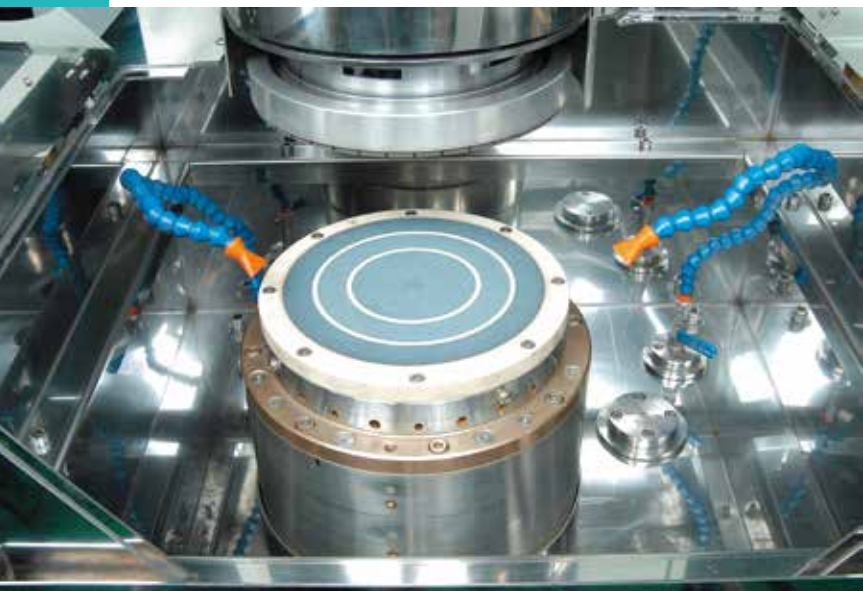


» 精密主軸

HIGH PRECISION SPINDLE

特殊設計的氣浮式主軸，可完全符合晶圓研磨的嚴格要求。馬達內藏於主軸內。主軸迴轉度可達0.1 μm。主軸無段變速範圍1,000 to 5,000 RPM

The air floating spindle is specially designed to fully meet the rigorous precision requirements for wafer surface grinding. The motor is built in the spindle assembly. The spindle running accuracy reaches 0.1 μm. Variable spindle speed ranges from 1,000 to 5,000 RPM.



« 氣浮式工作台 AIR FLOATING TABLE

- 先進的氣浮式工作台設計，完全因應晶圓研磨的嚴格標準。
- 陶瓷工作台面採用自我研磨，確保最佳的幾何度。工作台迴轉精度可達0.1 μm。

- The advanced air floating table is designed to meet the rigorous precision requirements for wafer surface grinding.
- The ceramic table surface is precision ground on the grinding machine to ensure outstanding geometric accuracy. Table rotation accuracy reaches 0.1 μm.

規格 SPECIFICATIONS

項目 ITEMS		JL-200SCG	JL-300SCGII
最大研磨面積 MAX. GRINDING CAPACITY	工件直徑 Workpiece Diameter	Ø200mm	Ø300mm
主軸 SPINDLE	型式 Type	氣靜壓主軸 Air Floating Spindle	氣靜壓主軸 Air Floating Spindle
	主軸數 Spindle Number	1	1
	功率 Motor	3.7 kw	11 kw
	轉速 Spindle Speed	1,000~5,000 rpm	1,000~3,000 rpm
Z軸 Z AXIS	刀具 Tool	Ø250 mm 砂輪 Grinding Wheel	Ø350 mm 砂輪 Grinding Wheel
	行程 Travel	120 mm	120-200 mm
	進給解析度 Feed Resolution	0.1μm	0.1μm
工作台 TABLE	快速進給 Rapid Traverse	300 mm/min	300 mm/min
	型式 Type	氣靜壓 Air Floating	氣靜壓 Air Floating
	工作台數 Table Number	1	1
厚度規 (選購) THICKNESS GAUGE (Optional)	轉速 Speed	0~500 rpm	0~500 rpm
	量測範圍 Measuring Range	0~1,000μm	-
	解析度 Resolution	0.1μm	-
重量 WEIGHT	重現精度 Repeatability Accuracy	±0.5μm	-
	機器重量 Machine Weight	2,000 kg	3,000 kg
尺寸 DIMENSIONS	主設備尺寸 Machine Space	600(W) x 1,700(D) x 2,100(H) mm	1,100(W) x 1,950(D) x 2,100(H) mm
	TTV	1.5μm	3μm
加工精度 MACHINING ACCURACY	厚度公差 Thickness Tolerance	-	±3μm
	表面粗度 Surface Roughness	Ra 0.02μm	Ra 0.02μm (砂晶圓 For Wafer)
占地面積 FLOOR SPACE	長 x 寬 (包括週邊設備) L x W (incl. Peripheral Equip.)	3,000(L) x 2,500(W) mm	2,200(L) x 1,700(W) mm

註：本公司隨時進行研究改善工作，因此保有隨時更改設計規格之權利，恕不另行通知。本目錄之規格僅供參考。
NOTE: Machine specifications and design characteristics are subject to change without prior notice. The specifications shown in the catalog are for reference only.

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ACV 2021.12.1500CE



High Precision Wafer Surface Grinding Machine 晶瓷加工機

JL-200SCG
JL-300SCGII

準力機械股份有限公司
JOEN LIH MACHINERY CO., LTD.

HIGH PRECISION WAFER SURFACE GRINDING MACHINE 晶瓷加工機

晶圓研磨簡述

AN INTRODUCTION TO WAFER GRINDING



晶瓷加工機的開發構想，基本上是承襲立式磨床加工原理。將鑽石砂輪鎖固在氣浮式主軸，針對表面精度及平面度要求極為嚴格的硬脆材料，執行立式研磨加工。在半導體製程中，最明顯的例子就是晶圓背磨製程。此製程決定晶片級封裝和系統級封裝中，最小可能封裝尺寸。事實上，晶圓製程所要求的嚴格平面度及表面粗糙度，唯有使用氣浮式主軸配合鑽石砂輪，將吸附於氣浮式工作台面的晶圓進行研磨加工，才能達所要求的精密度。

The design of the wafer grinding machine is basically inheriting the work principle of a vertical grinding machine. A diamond grinding wheel is fitted to the air floating spindle. The wafer grinding machine performs vertical grinding on hard and brittle workpieces requiring rigorous surface accuracy and flatness. One evident example is the use of wafer surface grinding during semi-conductor processes. This process will decide the minimum sizes for wafer sealing and system sealing. In fact, the rigorous requirements for surface flatness and roughness in wafer surface grinding can be achieved only by a specially designed wafer grinding machines. The machine employs an air floating spindle fitted with a diamond grinding wheel - the wafer is sucked onto an air floating table.



應用範圍 APPLICATIONS

晶瓷加工機是專用於晶圓、陶瓷、石英、玻璃、寶石等之精密研磨作業。

This machine is designed for precision grinding for various workpiece materials, such as, wafers, ceramics, quartz, glass and gems, etc.

機器特性

- 先進內藏式馬達氣靜壓主軸。
主軸迴轉精度可達 $0.1\ \mu\text{m}$ 。
- 氣靜壓旋轉工作台，符合嚴格的研磨度要求，工作台迴轉精度可達 $0.1\ \mu\text{m}$ 。
- Z軸進給解析度為 $0.1\ \mu\text{m}$ 。
- 最小進給率為 $10\ \mu\text{m}/\text{分}$ 。
- 快送速度為 $300\ \text{mm}/\text{分}$ 。
- 配備先進發那O_i控制器，功能強勁，為全數位控制系統。



OUTSTANDING FEATURES

- The motor is built in the air floating spindle. High spindle running accuracy reaches $0.1\ \mu\text{m}$.
- The air floating table meets rigorous requirements for grinding accuracy. Table rotation accuracy reaches $0.1\ \mu\text{m}$.
- Feed resolution on the Z axis is $0.1\ \mu\text{m}$.
- Minimum feed rate is $10\ \mu\text{m}/\text{min}$.
- Rapid traverse rate: $300\ \text{mm}/\text{min}$.
- Advanced powerful Fanuc Oi controller features full digital control.

標準附件

- 鑽石砂輪
- 法蘭
- 陶瓷真空吸盤
- 主軸溫度控制器
- 真空幫浦
- 工具箱及工具

特殊附件

- 精密級空氣乾燥機
- 高度規

STANDARD EQUIPMENT

- Diamond grinding wheel
- Flange
- Ceramic vacuum suction table
- Spindle temperature controller
- Vacuum pump
- Tool box with tool kits

OPTIONAL EQUIPMENT

- Precision air dryer
- Height gauge