

WSS3200

Wafer Sorting System



Highlights

WSS3200 is an automated wafer sorting system for 8" wafer. System comes with 2 SMIF Pod Openers, Hirata 4-axis dual arm ATM robot for consistent and efficient wafer handling. System equipped with Hirata wafer pre-aligner for wafer centering and orientation alignment for OCR wafer ID read on loaded wafer. Integrated with wafer mapping sensor for wafer absence, cross slot, double wafer detection. WSS3200 capable to perform various type of wafer sorting method, such as direct sorting based on wafer ID, splitting, merging, slot-to-slot, drag and drop sorting. SECS/GEM is available for upgrade for host communication.

Key Features

- 1x SMIF Pod Opener for 8" Wafer
- 4-Axis Hirata Dual Arm ATM Robot
- Hirata Wafer Pre-aligner for Wafer Centering & Alignment
- Integrated with Mapping Sensor for Wafer Presence, Double Wafer & Cross Slot Detection
- Programmable Wafer Sorting Recipe
- IOSS WID120 Wafer ID Reader
- HEPA/ULPA Filter Integration (Optional)
- SECS/GEM Communication (Optional)

Wafer Sorting System



1 SMIF Pod Opener

To handle SEMI standard 8" open cassette, comes with built in cassette presence and cassette tilt detection sensor.

2 Hirata 4-Axis Dual Arm ATM Robot with Actuator Slider

The dual arm ATM robot equipped with carbon fiber vacuum type end effector to achieve high throughput.

3 Mapping Sensor

For wafer presence, absence, cross slot and double wafers detection

4 Hirata Wafer Pre-aligner

For wafer orientation and centering alignment.

5 IOSS WID120 Wafer ID Reader

To read and validate the wafer ID on loaded wafer. System capable to support up to 2 readers for wafer top and backside ID read.

6 Ionizer

To eliminate electrostatic charge within the enclosed system.

System Capabilities

Operation Process Flow



Cassette Placement

SMIF Pod placement on the system ready for production.



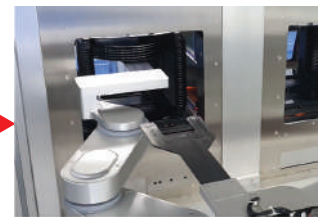
Start Lot

Via Manual Operation or SECS/GEM host control



Wafer Mapping

Map wafer position in cassette slot.



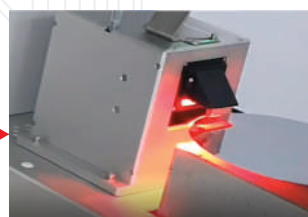
Load from Input Cassette

Dual robot arm efficiently load and transfer wafer.



Wafer Alignment

Wafer loaded for centering and alignment.



Wafer ID Reader

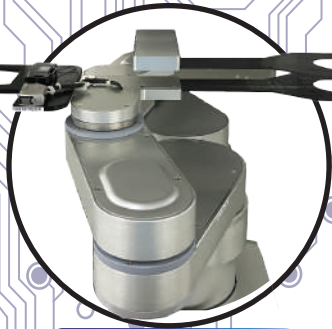
Read Wafer ID



Unload to Output Cassette

Processed wafer is sorted to designated slot at output cassette.

Features and Advantages



Hirata Dual Arm Robot

Hirata SMIF Pod Opener

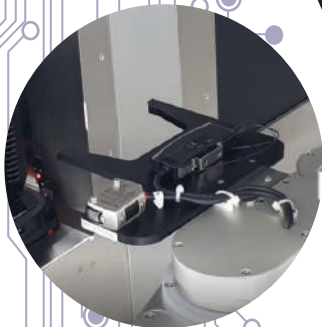
Reliable load port with fool-proof features to ensure the cassette placement is secured properly. It consists of cassette placement sensor and cassette tilt detection sensor.



SMIF Pod Opener

Quick & Efficient Handling

Equipped with Hirata 4-axis dual arm ATM robot to achieve higher throughput at 180 wafers per hour, inclusive of wafer alignment and OCR read. System comes with different wafer sorting methods such as sequential sorting, splitting, merging, wafer sorting based on wafer ID, slot-to-slot and also drag and drop.



Wafer Mapping Sensor

Wafer Mapping Sensor

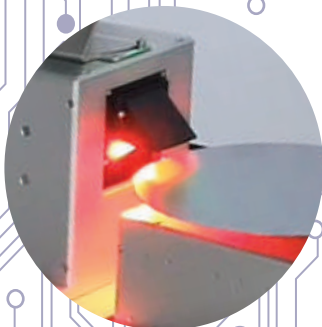
System integrated with the mapping sensor for quick and reliable detection of semiconductor wafers, inclusive of bright, dark or coated wafers. The mapping sensor is capable to detect slotting errors such as cross slot and double wafers within the cassette.



Hirata Wafer PreAligner

High Speed Alignment

Wafer Pre-aligner can be used to align both flat and notch type wafers. The system is capable to achieve advance alignment by high speed processing with the correction accuracy of $\pm 0.2^\circ$. The output orientation of the wafer can be predefined inside the sorting recipe.



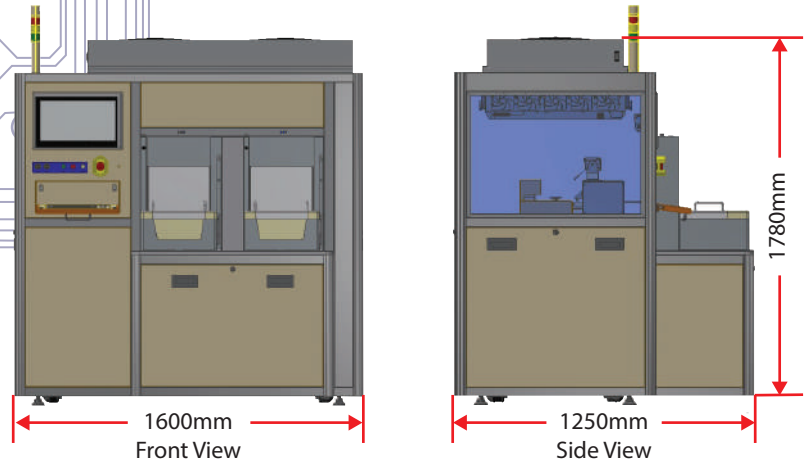
IOSS OCR Reader

Advanced Wafer ID Reader

With up to 18 different light modes, the IOSS WID120 can decodes OCR, Barcode, DataMatrix and QR-Code markings on any kinds of wafer, regardless of the wafer material. The user-friendly interface speeds up the process of teaching OCR reading.



Ionizer



Technical Specification

Wafer	
Wafer Size and Thickness	8" Wafer / 200µm-800µm
Warpage	Up to 1mm More than 1mm (<i>Sample Required for Engineering Test</i>)
Loading Port	
Load Port	2x SMIF Pod Opener
Carrier	SMIF Pod 8" Open Cassette (with adapter)
Load Port Sensors	Wafer Protrusion Detection SMIF Pod/ Cassette Presence Detection
Wafer Handling	
Robotic Handling	Hirata Dual-Arm Atmospheric Wafer Robot 4-axis Wafer Robot (R1, R2, Theta and Z axis) with Linear Actuator
Pre-Aligner	Hirata Wafer Pre-Aligner System for Wafer Centering & Orientation (Notch & Flat Configurable) Up to 4 Preset Wafer Output Orientation with Additional Key-in Input Selection
Wafer Handler	Ultra-high Modulus Carbon Fiber End Effector
Cassette Mapping	Mapping Sensor Integrated into Robotic Arm Wafer Presence/Absence, Cross Slot and Double Wafers Detection
Operation Mode	
Transfer Mode	Sequential Sorting, Slot-to-Slot Sorting & Wafer Selection Sorting (with & without ID) Cassette to Cassette Transfer (include Pre-aligner & OCR) with minimum 180 WPH
Wafer ID Reader	
Model	IOSS WID120 OCR Reader
Interface	TCP-IP & RS232
Code Types	Barcode: BC412/IBM412, IBM & SEMI T1-95, Base35 2D Matrix: Data Matrix™ECC200, SEMI T7, M1.15 Alphanumeric: SEMI OCR M12, M13, M1.15, SEMI T1.95
Standard Accessories	
Monitor Display	Touch screen LCD Panel with Window 10 Operating System
Status Indicator	Up to 4-Tier Tower Light with Adjustable Buzzer Volume
Ionizer	Nozzle Type & Fan Type Ionizer
Cassette Type Sensor	Integrated Cassette Detection Sensor to Differentiate Cassette Type (Optional)
Clean room Accessory	HEPA/ULPA Filter (Optional)
Remote Operation	SECS/GEM Host Communication (optional)
Facilities Requirement	
Power Supply	200-240VAC, 60/50 Hz Single Phase
Compressed Air	4-6 Bar
Vacuum	-80kPA
Dimension	
Foot Print	1600mm (L) x 1250mm (W) x 1780mm (H)

* The information in this catalogue is correct at the time of printing. QES Mechatronic reserves the right to make design changes or improvements. Specification are subject to changes without prior notice

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