

Orientalmotor

Small Robots

OVR

Articulated/SCARA/Cartesian



Small Robots for Simple Automation

OVR

Small Robots for Simple Automation

OVR

When a simple, small robot is the solution for automation.

When automation needs to be implemented quickly.

Oriental Motor is introducing the **OVR** Series of industrial robots to promote in-house production and advance automation.



Robot

The **OVR** Series is a small robot with a simple mechanism that can be easily controlled and constructed cost-effectively. We offer a range of compact shapes and operating mechanisms for modifying existing lines.

Controller

The controller makes operating the small robots **OVR** and **AZ** Series equipped mechanisms easy. Use commands for operation programming and simulations. Intuitive operation reduces the burden of robot deployment.



Support

Technical seminars are available. We also offer consultations regarding support for equipment testing, program support, on-site start-up, and other tasks that may be difficult for the customer to complete on their own.



What are Oriental Motor's industrial robots and controllers?

Application Examples

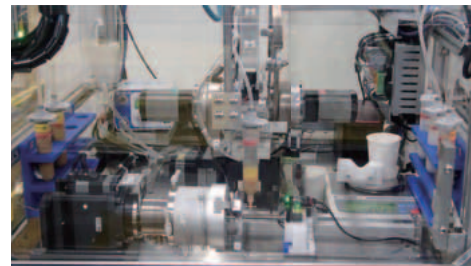
► Automatic inspection line

Construct an automatic inspection line without the use of PLCs or external sensors



► Coating equipment

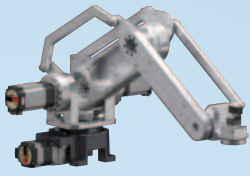
Coat ball screws with grease using automation.



Product Line of Industrial Robots and Controllers

Small Robots OVR

Articulated



4-Axis

Horizontal transport



5-Axis

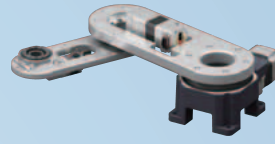
Compact and Lightweight



6-Axis

Approach the load from various angles

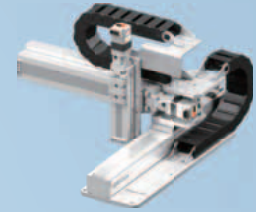
SCARA



3-Axis

Access narrow spaces

Cartesian



3-Axis

Reduced equipment startup time

Controllers



Integrated Robot Controller & Drivers **MRCU Series**

MRC01 and **AZ** Series driver in a single package



Robot Controller **MRC01**

Simple control of a small robots **OVR**



Robot Controller **MRC01-C**

Cartesian robot controller

Programming Software



MRC Studio (Free download)

Easy setup, from the initial configuration to the operation programming.

Product Support

We offer full customer support from the first step of considering robot use to product support and troubleshooting. Please contact your nearest Oriental Motor sales office for support.

Robot control experiential seminars

Work tests in our offices

On-site/Remote demonstrations

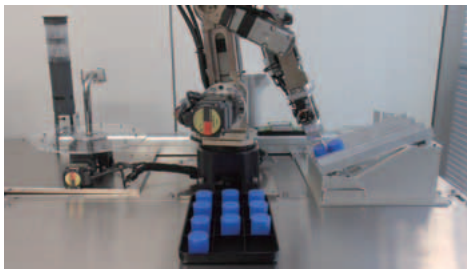
Startup and program creation support

Simulation Software

Inspection and Repair Services

► Palletizing

The palletizing function of the robot controller **MRC01** + electric gripper



► Expanded moving range with linear slide

Takes advantage of the light weight to move on an electric linear slide



Small Robots OVR

α STEP **AZ** Series
Simple Drive
Industrial Robot

Intuitive
Robot Controller
Operation Achieves
Automation

Motors and Arms
Can Be Replaced,
Reducing Maintenance
Costs



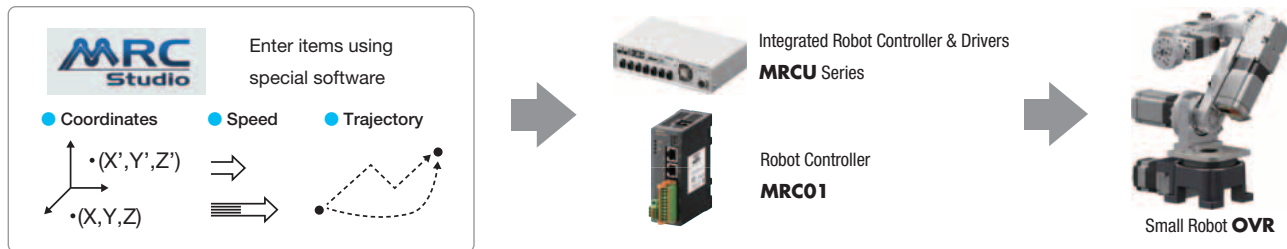
● Small robots **OVR** are not cobots. Please consider their safe use as industrial robots.

Easy to Retrofit to Equipment, Compact/Lightweight/Simple Control

Simple Control with a Robot Controller

Knowledge of “Networks”, “Ladder programs”, and “Kinematics operations” is needed to run robots.

OVR utilizes a robot controller, making it easy to start up and control the robot, even without robot control experience.



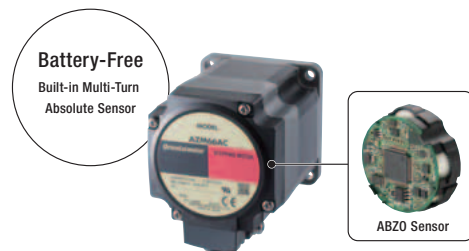
Compact and Lightweight Design

The installation area is 130 mm × 130 mm (excluding **OVR4088K5-V**). The arm is also made of aluminum alloy to reduce the weight. Because it is compact and lightweight, it can be combined with an electric linear slide to expand the operating range in the horizontal direction.



Built-in Battery-Free Absolute Encoder

The α STEP **AZ** Series (DC input) is used for all axes. No external sensors are required, simplifying the wiring. No battery is needed, so maintenance can be reduced.



Self-maintenance

Some motors can be replaced by the customer. This cuts down on the burden of maintenance (both cost and time) after deployment.

*Oriental Motor also replaces motors during maintenance. Please contact your nearest Oriental Motor sales office.



Customizable

The arm length of a 4-axis articulated robot can be customized according to the customer's application. (Variable reach length: 580 mm, 780 mm)



Product Line

Products for a variety of different processes are available.

Articulated

4-Axis

OVR4048K5-V
OVR4068K5-V
OVR4088K5-V



Parallel Link Mechanism

- Installed below the arm's drive motor to reduce weight. Transportable mass 5 kg.
- The end of the arm is always mechanically level with the installation surface. This ensures stable horizontal transport.
- Three types with different maximum reach lengths: 480/680/880 mm.
- Also compatible with variable reach length (580 mm, 780 mm).

5-Axis

OVR5035K1-V



Compact and Lightweight

- Chassis mass 12.5 kg, installation area 130 mm × 130 mm.
- Max. reach length (horizontal) 350 mm, transportable mass 1 kg.
- Because it is small and lightweight, it can be combined with an electric linear slide for horizontal travel.

6-Axis

OVR6048K1-V



Approach the Load from Various Angles

- Add a motor for wrist axis rotation to achieve rotation and bending.
- Chassis mass 12.5 kg, installation area 130 mm × 130 mm.
- Max. reach length (horizontal) 480 mm, transportable mass 1 kg.
- Because it is compact and lightweight, it can be combined with an electric linear slide for horizontal travel.

SCARA

3-Axis

OVR3041K3-H



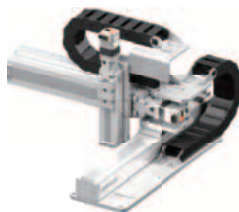
Lightweight and Flat

- Lightweight and flat, with a chassis mass of 7.6 kg and a height of 140 mm.
- Approach narrow spaces (compared to general SCARA robots).
- Max. reach length 410 mm, transportable mass 3 kg, repetitive positioning accuracy ± 0.03 mm.
- The use of mounting brackets expands the operating range in the vertical direction.

Cartesian

3-Axis

OVR3AL030030Z10K-C
OVR3AR030030Z10K-C



Cartesian Robots Delivered Assembled

- Combined with electric linear slides on three axes.
- Contributes to reduced equipment startup time and labor saving.
- Moving range 300 mm × 300 mm × 100 mm (X-Y-Z), transportable mass 2.5 kg.

Useful Tools Before Robot Deployment

MRC Studio Simulator

This is a software program that allows actual movements to be simulated without the robot itself or **MRC01** during the stage when robot deployment is being considered.



- Compatible with various robot types
- Can simulate actual operation flow
- The created program can be used during real deployment

MRC Reality (AR App for Mobile)

We have an iPhone/iPad app that allows a robot to be seen in real space to simulate its operation.



- Use your smartphone or tablet
- Download here for free



MRC Reality



Easily Control a Small Robots **OVR** Controller

In addition to the small robots **OVR**, they are also capable of controlling the **AZ** Series and electric actuators equipped with the **AZ** Series.

Product Line

Controller

Integrated Robot Controller & Drivers

MRCU Series



- **MRC01** and **AZ** Series mini Driver (up to 7) in a single package
- Equivalent to A4 size (300 mm × 180 mm × 85 mm) for space saving
- Controlled via EtherNet/IP™ or I/O
- Easy wiring reduces the risk of mis-wiring
- Fewer parts to be purchased

Robot Controller

MRC01



MRC01-C



- Easy control in three steps: initial configuration, operation programming, and operation check
- Controlled via EtherNet/IP™ or I/O
- **MRC01-C** available for Cartesian robots

Programming Software

MRC Studio



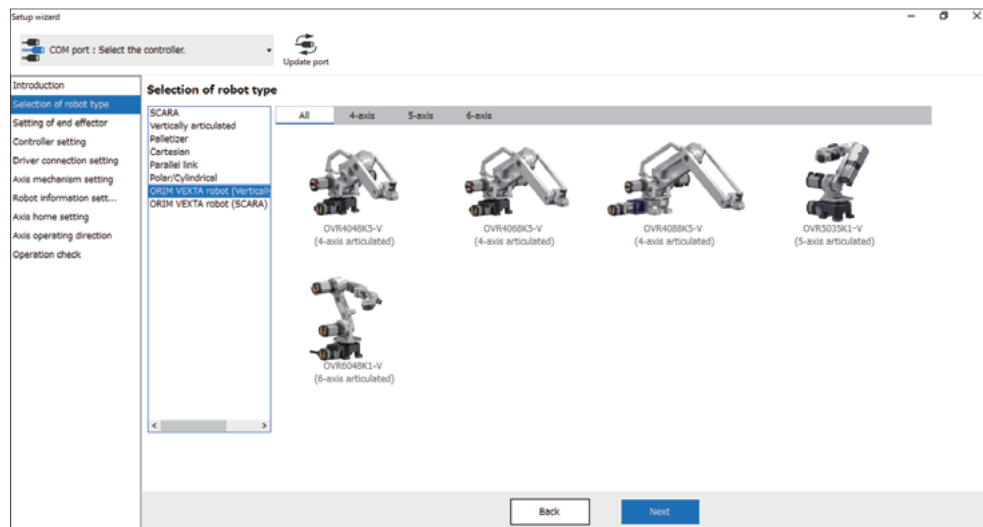
- Dedicated software that provides support from start-up to maintenance
 - Create operation programs from a PC to set and edit various parameters
 - Teaching and various condition monitoring functions available
- *The **MRC Studio** software and EDS files can be downloaded from the Oriental Motor website.

***MRC Studio Simulator** (free) is also available for robot operation checks before purchase.

Easy Setup Quickly

Easy Setup, Even for Beginners

Small robots **OVR** can help reduce setup time because dimensional data, such as arm length, is already registered.

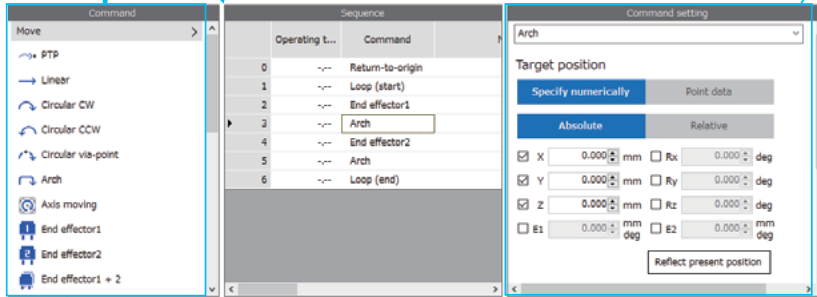


Say Goodbye to Ladder Logic! Operation Programming with Item Selection

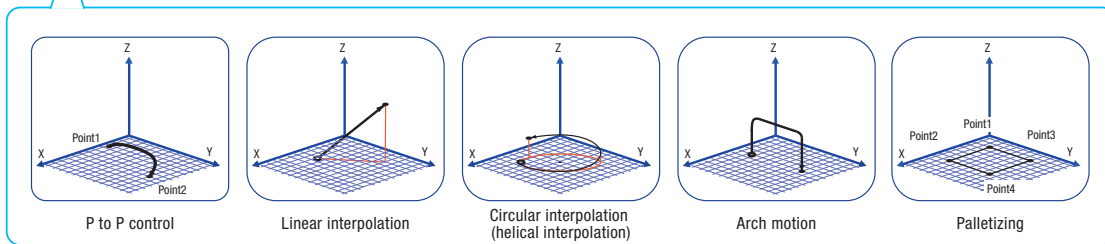
Program creation uses a simple command selection format. Programs can be created intuitively, without requiring specialized knowledge such as ladder diagrams. The system supports a range of advanced motion control operations, including P-to-P, linear interpolation, circular interpolation, and arc motion, among others. Operating data is executed directly from a host controller via EtherNet/IP.

● Drag and Drop the Required Commands

Select the necessary action from the "Command" column, drag and drop into the "Sequence" column, then the "Command Setting" column is displayed.



● Target Position and Speed Setting



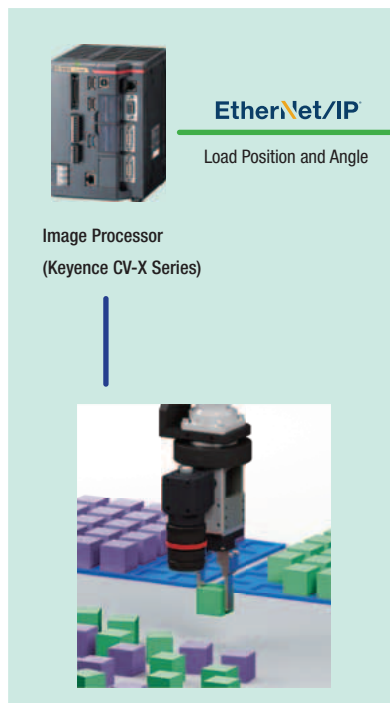
Configuration of a Robot Vision System Using 2D Cameras

The robot controller is equipped with useful functions for operating the robot using load position and angle information acquired by the camera.

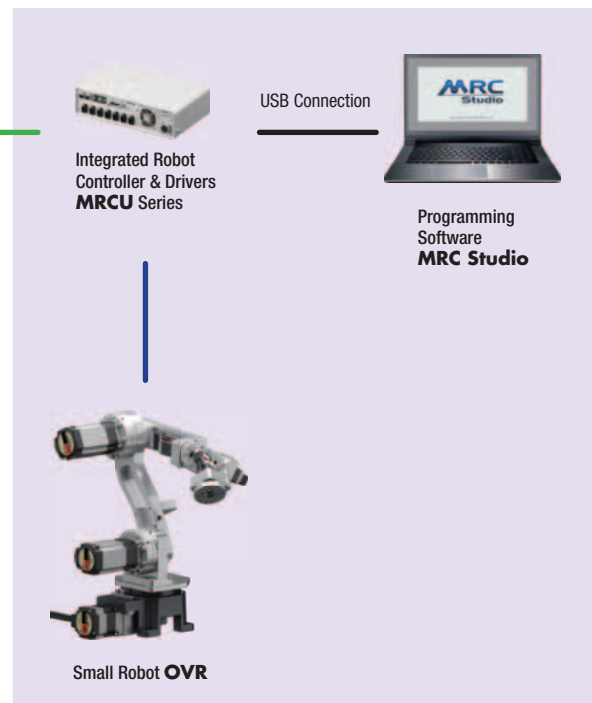
In order to integrate the 2D camera, **MRC Studio** is used to perform the calibration* in advance. The settings can be easily configured by simply following the on-screen instructions while looking at the illustrations, allowing for a reduction in the work hours necessary for correction.

*Up to two motors

● Acquire Load Position and Angle Information Using the Camera

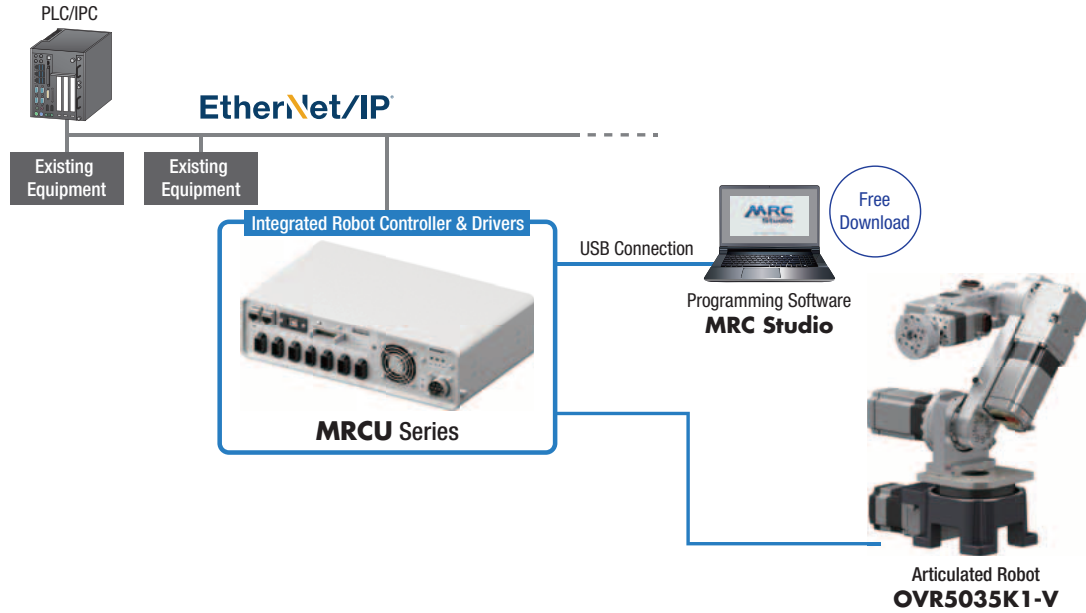


● Convert to Robot Coordinates and Operate



System Configuration Example

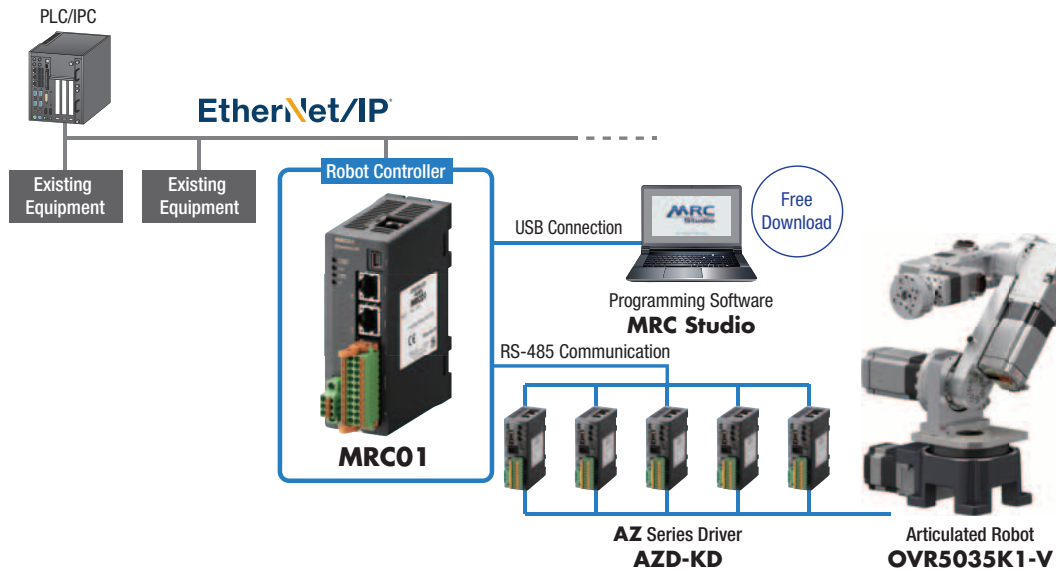
5-Axis Articulated + Integrated Robot Controller & Drivers **MRCU Series**



Configuration Example

	Product Name	Quantity
Robot	OVR5035K1-V	1
Integrated robot controller & drivers	MRCU5A1D	1
Cable between motor and driver (3 m)	CCM030Z2ABF	1
	CCM030Z1EFR	4

5-Axis Articulated + Robot Controller **MRC01**



Configuration Example

	Product Name	Quantity
Robot	OVR5035K1-V	1
Robot Controller	MRC01	1
Driver	AZD-KD	5
	CC030VZF2	1
	CCM030Z1DFR	2
Cable between motor and driver (3 m)	CCM030Z1CFR	2
	CC001-RS4	5

● A DC power supply and end effector are also required.

● Refer to the Oriental Motor website for information about cables.

● 4-Axis Articulated + Integrated Robot Controller & Drivers **MRCU Series**

◇ Configuration Example

	Product Name	Quantity
Robot	OVR4048K5-V	1
Integrated robot controller & drivers	MRCU4A1D	1
Cable between motor and driver (3 m)	CCM030Z2ABF	1
	CCM030Z1EFR	2
	CCM030Z2AAR	1



● 6-Axis Articulated + Integrated Robot Controller & Drivers **MRCU Series**

◇ Configuration Example

	Product Name	Quantity
Robot	OVR6048K1-V	1
Integrated robot controller & drivers	MRCU6A1D	1
Cable between motor and driver (3 m)	CCM030Z2ABF	1
	CCM030Z1EFR	2
	CCM030Z2AAR	3



● 3-Axis SCARA + Integrated Robot Controller & Drivers **MRCU Series**

◇ Configuration Example

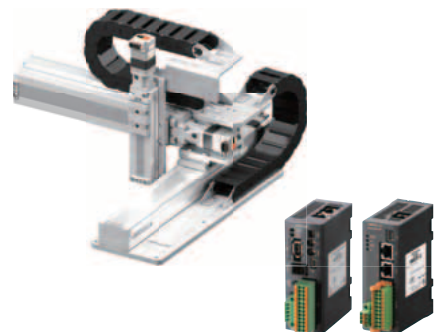
	Product Name	Quantity
Robot	OVR3041K3-H	1
Integrated robot controller & drivers	MRCU3A1D	1
Cable between motor and driver (3 m)	CCM030Z1EBF	1
	CCM030Z1EBR	1
	CCM030Z2AAR	1



● Cartesian + Robot Controller **MRC01-C**

◇ Configuration Example

	Product Name	Quantity
Robot	OVR3AR030030Z10K-C	1
Robot Controller	MRC01-C	1
Driver	AZD-KD	3
Cable between motor and driver (3 m)	CCM030Z1CBF	1
	CCM030Z1CVR	1
	CCM030Z1DFR	1
RS-485 Communication Cable (0.1 m)	CC001-RS4	3

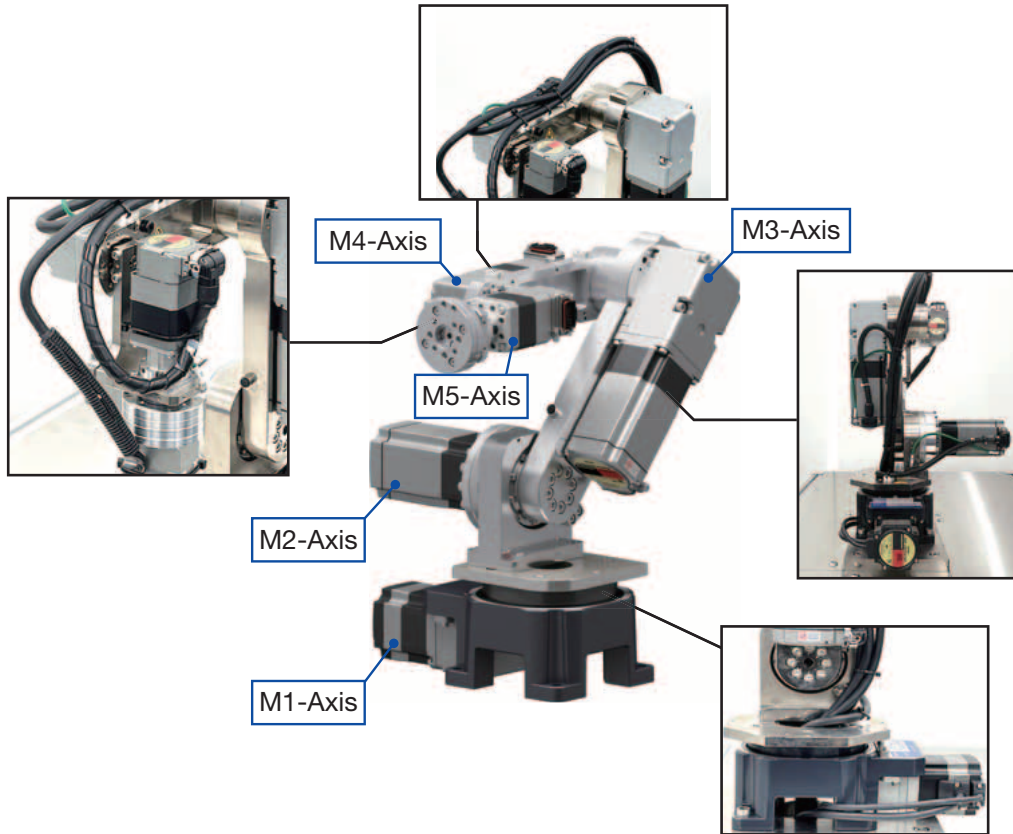


- A DC power supply and end effector are also required.
- Refer to the Oriental Motor website for information about cables.

Example of Motor Cable Outlet

When using a small robot, cables of the lengths required by the customer must be prepared, and the cables must be secured using the tap holes on the arms.

The following shows a cable outlet method using a 5-axis articulated (**OVR5035K1-V**) as an example.



Product Code

● Robot

◇ Articulated, SCARA

OVR 4 048 K 5 - V

① ② ③ ④ ⑤

◇ Cartesian

OVR 3 A L 030 030 Z 10 K-C

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

● Integrated Robot Controller & Drivers

MRCU 6A 1D 1

① ② ③ ④

①	Number of Axes	3: 3-axes 4: 4-axes 5: 5-axes 6: 6-axes
②	Maximum Reach (Horizontal)	035: 350 mm 041: 410 mm 048: 480 mm 068: 680 mm 088: 880 mm
③	Power Supply Specification	K: DC Input Specification
④	Transportable Mass	1: 1 kg 3: 3 kg 5: 5 kg
⑤	Robot Configuration	V: Articulated H: SCARA

①	Number of Axes	3: 3-axes
②	Combination Configuration	A: XYZ
③	Combination Direction	L: L type R: R type
④	X-axis Stroke	030: 300 mm
⑤	Y-axis Stroke	030: 300 mm
⑥	Z-axis	Z: EZS Series
⑦	Z-axis Stroke	10: 100 mm
⑧	Power Supply Specification	K: DC Input Specification
⑨	Robot Configuration	C: Cartesian

①	Series Name	MRCU: MRCU Series
②	Number of Robot Axes	2A: 2-axes 3A: 3-axes 4A: 4-axes 5A: 5-axes 6A: 6-axes
③	Equipped Driver	1D: AZD-KR2D
④	Number of Peripheral Axes	Blank: 0-axes 1: 1-axis 2: 2-axes

Product Line

Robot

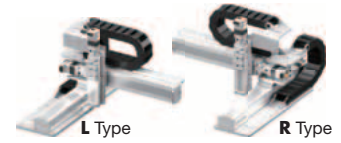
These prices are for the robot only. Drivers, robot controllers, and motor cables must be purchased separately.

Articulated, SCARA



Robot Configuration	Number of Axes	Product Name
Articulated	4	OVR4048K5-V
		OVR4068K5-V
		OVR4088K5-V
Articulated	5	OVR5035K1-V
	6	OVR6048K1-V
SCARA	3	OVR3041K3-H

Cartesian



Robot Configuration	Number of Axes	Product Name
Cartesian	3	OVR3AL030030Z10K-C
		OVR3AR030030Z10K-C

Integrated Robot Controller & Drivers



Total Number of Axes	Robot Number of Axes	Number of Peripheral Axes	Product Name
3	3	0	MRCU3A1D
	2	1	MRCU2A1D1
4	4	0	MRCU4A1D
	3	1	MRCU3A1D1
	2	2	MRCU2A1D2
5	5	0	MRCU5A1D
	4	1	MRCU4A1D1
	3	2	MRCU3A1D2
6	6	0	MRCU6A1D
	5	1	MRCU5A1D1
	4	2	MRCU4A1D2
7	6	1	MRCU6A1D1
	5	2	MRCU5A1D2

Robot Controller



Applicable Robot Type	Product Name
Articulated, SCARA, Cartesian	MRC01
Cartesian	MRC01-C

Combined Drivers

Built-in Controller Type



Power Supply Input	Product Name
24 VDC	AZD-KD

mini Driver RS-485 Communication Type

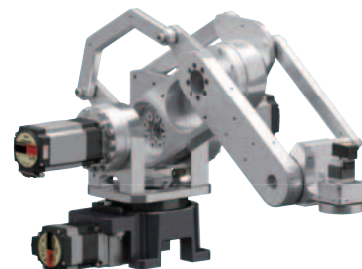


Power Supply Input	Product Name
24 VDC	AZD-KR2D

Articulated, 4-Axis

Specifications

Part Name		OVR4048K5-V	OVR4068K5-V	OVR4088K5-V
Number of Axes		4-axis		
Input Voltage		24 VDC		
Maximum Reach	Vertical	570	750	900
	Horizontal	480	680	880
Transportable Mass		5		
Standard Cycle Time*1		0.7		
Moving Range*2	S-axis (Swiveling)	±170		
	L-axis (Lower arm)	-27~+80		
	U-axis (Upper arm)	-58~+35		
	R-axis (Wrist swiveling)	±180*3		
Repetitive Positioning Accuracy*4		±0.05		
Permissible Inertia (Wrist swiveling axis)		0.069		
Chassis Mass		16.5	17.4	26.9
Installation Type		Frame mounting		



*1 This is the time required to move a 1 kg load between two points 25 mm high and 300 mm across.

This is the cycle time when the robot controller **MRC01** is used.

*2 This is the range in which operation in the ± direction is possible with respect to the installation home position (0 deg).

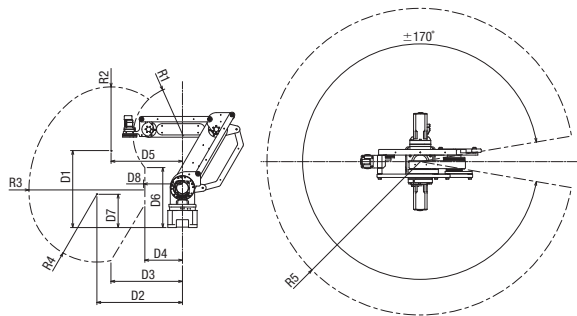
*3 ±170 deg when the robot controller **MRC01** is used.

*4 Based on the specification values of each shaft reducer.

● Recommended Power Supply Capacity: 24 VDC, 500 W

Motion Range Diagram/Dimensions (Unit: mm)

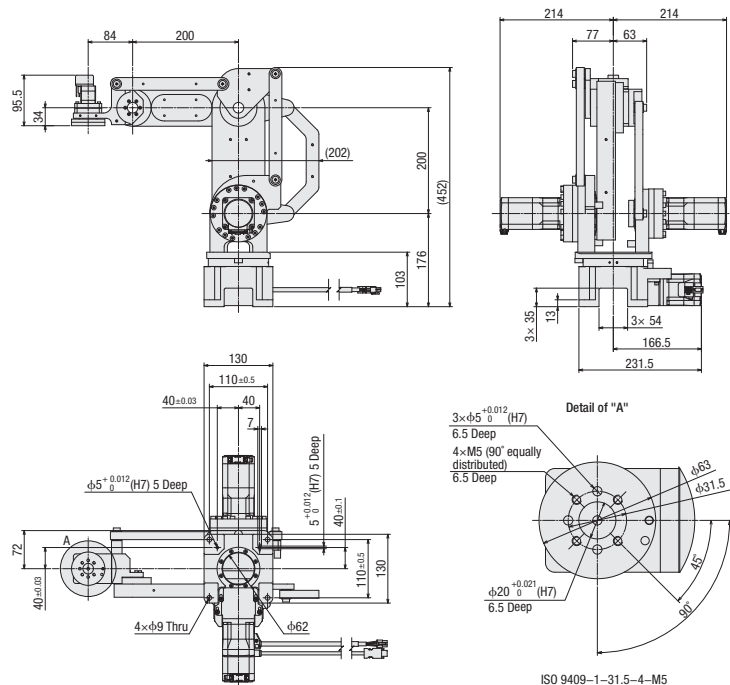
Motion Range Diagram



Product Name	R1	R2	R3	R4	R5	D1	D2	D3	D4	D5	D6	D7	D8
OVR4048K5-V	203	229	382	232	480	234	255	190	149	225	199	109	102
OVR4068K5-V	221	281	508	300	680	342	380	317	166	317	266	148	172
OVR4088K5-V	278	386	483	386	880	280	498	496	156	473	194	151	403

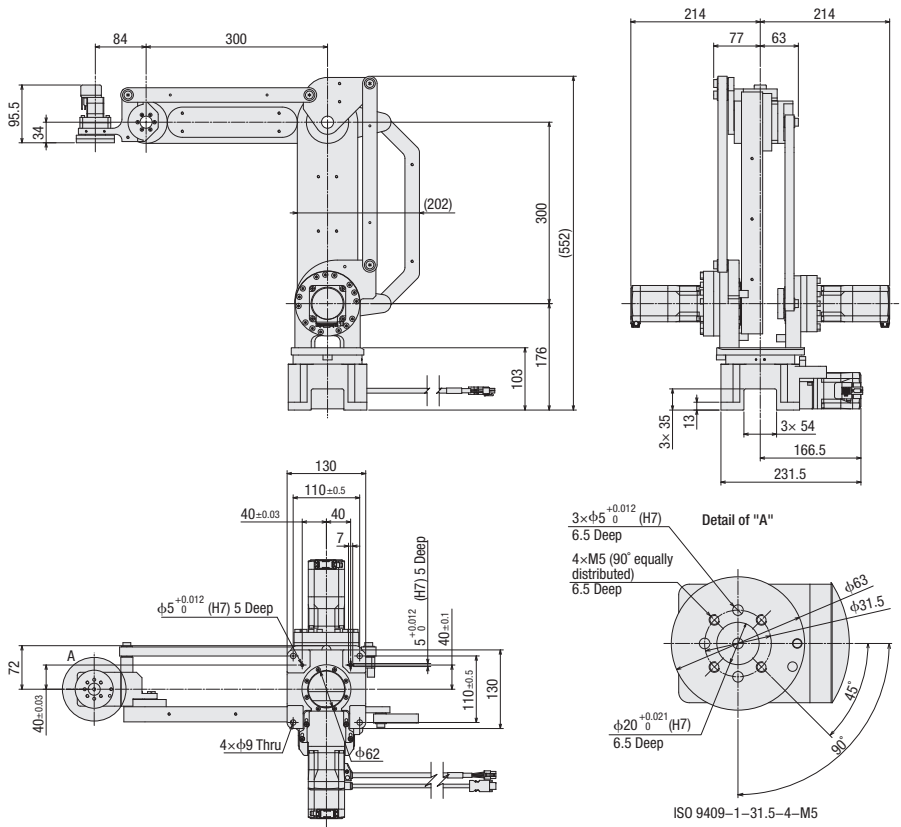
Dimensions

◇ OVR4048K5-V

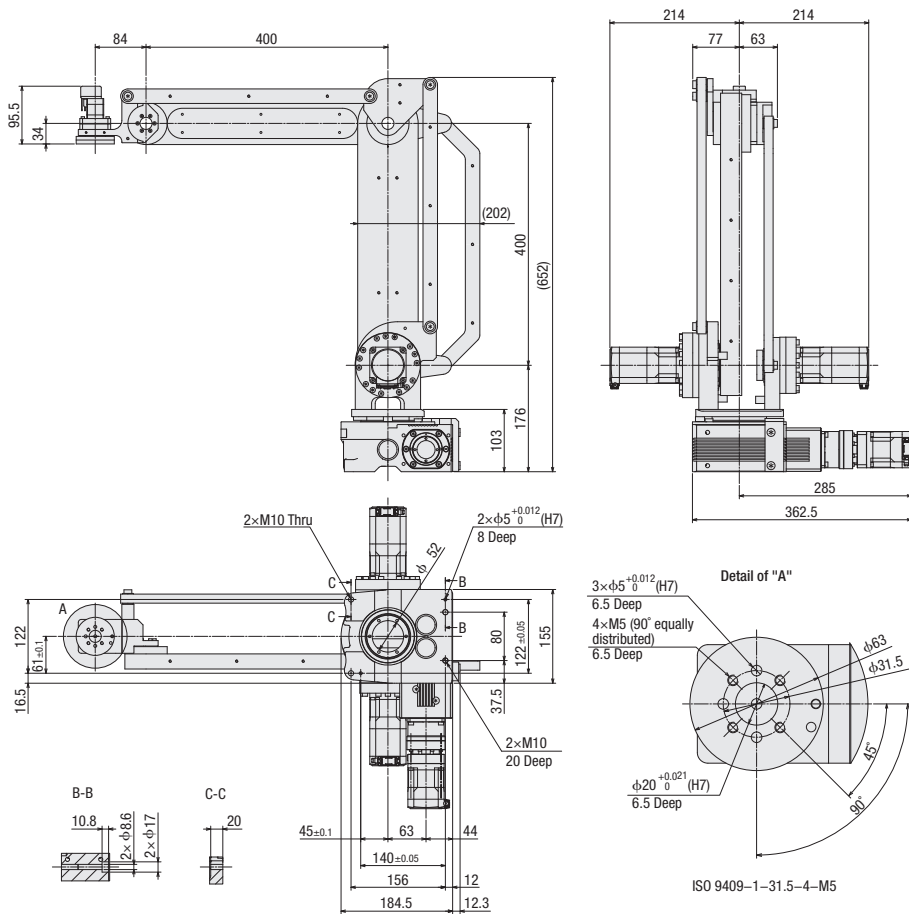


ISO 9409-1-31.5-4-M5

◇ OVR4068K5-V



◇ OVR4088K5-V



Articulated, 5-Axis

Specifications

Part Name			OVR5035K1-V
Number of Axes			5-axis
Input Voltage			24 VDC
Maximum Reach	Vertical	mm	631 (Upward)
	Horizontal	mm	350 (Downward)
Transportable Mass			1
Standard Cycle Time*1			0.9
Moving Range*2	S-axis (Swiveling)	deg	±170
	L-axis (Lower arm)	deg	-55~+105
	U-axis (Upper arm)	deg	-115~+145
	Bp-axis (Vertical wrist oscillation)	deg	-90~+125
	R-axis (Wrist swiveling)	deg	±180*3
Repetitive Positioning Accuracy*4			±0.05
Permissible Inertia (Wrist swiveling axis)			kgm ²
Chassis Mass			12.5
Installation Type			Frame mounting



*1 This is the time required to move a 1 kg load between two points 25 mm high and 300 mm across.

This is the cycle time when the robot controller **MRC01** is used.

*2 This is the range of operation from the installation home position (L, U, and Bp axes vertical) with the positioning pins in the home pin holes.

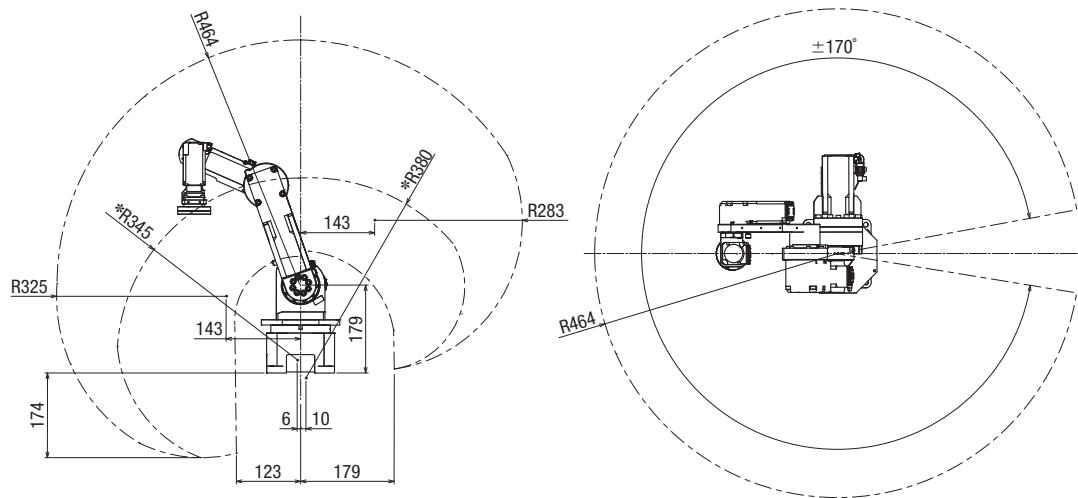
*3 ±170 deg when the robot controller **MRC01** is used.

*4 Based on the specification values of each shaft reducer.

● Recommended Power Supply Capacity: 24 VDC, 600 W

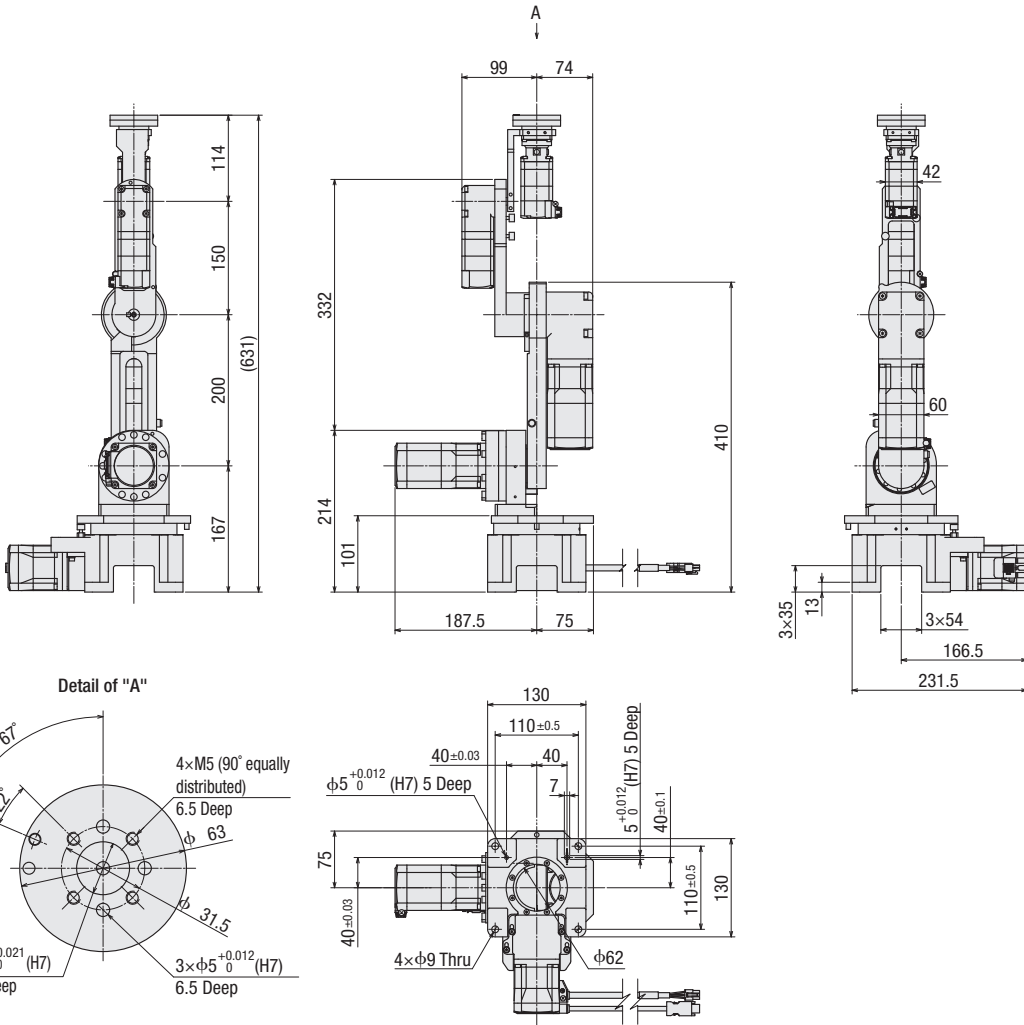
Motion Range Diagram/Dimensions (Unit: mm)

Motion Range Diagram



*This is the range within which the end effector can operate when facing downward.

● Dimensions



ISO 9409-1-31.5-4-M5

Articulated, 6-Axis

Specifications

Part Name			OVR6048K1-V
Number of Axes			6-axis
Input Voltage			24 VDC
Maximum Reach	Vertical	mm	735 (Upward)
	Horizontal	mm	568/480 (Downward)
Transportable Mass			1
Standard Cycle Time*1			0.7
Moving Range*2	S-axis (Swiveling)	deg	±170
	L-axis (Lower arm)	deg	-59~+108
	U-axis (Upper arm)	deg	-134~+150
	R-axis (Horizontal wrist oscillation)	deg	±180*3
	Bp-axis (Vertical wrist oscillation)	deg	-106~+117
	T-axis (Wrist swiveling)	deg	±180*3
Repetitive Positioning Accuracy*4			±0.05
Permissible Inertia (Wrist swiveling axis)			kgm ² 0.069
Chassis Mass			12.5
Installation Type			Frame mounting



*1 This is the time required to move a 1 kg load between two points 25 mm high and 300 mm across.

This is the cycle time when the robot controller **MRC01** is used.

*2 This is the range of operation from the installation home position with the positioning pins in the home pin holes.

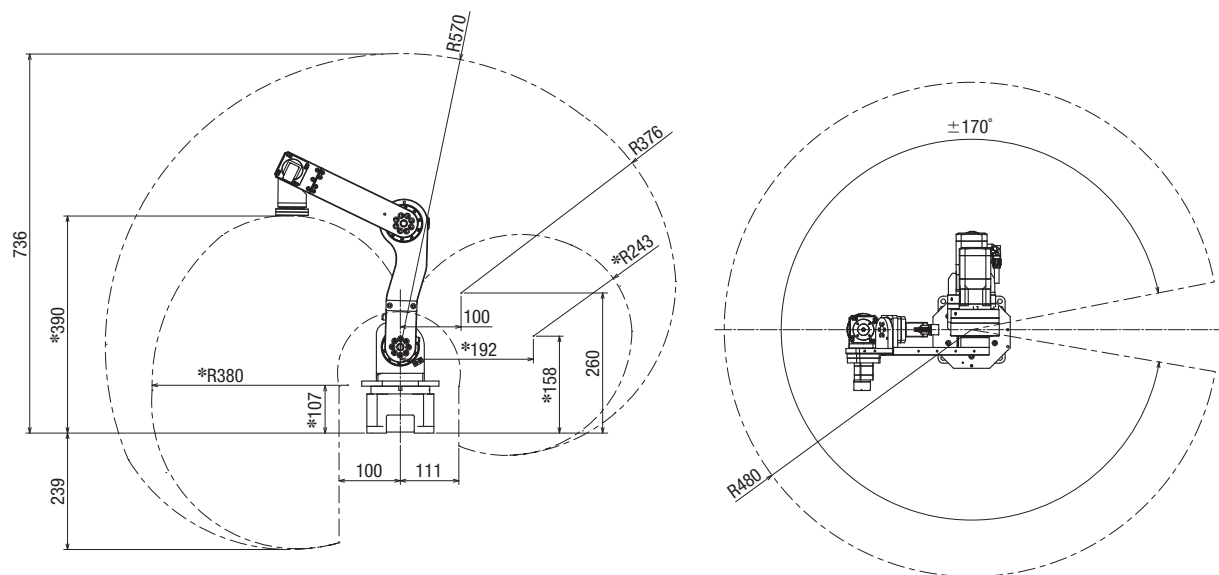
*3 ±170 deg when the robot controller **MRC01** is used.

*4 Based on the specification values of each shaft reducer.

● Recommended Power Supply Capacity: 24 VDC, 600 W

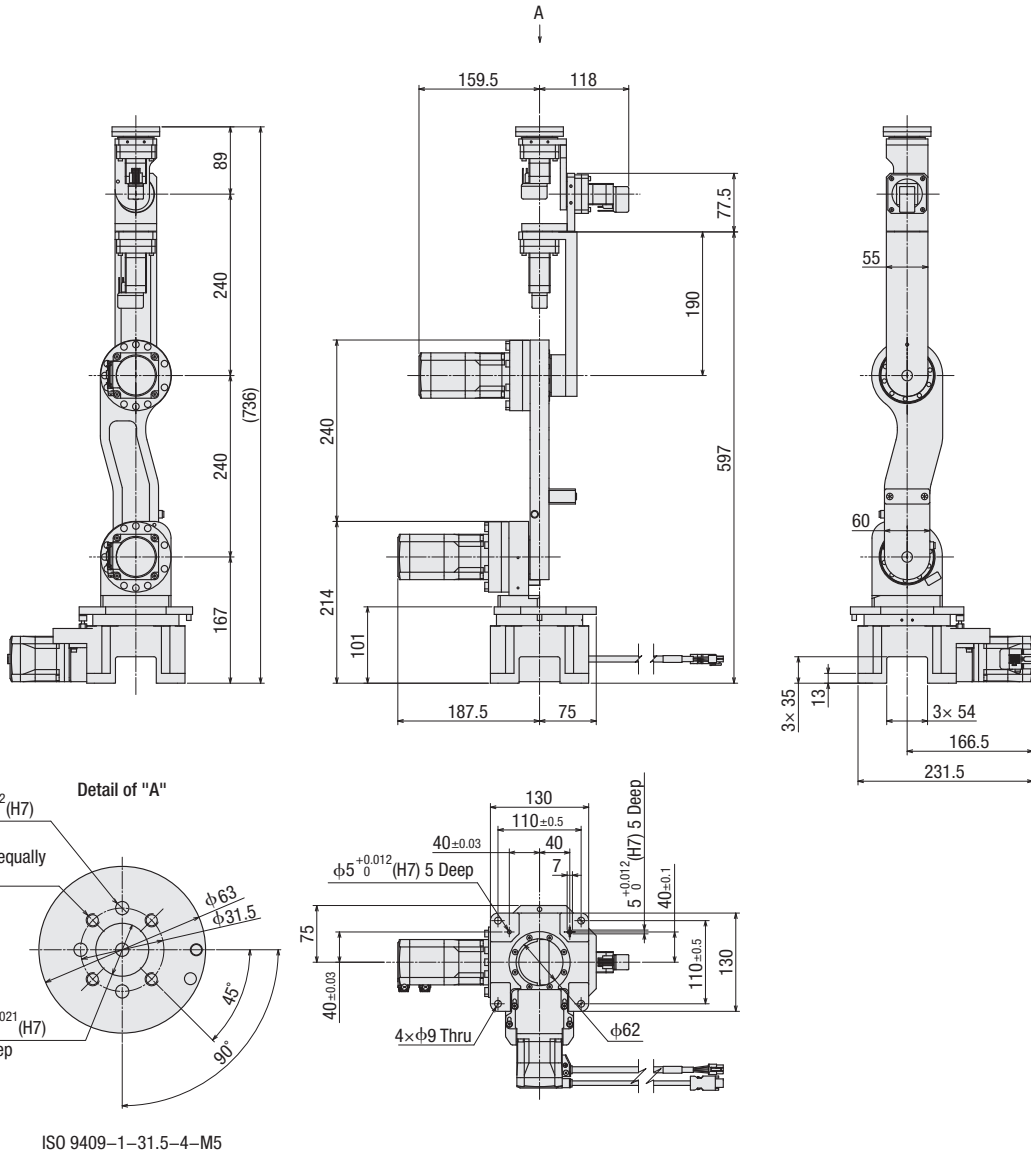
Motion Range Diagram/Dimensions (Unit: mm)

Motion Range Diagram



*This is the range within which the end effector can operate when facing downward.

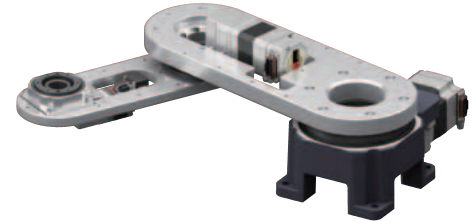
● Dimensions



SCARA, 3-Axis

Specifications

Part Name			OVR3041K3-H
Number of Axes			3-axis
Input Voltage			24 VDC
Arm Length	Arm 1	mm	230
	Arm 2	mm	180
Transportable Mass			3
Moving Range*1	Axis 1	deg	±170
	Axis 2	deg	±140
	Axis 1	deg/s	300
Maximum Speed	Axis 2	deg/s	300
	Axis 3	deg/s	720
	Composite (TCP)*2	mm/s	1000
Repetitive Positioning Accuracy*3			±0.03
Permissible Inertia			0.026
Chassis Mass			7.6
Installation Type			Frame mounting/Ceiling mounting



*1 This is the range of operation from the installation home position with the positioning pins in the home pin holes.

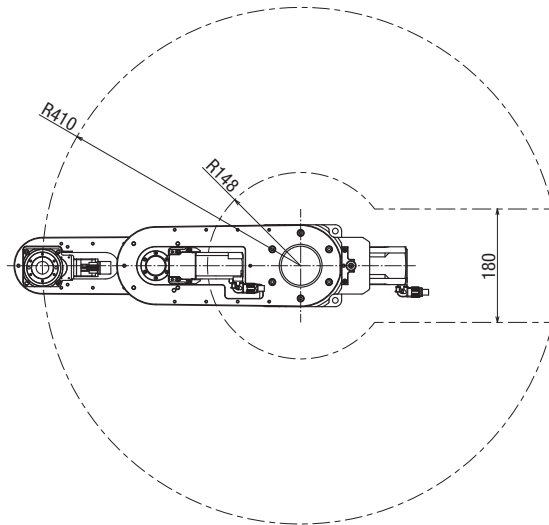
*2 This is the maximum speed when the transportable mass is 1 kg. 300 mm/s for 3 kg.

*3 Based on the specification values of each shaft reducer.

● Recommended Power Supply Capacity: 24 VDC, 170 W

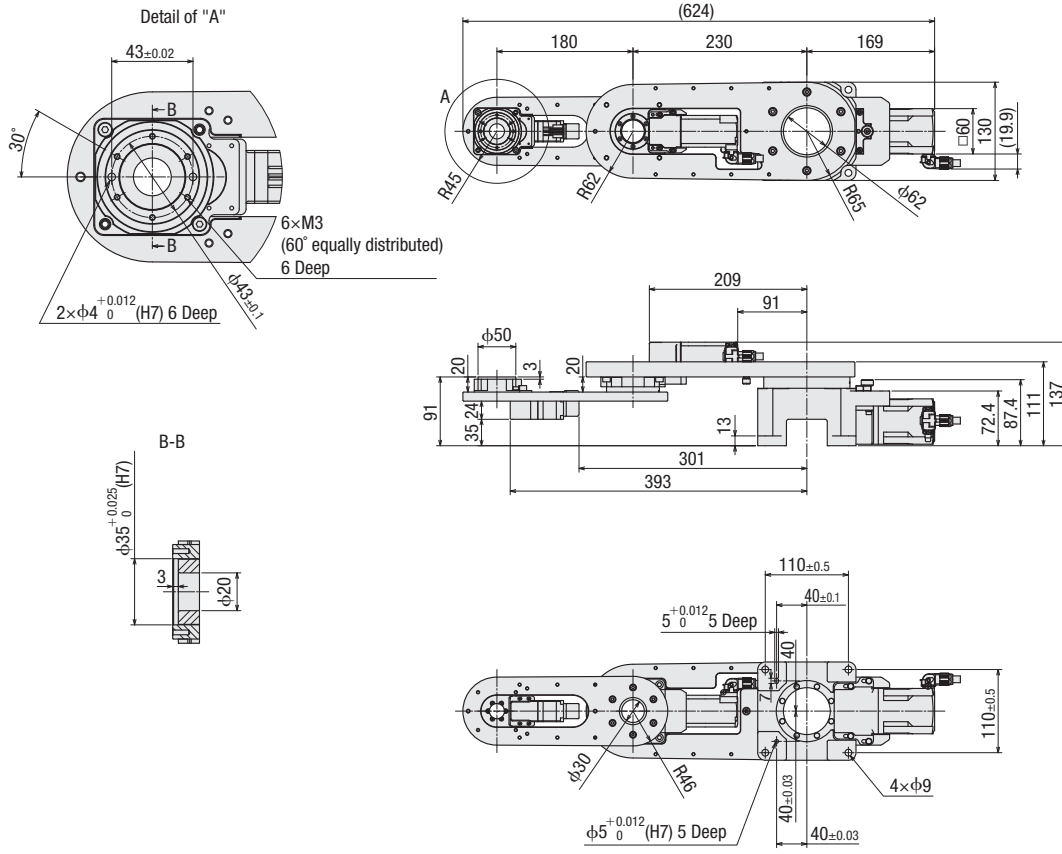
Motion Range Diagram/Dimensions (Unit: mm)

Motion Range Diagram



● Although the max. reach length is 410 mm, considering the singularity when using a robot controller, use within 400 mm is recommended.

● Dimensions



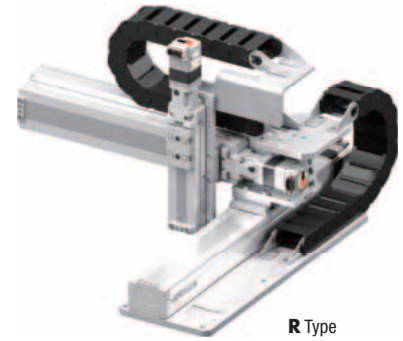
Cartesian, 3-Axis

Specifications

Part Name	OVR3AL030030Z10K-C (L type) OVR3AR030030Z10K-C (R type)	
Number of Axes	3-axis	
Input Voltage	V	24 VDC
Transportable Mass*1	kg	2.5
Moving Range	mm	X-axis: 300, Y-axis: 300, Z-axis: 100
Maximum Speed*2	mm/s	X-axis: 600, Y-axis: 600, Z-axis: 600
Repetitive Positioning Accuracy	mm	±0.02
Chassis Mass	kg	18.4
Installation Type	Frame mounting	

*1 When acceleration is 1 m/s²

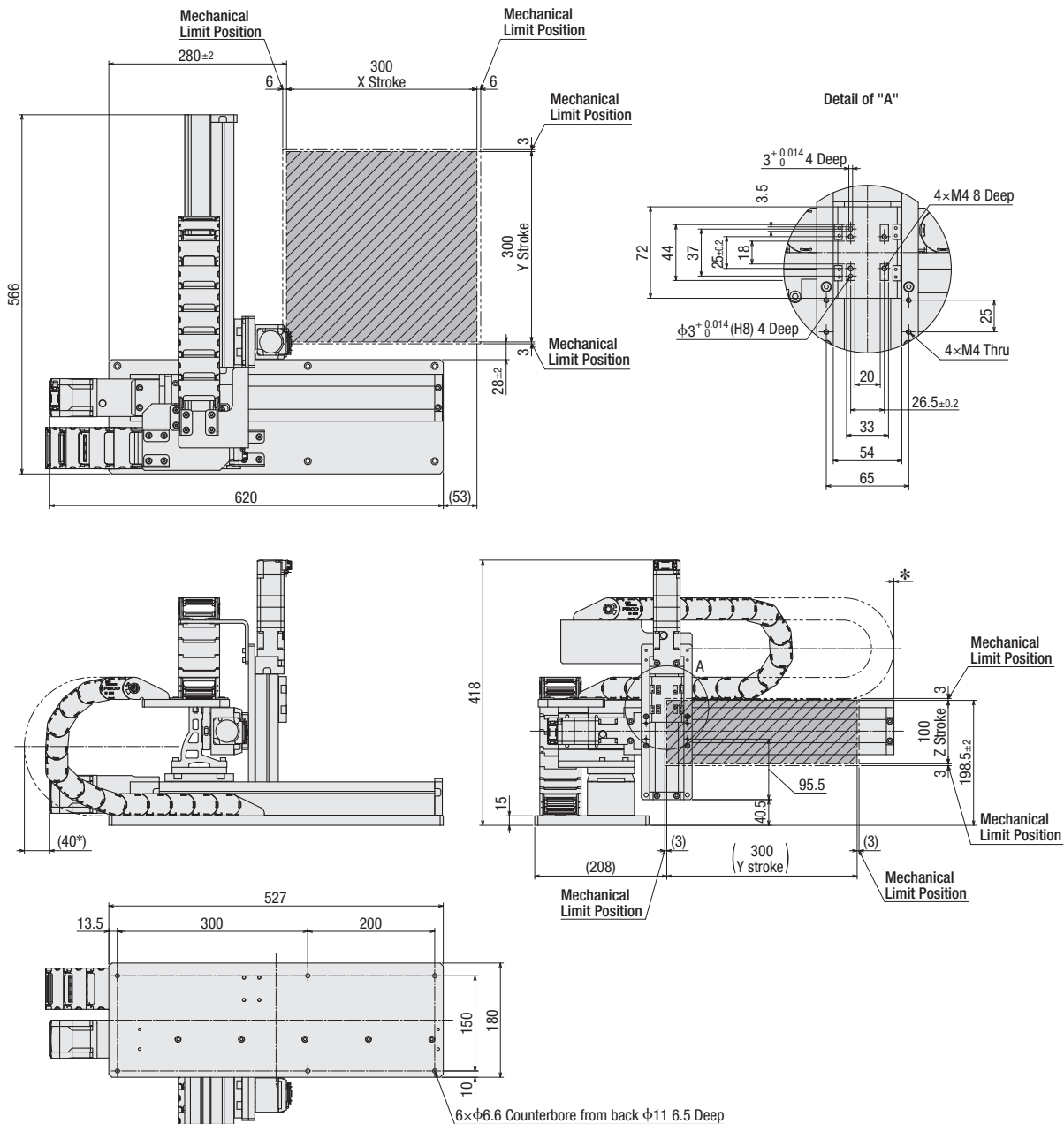
*2 Changes depending on the transportable mass and acceleration.



R Type

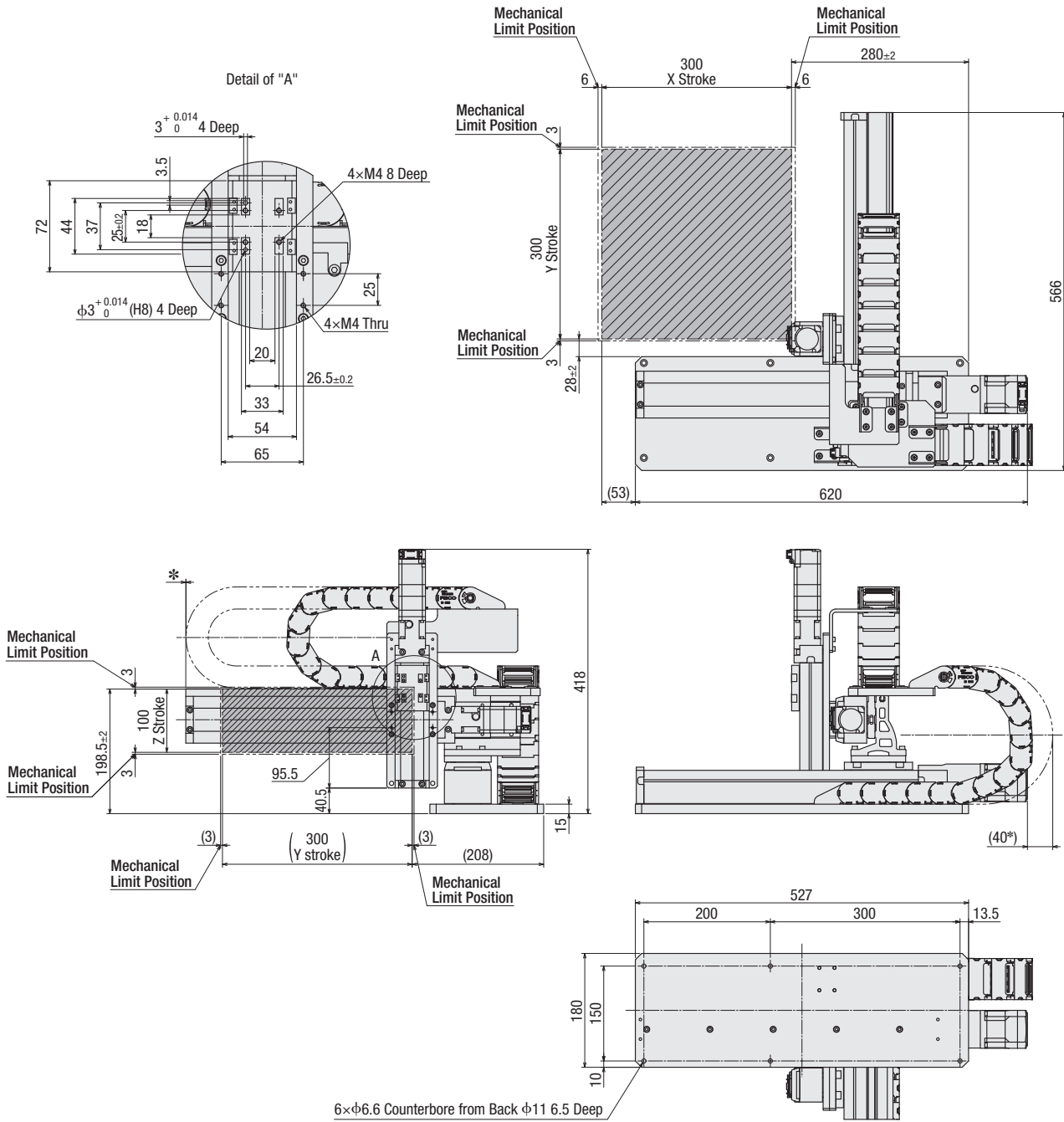
Dimensions (Unit = mm)

● OVR3AL030030Z10K-C (L type)



*The amount the cable holder protrudes cannot be guaranteed, so please ensure sufficient space around it.

●OVR3AR030030Z10K-C (R type)



*The amount the cable holder protrudes cannot be guaranteed, so please ensure sufficient space around it.

Accessory

Robot Flange Adapter

Articulated end effector mounting conforms to ISO 9409-1-31.5-4-M5.
 The **EH** Series of electric grippers can be mounted using the robot flange adapter.

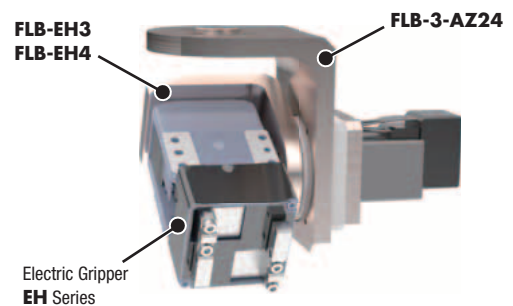
Product Name
P3F1 (For EH3-AZAKH)
P3F2 (For EH4-AZAKH, EH4T-AZAKH)



For Articulated, 4-Axis Flip Shaft Mounting Brackets

OVR4048K5-V, OVR4068K5-V, and OVR4088K5-V use a parallel link mechanism to keep the robot tip horizontal at all times.
 If the wrist angle needs to be changed, **FLB-3-AZ24** and **FLB-EH3/FLB-EH4** can be used to attach an **EH** Series electric gripper.

Product Name
FLB-3-AZ24
FLB-EH3 (For EH3-AZAKH)
FLB-EH4 (For EH4-AZAKH, EH4T-AZAKH)



Mounting Brackets for SCARA

These mounting brackets can be used on SCARA **OVR3041K3-H**.

PDG60-1

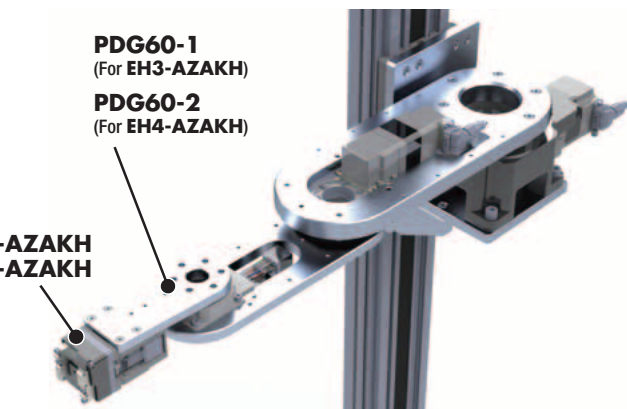
PDG60-2



PDG60-1
(For **EH3-AZAKH**)

PDG60-2
(For **EH4-AZAKH**)

EH3-AZAKH
EH4-AZAKH



PDG60-3

PDG60-4

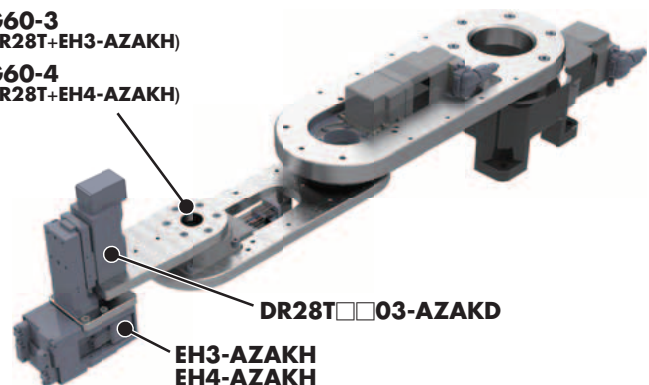


PDG60-3
(For **DR28T+EH3-AZAKH**)

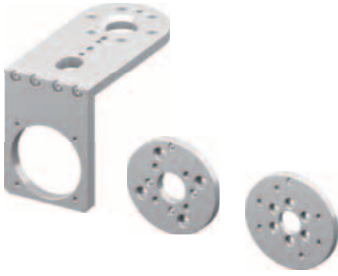
PDG60-4
(For **DR28T+EH4-AZAKH**)

DR28T□□03-AZAKD

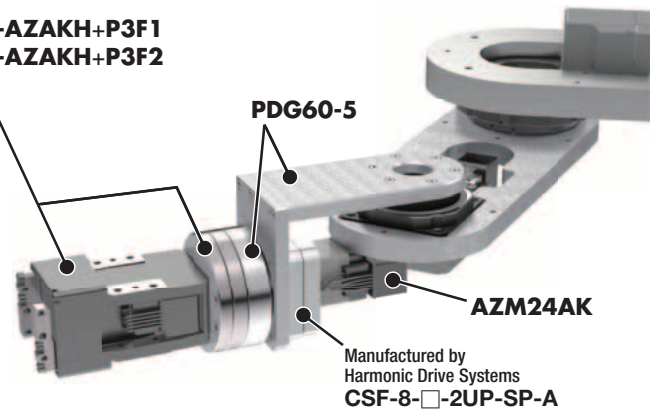
EH3-AZAKH
EH4-AZAKH



PDG60-5



EH3-AZAKH+P3F1
EH4-AZAKH+P3F2



PDG130-6



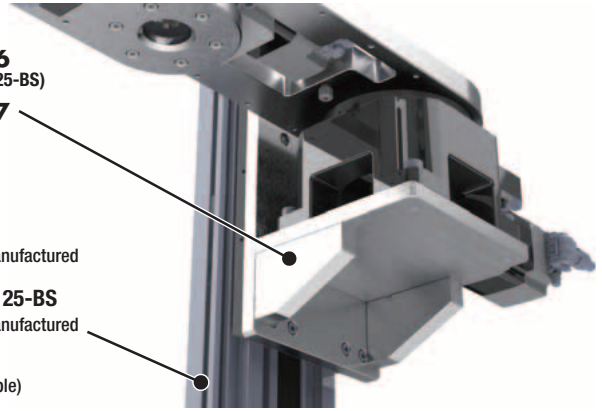
PDG130-7



PDG130-6
(For EGC-HD-125-BS)

PDG130-7
(For SKR46A)

Actuator manufactured
by FESTO
EGC-HD-125-BS
Actuator manufactured
by THK
SKR46A
(With subtable)



End Effector

The **EH** Series of electric grippers equipped with the **α STEP AZ** Series can be controlled as an end effector by the robot controller.

Product Line

Electric Grippers EH Series	2-Finger Type	2-Finger Type	3-Finger Type
	EH3-AZAKH	EH4-AZAKH	EH4T-AZAKH
Maximum Gripping Force (N)	7	25	50
Permissible Load (N)	2	5	15
Repetitive Positioning Accuracy (mm)	±0.02	±0.02	—
Max. Stroke (mm)	15	25	φ24
Mass (kg)	0.2	0.38	0.38

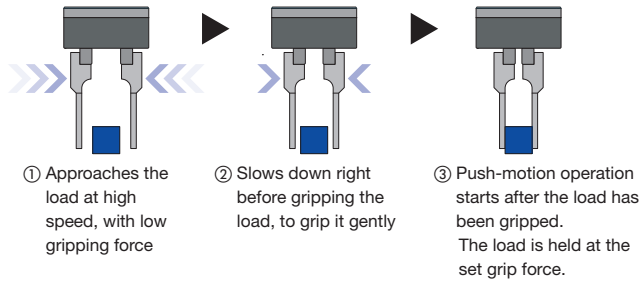
Applications

Grabbing

Loads that deform or scratch easily grab loads securely.

2-Finger/3-Finger

Moves quickly until right before contact → Gently grabs

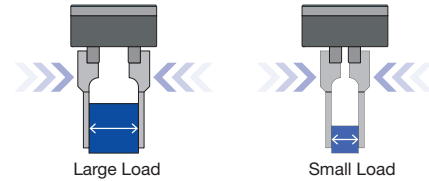


Align

Align the direction and position of loads.

2-Finger/3-Finger

By grabbing according to the size of the load, the direction and position can be aligned.

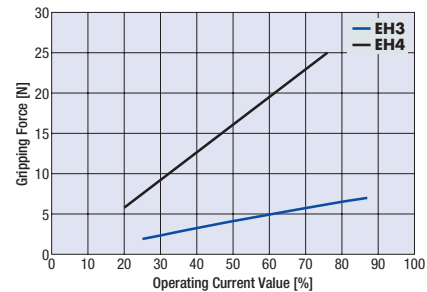


Fine Gripping Force Control

Fine current control allows the gripping force to be finely changed and adjusted.

Grips everything from delicate parts to slippery loads appropriately, gently or firmly as needed.

2-Finger Type Gripping Force and Operating Current (Reference values)



Visit www.orientalmotor.com

For further information (specifications, dimensions, speed-torque characteristics)