

# WSS2200

## Wafer Sorting System



### Highlights

WSS2200 is designed for 6" and 8" automated wafer sorting operation. It has 4 load ports to accommodate SEMI Standard 6" and 8" Open Cassettes. The system used Hirata dual ATM robot arm for consistent and efficient wafer handling. Hirata pre-aligner unit provides precise wafer centering and orientation alignment during the wafer transfer. Integrated wafer mapping sensor provide quick judgement for the operation via feedback wafer presence and slotting error to the system. The system's recipe library is controlled using an intuitive UI and simple recipe management. The system come with various type of wafer sorting capability such as sorting based on wafer ID, splitting, merging, drag and drop, and slot-to-slot sorting. SECS/GEM protocol option is available for automation host communication for total system integration.

### Key Features

- Designed for SEMI Standard 6" and 8" Open Cassette
- 4-axis Hirata Dual-Arm ATM Robot Arm (R1-R2-θ-Z)
- Hirata Wafer Alignment Module
- Intergrated Wafer Mapping Sensor for Wafer Presence, Double or Cross Slot Wafer
- Programmable Wafer Sorting Recipe
- IOSS WID120 Reader
- TCP-IP & RS232 Data / Interfaces

## Wafer Sorting System



### ① ② ③ ④ Cassette Load Port

Build to support loading of 6" and 8" SEMI Standard Open Cassette, the load ports is installed with cassette presence and tilt detection sensor and poka-yoke design. The load ports are customizable to support other cassette type upon request.

### ⑤ Hirata 4-axis Robot Arm

The dual robot arm are equipped with vacuum end effectors for high speed and precision transfer.

### ⑥ Mapping Sensor

Predefine wafer presence, absence and slotting error in a cassette at the beginning of transfer process.

### ⑦ Hirata Pre-aligner

Carry out wafer orientation and centering alignment for 6" and 8" wafer.

### ⑧ ⑨ WID120 OCR Reader

Validate the correct processed wafer within a production lot. The system capable to support up to 2 OCR Reader module.

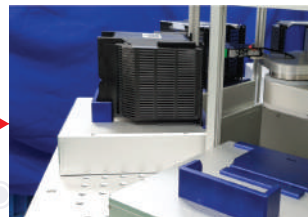
## System Capabilities

### Operation Process flow



*Cassette Placement*

Cassette ID detected via auto cassette reader intergrated in the system.



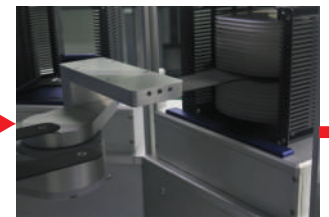
*Auto Mapping*

Map wafer position in cassette slot.



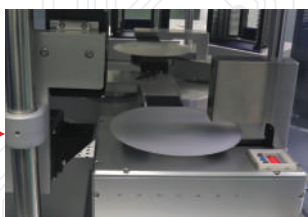
*Start Lot*

Via Manual Operation or SECS/GEM host control.



*Load from Input Cassette*

Dual robot arm efficiently load and transfer wafer.



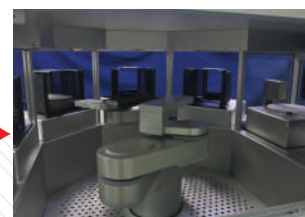
*Wafer Alignment*

Wafer loaded for centering and alignment.



*Wafer ID Reader*

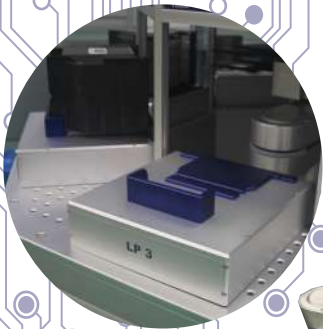
Read wafer ID.



*Unload to Output Cassette*

Processed wafer is sorted out to designated output.

## Features and Advantages



Cassette Load Port

### Fool Proof Design Load Port

Each load port has fool-proof features to ensure cassette placement is properly secured onto the load port. The load port can be customized to support different cassette type such as disco cassette.



Hirata ATM Robot

### Quick & Efficient Handling

WSS2200 is equipped with 4-axis dual arm Hirata ATM Robot which provide high performance and effective wafer handling during process.



Wafer Mapping Sensor

### Mapping Sensor

Integrated together with the wafer 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 cassettes.



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  $\pm 0.2^\circ$ . Through the use of pre-aligner, the ATM robot can transfer wafers with any predefined wafer output orientation.



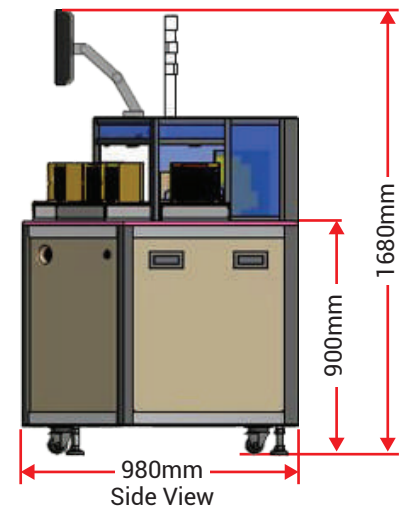
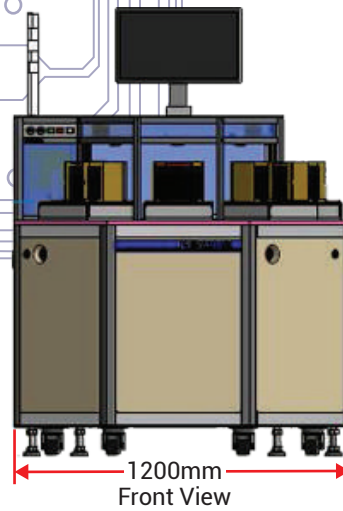
IOSS OCR Reader

### 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.



Adjustable Monitor



## Technical Specification

Wafer	
Size/ Thickness	6" Wafer Size / 150µm to 800µm 8" Wafer Size / 250µm to 800µm
Wafer Warpage	Up to 1mm More than 1mm (Sample Required for Engineering Test)
Loading Port	
Load Port	4 x Open Cassette Ports
Carrier	6" and 8" Open Cassette (SEMI Standard) Other Cassette Type (Optional)(Sample Required for Engineering Test)
Load Port Sensors	Integrated with Photoelectric Sensor to Identify 6" & 8" Open Cassette Wafer Protrusion Detection
Wafer Handling	
Robotic Handling	Hirata Dual-Arm Atmospheric Wafer Robot 4-axis Wafer Robot (R1, R2, Theta and Z axis)
Pre-Aligner	Hirata Wafer Pre-Aligner System for Wafer Centering & Orientation (Notch & Flat Wafer)
Transfer Mode	Cassette To Cassette (include Pre-Aligner + OCR) approximately 170 WPH
Cassette Mapping	Mapping Sensor Integrated into Robotic Arm Wafer Cross Slot & Double Wafers Detection
Wafer ID Reader	
Model	IOSS or Cognex OCR Reader
Interface	TCP-IP & RS232
Code Types	Alphanumeric: SEMI M12,T7, M1.15 Compliance
Standard Accessories	
Operating System	Microsoft Window 10 Pro Operating System
Monitor Display	LCD Panel with Adjustable Bracket
Status Indicator	4-Tier Tower Light with Adjustable Buzzer Volume
Wafer ID Reader	IOSS or Cognex OCR Reader for Top Wafer ID IOSS or Cognex OCR Reader for Bottom Wafer ID (Optional)
Cassette ID Reader (Optional)	Integrated 2D Barcode Reader Code Types: QR, MicroQR, Barcode
Remote Operation	SECS/GEM Host Communication (Optional)
Facilities Requirement	
Power Supply	200VAC - 240VAC, 50/60 Hz Single Phase
Compressed Air	4- 6 Bar
Vacuum	-80kPA
Dimension	
Foot Print	1200mm (L) x 980mm (W) x 1680mm (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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