. (stock code: 300607), a leading domestic listed robot company. It has been awarded the Guangdong "Specialized, Refined, Differential, Innovative" SME title. Adhering to the corporate mission of "popularizing high-end 5-axis technology," the company is committed to focusing on 5-axis technology, achieving domestic substitution of high-end 5-axis equipment, and providing efficient machining overall solutions based on 5-axis simultaneous CNC machine tools for domestic aerospace, automotive, medical, mold, precision parts processing and other fields. The company values talent development and has established industry-university-research cooperation platforms with multiple domestic institutions, laying a technical and talent foundation for future development. Currently, the company's main products include: 5-axis simultaneous CNC machine tools, high-speed machining centers, high-precision slide grinders, high-speed graphite machining centers, and core components. The company's products sell well both domestically and internationally.



## GMU-900 5-Axis Simultaneous Machining Center

- **Large Stroke + Wide Clamping Space**

X/Y axis travel 900/1050mm (including tool change travel), maximum workpiece clamping  $\phi 1000 \times 590$ mm, easily tackling large part machining, more convenient loading and unloading by hoisting.

- **High Precision + Low Thermal Deformation**

Integrated bed structure, thermally symmetrical design, configured with hollow ball screws, suppressing axial thermal displacement, X/Y/Z axis repeat positioning accuracy up to 0.004mm, A/C axis positioning accuracy/repeat positioning accuracy 6/4 arcsec.

- **Strong Drive + High Torque**

Equipped with GTRT gear-driven tilt/rotary table technology, A-axis torque 4142N.m, C-axis torque 1950N.m, with strong torque suitable for heavy cutting and high-load machining, improving efficiency and yield, providing reliable support for precision heavy machining.

- **Efficient Precision Mill-Turn Composite Machining (GMU-900T)**

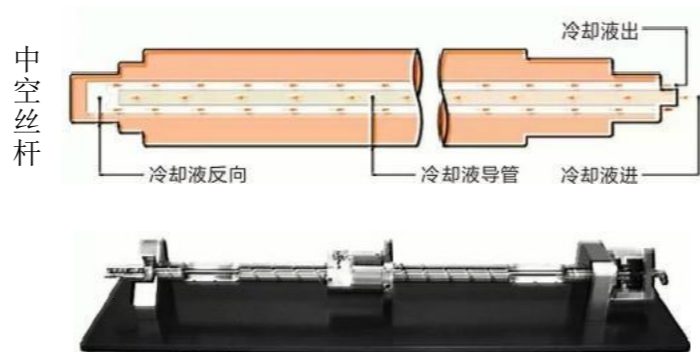
5-axis mill-turn composite, multiple processes in one setup, precision machining of impellers, aerospace structural parts, deep cavities and other shaft-type complex precision parts mill-turn machining. ◦



## High Rigidity Bed Structure



- 1.A-axis high-precision gear drive**  
Rated torque 4142N.m, extremely high torsional rigidity
- 2.Effectively improve Z-axis high response value**  
Dynamics optimization design, with high-performance motor spindle, optional hollow ball screws effectively suppress axial thermal displacement, achieving better dynamic performance
- 3.Excellent structural design and dynamic response of the beam**  
Integrated beam with wide-span strong support, with high rigidity guides, achieving rapid feed over 40m/min and acceleration over 0.6g, significantly improving machining efficiency
- 4.Efficient vibration-damping integrated bed**  
Integrated base weight up to 10 tons, total machine weight 17 tons, ensuring machine stability



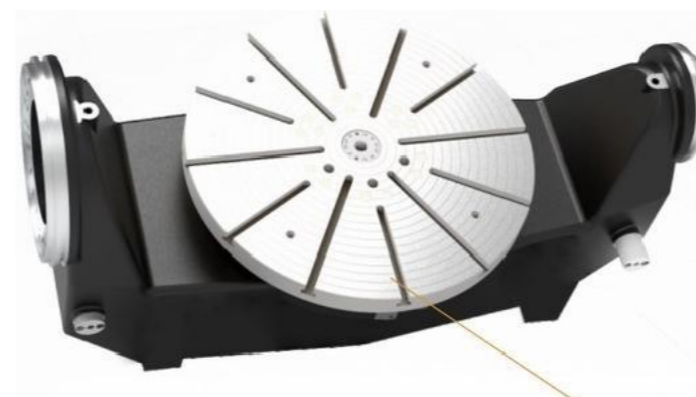
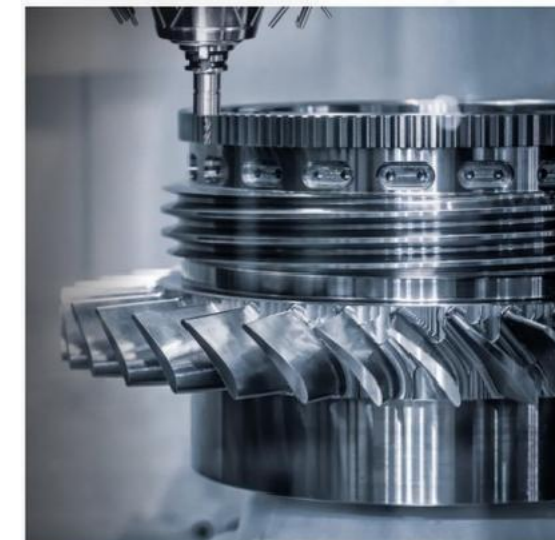
GMU-900 series optional hollow ball screws effectively suppress axial thermal displacement under high-speed, high-load conditions, improve transmission accuracy and stability, optimize positioning and repeat positioning accuracy, meet precision part machining requirements, and ensure dimensional consistency and reliability.

## Perfect Combination of High Rigidity and High Dynamics

GMU-900 series tilt/rotary table A/C axes, equipped with exclusive GTRT gear drive technology, compared to conventional rotary table drive solutions, can achieve stronger and more stable torque output, building a solid power guarantee for heavy precision

- GTRT gear drive rotary table technology
- AFMING gear backlash elimination patent technology
- DIN5 grade imported lapped gear technology
- Advantages over DD, worm gear, worm, and roller cam: high torque, high precision, low energy consumption, long life

| Drive mode     | Torque | Speed | Precision | Life |
|----------------|--------|-------|-----------|------|
| DD             | ▲▲▲▲   | ▲▲▲▲  | ▲▲▲▲      | ▲▲▲▲ |
| Worm Gear/Worm | ▲▲▲▲   | ▲▲▲▲  | ▲▲▲▲      | ▲▲▲▲ |
| Roller cam     | ▲▲▲▲   | ▲▲▲▲  | ▲▲▲▲      | ▲▲▲▲ |
| Gear           | ▲▲▲▲   | ▲▲▲▲  | ▲▲▲▲      | ▲▲▲▲ |



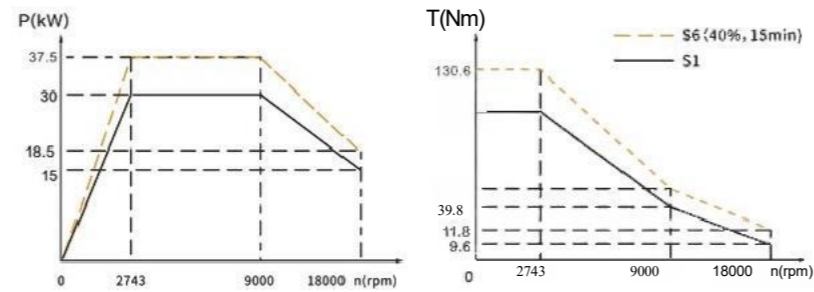
|  | GMU-900  | GMU-900D   | GMU-900T   |
|--|--|--|--|
| A-axis drive                                     | Servo motor + helical gear (dual-section backlash elimination patent technology) | Servo motor + helical gear (dual-section backlash elimination patent technology) | Servo motor + helical gear (dual-section backlash elimination patent technology) |
| C-axis drive                                     | Servo motor + helical gear (dual-section backlash elimination patent technology) | Torque motor   | Torque motor   |
| A/C axis travel                                  | ±120°/360°   | ±120°/360°   | ±120°/360°   |
| A/C axis max speed                               | 20/30rpm   | 20/80rpm   | 20/600rpm  |
| A/C axis rated torque                            | 4142/1950N.m   | 4142/1450N.m   | 4142/1450N.m   |
| A/C axis positioning/repeat positioning accuracy | 6"/4"  | 6"/4"  | 6"/4"  |
| Load capacity                                    | 1000kg   | 800kg  | 800kg  |

## Spindle

AFMING relies on its self-developed high-end spindle core technology, committed to providing customers with high rigidity, high stability spindle solutions. Through FEA optimization of bearing span, combined with core cooling and thermal elongation control technology, we effectively guarantee long-term machining accuracy and service life of the spindle. Based on rich practical maintenance experience, we can quickly respond to customer needs and solve maintenance difficulties, thereby helping customers significantly reduce comprehensive usage costs.

18000rpm 电主轴HSK-A63

高速与高刚性最大化, 应用范围广泛

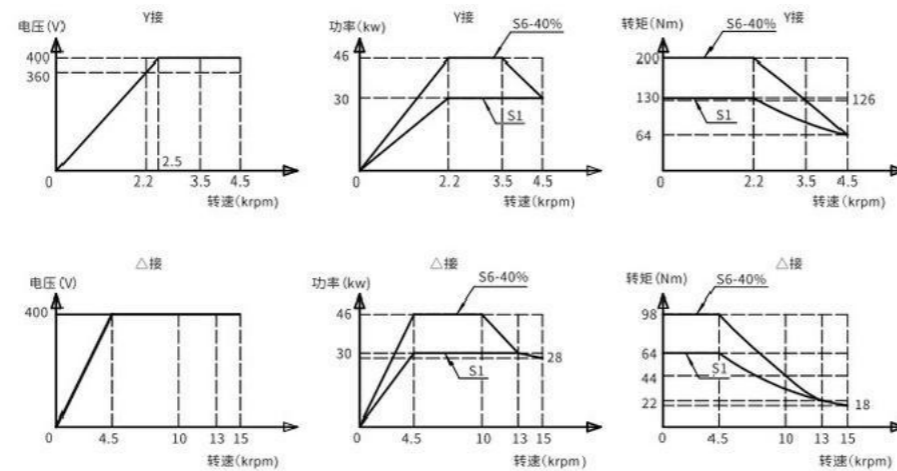


**37.5KW** 功率(Max output power)

**130.6** 扭矩(Max output torque)

15000rpm 电主轴HSK-A63

高速与高刚性最大化, 应用范围广泛



**46** kW 功率(最大输出功率)

**200** N.m 扭矩(最大输出扭矩)

## Application Solutions

The GMU-900 series 5-axis simultaneous machining center possesses exceptional rigidity and stable, reliable accuracy, making it widely applicable for precision machining in fields such as the civil aviation industry, automotive components, low-altitude aircraft, and general machinery. Its performance is particularly adept at efficient combined roughing and finishing machining of materials like superalloys, tool steel, and cast iron.



Semiconductor Vacuum Chamber

Dimensions: 666x576x166mm

Material: 7075 aluminum alloy

Machining features: This part is machined directly from a formed blank, with material removal exceeding 60%. Key feature precision requirements: Cylindricity of holes <math>< 5 \mu\text{m}</math>, hole position tolerance <math>< 15 \mu\text{m}</math>, perpendicularity between holes and surface <math>< 20 \mu\text{m}</math>.

**半导体真空腔体**

尺寸: 666x576x166mm

材料: 7075 铝合金

加工特征: 该零件由成型毛坯直接加工而成, 材料除量超过60%, 关键特征精度为: 孔的圆柱度<math>< 5 \mu\text{m}</math>,

孔位置度<math>< 15 \mu\text{m}</math>, 孔与面的垂直度<math>< 20 \mu\text{m}</math>。

航发领域应用 .....



叶轮



结构件



叶盘

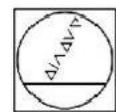


机匣

## Control System

### High-end CNC system for safe machining and high precision

The GMU-900 series is equipped with the world's leading CNC system suppliers, HEIDENHAIN-TNC640 and SIEMENS-ONE high-end 5-axis simultaneous CNC machine tools, enhancing the machine's data performance. In addition, an optional configuration of 5-axis 4-linkage is available to enrich customers' diverse choices.



**HEIDENHAIN**  
海 德 汉



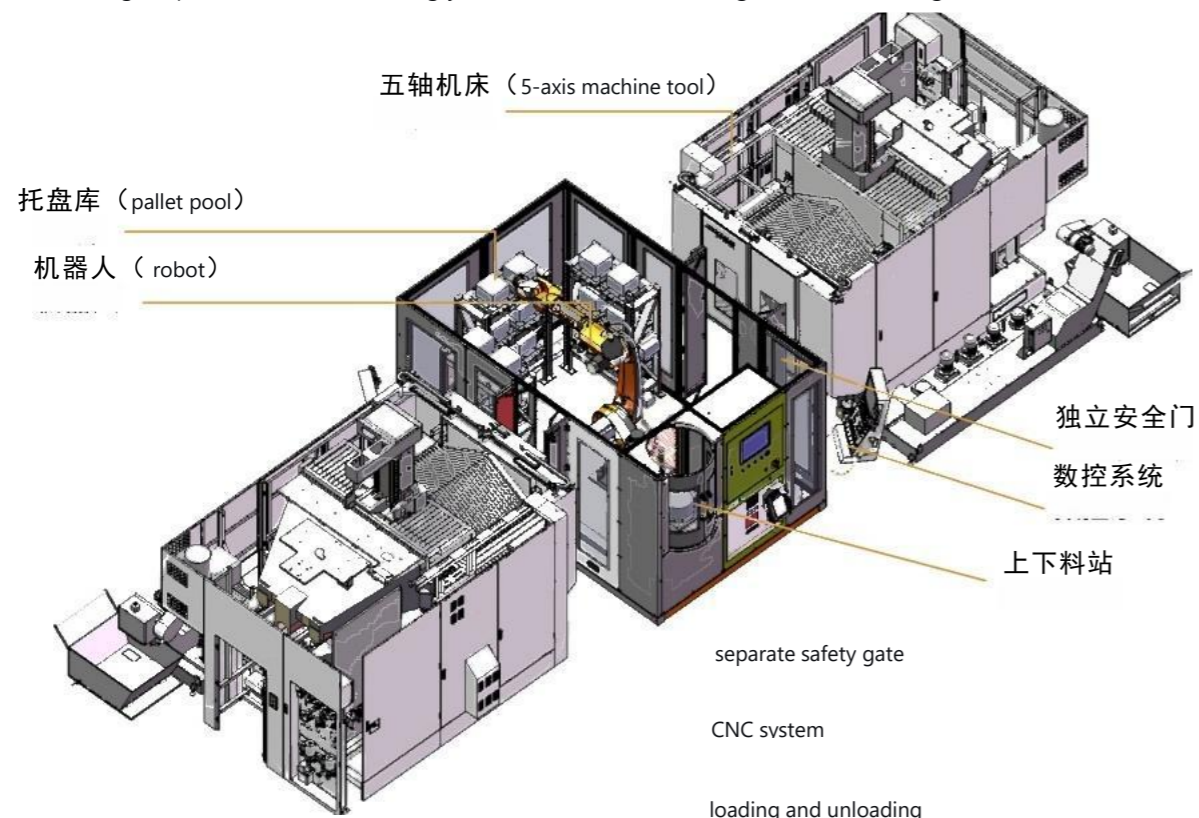
**SIEMENS** 控制系统

强大的数控机床控制平台



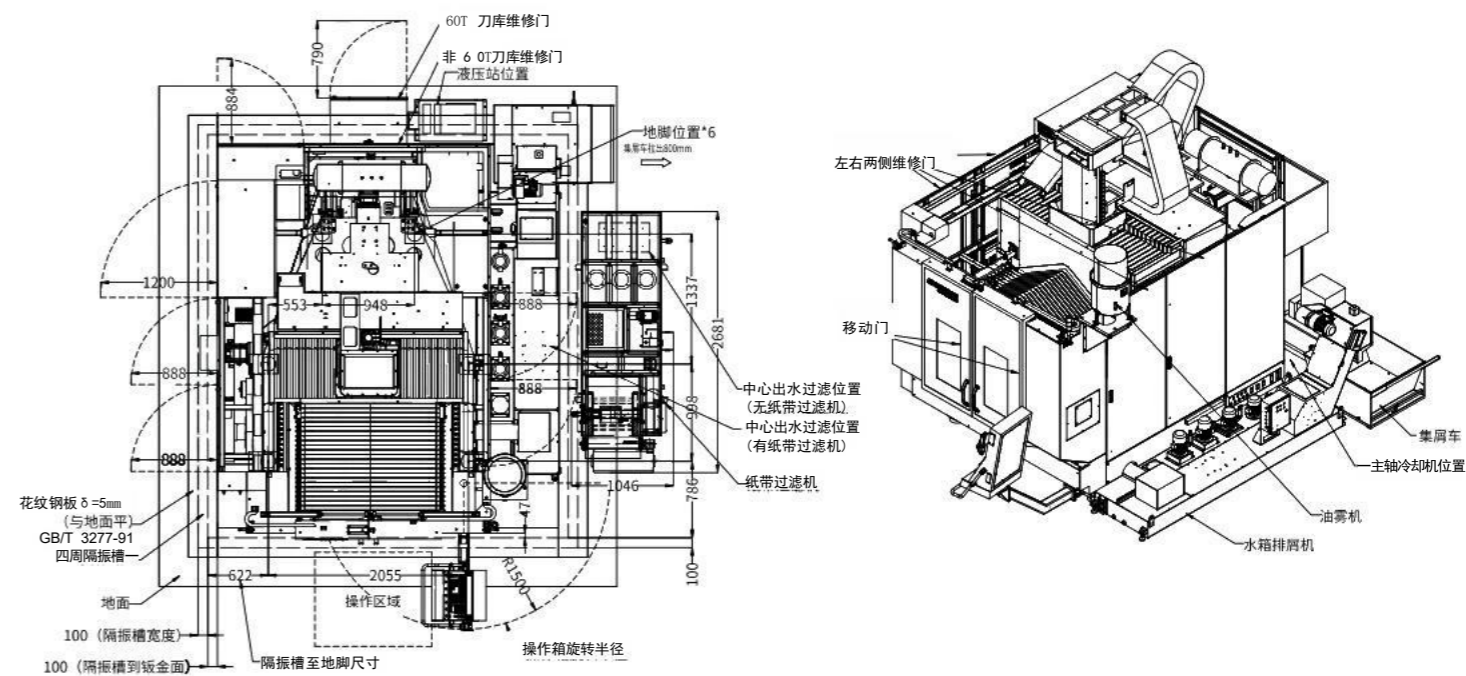
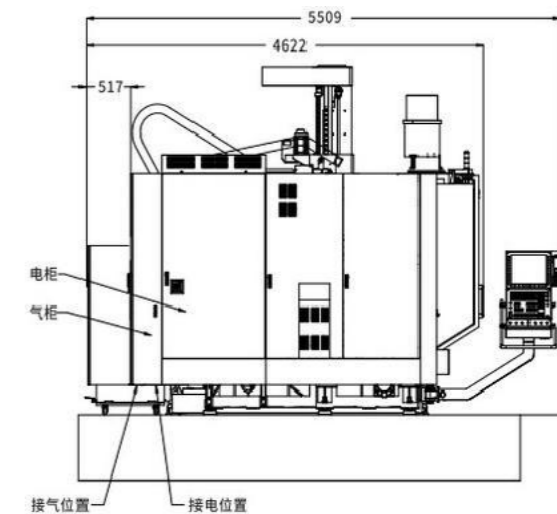
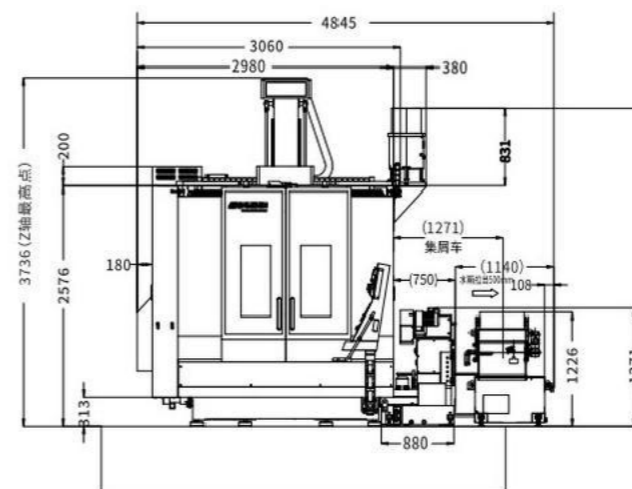
## Automation Solution

In the field of high-end precision manufacturing, efficiency and precision are the eternal core competitiveness. The perfect integration of a 5-axis machining center with industrial robot automated loading and unloading aims to create unmanned, highly flexible intelligent production units, leading you into a new era of intelligent manufacturing.

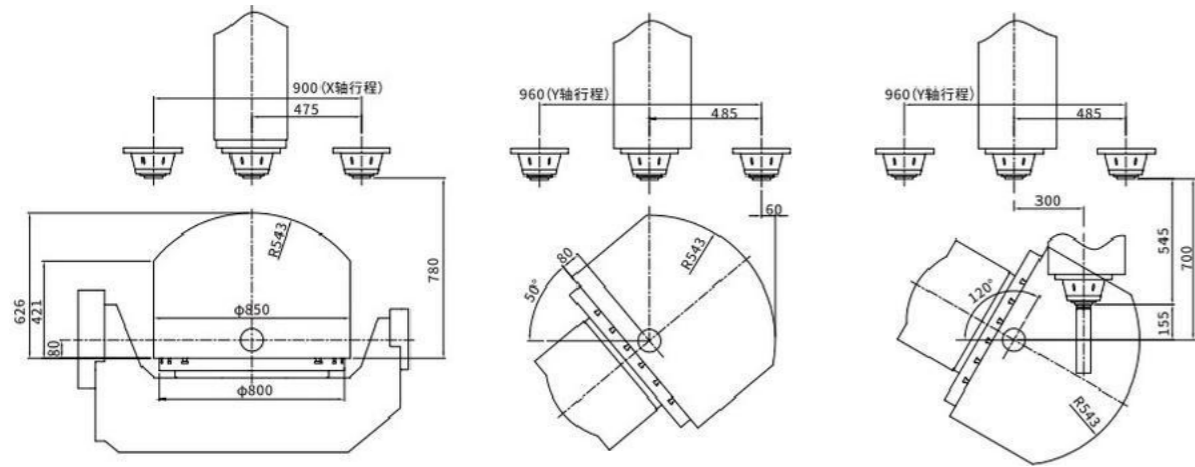


GMU-900/900D/900T

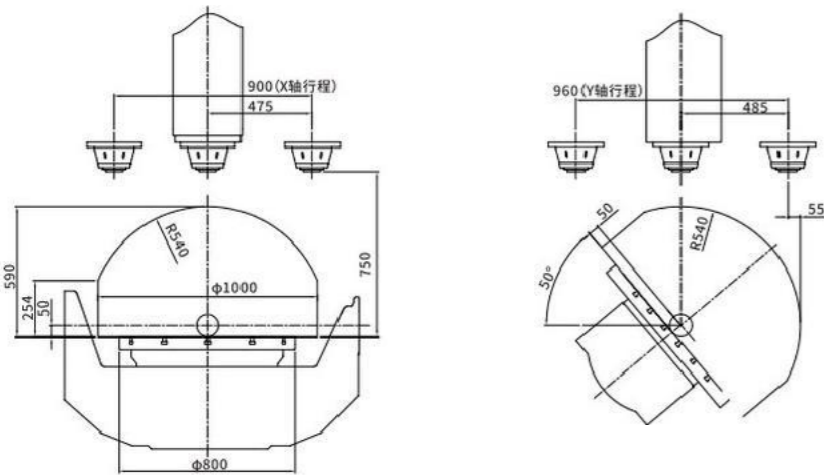
整机布置图 (Overall Layout Diagram)



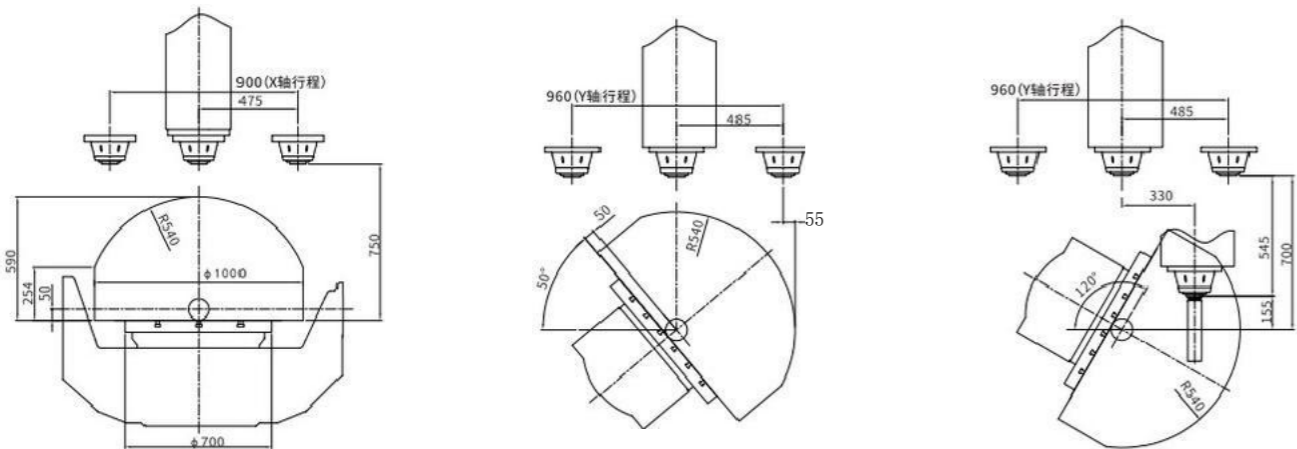
GMU-900 加工干涉图



GMU-900D 加工干涉图



GMU-900T 加工干涉图



GMU-900 Machine Technical Specifications Table

| Item  | Unit             | GMU-900       | GMU-900D      | GMU-900T      |
|---|------------------|---------------|---------------|---------------|
| X/Y/Z axis travel   | mm               | 900/1050/600  | 900/1050/600  | 900/1050/600  |
| A/C axis travel   | deg              | ±120/360      | ±120/360      | ±120/360      |
| Distance from table to spindle nose   | mm               | 180-780       | 150-750       | 150-750       |
| Table size  | mm               | φ800          | φ800          | φ750          |
| Max load capacity   | kg               | 1000          | 800           | 800           |
| <b>Spindle</b>  |                  |               |               |               |
| Max spindle speed/taper   | rpm              | 18000/HSK-A63 | 18000/HSK-A63 | 15000/HSK-T63 |
| Spindle power (S6-40%)  | kW               | 37.5          | 37.5          | 46            |
| Torque (S6-40%)   | N.m              | 130.6         | 130.6         | 200           |
| <b>Feed System</b>  |                  |               |               |               |
| X/Y/Z axis rapid traverse   | m/min            | 40/40/40      | 40/40/40      | 40/40/40      |
| Max cutting feed rate   | m/min            | 20            | 20            | 20            |
| Acceleration  | m/s <sup>2</sup> | 6             | 6             | 6             |
| A/C axis rapid speed  | rpm/min          | 20/30         | 20/80         | 20/600        |
| Positioning accuracy/Repeat positioning accuracy (with linear scale) (GB17421.2-2000) |                  |               |               |               |
| X/Y   | mm               | 0.006/0.004   | 0.006/0.004   | 0.006/0.004   |
| Z   | mm               | 0.006/0.004   | 0.006/0.004   | 0.006/0.004   |
| A/C   | ARCSEC           | 6/4           | 6/4           | 6/4           |
| <b>Automatic Tool Change</b>  |                  |               |               |               |
| Number of tools   | Pcs              | 48T           | 48T           | 48T           |
| Tool change time (tool to tool)   | sec              | 5s            | 5s            | 5s            |
| Max tool length   | mm               | 380           | 300           | 300           |
| Max tool diameter/adjacent empty  | mm               | φ75/φ125      | φ75/φ125      | φ75/φ125      |
| Max tool weight   | kg               | 8             | 8             | 8             |
| <b>Machine Dimensions</b>   |                  |               |               |               |
| Machine height  | mm               | 3740          | 3740          | 3740          |
| Floor space (L×W)   | mm <sup>2</sup>  | 5000/4250     | 5000/4250     | 5000/4250     |
| Machine net weight  | kg               | 17000         | 17000         | 17000         |
| Power requirement   | kVA              | 60            | 60            | 65            |

标准配置

1.CNC System: HEIDENHAIN620/640 5-axis correction package2.Motor spindle 18000rpm/HSK-A63; Spindle cooling system; Spindle air curtain dust protection system3.48T chain-type tool magazine4.Chip removal system: scraper type chip conveyor; Machine cleaning water gun5.Machining air blow6.A/C axis linear scale7Automatic lubrication system8.Work light, warning light, electrical cabinet air conditioning system; Full cover sheet metal; Tool box, foundation bolts, operation manual

※随着公司研发的不断创新, 实际机床配置表可能与此样表不同, 请以实际销售为准。