The Chad WaferMate300-2RT™ Sorter/Buffer is a flexible wafer management system based upon CHAD’s proven WaferMate300 workcell. The workcell is designed to be highly adaptable to a variety of handling requirements, and to minimize operator involvement for handling in-process wafer product.

The workcell is ideally suited for clean, flexible, production environments where space is limited, and product is staged in small-to-medium sized lots.

The WaferMate300-2RT™ features super reliable, absolute encoder, 4-axis robots that can access up to 5 locations without a linear track. This reduces cost and system complexity. The robot utilizes fluid-magnetic seals, which provide stand-alone ISO class-1 cleanliness, and enjoy a worldwide install base in the tens of thousands. Configuration options for higher throughput requirements include dual-arm, split arm and wrist axis.

The robot can be equipped with a variety of end effector technologies including vacuum grip, edge grip, and Bernoulli type grip.

Two 3-axis aligners are used to center and orientate the product. The aligner is versatile to handle a variety of wafer sizes and materials without any tooling change over.

The WaferMate300-2RT™ workcell is BOLTS compatible, so it can easily be configured for 300mm FOUP loadports, 200mm SMIF loadports using CHAD’s SMIF-EZ™ pod opener, or 100mm to 200mm wafers CHAD’s open cassette loadports. The workcell can also be configured with a cassette shelf module to replace the FOUP BOLTS interface, and allow for dedicated open cassette processing.

The standard configuration has two loadports, and two or three stocker module locations. This configuration can be expanded to service additional stocker modules by mounting the robot on a track.

Each stocker module is self-contained, with its own power supply, mapping features, and safety interlock access. A cassette rack inside each module contains up to 150 individual shelves for material storage. The rack is mounted to an elevator so that the product can be moved into the robot work area. Fan filter units can be included to provide Class-1 Cleanliness, and ionizers can be added for additional product protection.

The cassette rack can be tooled to handle a variety of different wafer sizes (100mm to 300mm) and product types (reticle, cassette box, substrates). Since each stocker module can inventory a different product, this allows an operator to enter product requests and have the workcell retrieve and issue a kit of materials.

CHAD’s systems are made highly effective with WaferWare®, a third-generation, flexible software suite that allows wide-ranging application and GUI control. The workcell is preloaded with a wide range of recipes to handle most customer requirements, but additional handling requirements can be developed as needed.
The WaferMate300-2RT™ workcell offers a variety of options to enter data and track product. Options for RFID tracking, OCR reading, and Barcode scanning allow the workcell to perform sorting, stocking, and kitting functions quickly and easily. By communicating with the factory host via SECS/GEM, the workcell can be fully integrated into the production environment.

**Standard Accessories**
- FOUP Opener
- SMIF pod Opener
- Open Cassette Loadport
- Open cassette shelf
- Aligner
- OCR
- Barcode
- RFID
- Mini environment
- Ionization bars
- Wafer flip module
- SECS/GEM interface
- Dual arm robot

**Performance Specifications (single arm robot)**
- Wafer alignment to +/-0.05°
- Wafer Placement +/-50μm
- 180 wafers per hour (sorting, with OCR)
- 260 wafers per hour (stocking, no OCR)
- Cleanliness up to ISO class 1 (optional)
- Full SEMI compliance
- CE, S2, S8, E84, E87
- 98% Uptime
- MTBF 30,000 hrs

**Facilities Requirements** (approximate)
- 220VAC +/-10% @ 50/60 Hz
- Single Phase 3 wire
- 20 amps
- VAC 24mmHG @ 1lpm (and/or)
- CDA 90psi @ 2lpm

**Input / Output Capacity**
- Up to three open cassettes (on shelf)
- Up to two FOUPs, or SMIFs, or Open cassette loadports

**Stocking Capacity**
- 150 wafers per stocker module
- Up to Three stocker modules (standard workcell configuration fixed robot)
- Four or more stockers (with robot mounted on track)

<table>
<thead>
<tr>
<th>CHAD WaferMate Sorter/Stocker Handling System Features:</th>
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<tbody>
<tr>
<td>- Small footprint</td>
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<td>- Integrated design</td>
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<td>- Intelligent wafer tracking</td>
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<td>- Compatible from 50mm to 300mm</td>
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<tr>
<td>- SEMI standard presentation (FOUP, Open Cassette, SMIF pod)</td>
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<tr>
<td>- Non-scratch wafer handling</td>
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<td>- Simple PC software</td>
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<td>- OHT compliant interface</td>
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<td>- Low cost of ownership</td>
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<td>- Wide range of compatible options</td>
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<td>- Worldwide support and service</td>
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<td>- SEMI S2, S8, and CE compliant</td>
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**FOR MORE INFORMATION:**
JABIL-CHAD
1565 S Sinclair Street
Anaheim, CA 92806

PHONE: (714) 938-0080
FAX: (714) 938-0630
WEB: www.chadindustries.net
For 100mm to 200mm Applications