

Linear & Rotary Actuators

Electric Cylinders

Overview

Electric Linear Slides

*α*STEP AZ EZS

Electric Cylinders

*α*STEP AZ EAC

*α*STEP AZ DRS2

Hollow Rotary Actuators

*α*STEP AZ DGII

EAC Series
*α*STEP AZ Equipped

DRS2 Series
*α*STEP AZ Equipped

Page

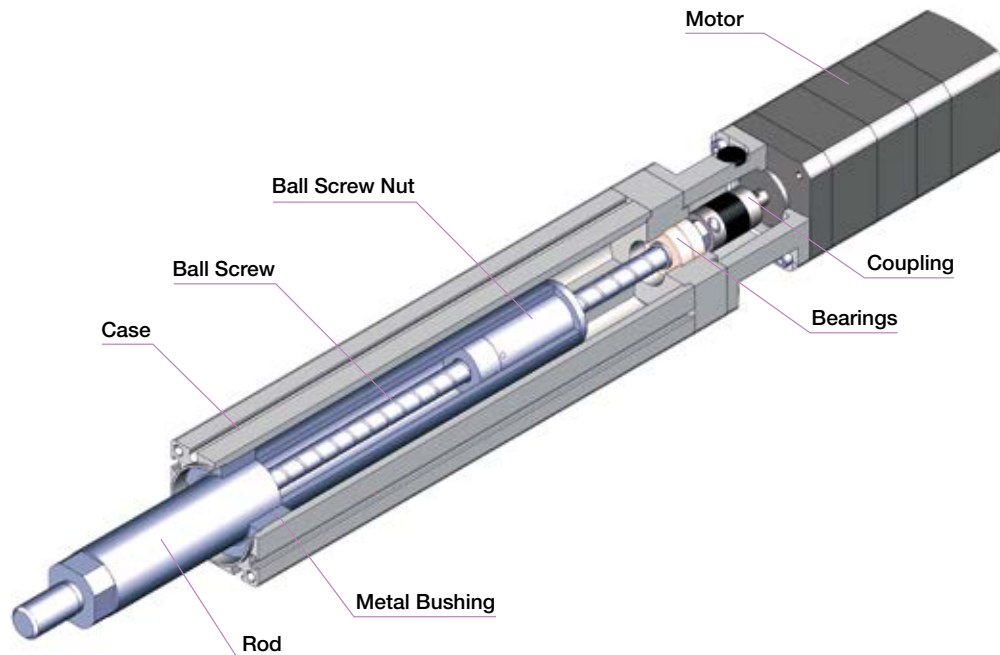
| | |
|--|------|
| EAC Series <i>α</i> STEP AZ Equipped | F-24 |
| DRS2 Series <i>α</i> STEP AZ Equipped | F-32 |

Features of Electric Cylinders

Electric cylinders are capable of linear drive in a precise, accurate manner through the rotation of a ball screw controlled by a stepper motor.

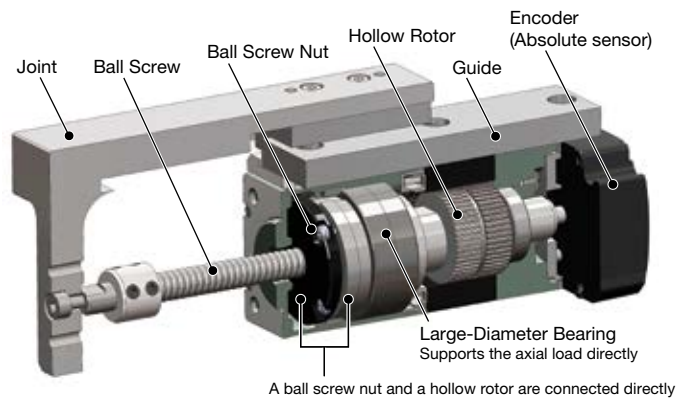
EAC Series

The ball screw is rotated by a stepper motor to position heavy loads with high accuracy. This illustration shows a straight type.



DRS2 Series

The hollow rotor and ball screw nut have been integrated. Since no connecting parts are necessary, there is less backlash than when coupling rigidity, etc. combines other parts. Therefore, highly accurate positioning can be achieved.



● EAC Series Product Line

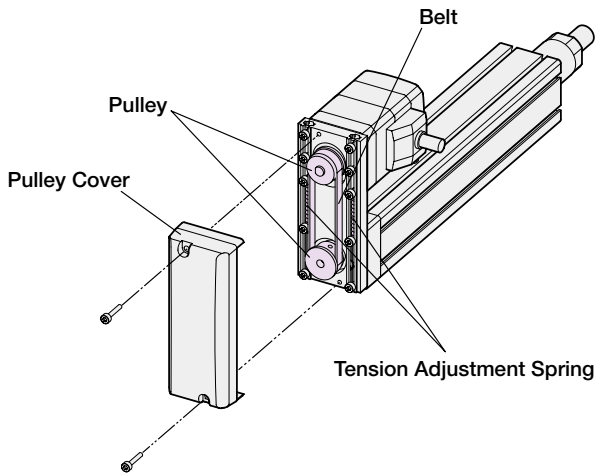
The **EAC** Series, which uses aluminum for the rod component, is a line of electric cylinders that produces high thrust force despite their compact and lightweight body. The unique structure suppresses vibration to achieve improved acceleration characteristics and high-speed positioning operation. In addition, all products are affordably priced.

In addition to the straight type, reversed motor types and products equipped with shaft guide covers are available.

◇ Reversed Motor Type

Thanks to the belt mechanism, this type features a reversed motor installation direction.

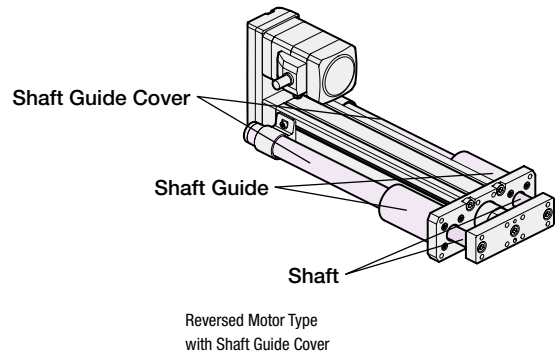
This helps to save space.



◇ With Shaft Guide Cover

This type has a shaft guide and cover installed, which allows for the load to be transported while attached directly to the body of this product.

Straight types and reversed motor types are available.



● DRS2 Series Product Line

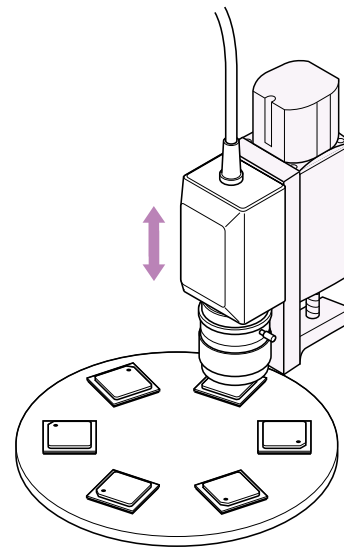
The **DRS2** Series uses the **αSTEP AZ** Series equipped with the absolute sensor for the driving motor. The absolute sensor is a mechanical multi-turn absolute sensor, so an external sensor is not required. This helps to save space and reduce wiring, as well as more compact and lightweight design of the equipment. The **DRS2** Series line includes types with a guide and without a guide.



Type with a Guide

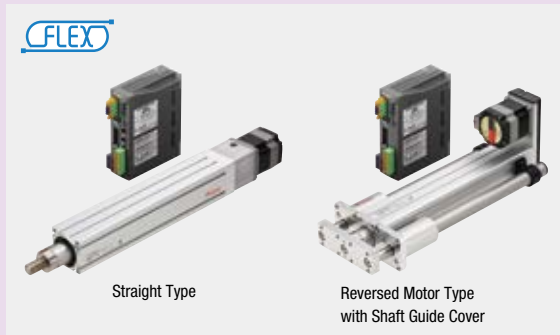


Type without a Guide



Application Examples/Focusing of CCD Camera

Electric Cylinders

EAC Series α STEP AZ Equipped

The motor component incorporates a high-efficiency, energy-saving α STEP AZ Series electric cylinder. In addition to straight-type actuators, reversed motor types with shorter overall lengths are also available.

- Compact, High Strength, for a Wide Variety of Applications
- High Performance Regardless of Operating Conditions
- Easy Belt Replacement (Reversed Motor Type)



See Full Product Details Online
www.orientalmotor.com

● Manual

● Specifications

● Dimensions

● CAD

● Characteristics

● Connection and Operation

Features

Compact and Powerful!

● Compact, High Thrust Force Cylinders

Using aluminum for the rod, these electric cylinders produce high thrust force despite their compact and lightweight body. The unique structure suppresses vibration to achieve improved acceleration characteristics and high-speed positioning operation.

This illustration shows a straight type without shaft guide.

Motor

A standard motor is equipped.

α STEP AZ Series

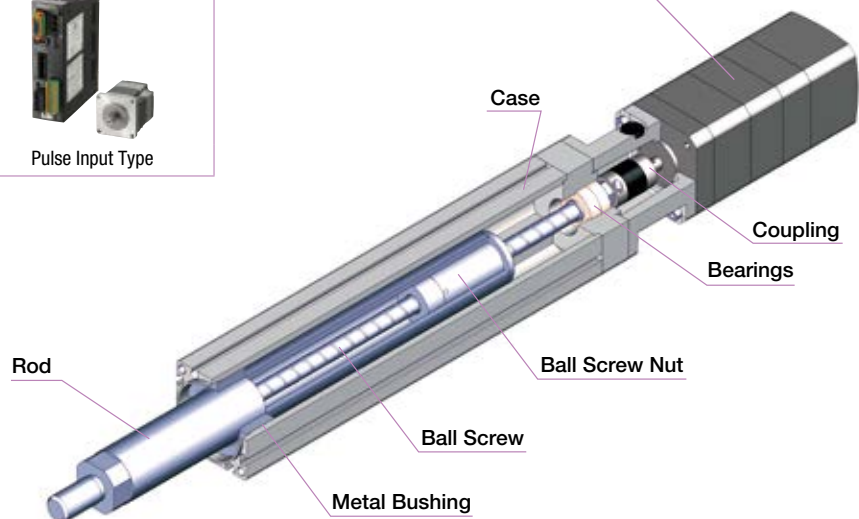
- Battery-free, Absolute Sensor Equipped
- Positioning Information is Available without a sensor
- High Reliability with Closed Loop Control
- High Efficiency Technology Reduces Motor Heat Generation and Saves Energy



Built-in Controller Type



Pulse Input Type

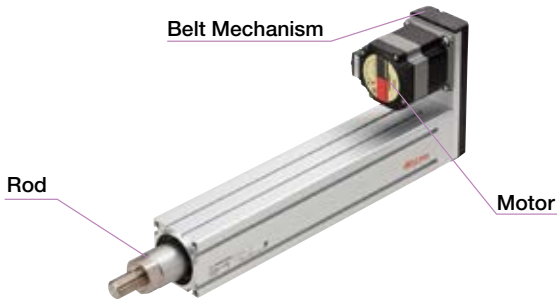


● Cylinder Type and Configuration

The **EAC** Series has reversed motor types and straight types. For both types, the following 2 types of cylinders are available: without shaft guide and with shaft guide cover.

◇ Reversed Motor Type

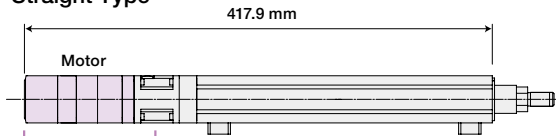
Thanks to the belt mechanism, this type features a reversed motor installation direction.



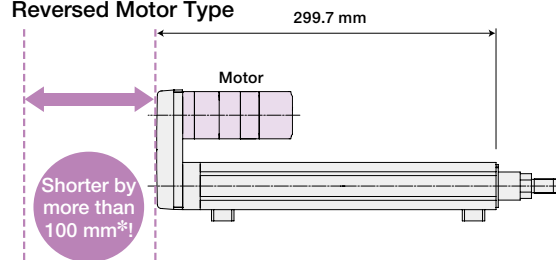
Reversed Motor types are provided for all electric cylinders. This contributes to a shorter overall length and space savings.

αSTEP AZ Series Equipped
EAC4 with Electromagnetic Brake Type Stroke 200 mm

Straight Type

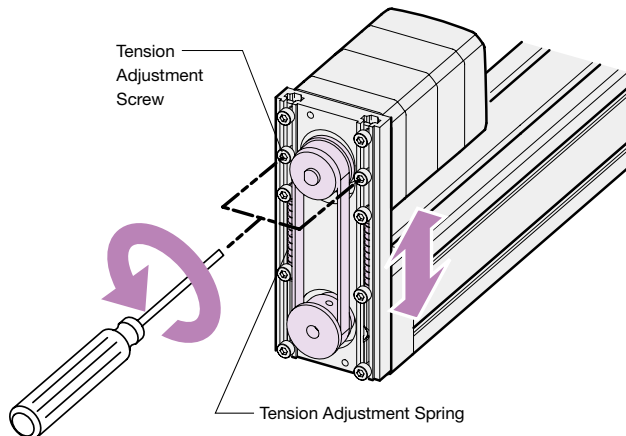


Reversed Motor Type



*When electromagnetic brake is installed

Thanks to Oriental Motor's unique belt tension adjustment mechanism, belt replacement is easy.



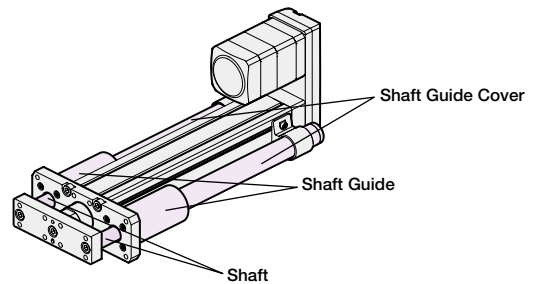
If the screw is loosened, the belt tension is adjusted to an appropriate value by the force of the spring.

◇ With Shaft Guide Cover

This type has a shaft guide cover installed, which allows for the load to be transported while attached directly to the body of this product. Straight types and reversed motor types are available.



Reversed Motor Type with Shaft Guide Cover

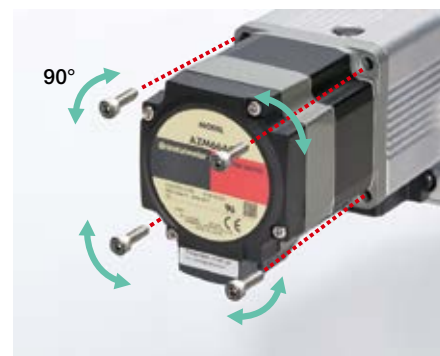


Reversed Motor Type with Shaft Guide Cover

● Cable Outlet Direction

Rotatable in 4 directions (3 directions for Reversed Motor types)

Motor cable can be changed to any direction by simply rotating the motor. There is no need to leave space behind the motor since the cable outlet is on one side of the motor, allowing for easy connection and saving space.



Overview

Electric Linear Slides

αSTEP AZ EZS

Electric Cylinders

αSTEP AZ EAC

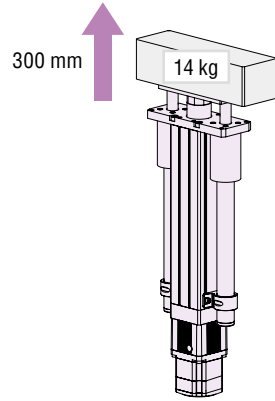
αSTEP AZ DRS2

Hollow Rotary Actuators

αSTEP AZ DGII

● Wide Range of Applications, from Low Speed to High Speed and from Light Loads to Heavy Loads

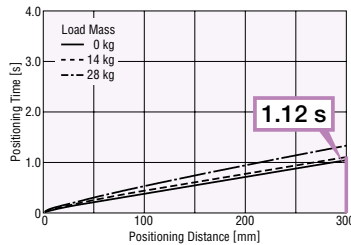
<Product Used>
 Product name: **EAC6WE**
 Lead Screw Pitch: 6 mm
 Power Supply Input: 230 VAC



When transferring a load of 14 kg over a distance of 300 mm, the positioning time is 1.12 seconds.

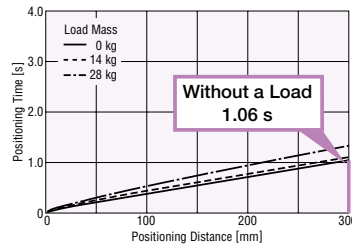
High-Speed With a Heavy Load

Load Mass: 14 kg
 Positioning Distance: 300 mm
 Positioning Time: 1.12 s
 Operating Speed: 300 mm/s
 Acceleration: 2.48 m/s² (0.25 G)



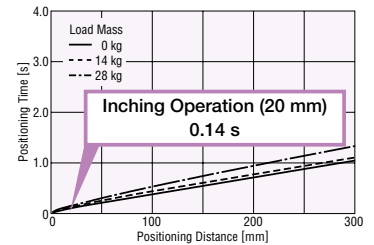
High-Speed With a Light Load

Load Mass: 0 kg
 Positioning Distance: 300 mm
 Positioning Time: 1.06 s
 Operating Speed: 300 mm/s
 Acceleration: 5.25 m/s² (0.5 G)



High-Speed During Inching Operation




Load Mass: 14 kg
 Positioning Distance: 20 mm
 Positioning Time: 0.14 s
 Operating Speed: 200 mm/s
 Acceleration: 5.3 m/s² (0.5 G)



Positioning Time Calculation Tool Available

A tool is available to calculate the positioning time, operating speed, acceleration, and more — simply by selecting the type of electric cylinder and entering some simple data. The software can be downloaded from the Oriental Motor website.
<http://www.orientalmotor.com>

Product Line

| Shaft Guide | Straight Type | Reversed Motor Type |
|--|---|---|
| <p>Without shaft guide cover</p> <p>Depending on the equipment, an external guide may be necessary.</p> |  |  |
| <p>With shaft guide cover</p> <p>There is no need to design or procure parts for the external guide. Moving parts on the cylinder main unit side are protected, improving equipment safety. This is useful for grease splash prevention in the shaft guide section and the prevention of the infiltration of foreign particles in the linear bush section.</p> |  |  |

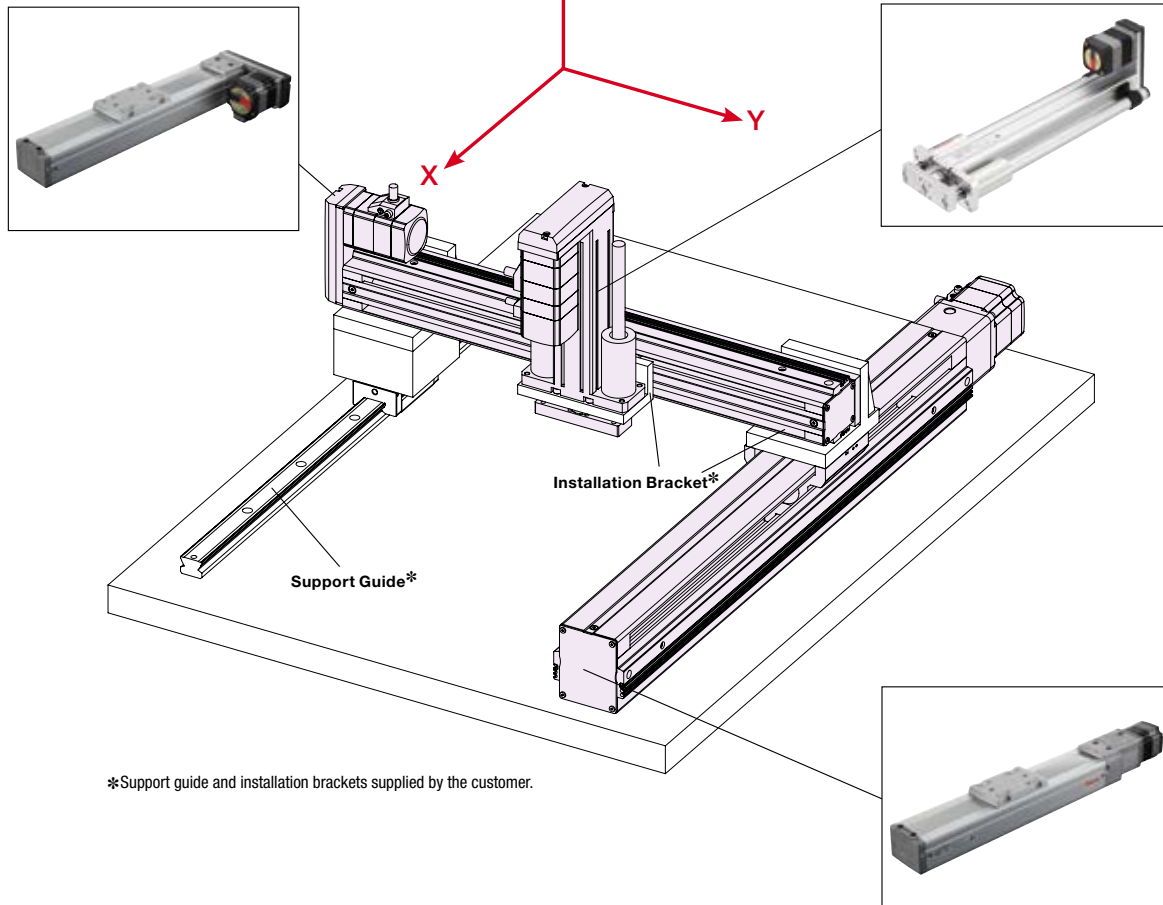
The image below shows a three axes system using the electric linear slide **EZS** Series on the X-Y axis and the electric cylinder **EAC** Series on the Z axis.

Y-Axis Electric Linear Slides **EZS** Series
Reversed Motor Type

Space saving due to the reversed motor.

Z-Axis Electric Cylinders **EAC** Series
Reversed Motor Type with Shaft Guide Cover

Space-saving due to the reversed motor.



*Support guide and installation brackets supplied by the customer.

X-Axis Electric Linear Slides **EZS** Series
Straight Type

Overview

Electric Linear Slides

αSTEP AZ EZS

Electric Cylinders

αSTEP AZ EAC

αSTEP AZ DRS2

Hollow Rotary Actuators

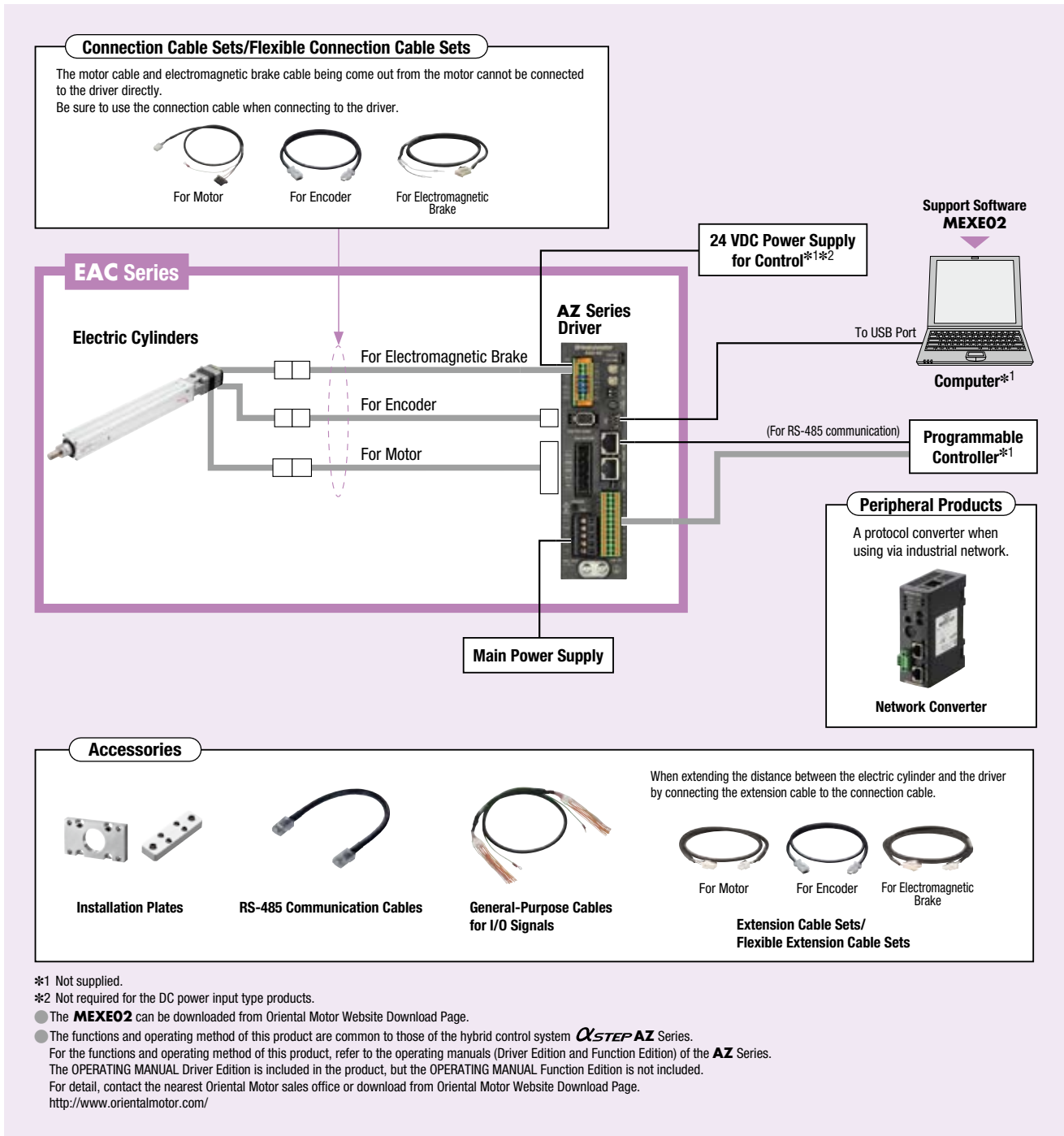
αSTEP AZ DGI

System Configuration

Combination of Linear & Rotary Actuator with Electromagnetic Brake and Built-in Controller Type Driver

(Information for AC input type and DC input type are both provided. The photos show the product with an AC input type.)

An example of a configuration using I/O control or RS-485 communication is shown below.



● The system configuration shown above is an example. Other combinations are also available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.


● Combination of Linear & Rotary Actuator with Electromagnetic Brake and Pulse Input Type Driver

(Information for AC input type and DC input type are both provided. The photos show the product with an AC input type.)


An example of a single-axis system configuration with the **SCX11** controller is shown below.

Connection Cable Sets/Flexible Connection Cable Sets


The motor cable and electromagnetic brake cable being come out from the motor cannot be connected to the driver directly. Be sure to use the connection cable when connecting to the driver.



For Motor



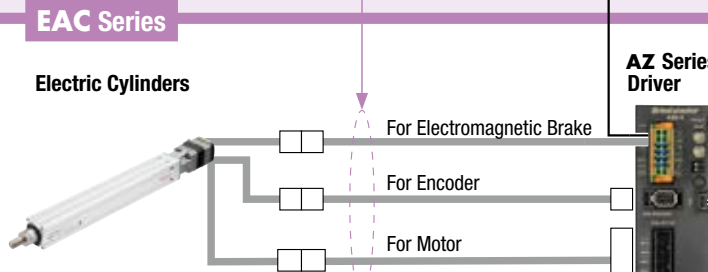
For Encoder




For Electromagnetic Brake

EAC Series

Electric Cylinders




24 VDC Power Supply for Control*1*2



AZ Series Driver

Support Software MEXE02




To USB Port

Computer*1


Programmable Controller*1

Main Power Supply


Accessories



Installation Plates



General-Purpose Cables for I/O Signals




**Extension Cable Sets/
Flexible Extension Cable Sets**

When extending the distance between the electric cylinder and the driver by connecting the extension cable to the connection cable.

Controller

A pulse generator is available.



*1 Not supplied.
 *2 Not required for the DC power input type products.
 ● The **MEXE02** can be downloaded from Oriental Motor Website Download Page.
 ● The functions and operating method of this product are common to those of the hybrid control system **QSTEP AZ** Series. For the functions and operating method of this product, refer to the operating manuals (Driver Edition and Function Edition) of the **AZ** Series. The OPERATING MANUAL Driver Edition is included in the product, but the OPERATING MANUAL Function Edition is not included. For detail, contact the nearest Oriental Motor sales office or download from Oriental Motor Website Download Page. <http://www.orientalmotor.com/>

● The system configuration shown above is an example. Other combinations are also available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

Overview

Electric Linear Slides

QSTEP AZ EZS

Electric Cylinders

QSTEP AZ EAC

QSTEP AZ DRS2

Hollow Rotary Actuators

QSTEP AZ DGII

Product Line

● AC Input

◇ Product Number

| | | | | | | | | | |
|----------------------------|--|---|-----------------------------------|--|------------------|--|--|---|--------------------------------------|
| ① Series Name | ② Motor Installation Direction | ③ Shaft Guide | ④ Lead Screw Pitch | ⑤ Stroke | ⑥ Motor | ⑦ Motor Type | ⑧ Power Supply Input | ⑨ Driver Type | ⑩ Shaft Guide Cover |
| EAC4 | R | W | D | 05 | AZ | A | A | D | -G |
| EAC4 EAC6 | R: Reversed Motor Type Blank: Straight | W: Shaft Guide Type Blank: Straight | D: 12 mm E: 6 mm | 05: 50 mm 10: 100 mm 15: 150 mm ~ 30: 300 mm (50 mm increments) | AZ Series | A: Single Shaft M: With Electromagnetic Brake | A: Single-phase 100-120 VAC C: Single-phase/ Three-phase 200-240 VAC | D: Built-In Controller Type Blank: Pulse Input Type | -G: Shaft Guide Cover Type |

◇ EAC4 Straight Type / Reversed Motor Type

Even if the ② Motor installation direction (R, blank), ④ Lead screw pitch (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,227.00 | \$1,444.00 | \$1,170.00 | \$1,387.00 |
| | 100 mm (10) | \$1,227.00 | \$1,444.00 | \$1,170.00 | \$1,387.00 |
| | 150 mm (15) | \$1,242.00 | \$1,459.00 | \$1,185.00 | \$1,402.00 |
| | 200 mm (20) | \$1,242.00 | \$1,459.00 | \$1,185.00 | \$1,402.00 |
| | 250 mm (25) | \$1,258.00 | \$1,475.00 | \$1,201.00 | \$1,418.00 |
| | 300 mm (30) | \$1,258.00 | \$1,475.00 | \$1,201.00 | \$1,418.00 |

◇ EAC4 Straight Type / Reversed Motor Type Shaft Guide Cover Type

Even if the ② Motor installation direction (R, blank), ④ Lead screw pitch (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,521.00 | \$1,738.00 | \$1,464.00 | \$1,681.00 |
| | 100 mm (10) | \$1,521.00 | \$1,738.00 | \$1,464.00 | \$1,681.00 |
| | 150 mm (15) | \$1,537.00 | \$1,754.00 | \$1,480.00 | \$1,697.00 |
| | 200 mm (20) | \$1,537.00 | \$1,754.00 | \$1,480.00 | \$1,697.00 |
| | 250 mm (25) | \$1,552.00 | \$1,769.00 | \$1,495.00 | \$1,712.00 |
| | 300 mm (30) | \$1,552.00 | \$1,769.00 | \$1,495.00 | \$1,712.00 |

◇ EAC6 Straight Type / Reversed Motor Type

Even if the ② Motor installation direction (R, blank), ④ Lead screw pitch (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,320.00 | \$1,599.00 | \$1,263.00 | \$1,542.00 |
| | 100 mm (10) | \$1,320.00 | \$1,599.00 | \$1,263.00 | \$1,542.00 |
| | 150 mm (15) | \$1,335.00 | \$1,614.00 | \$1,278.00 | \$1,557.00 |
| | 200 mm (20) | \$1,335.00 | \$1,614.00 | \$1,278.00 | \$1,557.00 |
| | 250 mm (25) | \$1,351.00 | \$1,630.00 | \$1,294.00 | \$1,573.00 |
| | 300 mm (30) | \$1,351.00 | \$1,630.00 | \$1,294.00 | \$1,573.00 |

◇ EAC6 Straight Type / Reversed Motor Type Shaft Guide Cover Type

Even if the ② Motor installation direction (R, blank), ④ Lead screw pitch (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,661.00 | \$1,940.00 | \$1,604.00 | \$1,883.00 |
| | 100 mm (10) | \$1,661.00 | \$1,940.00 | \$1,604.00 | \$1,883.00 |
| | 150 mm (15) | \$1,676.00 | \$1,955.00 | \$1,619.00 | \$1,898.00 |
| | 200 mm (20) | \$1,676.00 | \$1,955.00 | \$1,619.00 | \$1,898.00 |
| | 250 mm (25) | \$1,692.00 | \$1,971.00 | \$1,635.00 | \$1,914.00 |
| | 300 mm (30) | \$1,692.00 | \$1,971.00 | \$1,635.00 | \$1,914.00 |

Product Line

DC Input

Product Number

| | | | | | | | | | |
|----------------------------|--|---|-----------------------------------|---|------------------|--|------------------------|---|--------------------------------------|
| ① Series Name | ② Motor Installation Direction | ③ Shaft Guide | ④ Lead Screw Pitch | ⑤ Stroke | ⑥ Motor | ⑦ Motor Type | ⑧ Power Supply Input | ⑨ Driver Type | ⑩ Shaft Guide Cover |
| EAC4 | R | W | D | 05 | AZ | A | K | D | -G |
| EAC4 EAC6 | R: Reversed Motor Type Blank: Straight | W: Shaft Guide Type Blank: Straight | D: 12 mm E: 6 mm | 05: 50 mm 10: 100 mm 15: 150 mm 30: 300 mm (50 mm increments) | AZ Series | A: Single Shaft M: With Electromagnetic Brake | K: 24/48 VDC | D: Built-In Controller Type Blank: Pulse Input Type | -G: Shaft Guide Cover Type |

Product Number

Even if the ② Motor installation direction (R, blank) or ④ Lead screw pitch (D, E) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,080.00 | \$1,297.00 | \$1,023.00 | \$1,240.00 |
| | 100 mm (10) | \$1,080.00 | \$1,297.00 | \$1,023.00 | \$1,240.00 |
| | 150 mm (15) | \$1,095.00 | \$1,312.00 | \$1,038.00 | \$1,255.00 |
| | 200 mm (20) | \$1,095.00 | \$1,312.00 | \$1,038.00 | \$1,255.00 |
| | 250 mm (25) | \$1,111.00 | \$1,328.00 | \$1,054.00 | \$1,271.00 |
| | 300 mm (30) | \$1,111.00 | \$1,328.00 | \$1,054.00 | \$1,271.00 |

Product Number

Even if the ② Motor installation direction (R, blank) or ④ Lead screw pitch (D, E) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,374.00 | \$1,591.00 | \$1,317.00 | \$1,534.00 |
| | 100 mm (10) | \$1,374.00 | \$1,591.00 | \$1,317.00 | \$1,534.00 |
| | 150 mm (15) | \$1,390.00 | \$1,607.00 | \$1,333.00 | \$1,550.00 |
| | 200 mm (20) | \$1,390.00 | \$1,607.00 | \$1,333.00 | \$1,550.00 |
| | 250 mm (25) | \$1,405.00 | \$1,622.00 | \$1,348.00 | \$1,565.00 |
| | 300 mm (30) | \$1,405.00 | \$1,622.00 | \$1,348.00 | \$1,565.00 |

Product Number

Even if the ② Motor installation direction (R, blank) or ④ Lead screw pitch (D, E) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,173.00 | \$1,452.00 | \$1,116.00 | \$1,395.00 |
| | 100 mm (10) | \$1,173.00 | \$1,452.00 | \$1,116.00 | \$1,395.00 |
| | 150 mm (15) | \$1,188.00 | \$1,467.00 | \$1,131.00 | \$1,410.00 |
| | 200 mm (20) | \$1,188.00 | \$1,467.00 | \$1,131.00 | \$1,410.00 |
| | 250 mm (25) | \$1,204.00 | \$1,483.00 | \$1,147.00 | \$1,426.00 |
| | 300 mm (30) | \$1,204.00 | \$1,483.00 | \$1,147.00 | \$1,426.00 |

Product Number

Even if the ② Motor installation direction (R, blank) or ④ Lead screw pitch (D, E) is different, the price is the same.

| ⑨ Driver Type (D, Blank) | Built-in Controller Type (D) | | Pulse Input Type (Blank) | | |
|--------------------------|------------------------------|--------------------------------|--------------------------|--------------------------------|------------|
| ⑦ Motor Type (A, M) | Single Shaft (A) | With Electromagnetic Brake (M) | Single Shaft (A) | With Electromagnetic Brake (M) | |
| ⑤ Stroke | 50 mm (05) | \$1,514.00 | \$1,793.00 | \$1,457.00 | \$1,736.00 |
| | 100 mm (10) | \$1,514.00 | \$1,793.00 | \$1,457.00 | \$1,736.00 |
| | 150 mm (15) | \$1,529.00 | \$1,808.00 | \$1,472.00 | \$1,751.00 |
| | 200 mm (20) | \$1,529.00 | \$1,808.00 | \$1,472.00 | \$1,751.00 |
| | 250 mm (25) | \$1,545.00 | \$1,824.00 | \$1,488.00 | \$1,767.00 |
| | 300 mm (30) | \$1,545.00 | \$1,824.00 | \$1,488.00 | \$1,767.00 |

Included

| Type | Included | Actuator | Driver | Connector | Operating Manual |
|---------------------|----------|----------|--------|---|------------------|
| Common to All Types | | 1 Unit | 1 Unit | <ul style="list-style-type: none"> Connector for CN4 (1 piece) Connector for CN1 (1 piece) Connector for CN5 (1 piece)* Connector Wiring Lever (1 piece)* | 1 Copy |

*AC input only

For details (specifications, characteristics, dimensions and more) on these products, please either refer to our website or contact technical support or your nearest Oriental Motor sales office.

www.orientalmotor.com

