CHAD WAFER LOADER WLM SERIES
Cost-Effective Automated Wafer Handling for Advanced Semiconductor Packaging

System Overview:

The CHAD Wafer Loader WLM™ Series delivers significant performance and cost savings for wafer level packaging applications. This system provides fully automated wafer handling for back-end of line (BEOL) process and metrology tools. The WLM series can handle a wide range of wafer sizes (up to 300mm in diameter), wafers with active devices on both sides, thin wafers, and other types of non-standard substrates. Other features include a configurable flow direction (left or right); an ergonomic cassette elevator; various types of cassette I/O, as well as OCR and bar code reading options.

The WLM Series can be configured for use as either a stand-alone wafer-sorting tool or as part of a process line by adding optional wafer transfer modules to directly interface with other equipment. In addition, the WLM Series supports SECS/GEM communication, SMEMA interfaces, as well as wafer and lot tracking. This level of modularity, programmability, and full range of standard and custom options allow the WLM Series to evolve with your advanced packaging needs for years to come.

Key System Features:

- Support for 125mm to 300mm wafers (5” to 12”)
- High capacity – up to 200 wafers (150mm)
- Three wafer/minute handling/throughput capacity
- Adept Controller with Adept V+ and AIM software
- Adept Vicron 300S wafer handling robot
- Wafer pre-aligner
- 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
- Small footprint – efficient wafer-handling layout

Key Benefits:

- Tightly integrated automated system solution
- Capable of supporting eight cassettes or up to 3.5 hours worth of wafers
- Scalable performance with a seamless options and upgrade path
- Proven reliability
- Low cost of ownership
- Worldwide support and service

FOR MORE INFORMATION:

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Key System Options:
- 125mm-300mm wafer compatibility
- 300mm FOUP load ports
- 200mm SMIF load ports
- 125mm, 150mm and 200mm cassette ports
- Robot-mounted wafer mapper
- DEK Galaxy, Infinity or Horizon screen printer interface
- CHAD Pallet Transfer Module
- Optical Character Recognition (OCR) for wafer tracking
- Bar code (Pistol Grip or Fixed Position), Radio Frequency Identification (RFID), and Infrared (IR) (300mm only) for lot tracking
- PTFE Ultra Low Particle Attenuation (ULPA) clean air system
- SECS/GEM software interfaces for communication with factory automation
- Internal tool area lighting
- ESD Control

WLM Standard Configurations and Specs:
- 300mm configuration: up to two FOUPs (50 wafer capacity)
- 200mm configuration: up to six open cassettes (150 wafer capacity)
- 150mm configuration: up to eight open cassettes (200 wafer capacity)
- 125mm configuration: up to eight open cassettes (200 wafer capacity)

Performance Specifications:
- Wafer pre-alignment with +/-0.5 degrees theta accuracy
- Wafer placement accurate to +/- 50 µm
- SEMI Standard and SMEMA interfaces
- AdeptWindows controller for offline process flow development
- Up to ISO Class 2 cleanliness via integrated clean air systems
- CE and UL certified; SEMI S2, S8 compliant
- Four to eight cassette capacity holds up to 2-3 hours WIP

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Key System Components and Options:

Adept Vicron 300S 3-Axis Robot
- Uses absolute encoders to enable precise robot positioning without recalibration
- Adept controls, ensuring seamless integration and compatibility with the entire Adept product line
- Class 1 cleanroom robot
- MTBF of over 60,000 hours

Adept Controller
- Enables complete factory control with RS-232, RS-422/485, 10/100BaseT, and DeviceNet Controls the Vicron 300S and all other motion, vision, communication and digital I/O components of the Wafer Loader System
- Adept V+ real time operating system and programming language

Adept Align650 Pre-aligner
- Three-axis system automatically detects wafer size (150mm, 200mm or 300mm)
- Centers and aligns wafer without user intervention
- High-speed orientation for better overall throughput, placement and orientation of the wafer
- MTBF of over 60,000 hours

Pallet Transfer Module
- 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
- Capability to handle warped and bowed wafers

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

BEOL Equipment Interface Kits
- Flexibility to interface with a variety of third-party BEOL process and metrology tools, such as screen printers, reflow ovens and inspection tools

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