

Yuhuan Precision Grinding Technology Co., Ltd



Liuyang production base (four workshops)

Coverage area: 73,000m²



Xingsha production base (four workshops)

Coverage area: 67,000m²

Company Profile

Hunan Yuhuan Precision Grinding Technology Co., Ltd. is a wholly-owned subsidiary of Yuhuan CNC Machine Tool Co., Ltd. (stock abbreviation: Yuhuan CNC, stock code: 002903), established in 2023. After years of accumulation, the company has formed a complete R&D system and process characteristics in the field of precision and efficient grinding and polishing. Based on existing technological advantages, according to the processing demands of grinding and polishing equipment in the semiconductor industry, the application of abrasives and grinding tools, and the company's early market business development plan, the company was established to better promote the development of new business. The company has a registered capital of 50 million yuan, focusing on the professional development of semiconductor processing-related equipment to further expand the market field of the company's products and create new business growth points for the company's future strategic development. Currently, it has more than 30 high-end technical R&D talents, has built and put into use a 1,400 square meter constant temperature and humidity R&D workshop, and a high-grade machine tool production workshop with complete functions and full support covering 3,600 square meters.

The company's products mainly include CNC grinding machines for semiconductor device processing, magnetorheological polishing machines, and new material abrasives and tools. The main products include single-side grinders, single-side grinding machines, double-side grinding and polishing machines, complex surface magnetorheological grinding and polishing machines, and supporting consumables. The CNC rate of machine tool products reaches 100%, and the products can be widely used in the processing fields of semiconductor, military and aerospace, 3C consumer electronics, automotive industry, new energy, new materials, and other industries.

The company will always adhere to the corporate spirit of "responsibility-based, Innovation-oriented, development as constant, and dedication as pride," aiming to "achieve cutting-edge manufacturing and revitalize the national industry" as the company's goal and mission. With a keen focus on innovation and progress, it is committed to becoming a leader in the field of semiconductor processing equipment and other industrial areas.

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Introduction

YH2MG8436 DOUBLE-SIDE GRINDING (POLISHING) MACHINE



Product images are for reference only, subject to the actual product

Features of the machine:

This machine is mainly used for high-precision double-side grinding and polishing of thin parts made of materials such as silicon carbide, sapphire, gallium nitride, zirconium oxide, silicon nitride, beryllium nitride, alumina, and aluminum nitride ceramics. It can meet the high-precision processing requirements of the parts' end faces.

>>> Typical work piece:



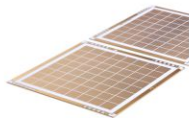
Silicon carbide



Sapphire



Ceramic



Copper-clad laminate

>>> Typical work piece:

1. The upper plate, lower plate, gear ring, and sun wheel are driven independently by four servo motors, ensuring high control precision.
2. The upper plate features a closed-loop wire rope sliding and suspension structure, effectively guaranteeing uniform pressure across all workpieces.
3. The upper plate has both rotating and stationary functions, allowing flexible selection according to processing requirements.
4. The lower plate utilizes high-precision bearings and hydrostatic bearing support to ensure accuracy and stability.
5. The gear ring's lifting is driven by a hydraulic cylinder from the central force point, ensuring smooth operation with minimal impact.
6. The liquid collection basin's splash guard is automatically raised and lowered by a pneumatic cylinder, facilitating easy loading and unloading.
7. Equipped with an automatic online measurement system, it can precisely control the thickness dimensions of the workpieces being ground.
8. The machine tool's processing program adopts a formula management approach, with multi-stage processing, making operation simple.

YH2MG8436 MAIN TECHNICAL PARAMETERS

No.	Item	Parameter
1	Upper and lower plate dimensions (Outer diameter × Inner diameter × Thickness)	Φ1127×Φ397×50mm
2	Number of planetary carriers	5
3	Maximum workpiece size that can be processed	335mm(diameter or diagonal length)
4	Workpiece thickness that can be processed	0.3-25mm
5	Maximum processing pressure	700Kg
6	Maximum rotation speed of the upper plate	30r/min
7	Maximum rotation speed of the lower plate	60r/min
8	Maximum rotation speed of the sun gear	25r/min
9	Maximum rotation speed of the ring gear	25r/min
10	Total power of the machine	21KW
11	Main machine dimensions (Length × Width × Height)	About 2000×1600×3080mm
12	Total weight of the machine	About 6000kg

YH2M18B HIGH PRECISION DOUBLE-SIDED GRINDING POLISHING MACHINE

Features of the machine:

This machine is mainly used for double-sided grinding and polishing of thin parts made of semiconductor materials such as silicon, germanium, quartz crystal, as well as non-metallic brittle materials such as optical glass and ceramics,

>>> Typical work piece:



Optical glass



Sapphire



Ceramic plate



>>> Typical work piece:

- 1. The upper plate, lower plate, ring gear, and sun wheel are independently driven by four motors, meeting the needs of multiple processes.
- 2. The sun wheel and ring gear use a screw drive for synchronous lifting, facilitating easy loading and unloading.
- 3. The upper plate features a universal adaptive structure, effectively ensuring the surface processing accuracy of the workpiece.
- 4. The upper plate is equipped with a safety self-locking device, providing high safety.
- 5. The grinding fluid adopts a three-stage filtration, effectively preventing scratches on the workpiece.
- 6. The machine is equipped with a dressing wheel, allowing for quick correction of the flatness error of the processing disc surface.

YH2M18B MAIN TECHNICAL PARAMETERS

No.	Item	Parameter
1	Workpiece Thickness	0.5~25mm
2	Maximum Workpiece Size	415mm (Diagonal Length or Diameter)
3	Upper/Lower Polishing Disk Size (Outer Diameter × Inner Diameter × Thickness)	Φ1280×Φ449×50mm
4	Planetary carriers	5
5	Maximum Processing Pressure	400Kg
6	Main Cylinder	Φ180×500mm
7	Lower Disk Speed (Variable Speed)	5-50r/min
8	Total Power	28KW
9	Main Machine Dimensions (Length × Width × Height)	About 2200×1700×2800mm
10	Total Weight of the Machine	About 7000kg

YH2MG84125 DOUBLE-SIDE LAPPING AND POLISHING MACHINE

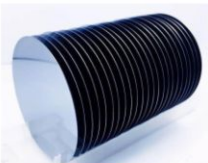


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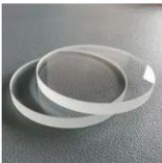
Features of the machine:

This machine is mainly used for high-precision double-side grinding and polishing of thin parts made of materials such as silicon carbide, sapphire, gallium nitride, zirconium oxide, silicon nitride, beryllium nitride, alumina, and aluminum nitride ceramics. It can meet the high-precision processing requirements of the parts' end faces.

>>> Typical work piece:



Silicon carbide



Sapphire



Ceramic plate



Ceramic copper clad laminate

>>> Typical work piece:

- 1. The upper plate, lower plate, ring gear, and sun wheel are independently driven by four servomotors, ensuring high control precision.
- 2. The lower plate uses high-precision bearings and turntable bearings to ensure accuracy and stability.
- 3. Equipped with an automatic online measurement system, it can achieve precise control of the workpiece grinding thickness dimension.
- 4. Equipped with eddy current and temperature sensors to realize online detection of workpiece thickness and real-time adjustment of upper plate deformation.
- 5. Equipped with a high-precision pneumatic pressure system to achieve pre-pressure, main pressure, and post-pressure in three stages of pressure control.
- 6. The machine tool comes with cooling filtration and an anti-freeze liquid constant temperature system to ensure the grinding disc does not deform, maintaining processing accuracy.
- 7. Capable of coordinating with robots for automatic loading and unloading, achieving unmanned operation.
- 8. The machine tool processing program adopts a formula management approach, with multi-stage processing, making the operation simple and convenient.

YH2MG84125 MAIN TECHNICAL PARAMETERS

No.	Item	Parameter
1	Upper/Lower Disk Size (Outer Diameter × Inner Diameter × Thickness)	Φ1250×Φ335×45mm
2	Number of Planetary carriers	4
3	Maximum Workpiece Size Processable	420mm (Diameter or Diagonal Length)
4	Maximum Processing Pressure	1500Kg
5	Maximum Speed of Upper Disk	30r/min
6	Maximum Speed of Lower Disk	60r/min
7	Maximum Speed of Sun Wheel	25r/min
8	Maximum Speed of Gear Ring	25r/min
9	Total Power of Equipment	55KW
10	Main Machine Dimensions (Length × Width × Height)	2900x2500x1000mm
11	Total Weight of the Machine	About 14000Kg

YHM7445 VERTICAL SINGLE-SIDE GRINDING MACHINE

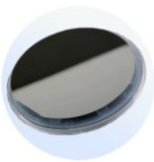


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Features of the machine:

This machine tool is mainly used for high-precision double-sided grinding and polishing of materials such as silicon carbide, single crystal silicon, silicon nitride, Zirconia, alumina, and aluminum nitride ceramics, capable of achieving high precision in part end faces and high requirements for surface precision processing

>>> Typical work piece:



Silicon Carbide



Sapphire



Gallium Nitride

>>> Typical work piece:

- 1. The bed adopts an integrated welded part, and the column is cast with advanced cast iron featuring high precision stability, strong shock absorption capability, and the arrangement of reasonable reinforcing ribs enhances the structure's strength. Welded parts and castings are both subjected to secondary annealing and shot blasting treatments to make the base components more stable and reliable.
- 2. The rotation of the worktable is supported by high-precision special rotary table bearings, driven by a servo motor and reducer to ensure rotational accuracy and smoothness.
- 3. The grinding head and the angle of the worktable can be adjusted, and it is convenient to check the angle, which can adapt to different continuous feed grinding methods.
- 4. Equipped with a strong magnetic suction worktable, and the magnetic attraction is controlled by a program.
- 5. The Z-axis uses a precision ball screw, paired with a stable and reliable servo system, to maintain high precision and high stability in the up and down tool movement.

YHM7445 MAIN TECHNICAL PARAMETERS

Item		Parameter
Workpiece	Maximum workpiece size	Φ200mm 8 inch
	Maximum thickness	100mm
Z axis	Rapid traverse speed Z	200mm/min
	Minimum feed unit	0.001mm
Working table	Worktable rapid traverse speed	1000mm/min
	Worktable load capacity	300kg
Motor Power	Spindle motor	15KW
Accuracy	Flatness	0.01/150mm
	Spindle radial runout	≤0.01mm
砂轮	Specifications	450×40×360mm Diamond grinding wheel
Size	Footprint of the main machine (length x width x height)	2600×1800×2950mm
	Machine weight	About 3.5t

YHMGK1720 PRECISION CNC MULTI-FUNCTION CYLINDRICAL GRINDING MACHINE



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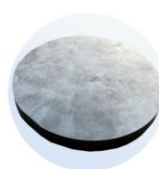
Features of the machine:

This machine tool is a precision CNC multi-function grinder capable of completing processes such as external cylindrical grinding, reference edge grinding, or V-Notch slotting of silicon carbide, sapphire, and other crystal ingots in a single setup.

>>> Typical work piece:



Silicon carbide



Crystal ingot



Sapphire crystal ingot

>>> Main feature::

1. This machine tool features a horizontal cylindrical grinding structure, with the headstock and tailstock fixed on the worktable. It is equipped with primary and secondary dual grinding wheel heads, which independently feed in the X-axis direction and move together in the Z-axis direction. This grinder can complete external cylindrical grinding and the processing of primary and secondary reference edges in two operations.
2. Workpieces are secured using the headstock and tailstock, and the external diameter of silicon carbide blanks is ground with a diamond grinding wheel of the external grinding head. Orientation is detected and positioned via X-ray, and a positioning plane is machined with the grinding wheel or a V-shaped groove is machined with a formed grinding wheel.
3. The main grinding wheel head operates at high speeds, with the maximum speed of the main grinding wheel reaching 12,000 rpm. The secondary grinding wheel head is used for cutting V-shaped grooves, with the maximum speed of the V-shaped groove grinding wheel reaching 4,000 rpm, ensuring good processing efficiency and accuracy.
4. Equipped with an orientation measurement device, used for directional detection before cutting grooves or primary and secondary reference edges.
5. The headstock is powered by a torque motor + rotary encoder spindle, allowing for precise positioning and locking of the workpiece.
6. Features the capability to rotate crystals at specific angles.
7. The grinding fluid system is capable of two-stage filtration, ensuring the cleanliness of the grinding fluid.
8. Designed with a hydraulic tailstock clamping function to secure the workpiece, which helps ensure machining rigidity and improve processing efficiency.

YHMGK1720 MAIN TECHNICAL PARAMETERS

Item	Unit	Parameter
Processed Product	-	Silicon Carbide, Sapphire Crystal Ingot
Processing Procedure	-	External Diameter Grinding, Reference Edge Cutting, V-Notch Grinding
Workpiece Diameter Range	mm	Φ100-Φ305
Workpiece Length Range	mm	10-100
Main Grinding Wheel Diameter	mm	Φ135
Main Grinding Wheel Speed	r/min	5000-10000
V-Notch Grinding Wheel Diameter	mm	Φ120
V-Notch Grinding Wheel Speed	r/min	2000-4000
Total Machine Weight	kg	5000
Machine Dimensions (LxWxH)	mm	2450×2300×2700