

# PRODUCT GUIDE 2026

Hybrid Stepper Servo Motors *αSTEP*

Stepper Motors

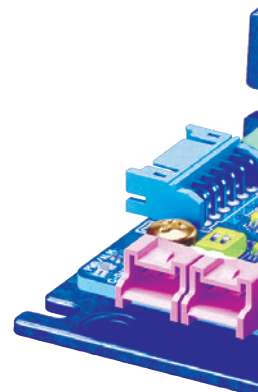
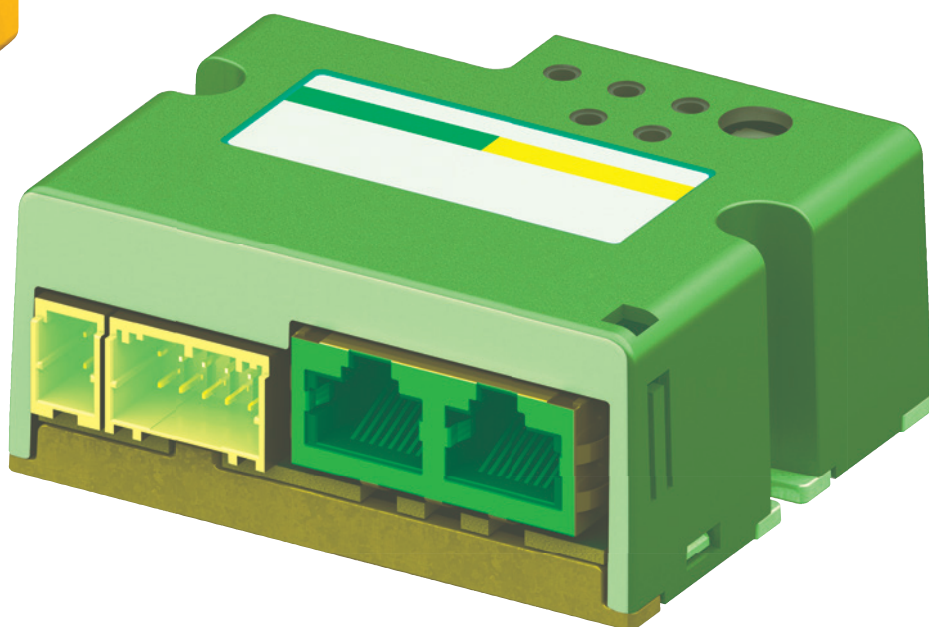
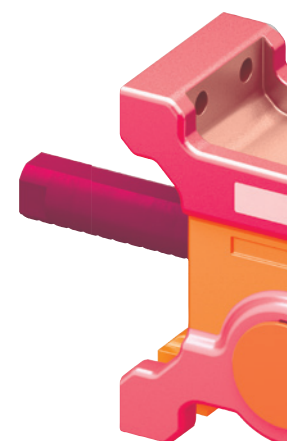
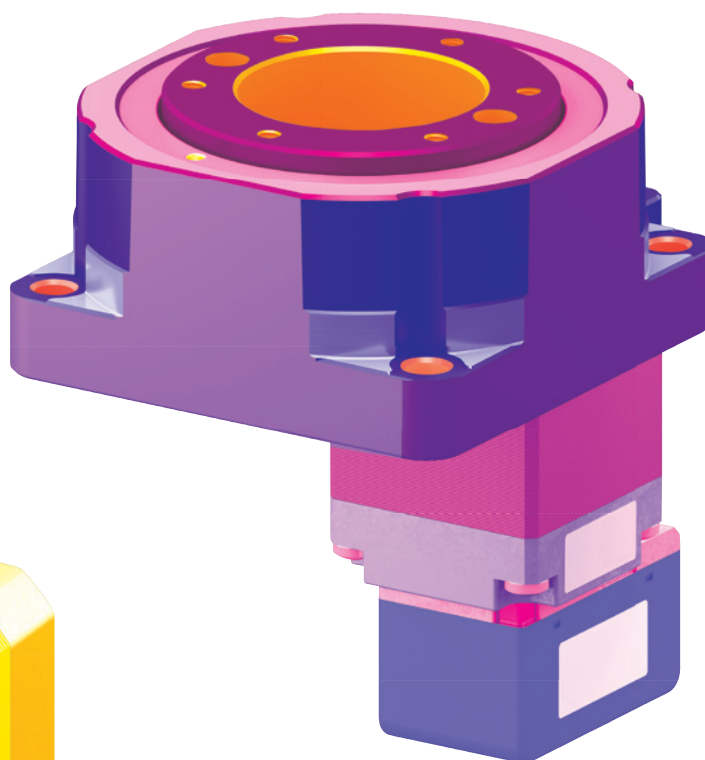
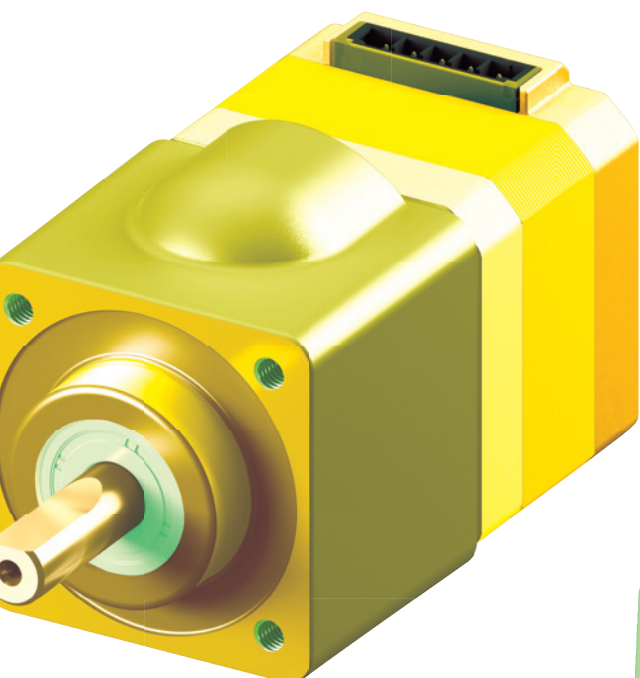
Electric Actuators

Servo Motors

Brushless Motors

Standard Motors

Cooling Fans



# AVAILABLE WORLDWIDE, STARTING FROM A SINGLE UNIT



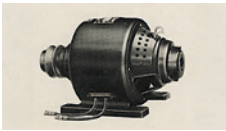
Company ORIENTAL MOTOR CO., LTD  
 Head office Taito-ku, Tokio  
 Founded 1885  
 Established 1950  
 Employees 3,021 (end of March 2025)  
 10 Factories and R&D Center in Japan

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ISO 9001 • ISO 14001

Headquarters ORIENTAL MOTOR (EUROPA) GMBH - Dusseldorf - Germany

## History of Oriental Motor - Constantly taking on new challenges and creating new values.



1885  
 Founded in Nihonbashi, Tokyo/Japan



1950  
 Established in Asakusa, Tokyo/Japan



1982  
 Established Oriental Motor (Europa) GmbH Headquarters in Germany



1996  
 Established Oriental Motor UK Ltd. in United Kingdom



Established Oriental Motor ITALIA s.r.l. in Italy



1951  
 Pioneer in the standardisation of AC motors



1998  
 New generation stepper motor **αSTEP AS** Series with closed-loop control.



2001  
**EZ limo**, an electric actuator designed for ease of use.



2013  
**αSTEP AZ** Series closed loop stepper motor with built-in absolute encoder



2025  
 Small robots **OVR** Series



# GLOBAL SALES NETWORK

## Bringing Oriental Motor to the Global Market

**Industrial – Medical – Packaging –  
Material Handling – and so much more.**

Worldwide, our refined product development enables daily operations across all fields of business. Honoring our corporate philosophy built on over 100 years of history.

We continually evolve to meet our customers needs wherever they are.

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SERVO MOTORS *αSTEP***

Connector type / cable type

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**SERVO MOTORS**

High torque in the high speed range

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**BRUSHLESS MOTORS**

High performance with compact design

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**STANDARD MOTORS**

Simply connect a capacitor and supply power from a commercial power supply

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**COOLING FANS**

A wide range of cooling fans and axial flow fans, ideal for ventilation cooling

# GLOBAL NETWORK

Our strong, global-scale network provides support to customers everywhere, offering motion-related solutions tailored to user needs.



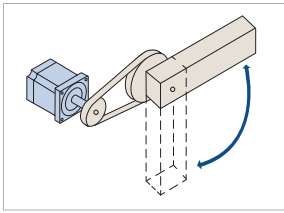
# R&D / MANUFACTURING

With a flexible and integrated production system, we ensure speedy product deliveries, in the right quantities, exactly when needed.

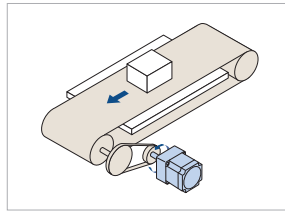


# MOTOR SIZING

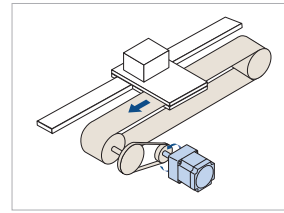
Motor sizing such as torque computation is performed on the customer's behalf by specialist staff members. (free of charge.) Not only will we recommend the product best suited to your mechanism, but also introduce accessories and show you the calculation process.



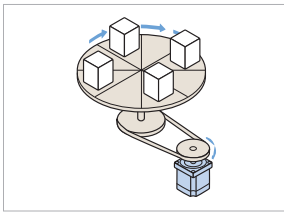
Arm Drive



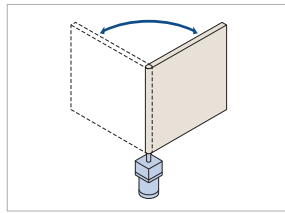
Belt Conveyor



Belt Linear Slide



Index Table



Opening and Shutting Doors



Motor sizing  
(Free of charge)

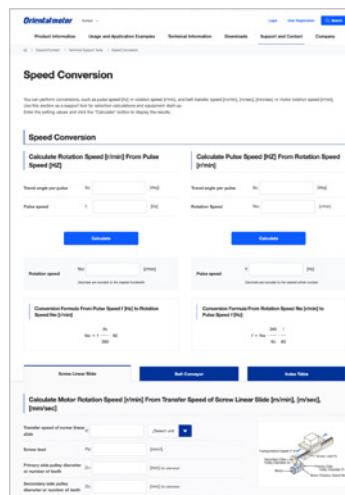
# START-UP SUPPORT

Technical Support Tools - You can easily perform unit conversions and calculations useful for design. (No user registration or login is required to use this service.)

- Unit Conversion Tool
- Tool to Aid Selection Calculations
- Support Tools for Individual Products



Start-Up Support



# SEMINARS

These are lecture-style seminars given by an instructor. Basic knowledge about motors and how to choose a motor will be explained in detail.

- Technology & benefits of motion control
- How to select and size motion control solutions
- Product demonstration and new motion control ideas
- Opportunity to meet your sales engineer, application engineer and your support team

# HYBRID STEPPER SERVO MOTORS $\alpha$ STEP

The **AZ** Series enables absolute positioning without the need for a battery. The total cost is reduced because no additional sensors are required. As a result, the **AZ** Series offers absolute positioning at an economical price.



Overview

## CONNECTOR TYPE



AZ Series



Specifications

- Connection with one cable (IP66)
- Absolute sensor, position control
- No external sensors necessary
- Low heat generation
- STO Function

### Resolution

0.0036 - 0.36°/Pulse

### Frame Size

42 - 90 mm

### Max. Holding Torque

0.3 - 107 Nm

### Gearheads

PS, PN, TS, Right-Angle, Harmonic

## CABLE TYPE



AZ Series



Specifications

- Connection with multiple cables
- Absolute sensor, position control
- No external sensors necessary
- Low heat generation
- STO Function

### Resolution

0.0036 - 0.36°/Pulse

### Frame Size

20 - 90 mm

### Max. Holding Torque

0.02 - 107 Nm

### Gearheads

PS, TS, Right-Angle, HPG, Harmonic



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## AZD DRIVERS

	Single-Axis Drivers		mini Drivers	Multi-Axis Drivers
	AC	DC	DC	DC
		•	•	•
	•	•	•	•
	•	•	•	-
	•	-	-	•
	•	-	-	•
	-	-	•	-
	-	-	•	-
Pulse-Input with RS-485 Communication	•	•	•	-
Pulse-Input	•	•	-	-
With built-in Controller	•	•	-	-

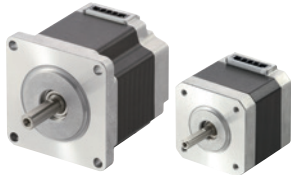
# STEPPER MOTORS

2-phase and 5-phase high-torque stepper motors are available with a wide variety of frame sizes and motor options. The **CVD** Series drivers are optimally matched to the **PKP/PK** Series motors.



Overview

## 2-PHASE STEPPER MOTORS



- High torque in the lower speed range
- Many motor options
- Low heat generation
- Energy saving

PKP/PK Series



Specifications

### Max. Holding Torque

0.0075 - 12 Nm

### Frame size

13 - 85 mm

### Basic Step Angle

1.8°/0.9° (with gearhead down to 0.018°)

### Gearheads

SH, CS, Harmonic

## 5-PHASE STEPPER MOTORS



- High torque in the upper speed range
- Many motor options
- Low vibration
- Low heat generation
- Energy saving

PKP/PK Series



Specifications

### Max. Holding Torque

0.0231 - 8 Nm

### Frame size

20 - 85 mm

### Basic Step Angle

0.72°/0.36° (with gearhead down to 0.0072°)

### Gearheads

TH, TS, Harmonic



## 2-PHASE/5-PHASE STEPPER MOTOR DRIVERS

	Single-Axis Drivers	Pulse Input	With RS-485 Interface	Fully Closed-Loop	S with SPI Communication	S with Pulse Input	SC (Speed Control)	Multi-Axis
	Combinable Stepper Motors	2-Phase/ 5-Phase	2-Phase/ 5-Phase	5-Phase	2-Phase/ 5-Phase	2-Phase/ 5-Phase	5-Phase	2-Phase/ 5-Phase
Control Method	I/O	-	Return to the reference point Positioning mode Speed specification	Excitation OFF Correction reset HOME setting	Return to the reference point	-	Return to the reference point	Control Inputs: 4 Control Outputs: 1
	Pulse Input	•	-	•	-	•	-	-
	Modbus (RTU)	-	Return to the reference point Positioning mode Direct Data Operation* Speed specification	Operation data, parameter settings, input of operational commands, remote I/O detection position and other status monitors	-	-	-	-
	SPI Communication	-	-	-	Return to the reference point Direct Data Operation*	-	-	-
	EtherCAT	-	-	-	-	-	-	Status monitor

\*Operation with direct data means that the parameters for position and speed are overwritten each time.

# ELECTRIC ACTUATORS

Rotary actuators and linear actuators are a combination of a stepper motor with a hollow rotary table (rotary actuators) and a ball screw (linear actuators). Both actuator types are driven by an **AZ** Series motor with absolute sensor.



Overview

## HOLLOW ROTARY ACTUATORS



DGII Series

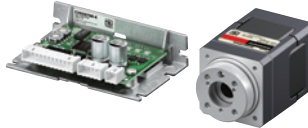


Specification



- Battery-free absolute sensor
- No external sensors necessary
- High power, high stiffness
- Large hollow shaft diameter

**Power Supply**  
200 - 240 VAC, 24/48 VDC  
**Frame Size**  
60, 85, 130, 200 mm  
**Max. Speed**  
450 - 2000 deg/s  
**Max. Thrust Load**  
100 - 4000 N  
**Permissible Torque**  
0.9 - 50 Nm



DH Series



Specification



- Highly Accurate Positioning
- Hollow shaft for tubing/wiring
- Direct mounting of the load

**Power Supply**  
24 VDC  
**Frame Size**  
28, 42 mm  
**Diameter of Hollow Section**  
∅ 5.2 mm, ∅ 10 mm  
**Max. Holding Torque**  
0.029 Nm, 0.175 Nm  
**Stop Position Accuracy**  
±0.11°, ±0.33°

## COMPACT ELECTRIC CYLINDERS



DR Series



Specification



- Battery-free absolute sensor
- No external sensors necessary
- Compact and lightweight
- Ultra-High Precision Positioning

**Power Supply**  
24 VDC  
**Frame Size**  
20, 28 mm  
**Stroke**  
25, 30 mm  
**Max. Thrust Load**  
15 - 40 N



DRS2 Series



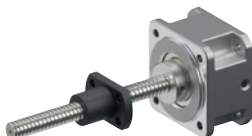
Specification



- Battery-free absolute sensor
- No external sensors necessary
- Compact and lightweight
- Ultra-High Precision Positioning

**Power Supply**  
24 VDC/48 VDC  
**Frame Size**  
42, 60 mm  
**Stroke**  
40, 50 mm  
**Max. Thrust Force**  
50 - 500 N

## MOUNTING ADAPTER-LINEAR ACTUATOR



LA Attachment



Specification

- Achieve linear motion by assembling with a stepper motor
- With lead screw or rolled ball screw

**Frame Size**  
30, 42 mm  
**Stroke**  
50 - 300 mm  
**Permissible Speed**  
30 - 240 mm/s  
**Permissible Thrust**  
40 - 160 N

## COMPACT ELECTRIC CYLINDERS



DRLII Series



Specification

- Integrated ball screw and stepper motor
- Ultra-High precision positioning

**Power Supply**  
24 VDC  
**Frame Size**  
20, 28, 42, 60 mm  
**Stroke**  
25 - 100 mm  
**Max. Thrust Force**  
15 - 300 N

# ELECTRIC ACTUATORS

Able to operate from low speed to high speed, or with light loads or heavy loads, these electric linear slides and cylinders are easy to use and offer high performance regardless of demanding operating conditions.



Overview

## ELECTRIC CYLINDERS - ELECTRIC LINEAR SLIDES



**EAC Series**



Specification



- Ball screw drive
- Equipped with closed-loop stepper motor
- Ideal for pushing and carrying applications

**Power Supply**  
200-240 VAC, 24/48 VDC  
**Stroke**  
50 - 300 mm  
**Max. Thrust Force**  
50 - 400 N  
**Max. Horizontal/Vertical Transportable Mass**  
60/30 kg



**EZX Series**



Specification



- Ball screw drive
- Equipped with closed-loop stepper motor
- Compact, highly rigid, simple dust-resistant structure

**Power Supply**  
200-240 VAC, 24/48 VDC  
**Stroke**  
50 - 850 mm  
**Max. Thrust Force**  
43 - 400 N  
**Max. Horizontal/Vertical Transportable Mass**  
60/30 kg

## RACK-AND-PINION SYSTEMS - ELECTRIC GRIPPERS



**L Series**



Specification



- Battery-free absolute sensor
- No external sensors necessary
- Compact with high strength

**Power Supply**  
200-240 VAC, 24 VDC/48 VDC  
**Frame Size**  
60, 80 mm  
**Stroke**  
100 - 1000 mm  
**Transportable Mass**  
up to 100 kg



**EH Series**

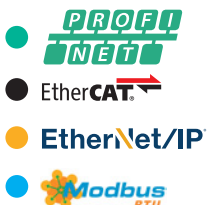


Specification



- Achieve delicate grasp
- Equipped with closed-loop stepper motor
- 2- or 3-Finger type available
- Max. gripping force 50 N

**Power Supply**  
24 VDC  
**Max. Gripping Force**  
7 - 50 N  
**Stroke**  
0 to 25 mm  
**Permissible Load**  
5 - 15 N



# SERVO MOTORS

The **AZX** Series is equipped with a battery-free absolute sensor. The servo motors are suitable for positioning applications with a large amount of travel, since they achieve high torque in the high speed range. The basic operations are the same as the **AZ** Series, making combined use in equipment easy.



Overview

## SERVO MOTORS



**AZX** Series



Specification

- Absolute sensor, position control
- Same operating method as the **AZ** Series
- High torque in the high speed range

**Rated Output Power**

400/600 W

**Frame Size**

60, 85, 90, 120 mm

**Max. Speed**

5500 r/min

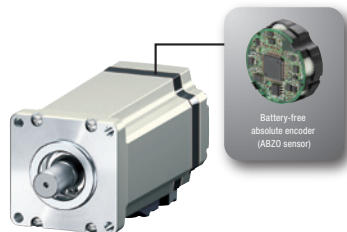
**Gearheads**

Planetary gearhead



## BATTERY-FREE ABSOLUTE SENSOR EQUIPPED

The servo motor equipped with the ABZO Sensor. Thanks to the absolute system, a home sensor or external sensor is not required. No battery is necessary for a mechanical-type sensor. Positioning information is managed mechanically by the ABZO Sensor.

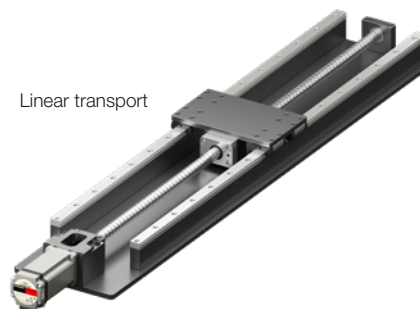


## APPLICATIONS

Disc transport



Linear transport



# BRUSHLESS MOTORS

High-efficiency brushless DC Motors achieve high output in a compact body while delivering high-speed operation, a wide speed control range and constant torque characteristics from low speed to high speed. AC input and DC input types are available.



Overview

## MOTOR AND DRIVER - AC INPUT



**BMU Series**



Specification

- 4 programmable speeds
- Digital setting/display
- Easy handling
- Load factor display

**Output Power**

30 - 400 W

**Frame Size**

60, 80, 90, 110 mm

**Speed Range**

80 - 4000 r/min

**Degree of Protection**

Up to IP67



**BLE2 Series**



Specification

- 16 programmable speeds
- Vertical movement possible
- Torque limit function

**Output Power**

30 - 400 W

**Frame Size**

60, 80, 90, 110 mm

**Speed Range**

80 - 4000 r/min

**Degree of Protection**

Up to IP67

## MOTOR AND DRIVER - DC INPUT



**BLH Series**



Specification

- 8 programmable speeds
- High torque at low speeds
- Torque limiting

**Output Power**

15 - 100 W

**Frame Size**

42, 60, 80, 90 mm

**Speed Range**

100 - 3000 r/min

**Degree of Protection**

Up to IP65



**BLV-R Series**



Specification

- Compact and lightweight
- Positioning operation
- Ideal for AGV
- STO Function

**Output Power**

60 - 400 W

**Frame Size**

60, 80, 90, 104, 110 mm

**Speed Range**

1 - 4000 r/min



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**BLS Series**



Specification

- Version with RS-485 interface
- Simple operation with power ON/OFF
- Same gearheads as for AC motors can be used

**Output Power**

25 - 120 W

**Frame Size**

60, 80, 90 mm

**Speed Range**

100 - 2000 (4000) r/min

**Degree of Protection**

Up to IP65



# AC MOTORS

Motors capable of constant speed, instantaneous bi-directional operation, load holding during vertical operation, and tension control are available. Our motors can accommodate the various movements required by the customer's equipment. We also offer motors that can be operated in harsh environments, such as watertight, dust-resistant motors.



Overview

## INDUCTION/REVERSIBLE MOTORS



- For continuous operation
- Compact construction
- Simple connection & operation

**WORLD K Series**



Specification

**Output Power**

6 - 90 W

**Frame Size**

42, 60, 70, 80, 90 mm

**Speed Range**

1150 - 1650 r/min

**Degree of Protection**

Up to IP65

## ELECTROMAGNETIC BRAKE MOTORS



- For vertical operation
- Equipped with electromagnetic brake
- Simple connection & operation

**WORLD K Series**



Specification

**Output Power**

6 - 90 W

**Frame Size**

60, 70, 80, 90 mm

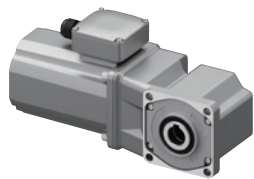
**Speed Range**

1150 - 1600 r/min

**Degree of Protection**

Up to IP65

## THREE-PHASE HIGH EFFICIENCY MOTORS



- High permissible torque
- Energy-saving
- Low noise
- IP66

**KIIS Series**



Specification

**Output Power**

200 W

**Frame Size**

110 mm

**Speed Range**

1420 - 1700 r/min

**Degree of Protection**

IP66

## TORQUE MOTORS



- High starting torque
- Torque regulation
- Winding application
- Web tension regulator

**TM Series**



Specification

**Output Power**

3 - 20 W

**Frame Size**

60, 70, 80, 90 mm

**Speed at Max. Output Power**

750 - 900 r/min

## WATERTIGHT, DUST-RESISTANT MOTORS



- Watertight
- Dust-resistant
- Corrosion-resistant
- IP67

**FPW Series**



Specification

**Output Power**

25 - 90 W

**Frame Size**

80, 90, 104 mm

**Permissible Torque**

0.29 - 30 Nm

**Degree of Protection**

IP67

# COOLING FANS

We provide heat solutions for our customers, from ventilation and cooling to condensation prevention. We offer products that are energy-saving, long-lasting, dust-proof, and waterproof, and contribute to adding value to our customers' equipment.



Overview

## EC FANS (WITH BRUSHLESS MOTOR)



EMU Series



Specification

- Low power consumption
- Expected lifetime 60,000 hours
- Wide voltage range

### Power Supply

Single-Phase 100 - 240 VAC

### Max. Air Flow

1.5 - 3 m<sup>3</sup>/min

### Noise Level

40 - 42 dB(A)

### Frame Size

92x92x38 mm

120x120x25 mm

120x120x38 mm



EMR Series



Specification

- Low power consumption
- Expected lifetime 40,000 hours
- Speed control is possible

### Power Supply

Single-Phase 200 - 240 VAC

Three-Phase 200 - 240 VAC

Single-Phase 100 - 120 VAC

### Max. Air Flow

9 m<sup>3</sup>/min

### Noise Level

28 - 64 dB(A)

### Frame Size

180x180x65 mm

## DC AXIAL FLOW FAN



MD Series



Specification

- Ideal for ventilation and cooling
- Versions with alarm function, variable speed, extended lifetime or IP68 protection available

### Power Supply

24 VDC, 12 VDC

### Max. Air Flow

0.21 - 9.9 m<sup>3</sup>/min

### Noise Level

28 - 60 dB(A)

### Frame Size

40x40x20 mm to Ø172 mm

## AC AXIAL FLOW FAN



MRS Series



Specification

- Ideal for ventilation and cooling
- Versions with low-speed alarm or variable speed are available

### Power Supply

Single-Phase 200 - 240 VAC

Three-Phase 200 - 240 VAC

Single-Phase 100 - 120 VAC

### Max. Air Flow

2 - 50 m<sup>3</sup>/min

### Noise Level

49 - 76 dB(A)

### Frame Size

160 - 300 mm

## AC CENTRIFUGAL BLOWERS



MB Series



Specification

- For spot cooling and duct air flow
- High static pressure
- Version with variable speed is available

### Power Supply

Single-Phase 200/220/230 VAC

Three-Phase 200/220/230 VAC

Single-Phase 100/110/115 VAC

### Max. Air Flow

0.5 - 10 m<sup>3</sup>/min

### Impeller Diameter

Ø80 - 120 mm

## AC CROSS FLOW FANS



MF Series



Specification

- Uniform and wide air flow
- Suitable for installation in narrow spaces
- Air flow of up to 600 mm with multiple units

### Power Supply

Single-Phase 200/220/230 VAC

Single-Phase 100/110/115 VAC

### Max. Air Flow

3.4 - 6.8 m<sup>3</sup>/min

### Noise Level

58 - 64 dB(A)

### Impeller Length

150 mm, 300 mm

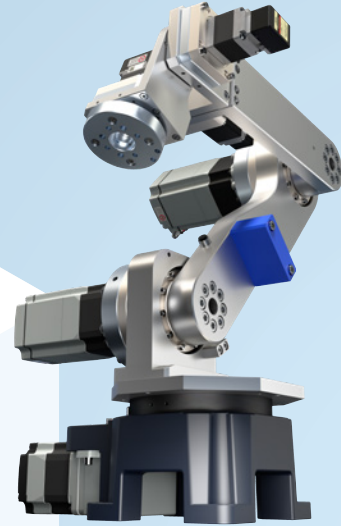
# Small Robots for Simple Automation

# 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.



## What are Oriental Motor's industrial robots and controllers?

## Support

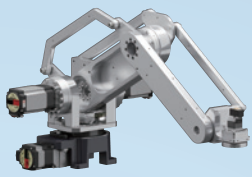
We work closely with you to ensure that using our **OVR** robots and controller becomes an outstanding experience. Our experts are ready to guide you step by step, helping you master the robot controller with ease whenever you need support.



## Product Line of Industrial Robots and Controllers

### Small Robots OVR

#### Articulated



4-Axis

Horizontal transport

COMING SOON



5-Axis

Compact and Lightweight

COMING SOON



6-Axis

Approach the load from various angles

#### SCARA

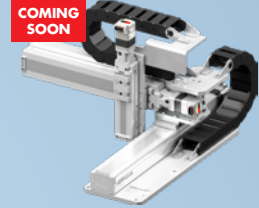


With cover

3-Axis

Access narrow spaces

#### Cartesian



COMING SOON

3-Axis

Reduced equipment startup time

### Electric Lift

#### EL Series



Examples of combinations

#### Lifting device for expanding the range of motion of a robot

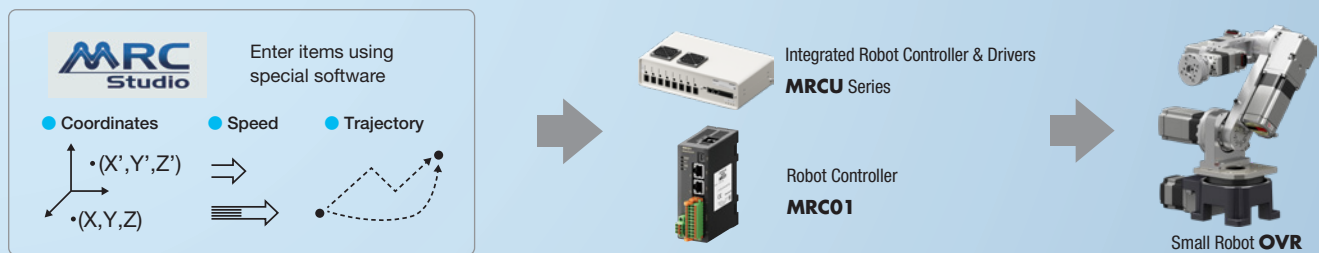
- Portable weight (vertical)  
30 kg (lead: 6 mm)/15 kg (lead: 12 mm)
- Stroke 50/100/200/300 mm
- High rigidity and high precision

### Simple Control - Self-maintenance

#### 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.



#### Self-maintenance possible

Some motors can be replaced by the customer.

This reduces maintenance costs and time after installation.

(Please contact your nearest branch or sales office for more information).



### Programming Software

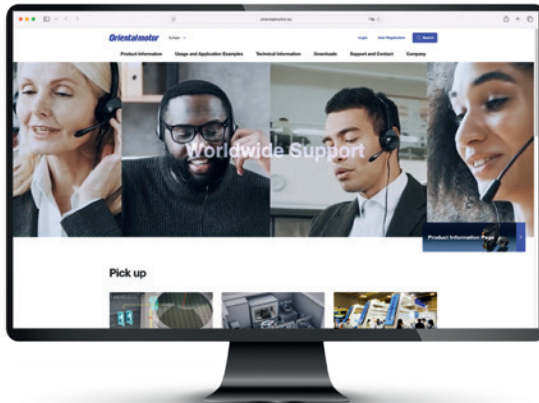
**MRC Studio**

**MRC Studio**  
(Free download)

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

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