



# Vacuum Aligners

*Robotic Components*





# HA-71

## Facet Mounted Vacuum Aligners

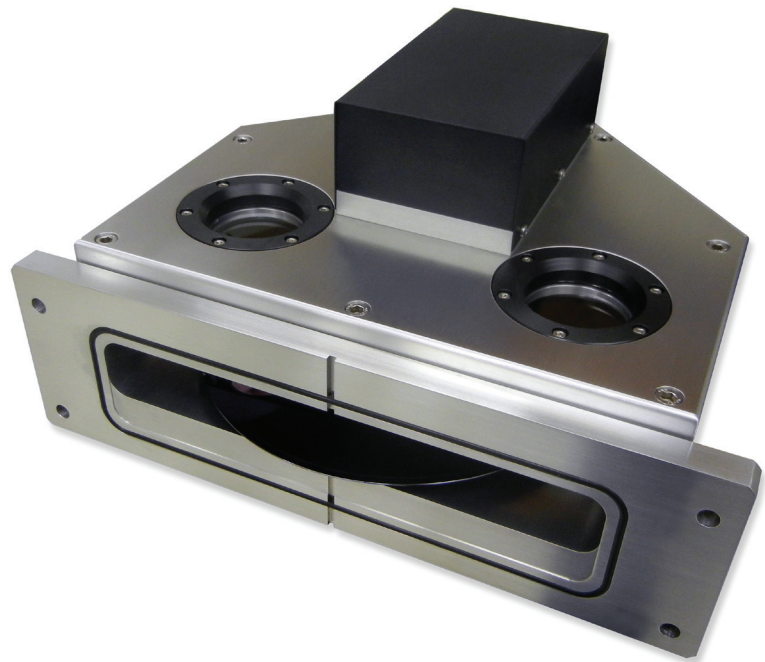
### *Robotic Components*

#### FEATURES

- High reliability of > 3 million MCBF
- Fiducial alignment and centering alignment - Delta Pick
- High vacuum compatible
- RS-232 / Ethernet control interface
- CE/S2 compliant
- Available for wafer sizes up to 300mm
- Class 1 cleanroom compatible

#### OPTIONS

- Translucent or Opaque wafers
- 200mm Facet or 300mm Facet available



**HA-71**

Hine Automation's Vacuum Aligners are the next generation aligners. The HA-71 is a facet mounted aligner and can be integrated into any cluster system featuring a MESC mounting facet. Hine's HA-71 provides centering relative to the robotic handler and fiducial orientation for semiconductor and compound semiconductor substrates. Ferrofluidic seals, high precision DC motors, advanced CCD Array, and sophisticated software are integrated into a state-of-the-art design that make Hine Aligners a precise and reliable alignment solution for opaque and transparent substrates within high vacuum environments. Hine Aligners can be integrated with systems having any robotic arm able to execute Delta Picks.



# HA-75

## Integrated Vacuum Aligners

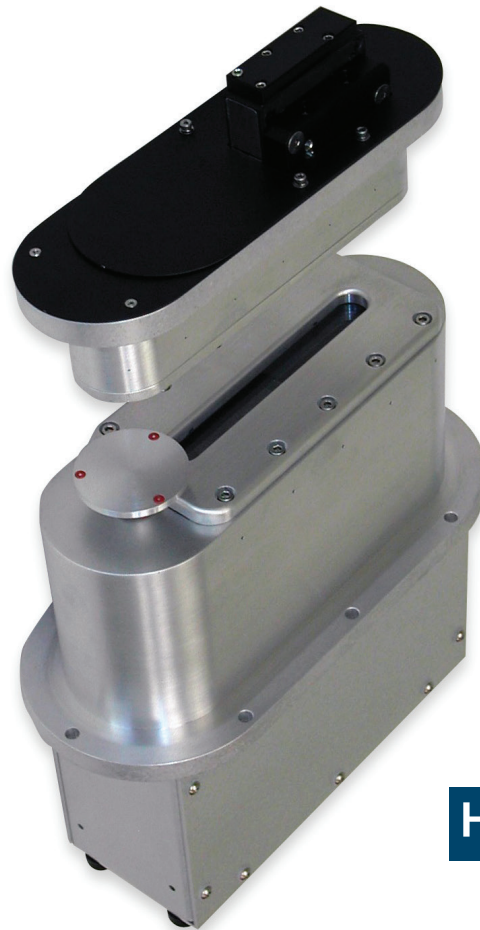
### *Robotic Components*

#### FEATURES

- High reliability of > 3 million MCBF
- Fiducial alignment and centering alignment - Delta Pick
- High vacuum compatible
- RS-232 / Ethernet control interface
- CE/S2 compliant
- Available for wafer sizes up to 300mm
- Class 1 cleanroom compatible

#### OPTIONS

- Translucent or Opaque wafers
- Accommodates wafers up to 300mm



**HA-75**

Hine Automation's Vacuum Aligners are the next generation aligners. The HA-75 is an integrated aligner and can be integrated to any cluster system. Hine's HA-75 provides centering relative to the robotic handler and fiducial orientation for semiconductor and compound semiconductor substrates. Ferrofluidic seals, high precision DC motors, advanced CCD Array, and sophisticated software are integrated into a state-of-the-art design that make Hine Aligners a precise and reliable alignment solution for opaque and transparent substrates within high vacuum environments. Hine Aligners can be integrated with systems having any robotic arm able to execute Delta Picks.



# Vacuum Aligners

## Robotic Components

	HA-71	HA-75
Wafer Sizes	300mm†	
Wafer Types	Opaque and Transparent	
Mounting Facet	200mm or 300mm Facet	N/A
Aligner Enclosure Size	200mm or 300mm	Integrated Aligner
Axes of Motion	$\theta$	
Vacuum Performance		
Base operating pressure	<5.00E-09 Torr	
Leak Rate	1.00E-09 scc He/sec	
Input Power	24V DC at 2.0 Amps	
Maximum Temperature	100°C	
Exposed Materials	6061-T6 Aluminum, Stainless Steel 300 and 400 Series, Viton, Borosilicate Glass	
Control Interface	RS-232 / Ethernet	
MCBF	>3.00E+06	
CE	Compliant	
SEMI	Compliant	
Repeatability		
$\theta$	0.02°‡	
Centering	<0.10mm‡	
Calibration Wafer Included	Yes	

† SEMI standard sizes up to 300mm. Other sizes are available upon request.  
 ‡ Measured as three standard deviations ( $3\sigma$ )



## 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

- **Cluster Systems:**  
Constellation Systems
- **Automated Load Locks:**  
Star Systems
- **Robotic Components:**  
Vacuum Robotic Arms  
Vacuum Elevators  
Vacuum Aligners  
Atmospheric Robotic Arms  
Atmospheric Elevators  
Atmospheric Aligners

