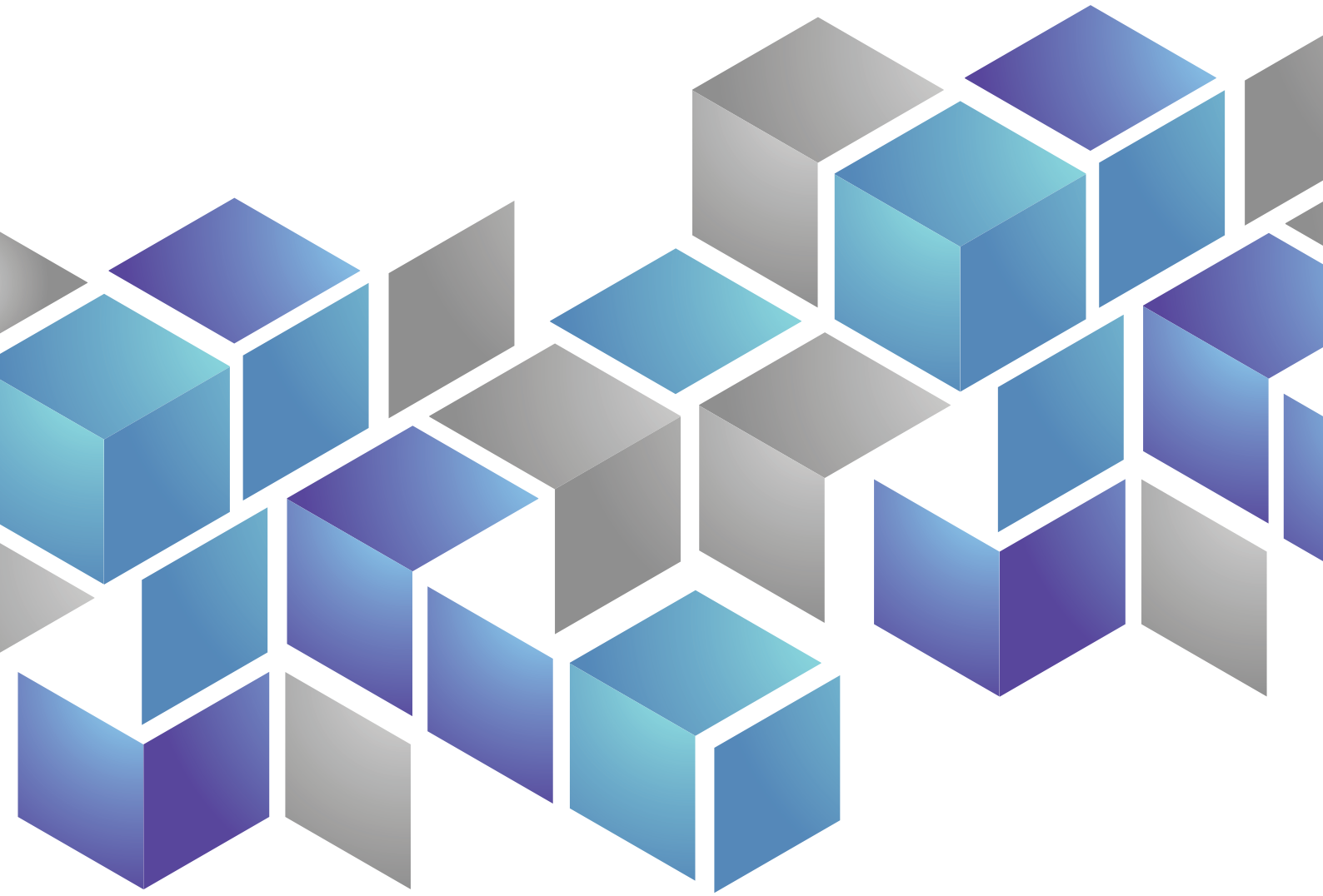
Oriental motor

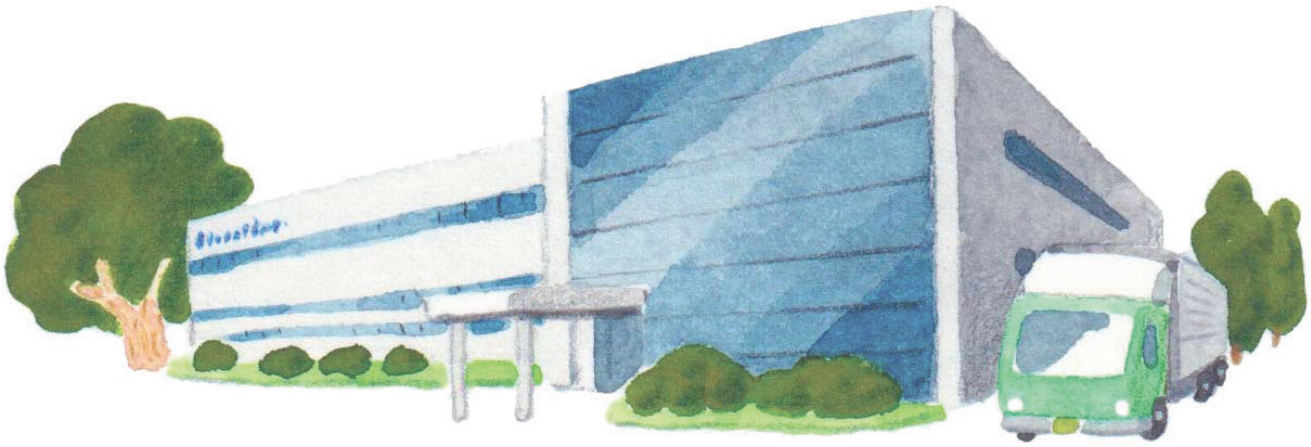
PRODUCT GUIDE

Select motor by Application
αSTEP
Stepper Motors
Motorized Actuators
Network Compatible Products
Speed Control Motors
Standard AC Motors
Cooling Fans



Oriental motor

Growing Your Motion
Life with Oriental Motor, We never stop!



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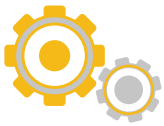
*Applicable for selected items only

SEMINAR

MOTORSIZING



SEARCH INFORMATION

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ONLINE EXHIBITON

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WEBSITE

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MALAYSIA: www.orientalmotor.com.my
INDIA: www.orientalmotor.co.in
THAILAND: www.orientalmotor.co.th
VIETNAM: www.orientalmotor-vie.com.vn

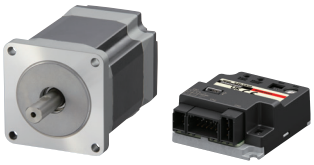
Illustrated by Tomoyo Yanagawa

Modular Automation

A concept that unleashes the future of automation via limitless opportunities

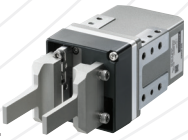
2

αSTEP
AZ Series
Motor, Mini Driver



1

αSTEP
AZ Equipped
EH Series
Electric gripper



3

Brushless Motor
BLV Series R Type
Motor, Driver

4

αSTEP
AZ Equipped
L Series
Rack-and-Pinion system

For trailblazers of new automation at an unprecedented speed, Oriental Motor proposes numerous compact, lightweight and high performance items nurtured by battery powered and world class technology.

The key to a "Layout-free"realization of equipment and lines.

Scan to learn more

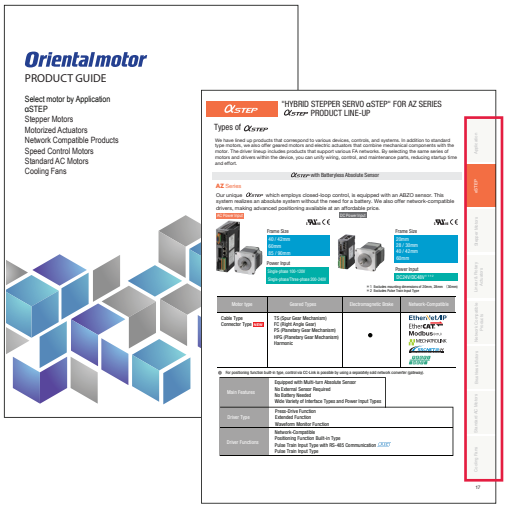
Our Environmental Efforts : Carbon Neutral

Oriental Motor has proactively supported activities that considers global environmental conservation. Activities such as energy savings, conserving natural resources, waste reduction and carbon dioxide are implemented throught various stages of the product life cycle. By providing beneficial products with high efficiency, compact size, high power and long life, Oriental Motor hopes to realize carbon neutrality as there is an urgent need to respond to the global environmental issues.

Oriental Motor Brushless Motors supports the switch to carbon neutrality. For example, our BMU Series offers energy-saving performance (IE4-equivalent), small and higher-powered compared against typical motors.

Look out for products with this icon,
this represents that it's carbon neutral
friendly.

Overview of this Product Guide

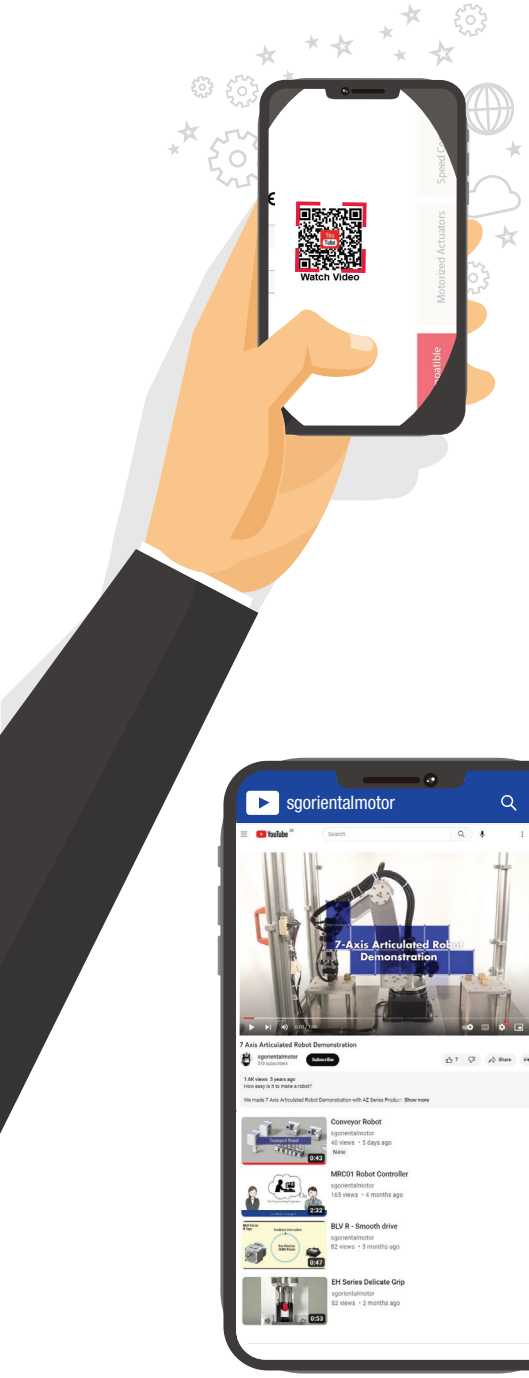


① HEADER INFORMATION, INDEX

Product category and series names are indicated at the sides of the pages. It is convenient to check the category and series on the current page in one glance.

Product Categories and Colors

- Select Motor By Application
- αSTEP Hybrid Stepper Servo/Stepper Motors
- Motorized Actuators
- Network Compatible Products
- AC Speed Control Motors / Brushless Motors
- Standard AC Motors
- Cooling Fans Motors



② QR CODE

When scanning the QR code it will direct you to the indicated page below:

- ✔ Website
- ✔ Videos
- ✔ Price/Lead Time
- ✔ Technical Guide

③ WEB SHOP / E-COMMERCE

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④ GET CONNECTED WITH US!

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Oriental Motor

Oriental Motor Asia Pacific Headquarters - Singapore Office

Oriental Motor started with handmade motors in 1885 in Japan to carry on working on all kinds of "Motion" in the world from AC motors, Speed Control, Position Control, Mechanical Motion to Thermal Management requirements.

Our sales office and network are located internationally with offices through North America, Europe and Asia to provide the optimal motion systems as part of our total service to meet the widest market demands.

Oriental Motor stands by our basic stance of "not just being able to deliver a hundred units to one company but deliver one unit to a hundred customers" through standardizing products.

This approach has taught us the different kinds of motion required in every era from high-efficiency motors to meet the demands for more energy saving, lower heat generation to more precise motions required in today's environment.

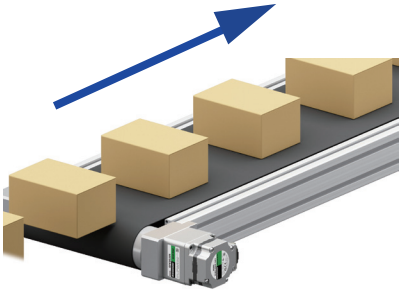
We communicate with our customers from the stage they start studying their equipment through delivery and after-sales service. That is the character of total service and support offered by Oriental Motor.

CONTENTS

Select by movement method and purpose

Select by Operation:
Continuous Operation

We introduce the best products for applications that operate continuously at a constant speed, and for applications that switch to an arbitrary set speed, such as automatic equipment.



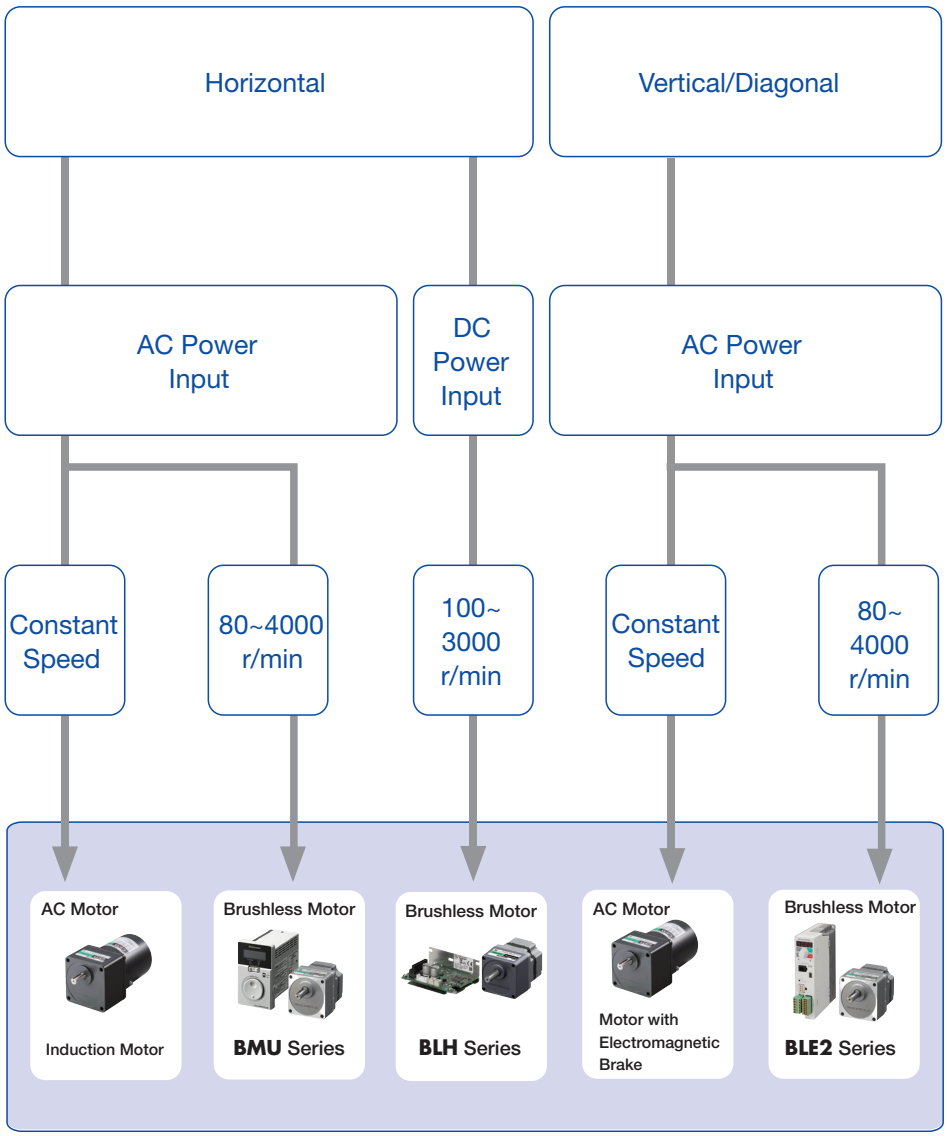
Flowchart for "Select by Operation: Continuous Operation"

STEP 1 Select Direction of Movement

STEP 2 Select Power Input

STEP 3 Select Set Speed (Range)

GOAL Product Series Determined



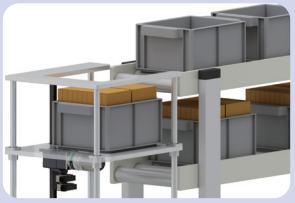
Series Feature Comparison Table for "Select by Operation: Continuous Operation"

Product Category		AC Motor	Brushless Motors	Brushless Motors	Brushless Motors
Product Series			 **BLH** Series	 **BMU** Series	 **BLE2** Series
Operation		Fixed speed	Speed Control	Speed Control	Speed Control
Direction of Movement	Horizontal 	● Induction Motor	●	●	●
	Vertical /Diagonal 	● Motor With Electromagnetic Brake	—	—	● Motor With Electromagnetic Brake
Rotation Speed (Range)		1500r/min (50Hz) 1800r/min (60Hz)	80~3000r/min (For Analog Setting Type 100~3000r/min)	80~4000r/min	80~4000r/min
Speed Setting Method		—	Internal Speed Setter External Speed Setter/ External DC Voltage PWMSignal Support Software **MEXE02** RS-485 Communication	Setting by Dial (Up to 4-step Speed Change)	Control Panel/ External Speed Setter/ External DC Voltage Support Software **MEXE02** (Up to 16-step Speed Change)
Output Range		1~200W	15~100W	30~400W	30~400W
Maximum Torque [N · m]		60	68	518	518
Maximum Rotation Speed [r/min]		1800	3000	4000	4000
Power Input [V]		Single-phase 100/110/115 Single-phase 200/220/230 Three-phase 200/220/230/240 Three-phase 380/400/415	DC24	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240

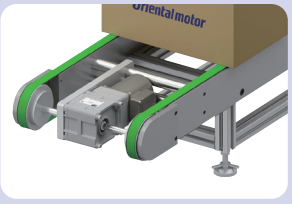
Application Examples for "Select by Operation: Continuous Operation"

Using specific solutions to challenges encountered in equipment produced in-house as examples, we introduce clear and easy-to-understand ways to select and use our products, using illustrations and videos.


Parts Feeder (Component Supply Device)


Loader Unloader (Lifting Device)


Grip Conveyor (Side Conveyor)



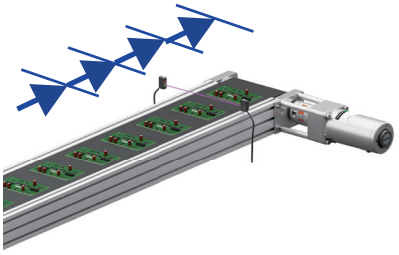
Double-row Conveyor

Select by movement method and purpose

Select by Operation:
Simple Positioning

We introduce products that are ideal for applications where you need to stop conveyed items at the target position, or decelerate in front of the target position to stop conveyed items there.

*To detect conveyed items, it is necessary to install a sensor at the stop position and control it using a higher-level device.



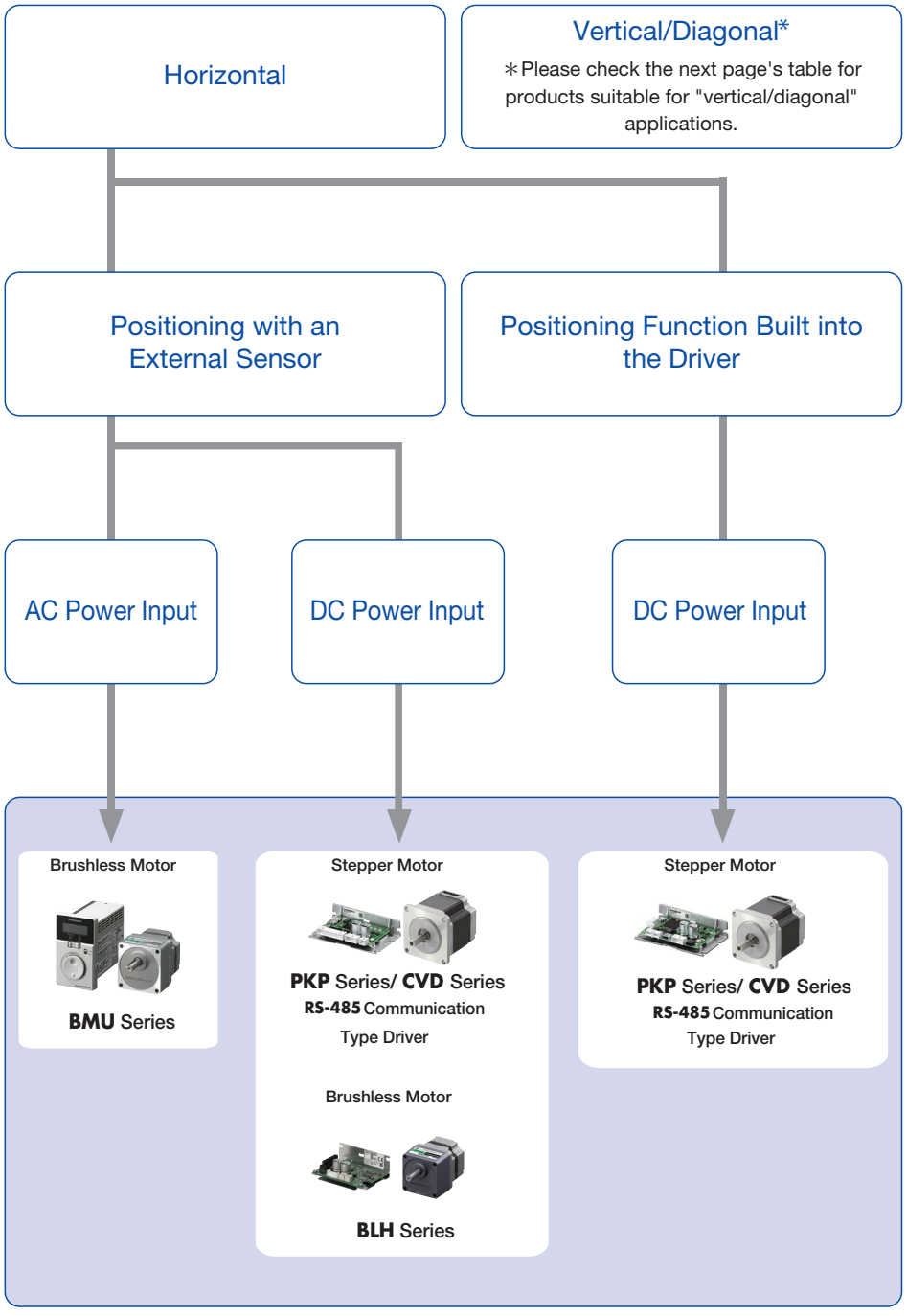
Flowchart for "Select by Operation: Simple Positioning"

STEP 1 Select Direction of Movement

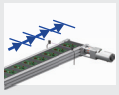
STEP 2 Select Positioning Method

STEP 3 Select Power Input

GOAL Product Series Determined



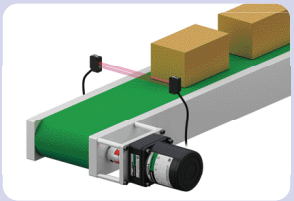
Series Feature Comparison Table for "Select by Operation: Simple Positioning"

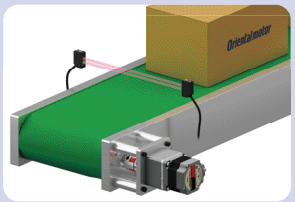
Product Category		Stepper Motor	Brushless Motors	Brushless Motors	Brushless Motors
Product Series		 **PKP** Series/ **CVD** Series **RS-485** Communication	 **BLH** Series	 **BMU** Series	 **BLE2** Series
Direction of Movement	Horizontal 	●	●	●	●
	Vertical /Diagonal 	–	–	–	●
Positioning Method		Positioning with an External Sensor/ Built into the Driver	Positioning with an External Sensor	Positioning with an External Sensor	Positioning with an External Sensor
Load Holding Method		Holding Torque in Excitation	Electromagnetic Brake/ Load Hold Function＊1	Load Hold Function	Electromagnetic Brake/ Load Hold Function
Output Range		–	15~100W	30~400W	30~400W
Maximum Torque [N · m]		5 (Maximum Static Torque in Excitation)	68	518	518
Maximum Rotation Speed [r/min]		6000 (Reference Values)	3000	4000	4000
Stop Accuracy (Representative Value)		±0.05°	0.3 Rotations＊2	0.3 Rotations＊2	0.3 Rotations＊2
Power Supply Voltage [V]		DC24	DC24	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240

＊1 Only for digital type and RS-485 communication type.　＊2 This is the amount of overrun when operated at 1500 r/min, equivalent to an AC motor.

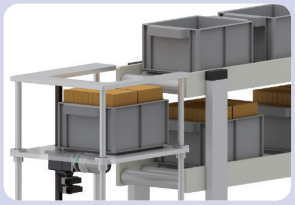
Application Examples for "Select by Operation: Simple Positioning"

Based on specific examples of equipment manufactured in-house and solutions for equipment problems, we will introduce how to select and utilize our products in an easy-to-understand manner using illustrations and videos.


Belt Conveyor (Instant Stop)


Belt Conveyor (Multiple Stop Points)

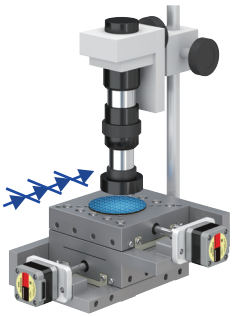

Belt Conveyor (Diagonal Conveyance)


Loader Unloader (Lifting Device)

Select by Operation and Application

Select by Operation:
High Precision Positioning

We guide you to the optimal products for applications requiring precise and detailed positioning.



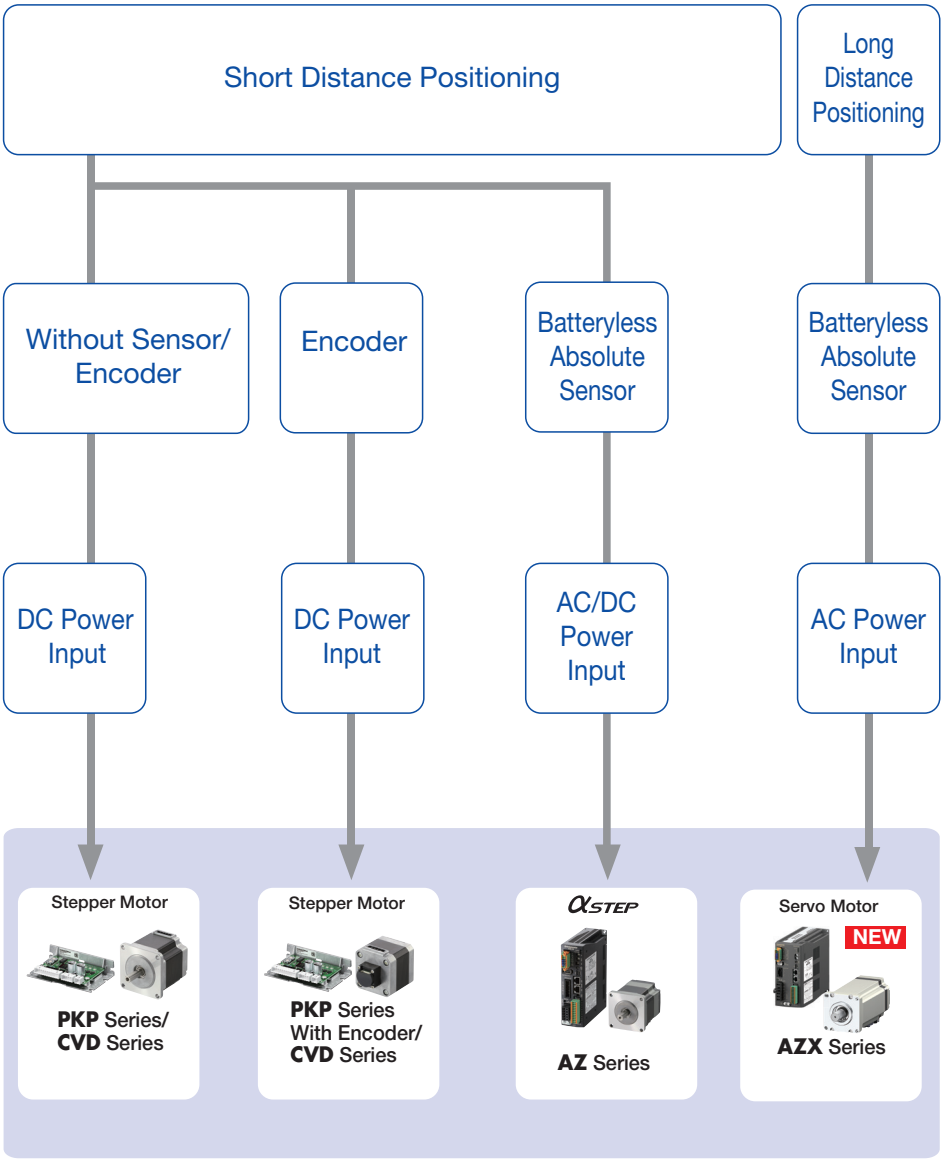
Flowchart for "Select by Operation: High Precision Positioning"

STEP 1 Select Operating Conditions

STEP 2 Select Sensor/ Encoder

STEP 3 Select Power Input

GOAL Product Series Determined



Series Feature Comparison Table for "Select by Operation: High Precision Positioning"

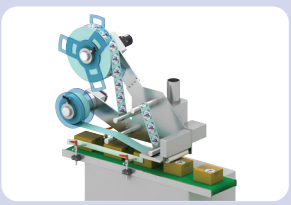
Product Category		Stepper Motor	αSTEP	Servo Motor
Product Series		 **PKP** Series/**CVD**	 **AZ** Series	NEW  **AZX** Series
Operating Conditions	Short Distance Positioning 	●	●	–
	Long Distance Positioning 	–	–	●
Presence of Sensor/Encoder (Type)		Present (Encoder) Absent	Present (Batteryless Absolute Sensor)	Present (Batteryless Absolute Sensor)
Control Method		Pulse Train RS-485 Communication	FA Network Positioning Function Built-in Pulse Train	FA Network
Output Range		–	–	400W
Maximum Torque [N · m]		9.5	52	25.7 (Rated Torque)
Maximum Rotation Speed [r/min]		6000 (Reference Values)	6000 (Reference Values)	5500
Stop Accuracy (Representative Value)		±0.05°	±0.05°	–
Power Supply Voltage [V]		DC24	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240	Single-phase 200-240 Three-phase 200-240

●The list price includes the motor, driver, and cable (1m).

Application Examples for "Select by Operation: High Precision Positioning"

Based on specific examples of equipment manufactured in-house and solutions for equipment challenges, we introduce how to select and utilize our products, making it easily understandable with illustrations and videos.


Precision Stage


Labeler

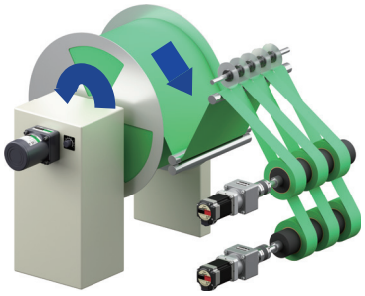

Screw Tightening Machine


Vertical Multi-joint Robot

Select by Operation and Application

Select by Operation:
Limit Tension and Torque

We guide you to the optimal products for applications such as maintaining a constant tension during winding, limiting force during tightening, and applying/holding a constant force.



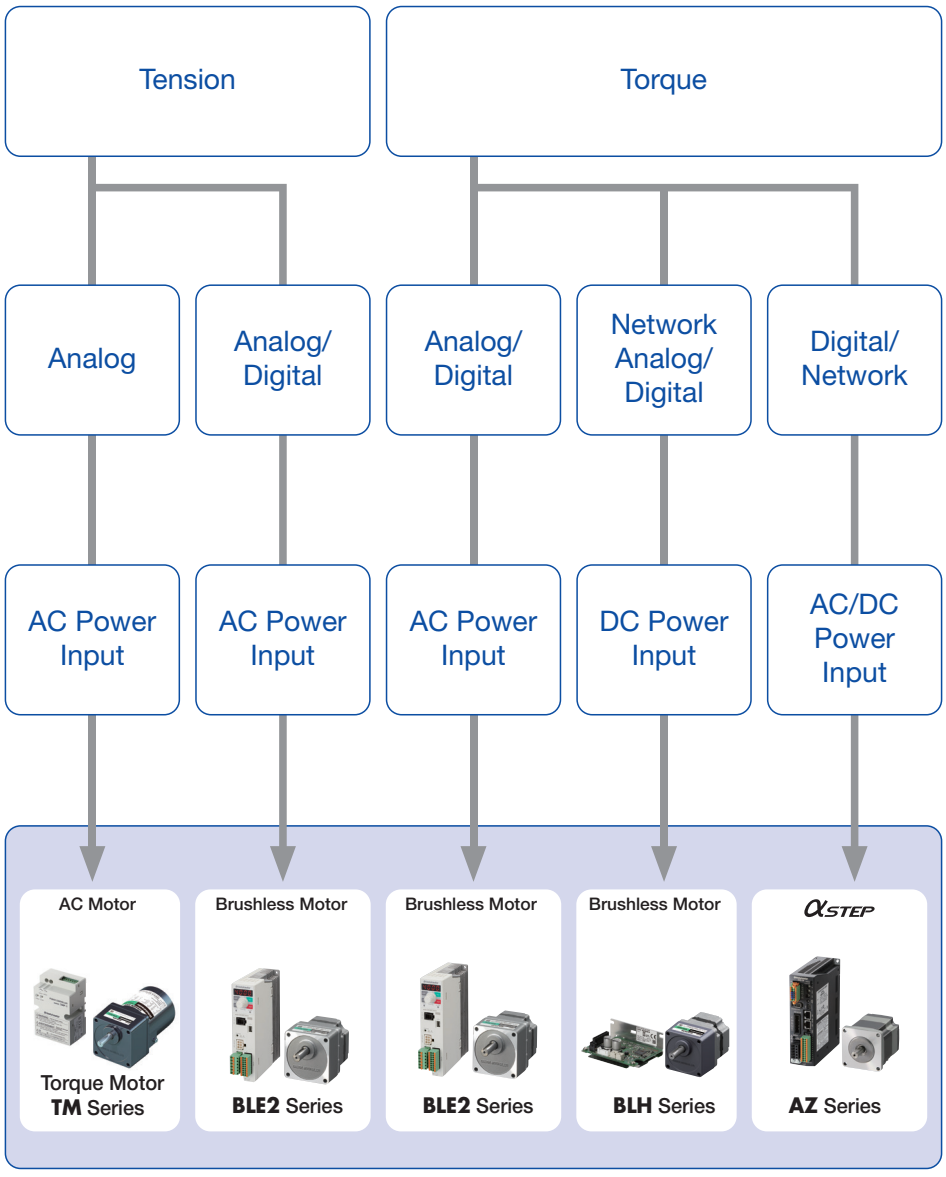
Flowchart for "Select by Operation: Limit Tension and Torque"

STEP 1 Select the Control Application

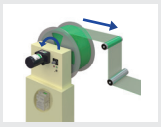
STEP 2 Select Setting Method

STEP 3 Select Power Input

GOAL Product Series Determined

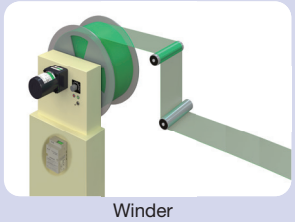


Series Feature Comparison Table for "Select by Operation: Limit Tension and Torque"

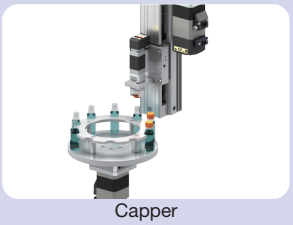
Product Category		AC Motor	Brushless Motor	Brushless Motor	αSTEP
Product Series		 **TM** Series	 **BLH** Series	 **BLE2** Series	 **AZ** Series
Control Application	Tension 	●	–	●	–
	Torque 	–	●	●	●
Setting Methods		Analog (Internal Torque Setter/External Torque Setter / External DC Voltage)	Analog/Digital FA Network	Analog/Digital	Digital FA Network
Output Range		3~40W	15~50W	30~400W	–
Maximum Torque [N · m]		20	68	518	52 (Maximum Static Torque in Excitation)
Maximum Rotation Speed [r/min]		900	3000	400	6000 (Reference Values)
Power Supply Voltage [V]		Single-phase 100, 110/115 Single-phase 200, 220/230	DC24	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240	Single-phase 100-120 Single-phase 200-240 Three-phase 200-240 DC24/DC48

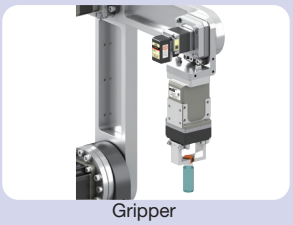
Application Examples for "Select by Operation: Limit Tension and Torque"

Based on specific examples of equipment manufactured in-house and solutions for equipment challenges, we introduce how to choose and utilize our products, making it easily understandable with illustrations and videos.


Winder


Mixer

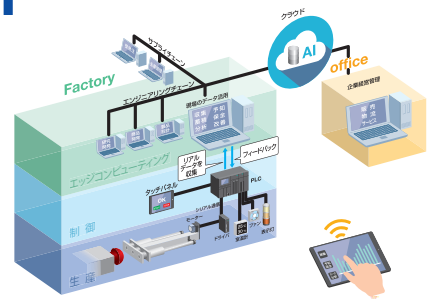

Capper


Gripper

Select by Operation and Application

Select by:
Network Communication

We offer a range of motors/electric actuators that can be directly connected to various FA networks.



Classification for "Select by Network Communication"

EtherCAT®

We provide drivers and motors/electric actuators that can be directly controlled via the EtherCAT communication protocol. Applicable products: αSTEP **AZ** series / **AZ** series electric actuators.

EtherNet/IP®

We provide drivers and motors/electric actuators that can be directly controlled via the EtherNet/IP communication protocol. Applicable products: αSTEP **AZ** series / **AZ** series electric actuators.

PROFINET

We provide drivers and motors/electric actuators that can be directly controlled via the PROFINET communication protocol. Applicable products: αSTEP **AZ** series / **AZ** series electric actuators.

MECHATROLINK

We provide drivers and motors/electric actuators that can be directly controlled via the MECHATROLINK communication protocol. Applicable products: αSTEP **AZ** series / **AZ** series electric actuators.

SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK

We provide drivers and motors/electric actuators that can be directly controlled via the SSCNET III/H communication protocol. Applicable products: αSTEP **AZ** series / **AZ** series electric actuators.

CC-Link

We offer a motor that can be directly controlled via the CC-LINK communication protocol. It supports the CC-Link Ver.1.1 field network system, realizing system wiring reduction and real-time monitoring, thereby contributing to a reduction in wiring labor and improved maintenance.

▶ Brushless Motor **BLE** Series, compatible with CC-Link Ver.1.1.

CANopen®

We offer a motor that can be directly controlled via the CANopen communication protocol. It allows for low-speed operation starting from 1r/min, achieving a smooth drive. Both the motor and driver have been significantly miniaturized and made lighter.

NEW

▶ Brushless Motor **BLV** Series **R**-Type.

Modbus (RTU)

We offer a range of drivers and motors/electric actuators that can be directly controlled via the Modbus (RTU) communication protocol.

(Example) When selecting by "EtherCAT"

STEP 1 Select the type of driver

AC : Single-phase 100-120V, Single-phase/Three-phase 200-240V Input
DC : DC24/48V Input

1 Single-axis driver

AZ Series Single-axis driver AC DC

EtherCAT

2 mini driver NEW

AZ Series Mini driver DC

EtherCAT

3 Multi-axis driver

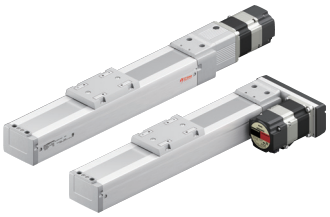
AZ Series Multi-axis driver DC

EtherCAT

●The listed price includes the motor, driver, and cable (1m).

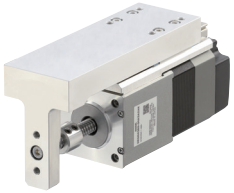
STEP 2 Select the motor/electric actuator to connect to the driver

"Hybrid Stepper Servo αSTEP"
AZ Series Motor



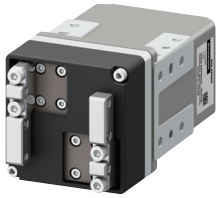
Electric Slider
EZS Series equipped with **AZ** Series

Electric Cylinder
EAC Series equipped with **AZ** Series



Compact Electric Cylinder
DR/DRS2 Series equipped with **AZ** Series

Rack and Pinion System
L Series equipped with **AZ** Series



NEW
Electric Gripper
EH Series equipped with **AZ** Series

Hollow Rotary Actuator
DGII Series equipped with **AZ** Series

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●EtherNet/IP® is a registered trademark of ODVA.

DRIVER TYPES

AC : Single-Phase 100-120 VAC, Single-Phase/Three-Phase 200-240 VAC Input
DC : 24/48 VDC Input

Interface	Driver Type (Driver types name)		
	 Single-Axis Driver	 mini Driver	 Multi-Axis Driver
EtherCAT	AC DC EtherCAT Drive Profile Compatible *1	DC EtherCAT Drive Profile Compatible *1	DC EtherCAT Drive Profile Compatible *1
EtherNet/IP	AC DC EtherNet/IP Compatible	DC EtherNet/IP Compatible	—
PROFINET	AC DC PROFINET Compatible	DC PROFINET Compatible	—
MECHATROLINK	AC MECHATROLINK-Ⅲ Compatible	DC RS-485 Communication Type *2	DC MECHATROLINK-Ⅲ Compatible
SSCNETⅢ/H SERVO SYSTEM CONTROLLER NETWORK	AC SSCNETⅢ Compatible	—	DC SSCNETⅢ Compatible
CC-Link	AC DC Built-In Controller Type *2	DC RS-485 Communication Type *2	—
Modbus (RTU)	AC DC Built-In Controller Type	DC RS-485 Communication Type	—
Pulse	AC DC Pulse Input Type Pulse Input Type with RS-485 Communication	—	—
I/O	AC DC Built-In Controller Type	—	—

*1 EtherCAT drive profile compatible drivers have passed the official EtherCAT conformance test.
*2 Control using CC-Link and MECHATROLINK is possible when used with an optional network converter (gateway).

"HYBRID STEPPER SERVO αSTEP" FOR AZ Series PRODUCT INTRODUCTION

αSTEP motors are used to achieve precise positioning via digital control. The motor operates by accurately synchronizing with the pulse signal output from the controller to the driver. Stepper motors, with their ability to produce high torque at low speed while minimizing vibration, are ideal for applications requiring quick positioning over a short distance.

Technical Guide

Watch Video

αSTEP Motors Features

Easy to use

Unlike Servo motors which requires high maintenance in terms of tuning. Stepper motors nowadays perform on equal footing hassle-free.

Operation Setting/Data Setting

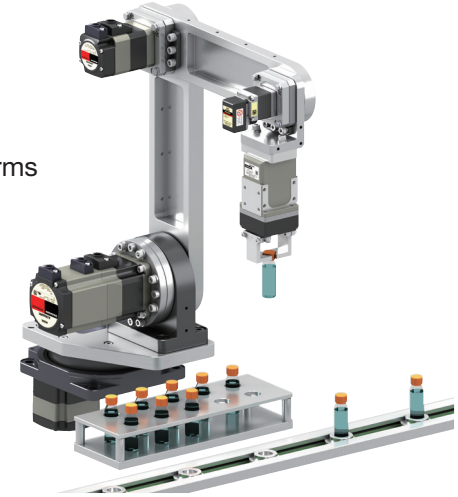
You can set and edit operation data and each parameter by a computer. Besides, it can conduct teaching and monitor the condition of each model. A communication cable is required for connecting an applicable product and a computer.

Network Compatible

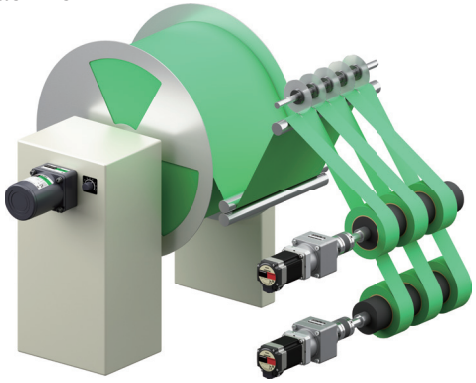
Our AZ Series are compatible with major Factory Automation (FA) networks used all over the world. This includes EtherCAT, EtherNET/IP, PROFINET, Modbus RTU and MECHATROLINK-Ⅲ.

APPLICATIONS

Robot Arms



Slitting Machine



Types of αSTEP

We have lined up products that correspond to various devices, controls, and systems. In addition to standard type motors, we also offer geared motors and electric actuators that combine mechanical components with the motor. The driver lineup includes products that support various FA networks. By selecting the same series of motors and drivers within the device, you can unify wiring, control, and maintenance parts, reducing startup time and effort.

αSTEP with Batteryless Absolute Sensor

AZ Series

Our unique αSTEP which employs closed-loop control, is equipped with an ABZO sensor. This system realizes an absolute system without the need for a battery. We also offer network-compatible drivers, making advanced positioning available at an affordable price.

AC Power Input

Frame Size

40 / 42mm
60mm
85 / 90mm

Power Input

Single-phase 100-120V
Single-phase/Three-phase 200-240V

DC Power Input

Frame Size

20mm
28 / 30mm
40 / 42mm
60mm

Power Input

DC24V/DC48V*1*2

*1 Excludes mounting dimensions of 20mm, 28mm (30mm)
*2 Excludes Pulse Train Input Type

Motor type	Geared Types	Electromagnetic Brake	Network-Compatible
Cable Type Connector Type NEW	TS (Spur Gear Mechanism) FC (Right Angle Gear) PS (Planetary Gear Mechanism) HPG (Planetary Gear Mechanism) Harmonic	●	EtherNet/IP EtherCAT Modbus (RTU) MECHATROLINK SSCNETIII/H PROFINET

● For positioning function built-in type, control via CC-Link is possible by using a separately sold network converter (gateway).

Main Features	Equipped with Multi-turn Absolute Sensor No External Sensor Required No Battery Needed Wide Variety of Interface Types and Power Input Types
Driver Type	Press-Drive Function Extended Function Waveform Monitor Function
Driver Functions	Network-Compatible Positioning Function Built-in Type Pulse Train Input Type with RS-485 Communication Pulse Train Input Type

αSTEP with Batteryless Absolute Sensor

AZ mini Driver NEW

This is a network compatible driver that is even smaller and lighter than a box type driver. It also supports battery power. AZ series DC power input motors and electric actuators equipped with them can be connected.

DC Power Input

Main Features	Pursuit of Compactness and Lightness Battery Power Compatible Space-Saving, Reduced Wiring
Driver Type	Network-Compatible
Network-Compatible	EtherCAT EtherNet/IP Modbus (RTU) PROFINET

AZ Mini Driver

Technical Page

AZ Multi-Axis Driver Series

You can connect DC power input motors and electric actuators equipped with them. We have prepared network-compatible products for each. (Axis count: 2 axes, 3 axes, 4 axes)

DC Power Input

Main Features	Control Multiple Axes with One Driver (Up to 4 Axes) Space-Saving, Reduced Wiring
Driver Type	Network-Compatible RS-485 Communication Type Pulse Train Input Type with RS-485 Communication
Network-Compatible	EtherCAT SSCNETIII/H MECHATROLINK

Network Products

Watch Video

● Control is possible via CC-Link and MECHATROLINK by using a sparately sold network converter (gateway).

Power Input	Motor type	Geared Types	Driver Functions
DC24V/DC48V*1	Cable Type	TS (Spur Gear Mechanism) FC (Right Angle Gear) PS (Planetary Gear Mechanism) HPG (Planetary Gear Mechanism) Harmonic	Press-Drive Function Extended Function Waveform Monitor Function
Motor Mounting Dimensions	Electromagnetic Brake		
20mm 28 / 30mm 40 / 42mm 60mm	●		

*1 Excludes mounting dimensions of 20mm, 28mm (30mm)

Servo Motors

AZX Series NEW

These servo motors are equipped with a battery-free absolute sensor. They are suitable for positioning applications with a large amount of travel, since they achieve high torque in the high speed range.

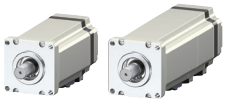
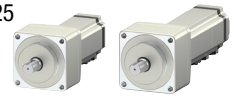
The basic operations are the same as the **AZ** Series, making combined use in equipment easy.

Frame Size

60mm
85mm
90mm

Power Input

Single-phase/Three-phase 200-240V

Motor type	Output Power	Frame Size	Cable Type		Cable Length
Standard Standard Type with Electromagnetic Brake 	400W	60mm	Connection Cable Sets	-For Motor / Encoder 	1 to 20 m
	600W	85mm		-For Motor / Encoder / Electromagnetic Brake 	
PS Geared **PS** Geared Type with Electromagnetic Brake Gear Ratio 5 10 25 	400W	90mm	Flexible Connection Cable Sets	-For Motor / Encoder 	
	600W	90mm*		-For Motor / Encoder / Electromagnetic Brake 	

EtherNet/IP™ is a trademark of ODVA.

*Gear ratio 5 only

Main Features	High Torque in the High Speed Range Battery Free, No External Sensor Required Reduced Wiring
Driver Type	Network-Compatible
Network-Compatible	EtherNet/IP EtherCAT

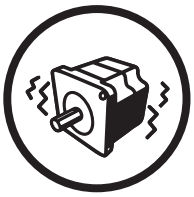
STEPPER MOTORS

Stepper motors enable accurate positioning with ease. They are used in various types of equipment for accurate rotation angle and speed control using pulse signals. Stepper motors generate high torque with a compact body and are ideal for quick acceleration and response and are able to hold standstill positions due to their mechanical design. Stepper motor solutions consist of a driver (which takes pulse signals in and converts them to motor motion) and a stepper motor.

Technical Guide

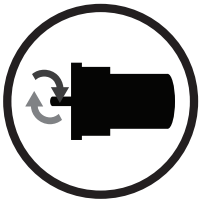
Watch Video

Open-Loop Stepper Motors Features



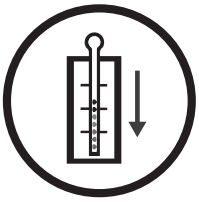
Low Vibration

Revising the magnetic design has achieved lower vibration than conventional products.



High Torque

The maximum torque that can be used during motor operation is now wider. Various types of applications can be equipped with our open-loop stepper motors.

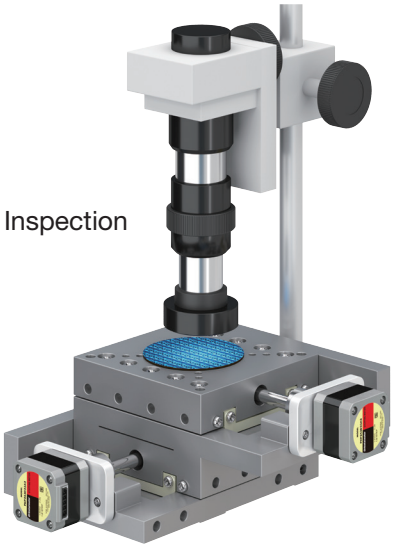


Reduced Temperature Rise

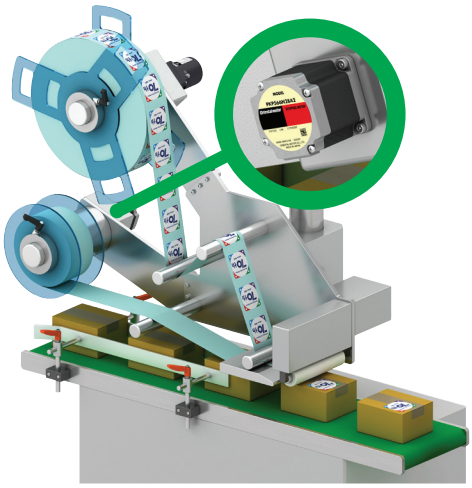
The motor surface temperature rise compared to when operating at low-speeds and high torque regions are significantly reduced.

APPLICATIONS

Visual Stage Inspection



Labeler

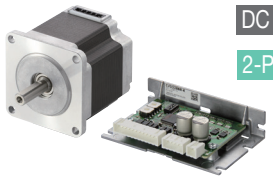


STEPPER MOTOR PRODUCT SYSTEM

PKP Series/ CVD Series

The **PKP** and **CVD** Series adopt both a 5 or 2-Phase stepper motor. This series of stepper motors offer higher torque and lower vibration in low operating speed regions. High current is now possible by the revised motor winding design and the highly efficient design of the drive circuit.

Stepper Motor/Driver

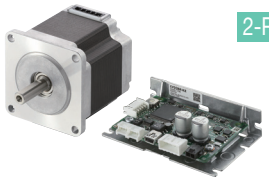


DC Power Input

2-Phase 5-Phase

PKP Series/
CVD Series Pulse Input Type Driver

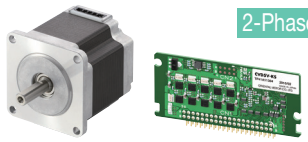
This motor and pulse input type driver meets the need for easily operating a stepper motor with pulse signal input. We have further pursued high-efficiency design, high torque, and low vibration, improving performance.
PKP Series/**CVD** Series **RS-485** Communication Type Driver.



2-Phase 5-Phase

PKP Series/
CVD Series RS-485 Communication Type Driver

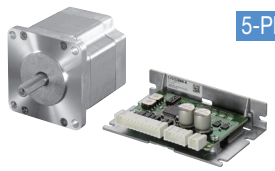
This motor and **RS-485** communication type driver meet the need for controlling a stepper motor using Modbus (RTU) and for easily setting data with a touch panel. You can control up to 31 axes of drivers with a single upper-level control device.



2-Phase 5-Phase

PKP Series/
CVD Series S Type

The **CVD-S** Type stepper motor driver offers superior performance and value and is ideal for OEM or compact space installation.



5-Phase

PK Series Vacuum Type/
CVD Series

It can be used in a vacuum environment of 10^{-5}~10^{-4} It is ideal for positioning under vacuum conditions and inside manufacturing equipment for semiconductors, liquid crystals, etc.

PKP Series

Standard Type

Standard Type

2-Phase 5-Phase

Frame Size

20mm
28mm
35mm
42mm
56.4mm
85mm

Basic Step Angle

1.8°

Standard Type with Encoder

2-Phase 5-Phase

Frame Size

20mm
28mm
35mm
42mm
56.4mm

Basic Step Angle

1.8°

Standard Type With Electromagnetic Brake

2-Phase 5-Phase

Frame Size

28mm
35mm
42mm
56.4mm

Basic Step Angle

1.8°

Features

- High Torque
- Low Vibration
- Mini Connector specification and connector specification are available for some lineups.

Hign-Resolution Type

High-Resolution Type

2-Phase 5-Phase

Frame Size

42mm
56.4mm

Basic Step Angle

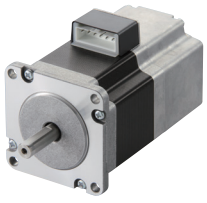
0.9°

High-Resolution Type with Encoder

2-Phase 5-Phase

High-Resolution Type With Electromagnetic Brake

2-Phase 5-Phase



Features

- The Resolution is twice as high as the standard type
- High Precision Positioning and Vibration Reduction
- Mini Connector specification and connector specification are available for some lineups.

STEPPER MOTORS
PKP Series

Flat Type

Flat Type

2-Phase

Frame Size

42mm
60mm

Basic Step Angle

1.8°

Flat with Harmonic Geared

2-Phase

Frame Size

51mm
61mm

Basic Step Angle

0.018°- 0.036°

Features

- Thin, lightweight, can be installed even in narrow spaces
- Equipped with a harmonic gear, capable of driving with high inertia

SH Geared Type/CS Geared Type/ TS Geared Type

SH Geared Type

2-Phase

Frame Size

28mm
42mm
60mm

Basic Step Angle

0.5°- 0.05°

SH Geared Type with Encoder

2-Phase

Features

- Reduction, torque up, resolution up, effective for vibration control
- Less backlash compared to conventional products
- Types of Reduction Ratio (3.6, 7.2,9 10, 18, 36)

CS Geared Type

2-Phase

Frame Size

28mm
42mm
60mm

Basic Step Angle

0.5°-0.05°

TS Geared Type

5-Phase

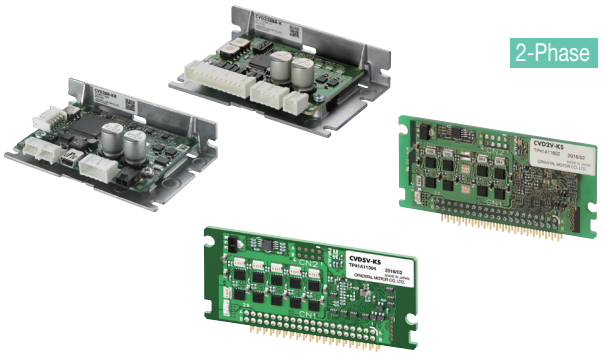
Features

- Center Shaft Shape
- High Torque
- Large allowable radial load
- Types of Reduction Ratio (5, 10, 15, 20)

Features

- Spur Gear Mechanism
- Equipped with low reduction ratio, high-speed operation
- Types of Reduction Ratio (3.6, 7.2, 10, 20, 30)

CVD Series/**CVD-S** Series



2-Phase 5-Phase

Frame Size

20mm
28mm
35mm
42mm
56.4mm
85mm

Basic Step Angle

1.8°

CE

Control Method	With Pulse Input	With RS485 Interface
I/O	—	Return to the refence point positioning mode Speed specification [2-phase/5-phase]
Pulse Input	1-Pulse/2-Pulse mode Adjustable microstep resolution	—
Modbus (RTU)	—	Return to the reference point Positioning mode Direct Data Operation* Speed control

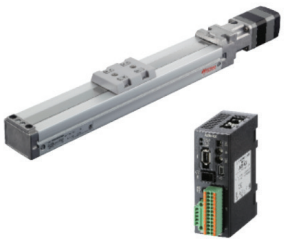
*Operation with direct data means that the parameters for position and speed are overwritten each time.

Features

- High-performance driver, one of the smallest class in the industry
- Low vibration due to full-time microstepping

Frame Size	Motor Type	Available Feedback	Current / Phase	Max. Holding Torque
28mm	Standard Type (0.72°)	—	1.2A	0.052 ~ 0.091 N·m
42mm	Standard Type (0.72°) High-Resolution (0.36°)	Encoder	1.8A	0.22 ~ 0.5 N·m
	With Gear Type	—		0.65 ~ 2.3 N·m
56mm	Standard Type (0.72°) High-Resolution (0.36°)	Encoder	2.4A~ 3.8A	0.44 ~ 2.1 N·m
60mm	With Gear Type	—	2.8A	1.8 ~ 6 N·m

EZS Series/EAC Series



An electric actuator is a combination product consisting of a linear or rotary mechanism and electric motor and when pre-assembled offers an easier design, shorter installation time and high quality. Drawing on our expertise as a motor manufacturer, Oriental Motor offers a wide range of linear motion products in various shapes and sizes, featuring different motor types, drive methods and power inputs.

Technical Guide

Watch Video

Actuators Features

Repeatable & Accurate

The amount of error that is generated when positioning is performed repeatedly to the same position in the same direction is highly dependable with high accuracy.

Operation Setting/Data Setting

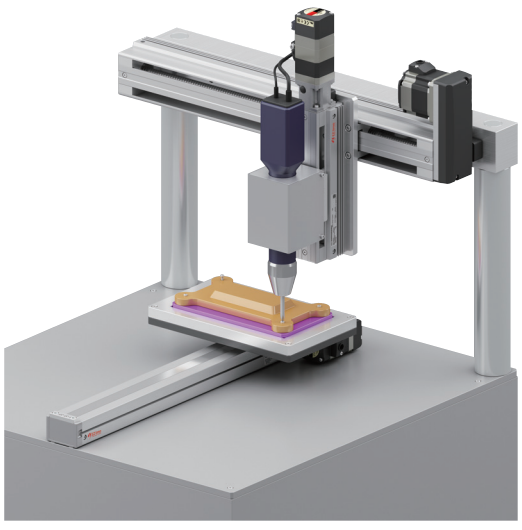
You can set and edit operation data and each parameter by a computer. Besides, it can conduct teaching and monitor the condition of each model. A communication cable is required for connecting an applicable product and a computer.

Network Compatible

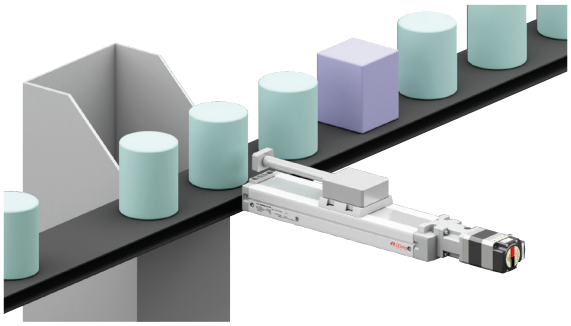
Our AZ Series are compatible with major Factory Automation (FA) networks used all over the world. This includes EtherCAT, EtherNET/IP, PROFINET, Modbus RTU and MECHATROLINK-Ⅲ.

APPLICATIONS

Screw Tightening Machine



Sorting Machine



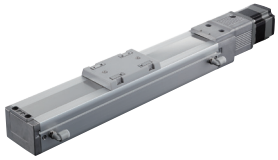
LINEAR & ROTARY ACTUATORS
EZS Series

EZS Series RoHS CE cULus
αSTEP Equipped with **AZ**

Straight Type

Reversed Motor Type

Clean Room Compatible



Model	Power Input	[Lead] mm	Stroke [mm]	Maximum speed [mm/s]	Upper row: Dynamic permissible moment [N.m] Lower row: Static permissible moment [N.m]			Horizontal loadable mass [Kg]	Vertical loadable mass [Kg]	Repeatability positioning accuracy [mm]
					MP	MY	MR			
EZSM3 54*50mm	AC Power Input	12	50~700	800	7 26.4	4.2 26.4	10.5 52.0	7.5	3.5	±0.02
		6		400				15	4.2	
	DC Power Input	12		600				7.5	3.5	
		6		300				15	7	
EZSM4 74*50mm	AC Power Input	12		800	8 51.2	8 42.5	27.8 176	15	7	
		6		400				30	14(12.5)*	
	DC Power Input	12		600				15	7	
		6		300				30	14(12.5)*	
EZSM6 74*66.5mm	AC Power Input	12	50~850	800	45.7 290	37.5 187	55.6 340	30	15	
		6		400				60	30	
	DC Power Input	12		600				30	15	
		6		300				60	30	

*The values in ( ) are for the return type.

EZS Series Features

LINEAR & ROTARY ACTUATORS
EAC Series

EAC Series RoHS CE cULus
αSTEP Equipped with AZ

Straight Type

Reversed Motor Type

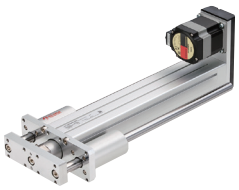
Model	Power Input	[Lead] mm	Stroke [mm]	Maximum speed [mm/s]	Thrust [N]	Push force [N]	Horizontal loadable mass [Kg]	Vertical loadable mass [Kg]	Repeatability positioning accuracy [mm]
EACM2 28*28mm	DC Power Input	6	50~150	300	25	40	7.5	2.5	±0.02
		3		150	50	80	15	5	
EACM4 42*42mm	AC Power Input	12	50~300	600	~70	100		7	
		6		300	~140(125)*	200	30	14(12.5)*	
	DC Power Input	12		600	~70	100	15	7	
		6		300	~140(125)*	200	30	14(12.5)*	
EACM6 60*60mm	AC Power Input	12		600	~200	400		15	
		6		300	~400(360)*	500	60	30	
	DC Power Input	12		600	~200	400	30	15	
		6		300	~400(360)*	500	60	30	

Straight Type Shaft Guide Cover Included

Reversed Motor Type Shaft Guide Cover Included

Straight Type Shaft Guide Included

Reversed Motor Type Shaft Guide Included



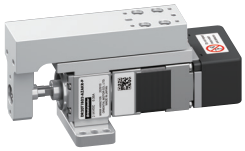
Model	Power Input	[Lead] mm	Stroke [mm]	Maximum speed [mm/s]	Thrust [N]	Push force [N]	Horizontal loadable mass [Kg]	Vertical loadable mass [Kg]	Repeatability positioning accuracy [mm]
EACM2W 28*86mm	DC Power Input	6	50~150	300	25	40	7.5	2.0	±0.02
		3		150	50	80	15	4.5	
EACM4W 42*42mm	AC Power Input	12	50~300	600	~70	100		6	
		6		300	~140(125)*	200	30	13(11.5)*	
	DC Power Input	12		600	~70	100	15	6	
		6		300	~140(125)*	200	30	13(11.5)*	
EACM6W 60*60mm	AC Power Input	12		600	~200	400		13	
		6		300	~400(360)*	500	60	28	
	DC Power Input	12		600	~200	400	30	13	
		6		300	~400(360)*	500	60	28	

EAC Series Features

LINEAR & ROTARY ACTUATORS
EZS Series/**EAC** Series

Main Features	Wide Variety of Products to Match Installation Spaces and Environments Cable Outlet Can be Rotated High Speed Driving with Light Load or Heavy Load
Driver Type	Network-Compatible Built-In Controller Type Pulse Input Type Pulse Input Type with RS-485 Communication Multi-axis Driver
Network-Compatible	EtherNet/IP, MECHATROLINK, SSCNET III/H SERVO SYSTEM CONTROLLER NETWORK, Modbus (RTU), EtherCAT, PROFINET
Network-Compatible Multi-axis Drivers	EtherCAT, SSCNET III/H SERVO SYSTEM CONTROLLER NETWORK, MECHATROLINK

DR Series/ DRS2 Series



The **DR** / **DRS2** Series is a compact linear actuator αSTEP equipped with a ball screw to achieve linear operation suitable for fine-feeding in linear operation and high-precision positioning.

Technical Guide

Watch Video

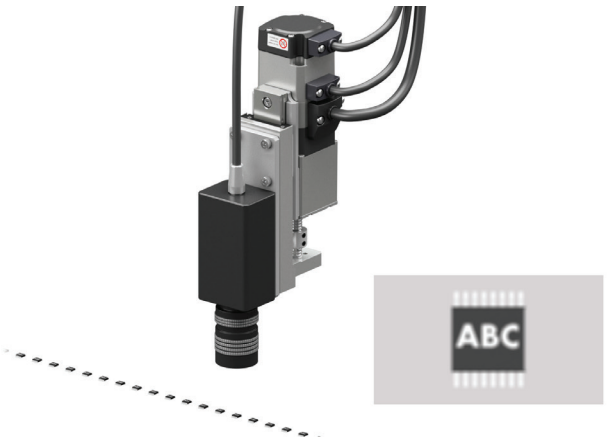
Actuators Features

Reduced Installation Time
Compared to in-house cons-truction, both actuators are solutions which are easy and fast to install without the need for adjustment.

Reduce Cost
Thanks to the absolute system no home sensors are required. This simplifies the wiring and reduces costs.

Network Compatible
Our AZ Series are compatible with major Factory Automation (FA) networks used all over the world. This includes EtherCAT, EtherNET/IP, PROFINET, Modbus RTU and MECHATROLINK-Ⅲ.

APPLICATIONS



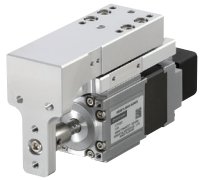
Camera inspection

Injection

DR Series RoHS CE cULus

αSTEP Equipped with **AZ** Series (Mounting dimensions of 20mm, 28mm)

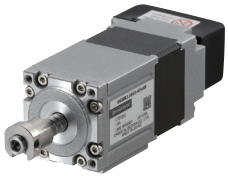
Table Type



DC Power Input

Mounting dimensions [mm]	Dynamic Permissible Moment [N.m]			Stroke [mm]	Ball Screw Type	Accuracy		Lead [mm]	Speed [mm/s]	Thrust [mm/s]	Movable Mass [Kg]	
	MP	MY	MR			Repeated positioning accuracy [mm]	Lost Motion [mm]				Horizontal	Vertical
20	0.1	0.05	0.15	25	Precision	±0.003 [±0.01]*	Less than 0.02	1	20	15	0.5	1
28	0.3	0.24	1.5	30	Rolled	+0.01	Less than 0.05	1	40	40	4	4
					Precision	±0.003 [±0.05]*	Less than 0.02	2.5	100	20		2

Rod Type



DC Power Input

Mounting dimensions [mm]	Stroke [mm]	Ball Screw Type	Accuracy		Lead [mm]	Speed [mm/s]	Thrust [mm/s]	Movable Mass [Kg]	
			Repeated positioning accuracy [mm]	Lost Motion [mm]				Horizontal	Vertical
20	25	Precision	±0.003	Less than 0.02	1	20	15	1.5	1.5
28	30	Rolled	+0.01	Less than 0.05	1	40	40	4	4
		Precision	±0.003	Less than 0.02	2.5	100	20		2

*Specifications may vary depending on conditions. Please check the specifications of each product for details.

DRS2 Series RoHS CE cULus

αSTEP Equipped with **AZ** Series (Mounting dimensions of 20mm, 28mm)

Guide Included Type

DC Power Input | Electromagnetic Brake

Mounting dimensions [mm]	Dynamic Permissible Moment [N.m]			Stroke [mm]	Ball Screw Type	Accuracy		Lead [mm]	Speed [mm/s]	Thrust [mm/s]	Movable Mass [Kg]	
	MP	MY	MR			Repeated positioning accuracy [mm]	Lost Motion [mm]				Horizontal	Vertical
42	1.3	1.0	2.5	40	Rolled	±0.01 [±0.02]*	Less than 0.05	2	50	200	10	10
								8	200	50	5	5
					Precision	±0.003 [±0.05]*	Less than 0.02	2	50	200	10	10

No Guide Type

DC Power Input | Electromagnetic Brake

Mounting dimensions [mm]	Stroke [mm]	Ball Screw Type	Accuracy		Lead [mm]	Speed [mm/s]	Thrust [mm/s]	Movable Mass [Kg]	
			Repeated positioning accuracy [mm]	Lost Motion [mm]				Horizontal	Vertical
42	40	Rolled	+0.01	Less than 0.05	2	50	200	40	20
					8	200	50	5	5
		Precision	±0.003	Less than 0.02	2	50	200	40	20
60	50	Precision	+0.01	Less than 0.05	2.5		200	50	50

Main Features	Easily Change the Push Force and Time Low Speed Pushing Possible
Driver Type	Network-Compatible Built-In Controller Type Pulse Input Type Pulse Input Type with RS-485 Communication Multi-axis Driver
Network-Compatible	EtherNet/IP EtherCAT Modbus (RTU) PROFINET MECHATROLINK SSCNET III/H SERVO SYSTEM CONTROLLER NETWORK

DR/DRS2 Series Features

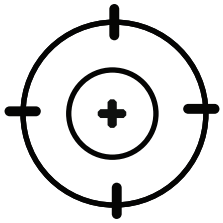
Hollow Rotary Actuators

An electric actuator is a combination product consisting of a linear or rotary mechanism and an electric motor, and when pre-assembled offers an easier design, shorter installation time, and high quality. Drawing on our expertise as a motor manufacturer, Oriental Motor offers a wide range of linear motion products in various shapes and sizes, featuring different motor types, drive methods, and power inputs.

Technical Guide

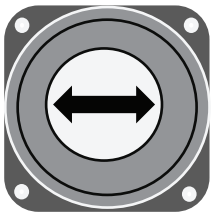
Watch Video

Hollow Rotary Actuators Features



Positioning Accuracy with Non-Backlash

The amount of error generated when positioning is performed repeatedly in the same position and in the same direction is highly dependable on high accuracy.



High Power and High Rigidity

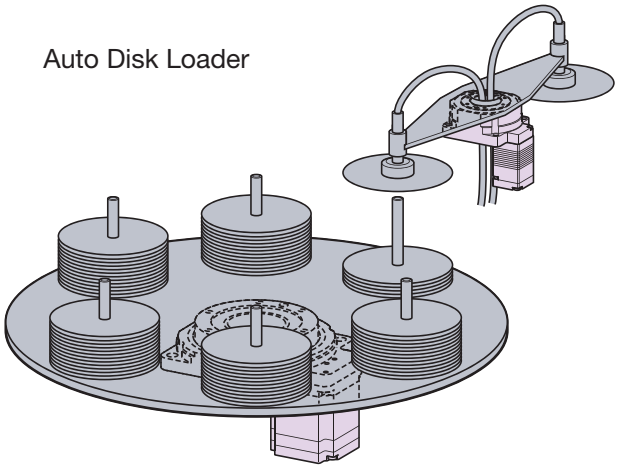
Tables and arms can be installed directly onto the output table. The hollow centres allow one to save the hassle and cost of designing an installation mechanism and arranging the necessary mechanical parts or wiring.

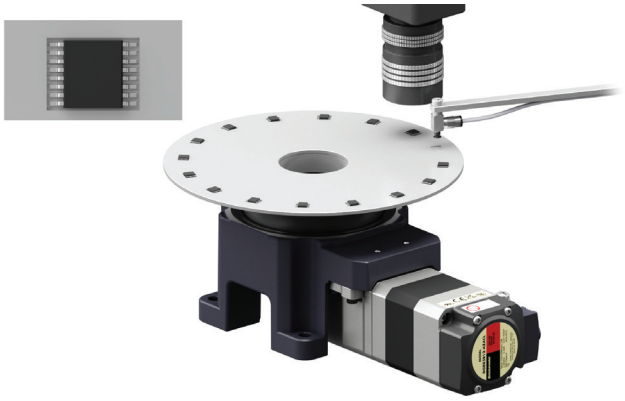
Network Compatible

Our AZ Series are compatible with major Factory Automation (FA) networks used all over the world. This includes EtherCAT, EtherNET/IP, PROFINET, Modbus RTU and MECHATROLINK-Ⅲ.

APPLICATIONS

Auto Disk Loader





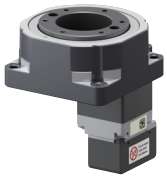
IC Inspection

DGII Series RoHS CE cULus

αSTEP Equipped with AZ Series

DGM60

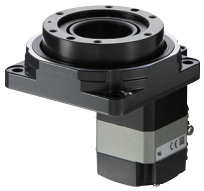
DC Power Input



Frame Size: 60mm
Hollow Diameter [mm]: ϕ 28

DGM85R

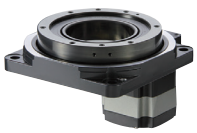
DC Power Input AC Power Input



Frame Size: 85mm
Hollow Diameter [mm]: ϕ 33

DGM130

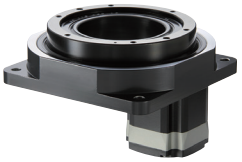
DC Power Input AC Power Input



Frame Size: 130mm
Hollow Diameter [mm]: ϕ 62

DGM200R

AC Power Input



Frame Size: 200mm
Hollow Diameter [mm]: ϕ 100

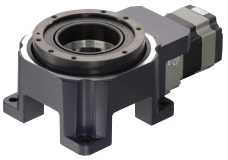
DGB85

DC Power Input AC Power Input

Frame Size: 85mm
Hollow Diameter [mm]: ϕ 62

DGB130

DC Power Input AC Power Input



Frame Size: 130mm
Hollow Diameter [mm]: ϕ 100

Model	Electromagnetic Brake	Reduction Ratio	Allowable Torque[N.m]	Allowable Moment [N.m]	Allowable Axial Load [N]	Lost Motion [arcmin]	Backlash [arcmin]	Angular Transmission Accuracy [arcmin]	Repeated positioning accuracy [arcsec]
DGM60	None	18	0.9	2	100		Zero Backlash	4	±15
DGM85R	None		4.5	10	500				
	Included								
DGM130R	None		12	50	2000	2		3	
	Included								
DGM200R	None		50	100	4000			2	
	Included								
DGB85	None	12	3	10	500	–	6	6	±30
		18	4.5						
		36	9						
	Included*	12	3						
		18	4.5						
		36	9						
DGB130	None	12	12	50	2000				
		18	24						
	Included*	36	12						
		12	24						

*Only AC power input

Main Features	Easily Change the Push Force and Time Low Speed Pushing Possible
Driver Type	Network-Compatible Pulse Input Type Pulse Input Type with RS-485 Communication Multi-axis Driver
Network-Compatible	EtherNet/IP EtherCAT Modbus (RTU) MECHATROLINK PROFINET SSCNETIII/H SERVO SYSTEM CONTROLLER NETWORK

DGII Series Features

Rack and Pinion System

The **L** Series is a rack-and-pinion system consisting of an electric actuator (linear motor) that combines a rack and pinion mechanism and motor. Once the battery-free ABZO sensor **AZ** series is installed, combined with high-precision positioning, it can carry high loads of up to 100 kg to reduce equipment startup human hours and space-saving.

Technical Guide

Watch Video

Rack and Pinion System Features

Reduced Design and Assembly Time

The rack-and-pinion system can reduce the number of parts used, and it can also significantly reduce the time spent on design and assembly.

No Home Sensor Required

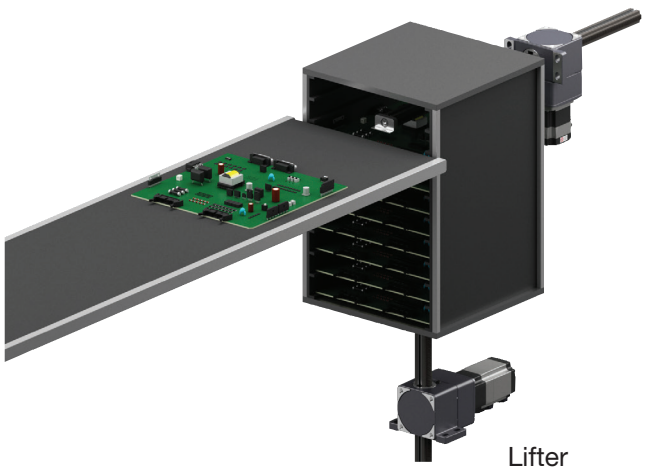
Return-to-home operation is possible without a home sensor thanks to the absolute system.

Loop Function-Assisted Operation

Loop function operations can be realised even without using a PLC.

APPLICATIONS

Magazine Printed Circuit Boards



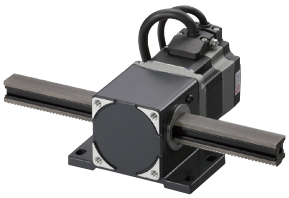
Lifter

L SERIES RoHS CE cULus

αSTEP Equipped with **AZ** Series

Horizontal (**B**-type)

AC Power Input DC Power Input



Vertical (**F**-type)

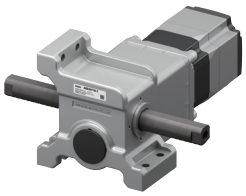
AC Power Input DC Power Input

Series	Mounting dimensions	Power Input	Transportable mass	Stroke [mm]
L Series Equipped with **AZ** Series	60mm	AC Power Input	Maximum 30 Kg	100-800
		DC Power Input		100-500
	80mm	AC Power Input	Maximum 100 Kg	100-1000
		DC Power Input		100-500, 1000

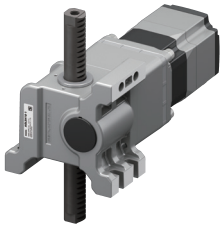
LJ Linear Head AZ Series Combination RoHS CE cULus

Horizontal/ Vertical Both can be mounted

AC Power Input



AC Power Input



Mounting dimensions
90mm
Transportable Mass
Maximun 200 Kg
Stroke [mm]
100-700

Main Features	Shorter Time Between Design to Start-up Easy Home Setting and Return-to-Home Space Saving, Simple Wiring
Driver Type	Network-Compatible Built-In Controller Type Pulse Input Type Pulse Input Type with RS-485 Communication Multi-axis Driver
Network-Compatible	EtherNet/IP EtherCAT Modbus (RTU) PROFINET MECHATROLINK SSCNET III/H

L Series Features

Electric Gripper

The **EH** Series electric gripper is a combination of an **AZ** Series motor with a rack-and-pinion gripping mechanism. It is ideal for gripping, manipulating, and dimension measuring operations.

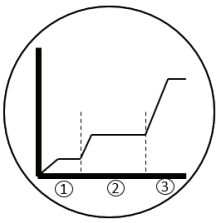
Technical Guide

Watch Video

Electric Gripper Features

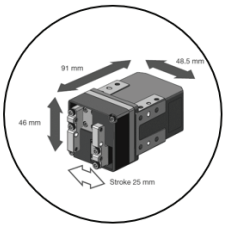
Delicate Grip

A delicate grip is achieved by fine-tuning the grip force in 1% operating current increments, and implementing a slow approach to the load.



Small and Lightweight

The combination of a 42 mm frame size motor and the rack-and-pinion mechanism results in a compact size. The gripper measures 91x46 x48.5 mm and weights 380 g.

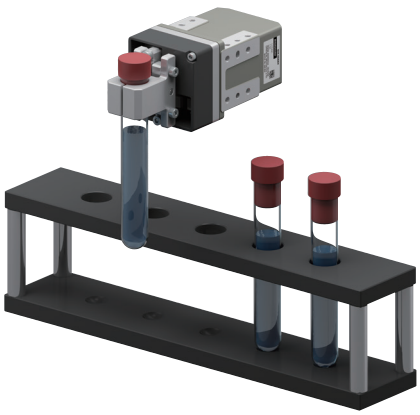


Multi-Surface Installation

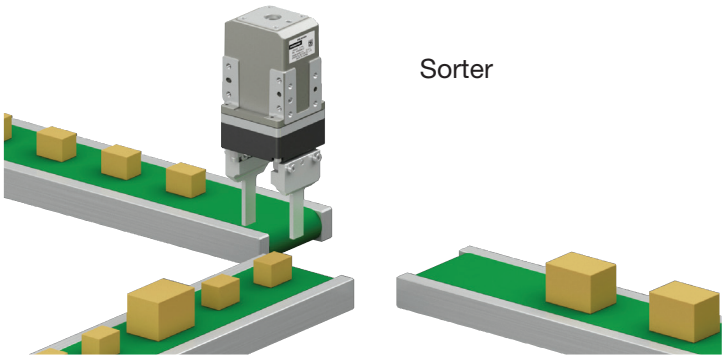
The design allows for multi-surface installation, making the gripper ideal for installation on robotic arms, etc.

APPLICATIONS

Test Tube



Sorter

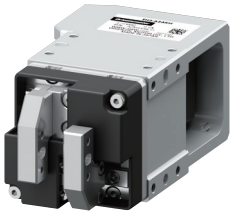


EH Series RoHS CE cULus

αSTEP Equipped with **AZ** Series

EH3-AZAKH

DC Power Input

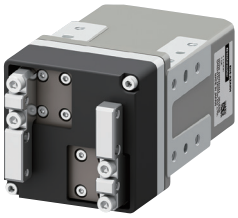


Finger Type: Two Fingers
Mounting Cover: With Mounting Cover
Weight [Kg]: 0.2

Maximum Gripping Force [N]	Allowable Load [N] (Allowable Axial Load [N]*)	Range of Motion
7	2	15mm

EH4-AZAKH

DC Power Input

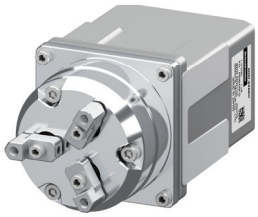


Finger Type: Two Fingers
Mounting Cover: With Mounting Cover
Weight [Kg]: 0.38

Maximum Gripping Force [N]	Allowable Load [N] (Allowable Axial Load [N]*)	Range of Motion
25	5	25mm

EH4T-AZAKH

DC Power Input

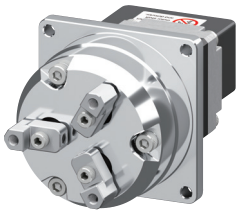


Finger Type: Three Fingers
Mounting Cover: With Mounting Cover
Weight [Kg]: 0.38

Maximum Gripping Force [N]	Allowable Load [N] (Allowable Axial Load [N]*)
50	15

EH4T-AZAK

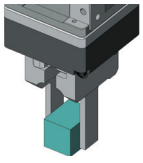
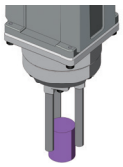
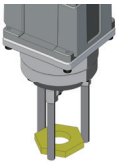
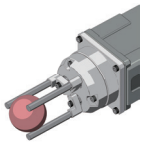
DC Power Input



Finger Type: Three Fingers
Mounting Cover: Without Mounting Cover
Weight [Kg]: 0.28

Suitable Work Shape for Gripping

Square, Cylinder, Complex Shapes, Sphere

Main Features	Contributes to a Reduction in the Size of the Equipment. Quick Approach, Slow Grip The Size and Presence of a Load are Determined within the Operational Range of the Finger
Driver Type	Network-Compatible Built-In Controller Type Pulse Input Type Pulse Input Type with RS-485 Communication Multi-axis Driver
Network-Compatible	EtherNet/IP EtherCAT Modbus (RTU) PROFINET MECHATROLINK

EH Series Features

Robot Controllers

Demand for robots is increasing steadily in recent years as factories seek to improve productivity and increase labour saving by automating equipment. However, many commercially available industrial robots are large and limited in size, making it difficult to retrofit existing equipment. This limitation leads to a growing demand for "In-House Production of Robots".

Here at Oriental Motor, we developed the MRC01 Robot Controller and a dedicated in-house programming software MRC STUDIO to enable designers making robots for the first time for easy control.

Technical Guide

Watch Video

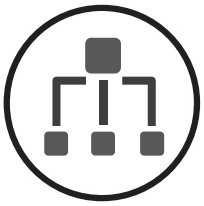
MRC01 Robot Controller Features

Easy Setup for Beginners

MRC01 supports easy programming and control of in-house built robots for first time designers with just 3 simple steps: "Initial Setup", "Operation Programming" and "Operational Checking."

Cost Saving

Purchasing commercially ready robots are expensive and may be difficult to install without experience posing an obstacle. By manufacturing robots in-house using Oriental Motor products, the robots can be designed to your exact needs and save cost at the same time.



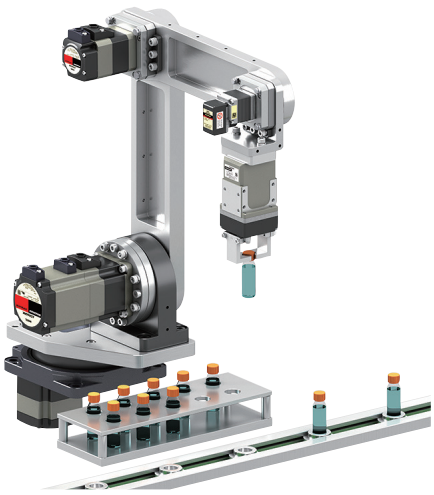
EtherNet/IP™ Compatible

Linkage between MRC01 Robot Controller and the host system is controlled directly via EtherNet/IP™ and there is no need to make major changes to the control system from the existing equipment.

APPLICATIONS

In-House Scara

Custom Built Robot



ROBOT CONTROLLERS
MRC01

MRC01 RoHS CE cULus

The **MRC01** Robot controller can be used to connect In-House Robots made using our αSTEP **AZ** Series driver and compatible motorized actuators. Using the dedicated programming software MRC studio, **MRC01** provides the basic functions required to operate robots at a lower cost. This allows first-time designers to create a program on their own simplifying the production process and control of robots.

Refer to the table below for an overview of our product line-up.

Here at Oriental Motor, we developed the MRC01 Robot Controller and a dedicated in-house programming software MRC STUDIO to enable designers making robots for the first time for easy control.

Power Input

24VDC

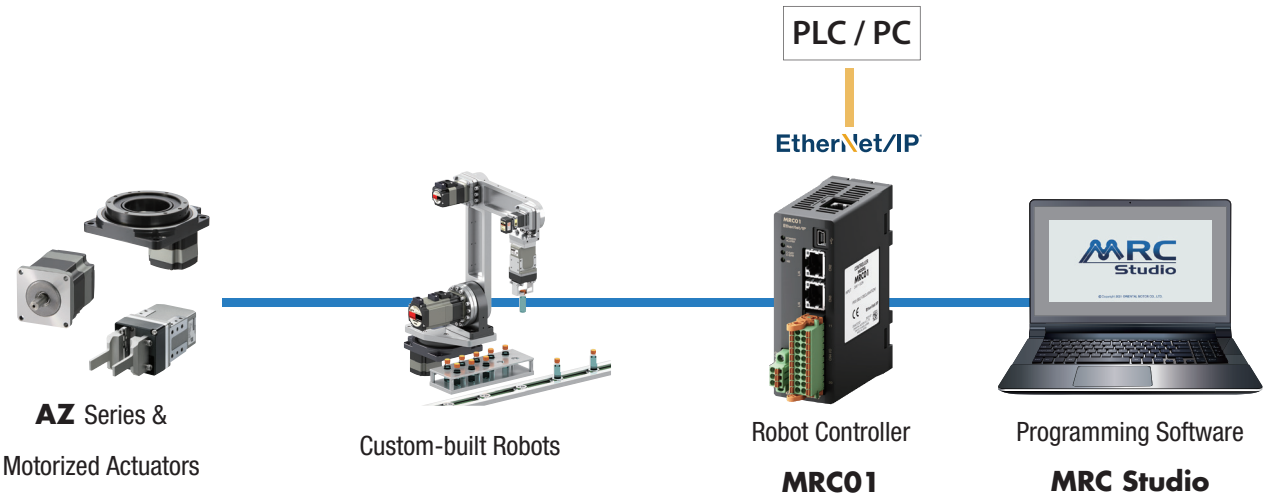
Number of Axes

6*

*Only one robot cant controlled by MRC01. The number of control axes depends on the robot model. For example, if the robot model is horizontal multi-joint (2-links, up and down the tip axis) and also controls the end effector (1 axis) the number of control axes will be 4 axes.

**MRC01 Robot Controller uses our In-House Programming Software MRC Studio to simplify setting up custom-built robots finitil setting step to the operation programming step.

Network-Compatible	EtherNet/IP



MRC01 Features

BRUSHLESS DC MOTORS PRODUCT INTRODUCTION

Brushless motors offer excellent energy efficiency and savings equivalent to IE4, excellent speed stability, as well as a wide speed control range. Brushless motors use permanent magnets in the rotor of three-phase motors. With Brushless motors there is no brush and commutator resulting in a maintenance free motor.

Technical Guide

Watch Video

Brushless DC Motors Features

Speed Stability

Speed remains stable even if weight of the work changes. This is also know as “Speed Regulation”.

Alarm

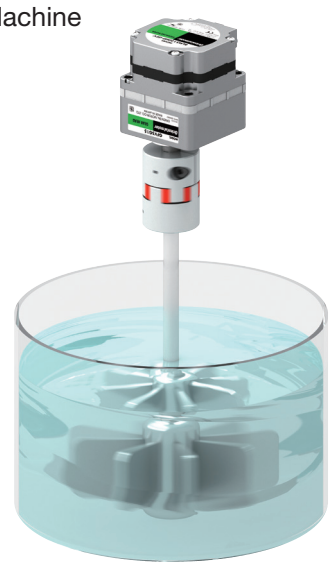
Various protective functions such as overload/overvoltage protective functions are equipped. An alarm signal will be output when a protective function activates.

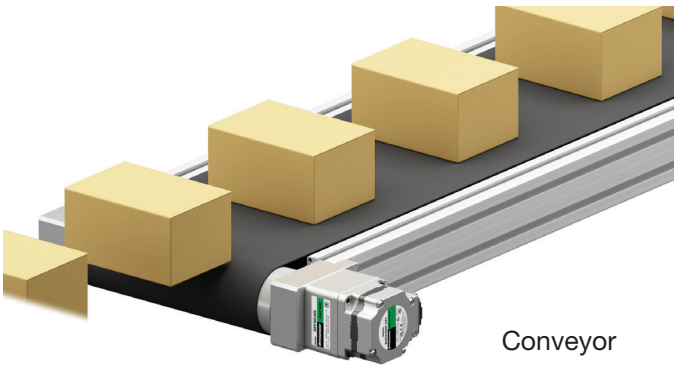
Speed Control

Speed control refers to the ability to manipulate the rotational speed of the motor. Typically, a speed feedback device is needed together with a speed controller.

APPLICATIONS

Mixing Machine





Conveyor

TYPES AND FEATURES OF GEARHEADS

Gearheads that can be combined with Brushless Motors.
A wide range selection of reduction ratio variations and a high-strength type.

Parallel Shaft Gearhead

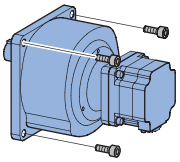
GFV Gear/ GFS Gear

Features	High Strength Output Shaft: Iron, Stainless

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BMU Series **BLE2** Series **BXII** Series **BLH** Series **BLV** Series **BLV R** Type	5~200	10000 hours*1	1400N/400N	70N.m

*1 For 15W, the rated life is 5000 hours.
Permissible radial load, axial load, and torque value apply uder the following operating conditions.There will vary depending on the motor output and gearhead reduction ratio.
: Output : 200W (The values fo **CS** Geared Motor are for 50W.)
: Motor Shaft Rotation Speed : 3000r/min
: Speed Ratio : Largest Reduction Ratio of each Gearhead (Example: Reduction Ratio 200 for **GFV** Gear)

JV Gear

Features	High Reduction Ratio~1/450 Flange Mounting Output Shaft: Stainless
Benefits of Mounting	Mounting on Flange Surface 

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BMU Series **BLE2** Series	100~450	5000 hours	3123N/480N	198N.m

JB Gear

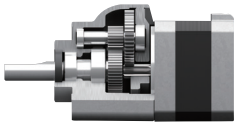
Features	High Reduction Ratio~1/1200 Non-Saturating Permissible Torque Leg Mounting
Benefits of Mounting	No Mounting Hardware Required 

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BMU Series **BLE2** Series	5~1200	5000 hours	3672N/577N	518N.m

BRUSHLESS DC MOTORS
TYPES AND FEATURES OF GEARHEADS

CS Geared Motor

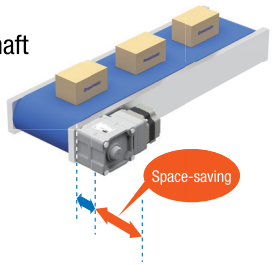
CS Gear

Features	Increased Load Capacity (Parallel Shaft Gear Ratio) Center Shaft
Benefits of Mounting	Output from Center Designing is easier because the shaft is exposed. 

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BLH Series **BLV R** Type	5~20	10000 hours	200N/70N	2.9N.m

Orthogonal Shaft Gearhead

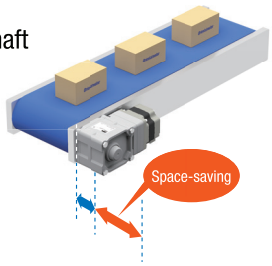
JH Gear

Features	Space-saving, Cost-effective High Strength Output Shaft: Stainless
Benefits of Mounting	Space-saving Can be directly connected to the drive shaft 

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BMU Series **BLE2** Series	5~200	5000 hours	2405N/550N	82.8N.m

Hollow Shaft Flat Gear

FR Gear

Features	Space-saving, Cost-effective Non-Saturating Permissible Torque
Benefits of Mounting	Space-saving Can be directly connected to the drive shaft 

Compatible Products	Speed Reduction Ratio	Rated Life	Permissible Radial Load/ Permissible Axial Load	Permissible Torque
BMU Series **BLE2** Series **BXII** Series **BLH** Series **BLV** Series **BLV R** Type	5~200	10000 hours*1	2040N/800N	54N.m

BMU Series

The **BMU Series** is a compact, high power and high-efficiency motor which does not compromise on user-friendly features at an affordable price. Once the motor and driver are connected, all you need to do for this simple wiring is turn on the switch.
Easy speed control with Spin and Push.

Refer to the table below for an overview of our product line-up.

BMU Series

AC Power Input

Frame Size
42mm
60mm
80mm
90mm
110mm

Power Input
Single-phase 100-120V
Single-phase 200-240V
Three-phase 200-240V

Speed Control Range
80~4000r/min

● Dustproof and Waterproof Motor 200W~400W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Multistage Speed Operation	Protection Level
		Number of Input Points	Number of Output Points		
±0.2%	Operation Panel/Dial	3 points (30W~120W) 5 points (200W~400W)	2 points	4-speed	Cabel Type : IP40 Connector Type : IP66*1

Gearhead	● Parallel Shaft Gearhead*2 ● Hollow Shaft Flat gearhead ● Right-Angel Shaft Gearhead

*1 When combined with a Hollow Shaft Flat Gear head, it is IP65.
*2 We also provide gearheads compatible with H1 grease for food machinery. (30W-12W)

Main Features	Easy Operation Digital Setting/Display Direct Connection with One Cable (Connector Type)
Functions	Speed Monitor (Upper Level) - Speed-out Instantaneous Stop/ Protection Functions Acceleration/ Deceleration Operation Holding at Stop/ Load Rate Display

BMU Series Features

BLE2 Series

The **BLE2 Series** are advanced models that support high functionality and usability using the same high power and efficient motor. Its driver uses a digital display panel allowing for the easy setting of various operations from simple speed control to torque-limiting functions with its functions accessible via our MEXE02 Support Software.

Refer to the table below for an overview of our product line-up.

BLE2 Series

AC Power Input

Frame Size

42mm
60mm
80mm
90mm
110mm

Power Input

Single-phase 100-120V
Single-phase 200-240V
Three-phase 200-240V

Speed Control Range

80~4000r/min

● Dustproof and Waterproof Motor 200W~400W
● With Electromagnetic Brake 30W~200W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Multistage Speed Operation	Protection Level
		Number of Input Points	Number of Output Points		
±0.2% (Digital Setting) ±0.5% (Analog Setting)	Operation Panel/Dial External Speed Setter External DV Voltage Support Software	7 points	2 points	16-speed	IP66*1

Gearhead	● Parallel Shaft Gearhead*2 ● Hollow Shaft Flat gearhead ● Right-Angel Shaft Gearhead

*1 When combined with a Hollow Shaft Flat Gear head, it is IP65.
*2 We also provide gearheads compatible with H1 grease for food machinery. (30W-12W)

Main Features	Easy Operation Digital Setting/Display Direct Connection with One Cable (Connector Type)
Functions	Speed Monitor (Upper Level) - Speed-out Instantaneous Stop/ Protection Functions Acceleration/ Deceleration Operation Holding at Stop/ Load Rate Display/Torque Limiting UpDown Operation/

BLE2 Series Features

BRUSHLESS DC MOTORS PRODUCT INTRODUCTION

For applications where variable speeds are necessary, typically an AC motor with an Inverter or Brush motor is used. Brushless DC motors are an advanced option due to their wide speed, low heat, and maintenance-free option.

Technical Guide

Watch Video

Brushless Motors Features

Speed Stability

Speed remains stable even if weight of the work changes. This is also know as “Speed Regulation”.

Alarm

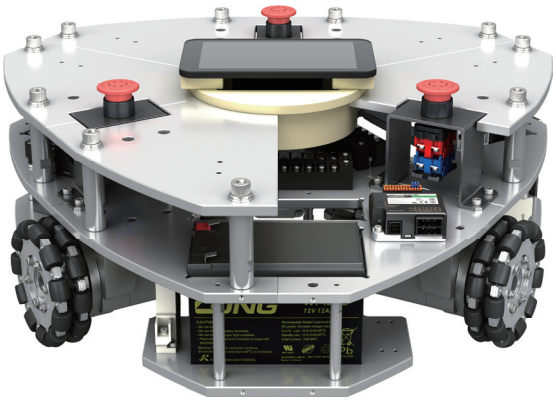
Various protective functions such as overload/overvoltage protective functions are equipped. An alarm signal will be output when a protective function activates.

Speed Control

Speed control refers to the ability to manipulate the rotational speed of the motor. Typically, a speed feedback device is needed together with a speed controller.

APPLICATIONS

AGV



Transport Robot

BLH Series

When moving objects from point A to B, an Automated Guided Vehicle (AGV) is continuously running and carrying loads. In order to carry its maximum payloads at different speeds, the motor must be able to handle various speeds at constant torque. The wide speed range and flat torque characteristics of the BLH / BLV / BLV-R Series brushless motors allow designers maximum flexibility in their designs. Brushless Motors are continuous duty due to their high efficiency. They can be run continuously without additional heat sinks which can help productivity.

Refer to the table below for an overview of our product line-up.

BLH Series

DC Power Input

Frame Size
42mm
60mm
80mm
90mm

Power Input
DC24V

Speed Control Range
100~3000r/min

Analog Setting Type

● With Electromagnetic Brake 30W~100W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Protection Level
		Number of Input Points	Number of Output Points	
±0.5%	Internal/ External Speed Setter External DC Voltage	5 points	2 points	IP40 IP65

Gearhead	● Parallel Shaft Gearhead ● Hollow Shaft Flat gearhead ● **CS** Geared

Main Features	Small, High-Output Motor Compact Driver Direct Connection with One Cable (Connector Type)
Functions	Speed Monitor (Upper Level) - Speed-out Instantaneous Stop Protection Functions Acceleration/ Deceleration Operation
Multistage Speed Operation	2-speed

BLH Series Features

BRUSHLESS DC MOTORS
BLH Series

BLH Series

BLH Series

DC Power Input

Frame Size
- 42mm
- 60mm
- 80mm

Power Input
- DC24V

Speed Control Range
- 80~3000r/min

Digital Setting Type/ RS-485 Communication Type

●With Electromagnetic Brake 30W~100W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Protection Level
		Number of Input Points	Number of Output Points	
±0.2% (Digital Setting) ±0.5% (Analog Setting)	Internal Speed Setter*1 External Speed Setter External DC Voltage PWM Signal Suport Softare RS-485 Communication*2	6 point (5 points*2)	4 point (2 points*2)	IP40 IP65

*1 Digital Setting Type
*2 RS-485 Communication Type

Gearhead	● Parallel Shaft Gearhead ● Hollow Shaft Flat gearhead ● **CS** Geared

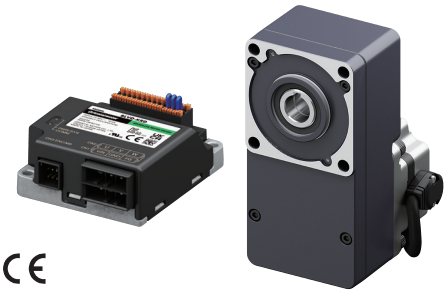
Main Features	Selectable Speed Setting Methods High Reproducibility Digital Settings Configuration via Modbus Communication*2 **Modbus** (RTU)
Functions	Speed Monitor (Upper Level) - Speed-out, RS-485 Communication Instantaneous Stop Protection Functions Holding at stop Acceleration/ Deceleration Operation Load Rate Display Torque Limiting

BLH Series Features

BLV Series **R** TYPE

BLV Series R Type

DC Power Input



Frame Size

60mm
80mm
90mm
110mm

Power Input

DC24~48V
DC48V (400W)

Speed Control Range

1~4000r/min

● With Electromagnetic Brake 100W~400W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Protection Level
		Number of Input Points	Number of Output Points	
±0.01%	CANopen Communication RS-485 Communication Support Software	4 point	2 point	IP 40

Gearhead	● Parallel Shaft Gearhead ● Hollow Shaft Flat gearhead ● **CS** Geared

Main Features	Small, Lightweight Driver Low-Speed Operation from 1r/min Excellent Speed Stability Ideal for Battery Operation CANopen Modbus (RTU)
Functions	Instantaneous Stop — Protection Functions Holding at stop — Acceleration/ Deceleration Operation Load Rate Display — Torque Limiting Up/Down Operation - With Electromagnetic Brake

BLV Series **R** Type Features

BLV Series CE

BLV Series

DC Power Input

Fram size
90mm
110mm

Power Input
DC24V
DC48V (400W)

Speed Control Range
80~4000r/min (Digital Setting)
100~4000r/min (Analog Setting)
(Up to 100W for 3000r/min)

● With Electromagnetic Brake 100W~400W

Speed Fluctuation Rate (Against Load)	Speed Setting Method	Input/Output Signals		Protection Level
		Number of Input Points	Number of Output Points	
±0.2% (Digital Setting) ±0.5% ((Analog Setting)	Internal/External Speed Setter External DC Voltage RS-485 Communication Support Software . OPX-2A	6 point	2 point	IP 40 (100W for IP65)

Gearhead	● Parallel Shaft Gearhead ● Hollow Shaft Flat gearhead

Main Features	Battery Operation Compatible Control via Modbus/RS-485 and FA Network **Modbus** (RTU)
Functions	Speed Monitor (Upper Level) - Speed-out, RS-485 Communication Instantaneous Stop Protection Functions Holding at stop Acceleration/ Deceleration Operation Load Rate Display Torque Limiting Up/Down Operation - With Electromagnetic Brake
Multistage Speed Operation	8-speed

BLV Series Features

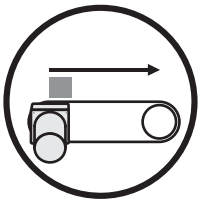
STANDARD AC MOTORS
PRODUCT INTRODUCTION

Standard AC Motors and Gear Motors operate by simply connecting a capacitor and supplying power from a commerial supply. Standard AC Motors and Gear Motors include the basic
induction motor.

Technical Guide

Watch Video

Standard AC Motors Features

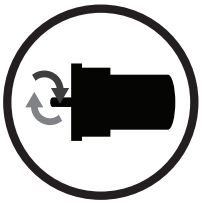


Optimal for Uni-Directional and Continuous Operation

These products are ideal for uni-directional continuous applications such as driving a conveyor.

Cost Saving

As Standard AC motors do not require any controllers for it to operate, this translates to cost-saving without having to purchase additional parts.

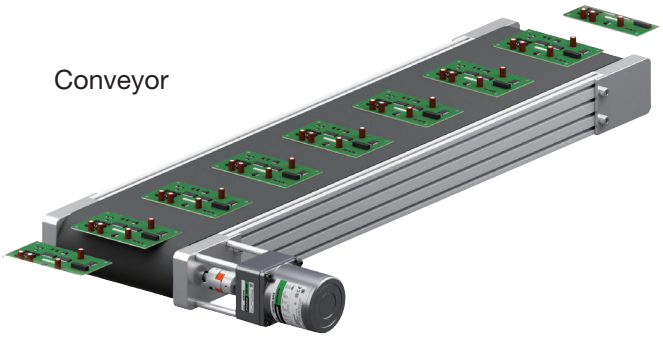


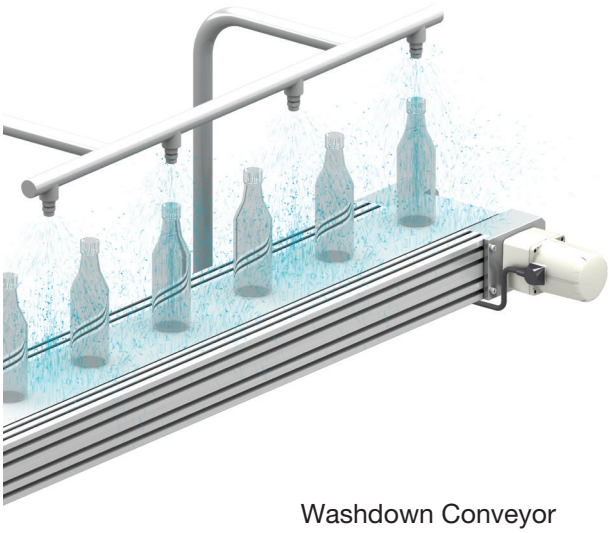
High Torque

The maximum torque that can be used during motor operation is now wider. Various type of applications can be equipped with our Standard AC Motors.

APPLICATIONS

Conveyor





Washdown Conveyor

WORLD K Series

The World K II Series motors that conforms to the power supply voltage in Asia are electric motors that rotate by using power from a commercial AC power supply. They are easy to handle and have features that can be configured a low cost. They are widely used to drive various applications.

Refer to the table below for an overview of our product line-up.

WORLD K Series

AC Power Input

Frame Size
42mm
60mm
70mm
80mm
90mm

Power Input
Single-phase 100-120V
Single-phase 200-240V
Three-phase 200-240V

Speed Range
1600r/min

● Induction Motors ● 2-Pole, High-Speed Type ● Reversible Motors

Voltage	Type	42 mm	60 mm	70 mm	80 mm	90 mm
Single-Phase 100 VAC*	Lead Wire Type	● ●	● ●	● ●	● ● ●	● ● ●
	Terminal Box Type		● ●		● ●	● ●
Single-Phase 110/115 VAC	Lead Wire Type	● ●	● ●	● ●	● ● ●	● ● ●
	Terminal Box Type		● ●		● ●	● ●
Single-Phase 200 VAC*	Lead Wire Type	● ●	● ●	● ●	● ● ●	● ● ●
	Terminal Box Type		● ●		● ●	● ●
Single-Phase 220/230VAC	Lead Wire Type		● ●	● ●	● ● ●	● ● ●
	Terminal Box Type		● ●		● ●	● ●
Three-Phase 200/220/230 VAC	Lead Wire Type		●		●	● ●
	Terminal Box Type		●		●	● ●
Three-Phase 400VAC	Terminal Box Type				●	●

STANDARD AC MOTORS
WORLD K Series

● Electromagnetic Brake Motors ● Torque Motors

Voltage	60 mm	70 mm	80 mm	90 mm
Single-Phase 100 VAC*	● ●	● ●	● ●	● ●
Single-Phase 110/115 VAC	● ●	● ●	● ●	● ●
Single-Phase 200 VAC*	● ●	● ●	● ●	● ●
Single-Phase 220/230VAC	● ●	● ●	● ●	● ●
Three-Phase 200/220/230 VAC	●		●	●

Main Features	Safety Standards for Safe, Reliable Operation Worldwide Voltage Compatibility Wide Variations Brake Pack/ Accessories

WORLD K Series Features

FPW Series

The FPW Series is a watertight, dust-resistant AC motor type that can be used in locations that are splashed with water. These models conform to the IP67 rating for the degree of protection under the IEC Standards. *The motor is not available for use under high pressure jets of water or immersion in water.

Refer to the table below for an overview of our product line-up.

FPW Series

AC Power Input

Output

83mm
91.5mm
106.5mm

Power Input

Single-phase 110-115V
Single-phase 220-230V
Three-phase 200/220/230V

Voltage	83 mm	91.5 mm	106.5 mm
Single-Phase 110/115 VAC	●	●	●
Single-Phase 220/230 VAC	●	●	●
Three-Phase 200/220/230 VAC	●	●	●

Main Features	Watertight and Dust-Resistant Performane IP67 Superb Anti-Corrosion Properties Designed and Construted for Dust and Water Resistance

IP67 : The IP indication that shows the watertight and dustresistant performance are specified under IEC 60529 and EN 60034-5. The FPW Series has been recognized by UL for the IP67 rating.

FPW Series Features

COOLING FANS

Today's comfortable life and society are supported by advanced control systems, which may present many heat sources. To operate these devices without disruption 24 hours a day, 365 days a year, the devices require appropriate heat designs and heat measures. Oriental Motor offers a wide range of heat measure products centered on cooling fans to meet these requirements.

Technical Guide

Watch Video

Cooling Fans Features

Long life
A highly durable and efficient design, our cooling fans have a long lifespan whilst reassuring a high level of quality performance.

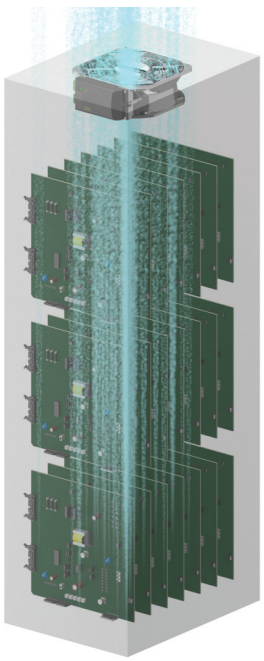
Energy Saving & Low Heat Emission
Our Cooling fans have gone through rigorous testing to ensure that energy standards have been met.

Light Weight
The aluminium frame of the cooling fan coupled with polycarbonate fan blades translates to an overall reduction in weight which ensures your application remains right.

APPLICATIONS

Refrigerator case

Cooling Densely Mounted Devices



AXIAL FLOW FANS

Axial flow fans use a blade (propeller) to generate airflow in the direction of the axis of rotation. Capable of generating a large airflow, axial flow fans are suited for applications requiring ventilation and cooling where the entire space inside the device must be cooled.

Refer to the table below for an overview of our product line-up.

MU Series

MU Series

AC Power Input

Frame Size[mm]

80mm
90mm/92mm
104mm
119/120mm
140mm

Frame Size	80x80x25	92x92x25	104x104x25	119x119x25	119x119x38	140x140x28
Max. Air Flow [m³/min]	0.45 - 0.55	0.85 - 1.1	1.2 - 1.4	1.4 - 1.9	1.85 - 3.0	2.4 - 2.7
Max. Static Pressure [Pa]	34 - 49	34 - 59	39 - 44	31 - 49	29 - 81	34 -45
Noise Level [dB(A)]	28 - 35	31 - 39	35 - 39	33 - 40	33 - 46	44 - 46

Main Features	AC axial flow fan Large air flow High static pressure

MU Series Features

MD Series

MD Series

DC Power Input

Frame Size[mm]

42mm
52mm
60mm/62mm
80mm
90mm/92mm
119mm/120mm
140mm
ø172

Frame Size	42x42x10	52x52x10	62x62x25	80x80x25	92x92x25	119x119x25	140x140x51	Ø172
Max. Air Flow [m^3/min]	0.13-0.18	0.2-0.27	0.37-0.5	0.55-1.0	0.9-1.3	2.5-2.7	5.8	6
Max. Static Pressure [Pa]	47 - 86	32 - 54	27 - 49	16 - 49	22 - 49	43 -70	130	137
Noise Level [dB(A)]	25 - 34	30 - 36	20 - 30	18 - 35	25 - 36	45 - 46	49	47

Various Functions	**S** Type Basic	**A** Type Alarm	**E** Type Long-Life	**V** Type Variable Flow	**P** Type Splash Proof
Key Features	High-speed Standard speed	Alarm output functions	Expected service life Max. 180,000 hours	Controls air flow with PWM controller	IP68 splash proof and dust-resistant
Output Functions	Blank	Stall Alarm Low-Speed Alarm	Stall Alarm	Pulse Sensor	Stall Alarm

Main Features	High airflow Stall/Low speed alarm types Long-life types

MD Series Features

EMU Series CE PSE

EMU Series

AC Power Input

Frame Size[mm]

90mm/92mm
119mm/120mm

Frame Size	120x120x38	92x92x38
Max. Air Flow [m^3/min]	3	1.5
Max. Static Pressure [Pa]	84	90
Noise Level [dB(A)]	42	40

Main Features	Low Power Consumption These axial flow have achieved an expected file 60000 hours They can be used inwide voltage range (single-phase 100~240 VAC).

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