System Overview

The CHAD WaferMate200 wafer handler delivers significant performance and cost savings for advanced semiconductor packaging. This system provides fully automated wafer handling for SMEMA compatible back-end process modules and supports wafer sizes up to 200mm (8”) in diameter. The CHAD WaferMate200 provides high-precision wafer handling and throughput at exceptional value. Application flexibility, high precision, and bulletproof reliability—-together with plug-and-play ease of use—-ensure that the CHAD WaferMate200 will meet your most aggressive wafer handling needs.

The CHAD WaferMate200 marks an evolution of wafer handler design. This new, compact design features the capability to handle 100mm, 125mm, 150mm, and 200mm wafers; thin, double-sided and glass wafers; configurable flow direction (left or right); reduced lead-time and cost; as well as OCR and barcode options. The WaferMate200 can be expanded and reprogrammed for use as either part of a line or as a stand-alone batch tool by adding an optional wafer interface for a reflow oven. In addition, the CHAD WaferMate200 supports wafer and lot tracking, SECS/GEM communication, as well as clean air source options. This level of modularity, programmability, and the full range of standard and custom options allow the new CHAD WaferMate200 to evolve with your advanced packaging needs for years to come.

Key Features:

- Small footprint - efficient wafer handling layout (30” W x 55” L)
- Support for 100mm to 200mm wafers
- Standard Configuration: 2 cassettes = 50 wafers inventory
- High Utilization Configuration: 6 cassettes = 150 wafer inventory
- 180 wafer per hour handling capacity
- 4-axis atmospheric robot with absolute encoders and fully integrated PC- based control system
- Wafer pre-aligner options
- SMEMA compliant for plug-and-play installation
- CE and SEMI S2/S8 compliant
- Color monitor and keyboard with integrated GUI for operator interface, maintenance and troubleshooting

Key Benefits:

- Tightly integrated automated system solution
- Capable of supporting up to 6 cassettes
- Scalable performance with a seamless options and upgrade path
- Proven reliability (5th generation design)
- Low cost of ownership
- Worldwide support and service

FOR MORE INFORMATION:

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CHAD
CHAD WaferMate200 AUTOMATED WAFER HANDLER
Cost-Effective Automated Wafer Handling for Advanced Semiconductor Packaging

Key System Options:

- 100mm-200mm wafer support from open cassette shelves
- High Utilization Configuration using 6 cassettes (150 wafer capacity)
- Through-beam wafer mapping
- Vacuum and edge-grip end-effectors
- Wafer flipping
- Symmetrical design supports process tools on left hand- and/or right hand- side of workcell
- PTFE Ultra Low Particle Attenuation (ULPA) clean air system for up to ISO Class 3 cleanliness
- Optical Character Recognition (OCR), barcode, and data-matrix reading for wafer tracking
- Barcode (Pistol Grip or Fixed Position), Radio Frequency Identification (RFID)
- SECS/GEM software interfaces for communication with factory automation
- Internal tool area lighting

Performance Specifications:

- Pre-alignment of 100mm, 125mm, 150mm, and 200mm wafers with +/-0.5 degrees theta accuracy
- Wafer placement accuracy: +/- 50 µm
- Standard SEMI and SMEMA interfaces
- Up to ISO Class 3 or better cleanliness at the wafer surface. (Optional)
- PC-based control system for offline process flow development
- CE & SEMI S2/S8 compliant

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JEL Automation 4-Axis GHR Robot
CHAD WaferMate 200 AUTOMATED WAFER HANDLER
Cost-Effective Automated Wafer Handling for Advanced Semiconductor Packaging

Key System Components and Options:

**JEL 4-Axis GHR Robot**
- Uses absolute encoders to enable precise robot positioning without recalibration
- Fully integrated controller utilizing CHAD software
- ISO Class 3 cleanliness compatibility
- MTBF of over 60,000 hours

**JEL Controller**
- Enables complete factory control with RS-232, RS-422/485, and parallel photo I/O
- PC based operating system running CHAD GUI

**Optional Pre-aligner**
- Three-axis system automatically detects wafer size (100mm, 125mm, or 150mm and 200mm)
- High-speed orientation for better overall throughput, placement and orientation of the wafer
- MTBF of over 60,000 hours

**Optional Pallet Transfer Module**
- Designed to hand off to third party printer process tools
- Transfers the wafer under the print head of the screen printer
- Three retractable lift pins allow the end effector to reliably place the wafer on the pallet transfer module
- Wafer positioning repeatability is +/- 100 µm
- Variable speed control to match conveyor speed

**Wafer Mapping**
- Through-beam sensor senses the edges of wafers in the cassette
- Detects wafer protrusion, presence, absence, cross-slotted wafers and double stacked wafers

**Custom Mechanical Interfaces**
- Flexibility to interface with a variety of third-party back-end process systems and tools, including screen printers and reflow ovens

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