



# HA-5.0 Vacuum Robotic Arms

## Robotic Components

### FEATURES

- High reliability of > 3 million MCBF
- 3-axis motion control
- Pay load up to 4.5kg
- Standard and custom size arm segments
- Standard and custom end effectors (single or dual)
- Compact design including integrated controller
- RS-232 / Ethernet control interface
- CE/S2 compliant
- HA-5.0 is the best replacement for the Hine Design robotic arm model 4.5
- High vacuum compatible
- Class 1 cleanroom compatible

### OPTIONS

- Arm Segments Sizes
- Single and Dual End Effectors
- Custom payloads above 4.5kg
- Custom substrate sizes



Hine Automation's Vacuum Robotic Arms are the next generation Vacuum SCARA Robots. Designed as the central handling robot for Hine's Constellation systems, the HA-5.0V can be integrated with any vacuum cluster system. Arm segments and end-effectors of the HA-5.0 can be easily customized to meet nearly any OEM requirement. Thanks to its ferrofluidic rotary seals, harmonic drive brushless DC motors, and high strength undercarriage, the HA-5.0 Vacuum Robotic Arm transfers substrates with high precision and repeatability within high vacuum environments. The HA-5.0 features identical command sets and form factor as the vacuum robotic arm manufactured previously by Hine Design® and can be used as a replacement for the 4.5 model.



# Vacuum Robotic Arms

## Robotic Components

	HA-3.2	HA-5.0
Wafer Sizes	300mm†	
Maximum Payload	4.5kg*	
Mounting configuration	Top	
Axes of Motion	R, $\theta$	R, $\theta$ , Z
Weight	30kg*	35kg*
Vacuum performance Base operating pressure Leak Rate	1x10 <sup>-7</sup> Torr 1x10 <sup>-9</sup> scc He/sec	
Input Power	24V DC at 10.0 Amps	
Maximum Temperature	100°C	
Exposed Materials	6061-T6 Aluminum, Stainless Steel 300 and 400 Series, Viton	
Control Interface	RS-232 / Ethernet	
MCBF	>1x10 <sup>6</sup>	
SEMI S2	Compliant	
CE	Compliant	
Repeatability‡	(3 $\sigma$ )	
	R	0.05mm
	$\theta$	0.01°
	Z	0.05mm
Vertical Stroke	NA	35mm

† Hine Automation offers end effector for SEMI standard sizes up to 300mm.

Other sizes are available upon request.

\* Payload depends on end effector. Higher payloads available upon request

‡ Measured as three standard deviations (3 $\sigma$ )

CONNECTOR  
PANEL