



# Star Systems

Integrated Systems



# SL-200 Star Systems

## Integrated Systems

### FEATURES

- ▶ Handles wafer sizes up to 200mm
- ▶ High vacuum compatibility
- ▶ Custom end effectors
- ▶ Linear Motion Mechanism (RS-232, Ethernet, DeviceNet)
- ▶ Wafer and Cassette Sensors
- ▶ CE compliant
- ▶ Plug and Play Vacuum Transport System

### OPTIONS

- ▶ Vertical motion – Z lift
- ▶ Vacuum and gas plumbing
- ▶ Integrated transfer control module



Hine Automation's Star Systems are automated load locks compatible with high vacuum environments. Hine's Star Systems are designed to eliminate the need to vent and evacuate the OEMs process chamber during every substrate cycle. The Star SL-200 accommodates substrates up to 200mm in diameter. The Star systems offer various levels of functionality and integration that meet technical and budgetary requirements of most OEMs. Vacuum and gas plumbing, slit valve, end effector, and Hine's integrated control module are options available to OEMs. Additionally, the Star system offers the Z-lift mechanism. The Z-lift provides vertical motion to pick-up an drop-off substrates in a process chamber without lift pins. Thanks to its MESC mounting interface and the various options of controller interface, Hine's Star Systems can be easily integrated with any thin-film OEM.

# SL-300 Star Systems

## Integrated Systems

### FEATURES

- ▶ Handles wafer sizes up to 300mm
- ▶ High vacuum compatibility
- ▶ Custom end effectors
- ▶ Linear Motion Mechanism (RS-232, Ethernet, DeviceNet)
- ▶ Wafer and Cassette Sensors
- ▶ CE compliant
- ▶ Plug and Play Vacuum Transport System



### OPTIONS

- ▶ Vertical motion – Z lift
- ▶ Vacuum and gas plumbing
- ▶ Integrated transfer control module

Hine Automation's Star Systems are automated load locks compatible with high vacuum environments. Hine's Star Systems are designed to eliminate the need to vent and evacuate the OEMs process chamber during every substrate cycle. The Star SL-300 accommodates substrates up to 300mm in diameter. The Star systems offer various levels of functionality and integration that meet technical and budgetary requirements of most OEMs. Vacuum and gas plumbing, slit valve, end effector, and Hine's integrated control module are options available to OEMs. Additionally, the Star system offers the Z-lift mechanism. The Z-lift provides vertical motion to pick-up an drop-off substrates in a process chamber without lift pins. Thanks to its MESC mounting interface and the various options of controller interface, Hine's Star Systems can be easily integrated with any thin-film OEM.

# SL-450 Star Systems

## Integrated Systems

### FEATURES

- ▶ Handles wafer sizes up to 450mm
- ▶ High vacuum compatibility
- ▶ Custom end effectors
- ▶ Linear Motion Mechanism (RS-232, Ethernet, DeviceNet)
- ▶ Wafer and Cassette Sensors
- ▶ CE compliant
- ▶ Plug and Play Vacuum Transport System



### OPTIONS

- ▶ Vertical motion – Z lift
- ▶ Vacuum and gas plumbing
- ▶ Integrated transfer control module

Hine Automation's Star Systems are automated load locks compatible with high vacuum environments. Hine's Star Systems are designed to eliminate the need to vent and evacuate the OEMs process chamber during every substrate cycle. The Star SL-450 accommodates substrates up to 450mm in diameter. The Star systems offer various levels of functionality and integration that meet technical and budgetary requirements of most OEMs. Vacuum and gas plumbing, slit valve, end effector, and Hine's integrated control module are options available to OEMs. Additionally, the Star system offers the Z-lift mechanism. The Z-lift provides vertical motion to pick-up an drop-off substrates in a process chamber without lift pins. Thanks to its MESC mounting interface and the various options of controller interface, Hine's Star Systems can be easily integrated with any thin-film OEM.

# Star Systems Integrated Systems

The table below describes the basic features of the Star Systems SL-200, SL-300 and SL-450.

Performance Specifications			
Feature	SL-200	SL-300	SL-450
Pressure	≤1 x 10 <sup>-3</sup> Torr (with mechanical pump)		
	≤1 x 10 <sup>-6</sup> Torr (with high vacuum pump)		
Leak Rate	≤1 x 10 <sup>-9</sup> Torr SCC He/Sec		
Reach*	305mm beyond 50 mm thick slit valve	380mm beyond 60 mm thick slit valve	410mm beyond 60 mm thick slit valve
Standard Drive Chamber			
Reach			610mm beyond 60 mm thick slit valve
Extended Drive Chamber			
Reach Accuracy	±0.12 mm		
Placement Accuracy	≤±0.20mm @ Full Extension		
Payload*	2.2Kg (5.0 Lbs)	2.2Kg (5.0 Lbs)	5.4Kg (12.0 Lbs)
Droop*	≤2.0mm @ Full Extension	≤2.0mm @ Full Extension	≤3.0mm @ Full Extension
Z-travel	+20mm (measured at the bellows feedthrough)		
Z-accuracy	±0.01mm (measured at the bellows feedthrough)		
Particle performance*	<0.1 particle adders/cm <sup>2</sup> /Pass for particles of <0.5µm and <0.02 particle adders/cm <sup>2</sup> /Pass for particles of >1.0µm		

## KEY

\* Depending on end-effector design.

† Particle performance specification is applicable only when the SL-XX0 is installed with appropriate vacuum pumping and vent controls to minimize gas flow induced particles (this would include the use of slow roughing, slow venting and use of a sub-micron gas filter and vent diffuser).



# 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