

FLEXIBLE WAFER HANDLING SOLUTIONS

FOR ATMOSPHERIC AND VACUUM ROBOT APPLICATIONS

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HIGHER RELIABILITY, PRECISION AND
CONFIGURABLE WAFER HANDLING FOR
IMPROVED AVAILABILITY, YIELD AND
TIME TO MARKET

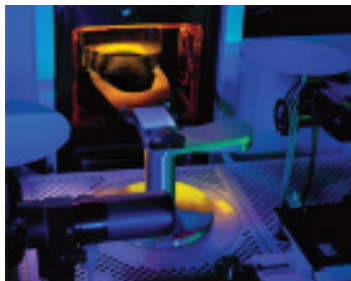
MOTION CONTROL SUBSYSTEMS WITH FLEXIBLE ARCHITECTURE

Finally, a high performance complete solution for OEM's in the semiconductor and photovoltaic industry as well as OEM's seeking to retrofit existing systems. Moog has leveraged its precision positioning in wafer handling by adding vacuum and atmospheric robots.

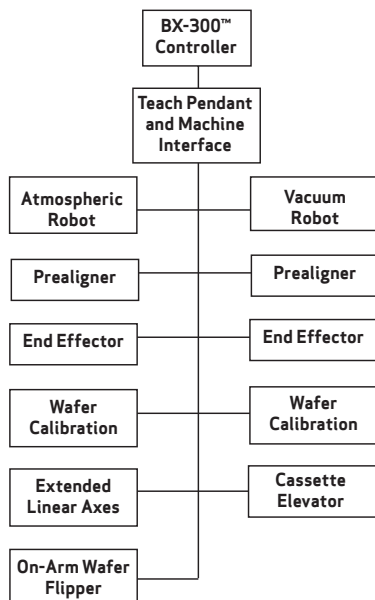
The wafer handling solution includes a controller, software, aligners and secondary actuators that go into designing and supplying a high-performance system, assuring more flexibility and less downtime.



A wide range of standard, configurable wafer handling system building blocks for Atmospheric and Vacuum applications



WAFER HANDLING SYSTEM



ATMOSPHERIC AND VACUUM ROBOTS

- Excellent structural rigidity
- Maximum reliability and precision
- Wafer handling up to 450 mm
- Heavy payload capability
- MTBF: > 50,000 operating hours
- Industry standard footprint and mounting configurations
- Modular concept with multiple standard configurations and various communication interfaces



ATMOSPHERIC

VACUUM

BX-300™ Controller

- Pre-integrated controls – reduce cost and time to market
- Advanced software; already written, integrated, proven
- 6 internal drives, and 8 axes of motion control



SPECIFICATIONS

Models	Vacuum Series	Atmospheric Series
Configuration		
Wafer Size	Up to 300 mm	Up to 450 mm
Mounting Configurations	Top flange standard Custom flanges available	Top flange standard Bottom mount available
Operating Properties		
Payload Capacity		
Standard	1 kg	up to 2 kg
Heavy Duty	10 kg*	n/a
Cleanliness	Class 1	Class 1
Controller		
Interfaces	Ethernet, RS-232 serial	Ethernet, RS-232 serial
Input Power	120 VAC, 2-5A typ. (motor drive) 24 VDC, 2A plus user I/O (logic and I/O)	120 VAC, 2-5A typ. (motor drive) 24 VDC, 2A plus user I/O (logic and I/O)

* We have robots that can handle 10 kgs with a reach of 1400 mm.

Full specifications and details available for all models.

AUTOCALIBRATION® TECHNOLOGY

Autocalibration technology improves semiconductor fab equipment productivity by automating critical robot calibration processes that are conventionally performed by technicians using time-consuming and subjective manual methods. Autocalibration technology applies a mix of sensing techniques—including touch—to support diverse wafer station designs, in atmospheric and vacuum environments. It has been implemented with a broad spectrum of wafer-handling robots.

DYNAMIC WAFER CALIBRATION™

The precision calibration capabilities of Autocalibration technology enable Dynamic Wafer Calibration (DWC)—on-the-fly wafer center calculation and correction.

Suitably located optical sensors, precisely calibrated with Autocalibration technology, provide the calibrated location of the center of the end effector. Subsequent wafer passage through those optical sensors paths are processed by the DWC algorithm, which calculates the wafer center relative to the end effector center, and then seamlessly directs position correction before the wafer is placed.

Dynamic wafer calibration ensures correct wafer centering—without the throughput penalty of conventional wafer aligner use for this purpose. Autocalibration technology makes it precise and reliable.



CONFIGURABLE ROBOT COMPONENTS TO MEET THE DEMANDS OF ANY WAFER HANDLING SYSTEM

Prealigners

- 75 – 300mm wafers
- Fixed or software controlled wafer size adjustment for multiple wafer sizes
- Optional Pin lift



Software

- Semiconductor Toolkit enables configuration, set-up and in-situ diagnostics.
- Intuitive user interface
- Eliminates programming time
- Supports your choice of modular objects
- Enables wafer path optimization, inventory tracking, auto and dynamic calibration



End Effectors

- For 75 – 300mm wafers
- Vacuum and Edge grip; Pocket type
- Custom end effectors for other substrates and specific system needs can be designed



On-Arm Wafer Flipper

- Used in combination with a vacuum grip end effector to rotate wafer 90 or 180°

Cassette Elevator

- Vacuum elevator mechanism
- Elevator is fully integrated into the control system (require no special control software)



Extended Travel Linear Axes

- Linear axes to extend horizontal and vertical reach are available
- Linear axes are fully integrated into the control system (require no special control software)

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This technical data is based on current available information and is subject to change at any time by Moog. Specifications for specific systems or applications may vary.

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