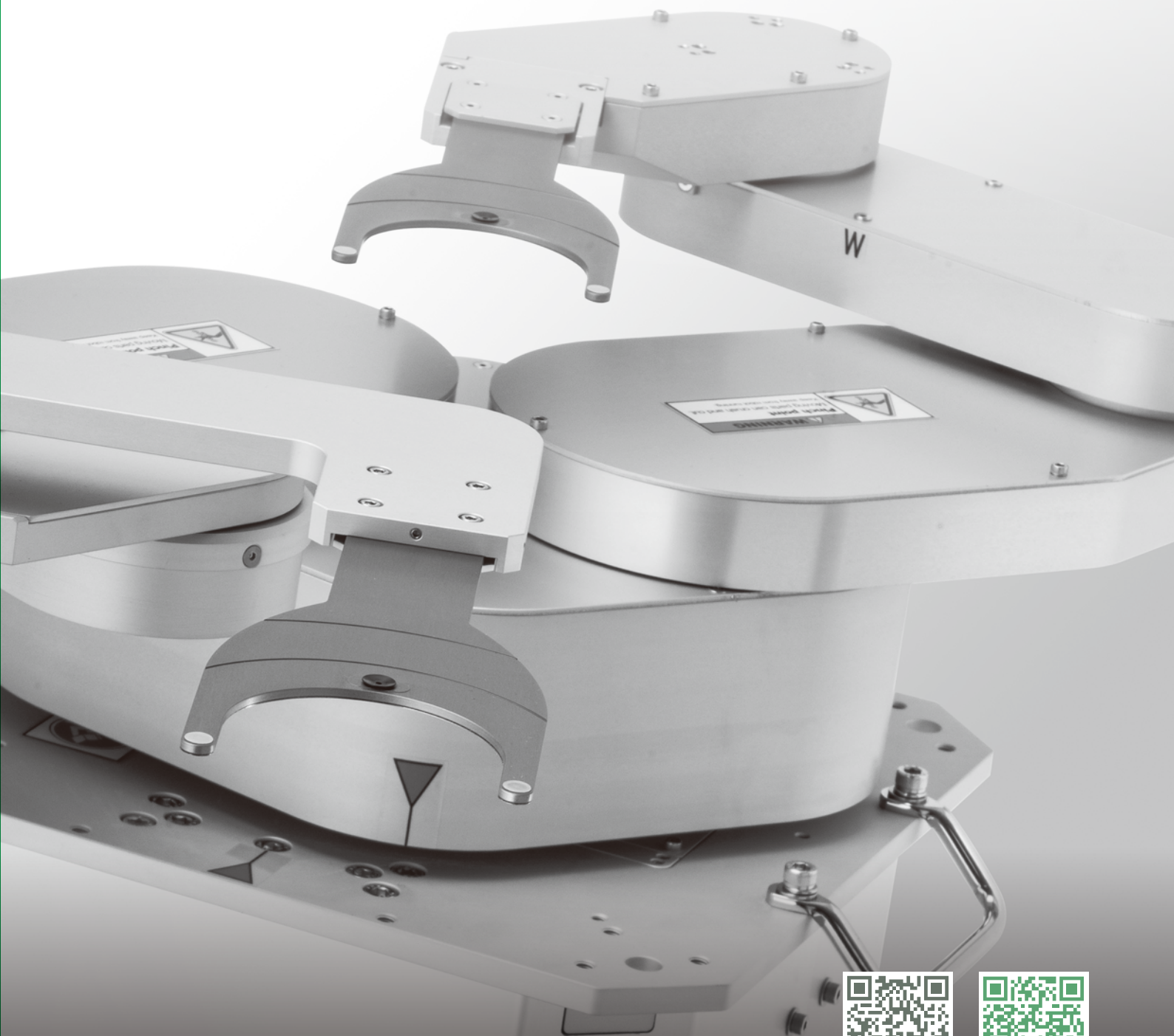


WAFER ROBOT



HIWIN Support



About HIWIN

Product Series

E Series

- Self-made key components
- Use high torque direct drive motors
- High performance
- Support non-radial pick and place function

SEMI



A Series

- Self-made key components
- All axes use AC servo motors
- Repeatability up to $\pm 0.1\text{mm}$
- Support non-radial pick and place function

CE SEMI

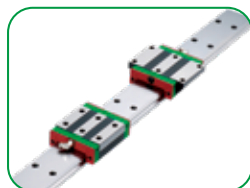


Key Components

The key components of the Wafer Robot are developed and manufactured by HIWIN for the highest quality standards. In addition, because we are vertically integrated, we can customize to customer requirements.



Ball screw



Linear Guideway



DATORKER®
Strain Wave Gear



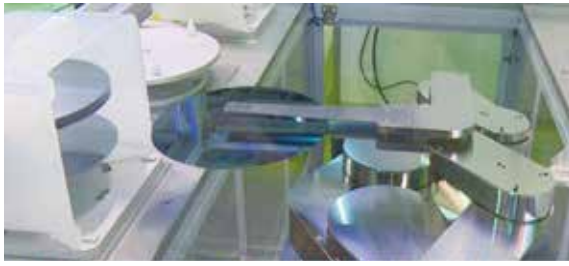
Direct Drive Motor



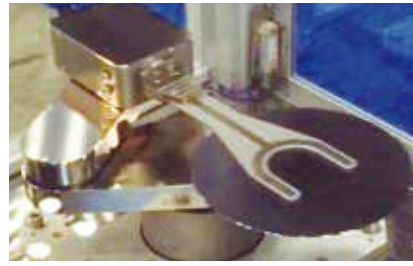
Servo Motor

Semiconductor Industry

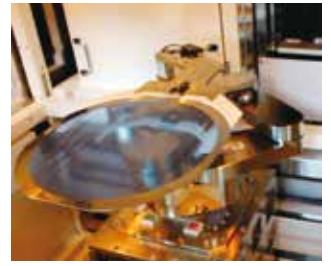
- Wafer Handling



- Wafer Flipping

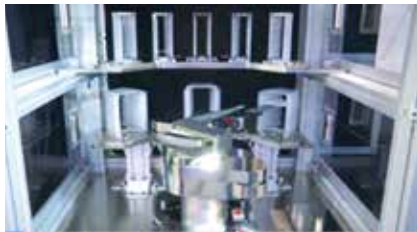


- Frame Transport

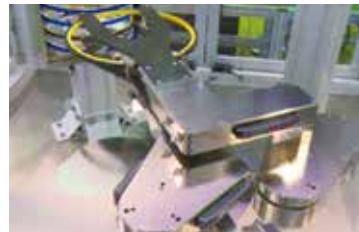


LED Industry

- Sapphire Handling



- Ring Gripping



TFT-LCD

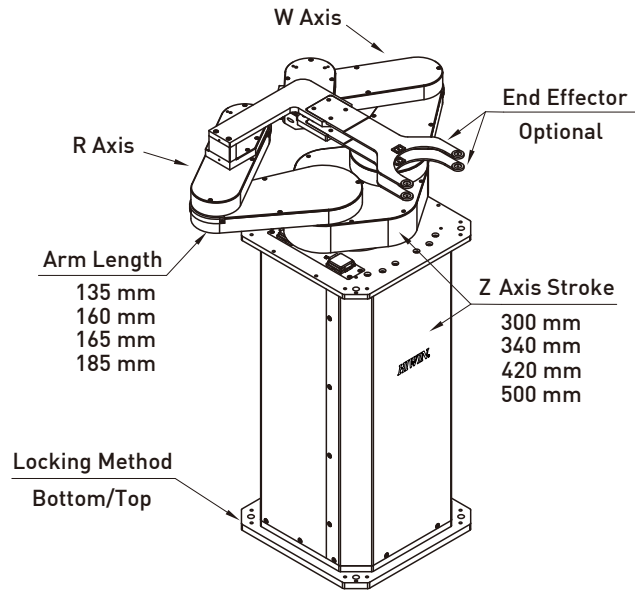
- Panel Handling



Specifications

Model	E Series			A Series			
	Single Arm RWSE Series		Dual Arm RWDE Series	Single Arm RWSA Series		Dual Arm RWDA Series	
Arm Length	135mm	165mm	185mm	135mm	160mm	185mm	
Rated Load	1kg / 2kg / 3kg [Note]			2kg / 3kg [Note]			
R/W Axis	Operational Range	260mm	320mm	360mm	260mm	310mm	360mm
	Velocity	750(1000) mm/sec			1450mm/sec	1720mm/sec	2000mm/sec
T Axis	Range	0~340 deg			0~340 deg		
	Angular Velocity	250(300) deg/sec			340 deg/sec		
Z Axis	Stroke	300mm / 340mm / 420mm / 500mm			300mm / 340mm / 420mm / 500mm		
	Speed	500 mm/sec			500mm/sec		
Mounting Method	Bottom / Top Lock			Bottom / Top Lock			
Weight	45-55 kg (w/o controller)			40~45kg (w/o controller)			
Cleanliness	Class 100 (Class 1 option)			Class 100 (Class 1 option)			
Repeatability	±0.1 mm			±0.1 mm			
Communication	RS232 / Ethernet			RS232 / Ethernet			
Function I/O	1 IN / 21 OUT ; 14 IN / 9 OUT			1 IN / 21 OUT			
Wire Length	5 m			5 m			
Voltage	200~240 V (AC) (Single Phase)			200~240 V (AC) (Single Phase)			
Current	5A			5A			
Vacuum	Ø6; -0.1MPa~0.8MPa			Ø6; -0.1MPa~0.8MPa			
End Effector Flow	50 L/min (Tube size Ø4; Pressure 0.7MPa)			50 L/min (Tube size Ø4; Pressure 0.7MPa)			
Environment Limit	> 0.1MPa(1 atm)			> 0.1MPa(1 atm)			

Note: Rated load is end effector plus product weight.



Nomenclature

RW SE - T - Z300 - 02 R135 - Ata - F02H - M1H - T2 - S

<p>Wafer Robot</p> <p>Model E Series SE: Single DE: Dual A Series SA: Single DA: Dual</p> <p>Mounting T: Top B: Bottom</p> <p>Z Axis Stroke 300mm 340mm 420mm 500mm</p> <p>Rated Load 01: 1kg 02: 2kg 03: 3kg <small>[Note 1]</small></p>	<p>Arm Reach E Series R135: 135mm R165: 165mm R185: 185mm A Series R135: 135mm R160: 160mm R185: 185mm</p> <p>End Effector Ata: Vacuum Suction ●■ Cta: Grip ●■ Rta: Flip ●■ 2Ata: Single Arm Dual Vacuum ● CA: R-Axis Grip, W-Axis Vacuum ■ AC: R-Axis Vacuum, W-Axis Grip ■ AR: R-Axis Vacuum, W-Axis Flip ■ RA: R-Axis Flip, W-Axis Vacuum ■ ER1: Electric Flip ●■ EA: R-Axis Electric Flip, W-Axis Vacuum ■ GR1: Electric Flip and Grip ● GA: R-Axis Electric Flip and Grip W-Axis Vacuum ■ Null: No End Effector <small>[Note 2]</small></p>	<p>Option type H: Standard C: Costmization</p> <p>Mapping Sensor M1: Product Thickness >600μm M7: Product Thickness 300~600μm M3: Product Thickness 150~300μm M4: Product Thickness 150~800μm Null: No Mapping Sensor</p> <p>Fork F01: Vacuum(2inch~4inch) F08: Vacuum(6inch, 8inch) F21: Vacuum(8inch, 12inch) F492: Vacuum(8inch, 12inch) F693: Grip(8inch) F479: Grip(8inch Frame) F385: Grip(12inch Frame) F: Customized Null: No Fork</p>	<p>Note S : Standard Flip number : Customized</p> <p>Teach Pendant E Series T2: Standard A Series T3: Standard Null: No Teach Pendant</p>
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Note 1: Rated load is end effector plus product weight.

Note 2: ● can be optioned with model of SE, SA. ■ can be optioned with model of DE, DA.

Options

- Fork Options (Select among several choices.)

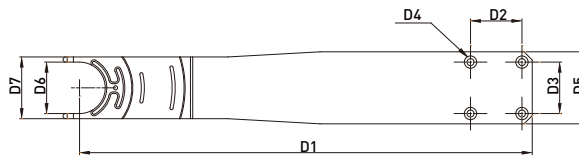


Figure	Code	Suitable for Wafer Size	Type	D1	D2	D3	D4	D5	D6	D7	End Thickness (t)
	F01	2inch~4inch	Vacuum Suction	220	25	25	M3	35	25	30	2.4
	F08	6inch, 8inch	Vacuum Suction	195	25	25	M3	35	55	85	2.4
	F21	8inch, 12inch	Vacuum Suction	250	0	35	M3	60	115	150	3
	F492	8inch, 12inch	Vacuum Suction	250	40	35	∅ 3.4 Through	260	155	150	3
	F693	8inch	Edge Gripping	201.7	38	130 (80)	∅ 3.4 Through	150	N/A	100	4.5
	F479	8inch Frame	FC Gripping	171	17	192	M3	210	N/A	255	2
	F385	12inch Frame	FC Gripping	223	192	25	M3	210	298	350	3.5

- Mapping Sensor



The RW series supports the mapping function. The optional Mapping Sensor allows the arm to detect whether the wafers or substrates inside the cassette are overlapped or slanted before starting the pick and place.

- Teach Pendant



- The compact size is easy to carry and operate. Users can input commands near the robot.
- Graphical function keys for clear understanding and easy operation.
- Safety switch in place to prevent the user from accidentally touching the function key.

- End Effector



Vacuum Suction Type



Clamp Type



Flip Type

- Vacuum Suction Type: Handling the wafer or substrate by vacuum suction.
- Clamp Type: Clamp the wafer at the edge of the wafer for handling.
- Flip Type: The wafers or substrates are transferred by vacuum suction, and can be flipped according to user requirements.

Controller

Communication Control

Can use the teach pendant to guide the arm position of robot. Host Controller communicates via RS232/Ethernet protocol by macro command to control the robot.

● E Series



Specification	RC8-V1	RC8-V3S
Dimension (L x M x H)	520.8 x 253 x 203.5 mm	386 x 405 x 294.5 mm
Weight	17.5 kg	20.5 kg
Power	Single Phase AC200~240V/6A	Single Phase AC200~240V/16A
Function I/O	1 IN / 21 OUT	
Transport Axis	None	Required (Supported only with HIWIN product.)
Communication	RS232 / Ethernet (Select one)	

● A Series



Specification	SC5
Dimension (L x M x H)	400 x 349 x 254.5 mm
Weight	17.5 kg
Function I/O	1 IN ; 21 OUT
Power	1 Ø AC 200V~240V/6A

Simple Macro Command Procedure

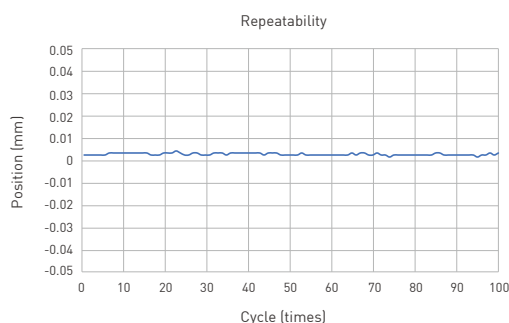
- The built-in status, parameters and motion commands, (including security protection systems), enables flexible process planning.

Note: For details, please download it from the HIWIN website or contact HIWIN.

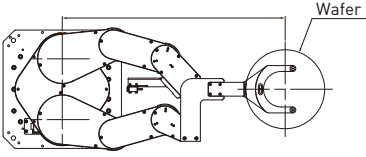
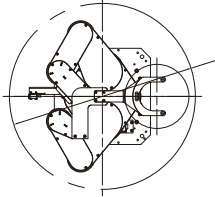


High Precision Control

- Incorporates HIWIN's own high-precision Direct Drive Motor, DATORKER® Strain Wave Gear.



Wafer Robot Inquiry Form

Company Name:		Application:		Date:	
Contact:		<input type="checkbox"/> SEMI		Visitor:	
Tel:		<input type="checkbox"/> LED			
Address:		<input type="checkbox"/> Other			
Conditions	Dimension and Specification	<input type="checkbox"/> Circle: _____ (inch) <input type="checkbox"/> Metal Frame: _____ (mm) <input type="checkbox"/> Plastic Ring: _____ (inch) <input type="checkbox"/> Square: _____ (mm) <input type="checkbox"/> Other: _____		Thickness: _____ ~ _____ (μm) Warpage: _____ (mm) Weight: _____ (g) Material: _____ Untouchable Area of Wafer: _____ Manufacturing Process: _____	
		Cassette Pitch: <input type="checkbox"/> Standard <input type="checkbox"/> Customize _____ (mm) (Standard: 2~6 inches : 4.76mm, 8 inches : 6.35mm, 12 inches : 10mm)			
Robot Body	Z Axis Stroke	<input type="checkbox"/> 300mm <input type="checkbox"/> 340mm <input type="checkbox"/> 420mm <input type="checkbox"/> 500mm			
	Mounting Type	<input type="checkbox"/> Top <input type="checkbox"/> Bottom			
Robot Arm	Type of Arm	Type: <input type="checkbox"/> Single <input type="checkbox"/> Dual		Arm Reach : <input type="checkbox"/> R135 <input type="checkbox"/> R160 <input type="checkbox"/> R165 <input type="checkbox"/> R185	
	Working Distance	 Max Distance _____ (mm)		 Min Rotational Distance _____ (mm)	
	End Effector Type	Upper Arm(R Axis): <input type="checkbox"/> Vacuum <input type="checkbox"/> Gripping <input type="checkbox"/> Flipping Lower Arm(W Axis): <input type="checkbox"/> Vacuum <input type="checkbox"/> Gripping <input type="checkbox"/> Flipping			
	Environment	Cleanroom	<input type="checkbox"/> None <input type="checkbox"/> Class1 <input type="checkbox"/> Class10 <input type="checkbox"/> Class100 (Standard) <input type="checkbox"/> Class1000		
	Temperature	<input type="checkbox"/> 10°C~40°C : <input type="checkbox"/> Other _____ °C			
	Humidity	<input type="checkbox"/> 40°C~60°C : <input type="checkbox"/> Other _____ °C			
Other (Optional)	Fork	<input type="checkbox"/> None <input type="checkbox"/> Required <input type="checkbox"/> Other _____	Material : _____	<input type="checkbox"/> Antistatic : ≤ _____ (ohm)	
	Mapping Sensor	<input type="checkbox"/> None <input type="checkbox"/> Required <input type="checkbox"/> Other (Brand: _____; Model: _____)			
	Teach Pendant	<input type="checkbox"/> None <input type="checkbox"/> Required			
	I/O Interpreter Module	<input type="checkbox"/> None <input type="checkbox"/> Required (Note: Uses I/O mode control)			
	Transport Axis	<input type="checkbox"/> None <input type="checkbox"/> Required, Stroke _____ mm (Only with HIWIN Products)			
Previously used Wafer Robot	Brand: _____; Model: _____				

Other function/Describe any other requirements :

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