Product Lineup 2025

JEL CORPORATION

Leading Manufacturer of Clean Robot

SCR3160CSN-300-CM

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Clean Robot SCR3000CSN Series

Featuring a step-out-less closed-loop control system, built-in batteryless absolute encoders and stepping motors, this series ensures high convenience, safety and stability as well as various ways of transferring. Suitable for various types of wafers up to 300 mm.

● Usage environment and specifications

● Option

*CE or KCs marking is available upon request.

● Transfer method

Controller: C4000B

- Control method: RS232C and parallel photo I/O

Teaching box: JCT3B

Characteristics

- Step-out-less closed-loop control system under rapid load change or acceleration
- Equipped with batteryless multi-rotation absolute sensors.
- Path planning handling suitable for parallel layout is optional.
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Compatible with the former SHR model and current SCR3000CS series, this SCR3000CSN series ensures easier replacement.

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	340 mm	340 degrees	300 mm
Speed (Avg)*	610 mm/sec	340 degree/sec	250 mm/sec
Speed (Max)*	1220 mm/sec	500 degree/sec	320 mm/sec
Resolution*	10.0 µm or less	0.0015 degrees	2.00 µm
Handling level*	536 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: 24 V DC +/- 10%, 10 A; Vacuum: -53 kPa or more		

*Specifications of SCR3160CSN-300-CM with a JEL standard vacuum type end-effector. Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

- Robot' s main body weight: Approximately 22 kg
- Dimensions of C4000B controller: 297 (W) x 180 (D) x 120 (H), Weight: Approximately 5 kg
  Note: A CE/KCs compliant controller has different dimensions and weight.

SCR3000 series

- A wide range of variations to meet system layouts

SCR3160CSN-300-CM

Arm length
100
130
200

Z-axis stroke
200
400 *
500 *
600 *

*Optional variation

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Atmosphere

STCR4160SN-300-CM

4-Axis Cylindrical Coordinate Type Twin-Arm Clean Robot

Clean Robot STCR4000SN Series

Featuring a step-out-less closed-loop control system, built-in batteryless absolute encoders and stepping motors, this series ensures high convenience, safety and stability as well as various ways of transferring. Suitable for various types of wafers up to 300 mm.

● Usage environment and specifications

● Option

*CE or KCs marking is available upon request.

● Transfer method

Controller: C4000B

- Control method: RS232C and parallel photo I/O

Teaching box: JCT3B

Characteristics

- Twin-arm reduces tact time to replace wafers.
- Step-out-less closed-loop control system under rapid load change or acceleration
- Equipped with batteryless multi-rotation absolute sensors.
- Path planning handling suitable for parallel layout is optional.
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Compatible with the former STHR model and current STCR4000S series, this STCR4000SN series ensures easier replacement.

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	315 mm	340 degrees	300 mm
Speed (Avg)*	570 mm/sec	220 degree/sec	200 mm/sec
Speed (Max)*	1140 mm/sec	270 degree/sec	250 mm/sec
Resolution*	12.6 µm or less	0.0045 degrees	6.25 µm
Handling level*	620 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: 24 V DC +/- 10%, 10 A; Vacuum: -53 kPa or more		

*Specifications of STCR4160SN-300-CM with JEL standard vacuum type twin end-effectors. Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

- Robot' s main body weight: Approximately 30 kg
- Dimensions of C4000B controller: 297 (W) x 180 (D) x 120 (H), Weight: Approximately 5 kg
  Note: A CE/KCs compliant controller has different dimensions and weight.

STCR4000 series

◆ A wide range of variations to meet system layouts

STCR4 160 SN- 300 -CM

Arm length
100
130
200

Z-axis stroke
200
400 *
500 *
600 *

*Optional variation

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Atmosphere

SCR3160CS-300-PM

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Clean Robot SCR3000CS Series

Featuring an open-loop control system and stepping motors, this series ensures high safety and stability. This JEL' s long-term standard robot allows users to customize easily. Suitable for various types of wafers up to 300 mm.

● Usage environment and specifications

Atmosphere | Vacuum | Waterproof | **Single** | Twin

● Option

Thin Wafer | CE | KCs

*CE marking is available upon request.

● Transfer method

Controller: C4000

● Control method: RS232C and parallel photo I/O

Teaching box: JCT1

Characteristics

- Base or flange mounting type is selectable according to system layouts.
- Optimal end-effector is selectable according to the carrying object and line layout.
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Compatible with the former SHR model and current SCR3000CSN series, this SCR3000CS series ensures easier replacement.

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	340 mm	340 degrees	300 mm
Speed (Avg)*	610 mm/sec	340 degree/sec	250 mm/sec
Speed (Max)*	1220 mm/sec	500 degree/sec	320 mm/sec
Resolution*	12.6 µm or less	0.0045 degrees	6.25 µm
Handling level*	536 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: 24 V DC +/- 10%, 15 A; Vacuum: -53 kPa or more		

*Specifications of SCR3160CS-300-PM with a JEL standard vacuum type end-effector. Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

- Robot' s main body weight: Approximately 20 kg
- Dimensions of C4000 controller: 300 (W) x 110 (D) x 120 (H), Weight: Approximately 2 kg
  Note: A CE/KCs compliant controller has different dimensions and weight.

SCR3000 series

- A wide range of variations to meet system layouts

SCR3 [160] CS - [300] - PM

Arm length
100
130
200

Z-axis stroke
200
400 *
500 *
600 *

*Optional variation

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STCR4160S-300-PM

4-Axis Cylindrical Coordinate Type Twin-Arm Clean Robot

Clean Robot STCR4000S series

Featuring an open-loop control system and stepping motors, this series ensures high safety and stability. This JEL' s long-term standard robot allows users to customize easily. Suitable for various types of wafers up to 300 mm.

● Usage environment and specifications

Atmosphere | Vacuum | Waterproof | Single | Twin

● Option

Thin Wafer | CE | KCs

*CE marking is available upon request.

● Transfer method

Controller: C4000

- Control method: RS232C and parallel photo I/O

Teaching box: JCT1

Characteristics

- Twin-arm reduces tact time to replace wafers.
- Base or flange mounting type is selectable according to system layouts.
- Optimal end-effector is selectable according to the carrying object and line layout.
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Compatible with the former STHR model and current STCR4000SN series, this STCR4000S series ensures easier replacement.

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	315 mm	340 degrees	300 mm
Speed (Avg)*	570 mm/sec	220 degree/sec	200 mm/sec
Speed (Max)*	1140 mm/sec	270 degree/sec	250 mm/sec
Resolution*	12.6 µm or less	0.0045 degrees	6.25 µm
Handling level*	620 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: 24 V DC +/- 10%, 16 A; Vacuum: -53 kPa or more		

*Specifications of STCR4160S-300-PM with JEL standard vacuum type twin end-effectors. Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

- Robot' s main body weight: Approximately 30 kg
- Dimensions of C4000 controller: 300 (W) x 110 (D) x 120 (H), Weight: Approximately 2 kg
  Note: A CE/KCs compliant controller has different dimensions and weight.

STCR4000 series

◆ A wide range of variations to meet system layouts

STCR4 [160] S - [300] - PM

Arm length
100
130
200

Z-axis stroke
200
400 *
500 *
600 *

*Optional variation

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Atmosphere

GCR4210-300-PM

4-Axis Horizontal and Multi-Joint Type Single-Arm Clean Robot

Clean Robot GCR4000-PM Series

Featuring stepping motors with absolute encoders, this series ensures high safety and stability.
This JEL' s long-term standard robot allows users to customize easily.
Suitable for various types of wafers up to 300 mm.

● Usage environment and specifications

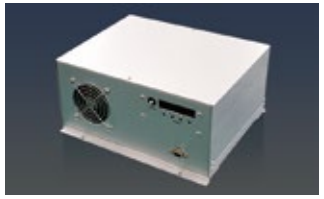
Atmosphere | Vacuum | Waterproof | Single | Twin

● Option

Thin Wafer | CE | KCs

*CE marking is available upon request.

● Transfer method



Controller: C4451
● Control method: RS232C and parallel photo I/O

Teaching box: JCT5B

Characteristics

- 2 FOUP access without a track
- Base or flange mounting type is selectable according to system layouts.
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	400 mm	335 degrees	300 mm
Speed (Avg)*	730 mm/sec	280 degree/sec	200 mm/sec
Speed (Max)*	1100 mm/sec	400 degree/sec	250 mm/sec
Resolution*	0.0055 degrees	0.0025 degrees	6.25 µm
Handling level*	620 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: 24 V DC +/- 10%, 15 A; Vacuum: -53 kPa or more		

*Specifications of GCR4210-300-PM with a JEL standard vacuum type end-effector.
Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

- This series comes in two types of motors: stepping motors or AC servo motors.
- Robot' s main body weight: Approximately 28 kg
- Dimensions of C4451 controller: 300 (W) x 230 (D) x 142 (H), Weight: Approximately 2 kg
  Note: A CE/KCs compliant controller has different dimensions and weight.

GCR-PM series

- A wide range of variations to meet system layouts

GCR4210-300-PM

Z-axis stroke: 300 / 400* / 500*
Motor specifications: PM / AM / AM

*Optional variation

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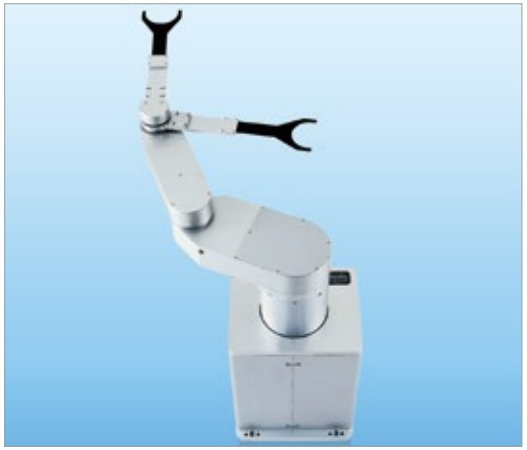
Atmosphere

GTCR5280-300-AM

5-Axis Horizontal and Multi-Joint Type Single-Arm Twin End-Effector Clean Robot

Clean Robot GTCR5000 Series

Twin end-effectors mounted on its single-arm, this series has the same function as a twin-arm robot.
AC servo motors capable of high-speed handling ensures high safety and stability.
Suitable for various types of wafers or substrates as well as wafers up to 300 mm.



● Usage environment and specifications

Atmosphere | Vacuum | Waterproof | Single | Twin

● Option

Thin Wafer | CE | KCs

*CE marking is available upon request.

● Transfer method

Controller: C5000S
● Control method: RS232C and parallel photo I/O

Teaching box: JCT5B

Characteristics

- Capable of transferring large diameter wafers and small FPD glass substrates.
- High-speed 3 FOUP access without a track for 300 mm wafers.
- AC servo motors with absolute encoders are installed in all axes.
- High-speed and high-accuracy wafer handling by optimizing pass control.
- Payload capacity: 4 kg or less (calculated on the arm 3rd joint)

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	553 mm	335 degrees	300 mm
Speed (Avg)*	833 mm/sec	250 degree/sec	300 mm/sec
Speed (Max)*	1400 mm/sec	350 degree/sec	450 mm/sec
Resolution*	0.0011 degrees	0.0013 degrees	1.96 µm
Handling level*	698 mm (Base mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	ISO Class 2 (when exhausted from the driving area)		
Utility*	Power: Single phase 200 V AC +/- 10%, 20 A; Vacuum: -53 kPa or more		

*Specifications of GTCR5280-300-AM with JEL standard vacuum type twin end-effectors.
Provide positive pressure depending on the wafer or substrate holding method such as edge grip or Bernoulli.

● Robot' s main body weight: Approximately 53 kg
● Dimensions of C5000S controller: 370 (W) x 330 (D) x 270 (H), Weight: Approximately 15 kg
Note: A CE/KCs compliant controller has different dimensions and weight.

GTCR series

- A wide range of variations to meet system layouts

GTCR5 [280] - [300] - AM

Arm length: 280, 210*
Z-axis stroke: 300, 320*, 420*

*Optional variation

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Atmosphere

GTFR5280-320-DM

5-Axis Horizontal and Multi-Joint Type Single-Arm Twin End-Effector Clean Robot

Clean Robot GTFR5000-DM Series

A twin end-effector mounted on its single-arm has the same function as a twin-arm robot. Designed for handling wafers in EFEM. Compared to our conventional GTCR model, the cycle time is improved by reducing the operation prohibited area and the influence of speed limit.

Atmosphere

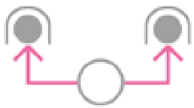
● Usage environment and specifications

Atmosphere | Vacuum | Waterproof | Single | Twin

● Option

Thin Wafer | CE | KCs

● Transfer method



Controller: C5500S

● Control method: RS232C and parallel photo I/O and Ethernet

Teaching box: JCT20BX

Characteristics

- 3 FOUP access is available without a track.
- Twin end-effector reduces the wafer swap time.
- AC servo motors with absolute encoders installed. (Batteryless)/ Direct Drive Motor
- Wafer holding: end-effector with vacuum suction, passive edge, edge grip.
- Optimal end-effector is selectable according to the carrying object and line layout.

Specifications

Carrying object	Wafers up to 300 mm	
	Arm	Vertical stroke
Operating range* (3rd joint center)	553 mm	320 mm
Speed (Avg)*	950 mm/sec	320 mm/sec
Handling level*	681 mm (Base mounting level to the lower end-effector level)	
Repeatability	Within +/- 0.05 mm	
Cleanliness	ISO Class 1	
Utility*	Power: AC200~240V -15%/+10% 50/60Hz Vacuum: -53 kPa or more	

*Specifications of GTFR5280-320-DM with a JEL standard vacuum type end-effector.
Provide positive pressure depending on the wafer holding method such as edge grip or Bernoulli.

● Robot' s main body weight: Approximately 70 kg
● Dimensions of C5500S controller: 398(W) x 320(D) x 240 (H), Weight: Approximately 12 kg

GTFR-DM series

- A wide range of variations to meet system layouts

G T F R 5 2 8 0 - 3 2 0 - D M

Arm length: 2 8 0 / 3 0 0*

Z-axis stroke: 3 2 0

*Optional variation

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SVCR3260-020-PM

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Vacuum Clean Robot SVCR3000 Series

Suitable for various types of wafers up to 300 mm in a vacuum environment.
Featuring an open-loop control system and stepping motors, this series ensures high safety and stability. This JEL' s long-term standard robot allows users to customize easily.

● Usage environment and specifications

● Option

*CE or KCs marking is available upon request.

● Transfer method

Controller: C4000
● Control method: RS232C and parallel photo I/O

Teaching box: JCT1

Characteristics

- Suitable for vacuum environment
- Magnetic fluid sealing is used in each arm joint.
- Vacuum sealing: Magnetic fluid sealing and a bellows are used.
- Cleanliness: A mesh filter is installed for the internal exhaust of the arm.
- Payload capacity: 2 kg or less (calculated on the arm 3rd joint)
- Compatible with the former SVHR model, this series ensures easier replacement.

Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	520 mm	330 degrees	20 mm
Speed (Avg)*	300 mm/sec	120 degree/sec	20 mm/sec
Speed (Max)*	550 mm/sec	170 degree/sec	30 mm/sec
Resolution*	82 µm or less	0.009 degrees	1.25 µm
Handling level*	98 mm (Flange mounting level to the end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	Magnetic fluid sealing and a filter		
Vacuum resistance	1.33×10^{-6} Pa		
Utility*	Power: 24 V DC +/- 10%, 8 A		

* Representative specifications of SVCR3260-020-PM (stepping motor type)

● This series comes in two types of motors: stepping motors or AC servo motors.
● Robot' s main body weight: Approximately 25 kg
● Dimensions of C4000 controller: 300 (W) x 110 (D) x 120 (H), Weight: Approximately 2 kg
Note: A CE/KCs compliant controller has different dimensions and weight.

SVCR3000 series

◆ A wide range of variations to meet system layouts

SVCR3 [260] - [020] - [PM]

Arm length	Z-axis stroke	Motor specifications
160	040	AM
190		
330		

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STVCR4160S-050-PM

4-Axis Cylindrical Coordinate Type Twin-Arm Clean Robot

Vacuum Clean Robot STVCR4000S Series

Suitable for various types of wafers up to 300 mm in a vacuum environment.
Featuring an open-loop control system and stepping motors, this series ensures high safety and stability. This JEL' s long-term standard robot allows users to customize easily.

● Usage environment and specifications

Atmosphere | **Vacuum** | Waterproof | Single | **Twin**

● Option

Thin Wafer | CE | KCs

*CE or KCs marking is available upon request.

● Transfer method

Controller: C4000
● Control method: RS232C and parallel photo I/O

Teaching box: JC4B

Characteristics

- Suitable for vacuum environment
- Twin-arm reduces tact time to replace wafers.
- Magnetic fluid sealing is used in each arm joint.
- Vacuum sealing: Magnetic fluid sealing and a bellows are used.
- Cleanliness: A mesh filter is installed for the internal exhaust of each arm.
- Payload capacity: 2 kg or less (calculated on the arm 3rd joint)
- Compatible with the former STVHR model, this series ensures easier replacement.

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Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	310 mm	330 degrees	50 mm
Speed (Avg)*	300 mm/sec	110 degree/sec	30 mm/sec
Speed (Max)*	550 mm/sec	150 degree/sec	50 mm/sec
Resolution*	10.06 μm or less	0.00225 degrees	0.625 μm
Handling level*	196 mm (Flange mounting level to the upper end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	Magnetic fluid sealing and filters		
Vacuum resistance	1.33 x 10^{-6} Pa		
Utility	Power: 24 V DC +/- 10%, 16 A		

* Representative specifications of STVCR4160S-050-PM (stepping motor type)
● This series comes in two types of motors: stepping motors or AC servo motors with absolute encoders.
● Robot' s main body weight: Approximately 80 kg
● Dimensions of C4000 controller: 300 (W) x 110 (D) x 120 (H). Weight: Approximately 2 kg
Note: A CE/KCs compliant controller has different dimensions and weight.

STVCR4000 series

◆ A wide range of variations to meet system layouts

S T V C R 4 [1 6 0] S - 0 5 0 - [P M]

Arm length: 190 / 260

Motor specifications: AM

GTVCR5330-060-AM

5-Axis Horizontal and Multi-Joint Type Single-Arm Twin End-Effector Clean Robot

Vacuum Clean Robot GTVCR5000 Series

Capable of transferring to parallel stages in vacuum chambers.
Featuring AC servo motors that are capable of high-speed handling, this series ensures high safety and stability.
Suitable for various types of wafers or substrates as well as wafers up to 300 mm in a vacuum environment.

● Usage environment and specifications

Atmosphere | **Vacuum** | Waterproof | Single | **Twin**

● Option

Thin Wafer | CE | **KCs**

*CE or KCs marking is available upon request.

● Transfer method

Controller: C5000S
● Control method: RS232C and parallel photo I/O

Teaching box: JCT5B

Characteristics

- Suitable for vacuum environment
- Capable of transferring to parallel stages in vacuum chambers.
- Magnetic fluid sealing is used in each arm joint.
- Vacuum sealing: Magnetic fluid sealing and a bellows are used.
- Cleanliness: A mesh filter is installed for the internal exhaust of each arm.
- Payload capacity: 4 kg or less (calculated on the arm 3rd joint)

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Specifications

Carrying object	Wafers up to 300 mm		
	Arm	Rotation angle	Vertical stroke
Operating range* (3rd joint center)	635 mm	360 degrees	60 mm
Speed (Avg)*	640 mm/sec	160 degree/sec	60 mm/sec
Speed (Max)*	950 mm/sec	200 degree/sec	85 mm/sec
Resolution*	0.00081 degrees	0.00072 degrees	0.98 μm
Handling level*	219 mm (Flange mounting level to the upper end-effector level)		
Repeatability	Within +/- 0.1 mm		
Cleanliness	Magnetic fluid sealing and a filter		
Vacuum resistance	1.33 x 10^{-6} Pa		
Utility	Power: Single phase 200 to 230 V AC +10% to -15%, 2 kVA, 50/60 Hz		

* Representative specifications of GTVCR5330-060-AM
● Robot' s main body weight: Approximately 75 kg
● Dimensions of C5000S controller: 370 (W) x 330 (D) x 270 (H). Weight: Approximately 23 kg
Note: A CE/KCs compliant controller has different dimensions and weight.

GTVCR5000 series

◆ A wide range of variations to meet system layouts

G T V C R 5 [3 3 0] - 0 6 0 - A M

Arm length: 280

SAL38C4HV

Aligner for Multiple Types of Wafers

A prealigner for aligning multiple types of wafers—regardless of wafer materials such as mirror surface, transparent or translucent wafer; warped wafer; or non-standard notch or orientation flat.

Just one aligner handles ever-difficult positioning of wafers with irregular warpage or different light transmittance. (*1)

● Usage environment and specifications

Atmosphere | Vacuum | Waterproof | Single | Twin

● Option

Thin Wafer | CE | KCs

*CE or KCs marking is available upon request.

Characteristics

- Available for silicon wafers with BG tape as well as silicon, transparent, or translucent wafers.
- Available for non-SEMI standard notch or flat.
- Z-axis capable of redo operations is optional.
- Full auto-adjustment software JEL ALIGN TOOL comes with the aligner.
- Motor drivers and a controller are built in the aligner.

Specifications

Carrying object	2 inch to 150 mm (SAL3264HV) 100 to 200 mm (SAL3484HV) 200 to 300 mm (SAL38C4HV)
Positioning time	Centering: 3 sec (*1)
Positioning accuracy	Centering: Within +/- 0.1 mm (*1) Orientation flat/notch locating: Within +/- 0.1 degrees (*1)
Sensor method	LED lighting with wafer edge detection using an image sensor unit
Wafer size switching	Switching by command control or by communication
Cleanliness	ISO Class 2 (when exhausted from the driving area)
Utility	Power: 24 V DC +/- 10%, 3 A; Vacuum: -53 kPa or more

● Aligner' s main body weight: Approximately 10 kg

(*1): The accuracies of wafer detection, positioning time or positioning may vary depending on the wafer. An operation test using the target sample wafers is performed before delivery.

SAL3000HV series

- A wide range of variations to meet your wafer size

S A L 3 [8] [C] 4 H V [Z] *

Wafer size: 2 6 / 4 8

Z-axis

*Optional variation

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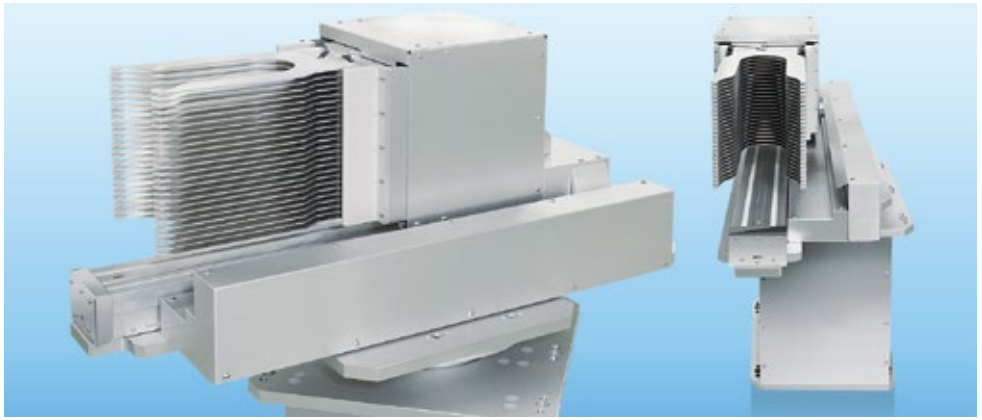


KHR3480-290-AM Atmosphere

Linear arm type clean robot (for 25 wafers batch transfer, 300 mm wafers)

Capable of transferring 25 wafers at once.
The transfer time can be significantly reduced by batch transfer.
Available for the layout with multiple cassettes by equipping a rotation axis.

Characteristics

- RS232C are standard for control.
- End-effector material: ceramic
- Wafer holding: end-effector with passive edge, edge alignment.
- AC servo motors with absolute encoders installed in all axes (Batteryless)

GCR4280-300-AM Atmosphere

4-Axis Horizontal and Multi-Joint Type Single-Arm Clean Robot

Clean Robot GCR4280-AM Series

Characteristics

- Arm length: 280 mm
- 3 FOUP access for 300 mm wafers without a track
- Vertical stroke: 300 mm, 420 mm
- Payload capacity: 4 kg or less (calculated on the arm 3rd joint)
- Base or flange mounting type is selectable according to system layouts.
- AC servo motors with absolute encoders are installed in all axes.
- Wafer holding: end-effector with vacuum suction, passive edge, or edge grip

MCR3160C-300-AM Atmosphere

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Clean Robot MCR3000C Series

High-speed handling by AC servo motors for all axes.
Suitable for high throughput.

Characteristics

- Arm length: 160 mm, 200 mm, 280 mm
- Vertical stroke: 300 mm, 400 mm, 420 mm, 500 mm
- Payload capacity: 4 kg or less (calculated on the arm 3rd joint)
- Base or flange mounting type is selectable according to system layouts.
- AC servo motors with absolute encoders are installed in all axes.
- Wafer holding: end-effector with vacuum suction, passive edge, edge grip, or Bernoulli type

MTCR4160-300-AM Atmosphere

4-Axis Cylindrical Coordinate Type Twin-Arm Clean Robot

Clean Robot MTCR4000 Series

High-speed handling by AC servo motors for all axes.
Suitable for high throughput.

Characteristics

- Arm length: 160 mm, 200 mm, 280 mm
- Vertical stroke: 300 mm, 400 mm, 420 mm, 500 mm
- Payload capacity: 4 kg or less (calculated on the arm 3rd joint)
- Twin-arm reduces tact time to replace wafers.
- Base or flange mounting type is selectable according to system layouts.
- AC servo motors with absolute encoders are installed in all axes.
- Wafer holding: end-effector with vacuum suction, passive edge, edge grip, or Bernoulli type

SVCR3330-060-AM Vacuum

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Vacuum Clean Robot SVCR3000 Series

Designed for handing of heavy weight carrying objects such as susceptors or trays in vacuum chambers.

Characteristics

- Arm length: 330 mm
- Vertical stroke: 60 mm
- Payload capacity: 10 kg or less (calculated on the arm 3rd joint)
- Magnetic fluid sealing is used in each arm joint.
- Vacuum sealing: Magnetic fluid sealing and a bellows are used.
- Cleanliness: A mesh filter is installed for the internal exhaust of the arm
- AC servo motors with absolute encoders are installed in all axes.
- Wafer holding: end-effector with passive edge

SWCR3160CS-300-PM Waterproof

3-Axis Cylindrical Coordinate Type Single-Arm Clean Robot

Waterproof Clean Robot SWCR3000 Series

Edge grip with the flip function for 300 mm wafers.
Designed for handling wafers in LSI production lines under acid conditions or alkaline mist (IP64).

Characteristics

- Arm length: 160 mm
- Vertical stroke: 200 mm, 300 mm
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Corrosion resistance teflon coatings protect the arm.
- V-type seals are used for waterproofing of the arm joint.
- FKM seals are used for parts joint.
- A bellows is used for waterproofing of the z-axis.
- 2-phase stepping motors are installed in all axes.
- Wafer holding: end-effector with vacuum suction, passive edge, or edge grip

STWCR4160S-300-PM Waterproof

4-Axis Cylindrical Coordinate Type Twin-Arm Clean Robot

Waterproof Clean Robot STWCR4000 Series

Edge grip with the flip function for 300 mm wafers.
Designed for handling wafers in LSI production lines under acid conditions or alkaline mist (IP64).

Characteristics

- Vertical stroke: 200 mm, 300 mm
- Payload capacity: 3 kg or less (calculated on the arm 3rd joint)
- Corrosion resistance teflon coatings protect the arm.
- V-type seals are used for waterproofing of the arm joint.
- FKM seals are used for parts joint.
- A bellows is used for waterproofing of the z-axis.
- Twin-arm reduces tact time to replace wafers.
- 2-phase stepping motors are installed in all axes.
- Wafer holding: end-effector with vacuum suction, passive edge, or edge grip

SAL20C1 Atmosphere

Edge Grip Type Aligner for 300 mm Wafers

Edge grip type prealigner minimizes a wafer contact.

Characteristics

- High-speed and high-accuracy wafer centering and notch locating by the edge grip function.
- Designed to reduce contamination of friction surface.
- Suitable for 150 mm, 200 mm or other sizes of wafers.
- Motor drivers and a controller are built in the aligner.

SVAL3001 Vacuum

Vacuum Aligner

Edge grip type prealigner for positioning silicon wafers or susceptors in a vacuum environment.

Characteristics

- Payload capacity: 4 kg
- Stand-alone aligner using a vacuum resistance positioning sensor
- Vacuum sealing: Magnetic fluid sealing and a bellows are used.
- Rotation to any angle by index function which matches a layout of wafers in a tray

Transfer System Atmosphere

Tabletop Loader System / Sorter System / Automatic Wafer Transfer System for Wafer Container

A variety of systems from a tabletop to a large box shape to meet your needs

Tabletop Loader System

SSY-10000
(Tabletop loader system for 100 mm wafers)

Automatic Wafer Transfer System for Wafer Container

SSY-10010
(Automatic wafer transfer system for wafer container)

Sorter System

SORTER SYSTEM
150 mm

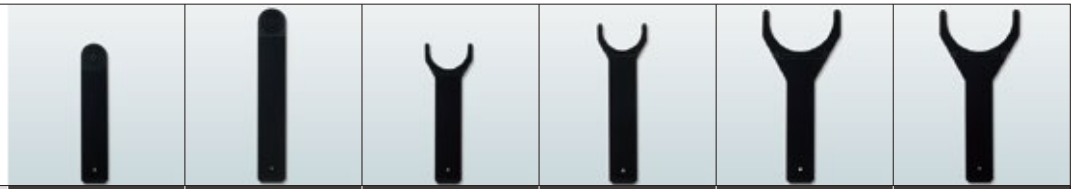
SORTER SYSTEM
(4-port inline type)

End-Effector Lineup

Vacuum Suction Type End-Effector

I-shaped and Y-shaped vacuum suction type end-effectors

Used extensively for atmospheric robots, these vacuum suction type end-effectors hold the backside of a wafer by vacuum suction (negative pressure).
Conductive teflon coating on the surface of the end-effectors protect against damage from charging.



Model	SC-IW-200	SC-IW-240	SC-YW-200	SC-YW-227	3D-02229	3D-01661
Carrying object	Mainly silicon wafers					
Size	3 inch, 100 to 200 mm	3 inch, 100 to 200 mm	100 to 200 mm	100 to 200 mm	150 to 300 mm	300 mm
Total length	200 mm	240 mm	200 mm	227 mm	242 mm	242 mm
Thickness	2 mm	2 mm	2 mm	2 mm	2 mm	3 mm
Material	High purity alumina ceramic sintered body					
Surface treatment	Conductive teflon coating					
Wafer holding	Vacuum suction					

Other end-effectors for various shapes and sizes of wafers or substrates are also available.

Bernoulli Hand

A Bernoulli wand for 2 to 3 inch, 100 to 150 mm wafers

in semiconductor device production processes or in semiconductor wafer manufacturing factories, this wafer handling device is used to manually pick up/place thin wafers from/in wafer containers or cassettes.

Bernoulli Hand, a light and compact wand, holds thin wafers using the Bernoulli principle. Wafer breakage risk is minimized due to non-suction holding.
With the flexible front edge, Bernoulli Hand picks up/places wafers from/in wafer containers or wafer cassettes. Accessible to various special substrates as well as wafers.

Characteristics

- Wafers are lifted by the Cyclone effect.
- Wafer holding by a pad (Fluorine-contained rubber)
- An operator can adjust Bernoulli Hand in various angles with a flexible tube.

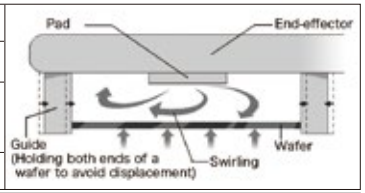
Note: Please contact our sales representatives for various shapes and sizes of other wafers or substrates.

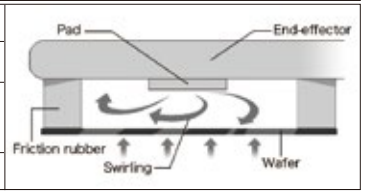
Bernoulli End-Effector

Contact type and non-contact type Bernoulli end-effectors

Low cost end-effectors for thin or warped wafers using the Bernoulli principle are suitable for any type of JEL atmospheric robots.
Design solution and evaluation using sample wafers based on the customer's request about the wafer size, warpage or thickness.

Non-contact type	Material	Aluminum
	Surface treatment	Black alumite
	Wafer holding method	By Bernoulli' s principle using Cyclone pads and guides (PEEK) (Various materials are available for the contact area.)
	Utility	30 to 80 L/min (Varies depending on the wafer size and thickness.)
Contact type	Material	Aluminum
	Surface treatment	Black alumite
	Wafer holding method	By Bernoulli' s principle using Cyclone pads and friction rubber (H-NBR) (Various materials are available for the contact area.)
	Utility	30 to 80 L/min (Varies depending on the wafer size and thickness.)





Edge Grip End-Effector

An end-effector for handling the back side treated wafers, which contacts the edges only.

Centering of a wafer during operation is suitable for transferring to the drop-in type stage.
An air cylinder moves a guide of the edge grip end-effector back and forth to hold a wafer.

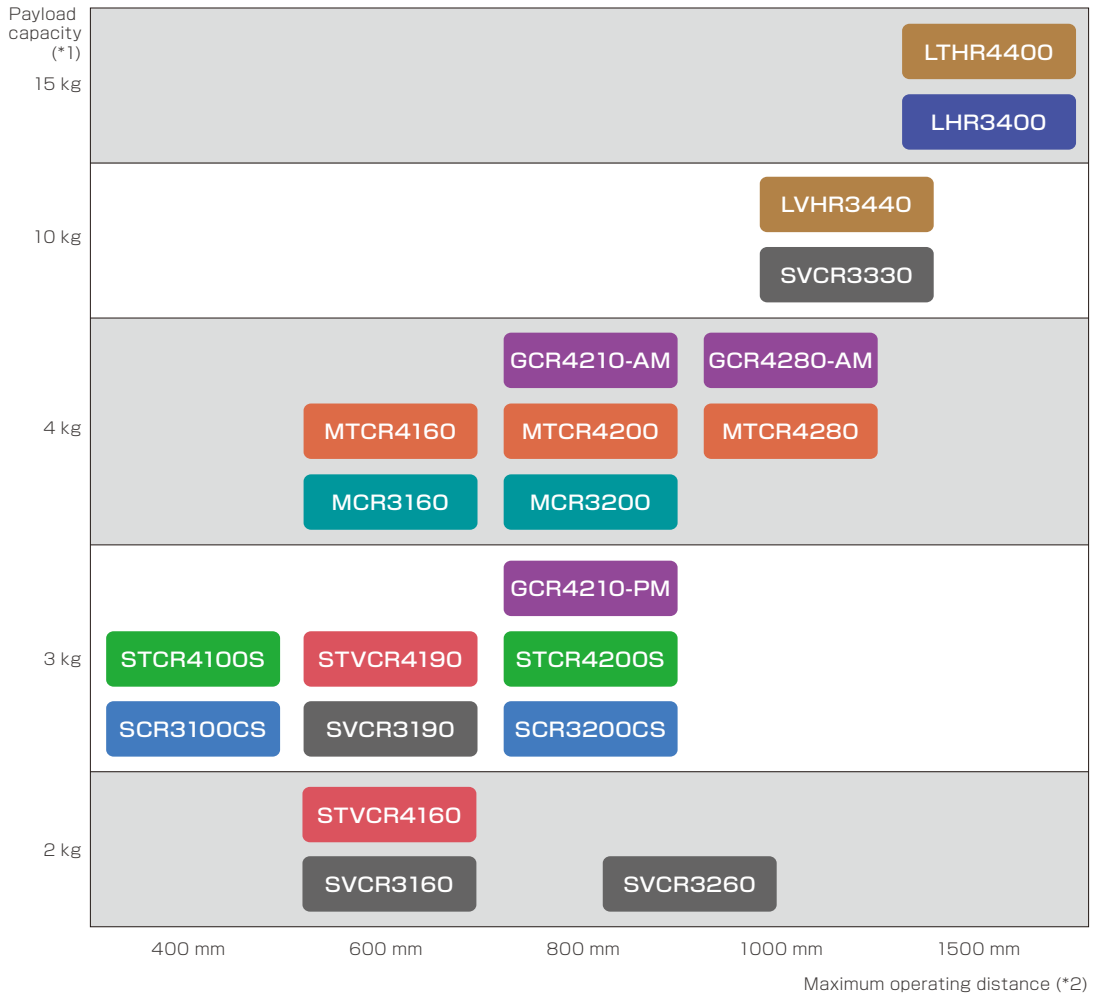
Passive Edge Holding Type End-Effector

Suitable for handling warped wafers or thin wafers that cannot be held properly with a standard vacuum suction type end-effector.

An end-effector for handling wafers, which contacts the back side as well as the edges. A tapered guide is used to hold a wafer by the weight of a wafer (passive grip).

How to Select JEL Robots

Payload Capacity and Maximum Operating Range



(*1) Payload capacity values are the values calculated on the arm 3rd joint, and not the weight of carrying objects.
(*2) Maximum operating distance values are reference values including the end-effector and wrist-block.
Note: Many products other than those listed are available. For more details, visit our website: www.jel-robot.com

Product Series

	Single arm	Twin arm	Main use and transfer method
Atmospheric robot	SCR3000CS	STCR4000S	For semiconductors (Cylindrical)
	SCR3000CSN	STCR4000SN	For semiconductors (Cylindrical)
	MCR3000	MTCR4000	For semiconductors (Cylindrical)
	GCR4000	GTCR5000	For semiconductors (Horizontal and multi-joint)
	LHR3000	LTHR4000	For FPD glass substrates (Cylindrical)
Vacuum robot	SVCR3000	STVCR4000	For semiconductors (Cylindrical)
Waterproof robot	SWCR3000CS	STWCR4000S	For semiconductors (Cylindrical)

Transfer Method

Cylindrical coordinate type robot		Suitable for arc layout
Horizontal and multi-joint type robot		Suitable for parallel layout

Robot Training

JEL provides our customers with robot trainings for safe and effective operations.

[Training place]
- JEL Head office
- JEL Tokyo branch
- Overseas service base

Domestic service base

JEL CORPORATION

Head Office

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Location map

Tokyo Branch

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Kandasakuma-cho, Chiyoda-ku,
Tokyo, 101-0025 JAPAN
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E-mail: tokyjim@jel-robot.co.jp

Location map

New domestic plant to open in Onomichi, October 2026

Onomichi Factory

[Overview]
Address: Marumonden, Mitsugi-cho,
Onomichi-city, Hiroshima
Site area: 29,808㎡
Building area: 11,436㎡
Production capacity: Approximately
600 units per month

Domestic production base

JEL CORPORATION

Saba Factory

245-1 Saba-cho, Fukuyama-city,
Hiroshima, 720-0835 Japan
TEL: +81-84-952-5590

Location map

JEL Kochi

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Location map

Overseas sales base

JEL CORPORATION

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E-mail: xiaoshou05@reje.com.cn

Taiwan

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DISTRIBUTOR

Company profile

- Name : JEL Corporation
- Capital : 74,570,000 (JPY)
- Founded : 1993
- President : Nobuo Sakiya
- Type of business : Manufacture and sales of electronic equipment
- Major products : Wafer transfer robots and wafer handling systems for semiconductor equipment
  FPD glass substrate transfer robots and FPD glass handling systems
- Main banks : The Bank of MUFG Bank, Ltd.

■ Contact our sales representative for product request or questions.

JEL CORPORATION
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https://www.jel-robot.com
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ISO 9001 JQA-QM6952 Head office, Factory
ISO 14001 JQA-EM6019 Head office, Factory

Products videos are provided

◀ You can also check our website for products information.