

HIWIN®

WAFER ROBOT- E Series



INDUSTRIE 4.0 Best Partner

Product Series

- Single Arm

Applicable for 2~12 inch foundry



- Dual Arm

Applicable for 2~12 inch foundry

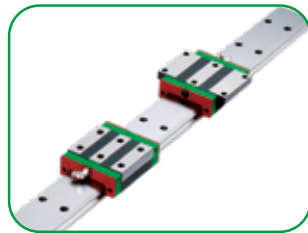


Key Components

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



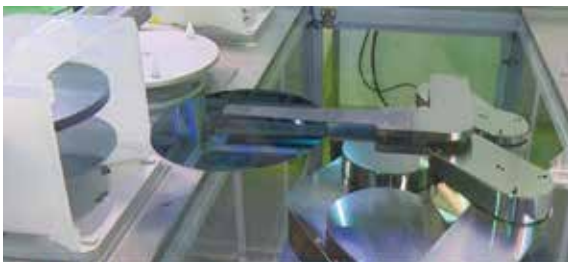
Direct Drive Motor



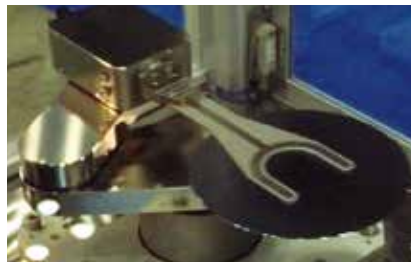
Servo Motor

Semiconductor Industry

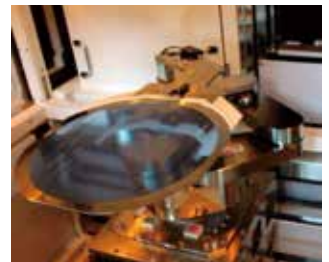
- Wafer Handling



- Wafer Flipping



- Frame Transport



LED Industry

- Sapphire Handling



- Ring Gripping



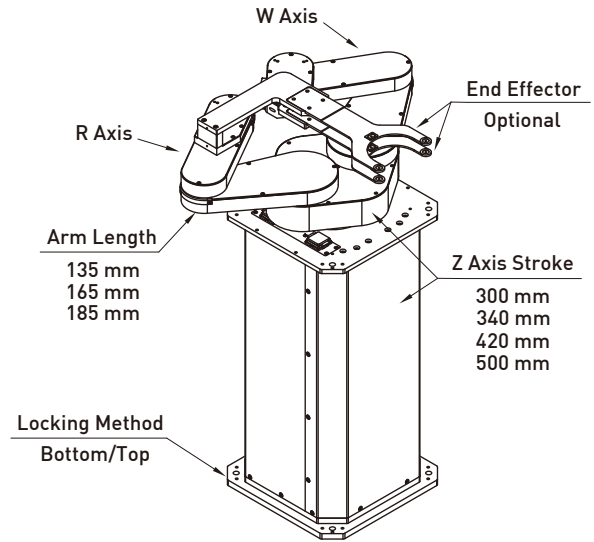
TFT-LCD (Small Panel 400x400mm lower)

- Panel Handling



Specifications

Model		Single Arm- RWSE Series	Dual Arm- RWDE Series
		135mm / 165mm / 185mm	
Rated Load		1kg / 2kg / 3kg [Note]	
R/W Axis	Velocity	750(1000) mm/sec	
T Axis	Range	0~340 deg	
	Angular Velocity	250(300) deg/sec	
Z Axis	Stroke	300mm / 340mm / 420mm / 500mm	
	Velocity	500 mm/sec	
Mounting Method		Bottom / Top Lock	
Weight		45-55 kg (w/o controller)	
Cleanliness		Class 100 (Optional Class 10 / Class 1)	
Repeatability		±0.1 mm	
Communication		RS232 / Ethernet	
I/O		1 IN / 21 OUT ; 14 IN / 9 OUT	
Wire Length		5 m	
Voltage		200~240 V (AC) (Single Phase)	
Current		5A	
Vacuum		Ø6; -0.1MPa~0.8MPa	
End Effector Flow		50 L/min (Tube size Ø4; Pressure 0.7MPa)	
Environment Limit		> 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</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 [Note 1]</p>	<p>Arm Reach R135: 135mm R165: 165mm 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 [Note 2]</p>	<p>Option type H: Standard C: Costmization</p> <p>Mapping Sensor M1: Product Thickness >600µm M2: 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) F02: Vacuum(8inch~12inch) F03: Vacuum(2inch~8inch) F08: Vacuum(6inch, 8inch) F21: Vacuum(8inch, 12inch) F31: Vacuum(4inch, 6inch) F148: Grip(8inch) F262: Grip(8inchFrame) F275: Grip(12inchFrame) F: Customized Null: No Fork</p>	<p>Note S : Standard Flip number : Customized</p> <p>Teach Pendant T2: S2 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. ■ can be optioned with model of DE.

Options

- Fork Options (Select among several choices.)

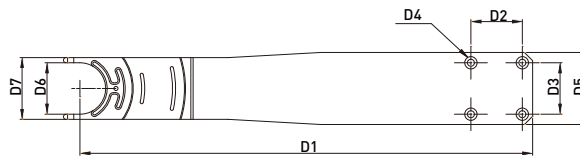


Figure	Code	Suitable for Wafer Size	Type	D1	D2	D3	D4	D5	D6	D7	End Thickness (t)
	F01	2inch~4inch	Vacuum Suction	220	25	25	M3	35	25	30	2.4
	F02	8inch~12inch	Vacuum Suction	250	40	35	M3	60	100	140	3.5
	F03	2inch~8inch	Vacuum Suction	199	25	25	M3	35	N/A	23	2
	F08	6inch, 8inch	Vacuum Suction	195	25	25	M3	35	55	85	2.4
	F21	8inch, 12inch	Vacuum Suction	250	40	35	M3	60	115	150	3
	F31	4inch, 6inch	Vacuum Suction	208	25	25	M3	35	56	70	2
	F148	8inch	Edge Gripping	182	35	35	M3	50	N/A	70	3
	F262	8inch Frame	FC Gripping	171	17	N/A	M3	255	N/A	255	2
	F275	12inch Frame	FC Gripping	223	17	N/A	M3	N/A	N/A	350	2

- 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



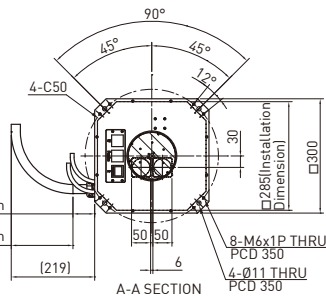
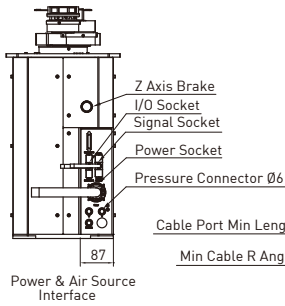
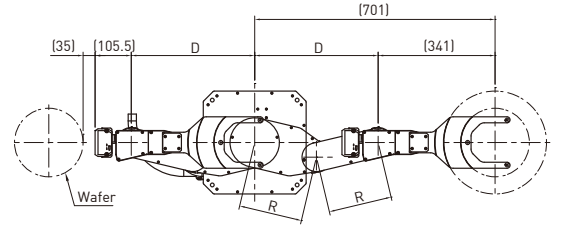
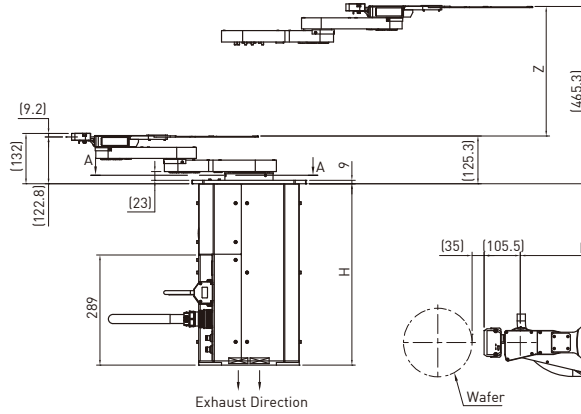
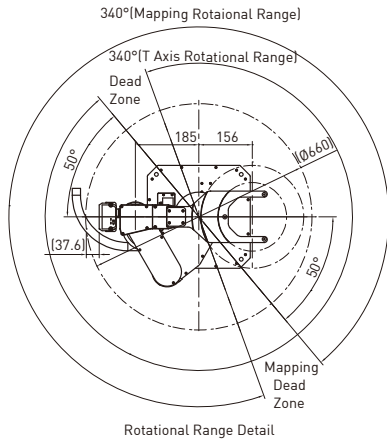
- The compact size is easy to carry and operate. Users can input commands near the robot.
- Graphical function keys for clear understanding and easy operation.
- Safety switch in place to prevent the user from accidentally touching the function key.

- End Effector



- Vacuum Suction Type: 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.

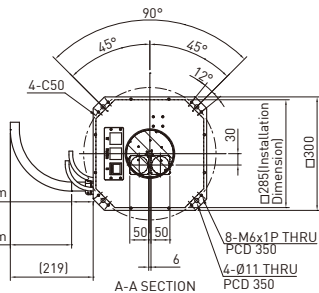
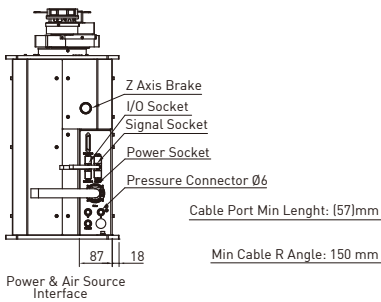
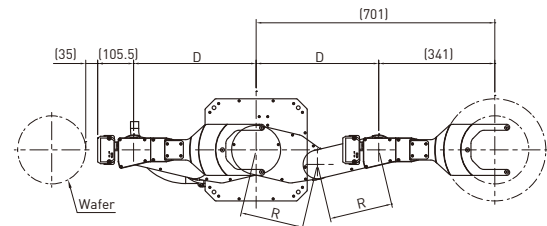
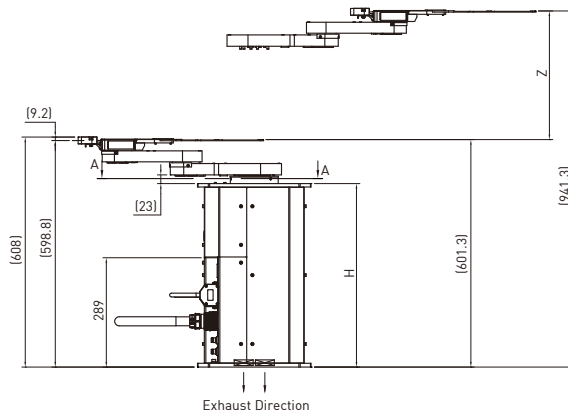
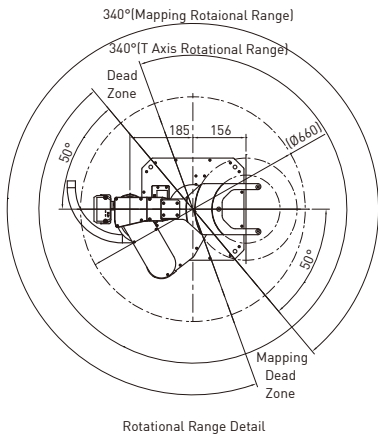
RWSE-T



Model	R	D	H	Z
RWSE-T-02R135	135	260	436/476/556/636	300/340/420/500
RWSE-T-02R165	165	320	436/476/556/636	300/340/420/500
RWSE-T-02R185	185	360	436/476/556/636	300/340/420/500

Note: Drawings and listed dimensions assume end effector model Ata type with F21 fork and 12 inch wafer. Dimensions in parentheses depend on end effector and fork selections, and will be based on the final approved drawing.

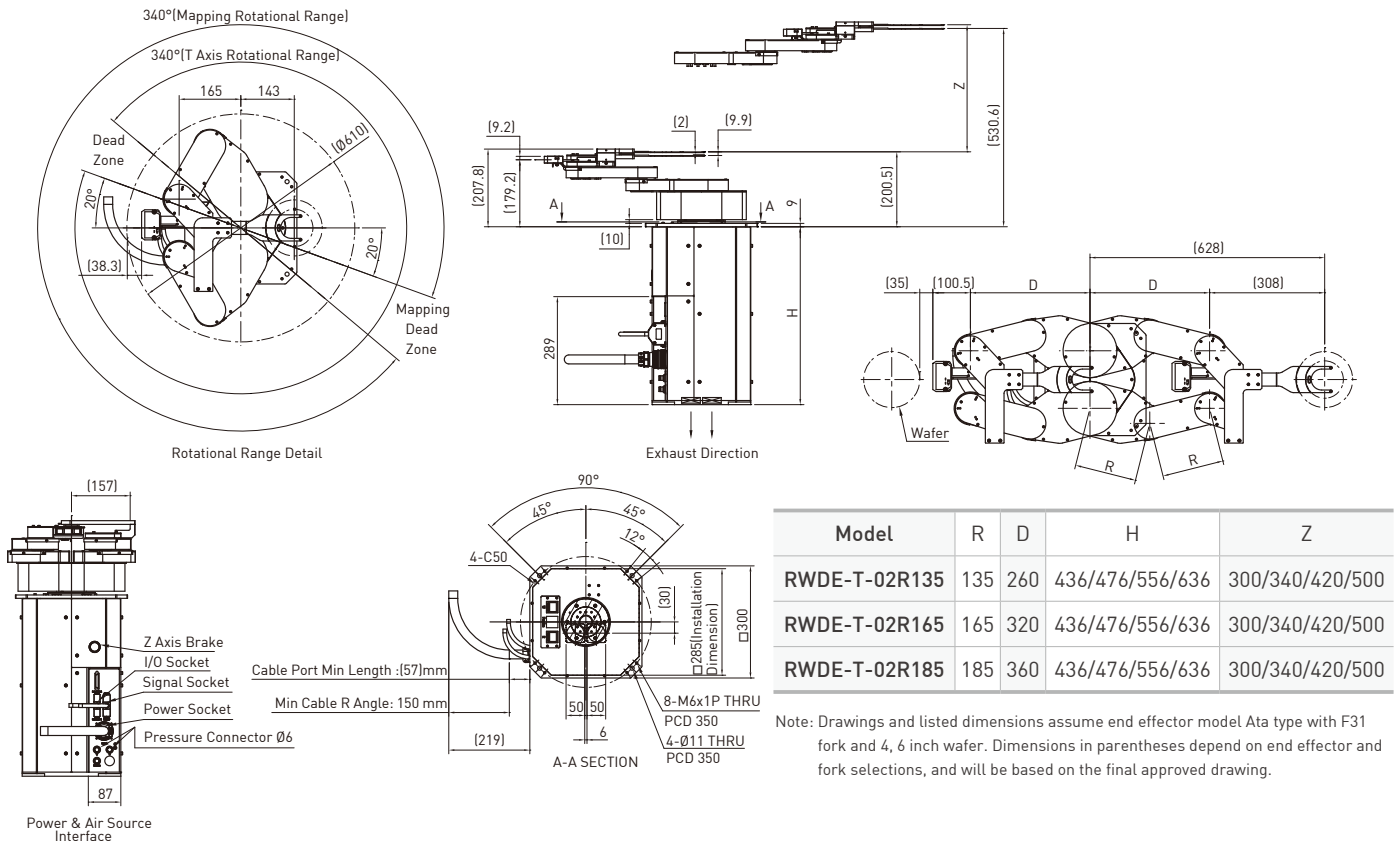
RWSE-B



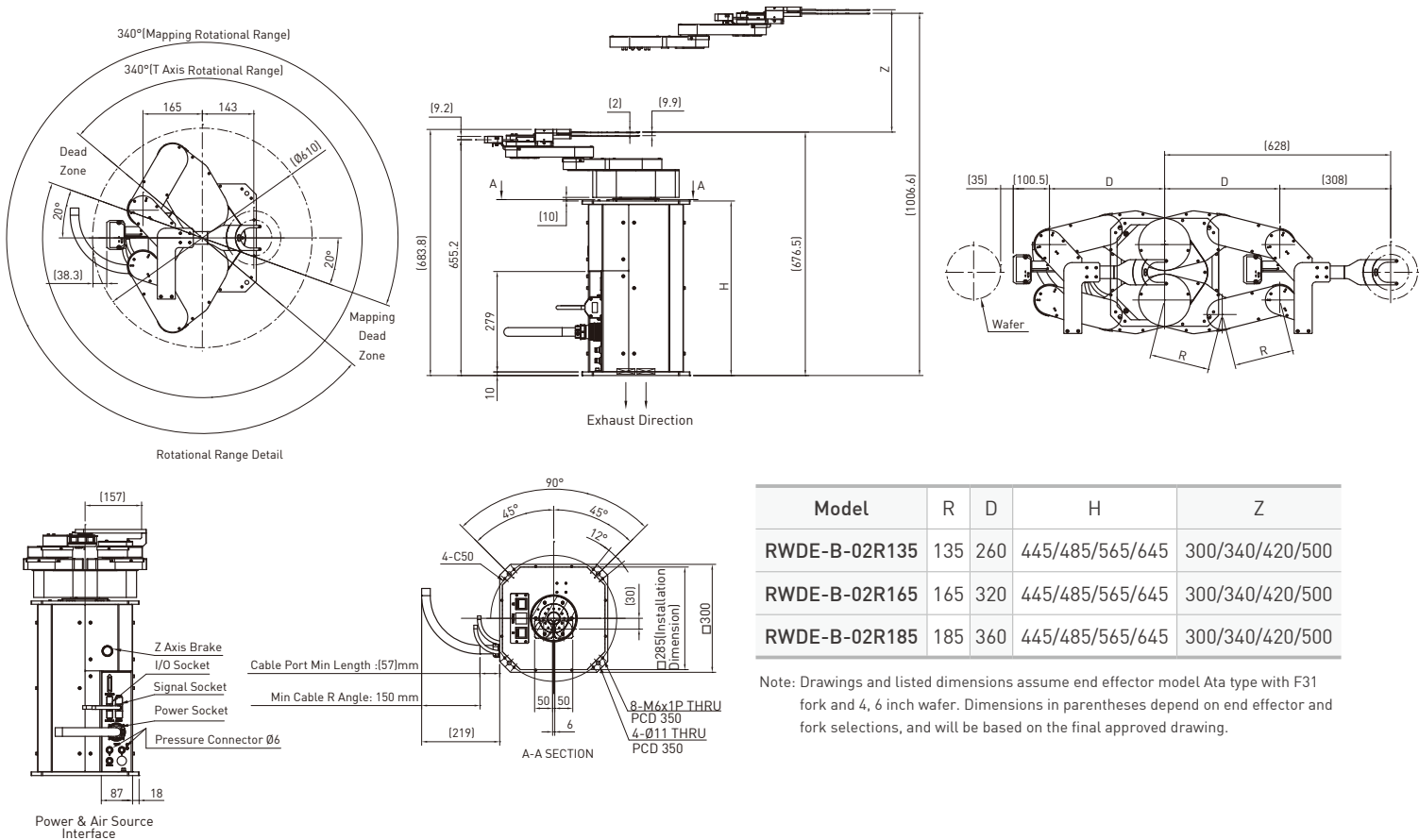
Model	R	D	H	Z
RWSE-B-02R135	135	260	445/485/565/645	300/340/420/500
RWSE-B-02R165	165	320	445/485/565/645	300/340/420/500
RWSE-B-02R185	185	360	445/485/565/645	300/340/420/500

Note: Drawings and listed dimensions assume end effector model Ata type with F21 fork and 12 inch wafer. Dimensions in parentheses depend on end effector and fork selections, and will be based on the final approved drawing.

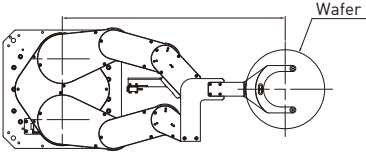
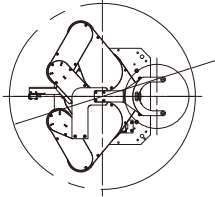
RWDE-T



RWDE-B



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"/> 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	
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 :

NOTE:

HRC-W Controller

Communication Control



RC8



HRC-W

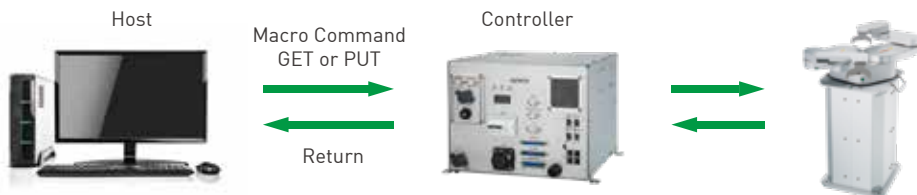
Specification	RC8-V1	HRC-W511
Dimension	520.8mm x 253mm x 203.5mm	377.4mm x 390mm x 275.95mm
Weight	17.5 kg	17.7 kg
Power Input	Single Phase AC200~240V/5A	
Maximum Power Usage	1200W (Changes due to different environments)	
I/O	1 IN / 21 OUT	14 IN / 9 OUT
Transport Axis	None	Required (Supported only with HIWIN product.)
Communication	RS232 / Ethernet (Select one)	

- 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.

Simple Macro Command Procedure

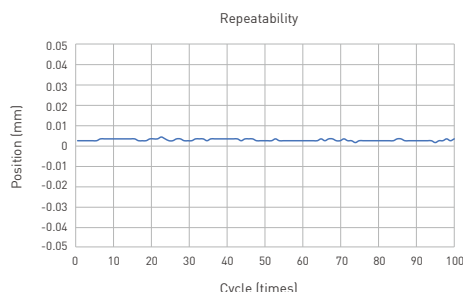
- The built-in status, parameters and motion commands, (including security protection systems), enables flexible process planning.

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



High Precision Control

- Incorporates HIWIN's own high-precision, high-rigidity direct drive motor.



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