



# Cassette Load Ports

## Wafer Handling Robotic Components

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# ALP-200 Atmospheric Cassette Load Port

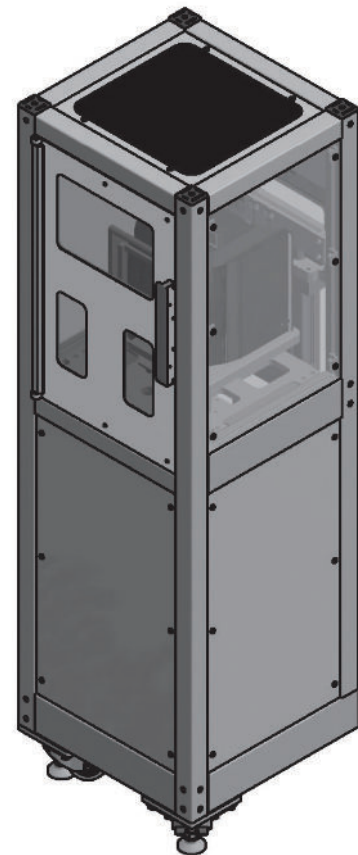
## Wafer Handling Robotic Components

### FEATURES

- ▶ **High reliability of > 3 million MCBF**
- ▶ **Handles wafer sizes up to 200mm**
- ▶ **Sophisticated automation features including wafer mapping, wafer cross-slot detection**
- ▶ **Safety interlocks**
- ▶ **Atmospheric capability**
- ▶ **RS-232 / Ethernet control interface**
- ▶ **Valve door**

### OPTIONS

- ▶ **25 or 50 wafer cassettes**
- ▶ **Cassette cradles**



Designed to provide cassette loading and unloading capabilities, our Atmospheric Cassette Load Ports can be customized to adapt to a customer's specific requirements. The various Load Port configurations are built around the Hine Automation Vacuum Elevators with material indexing and positional sensing capabilities.

The ALP-200 is an atmospheric load lock designed to transfer semiconductor substrates loaded in a cassette and become an advanced factory interface that links the wafer fabrication environment with the OEM cluster system. It features one atmospheric elevator, the HAtm-50, advanced material sensors, and safety interlocks. The ALP-200 includes sophisticated automation features such as wafer mapping and wafer cross-slot detection. The ALP-200 can interface with a wide variety of cluster systems and can be customized to fit your unique needs.

Full system integration requires only limited facilities connections and an Ethernet control interface. With a complete onboard control system, our Load Ports function as an intelligent material handling sub system.

# ALP-200 Atmospheric Cassette Load Port

## Wafer Handling Robotic Components

Specifications	Atmospheric Load Port (ALP)
Wafer Sizes	$\leq 200\text{mm}$ 300mm (for MLP-300 only)
Transfer Height	1100 mm
Mapping Time	10 seconds
Payload Capacity	Up to 34kg
Max Operating Temperature	100°C
Reliability	3,000,000 MCBF

# CLP-200 Vacuum Cassette Load Port

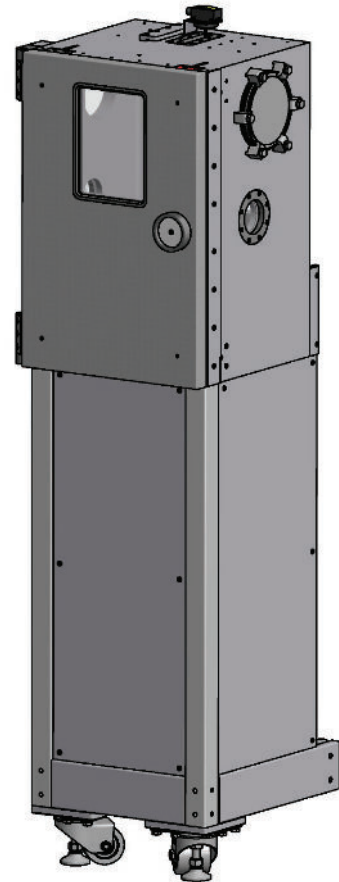
## Wafer Handling Robotic Components

### FEATURES

- ▶ High reliability of > 3 million MCBF
- ▶ Handles wafer sizes up to 200mm
- ▶ Safety interlocks
- ▶ High Vacuum Capability
- ▶ RS-232 / Ethernet Control Interface
- ▶ High Through-put
- ▶ "Plug & Play" Vacuum Transport System
- ▶ Wafer & Cassette Sensors for System Readiness
- ▶ Reduced System Footprint
- ▶ Universal Head Plate
- ▶ Sophisticated automation features including wafer mapping, wafer cross- slot detection

### OPTIONS

- ▶ Dual Wafer Mapping Sensors
- ▶ Multiple View ports on side and door of CLP
- ▶ Wafer Cassette on Tilt-Out Cassette Cradle Assembly
- ▶ Slit Valve or Valve door



Designed to provide cassette loading and unloading capabilities our Vacuum Cassette Load Ports can be customized to adapt to a customer's specific requirements. The various Load Port configurations are built around the Hine Automation Vacuum Elevators with material indexing and positional sensing capabilities.

The CLP-200 is a vacuum load lock designed to transfer semiconductor substrates loaded in a cassette and become an advanced factory interface that links the wafer fabrication environment with the OEM cluster system. It features one vacuum elevator, the HA-50V, advanced material sensors, and safety interlocks. The CLP-200 includes sophisticated automation features such as wafer mapping and wafer cross-slot detection. The CLP-200 can interface with a wide variety of cluster systems and can be customized to fit your unique needs.

Full system integration requires only limited facilities connections and an Ethernet control interface. With a complete onboard control system, our Load Ports function as an intelligent material handling sub system.

# MLP-200 Vacuum Mini Load Port

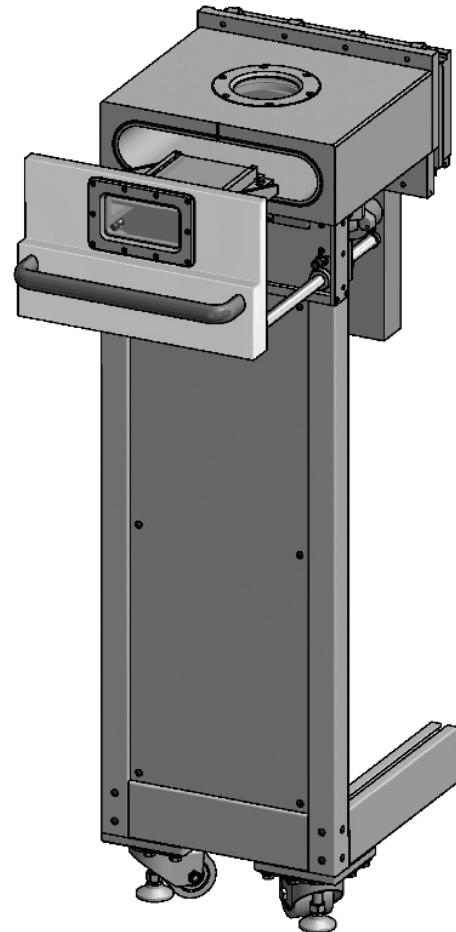
## Wafer Handling Robotic Components

### FEATURES

- ▶ High reliability of > 3 million MCBF
- ▶ Handles wafer sizes up to 200mm
- ▶ Safety interlocks
- ▶ High Vacuum Capability
- ▶ RS-232 / Ethernet Control Interface

### OPTIONS

- ▶ Vacuum gas plumbing
- ▶ 1-4 wafer cassettes
- ▶ Slit Valve or Valve door



Designed to provide cassette loading and unloading capabilities for the Constellation family of cluster systems our Vacuum Cassette to Cassette Load Ports (CLP) can be customized to adapt to a customer's specific requirements. The various Load Port configurations are built around the Hine Automation Vacuum Elevators with material indexing and positional sensing capabilities.

The Vacuum Mini Load Port (MLP) is designed as a single and multi-wafer Load Port to provide loading and unloading capabilities for Hine's Integrated Wafer Handling Systems. The MLP configuration is cost-effective solution for application where a full Cassette is not required. The MLP also includes a self-centering design for the cassette and wafer, eliminating the need for a positional alignment device.

Full system integration requires only limited facilities connections and an Ethernet control interface. With a complete onboard control system, our Load Ports function as an intelligent material handling sub system.

# Vacuum Cassette Load Ports

## Wafer Handling Robotic Components

Specifications	Mini-Load Port (MLP)	Manual Door CLP	Autodoor CLP
Wafer Sizes	≤ 200mm 300mm (for MLP-300 only)	≤200mm 300mm (for CLP-300 only)	
Door Open/Close Time	N/A		16 seconds
Air Pressure (Autodoor)	N/A		
Mapping Time	N/A	20 seconds	
Payload Capacity	Up to 34kg		
Base Operating Pressure	<5.00 E-6 Torr		
Leak Rate	<2.0 x 10-8 scc He/sec		
Total Weight	~110Kgs (240 lbs.)		
Reliability	N/A	3,000,000 MCBF	



# About Hine Automation

Hine Automation, LLC is a designer and manufacturer of automation systems and robotic components. We serve Original Equipment Manufacturers (OEMs) in the semiconductor, solar, flat panel display and related industries across the globe. Our robotic components satisfy a wide range of needs; from flexible research and development environments to stringent manufacturing environments. Combining our unsurpassed quality and reliability with modular and versatile designs to meet today's automation challenges, our products provide functional and economical solutions.

## OUR MISSION

Our goal is to design and manufacture the most cost effective automation solutions and deliver unparalleled customer service and support

## OUR STRENGTHS

- ▶ Demonstrated Reliability
- ▶ Cost Effective Solutions
- ▶ Custom Solutions
- ▶ Lightning Speed Response and Turn-around Times
- ▶ Knowledge, Experience-driven Designs.

## OUR PRODUCTS

- ▶ **Integrated Wafer Handling Systems:**
  - Atmospheric Systems
  - Vacuum Systems
- ▶ **Wafer Handling Load Locks:**
  - Vacuum Load Locks
  - Custom Load Locks
- ▶ **Wafer Handling Robotic Components:**
  - Atmospheric Elevators
  - Atmospheric Aligners
  - Atmospheric Robots
  - Atmospheric Cassette Load Ports
  - Vacuum Elevators
  - Vacuum Aligners
  - Vacuum Robots
  - Vacuum Cassette Load Ports