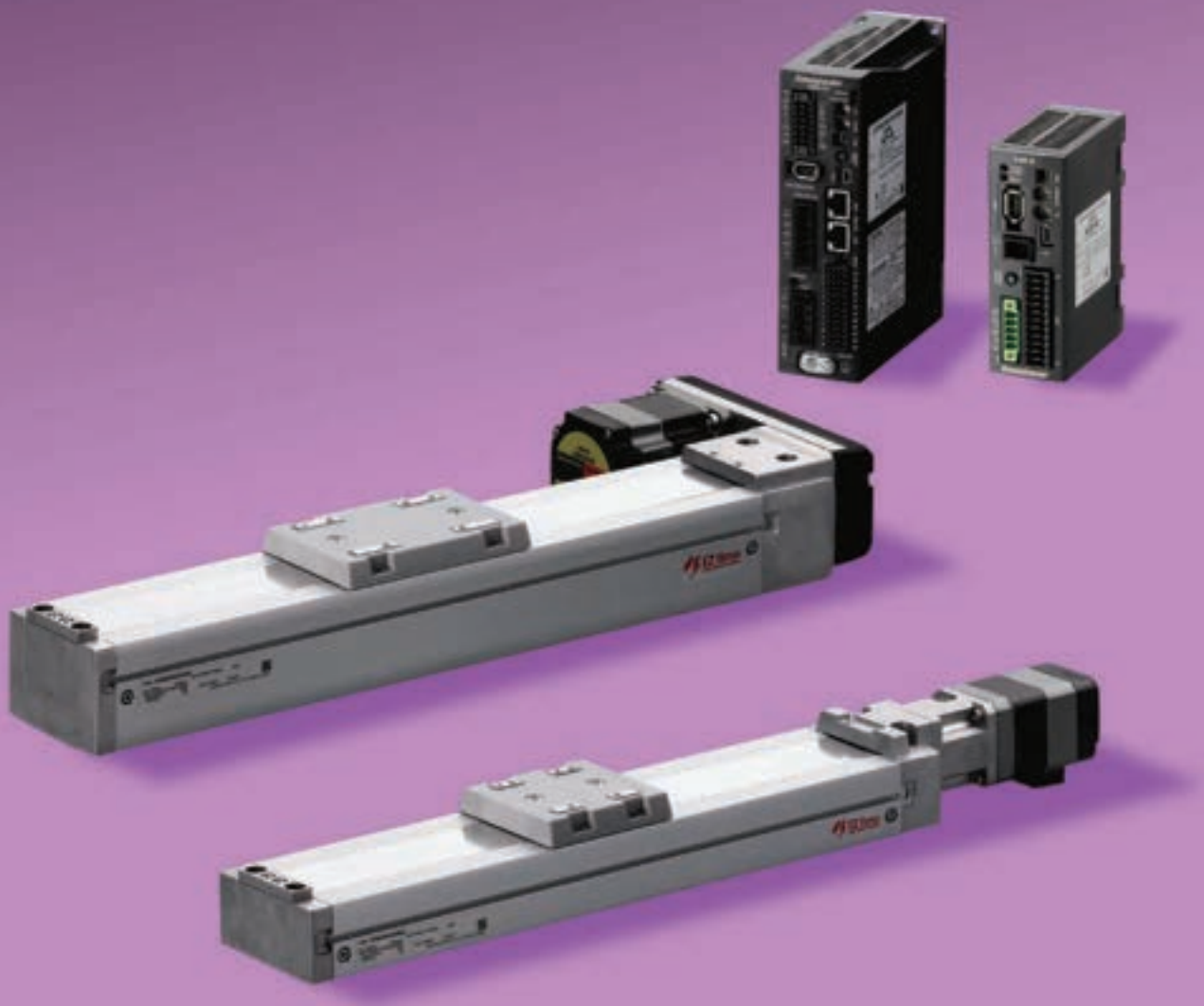
Oriental motor

αSTEP AZ Series Equipped

Electric Linear Slides
Electric Cylinders



αSTEP AZ Series Equipped
Electric Linear Slides and Electric Cylinders

Electric Linear Slides

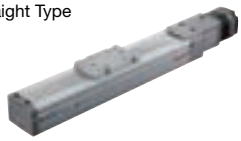
EZS Series

All models have an electromagnetic brake option available.

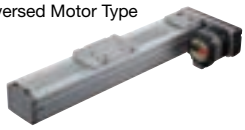
Flat | High Rigidity | Simple Dust-proof Structure

●Motor Installation Direction

Straight Type



Reversed Motor Type



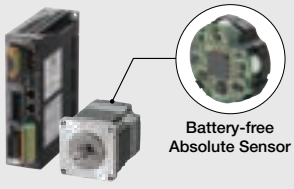
●For Cleanroom Use

αSTEP AZ Series

AZ Series products feature a battery-free absolute sensor that can perform accurate positioning operations with ease.

Compact | High Torque | High Response | Low Vibration | No Hunting | High Efficiency

What is the AZ Series with Built-in Battery-free Absolute Sensor



- Constant monitoring of a motor's position information with the built-in battery-free absolute sensor, without requiring an external sensor
- High reliability with closed loop control
- High efficiency technology reduces motor heat generation and saves energy

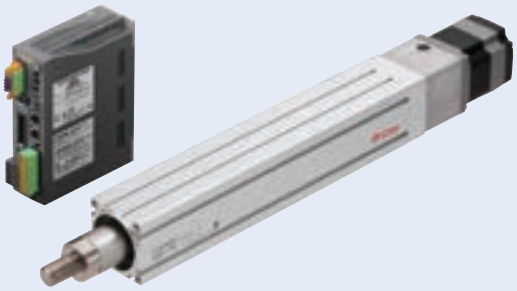
αSTEP?

These αSTEP stepper motor-based motors offer a unique form of hybrid control that combines the advantages of both open loop control and closed loop control. Under normal conditions, high responsiveness is achieved with open loop control. Under overload conditions, the motor continues to operate with position correction via closed loop control.

Because the motor, frame, guide rail, guide block, ball screw, and so on have already been selected and assembled, the design time and equipment startup time are shorter.
The αSTEP AZ Series is also equipped as the drive motor for unique hybrid control, offering both ease of use and reliability.

Electric Cylinders

EAC Series



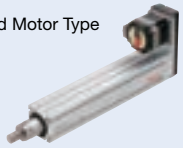
Some models have an electromagnetic brake option available.

Compact | High Rigidity | High Thrust Force

●Motor Installation Direction

Straight Type

Reversed Motor Type



●Guide Type

Standard

Type with a Shaft Guide

With Shaft Guide Cover

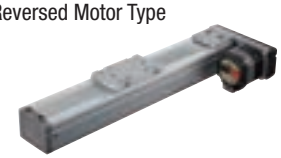
Various Combined Drivers

Combining both an electric linear slide and electric cylinder, the drivers and cables are common across the αSTEP AZ Series.

Built-in Controller Type	Pulse Input Type with RS-485 Communication	Pulse Input Type	Network Compatible	Multi-axis Driver
Set positioning data to the driver (up to 256). By using a network converter (sold separately), FA network control is possible.	The motor's position, speed, torque, alarm status and temperature can be monitored using RS-485 communication.	Controls the motor using a positioning module (pulse generator).	EtherNet/IP, EtherCAT, PROFINET	· Can be connected to a DC Input actuator · Drivers with 2-axis, 3-axis and 4-axis connections are available
				SSCNETIII/H, MECHATROLINK, EtherCAT 

The αSTEP AZ has a separate catalog. When selecting a product, please also use this individual catalog (V-184).

Selection of Electric Linear Slides

Series Type	Product Number Width × Height	Power Supply Voltage	Lead [mm]	Stroke [mm] 100 200 300 400 500 600 700 800 900 ≫ 1500	Max. Speed [mm/s] 200 400 600 800 ≫ 2000
EZS Series **α**STEP **AZ** Equipped Straight Type 	**EZSM3** 54×50 mm	AC Input	12	50～700	800
			6	50～700	400
		DC Input	12	50～700	600
			6	50～700	300
Reversed Motor Type 	**EZSM4** 74×50 mm	AC Input	12	50～700	800
			6	50～700	400
		DC Input	12	50～700	600
			6	50～700	300
For Cleanroom Use 	**EZSM6** 74×66.5 mm	AC Input	12	50～850	800
			6	50～850	400
		DC Input	12	50～850	600
			6	50～850	300

✻1 The dimensions without sensor rails.
✻2 The brackets ( ) indicate the value of the reversed motor type.

	Upper Line: Dynamic Permissible Moment [N·m] Lower Line: Static Permissible Moment [N·m]			Horizontal Transportable Mass [kg]	Vertical Transportable Mass [kg]	Repetitive Positioning Accuracy [mm]	Reference Page
	MP	MY	MR	10 20 30 40 50 60 70 80	10 20 30		
	4.2 26.4	4.2 26.4	10.5 52.0	7.5 15	3.5 7	±0.02	26
	4.2 26.4	4.2 26.4	10.5 52.0	7.5 15	3.5 7		27
	8 51.2	8 42.5	27.8 176	15 30	7 14 (12.5) *1	±0.02	28～29
	8 51.2	8 42.5	27.8 176	15 30	7 14 (12.5) *1		30～31
	45.7 290	37.5 187	55.6 340	30 60	15 30	±0.02	32
	45.7 290	37.5 187	55.6 340	30 60	15 30		33

Various Combined Drivers

Combining both an electric linear slide and electric cylinder, the drivers and cables are common among the α_{STEP} AZ Series.

Built-in Controller Type

Set positioning data sets in the driver (up to 256). By using a network converter (sold separately), FA network control is possible.

Pulse Input Type with RS-485 Communication

The motor's position, speed, torque, alarm status and temperature can be monitored using RS-485 communication.

Pulse Input Type

Controls the motor using a positioning module (pulse generator).

Network Compatible

EtherNet/IP
EtherCAT
PROFINET

Multi-axis Driver

- Can be connected to a DC Input actuator
- Drivers with 2-axis, 3-axis and 4-axis connections are available

SSCNET III/H
MECHATROLINK
EtherCAT

Selection of Electric Cylinders

Series Type	Product Number Width × Height	Power Supply Voltage	Lead [mm]	Stroke [mm] 100 200 300 400	Max. Speed [mm/s] 100 200 300 400 500 600 700 800	Thrust Force [N]
EAC Series **α**STEP **AZ** Series Equipped Straight Type 	**EACM2** 28 × 28 mm	DC Input	6	50~150	300	25
			3	50~150	150	50
	EACM4 42 × 42 mm	AC Input	12	50~300	600	~70
			6	50~300	300	~140 (125) *
		DC Input	12	50~300	600	~70
			6	50~300	300	~140 (125) *
Reversed Motor Type 	**EACM6** 60 × 60 mm	AC Input	12	50~300	600	~200
			6	50~300	300	~400 (360) *
		DC Input	12	50~300	600	~200
			6	50~300	300	~400 (360) *
EAC Series **α**STEP **AZ** Series Equipped Straight Type With Shaft Guide Cover 	**EACM2W** 28 × 86 mm	DC Input	6	50~150	300	25
			3	50~150	150	50
Reversed Motor Type With Shaft Guide Cover 						
	EACM4W 42 × 114 mm	AC Input	12	50~300	600	~70
			6	50~300	300	~140 (125) *
Straight Type Type with a Shaft Guide 		DC Input	12	50~300	600	~70
			6	50~300	300	~140 (125) *
	EACM6W 60 × 156 mm	AC Input	12	50~300	600	~200
			6	50~300	300	~400 (360) *
Reversed Motor Type Type with a Shaft Guide 		DC Input	12	50~300	600	~200
			6	50~300	300	~400 (360) *

*The brackets ( ) indicate the value of the reversed motor type.

	Push Force [N]	Horizontal Transportable Mass [kg]	Vertical Transportable Mass [kg]	Repetitive Positioning Accuracy [mm]	Reference Page
	40	7.5	2.5	±0.02	55
	80	15	5		
	100	15	7	±0.02	57～58
	200	30	14 (12.5)*		
	100	15	7	±0.02	59～60
	200	30	14 (12.5)*		
	400	30	15	±0.02	61～62
	500	60	30		
	400	30	15	±0.02	63～64
	500	60	30		
	40	7.5	2.0	±0.02	56
	80	15	4.5		
	100	15	6	±0.02	65～66
	200	30	13 (11.5)*		
	100	15	6	±0.02	67～68
	200	30	13 (11.5)*		
	400	30	13	±0.02	69～70
	500	60	28		
	400	30	13	±0.02	71～72
	500	60	28		

Various Combined Drivers

Combining both an electric linear slide and electric cylinder, the drivers and cables are common among the α_{STEP} AZ Series.

Built-in Controller Type

Set positioning data sets in the driver (up to 256). By using a network converter (sold separately), FA network control is possible.

Pulse Input Type with RS-485 Communication

The motor's position, speed, torque, alarm status and temperature can be monitored using RS-485 communication.

Pulse Input Type

Controls the motor using a positioning module (pulse generator).

Network Compatible

EtherNet/IP
EtherCAT
PROFINET

Multi-axis Driver

- Can be connected to a DC Input actuator
- Drivers with 2-axis, 3-axis and 4-axis connections are available

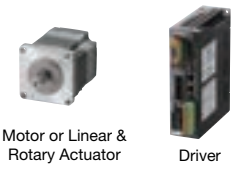
SSCNETIII/H
MECHATROLINK
EtherCAT

Different Drivers are Available to Match the Host System.

Built-in Controller Type FLEX AC DC

With this type, the operating data is set in the driver, and is then selected and executed from the host system. Host system connection and control are performed with any of the following: I/O, Modbus (RTU), RS-485 communication, or FA network. By using a network converter (sold separately), CC-Link or MECHATROLINK communication is possible.

Basic Setting (Factory Setting)



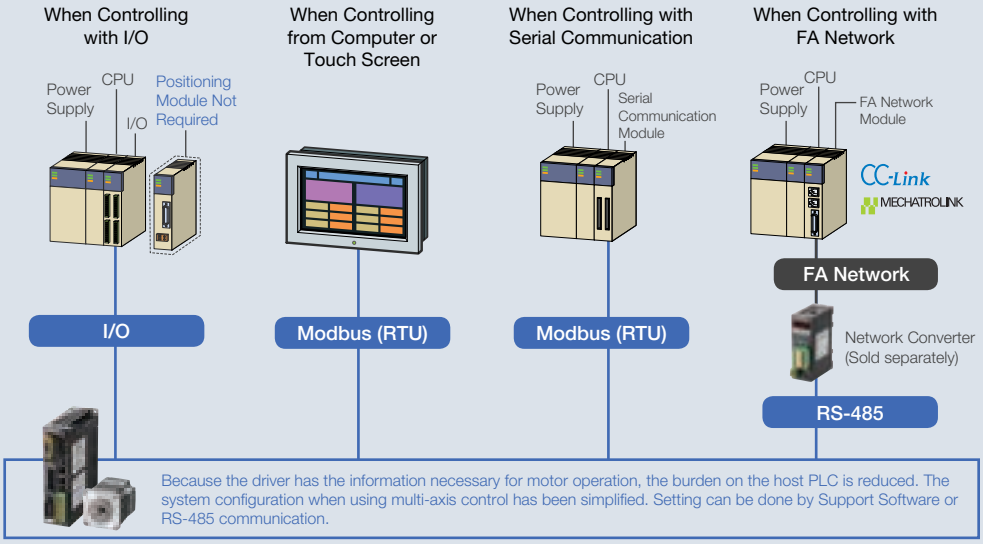
Motor or Linear & Rotary Actuator　Driver

Setting Operating Data　Changing Parameters

Support Software (**MEXE02**)

●Setting using RS-485 communication is also possible.

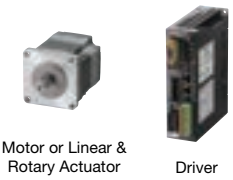
FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters.



Pulse Input Type with RS-485 Communication AC DC

This type executes operations by inputting pulses into the driver. The motor can be controlled using a positioning module (pulse generator) provided by the customer. The motor's status information (position, speed, torque, alarm, temperature, etc.) can be monitored using RS-485 communication.

Basic Setting (Factory Setting)

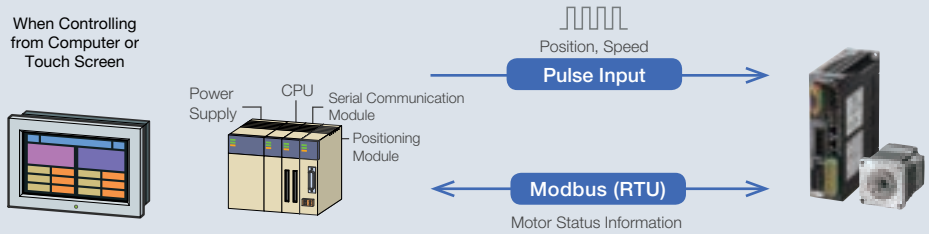


Motor or Linear & Rotary Actuator　Driver

I/O Assignment Changing　Changing Parameters

Support Software (**MEXE02**)

The alarm history can be checked and various conditions can be monitored using support software (**MEXE02**).



AC : Single-Phase 100-120 VAC, Single-Phase/Three-Phase 200-240 VAC Input

DC : 24/48 VDC Input

Pulse Input Type AC DC

This type executes operations by inputting pulses into the driver. The motor can be controlled using a positioning module (pulse generator) provided by the customer. The alarm history can be checked and various conditions can be monitored using Support Software (**MEXE02**).

Basic Setting (Factory Setting)

Motor or Linear & Rotary Actuator

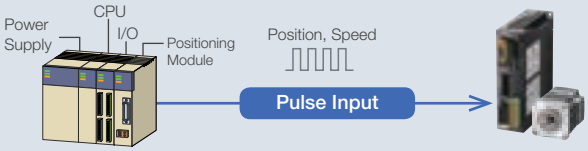
Driver

I/O Assignment Changing

Changing Parameters

Support Software (**MEXE02**)

The alarm history can be checked and various conditions can be monitored using support software (**MEXE02**).



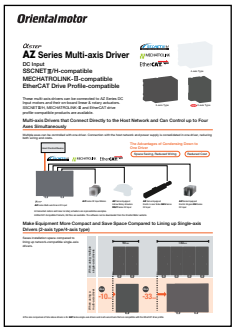
Network-Compatible Drivers AC DC

These drivers are compatible with EtherNet/IP, EtherCAT and PROFINET communication. They can be directly controlled from the network. The host control device and driver are connected with one communication cable, reducing wiring.

Network-Compatible Multi-axis Drivers DC

These multi-axis drivers are compatible with SSCNET Ⅲ/H, MECHATROLINK-Ⅲ and EtherCAT drive profiles. They can be connected to **AZ** Series DC Input motors and their on-board linear & rotary actuators. Drivers with 2-axis, 3-axis and 4-axis connections are available.

✻Product details are provided in the individual catalogs of the multi-axis drivers.



Individual Catalogs

The **AZ** Series Offers Easy Settings and Useful Functions.

AZ Series

Support Software **MEXE02**

Support Software can be downloaded from the Oriental Motor website.

Easy Setting and Easy Operation

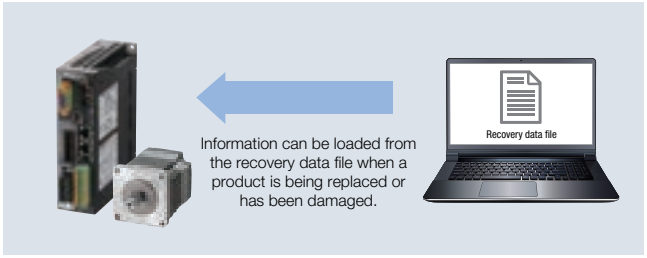
Basic settings can be performed with the Support Software **MEXE02**, such as operating data editing and parameter settings.
The sequence function also allows for advanced movement with simple input.

● Unit Setting Wizard

This is a function that allows the traveling amount, speed, etc. to be displayed and input in the designated units. Values can be displayed and set in the units that suit the mechanisms being used (mm, deg), eliminating unit conversion work and making it easy to input operating data.

● Creation of Recovery Data File

First, a file with the product's factory settings is created in preparation for product replacement during maintenance or when the product has been damaged.
Please be sure to create a recovery data file when using a linear & rotary actuator.

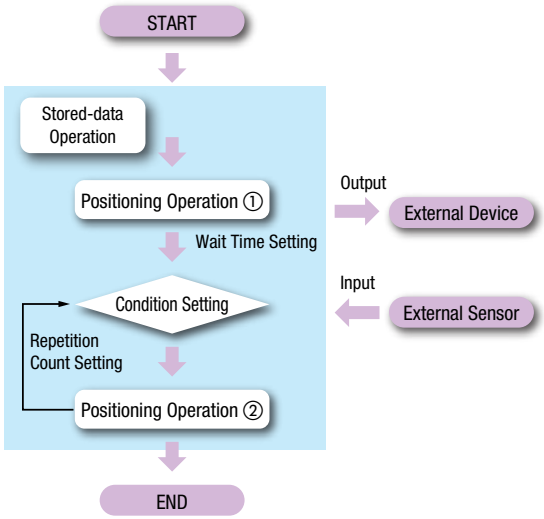


● Simplified Main Program with Sequence Function

AZ Series stored-data operations come with a variety of sequence functions, such as a timer setting between operations and linked operation, conditional branching, and loop counting.
These help simplify the host system's sequence program.

Built-in Controller Type

- Number of Positioning Operation Data Sets (Up to 256)
- General-Purpose I/O Signal Counts (Input 10, Output 6)
- Communication I/O Signal Counts (Input 16, Output 16)

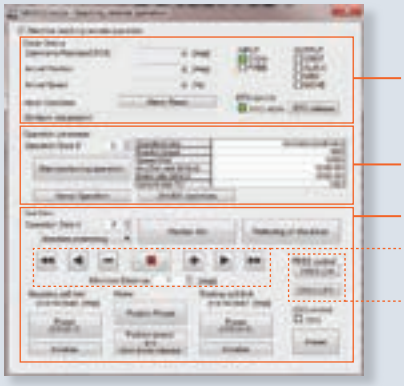


Test Function

This function enables you to operate a motor alone or check the connection to the host system.
Using this function when starting up the equipment can reduce the overall startup time.

● Teaching and Remote Operation On startup

Data setting software can be used to easily perform the home setting and also drive the motor. Teaching and test runs can be performed before connecting to the host system, shortening equipment startup time.



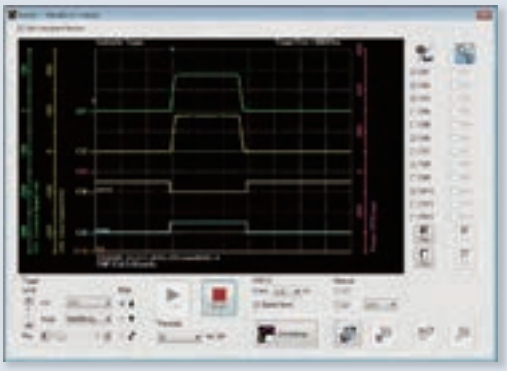
● I/O Test On startup For operation

Input signals can be monitored, and output signals can be forced to output. This is a useful function for host system wiring and checking remote I/O operations.

Various Monitoring Functions

● Waveform Monitor On startup

The operating status of the motor and output signals can be monitored like an oscilloscope. This can be used for equipment start-up and adjustment.

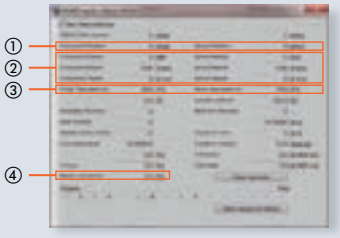


● Alarm Monitor On startup

When an abnormality occurs, the details of the abnormality, the operating status at the time of the occurrence, and the solution can be checked.

● Status Monitor On startup

In addition to being able to monitor the speed, motor, driver temperature and load factor during operations, the integrating rotation amount, etc. can be monitored from the start of use. The signal for each item can be output at your discretion, which leads to effective maintenance.



① Detects the actual position with respect to the command position.

② Detects the actual speed with respect to the command speed.

③ Detects the temperature of the motor encoder and driver.

④ Displays the current load factor with the output torque at the rotation speed at 100%.

● Multi-monitoring Compatibility

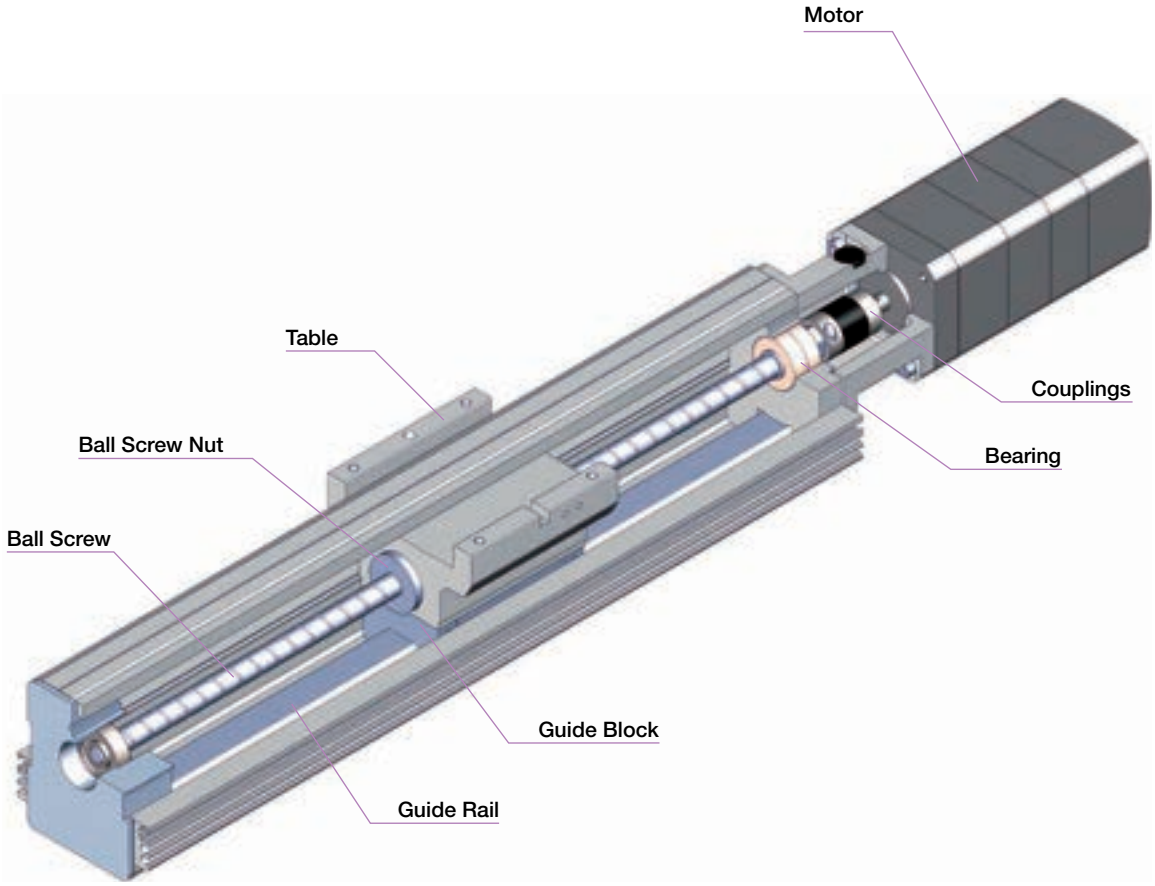
Multiple settings screens, such as data settings, test operations and monitoring, can be simultaneously opened and used on separate screens. This makes equipment start-up and adjustment easy to accomplish.

Overview of Electric Linear Slides

The electric linear slide is a positioning linear slide consisting of an αSTEP **AZ** Series motor and frame, guide rail, guide block, and ball screw. They are capable of linear drive in a precise, accurate manner through the rotation of a ball screw and guide.

Highly Accurate Positioning Operation

The ball screw is rotated by a motor to drive a table fixed to a ball screw nut.
The guide rail can guide accurate linear motion and support the weight of the load, making highly accurate positioning of a large load possible.



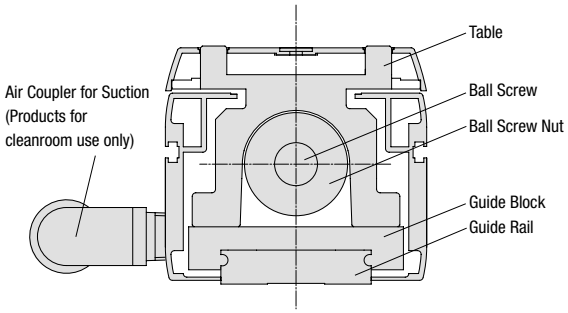
Types and Features of Electric Linear Slides

●EZS Series αSTEP AZ Series Equipped
EZS Series αSTEP AZ Series For Cleanroom Use

This is a compact and lightweight slide with an LM guide with ball retainer incorporated* in the frame. The slide is installed using the high-accuracy LM guide as a reference, allowing for traveling parallelism of 0.03 mm or less. The stainless sheet and roller structure suppresses dust caused by internal sliding.
Products for cleanrooom use have the same functions and performance as the **EZS** Series.

*"Ball retainer" and "LM guide" are registered trademarks of THK Co, Ltd.

- Use of Ball Screw
- Repetitive Positioning Accuracy ±0.02 mm



Straight Type

Reversed Motor Type (Right side/left side)
- This photo shows the left side type

For Cleanroom Use (Suction joint right direction/suction joint left direction)
- This photo shows the suction joint left type

Only the straight type is compatible for cleanroom use

List of Combinations

AC Input

Product Line	Series	Product Name (On-board motor name)
Electric Linear Slides	**EZS** Series	**EZSM3**□□□□□**AZAC** (**AZM46AC**) **EZSM3**□□□□□**AZMC** (**AZM46MC**) **EZSM4**□□□□□**AZAC** (**AZM46AC**) **EZSM4**□□□□□**AZMC** (**AZM46MC**) **EZSM6**□□□□□**AZAC** (**AZM66AC**) **EZSM6**□□□□□**AZMC** (**AZM66MC**)

+

Product Line	Type	Product Name
Driver	Built-in Controller Type	**AZD-AD**, **AZD-CD**
	Pulse Input Type with RS-485 Communication	**AZD-AX**, **AZD-CX**
	Pulse Input Type	**AZD-A**, **AZD-C**
	EtherNet/IP-compatible	**AZD-AEP**, **AZD-CEP**
	EtherCAT Drive Profile-compatible	**AZD-AED**, **AZD-CED**
	PROFINET-compatible	**AZD-APN**, **AZD-CPN**

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Product Line	Type	Product Name
Connection Cable Sets/ Flexible Connection Cable Sets	Connection Cable Set	For motor/encoder: **CC**◇◇◇**VZF** For motor/encoder/electromagnetic brake: **CC**◇◇◇**VZFB**
	Flexible Connection Cable Sets	For motor/encoder: **CC**◇◇◇**VZR** For motor/encoder/electromagnetic brake: **CC**◇◇◇**VZRB**

● A number or letter indicating the following is specified where the symbol is located in the product name.
- □: Motor installation direction or direction of air coupler for suction
- □: Sensor rail
- □: Table
- □: Lead
- □: Stroke
- ◇: Cable length

●DC Input

Product Line	Series	Product Name (On-board motor name)
Electric Linear Slides	**EZS** Series	**EZSM3**□□□□□**AZAK** (**AZM46AK**) **EZSM3**□□□□□**AZMK** (**AZM46MK**) **EZSM4**□□□□□**AZAK** (**AZM46AK**) **EZSM4**□□□□□**AZMK** (**AZM46MK**) **EZSM6**□□□□□**AZAK** (**AZM66AK**) **EZSM6**□□□□□**AZMK** (**AZM66MK**)

+

Product Line	Type	Product Name
Driver	Built-in Controller Type	**AZD-KD**
	Pulse Input Type with RS-485 Communication	**AZD-KX**
	Pulse Input Type	**AZD-K**
	EtherNet/IP-compatible	**AZD-KEP**
	EtherCAT Drive Profile-compatible	**AZD-KED**
	PROFINET-compatible	**AZD-KPN**

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Product Line	Type		Product Name
Connection Cable Sets/ Flexible Connection Cable Sets	For **EZSM3**, **EZSM4**, **EZSM6**	Connection Cable Set	For motor/encoder: **CC**◇◇◇**VZF2** For motor/encoder/electromagnetic brake: **CC**◇◇◇**VZFB2**
		Flexible Connection Cable Sets	For motor/encoder: **CC**◇◇◇**VZR2** For motor/encoder/electromagnetic brake: **CC**◇◇◇**VZRB2**

● A number or letter indicating the following is specified where the symbol is located in the product name.
- □: Motor installation direction or direction of air coupler for suction
- □: Sensor rail
- □: Table
- □: Lead
- □: Stroke
- ◇: Cable length

How to Read Specifications

This is how to read specifications, using electric linear slide specifications as an example.

Electric Linear Slide Specifications

①	Lead Screw Pitch		mm	12		6	
②	Electromagnetic Brake (Power off activated type)			With	Blank	With	Blank
③	Drive Method			Ball Screw			
④	Repetitive Positioning Accuracy		mm	±0.02			
⑤	Minimum Traveling Amount		mm	0.01			
⑥	Traveling Parallelism		mm	0.03			
⑦	Permissible Moment	Dynamic Permissible Moment	N·m	M_P:16.3 M_Y:4.8 M_R:15.0			
		Static Permissible Moment		M_P:58.3 M_Y:16.0 M_R:53.3			
⑧	Transportable Mass	Horizontal	kg	~15		~30	
		Vertical		~7	–	~14	–
⑨	Thrust		N	~70		~140	
⑩	Push Force		N	100		200	
⑪	Holding Force		N	70		140	
⑫	Maximum Speed by Stroke	50~500 mm	mm/s	800		400	
		550 mm		650		320	
		600 mm		550		270	
		650 mm		460		220	
		700 mm		400		200	

● Depending on the product, there may be usage restrictions or precautions. Refer to the notes on each product's page for details.

①Lead
Distance the table moves in the linear direction in one motor rotation.

②Electromagnetic Brake (Power off activated type)
There are products with and without a power off activated type electromagnetic brake. Please select the type with an electromagnetic brake when driving in a vertical direction. (Except for **EASM2**)

③Drive Method
This refers to the mechanism that converts rotation into linear motion.

④Repetitive Positioning Accuracy
A value indicating the degree of error that generates when positioning is performed repeatedly to the same position in the same direction (measured at a constant temperature and under a constant load).

⑤Minimum Traveling Amount
The minimum distance that a table can travel. (Factory setting)

⑥Traveling Parallelism
The range of motion in the height and lateral directions from the electric linear slide's installation surface to the tabletop.

⑦Permissible Moment
The load moment acts on the linear guide if the load's position is offset from the center of the table. The direction of action applies to 3 directions: pitching (M_P), yawing (M_Y), and rolling (M_R), depending on the position of the offset. The dynamic permissible moment is the moment during operation. The static permissible moment is the moment while the motor is not moving.

⑧Transportable Mass
- Horizontal direction
  The maximum mass that can be moved under rated operating performance when using the electric linear slide horizontally.
- Vertical direction
  The maximum mass that can be moved under rated operating performance when using the electric linear slide vertically.

⑨Thrust
The thrusting force the table exerts on the load during constant speed operation.

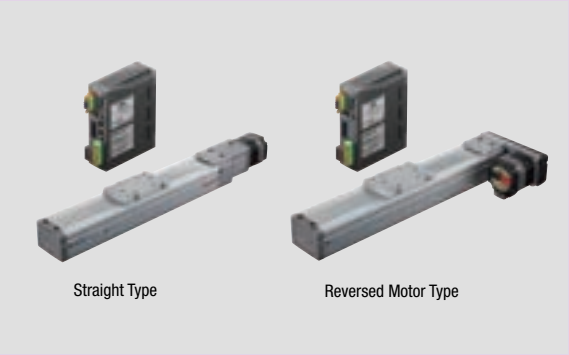
⑩Push Force
The pressure at push-motion operation.

⑪Holding Force
The holding force in the power ON state when the motor is stopped and when the electromagnetic brake is activated.

⑫Maximum Speed by Stroke
The maximum speed that the maximum transportable mass can be moved. The upper limit of speed is limited by the length of the stroke.

Electric Linear Slides

EZS Series αSTEP AZ Series Equipped



Straight Type　　Reversed Motor Type

The **EZS** Series contains compact linear slides that are highly rigid and have a simple dust-resistant structure. Motors from the αSTEP **AZ** Series are equipped. These electric linear slides can provide the unique advantages of stepper motors, such as high response, low vibration, and no hunting. Straight type and reversed motor type variations are available to match your installation space.

- High rigidity and compact guide
- Space saving by using reversed motors
- Simple dust-resistant structure prevent dust and other foreign objects from entering
- For cleanroom use

Features

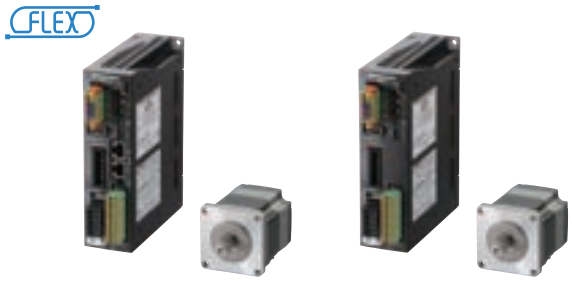
Wide Variety of Products to Match Installation Spaces and Environments

Slim, high accuracy, and high strength slides and the product line includes reversed motor types with shorter overall length. Standard motors from the **AZ** Series are equipped. Various products are available.

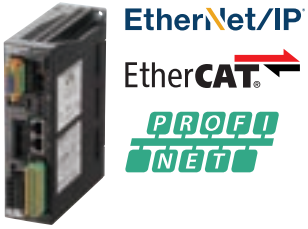
Motor

αSTEP **AZ** Series

- Built-in battery-free absolute sensor
- 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

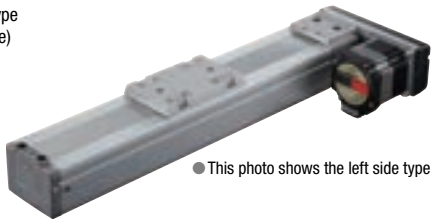


Network Compatible

Electric Linear Slides

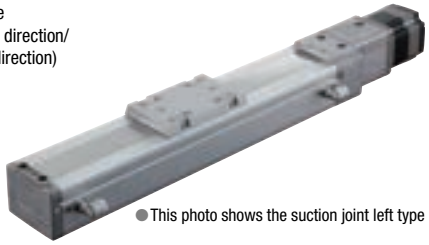
Straight Type

Reversed Motor Type
(Right side/left side)



● This photo shows the left side type

For Cleanroom Use
(Suction joint right direction/
suction joint left direction)



● This photo shows the suction joint left type

● This photo shows the **EZSM6** (width 74 mm × height 66.5 mm).

FLEX What is FLEX?

FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters.
These products enable simple connection and simple control, shortening the total lead time for system construction.

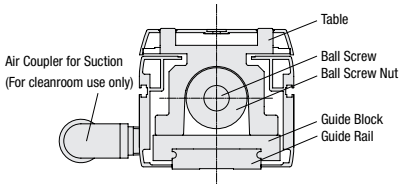
High Rigidity & High Accuracy

Even with the compact motor, a high permissible moment is possible due to the rigidity of the guide.

●High Rigidity and High Accuracy Guide

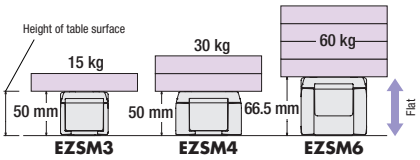
The guides used are ball retainer equipped LM guides* made by THK. The slim stainless steel guide increases the load moment. The highly accurate guide also enables traveling parallelism of 0.03 mm or less.

*"Ball retainer" and "LM guide" are registered trademarks of THK Co, Ltd.



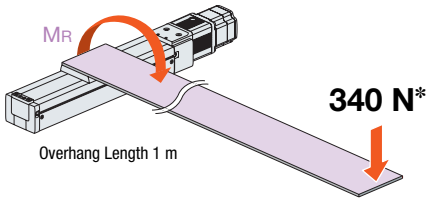
Traveling Parallelism	0.03 mm or Less

Slim Body with High Transportable Mass



●High Permissible Moment

A high load moment is achieved from a compact body.



*The load value was calculated using the static permissible moment 340 N·m for **EZSM6**.

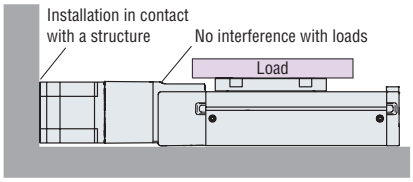
•Permissible Moment in the Rolling Direction [N·m]

Product Number	Static Permissible Moment*1	Dynamic Permissible Moment*2
EZSM3	52.0	10.5
EZSM4	176	27.8
EZSM6	340	55.6

*1 Load moment that the linear guide can support while the motor is stopped
*2 Load moment that the linear guide can support while the motor is in operation

Space Saving

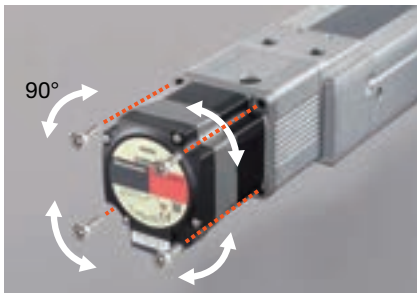
Effective utilization of the installation space is possible because the body does not interfere with the loads. Installation in contact with another structure is possible.



●Cable Outlet Can be Rotated

The motor can be rotated and installed in 4 possible directions*, so the direction of the cable outlet can be changed to match the installation location.

*Reversed motor type can be rotated in 3 possible directions.

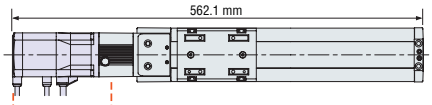


●Reversed Motor Type

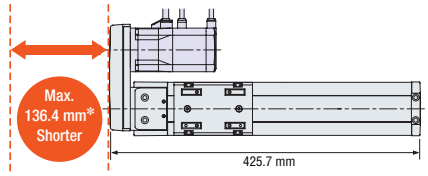
The length of the reversed motor type is up to 136.4 mm shorter than the straight type. This contributes to space saving with equipment.

EZSM6 With Electromagnetic Brake Stroke 200 mm

•Straight Type



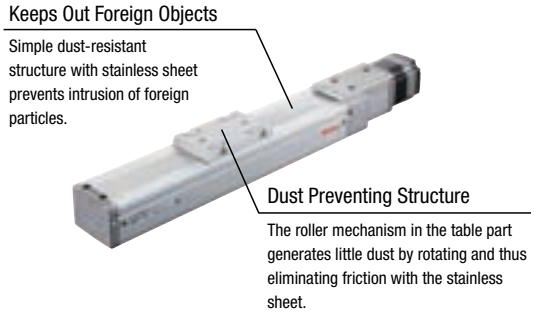
•Reversed Motor Type



*With Electromagnetic Brake

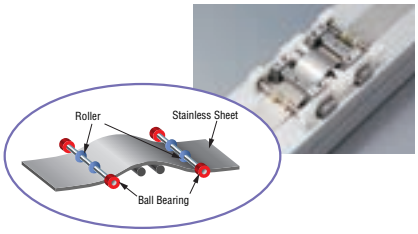
Simple Dust-proof Structure

The simple dust-resistant structure made from a stainless steel sheet and the roller mechanism in the table prevent dust and other foreign particles from entering.



●Low Dust-Generative Roller Mechanism (Patented)

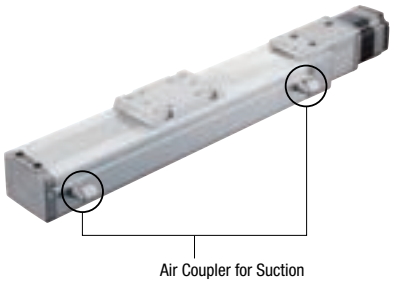
The low dust-generative roller mechanism in the table rotates smoothly against the stainless sheet to prevent the generation of dust via friction. In addition to dust prevention, it increases the durability of the stainless sheet.



Roller Structure

For Cleanroom Use

With the low dust-generative roller mechanism and clean grease, a clean degree meeting ISO Standard Class 3* (equivalent to FED Standard Class 1) has been achieved.


Air Coupler for Suction
Clean degree of ISO Standards Class 3 is achieved by using a suction pump.

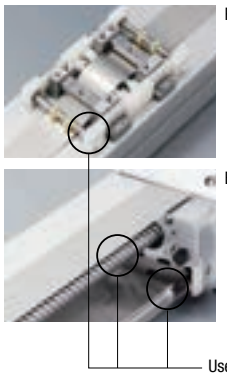
*ISO Standards Class 3

[ISO Standards Class 3]

Particle Diameter [μm]	0.1	0.3	0.5
Reduced Particulate Generation [Pieces/m^3]	1000 max.	102 max.	35 max.

●Uses Low Dust-generative Clean Grease

Low dust-generative clean grease is used on the ball screw, guides, bearing etc.

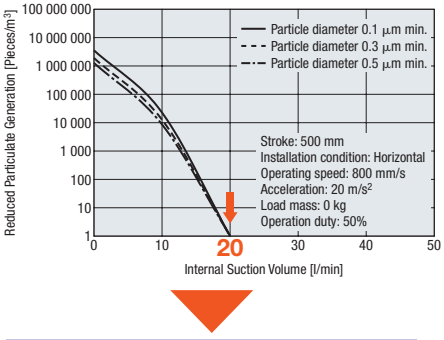


●Clean Degree of Class 3 is Achieved with Minimum Suction

For example, **EZSM3** can achieve the clean degree of ISO Standards Class 3, when the internal suction volume is approximately 20 ℓ/min or more.

•Correlation Diagram of Reduced Particulate Generation and Suction Volume

Example: EZSM3CLD050/EZSM3CRD050



By minimizing amount of suction by the pump, power consumption can also be reduced.

•Internal Suction Volume that Meets ISO Standards Class 3

Type	EZSM3	EZSM4	EZSM6
Internal Suction Volume [L/min]	20	30	30

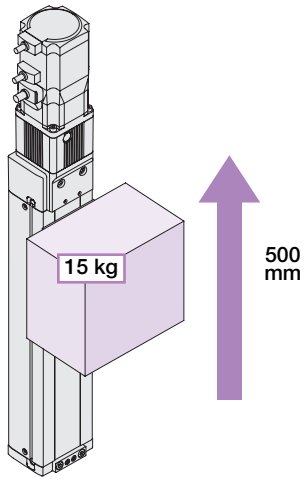
●For the correlation diagram of dust-generation and suction amount for **EZSM4** and **EZSM6**, refer to page 47.

High Speed Driving with Light Load or Heavy Load

High speed driving with a light load or heavy load can be achieved, even with inching operation.

<Product Used>
Product Name: **EZSM6**
Lead: 6 mm
Input Type: 200 VAC

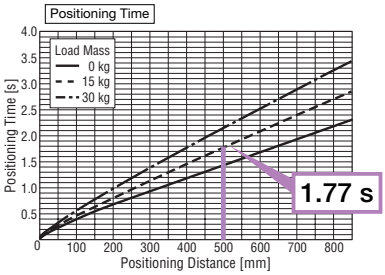
<Example operation>
Load Mass: 15 kg
Positioning Distance: 500 mm
Drive Direction: Vertical



High Speed Driving Even with a Heavy Load

High speed driving is possible, even if a heavy load is being transported vertically.

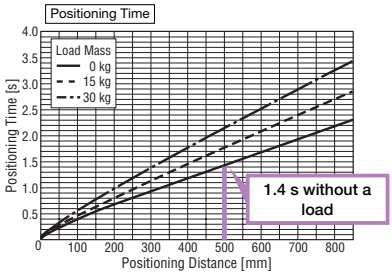
Load Mass: 15 kg
Positioning Distance: 500 mm
Positioning Time: 1.77 s
Operating Speed: 320mm/s
Acceleration: 1.5 m/s² (0.15 G)



High Speed Driving Even with a Light Load

High speed driving is still possible, even with no load on the return trip.

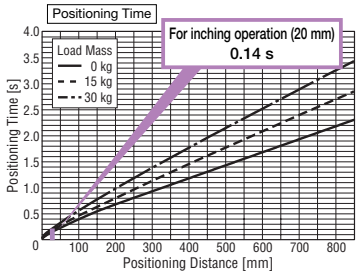
Load Mass: 0 kg
Positioning Distance: 500 mm
Positioning Time: 1.4 s
Operating Speed: 400mm/s
Acceleration: 2 m/s² (0.2 G)



High Speed Driving Even in Inching Operation

High speed driving is still possible, even in inching operation with minute distances.

Load Mass: 15 kg
Positioning Distance: 20 mm
Positioning Time: 0.14 s
Operating Speed: 200mm/s
Acceleration: 4.7 m/s² (0.5 G)



A Tool for Calculating the Shortest Positioning Time is Available

The tool can calculate positioning time, operating speed, acceleration, by simply selecting the electric linear slide type and entering some additional information. It can be downloaded from the Oriental Motor website.
https://www.orientalmotor.com.sg/service/#_10

Included

Type \ Included	Screws for Fixing	Operating Manual
Common to All Types	**EZSM3**, **EZSM4** M5×45 P0.8 (4 pieces) **EZSM6** M5×65 P0.8 (4 pieces)	1 Copy

The drivers and cables are the same as the α_{STEP} AZ series.

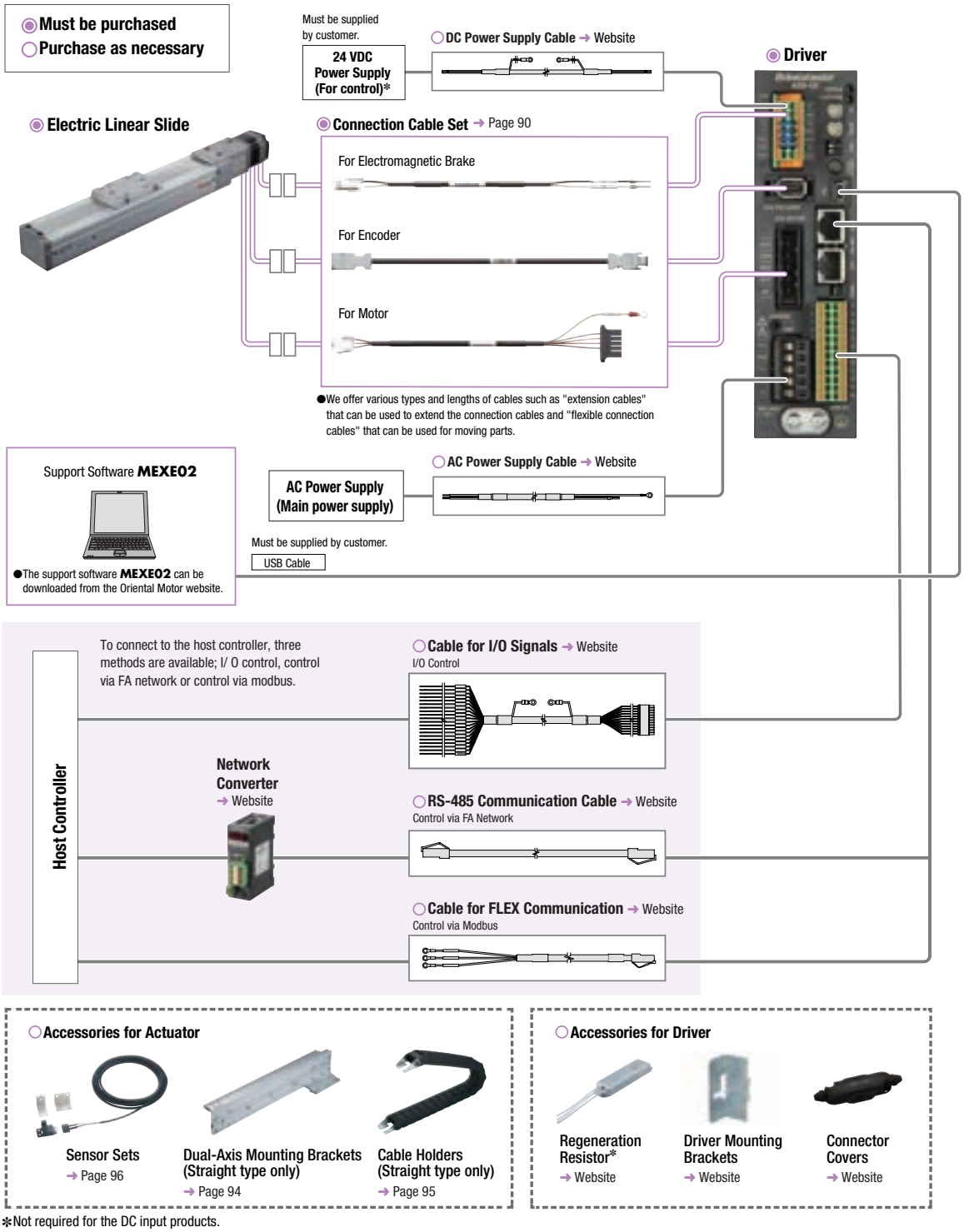
The drivers and cables to be combined with the actuators are the same as the α_{STEP} **AZ** series.
α_{STEP} **AZ** Series Brochure is available.
When selecting products, please also use the brochure.

System Configuration

●When an Electric Linear Slide with Electromagnetic Brake is Combined with a Built-in Controller Type Driver or with a Pulse Input Type Driver with RS-485 Communication
(The AC input and DC input are shown together. The product in the photograph is for AC input.)

An example of a configuration when I/O controlled using a built-in controller type driver or when controlled with RS-485 communication is shown below.

The electric linear slides, drivers, and connection cable sets/flexible connection cable sets must be ordered separately.



*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Linear Slide		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EZSM4D050AZMC	+	AZD-CD	+	CC010VZFB	CC24D010C-1
◉		◉		◉	○

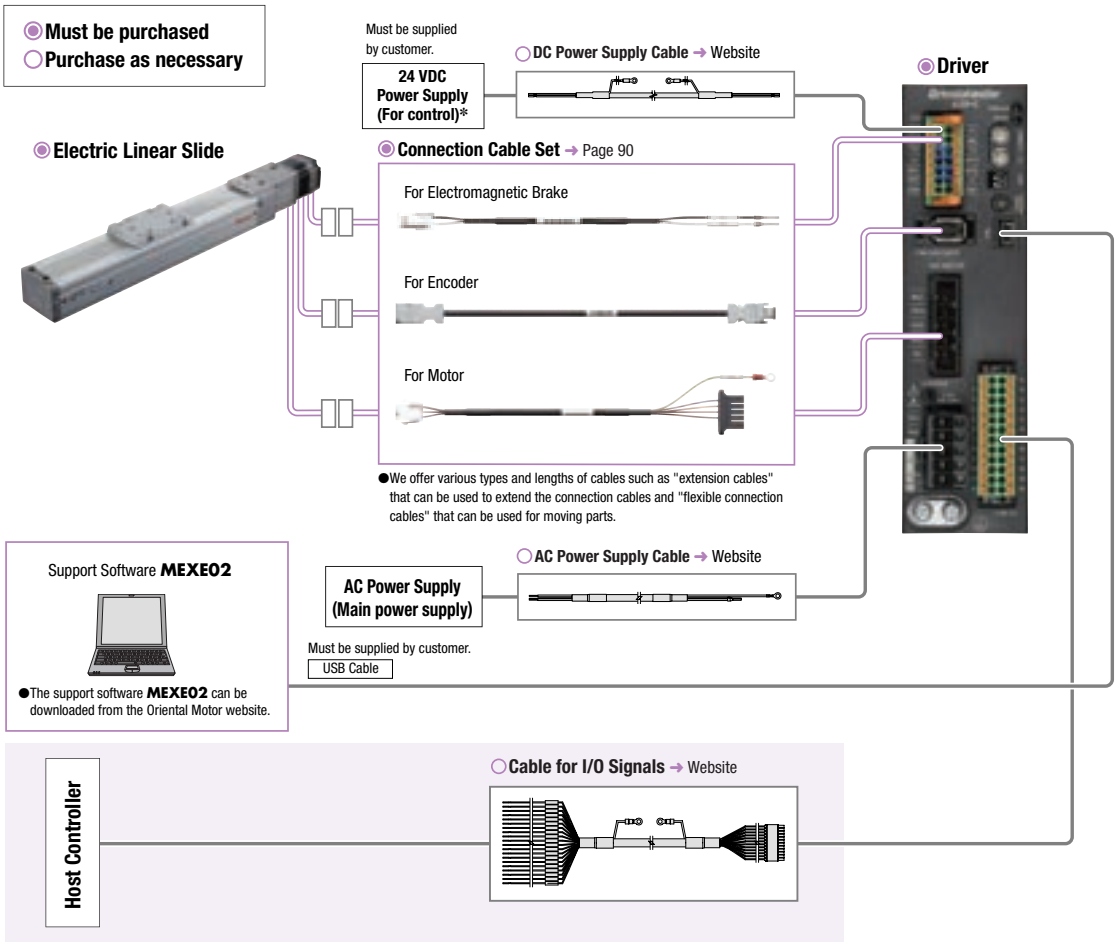
● The system configuration shown above is an example. Other combinations are also available.

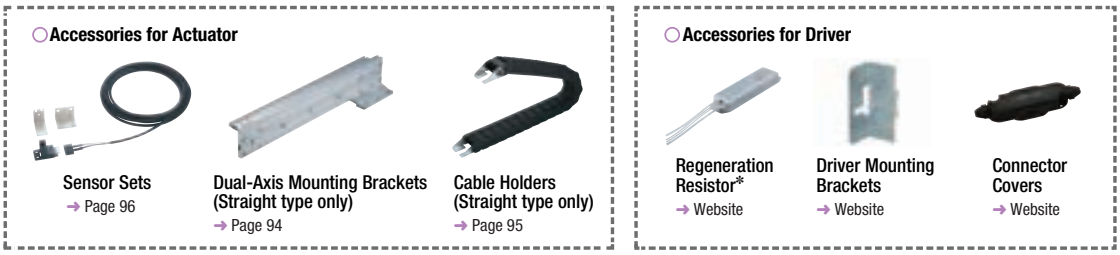
Note

● 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.

●When an Electric Linear Slide with Electromagnetic Brake is Combined with a Pulse Input Type Driver (The AC input and DC input are shown together. The product in the photograph is for AC input.)

An example of a single-axis system configuration with the programmable controller (built-in pulse generator function) is shown below. The electric linear slides, drivers, and connection cable sets/flexible connection cable sets must be ordered separately.





*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Linear Slide		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EZSM4D050AZMC	+	AZD-C	+	CC010VZFB	CC24D010C-1
◉		◉		◉	○

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

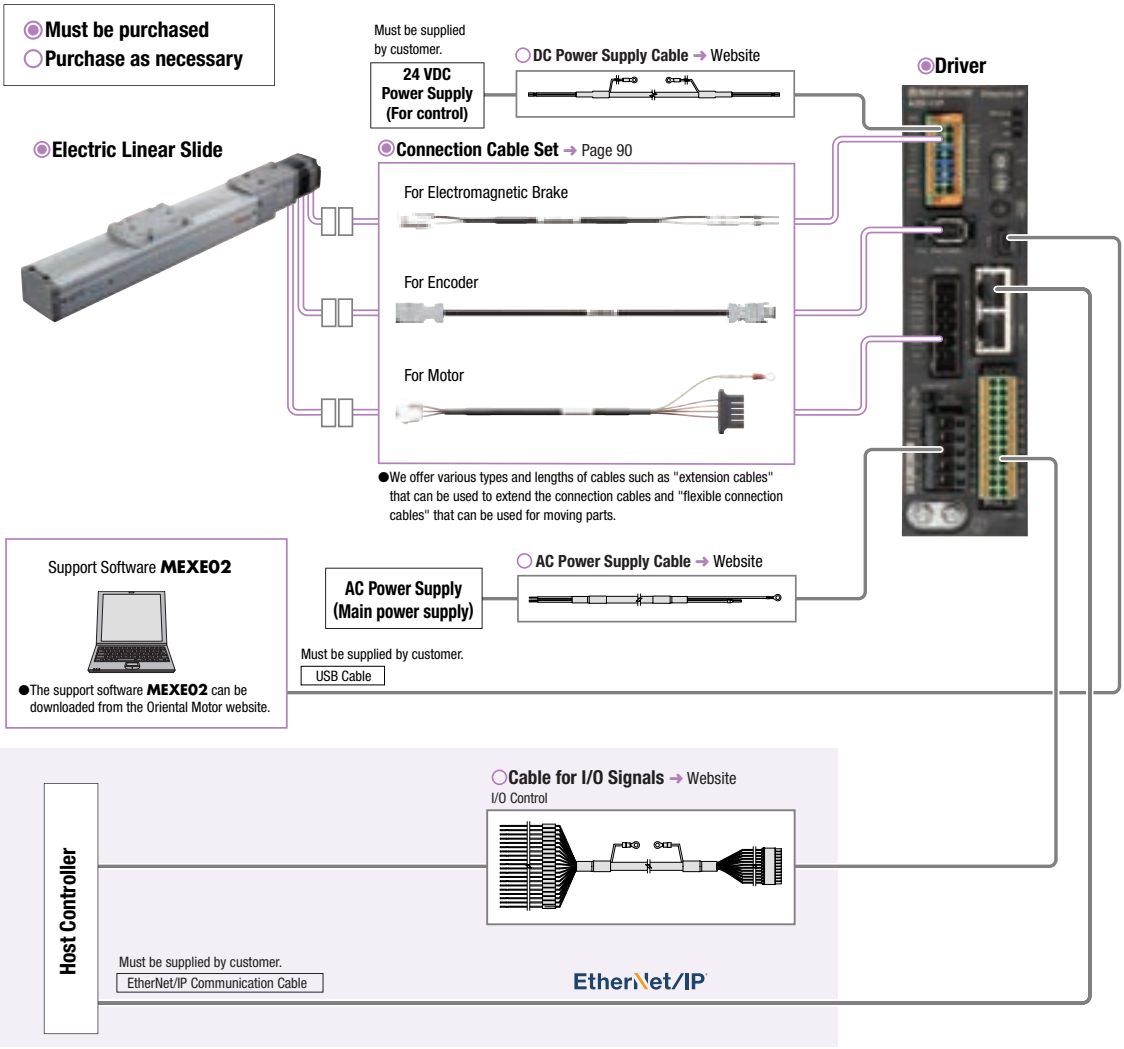
Note

● 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.

●When an Electric Linear Slide with Electromagnetic Brake is Combined with a Network Compatible Driver (The AC input and DC input are shown together. The product in the photograph is for AC input.)

An example of a configuration when I/O controlled using an EtherNet/IP Compatible driver or when controlled with EtherNet/IP is shown below.

The electric linear slides, drivers, and connection cable sets/flexible connection cable sets must be ordered separately.



○Accessories for Actuator

Sensor Sets → Page 96

Dual-Axis Mounting Brackets (Straight type only) → Page 94

Cable Holders (Straight type only) → Page 95

○Accessories for Driver

Regeneration Resistor* → Website

Driver Mounting Brackets → Website

Connector Covers → Website

*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Linear Slide		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EZSM4D050AZMC	+	AZD-CEP	+	CC010VZFB	CC24D010C-1
◉		◉		◉	○

● 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.

EZSM3: Width 54 mm×Height 50 mm Straight Type / Reversed Motor Type / For Cleanroom Use AC Input

Product Number

Model	Motor Orientation*1	Direction of Air Coupler for Suction*2	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM3		CR	D	005	AZ	A	C
EZSM3	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side) Blank: Straight Type	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

*1 Only straight type is compatible for Cleanroom Use.

*2 For Cleanroom Use products, the direction of the air coupler for suction is required.

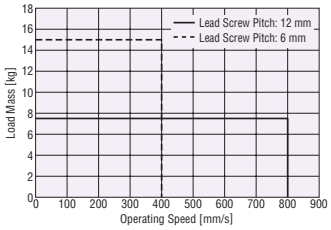
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:4.2 M_Y:4.2 M_R:10.5			
	Static Permissible Moment		M_P:26.4 M_Y:26.4 M_R:52.0			
Transportable Mass	Horizontal	kg	7.5 max.		15 max.	
	Vertical		3.5 max.	—	7 max.	—
Thrust		N	43 max.		86 max.	
Push Force		N	100		200	
Holding Force		N	70		140 [125]	
Maximum Speed by Stroke	50 to 500 mm	mm/s	800		400	
	550 mm		650		320	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

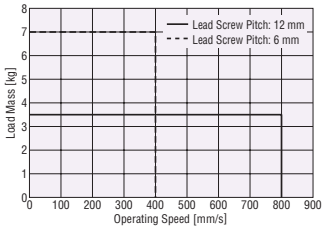
- The brackets [ ] indicate the value of the reversed motor type.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

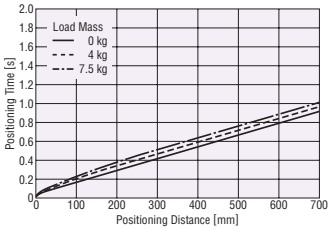


Positioning Distance – Positioning Time

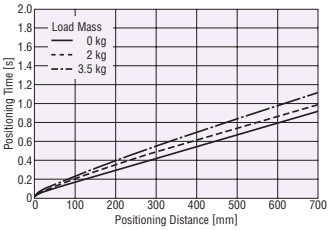
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

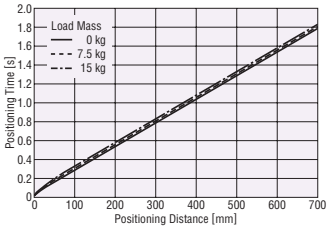


Positioning Time Coefficient

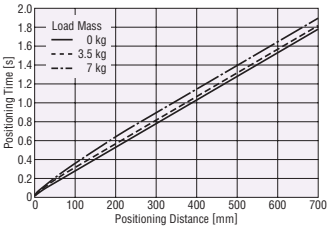
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.1	1.2	1.1	1.0
600	1.4	1.3	1.3	1.4	1.3	1.2
650	1.7	1.6	1.5	1.7	1.6	1.4
700	1.9	1.8	1.8	1.9	1.8	1.6

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.2	1.2	1.2	1.2
600	1.5	1.4	1.4	1.5	1.4	1.4
650	1.8	1.8	1.7	1.8	1.8	1.7
700	2.0	1.9	1.9	2.0	1.9	1.9

Note

- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 35, 36

EZSM3: Width 54 mm×Height 50 mm Straight Type / Reversed Motor Type / For Cleanroom Use DC Input

Product Number

Model	Motor Orientation*1	Direction of Air Coupler for Suction*2	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM3		CR	D	005	AZ	A	K
EZSM3	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side) Blank: Straight Type	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

*1 Only straight type is compatible for Cleanroom Use.
*2 For Cleanroom Use products, the direction of the air coupler for suction is required.

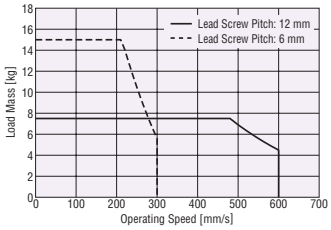
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:4.2 M_Y:4.2 M_R:10.5			
	Static Permissible Moment		M_P:26.4 M_Y:26.4 M_R:52.0			
Transportable Mass	Horizontal	kg	7.5 max.		15 max.	
	Vertical		3.5 max.	–	7 max.	–
Thrust		N	43 max.		86 max.	
Push Force		N	100		200	
Holding Force		N	70		140 [125]	
Maximum Speed by Stroke	50 to 550 mm	mm/s	600		300	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

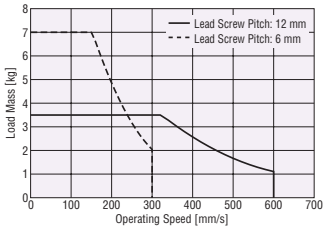
- The brackets [ ] indicate the value of the reversed motor type.
- For the specifications and characteristics of 48 VDC input, please contact the nearest Oriental Motor sales office.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may be lower depending on the ambient temperature and the length of the motor cable.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

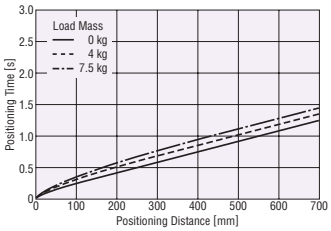


Positioning Distance – Positioning Time

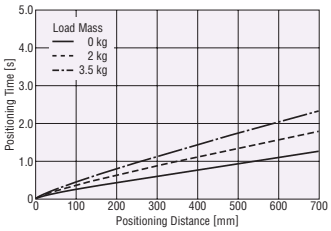
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

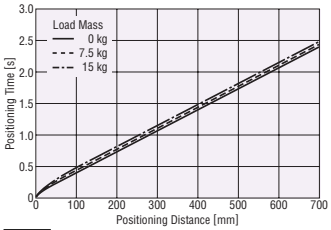


Positioning Time Coefficient

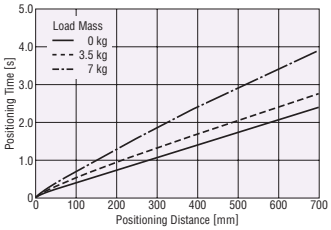
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.0	1.0	1.1	1.0	1.0
650	1.2	1.2	1.1	1.2	1.0	1.0
700	1.4	1.3	1.3	1.4	1.0	1.0

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.1	1.1	1.1	1.0	1.0
650	1.3	1.3	1.3	1.3	1.2	1.0
700	1.5	1.5	1.4	1.5	1.3	1.0

Note
- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 35, 36

EZSM4: Width 74 mm×Height 50 mm Straight Type / For Cleanroom Use AC Input

Product Number

Model	Direction of Air Coupler for Suction✻	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM4	CR	D	005	AZ	A	C
EZSM4	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

✻Only straight type is compatible for Cleanroom Use. For Cleanroom Use products, the direction of the air coupler for suction is required.

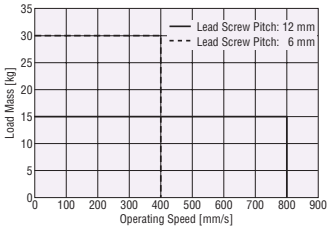
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:8.0 M_Y:8.0 M_R:27.8			
	Static Permissible Moment		M_P:51.2 M_Y:42.5 M_R:176.0			
Transportable Mass	Horizontal	kg	15 max.		30 max.	
	Vertical		7 max.	—	14 max.	—
Thrust		N	70 max.		140 max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed by Stroke	50 to 500 mm	mm/s	800		400	
	550 mm		650		320	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

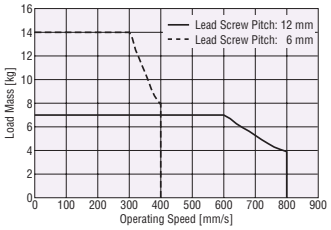
● Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Load Mass

● Horizontal Direction Installation (Acceleration 3 m/s²)



● Vertical Direction Installation (Acceleration 2 m/s²)

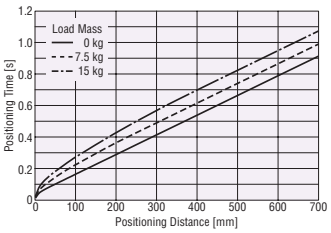


Positioning Distance – Positioning Time

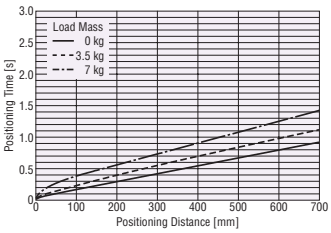
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

● Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

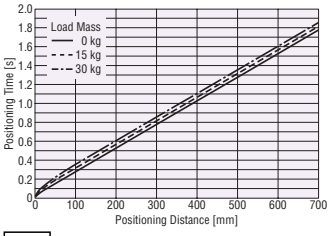


Positioning Time Coefficient

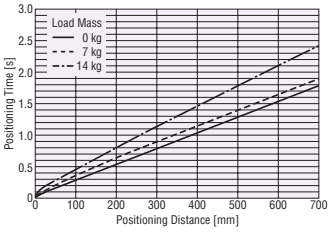
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.1	1.1	1.2	1.0	1.0
600	1.4	1.3	1.2	1.4	1.2	1.0
650	1.7	1.5	1.4	1.7	1.4	1.2
700	1.9	1.8	1.6	1.9	1.6	1.3

● Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	7 kg	14 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.2	1.2	1.2	1.0
600	1.5	1.4	1.4	1.5	1.4	1.1
650	1.8	1.7	1.7	1.8	1.7	1.3
700	2.0	1.9	1.9	2.0	1.9	1.5

Note

● The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 37

EZSM4: Width 74 mm×Height 50 mm Reversed Motor Type AC Input

Product Number

Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM4		D	005	AZ	A	C
EZSM4	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side)	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ～ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

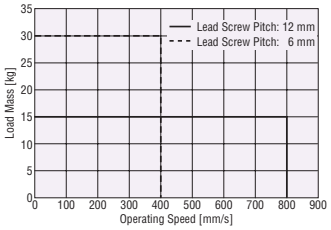
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:8.0 M_Y:8.0 M_R:27.8			
	Static Permissible Moment		M_P:51.2 M_Y:42.5 M_R:176.0			
Transportable Mass	Horizontal	kg	15 max.		30 max.	
	Vertical		7 max.	—	12.5 max.	—
Thrust		N	70 max.		125 max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed by Stroke	50 to 500 mm	mm/s	800		400	
	550 mm		650		320	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

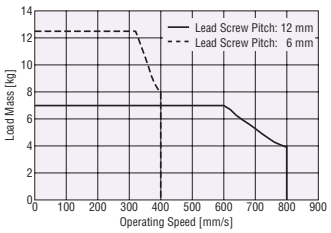
● Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Load Mass

● Horizontal Direction Installation (Acceleration 3 m/s²)



● Vertical Direction Installation (Acceleration 2 m/s²)

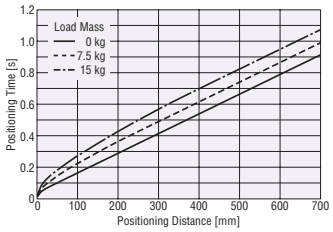


Positioning Distance – Positioning Time

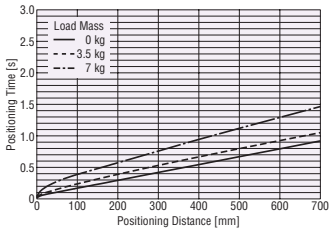
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

● Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

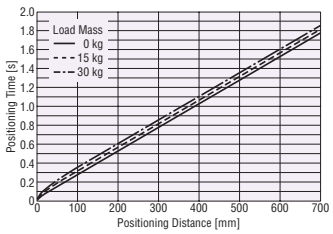


Positioning Time Coefficient

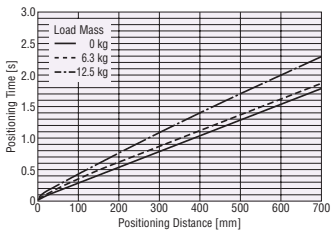
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.1	1.1	1.2	1.0	1.0
600	1.4	1.3	1.2	1.4	1.2	1.0
650	1.7	1.5	1.4	1.7	1.4	1.2
700	1.9	1.8	1.6	1.9	1.6	1.3

● Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	6.3 kg	12.5 kg
50 to 500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.2	1.2	1.2	1.0
600	1.5	1.4	1.4	1.5	1.4	1.2
650	1.8	1.7	1.7	1.8	1.7	1.4
700	2.0	1.9	1.9	2.0	1.9	1.6

Note

● The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 38

EZSM4: Width 74 mm×Height 50 mm Straight Type / For Cleanroom Use DC Input

Product Number

Model	Direction of Air Coupler for Suction✻	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM4	CR	D	005	AZ	A	K
EZSM4	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

✻Only straight type is compatible for Cleanroom Use. For Cleanroom Use products, the direction of the air coupler for suction is required.

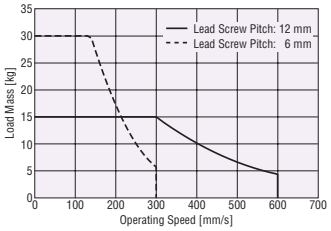
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:8.0 M_Y:8.0 M_R:27.8			
	Static Permissible Moment		M_P:51.2 M_Y:42.5 M_R:176.0			
Transportable Mass	Horizontal	kg	15 max.		30 max.	
	Vertical		7 max.	—	14 max.	—
Thrust		N	70 max.		140 max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed by Stroke	50 to 550 mm	mm/s	600		300	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

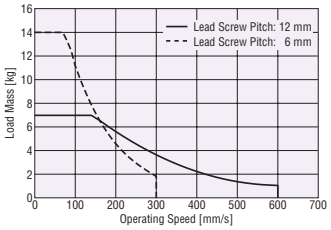
- For the specifications and characteristics of 48 VDC input, please contact the nearest Oriental Motor sales office.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may be lower depending on the ambient temperature and the length of the motor cable.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

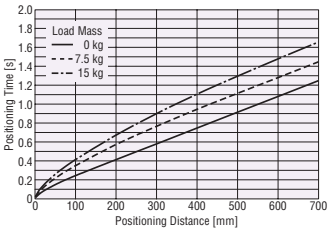


Positioning Distance – Positioning Time

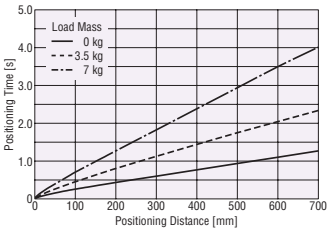
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

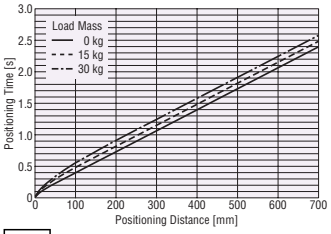


Positioning Time Coefficient

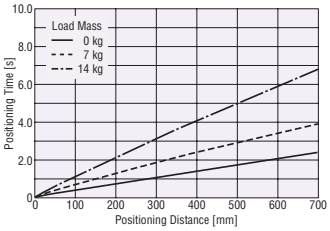
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.0	1.0	1.1	1.0	1.0
650	1.2	1.1	1.1	1.2	1.0	1.0
700	1.4	1.3	1.2	1.4	1.0	1.0

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	7 kg	14 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.1	1.1	1.1	1.0	1.0
650	1.3	1.3	1.3	1.3	1.0	1.0
700	1.5	1.4	1.4	1.5	1.0	1.0

Note

- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides ➜ Page 37

EZSM4: Width 74 mm×Height 50 mm Reversed Motor Type DC Input

Product Number

Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM4		D	005	AZ	A	K
EZSM4	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side)	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ～ **070**: 700 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

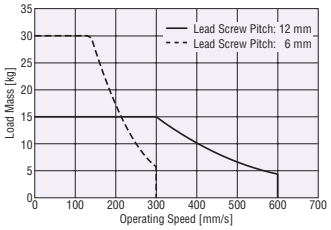
Electric Linear Slide Specifications

			12		6	
Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:8.0 M_Y:8.0 M_R:27.8			
	Static Permissible Moment		M_P:51.2 M_Y:42.5 M_R:176.0			
Transportable Mass	Horizontal	kg	15 max.		30 max.	
	Vertical		7 max.	–	12.5 max.	–
Thrust		N	70 max.		125 max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed by Stroke	50 to 550 mm	mm/s	600		300	
	600 mm		550		270	
	650 mm		460		220	
	700 mm		400		200	

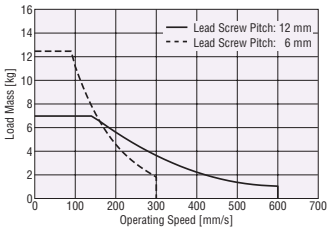
- For the specifications and characteristics of 48 VDC input, please contact the nearest Oriental Motor sales office.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may be lower depending on the ambient temperature and the length of the motor cable.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

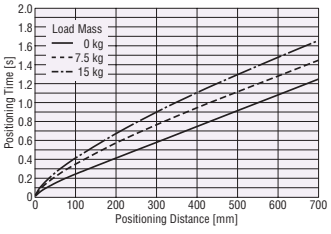


Positioning Distance – Positioning Time

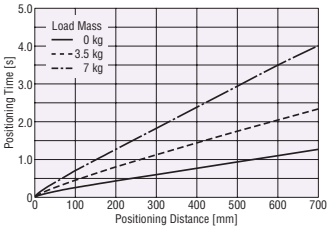
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

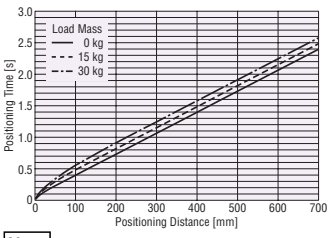


Positioning Time Coefficient

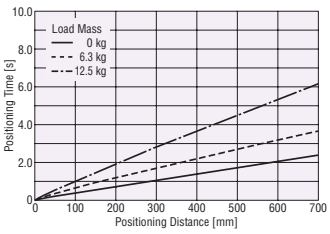
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.0	1.0	1.1	1.0	1.0
650	1.2	1.1	1.1	1.2	1.0	1.0
700	1.4	1.3	1.2	1.4	1.0	1.0

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	6.3 kg	12.5 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.1	1.1	1.1	1.0	1.0
650	1.3	1.3	1.3	1.3	1.0	1.0
700	1.5	1.4	1.4	1.5	1.0	1.0

Note

- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 38

EZSM6: Width 74 mm×Height 66.5 mm Straight Type / Reversed Motor Type / For Cleanroom Use AC Input

Product Number

Model	Motor Orientation*1	Direction of Air Coupler for Suction*2	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM6		CR	D	005	AZ	A	C
EZSM6	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side) Blank: Straight Type	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **085**: 850 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

*1 Only straight type is compatible for Cleanroom Use.

*2 For Cleanroom Use products, the direction of the air coupler for suction is required.

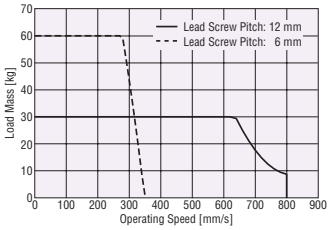
Electric Linear Slide Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:45.7 M_Y:37.5 M_R:55.6			
	Static Permissible Moment		M_P:290.0 M_Y:187.0 M_R:340.0			
Transportable Mass	Horizontal	kg	30 max.		60 max.	
	Vertical		15 max.	—	30 max.	—
Thrust		N	200 max.		400 [360] max.	
Push Force		N	400		500	
Holding Force		N	200		400 [360]	
Maximum Speed by Stroke	50 to 550 mm	mm/s	800		400	
	600 mm				350	
	650 mm		640		300	
	700 mm		550		260	
	750 mm		470		230	
	800 mm		420		200	
	850 mm		360		180	

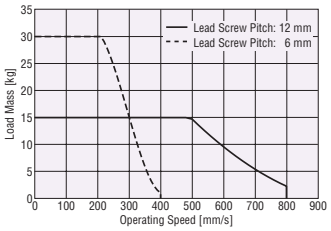
- The brackets [ ] indicate the value of the reversed motor type.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

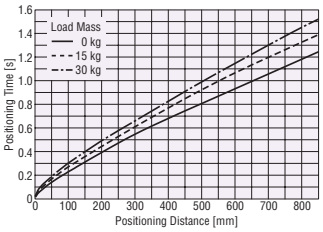


Positioning Distance – Positioning Time

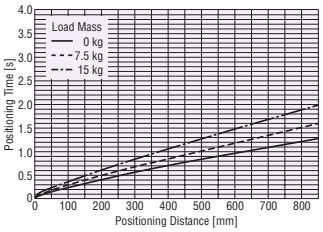
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

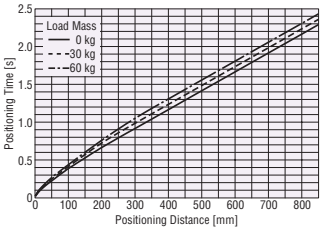


Positioning Time Coefficient

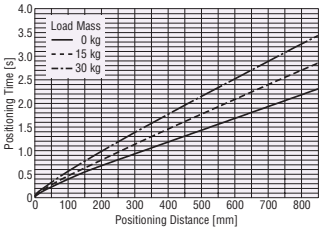
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50 to 600	1.0	1.0	1.0	1.0	1.0	1.0
650	1.1	1.0	1.0	1.1	1.0	1.0
700	1.3	1.1	1.0	1.2	1.1	1.0
750	1.5	1.3	1.2	1.4	1.2	1.0
800	1.6	1.5	1.4	1.6	1.3	1.1
850	1.9	1.7	1.6	1.9	1.5	1.2

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	30 kg	60 kg	0 kg	15 kg	30 kg
50 to 550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.1	1.1	1.1	1.1	1.0	1.0
650	1.2	1.2	1.2	1.2	1.0	1.0
700	1.4	1.4	1.3	1.4	1.2	1.0
750	1.6	1.6	1.5	1.6	1.3	1.1
800	1.9	1.8	1.7	1.8	1.5	1.3
850	2.1	2.0	2.0	2.1	1.7	1.4

Note

- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 39, 40

EZSM6: Width 74 mm×Height 66.5 mm Straight Type / Reversed Motor Type / For Cleanroom Use DC Input

Product Number

Model	Motor Orientation*1	Direction of Air Coupler for Suction*2	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EZSM6		CR	D	005	AZ	A	K
EZSM6	**L**: Reversed Motor Type (Left Side) **R**: Reversed Motor Type (Right Side) Blank: Straight Type	**CL**: Left Direction **CR**: Right Direction	**D**: 12 mm **E**: 6 mm	**005**: 50 mm **010**: 100 mm **015**: 150 mm ~ **085**: 850 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

*1 Only straight type is compatible for Cleanroom Use.
*2 For Cleanroom Use products, the direction of the air coupler for suction is required.

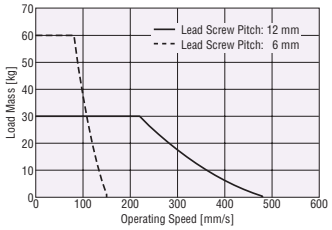
Electric Linear Slide Specifications

			12		6	
Lead Screw Pitch		mm				
Electromagnetic Brake (Power off activated type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Traveling Parallelism		mm	0.03			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:45.7 M_Y:37.5 M_R:55.6			
	Static Permissible Moment		M_P:290.0 M_Y:187.0 M_R:340.0			
Transportable Mass	Horizontal	kg	30		60 max.	
	Vertical		15 max.	—	30 max.	—
Thrust		N	200 max.		400 [360] max.	
Push Force		N	400		500	
Holding Force		N	200		400 [360]	
Maximum Speed by Stroke	50 to 650 mm	mm/s	600		300	
	700 mm		550		260	
	750 mm		470		230	
	800 mm		420		200	
	850 mm		360		180	

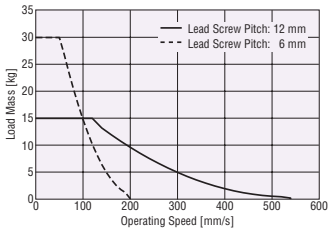
- The brackets [ ] indicate the specifications for the reversed motor type.
- For the specifications and characteristics of 48 VDC input, please contact the nearest Oriental Motor sales office.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may be lower depending on the ambient temperature and the length of the motor cable.

Operating Speed – Load Mass

Horizontal Direction Installation (Acceleration 3 m/s²)



Vertical Direction Installation (Acceleration 2 m/s²)

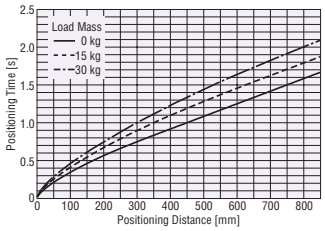


Positioning Distance – Positioning Time

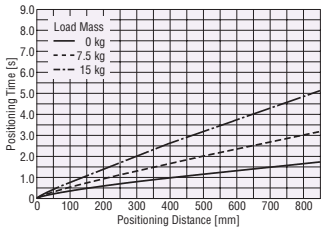
The positioning time (reference) can be checked from the positioning distance.
A reference value for the positioning time can be calculated by multiplying the positioning time calculated from the graph with the positioning time coefficient for the applicable stroke.

Lead Screw Pitch 12 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation

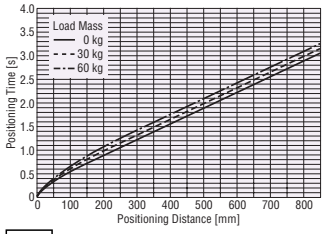


Positioning Time Coefficient

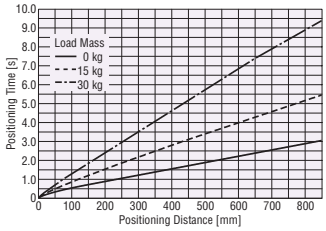
Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50 to 650	1.0	1.0	1.0	1.0	1.0	1.0
700	1.0	1.0	1.0	1.0	1.0	1.0
750	1.2	1.1	1.0	1.1	1.0	1.0
800	1.3	1.2	1.1	1.2	1.0	1.0
850	1.5	1.3	1.2	1.4	1.0	1.0

Lead Screw Pitch 6 mm

◇Horizontal Direction Installation



◇Vertical Direction Installation



Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Direction Installation			Vertical Direction Installation		
	0 kg	30 kg	60 kg	0 kg	15 kg	30 kg
50 to 650	1.0	1.0	1.0	1.0	1.0	1.0
700	1.1	1.1	1.1	1.1	1.0	1.0
750	1.2	1.2	1.2	1.2	1.0	1.0
800	1.4	1.4	1.3	1.4	1.0	1.0
850	1.6	1.5	1.5	1.6	1.0	1.0

Note
- The starting speed should be 6 mm/s or less.

Dimensions Electric Linear Slides → Page 39, 40

Electromagnetic Brake Specification

Product Name		EZSM3, EZSM4	EZSM6
Brake Type		Power Off Activated Type	
Power Supply Voltage		24 VDC±5%*	
Power Supply Current	A	0.08	0.25
Time Rating		Continuous	

*For the type with an electromagnetic brake, a 24 VDC ±4% specification applies if the wiring distance between the motor and driver is extended to 20 m using a cable.

General Specifications

		AC Input	DC Input
Thermal Class		130 (B) [UL/CSA: 105 (A)]	
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: ・Case – Motor Windings ・Case – Electromagnetic Brake Windings*1	
Dielectric Strength		Sufficient to withstand the following for 1 minute: ・Case – Motor Windings 1.5 kVAC, 50 Hz or 60 Hz ・Case – Electromagnetic Brake Windings*1 1.5 kVAC, 50 Hz or 60 Hz	Sufficient to withstand the following for 1 minute: ・Case – Motor Windings 1.0 kVAC, 50 Hz or 60 Hz ・Case – Electromagnetic Brake Windings*1 1.0 kVAC, 50 Hz or 60 Hz
Operating Environment (In operation)	Ambient Temperature	0 to +40°C (Non-freezing)*3	
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection*2		IP66 (excluding installation surfaces and connector locations)	
Multiple Rotation Detection Range in Power OFF State		±900 Rotation (1800 Rotations)	

*1 Only for products with an electromagnetic brake.
*2 Only for motor parts. The degree of protection of the electric linear slide is IP20.
*3 It is based on Oriental Motor's measurement conditions.

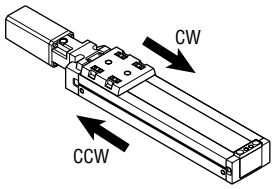
Note

● Disconnect the motor and driver when taking an insulation resistance measurement or performing a dielectric voltage withstand test. Also, do not perform these tests on the absolute sensor part of the motor.

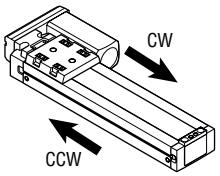
Travel Direction

At the time of shipment, the travel direction of the table is set as follows.

Motor Orientation: Straight Type



Motor Orientation: Reversed Motor Type



Installation of the Actuator

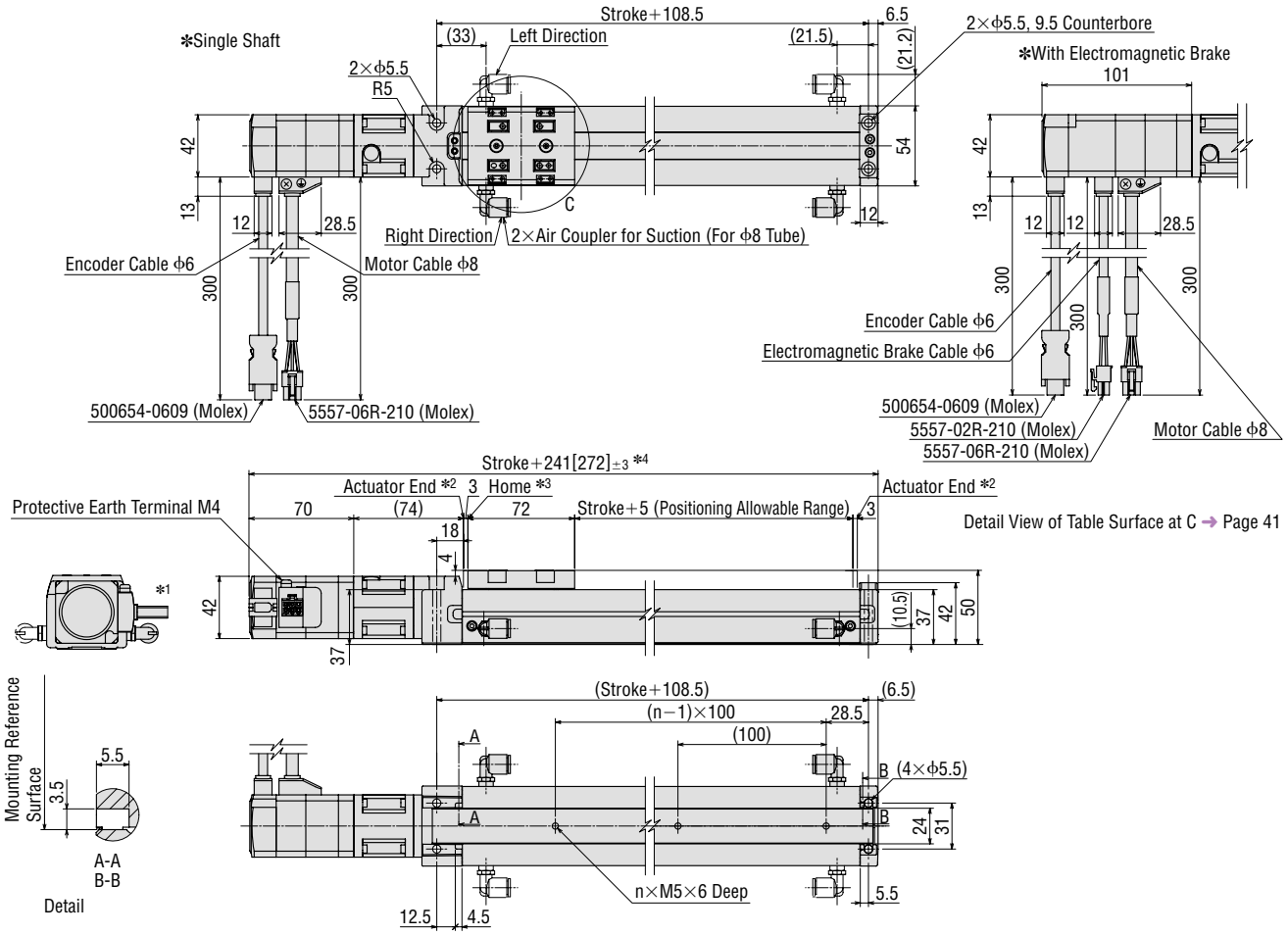
Note the installation location as the absolute sensor is easily affected by magnetism.

●When installing the actuator in an environment where a magnetic field is generated

Make sure that the magnetic flux density on the surface of the absolute sensor does not exceed 10 mT.

Dimensions (Unit: mm)

EZSM3 Straight Type / For Cleanroom Use



Detail View of Table Surface at C ➜ Page 41

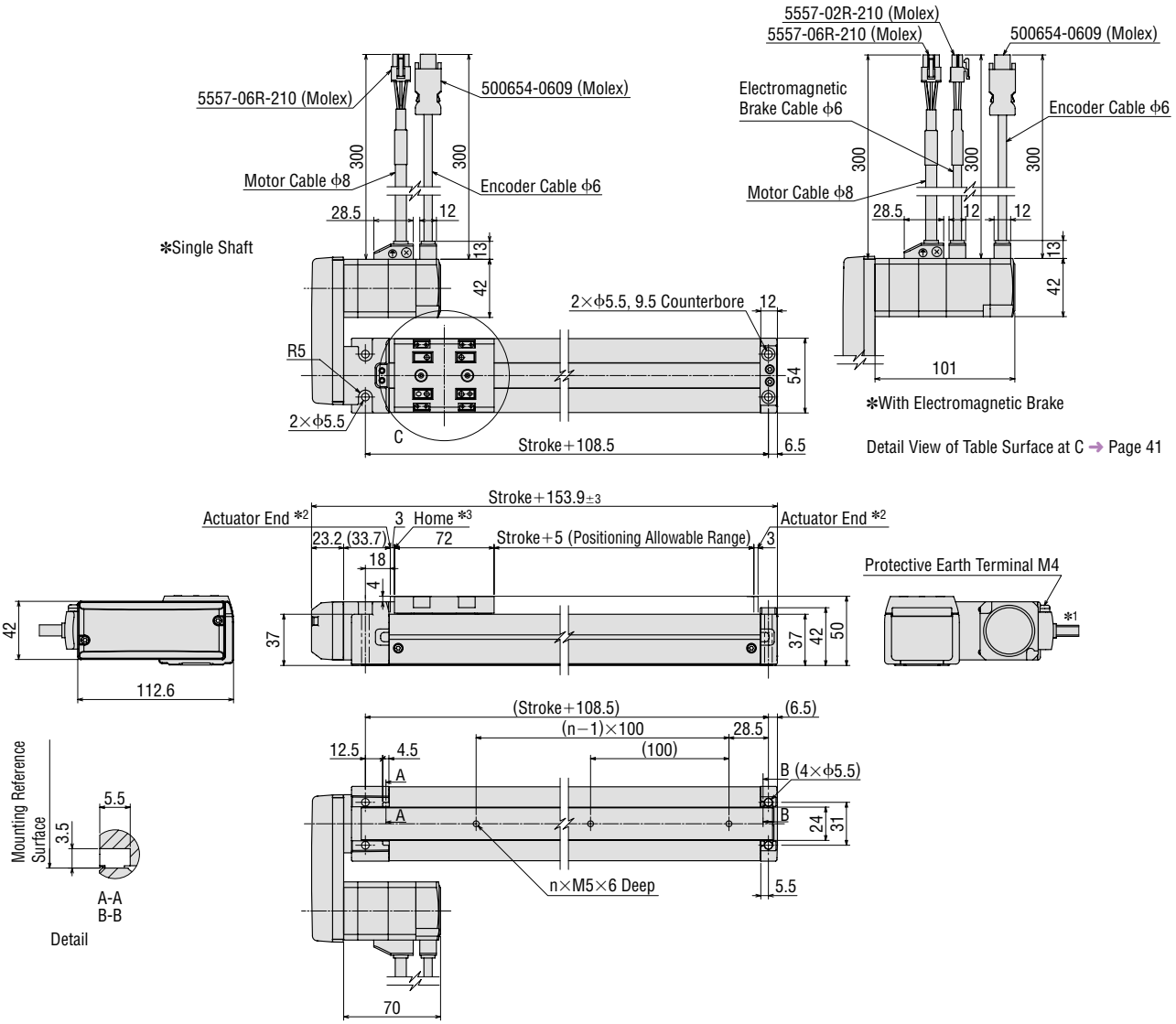
✻1 The motor cable outlet direction can be changed in 90° intervals in four directions.
✻2 During the pushing return-to-home operation, the table moves to actuator end.
✻3 When using an accessory sensor, the home position differs.
✻4 The brackets [ ] indicate the values for the electromagnetic brake product.
● The figure above is for Cleanroom Use. Straight type is not equipped with air couplers for suction.

Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Hole Coefficient (n)		2	2	3	3	4	4	5	5	6	6	7	7	8	8
Mass [kg]	Single Shaft	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5
	With Electromagnetic Brake	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EZSM3 Reversed Motor Type (Left Side)



✻1 The motor cable outlet direction can be changed in 90° intervals in three directions.

✻2 During the pushing return-to-home operation, the table moves to actuator end.

✻3 When using an accessory sensor, the home position differs.

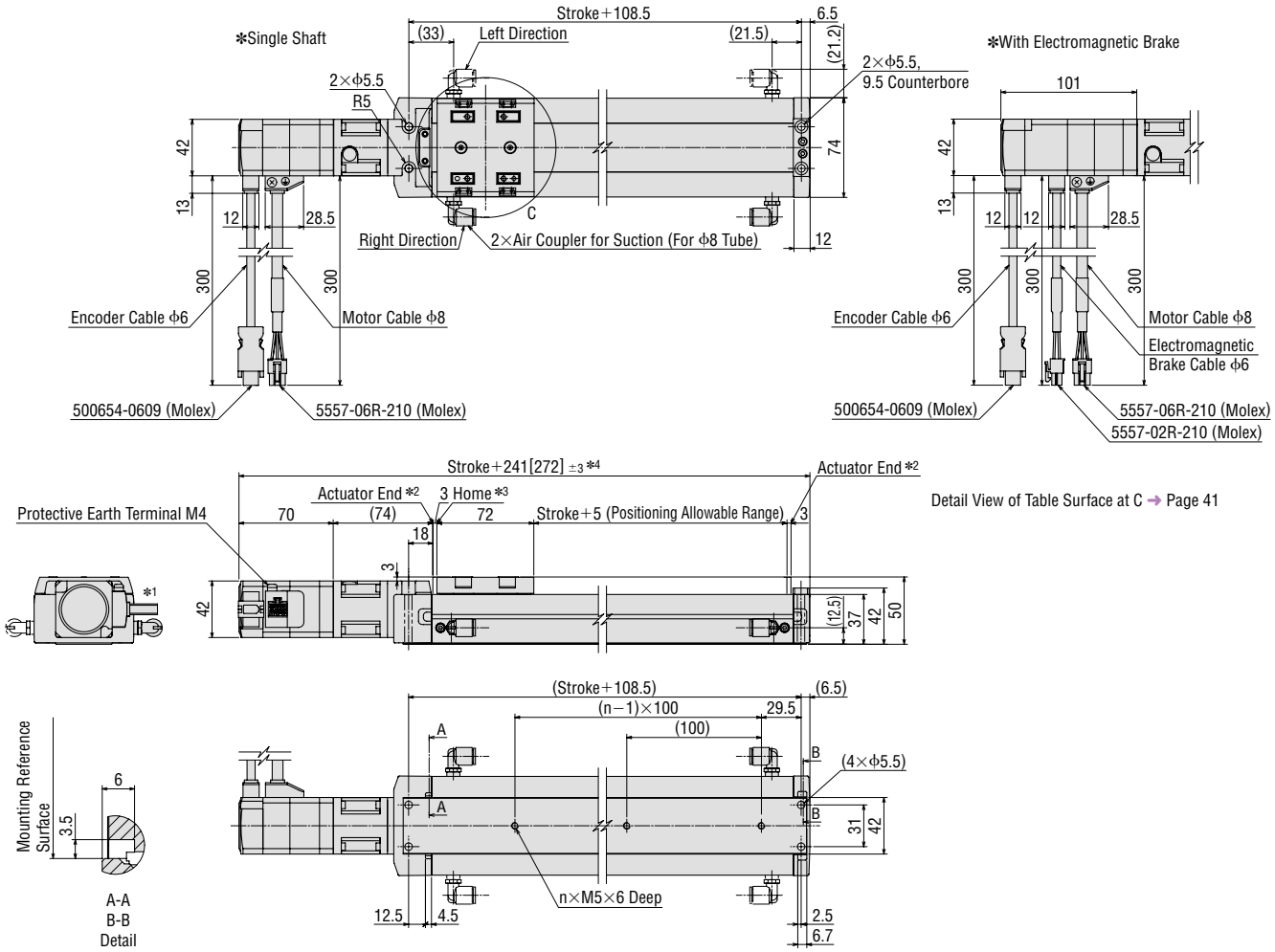
● The figure above is for the left reversed motor type. For the right reversed motor type, the motor is located on the opposite side with the slide part center.

Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Hole Coefficient (n)		2	2	3	3	4	4	5	5	6	6	7	7	8	8
Mass [kg]	Single Shaft	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5
	With Electromagnetic Brake	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EZSM4 Straight Type / For Cleanroom Use



Detail View of Table Surface at C ➜ Page 41

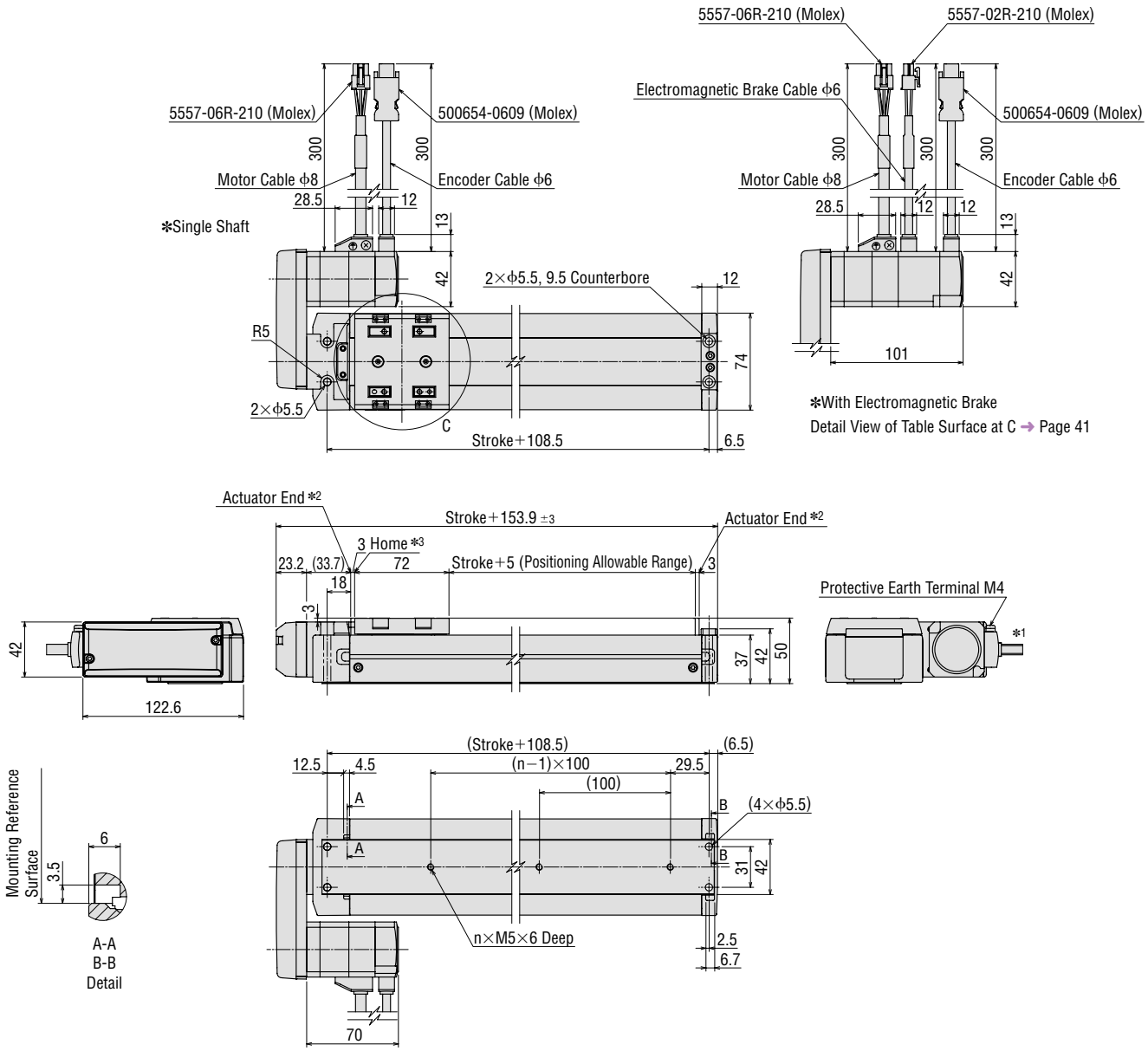
✻1 The motor cable outlet direction can be changed in 90° intervals in four directions.
✻2 During the pushing return-to-home operation, the table moves to actuator end.
✻3 When using an accessory sensor, the home position differs.
✻4 The brackets [ ] indicate the values for the electromagnetic brake product.
● The figure above is for Cleanroom Use. Straight type is not equipped with air couplers for suction.

Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Hole Coefficient (n)		2	2	3	3	4	4	5	5	6	6	7	7	8	8
Mass [kg]	Single Shaft	2.0	2.2	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0
	With Electromagnetic Brake	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.5	4.7	4.9	5.1

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EZSM4 Reversed Motor Type (Left Side)



✻1 The motor cable outlet direction can be changed in 90° intervals in three directions.

✻2 During the pushing return-to-home operation, the table moves to actuator end.

✻3 When using an accessory sensor, the home position differs.

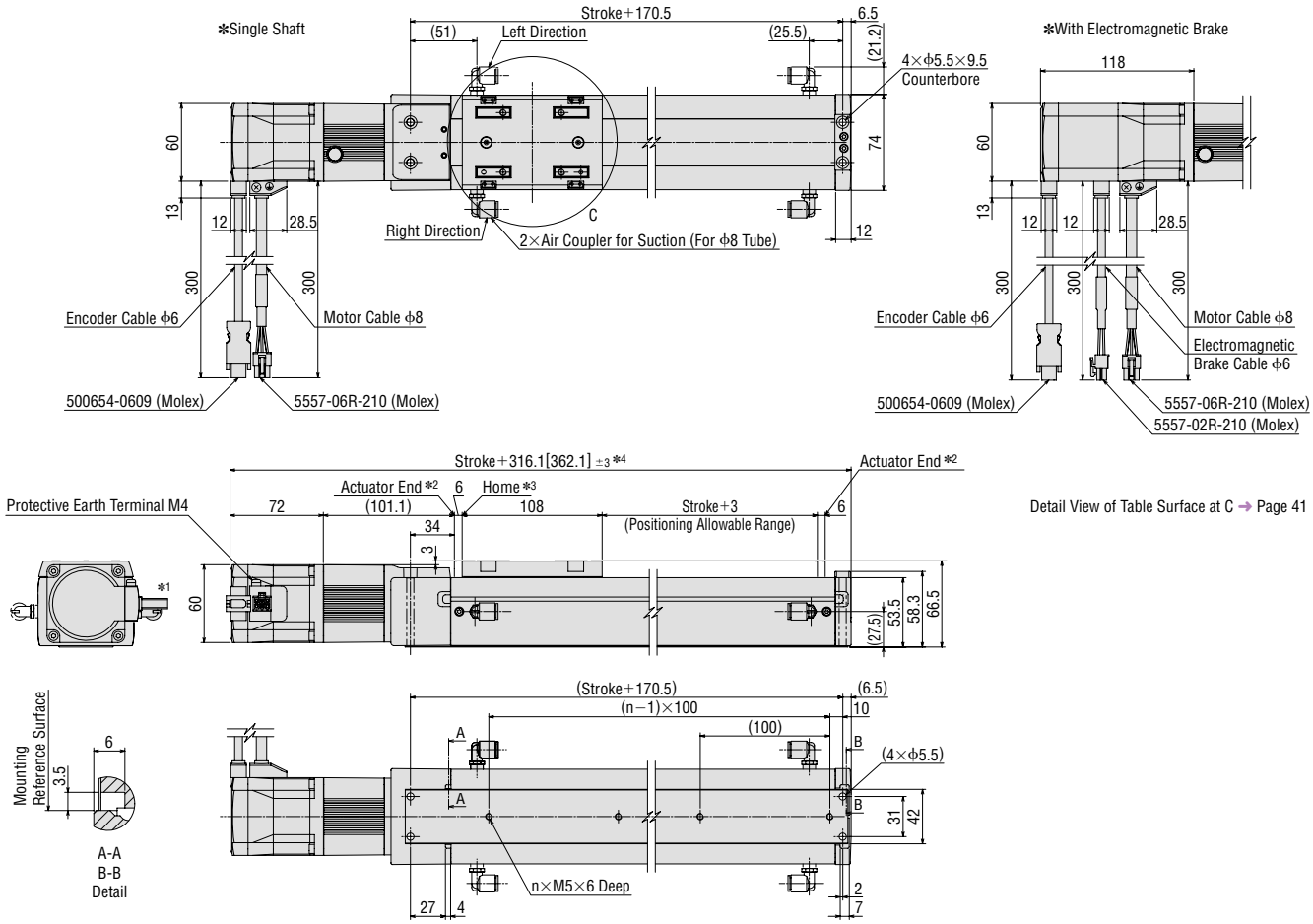
● The figure above is for the left reversed motor type. For the right reversed motor type, the motor is located on the opposite side with the slider part center.

Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Hole Coefficient (n)		2	2	3	3	4	4	5	5	6	6	7	7	8	8
Mass [kg]	Single Shaft	2.0	2.2	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0
	With Electromagnetic Brake	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.5	4.7	4.9	5.1

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EZSM6 Straight Type / For Cleanroom Use



Detail View of Table Surface at C ➜ Page 41

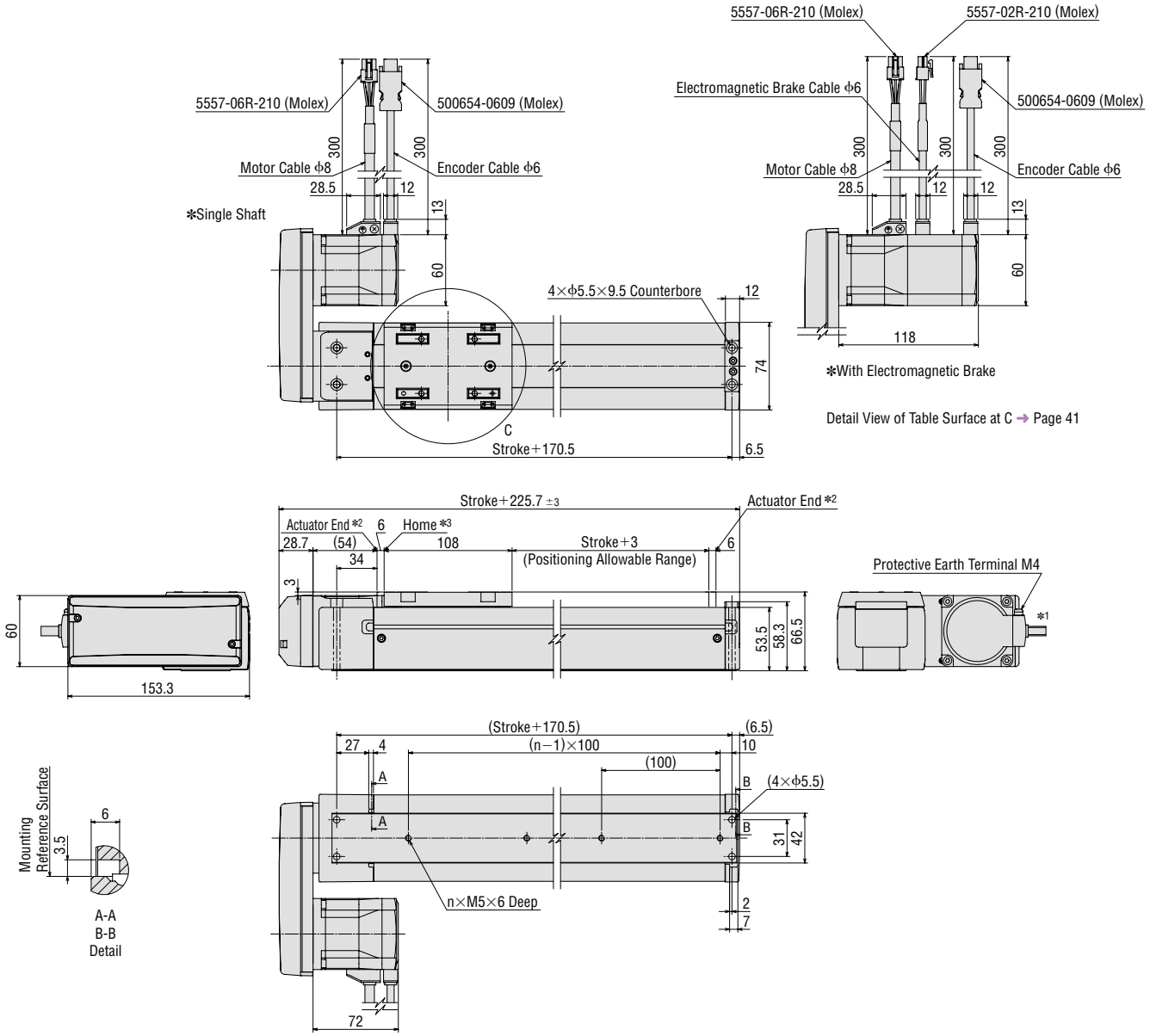
✻1 The motor cable outlet direction can be changed in 90° intervals in four directions.
✻2 During the pushing return-to-home operation, the table moves to actuator end.
✻3 When using an accessory sensor, the home position differs.
✻4 The brackets [ ] indicate the values for the electromagnetic brake product.
● The figure above is for Cleanroom Use. Straight type is not equipped with air couplers for suction.

Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Hole Coefficient (n)		3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
Mass [kg]	Single Shaft	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.9	6.1	6.4	6.6	6.9	7.1	7.4	7.6	7.9
	With Electromagnetic Brake	4.2	4.4	4.7	5.0	5.2	5.5	5.7	6.0	6.2	6.5	6.8	7.0	7.3	7.5	7.8	8.0	8.3

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EZSM6 Reversed Motor Type (Left Side)



✻1 The motor cable outlet direction can be changed in 90° intervals in three directions.

✻2 During the pushing return-to-home operation, the table moves to actuator end.

✻3 When using an accessory sensor, the home position differs.

● The figure above is for the left reversed motor type. For the right reversed motor type, the motor is located on the opposite side with the slider part center.

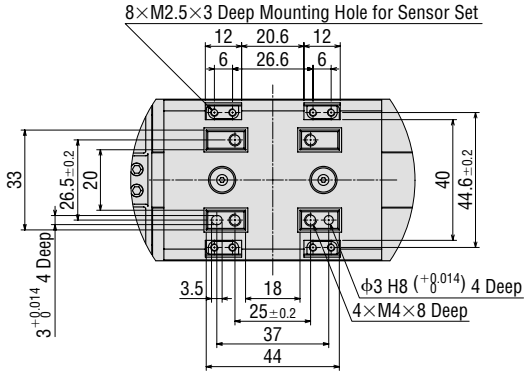
Stroke [mm]		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
Hole Coefficient (n)		3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
Mass [kg]	Single Shaft	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6	5.9	6.1	6.4	6.6	6.9	7.1	7.4	7.6	7.9
	With Electromagnetic Brake	4.2	4.4	4.7	5.0	5.2	5.5	5.7	6.0	6.2	6.5	6.8	7.0	7.3	7.5	7.8	8.0	8.3

• Dimensions for linear slide installation ➜ Page 42

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

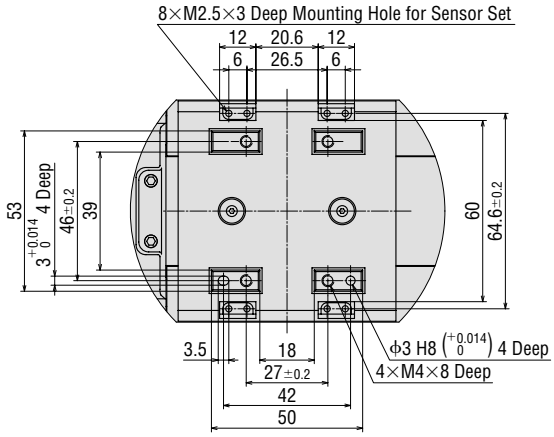
Detail View of Table Surface at C (Unit: mm)

• EZSM3



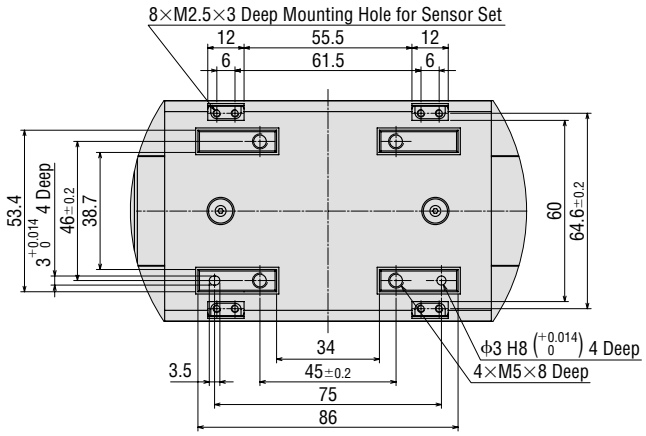
Detail of "C"

• EZSM4



Detail of "C"

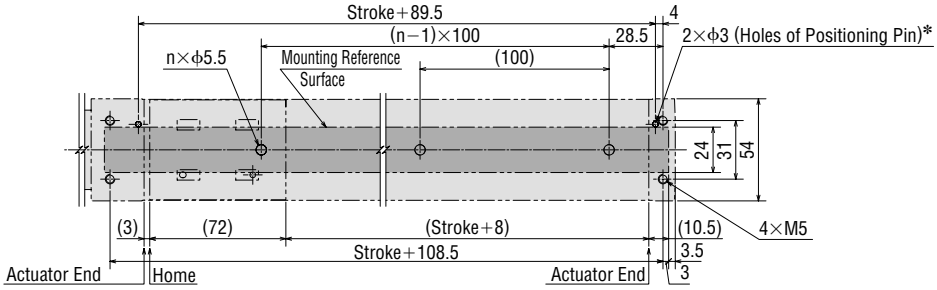
• EZSM6



Detail of "C"

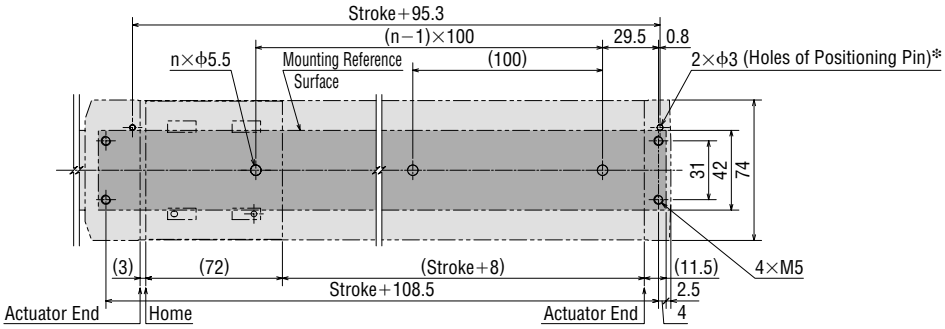
Dimensions for linear slide installation (Unit: mm)

• EZSM3



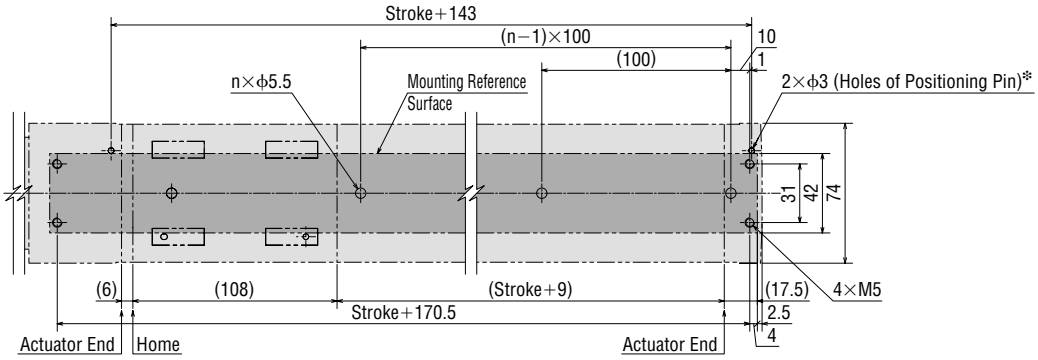
✻ The mounting reference surface can be set on either side. The above figure assumes that the linear slide is installed on its top surface.

• EZSM4



❊ The mounting reference surface can be set on either side. The above figure assumes that the linear slide is installed on its top surface.

• EZSM6



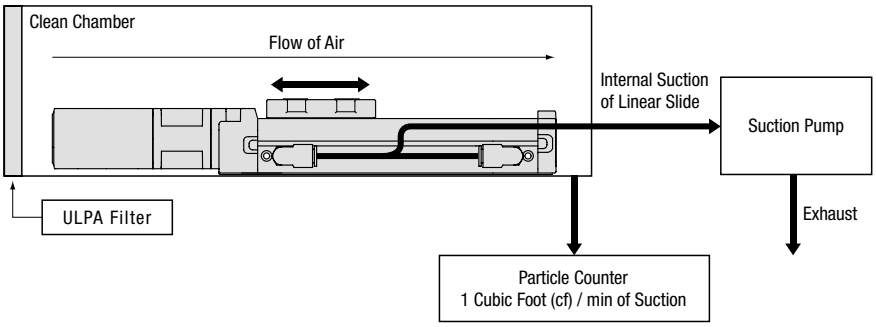
❊ The mounting reference surface can be set on either side. The above figure assumes that the linear slide is installed on its top surface.

Particulate-Generation Amount of Cleanroom Use

The **EZS** Series has achieved ISO Standard Class 3 (equivalent to FED Standard Class 1) with improved airtightness through the use of low particulate-generative grease and a stainless steel sheet.

Measurement Method

The method for measuring the level of cleanliness is shown below. (Conforms to Japanese Industrial Standards (JIS) B 9926)

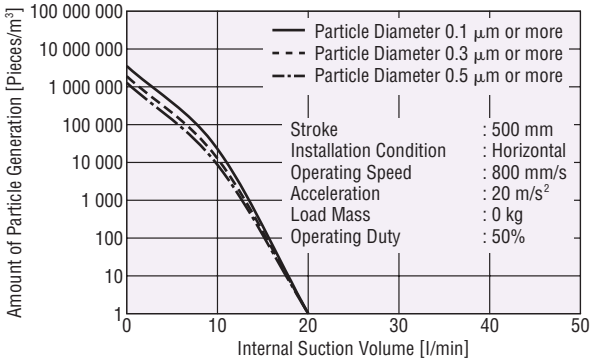


ISO Standards Class 3

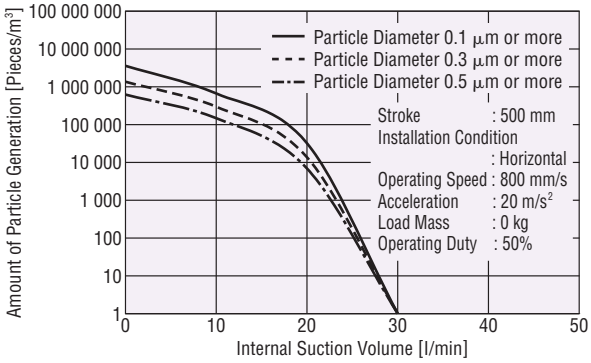
Particle Diameter (μm)	Amount of Particle Generation [Pieces/m^3]
0.1	1000 or less
0.3	102 or less
0.5	35 or less

Correlation Diagram of Particulate-Generation and Suction Volume (Actual values measured from the sample data)

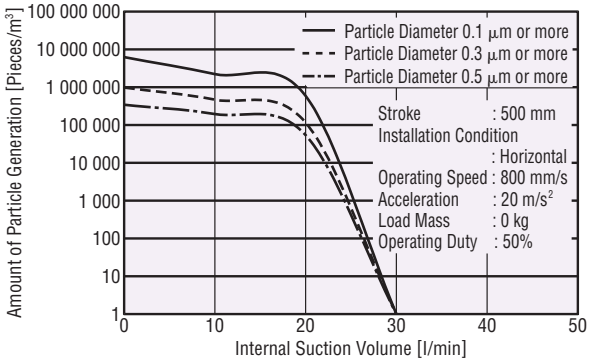
EZSM3CLD050, EZSM3CRD050



EZSM4CLD050, EZSM4CRD050



EZSM6CLD050, EZSM6CRD050

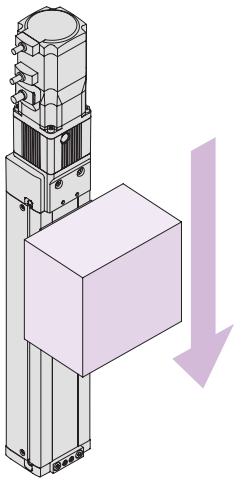


● The product names on the characteristics diagram are listed such that the product names can be determined.

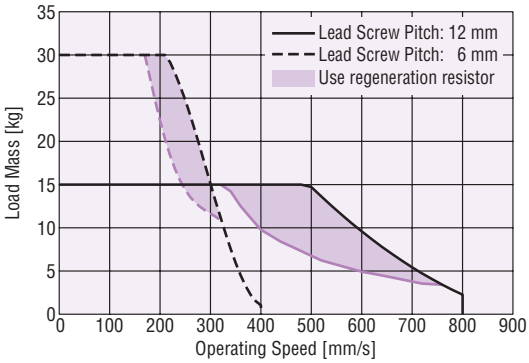
About Use of the EZSM6 (AC Input Type) for Vertical Driving

When operating **EZSM6*** type electric linear slides in the vertical direction, depending on the driving conditions, an overvoltage protection alarm may be detected. In such case, refer to the operating speed-load mass characteristics diagram, and connect the Oriental Motor's **RGB100** regeneration resistor to the driver.

*Common to all AC input specifications of **D** (lead screw pitch 12 mm) / **E** (lead screw pitch 6 mm), Straight / Reversed motor / For cleanroom use.



Example of Vertical Use



Region in which the regeneration resistor is required for **EZSM6** (AC Input Type)

Regeneration Resistor

When a regeneration resistor is connected to the special terminal on the driver, the regenerative power that is fed back from the motor is released as heat energy.

◇Product Line

Product Name	Applicable Product
RGB100	AC Input Driver

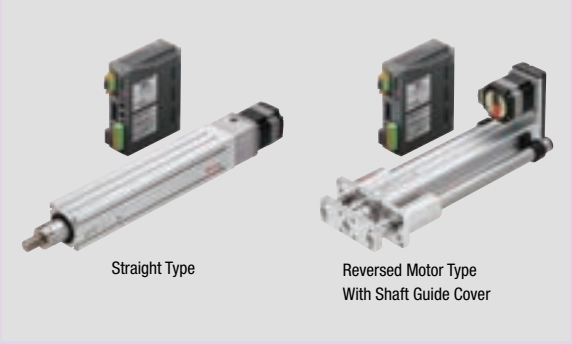
◇Specifications

Item	Specifications
Continuous Regenerative Power	50 W
Resistance Value	150 Ω
Thermostat Operating Temperature	Open: 150±7°C Close: 145±12°C (Normally Closed)
Thermostat Electrical Rating	120 VAC 4 A 30 VDC 4 A (Minimum current 5 mA)

● Install the regeneration resistor in the place which has the same heat radiation capability as heat radiation plate [Material: Aluminum 350 mm×350 mm, 3 mm thick].

Electric Cylinders

EAC Series αSTEP AZ Series Equipped



The motor component incorporates a high-efficiency, energy-saving αSTEP **AZ** Series electric cylinder. In addition to straight-type actuators, reversed motor types with shorter overall length that can contribute to space saving are also available.

- Compactness and high thrust force for a wide variety of applications
- High performance regardless of operating conditions
- Easy belt replacement (reversed motor type)

Features

Compactness and High Thrust Force for a Wide Variety of Applications

Compact and High Thrust Force Cylinders

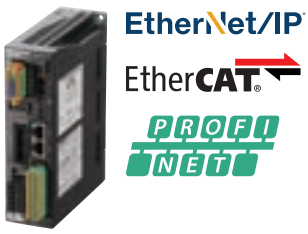
This series, which uses aluminum for the rod component, is a line of electric cylinders that produces high thrust force despite their compact and lightweight body. The unique structure suppresses vibration to achieve improved acceleration characteristics and high-speed positioning operation.
This illustration shows the straight type without a shaft guide.

Motor

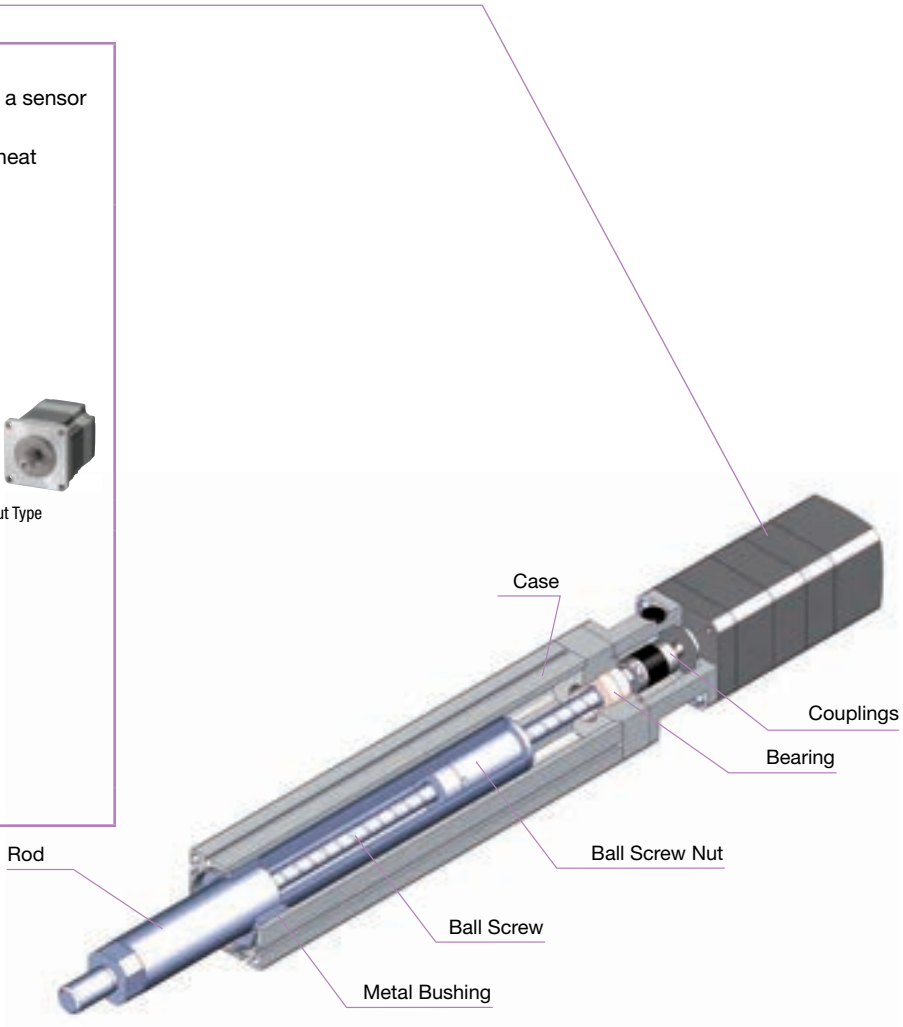
Equipped with the αSTEP **AZ** Series.

- Built-in battery-free absolute sensor
- 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



Network Compatible



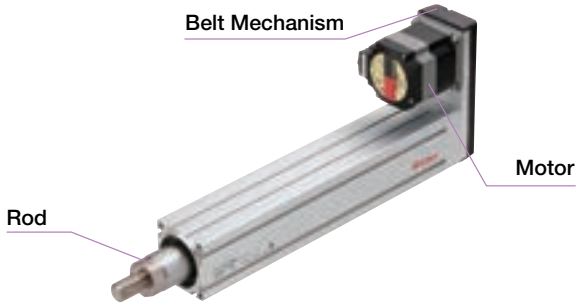
FLEX What is FLEX?
FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters.
These products enable simple connection and simple control, shortening the total lead time for system construction.

●Cylinder Type and Configuration

The **EAC** Series has reversed motor types and straight types. Three types of cylinders are also available: Not equipped with shaft guide, equipped with shaft guide, and equipped with shaft guide cover.

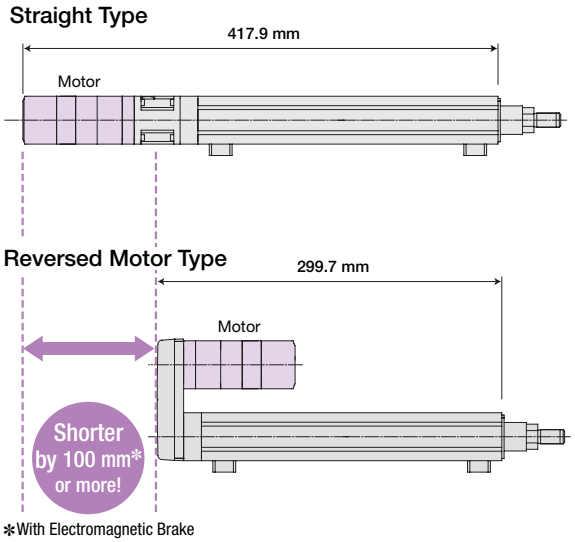
◇Reversed Motor Type

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



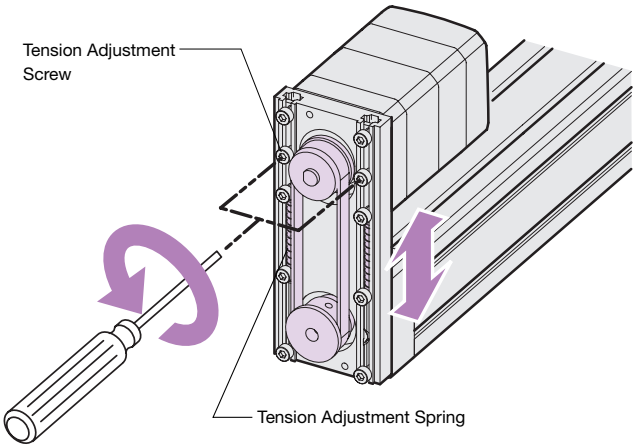
Every model in the product line has a reversed motor type. The shorter overall length contributes to space saving.

EACM4 Type with an Electromagnetic Brake Stroke 200 mm



*With Electromagnetic Brake

The belt can easily be replaced with Oriental Motor's unique belt tension adjustment mechanism.



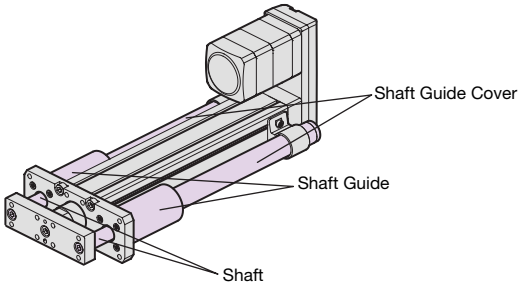
Loosen the screw to adjust the belt to the appropriate tension with spring force.

◇Equipped with Shaft Guide/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.

Straight Type
Type with a Shaft Guide

Reversed Motor Type
With Shaft Guide Cover

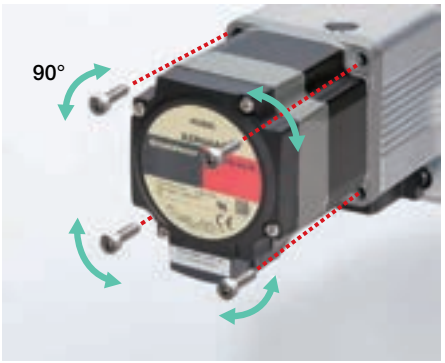


Reversed Motor Type
With Shaft Guide Cover

●Cable Outlet Direction

Can be rotated in 4 possible directions (3 for reversed motor type)

The motor cable outlet direction can be freely changed. Because the cable protrudes from the side of the motor, no space behind the motor is needed, further contributing to equipment space saving.



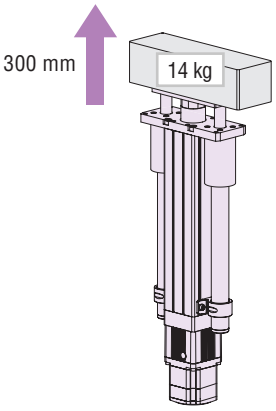
High Performance Regardless of Operating Conditions

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

High speed driving is possible whether the load is light or heavy.

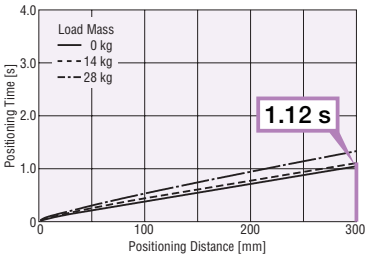
<Product Used>
Product Name: **EACM6WE**
Lead: 6 mm
Input Type: 200 VAC

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



High Speed Driving Even 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)

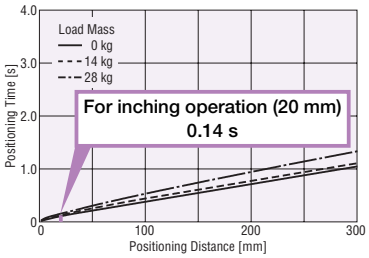


High Speed Driving Even with a Light Load

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 Driving Even in 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)



A Positioning Time Calculation Tool is Available

A tool that can calculate positioning time, operating speed, acceleration, and so on is available, just by selecting the electric cylinder type and entering a bit of information. It can be downloaded from the Oriental Motor website.
https://www.orientalmotor.com.sg/service/#_10

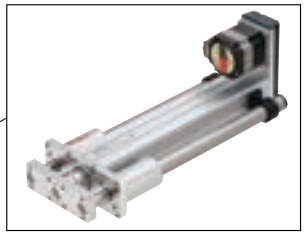
Product Line

Shaft Guide	Straight Type	Reversed Motor Type
Type without a Shaft Guide An external guide that fits the customer's equipment is required.		
Type with a Shaft Guide Designing an external guide and arranging the components is unnecessary, decreasing the startup time.		
With Shaft Guide Cover The moving part on the cylinder body side is protected, improving equipment safety. This also helps prevent grease from coming off the shaft guide and the intrusion of foreign particles in the linear bushing.		

Image of 3-axis Equipment Using an **EAC** Series Electric Cylinder on the Z-axis and **EAS** Series Electric Linear Slides on the X- and Y-axes

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

Save space by using reversed motors, and reduce equipment startup burden by using shaft guide covers.



Y-axis **Electric Linear Slides EAS Series**
Reversed Motor Type

Save space by using reversed motors.

*Support guides and mounting brackets not supplied.

X-axis **Electric Linear Slides EAS Series**
Straight Type

List of Combinations

AC Input

Product Line	Series	Product Name (On-board motor name)
Electric Cylinders	**EAC** Series	**EACM4**□□□□□**AZAC-**■ (**AZM46AC**) **EACM4**□□□□□**AZMC-**■ (**AZM46MC**) **EACM6**□□□□□**AZAC-**■ (**AZM66AC**) **EACM6**□□□□□**AZMC-**■ (**AZM66MC**)

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Product Line	Type	Product Name
Driver	Built-in Controller Type	**AZD-AD**, **AZD-CD**
	Pulse Input Type with RS-485 Communication	**AZD-AX**, **AZD-CX**
	Pulse Input Type	**AZD-A**, **AZD-C**
	EtherNet/IP-compatible	**AZD-AEP**, **AZD-CEP**
	EtherCAT Drive Profile-compatible	**AZD-AED**, **AZD-CED**
	PROFINET-compatible	**AZD-APN**, **AZD-CPN**

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Product Line	Type	Product Name
Connection Cable Sets/ Flexible Connection Cable Sets	Connection Cable Set	For Motor/Encoder: **CC**◇◇◇**VZF** For Motor/Encoder/Electromagnetic Brake: **CC**◇◇◇**VZFB**
	Flexible Connection Cable Sets	For Motor/Encoder: **CC**◇◇◇**VZR** For Motor/Encoder/Electromagnetic Brake: **CC**◇◇◇**VZRB**

● A number or letter indicating the following is specified where the symbol is located in the product name.
- □: Motor installation direction
- □: Shaft guide
- □: Lead
- □: Stroke
- ■: Shaft guide cover
- ◇: Cable length

DC Input

Product Line	Series	Product Name (On-board motor name)
Electric Cylinders	**EAC** Series	**EACM2**□□□□□**AZAK** (**AZM24AK**) **EACM4**□□□□□**AZAK-**■ (**AZM46AK**) **EACM4**□□□□□**AZMK-**■ (**AZM46MK**) **EACM6**□□□□□**AZAK-**■ (**AZM66AK**) **EACM6**□□□□□**AZMK-**■ (**AZM66MK**)

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Product Line	Type	Product Name
Driver	Built-in Controller Type	**AZD-KD**
	Pulse Input Type with RS-485 Communication	**AZD-KX**
	Pulse Input Type	**AZD-K**
	EtherNet/IP-compatible	**AZD-KEP**
	EtherCAT Drive Profile-compatible	**AZD-KED**
	PROFINET-compatible	**AZD-KPN**

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Product Line	Type		Product Name
Connection Cable Sets/ Flexible Connection Cable Sets	For **EACM2**	Connection Cable Set	**CC**◇◇◇**VZ2F2**
		Flexible Connection Cable Sets	**CC**◇◇◇**VZ2R2**
	For **EACM4**, **EACM6**	Connection Cable Set	For Motor/Encoder: **CC**◇◇◇**VZF2** For Motor/Encoder/Electromagnetic Brake: **CC**◇◇◇**VZFB2**
		Flexible Connection Cable Sets	For Motor/Encoder: **CC**◇◇◇**VZR2** For Motor/Encoder/Electromagnetic Brake: **CC**◇◇◇**VZRB2**

● A number or letter indicating the following is specified where the symbol is located in the product name.
- □: Motor installation direction
- □: Shaft guide
- □: Lead
- □: Stroke
- ■: Shaft guide cover
- ◇: Cable length

How to Read Specifications

This is how to read specifications, using electric cylinder specifications as an example.

Electric Cylinder Specifications

①	Lead Screw Pitch		mm	12	6
②	Electromagnetic Brake (Power off activated type)			With	Blank
③	Drive Method			Ball Screw	
④	Repetitive Positioning Accuracy		mm	±0.02	
⑤	Minimum Traveling Amount		mm	0.01	
⑥	Permissible Moment	Dynamic Permissible Moment	N·m	MP: 1.3 MY: 1.3 MR: 0.6	
		Static Permissible Moment		MP: 3.7 MY: 3.7 MR: 3.0	
⑦	Transportable Mass	Horizontal	kg	~15	~30
		Vertical		~6	~13
⑧	Thrust		N	~70	~140
⑨	Push Force		N	100	200
⑩	Holding Force		N	70	140
⑪	Maximum Speed		mm/s	600	300

● Depending on the product, there may be usage restrictions or precautions.
Refer to the notes on each product's page for details.

①Lead
Distance the rod moves in the linear direction in one motor rotation.

②Electromagnetic Brake (Power off activated type)
There are products with and without a power off activated type electromagnetic brake. Please select the type with an electromagnetic brake when driving in a vertical direction. (Except for **EACM2**)

③Drive Method
This refers to the mechanism that converts rotation into linear motion.

④Repetitive Positioning Accuracy
A value indicating the degree of error that generates when positioning is performed repeatedly to the same position in the same direction (measured at a constant temperature and under a constant load).

⑤Minimum Traveling Amount
The minimum distant that the rod travels. (Factory setting)

⑥Permissible Moment*
The load moment acts on the linear guide if the load's position is offset from the center of the rod. The direction of action applies to 3 directions: pitching (MP), yawing (MY), and rolling (MR), depending on the position of the offset. The dynamic permissible moment is the moment during operation. The static permissible moment is the moment while the motor is not moving.

*Specifications for units equipped with shaft guide and shaft guide cover only.

⑦Transportable Mass
- Horizontal direction
  The maximum mass that can be moved under rated operating performance when using the electric cylinder horizontally.
- Vertical direction
  The maximum mass that can be moved under rated operating performance when using the electric cylinder vertically.

⑧Thrust
The thrusting force the rod exerts on the load during constant speed operation.

⑨Push Force
The pressure at push-motion operation.

⑩Holding Force
The holding force in power ON state when the motor is stopped and when the electromagnetic brake is activated.

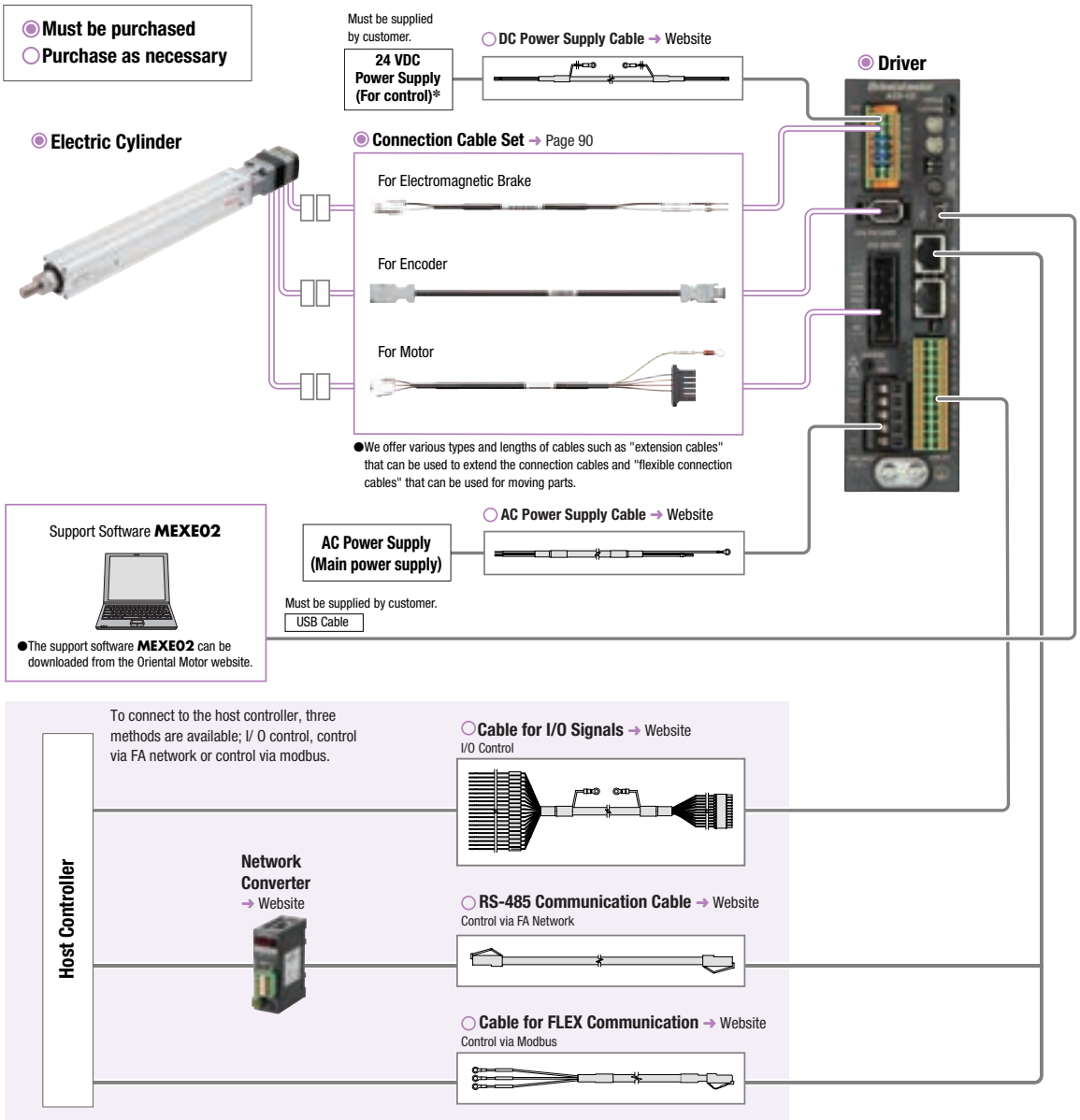
⑪Maximum Speed
The maximum speed that the maximum transportable mass can be moved.

System Configuration

●Combination of Electric Cylinder with Electromagnetic Brake and either Built-in Controller Type Driver or Pulse Input Type Driver with RS-485 Communication (Information for AC input type and DC input type are both provided. The photos show the product of AC input type.)

This is an example of a configuration when I/O controlled using a built-in controller type driver or when controlled with RS-485 communication is shown below.

Electric cylinders, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



○Accessories for Driver

Regeneration Resistor* ➜ Website	Driver Mounting Brackets ➜ Website	Connector Covers ➜ Website

*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Cylinder		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EACM4D05AZMC	+	AZD-CD	+	CC010VZFB	CC24D010C-1
◉		◉		◉	○

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

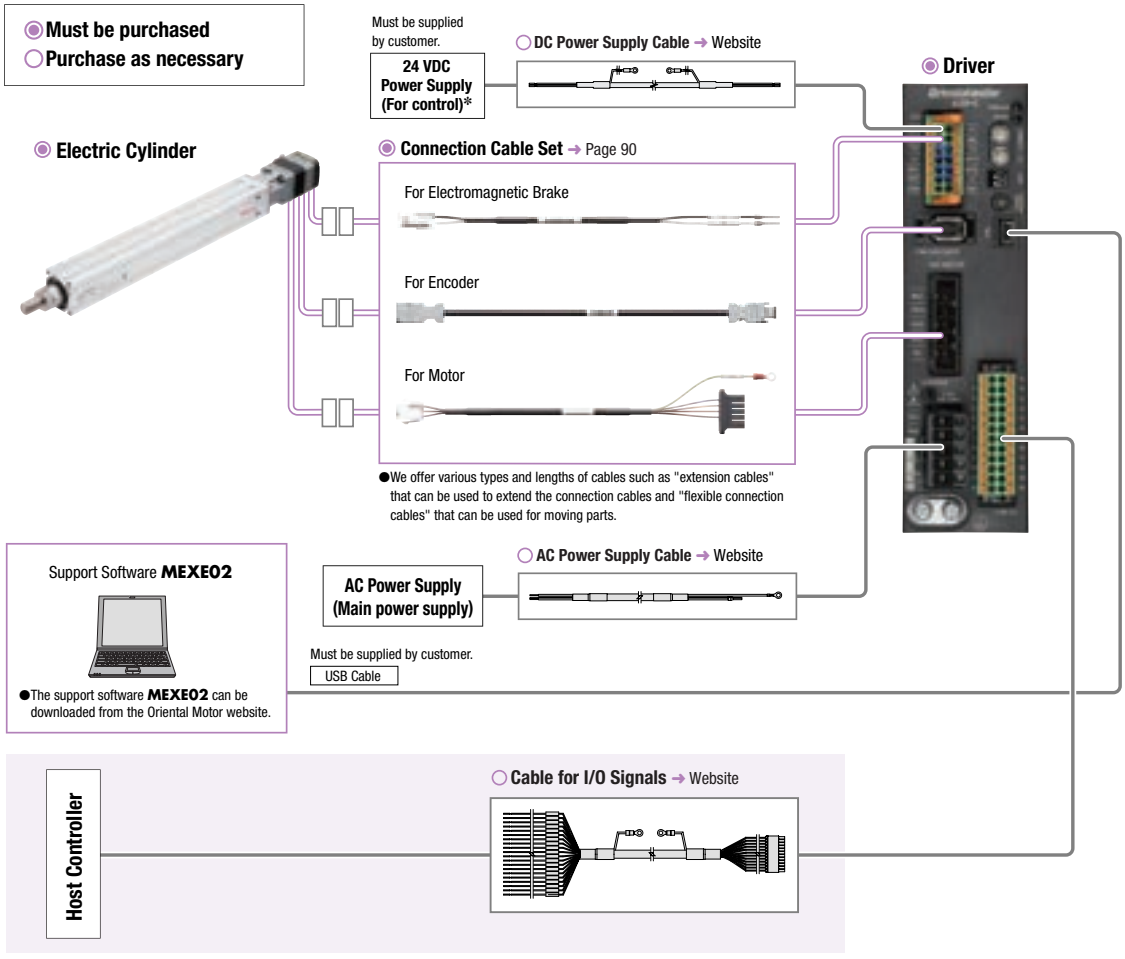
Note

● 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 Electric Cylinder with Electromagnetic Brake and Network-Compatible Driver (Information for AC input type and DC input type are both provided. The photos show the product of AC input type.)

An example of a configuration when I/O controlled using an EtherNet/IP Compatible driver or when controlled with EtherNet/IP is shown below.

Electric cylinders, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Cylinder		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EACM4D05AZMC	+	AZD-C	+	CC010VZFB	CC24D010C-1
◉		◉		◉	○

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

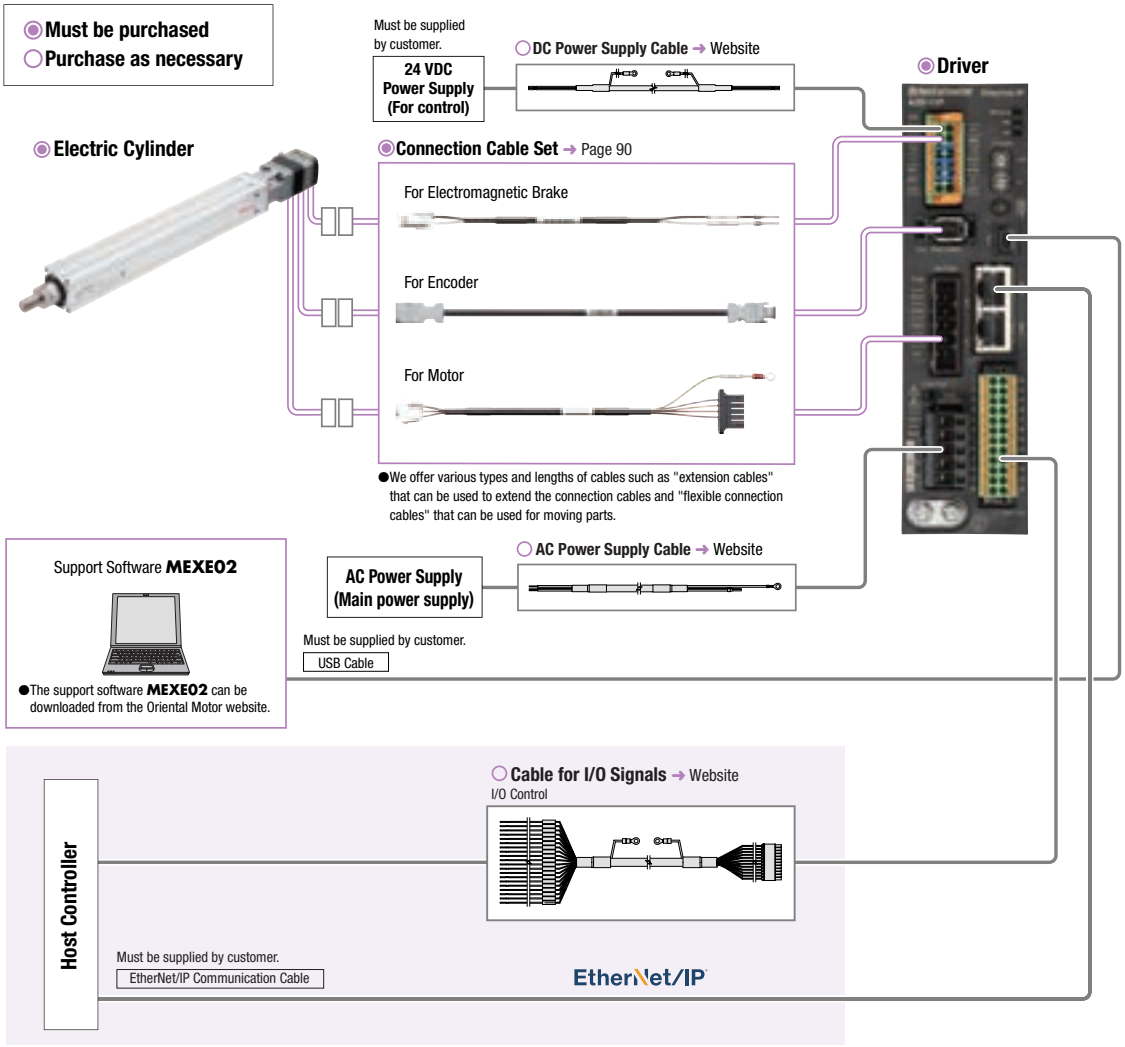
Note

● 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 Electric Cylinder with Electromagnetic Brake and Network-Compatible Driver (Information for AC input type and DC input type are both provided. The photos show the product of AC input type.)

An example of a configuration when I/O controlled using an EtherNet/IP Compatible driver or when controlled with EtherNet/IP is shown below.

Electric cylinders, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



*Not required for the DC input products.

●Example of System Configuration Pricing

Electric Cylinder		Driver		Cables	
				Connection Cable Set (1 m)	Cable for I/O Signals Connector Type (1 m)
EACM4D05AZMC		AZD-CEP		CC010VZFB	CC24D010C-1
◉		◉		◉	○

● 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.

EACM2: Frame Size 28 mm × 28 mm DC Input
Straight Type

Product Number

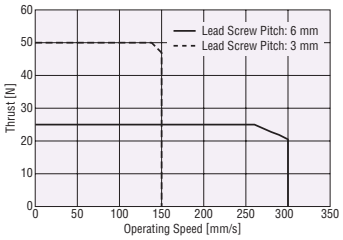
Model	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM2	**E**	**05**	**AZ**	**A**	**K**
EACM2	**E**: 6 mm **F**: 3 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm	**AZ** Series	**A**: Single Shaft	**K**: DC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	6	3
Electromagnetic Brake (Power Off Activated Type)			Not equipped	
Drive Method			Ball Screw	
Repetitive Positioning Accuracy		mm	±0.02	
Minimum Travel Amount		mm	0.01	
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.	
Transportable Mass	Horizontal Direction	kg	7.5 Max.	15 Max.
	Vertical Direction		2.5 Max.	5 Max.
Thrust		N	25 Max.	50 Max.
Push Force		N	40	80
Holding Force		N	25	50
Maximum Speed		mm/s	300	150

- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction.
  When the product is used for operation in the vertical direction, provide protection external to the equipment.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Operating Speed – Thrust

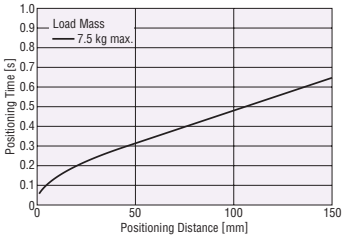


Positioning Distance – Positioning Time

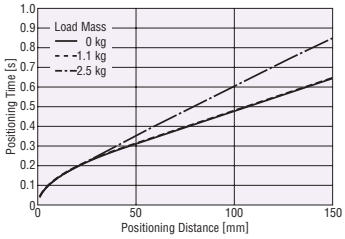
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 6 mm

◇Horizontal Installation

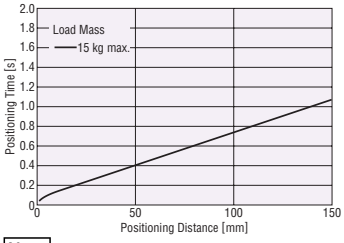


◇Vertical Installation

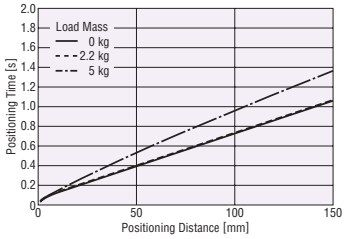


Lead Screw Pitch: 3 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 75

EACM2W: Frame Size 28 mm × 86 mm DC Input
Straight Type with Shaft Guide Cover

Product Number

Model	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM2	**W**	**E**	**05**	**AZ**	**A**	**K**	**-G**
EACM2	**W**: With Shaft Guide	**E**: 6 mm **F**: 3 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm	**AZ** Series	**A**: Single Shaft	**K**: DC Input Specifications	**-G**: With Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	6	3
Electromagnetic Brake (Power Off Activated Type)			Not equipped	
Drive Method			Ball Screw	
Repetitive Positioning Accuracy		mm	±0.02	
Minimum Travel Amount		mm	0.01	
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:0.7 M_Y:0.7 M_R:0.3	
	Static Permissible Moment		M_P:1.4 M_Y:1.4 M_R:0.6	
Transportable Mass	Horizontal Direction	kg	7.5 Max.	15 Max.
	Vertical Direction		2.0 Max.	4.5 Max.
Thrust		N	25 Max.	50 Max.
Push Force		N	40	80
Holding Force		N	25	50
Maximum Speed		mm/s	300	150

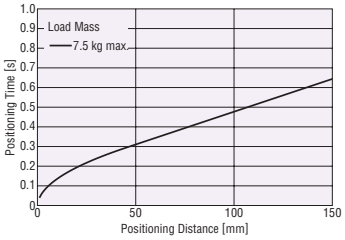
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction.
  When the product is used for operation in the vertical direction, provide protection external to the equipment.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Positioning Distance – Positioning Time

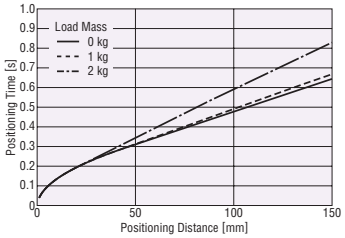
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 6 mm

◇Horizontal Installation

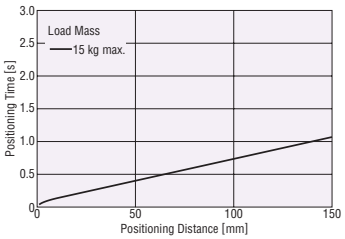


◇Vertical Installation

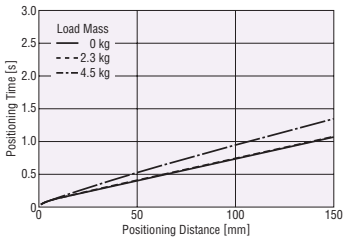


●Lead Screw Pitch: 3 mm

◇Horizontal Installation



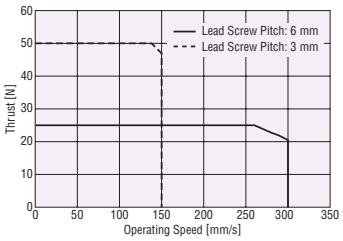
◇Vertical Installation



Note

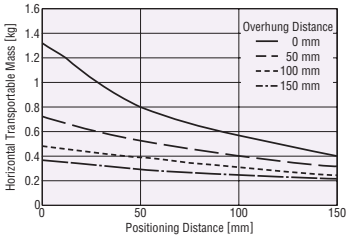
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

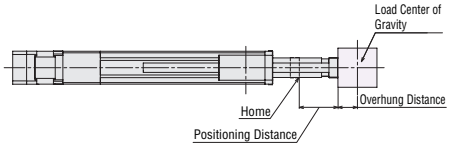


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide cover can transport loads that are attached directly to the body of the product.
Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 80

EACM4: Frame Size 42 mm × 42 mm AC Input
Straight Type

Product Number

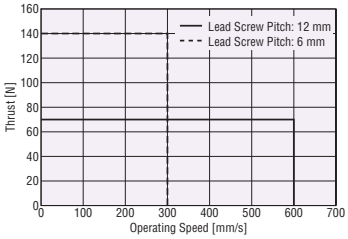
Model	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM4	D	05	AZ	A	C
EACM4	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ～ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		7 Max.	—	14 Max.	—
Thrust		N	70 Max.		140 Max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed		mm/s	600		300	

- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction.
  Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Thrust

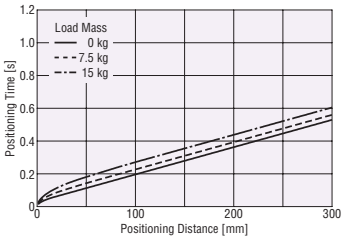


Positioning Distance – Positioning Time

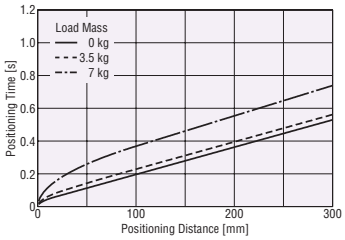
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

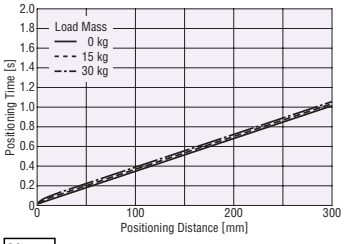


◇Vertical Installation

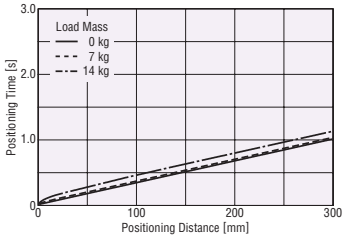


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note:
- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 76

EACM4R: Frame Size 42 mm × 42 mm AC Input Reversed Motor Type

Product Number

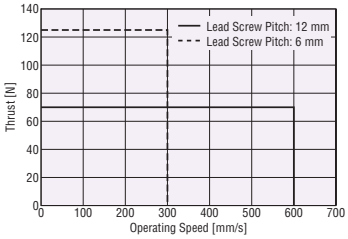
Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM4	R	D	05	AZ	A	C
EACM4	**R**: Reversed Motor Type	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		7 Max.	—	12.5 Max.	—
Thrust		N	70 Max.		125 Max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed		mm/s	600		300	

- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Thrust

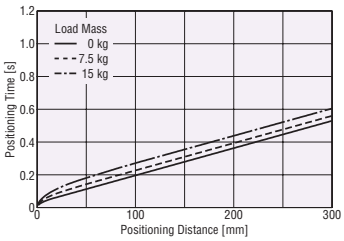


Positioning Distance – Positioning Time

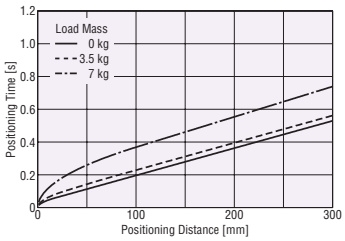
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

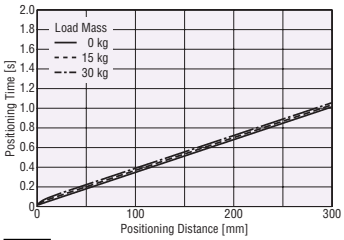


◇Vertical Installation

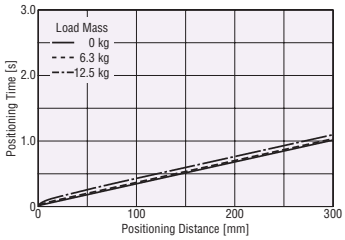


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

- Electric Cylinders → Page 77

EACM4: Frame Size 42 mm × 42 mm DC Input
Straight Type

Product Number

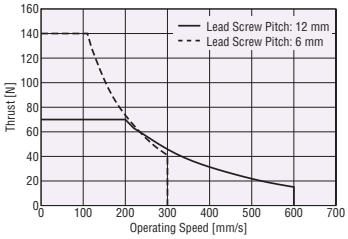
Model	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM4	**D**	**05**	**AZ**	**A**	**K**
EACM4	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		7 Max.	—	14 Max.	—
Thrust		N	70 Max.		140 Max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed		mm/s	600		300	

- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Operating Speed – Thrust

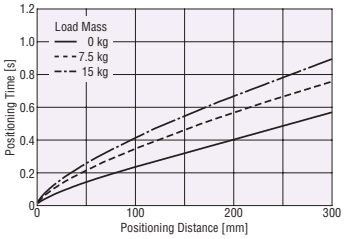


Positioning Distance – Positioning Time

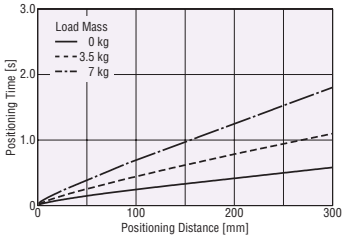
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

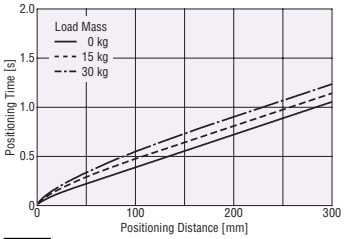


◇Vertical Installation

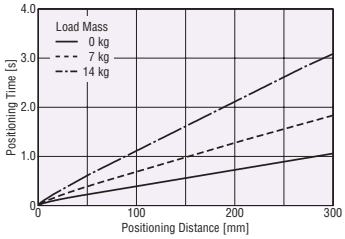


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 76

EACM4R: Frame Size 42 mm × 42 mm DC Input
Reversed Motor Type

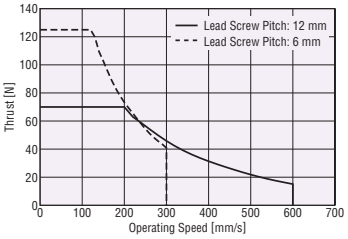
Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM4	**R**	**D**	**05**	**AZ**	**A**	**K**
EACM4	**R**: Reversed Motor	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		7 Max.	–	12.5 Max.	–
Thrust		N	70 Max.		125 Max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed		mm/s	600		300	

- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Operating Speed – Thrust

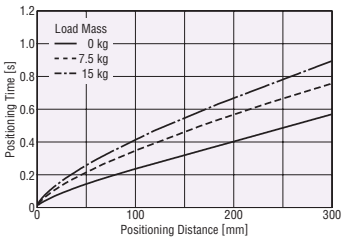


Positioning Distance – Positioning Time

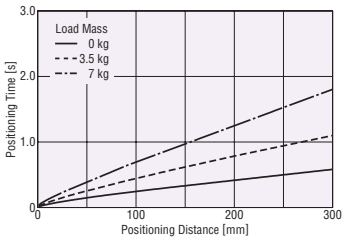
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

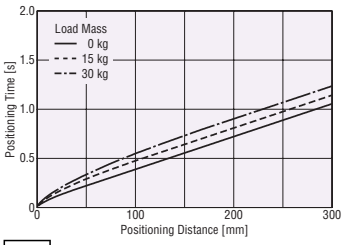


◇Vertical Installation

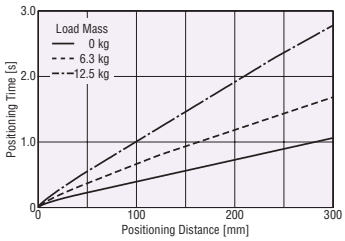


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

- Electric Cylinders → Page 77

EACM6: Frame Size 60 mm × 60 mm AC Input
Straight Type

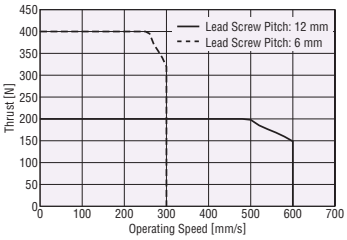
Model	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM6	D	05	AZ	A	C
EACM6	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ～ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	～30		～60	
	Vertical Direction		～15	–	～30	–
Thrust		N	～200		～400	
Push Force		N	400		500	
Holding Force		N	200		400	
Maximum Speed		mm/s	600		300	

- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Thrust

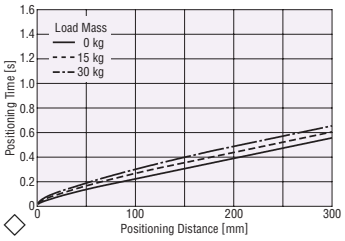


Positioning Distance – Positioning Time

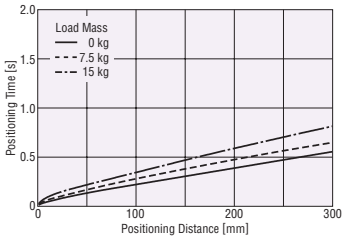
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

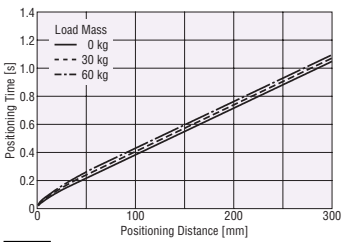


◇Vertical Installation

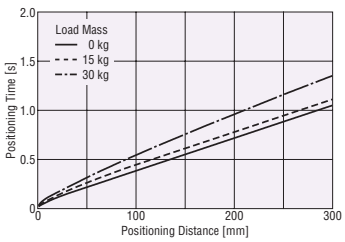


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 78

EACM6R: Frame Size 60 mm × 60 mm AC Input Reversed Motor Type

Product Number

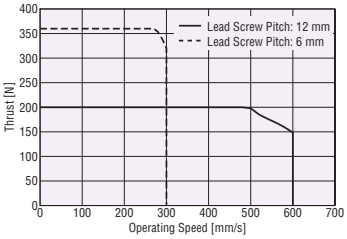
Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM6	**R**	**D**	**05**	**AZ**	**A**	**C**
EACM6	**R**: Reversed Motor Type	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		15 Max.	—	30 Max.	—
Thrust		N	200 Max.		360 Max.	
Push Force		N	400		500	
Holding Force		N	200		360	
Maximum Speed		mm/s	600		300	

- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Operating Speed – Thrust

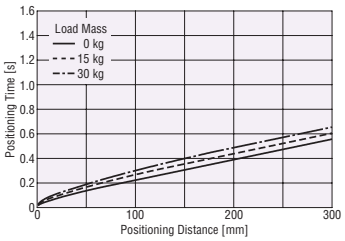


Positioning Distance – Positioning Time

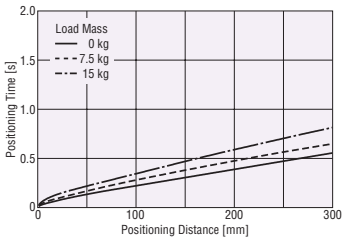
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

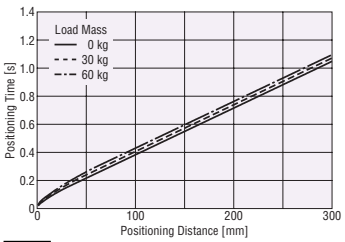


◇Vertical Installation

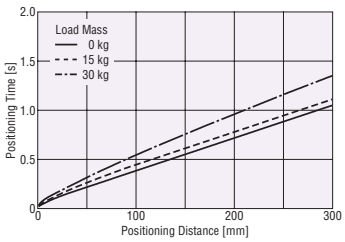


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 79

EACM6: Frame Size 60 mm × 60 mm DC Input
Straight Type

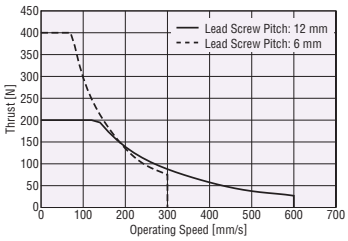
Model	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM6	**D**	**05**	**AZ**	**A**	**K**
EACM6	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ～ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	～30		～60	
	Vertical Direction		～15	–	～30	–
Thrust		N	～200		～400	
Push Force		N	400		500	
Holding Force		N	200		400	
Maximum Speed		mm/s	600		300	

- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Operating Speed – Thrust

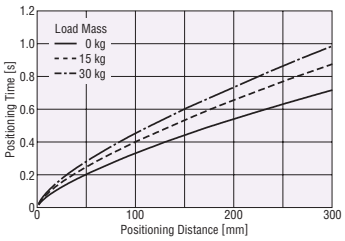


Positioning Distance – Positioning Time

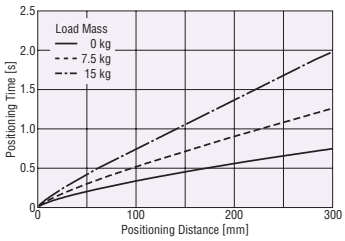
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

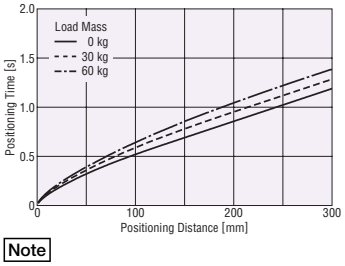


◇Vertical Installation

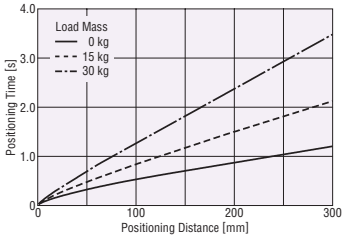


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

● Electric Cylinders → Page 78

EACM6R: Frame Size 60 mm × 60 mm DC Input
Reversed Motor Type

Product Number

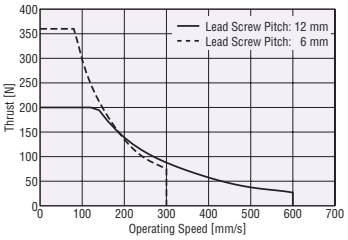
Model	Motor Orientation	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications
EACM6	**R**	**D**	**05**	**AZ**	**A**	**K**
EACM6	**R**: Reversed Motor Type	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment / Static Permissible Moment	N·m	Do not apply a radial load or load moment to an electric linear cylinder rod. A simple anti-spin mechanism is already provided, but always be sure to provide an external guide.			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		15 Max.	—	30 Max.	—
Thrust		N	200 Max.		360 Max.	
Push Force		N	400		500	
Holding Force		N	200		360	
Maximum Speed		mm/s	600		300	

- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Operating Speed – Thrust

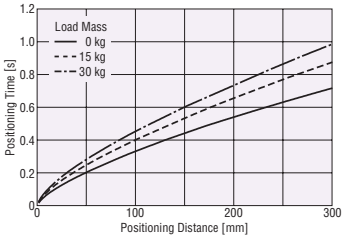


Positioning Distance – Positioning Time

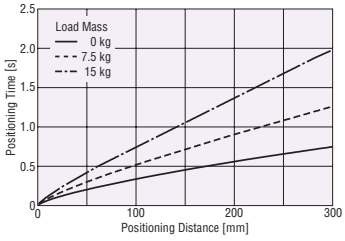
The positioning time (reference) can be checked from the positioning distance.

Lead Screw Pitch: 12 mm

◇Horizontal Installation

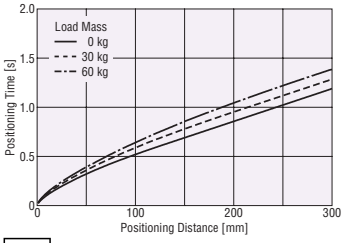


◇Vertical Installation

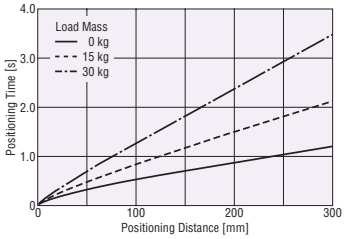


Lead Screw Pitch: 6 mm

◇Horizontal Installation



◇Vertical Installation



Note

- The starting speed should be 6 mm/s max..

Dimensions

- Electric Cylinders → Page 79

EACM4W: Frame Size 42 mm × 114 mm AC Input
Straight Type with Shaft Guide (with Cover)

Product Number

Model	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM4	W	D	05	AZ	A	C	-G
EACM4	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:1.3 M_Y:1.3 M_R:0.6			
	Static Permissible Moment		M_P:3.7 M_Y:3.7 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		6 Max.	–	13 Max.	–
Thrust		N	70 Max.		140 Max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed		mm/s	600		300	

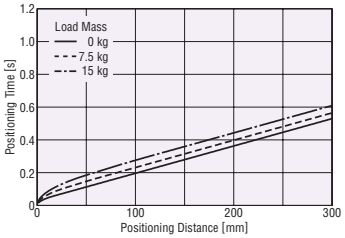
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction.
  Select a product with an electromagnetic brake for operation in the vertical direction.

Positioning Distance – Positioning Time

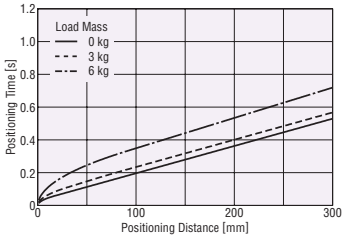
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

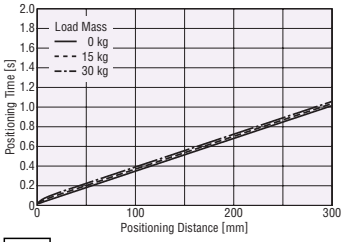


◇Vertical Installation

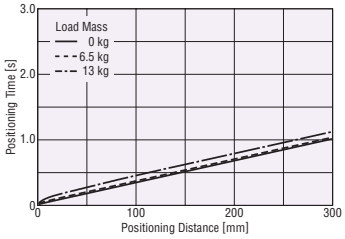


●Lead Screw Pitch: 6 mm

◇Horizontal Installation

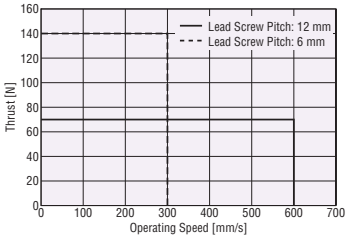


◇Vertical Installation



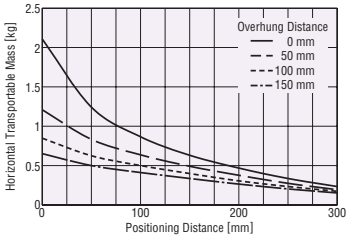
Note
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

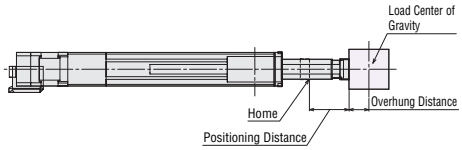


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 81

EACM4RW: Frame Size 42 mm × 114 mm AC Input
Reversed Motor Type with Shaft Guide (with Cover)

Product Number

Model	Motor Orientation	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM4	R	W	D	05	AZ	A	C	-G
EACM4	**R**: Reversed Motor Type	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:1.3 M_Y:1.3 M_R:0.6			
	Static Permissible Moment		M_P:3.7 M_Y:3.7 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		6 Max.	–	11.5 Max.	–
Thrust		N	70 Max.		125 Max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed		mm/s	600		300	

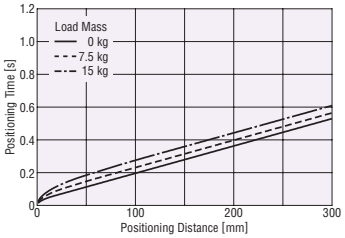
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction.
  Select a product with an electromagnetic brake for operation in the vertical direction.

Positioning Distance – Positioning Time

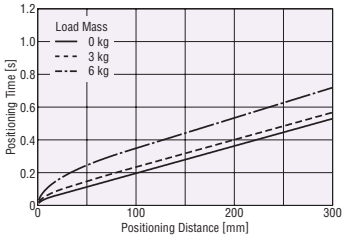
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

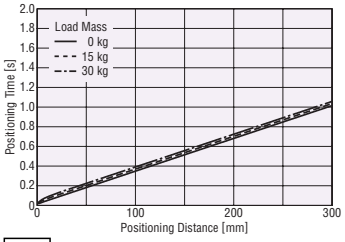


◇Vertical Installation

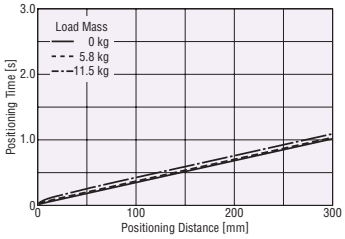


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



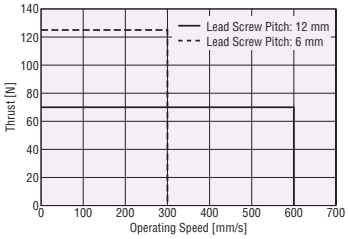
◇Vertical Installation



Note

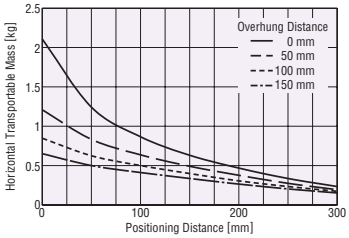
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

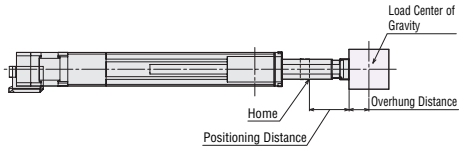


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 82

EACM4W: Frame Size 42 mm × 114 mm DC Input
Straight Type with Shaft Guide (with Cover)

Product Number

Model	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM4	**W**	**D**	**05**	**AZ**	**A**	**K**	**-G**
EACM4	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:1.3 M_Y:1.3 M_R:0.6			
	Static Permissible Moment		M_P:3.7 M_Y:3.7 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		6 Max.	–	13 Max.	–
Thrust		N	70 Max.		140 Max.	
Push Force		N	100		200	
Holding Force		N	70		140	
Maximum Speed		mm/s	600		300	

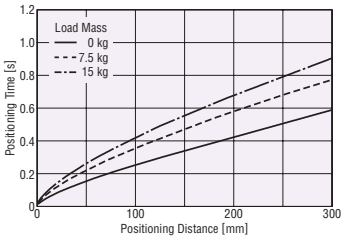
- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Positioning Distance – Positioning Time

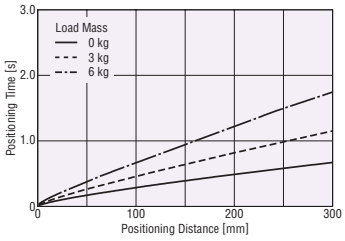
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

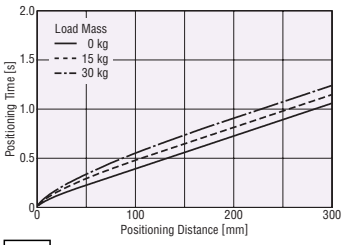


◇Vertical Installation

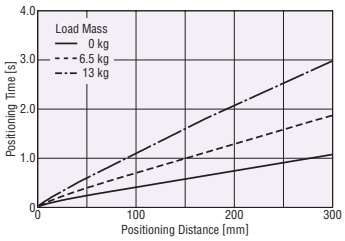


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



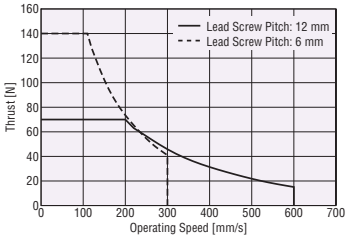
◇Vertical Installation



Note

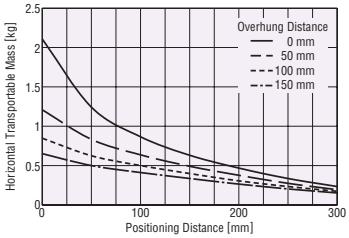
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

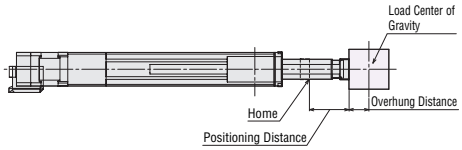


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 81

EACM4RW: Frame Size 42 mm × 114 mm DC Input
Reversed Motor Type with Shaft Guide (with Cover)

Product Number

Model	Motor Orientation	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM4	R	W	D	05	AZ	A	K	-G
EACM4	**R**: Reversed Motor	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:1.3 M_Y:1.3 M_R:0.6			
	Static Permissible Moment		M_P:3.7 M_Y:3.7 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	15 Max.		30 Max.	
	Vertical Direction		6 Max.	–	11.5 Max.	–
Thrust		N	70 Max.		125 Max.	
Push Force		N	100		200	
Holding Force		N	70		125	
Maximum Speed		mm/s	600		300	

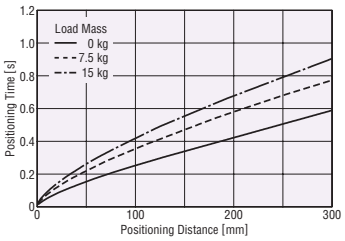
- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Positioning Distance – Positioning Time

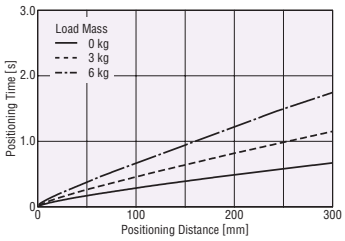
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

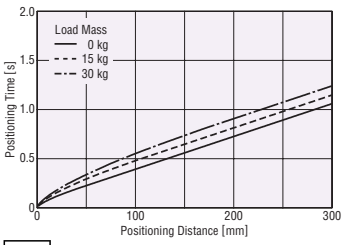


◇Vertical Installation

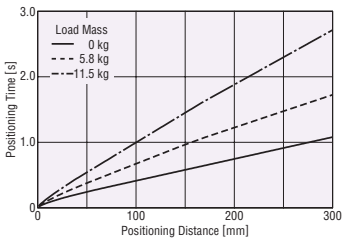


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



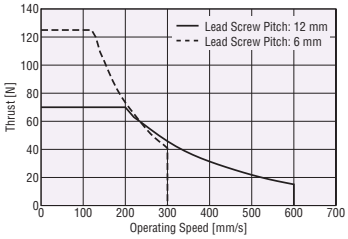
◇Vertical Installation



Note

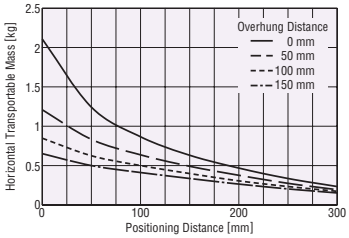
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

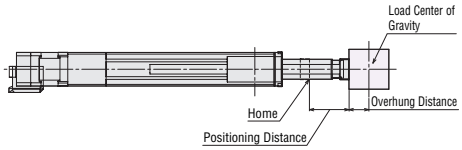


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 82

EACM6W: Frame Size 60 mm × 156 mm AC Input
Straight Type with Shaft Guide (with Cover)

Product Number

Model	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM6	W	D	05	AZ	A	C	-G
EACM6	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:2.2 M_Y:2.2 M_R:1.3			
	Static Permissible Moment		M_P:7.8 M_Y:7.8 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		13 Max.	–	28 Max.	–
Thrust		N	200 Max.		400 Max.	
Push Force		N	400		500	
Holding Force		N	200		400	
Maximum Speed		mm/s	600		300	

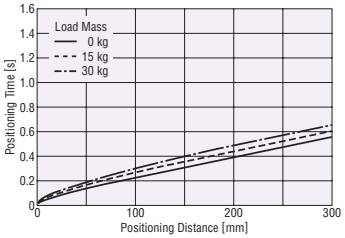
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Positioning Distance – Positioning Time

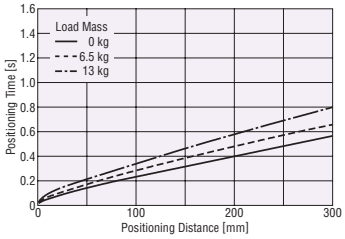
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

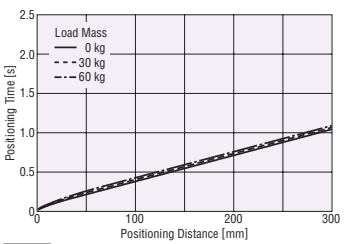


◇Vertical Installation

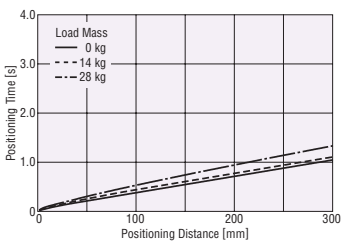


●Lead Screw Pitch: 6 mm

◇Horizontal Installation

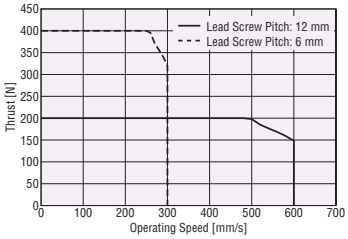


◇Vertical Installation



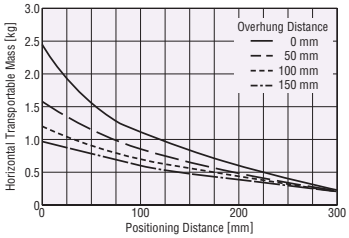
Note
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

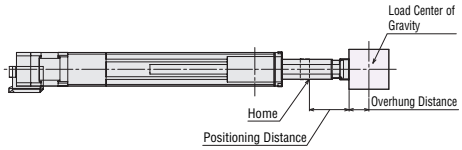


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 83

EACM6RW: Frame Size 60 mm × 156 mm AC Input
Reversed Motor Type with Shaft Guide (with Cover)

Product Number

Model	Motor Orientation	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM6	R	W	D	05	AZ	A	C	-G
EACM6	**R**: Reversed Motor	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**C**: AC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:2.2 M_Y:2.2 M_R:1.3			
	Static Permissible Moment		M_P:7.8 M_Y:7.8 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		13 Max.	–	28 Max.	–
Thrust		N	200 Max.		360 Max.	
Push Force		N	400		500	
Holding Force		N	200		360	
Maximum Speed		mm/s	600		300	

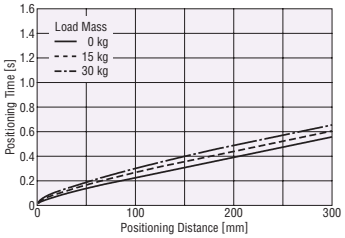
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.

Positioning Distance – Positioning Time

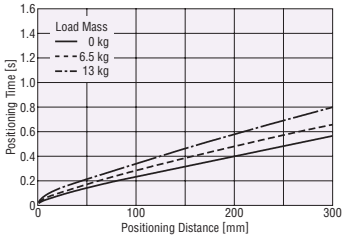
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

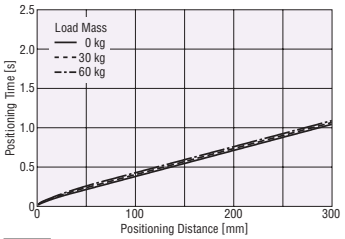


◇Vertical Installation

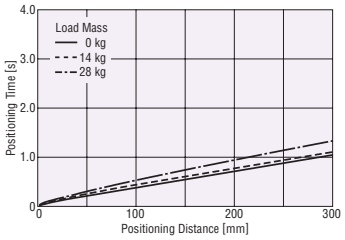


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



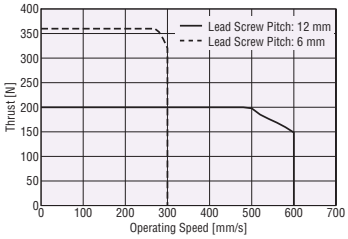
◇Vertical Installation



Note

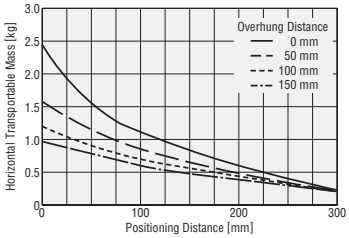
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

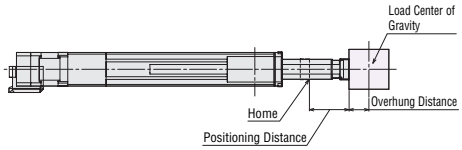


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 84

EACM6W: Frame Size 60 mm × 156 mm DC Input
Straight Type with Shaft Guide (with Cover)

Product Number

Model	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM6	**W**	**D**	**05**	**AZ**	**A**	**K**	**-G**
EACM6	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:2.2 M_Y:2.2 M_R:1.3			
	Static Permissible Moment		M_P:7.8 M_Y:7.8 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		13 Max.	–	28 Max.	–
Thrust		N	200 Max.		400 Max.	
Push Force		N	400		500	
Holding Force		N	200		400	
Maximum Speed		mm/s	600		300	

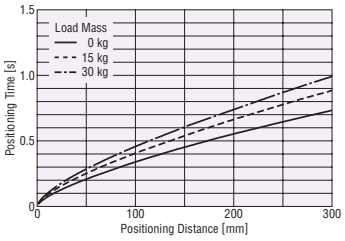
- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Positioning Distance – Positioning Time

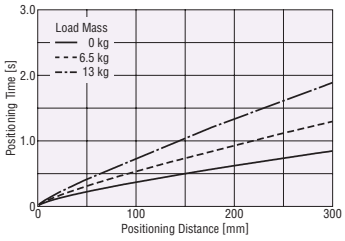
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

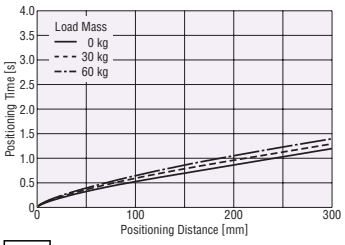


◇Vertical Installation

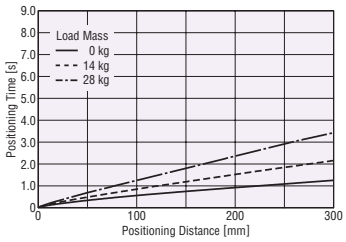


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



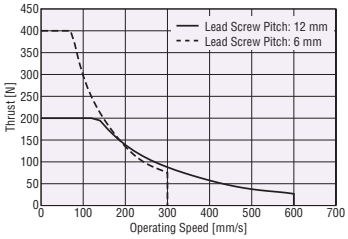
◇Vertical Installation



Note

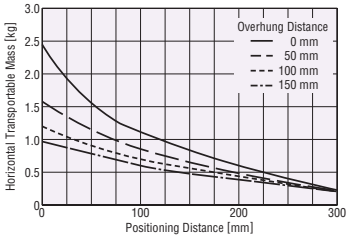
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

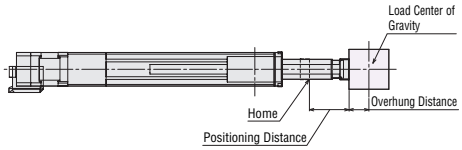


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 83

EACM6RW: Frame Size 60 mm × 156 mm DC Input
Reversed Motor Type with Shaft Guide (with Cover)

Product Number

Model	Motor Orientation	Shaft Guide	Lead Screw Pitch	Stroke	Equipped Motor	Motor Type	Motor Specifications	Shaft Guide Cover
EACM6	R	W	D	05	AZ	A	K	-G
EACM6	**R**: Reversed Motor	**W**: With Shaft Guide	**D**: 12 mm **E**: 6 mm	**05**: 50 mm **10**: 100 mm **15**: 150 mm ~ **30**: 300 mm (50 mm increment)	**AZ** Series	**A**: Single Shaft **M**: With Electromagnetic Brake	**K**: DC Input Specifications	**-G**: With Shaft Guide Cover Blank: No Shaft Guide Cover

Electric Cylinder Specifications

Lead Screw Pitch		mm	12		6	
Electromagnetic Brake (Power Off Activated Type)			Equipped	Not equipped	Equipped	Not equipped
Drive Method			Ball Screw			
Repetitive Positioning Accuracy		mm	±0.02			
Minimum Travel Amount		mm	0.01			
Permissible Moment	Dynamic Permissible Moment	N·m	M_P:2.2 M_Y:2.2 M_R:1.3			
	Static Permissible Moment		M_P:7.8 M_Y:7.8 M_R:3.0			
Transportable Mass	Horizontal Direction	kg	30 Max.		60 Max.	
	Vertical Direction		13 Max.	–	28 Max.	–
Thrust		N	200 Max.		360 Max.	
Push Force		N	400		500	
Holding Force		N	200		360	
Maximum Speed		mm/s	600		300	

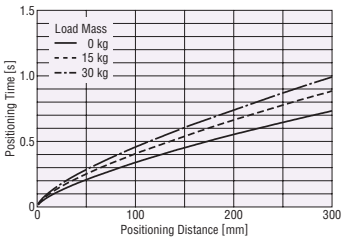
- For specifications and characteristics of 48 VDC input products, contact your nearest sales office.
- The transportable mass specifications apply when using external linear guide.
  When the linear guide is not used, refer to "■Horizontal Transportable Mass".
- Since the holding force is lost when the power is not supplied, the load and external force cannot be held in the vertical direction. Select a product with an electromagnetic brake for operation in the vertical direction.
- The maximum speed may decrease depending on the ambient temperature or the length of the motor cable.

Positioning Distance – Positioning Time

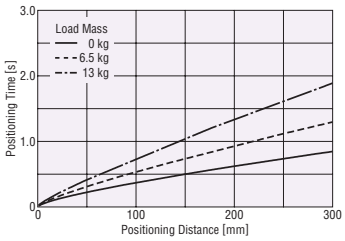
The positioning time (reference) can be checked from the positioning distance.

●Lead Screw Pitch: 12 mm

◇Horizontal Installation

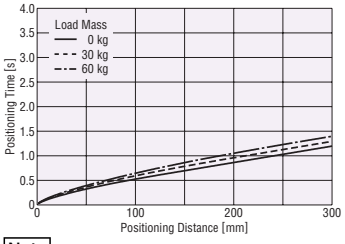


◇Vertical Installation

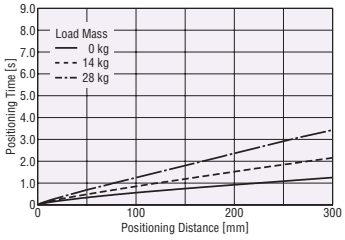


●Lead Screw Pitch: 6 mm

◇Horizontal Installation



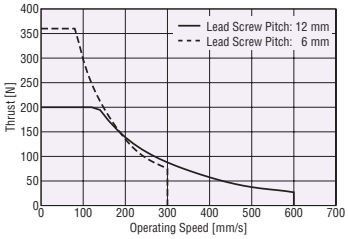
◇Vertical Installation



Note

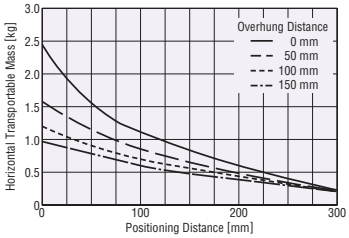
- The starting speed should be 6 mm/s max..

Operating Speed – Thrust

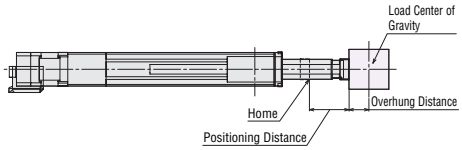


Horizontal Transportable Mass

◇Positioning Distance – Horizontal Transportable Mass



Products equipped with a shaft guide and shaft guide cover can transport loads that are attached directly to the body of the product. Check the horizontal transportable mass in the graph above.



- The positioning distance means the distance from the home position.
- The overhung distance means the distance that the load extends beyond the installation surface.

Dimensions

●Electric Cylinders → Page 84

Electromagnetic Brake Specifications

Product Name		EACM4	EACM6
Brake Type		Power Off Activated Type	
Power Supply Voltage		24 VDC±5%*	
Power Supply Current	A	0.08	0.25
Time Rating		Continuous	

*For the type with an electromagnetic brake, a 24 VDC ±4% specification applies if the wiring distance between the motor and driver is extended to 20 m using a cable.

General Specifications

		AC Input	DC Input
Thermal Class		130 (B) [UL/CSA: 105 (A)]	
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: ・Case – Motor Windings ・Case – Electromagnetic Brake Windings*1	
Dielectric Strength		Sufficient to withstand the following for 1 minute: **EACM4**, **EACM6** ・Case – Motor Windings 1.5 kVAC, 50 Hz or 60 Hz ・Case – Electromagnetic Brake Windings*1 1.5 kVAC, 50 Hz or 60 Hz	Sufficient to withstand the following for 1 minute: **EACM2** ・Case – Motor Windings 0.5 kVAC, 50 Hz or 60 Hz **EACM4**, **EACM6** ・Case – Motor Windings 1.0 kVAC 50 Hz or 60 Hz ・Case – Electromagnetic Brake Windings*1 1.0 kVAC 50 Hz or 60 Hz
Operating Environment (In Operation)	Ambient Temperature	0 to +40°C (Non-freezing)*3	
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection*2		**EACM2**: IP40 (excluding installation surfaces and connector locations) **EACM4**, **EACM6**: IP66 (excluding installation surfaces and connector locations)	
Multiple Rotation Detection Range in Power OFF State		**EACM2**: ±450 Rotations (900 Rotations) **EACM4**, **EACM6**: ±900 Rotations (1800 Rotations)	

*1 Only for products with an electromagnetic brake.
*2 Only for motor parts. The degree of protection of the electric cylinder is IP00.
*3 It is based on Oriental Motor's measurement conditions.

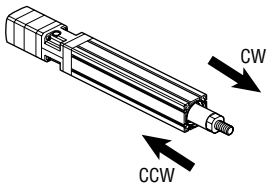
Note

● Disconnect the motor and driver when taking an insulation resistance measurement or performing a dielectric voltage withstand test.
Also, do not perform these tests on the ABZO sensor (absolute sensor) part of the motor.

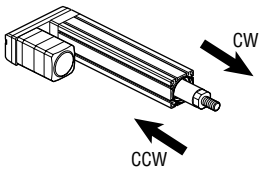
Moving Direction

At the time of shipment, the moving direction of the rod is set as shown below.

Motor Mounting: Straight Type



Motor Mounting: Reversed Motor Type

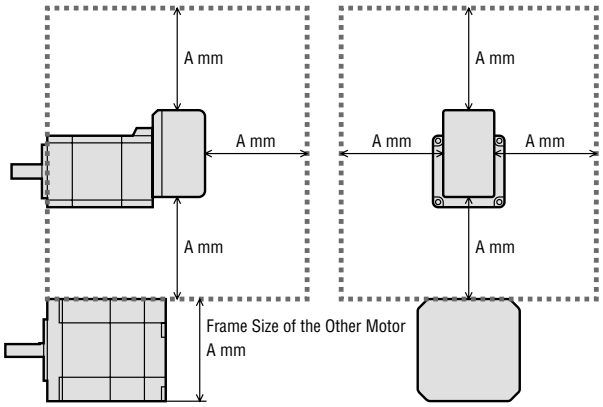


Actuator Installation

When installing the actuator, pay particular attention to the installation location, because the ABZO sensor (absolute sensor) can easily be affected by magnetic force.

When Installing **EACM2**

When installing the motor parts in parallel, leave a buffer space that is equal to or greater than the motor's size (frame size) both horizontally and vertically.



● Leave a buffer space equal to or greater than the motor's frame size (A mm).

● Reference

The Other Motor	A
Frame Size 20 mm	20
Frame Size 28 mm	28
Frame Size 42 mm	42
Frame Size 60 mm	60

When installing the actuator in an environment where a magnetic field is generated

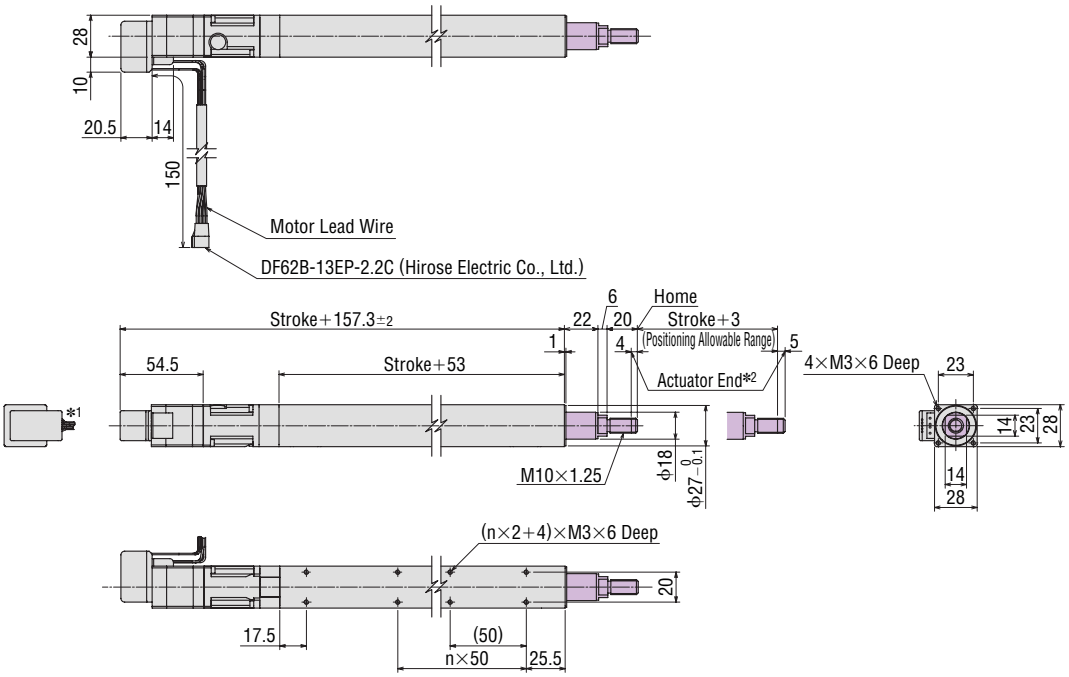
Make sure that the magnetic flux density on the surface of the ABZO sensor (absolute sensor) does not exceed the values in the table.

Product Name	Magnetic Flux Density
EACM2	2 mT*
EACM4, **EACM6**	10 mT

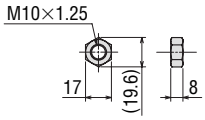
*When the magnetic flux density exceeding 1 mT and below 2 mT, please use the actuator at ambient temperature exceeding 20°C and below 40°C.

Dimensions (Unit: mm)

EACM2 Straight Type



● Included Nut (1 Piece)



*1 The direction of the motor lead can be changed in 90° intervals in four directions.

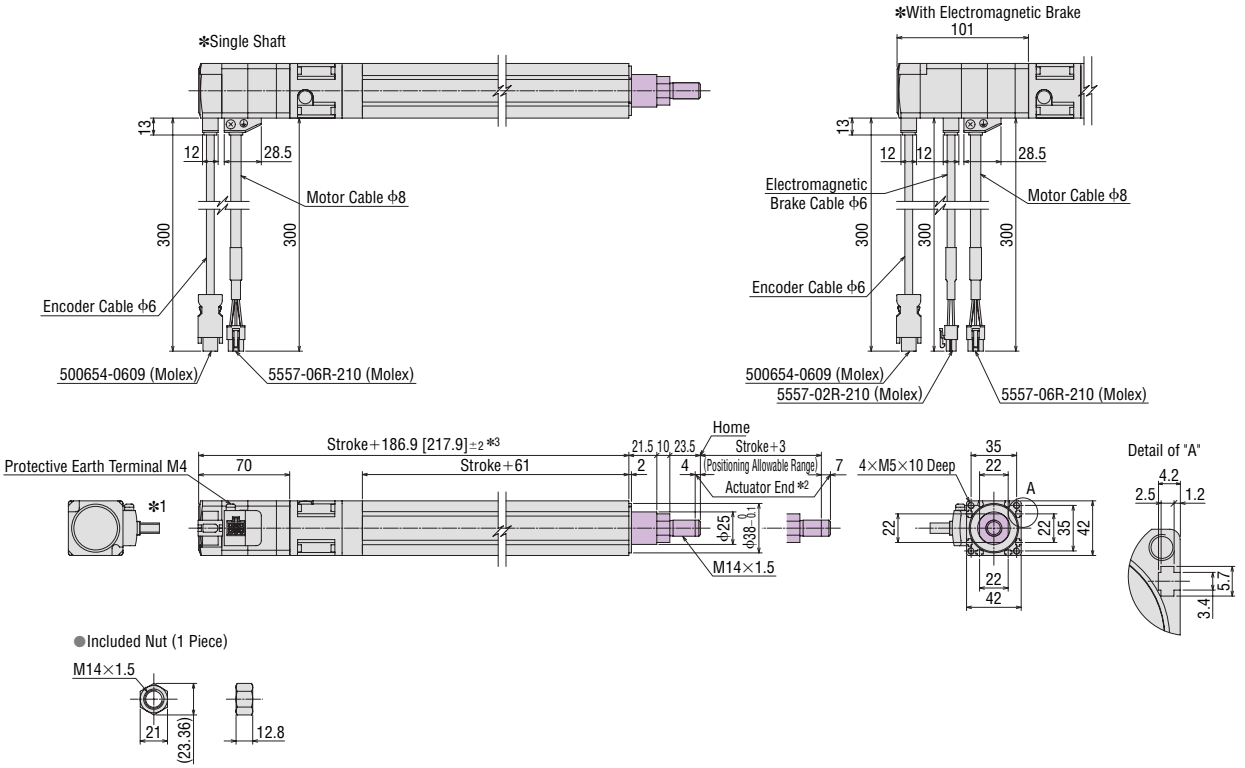
*2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150
Hole Coefficient (n)		1	2	3
Mass [kg]	Single Shaft	0.46	0.54	0.61

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM4 Straight Type



✻1 The direction of the motor cable can be changed in 90° intervals in four directions.

✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

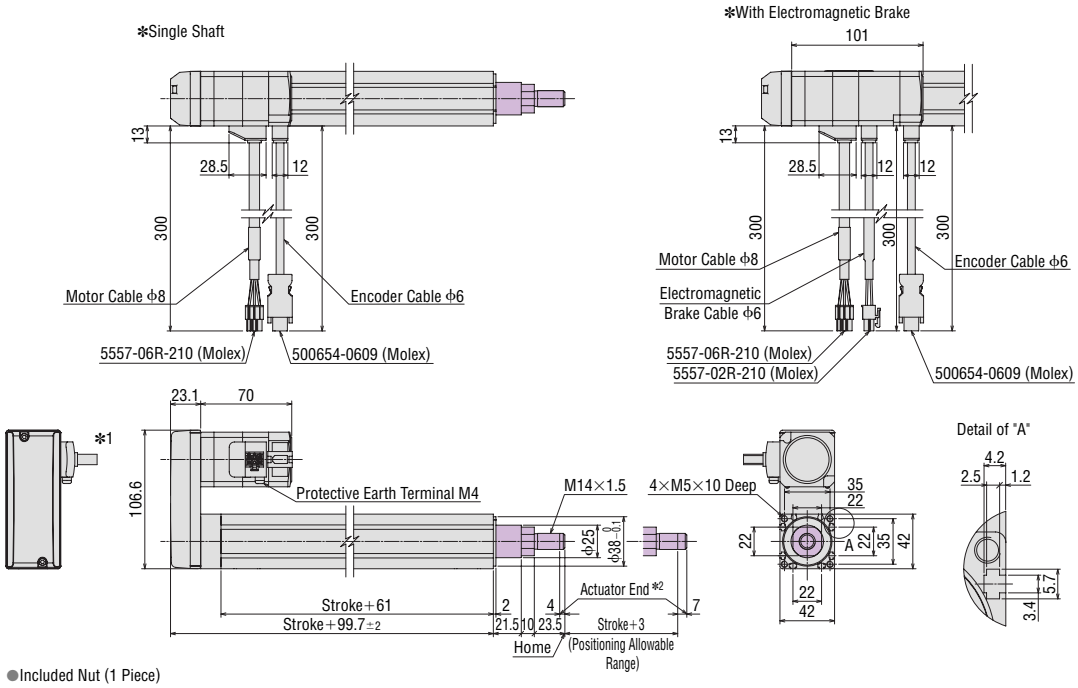
✻3 The brackets [ ] indicate the values for the electromagnetic brake product.

● The ▭ shaded areas are moving parts.

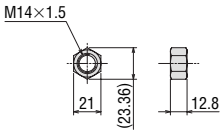
Stroke [mm]		50	100	150	200	250	300
Mass [kg]	Single Shaft	1.0	1.2	1.4	1.6	1.7	1.9
	With Electromagnetic Brake	1.2	1.4	1.6	1.8	1.9	2.1

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM4R Reversed Motor Type



●Included Nut (1 Piece)



✻1 The direction of the motor cable can be changed in 90° intervals in three directions.

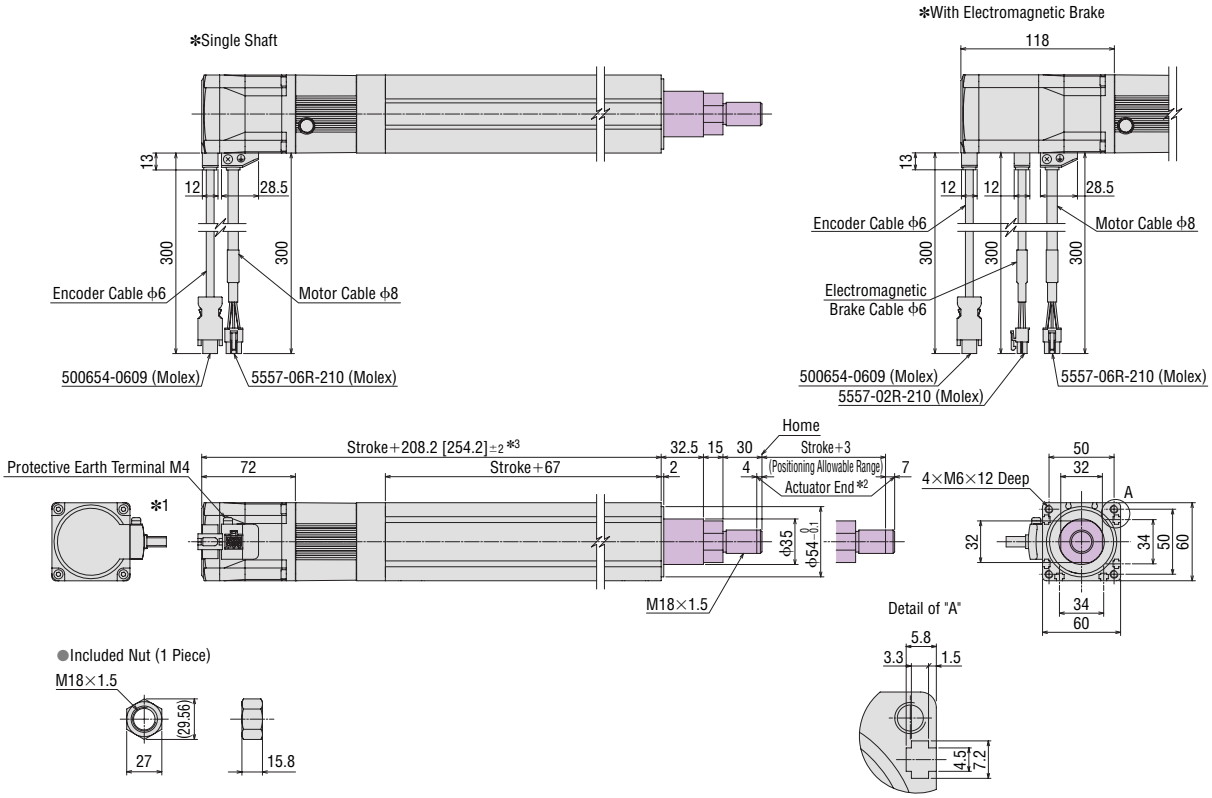
✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	Single Shaft	1.0	1.2	1.4	1.6	1.7	1.9
	With Electromagnetic Brake	1.2	1.4	1.6	1.8	1.9	2.1

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM6 Straight Type



✻1 The direction of the motor cable can be changed in 90° intervals in four directions.

✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

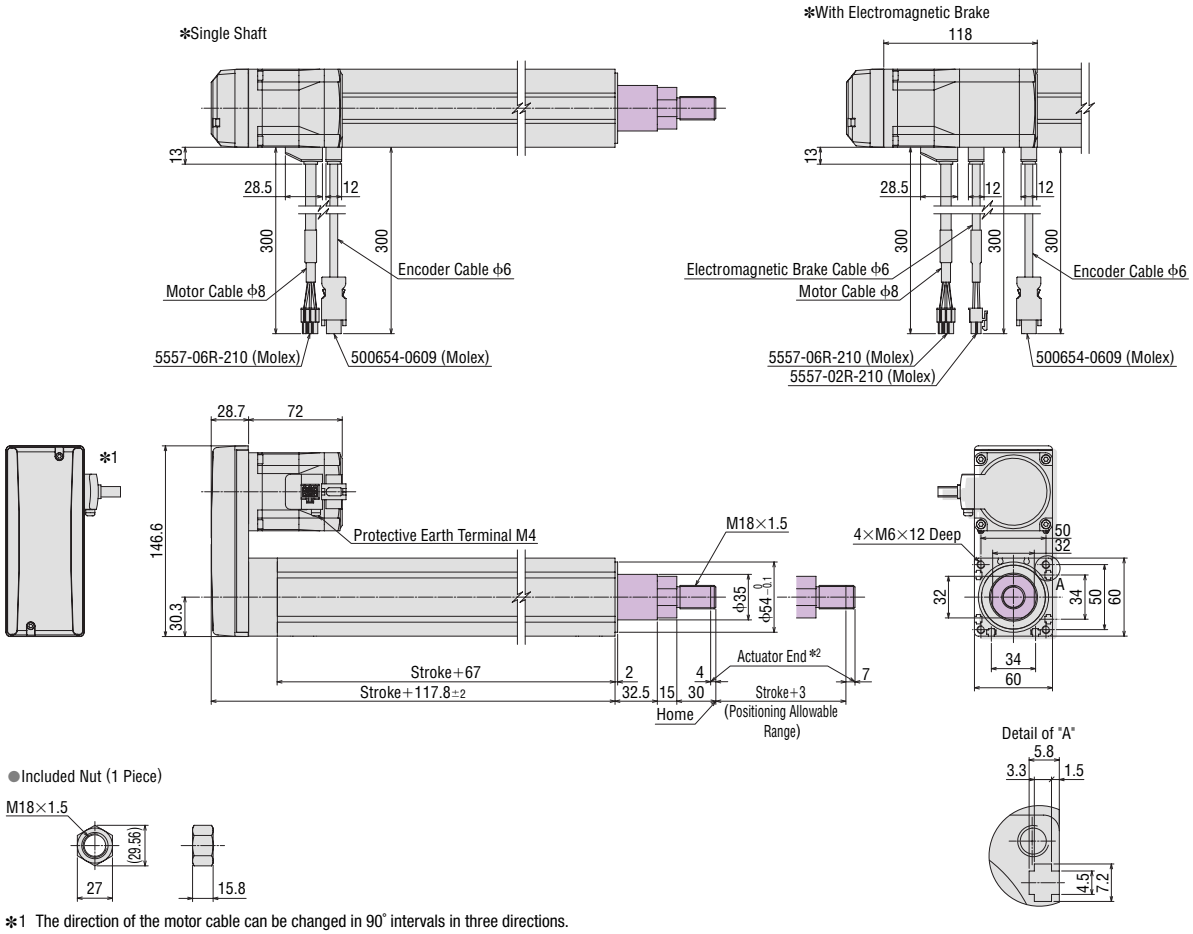
✻3 The brackets [ ] indicate the values for the electromagnetic brake product.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	Single Shaft	2.6	3.0	3.4	3.7	4.1	4.5
	With Electromagnetic Brake	3.0	3.4	3.8	4.1	4.5	4.9

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM6R Reversed Motor Type



●Included Nut (1 Piece)

✻1 The direction of the motor cable can be changed in 90° intervals in three directions.

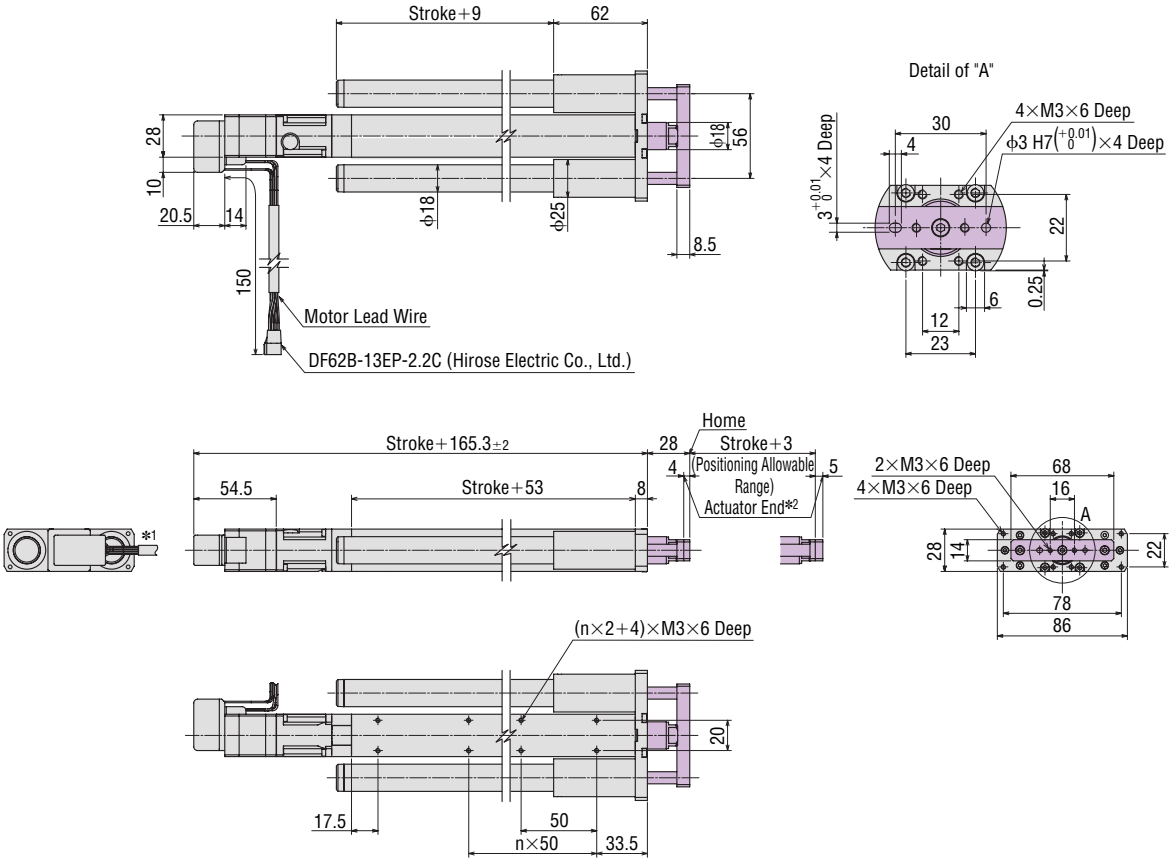
✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	Single Shaft	2.6	3.0	3.4	3.7	4.1	4.5
	With Electromagnetic Brake	3.0	3.4	3.8	4.1	4.5	4.9

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM2W Straight Type with Shaft Guide Cover



*1 The direction of the motor lead can be changed in 90° intervals in four directions.

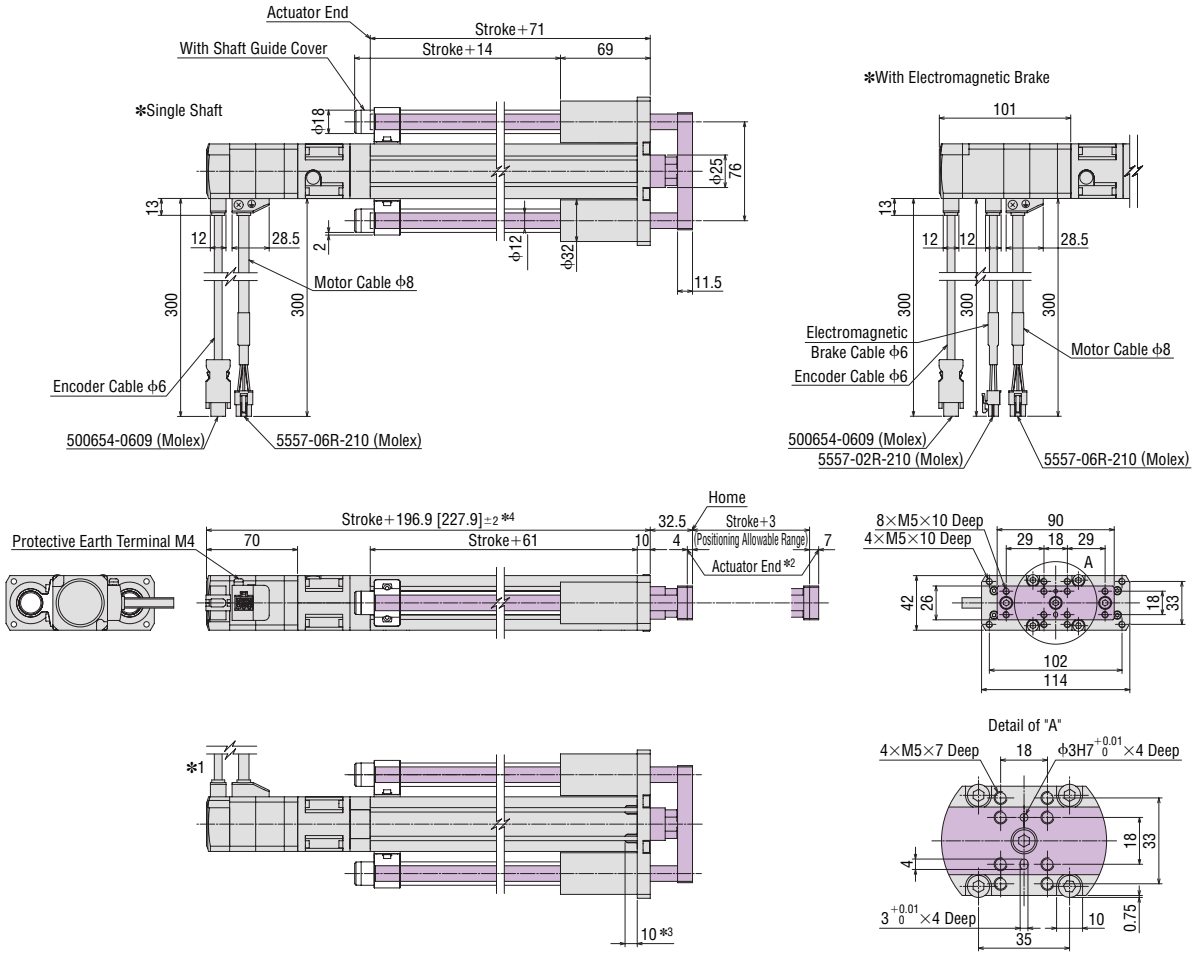
*2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150
Hole Coefficient (n)		1	2	3
Mass [kg]	Single Shaft	0.78	0.92	1.10

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM4W Straight Type with Shaft Guide/with Shaft Guide Cover



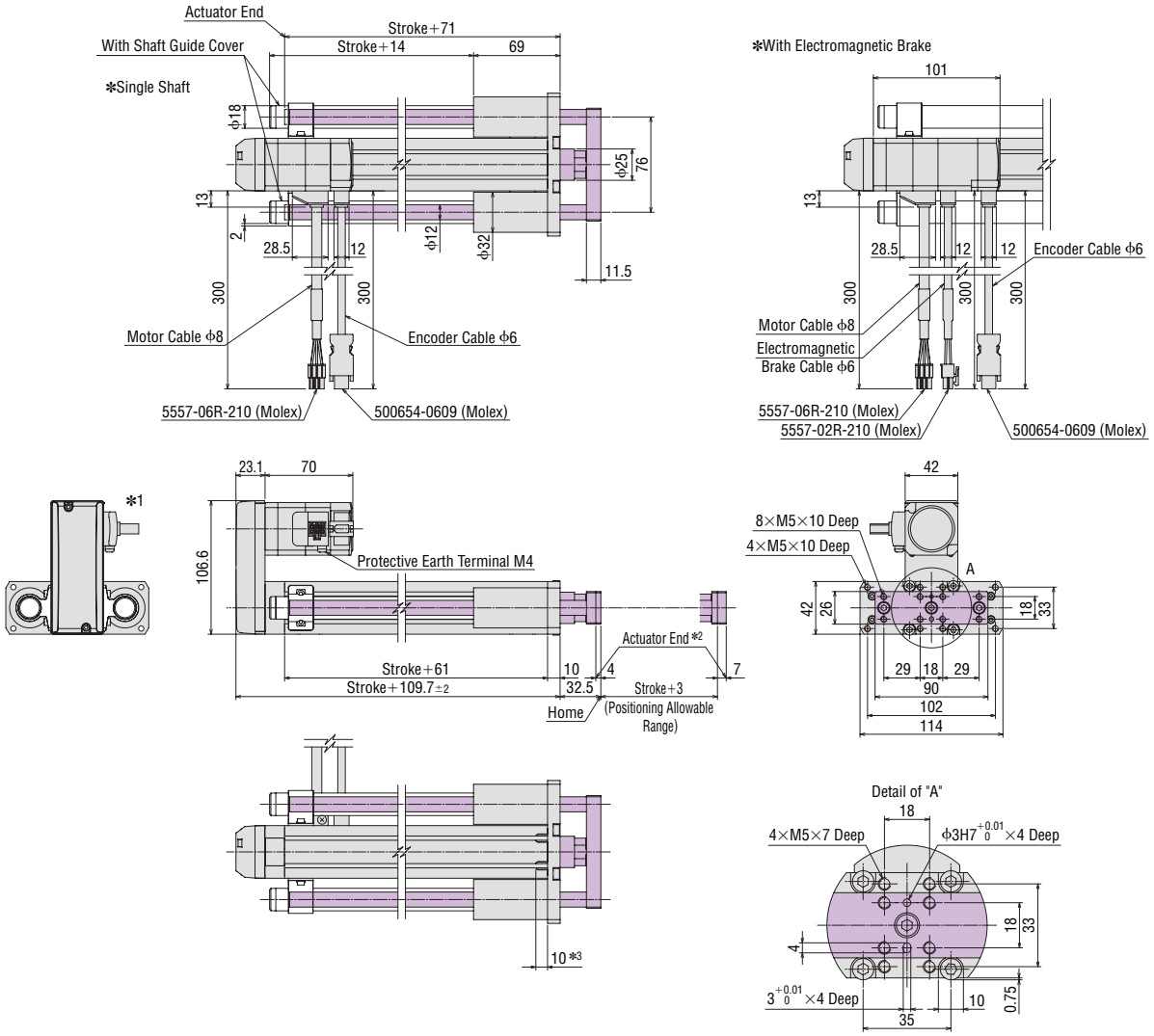
✻1 The direction of the motor cable can be changed in 90° intervals in four directions.
✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.
✻3 The installation plate foot type cannot be installed on this part.
✻4 The brackets [ ] indicate the values for the electromagnetic brake product.
● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	1.7 (1.9)	2.0 (2.2)	2.3 (2.5)	2.5 (2.7)	2.8 (3.0)	3.1 (3.3)
	With Shaft Guide Cover	1.8 (1.9)	2.1 (2.3)	2.4 (2.6)	2.6 (2.8)	3.0 (3.1)	3.3 (3.5)

● Values in ( ) indicate the mass of the type with an electromagnetic brake.

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM4RW Reversed Motor Type with Shaft Guide/with Shaft Guide Cover



✻1 The direction of the motor cable can be changed in 90˚ intervals in three directions.

✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

✻3 The installation plate foot type cannot be installed on this part.

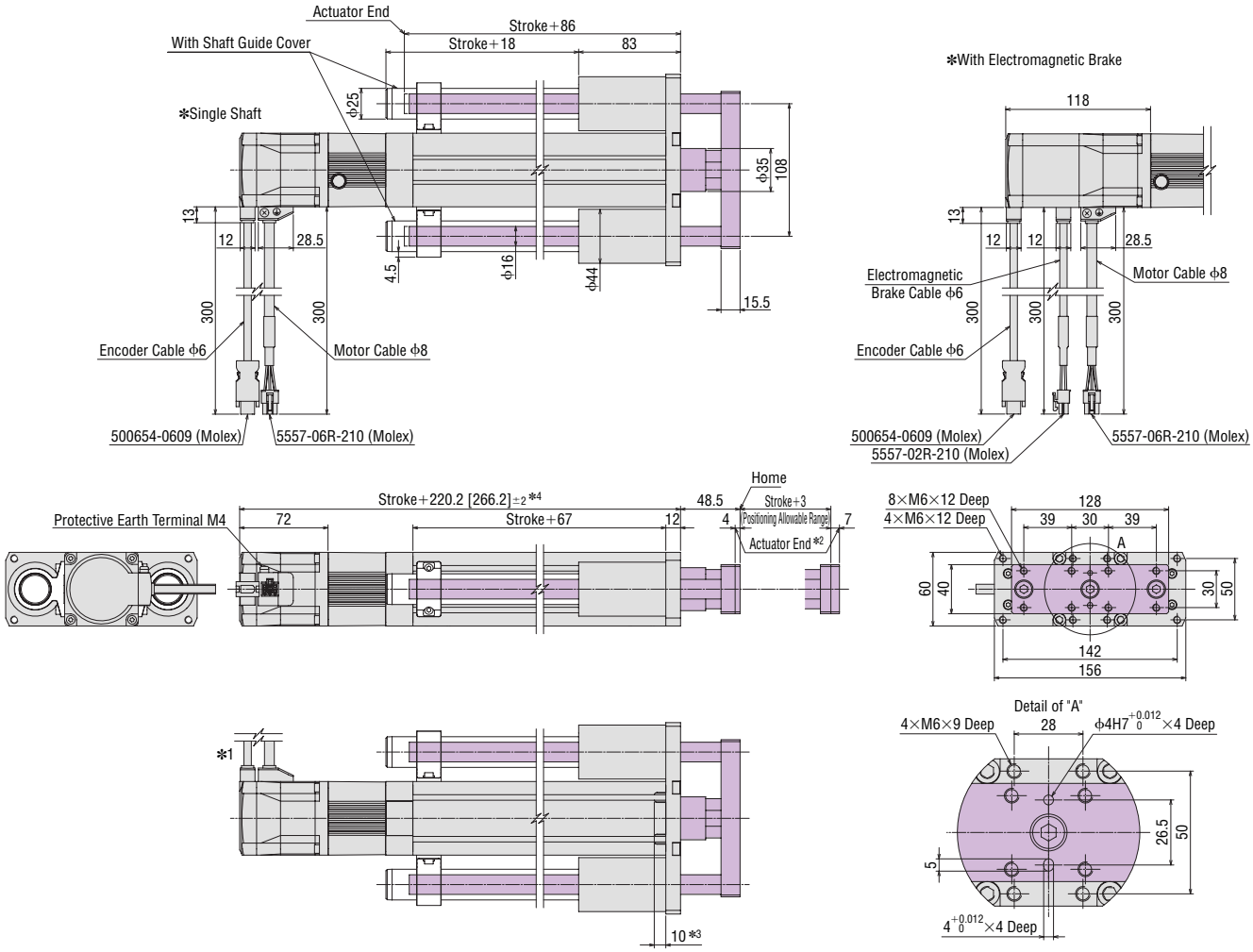
● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	1.7 (1.9)	2.0 (2.2)	2.3 (2.5)	2.5 (2.7)	2.8 (3.0)	3.1 (3.3)
	With Shaft Guide Cover	1.8 (1.9)	2.1 (2.3)	2.4 (2.6)	2.6 (2.8)	3.0 (3.1)	3.3 (3.5)

● Values in ( ) indicate the mass of the type with an electromagnetic brake.

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM6W Straight Type with Shaft Guide/with Shaft Guide Cover



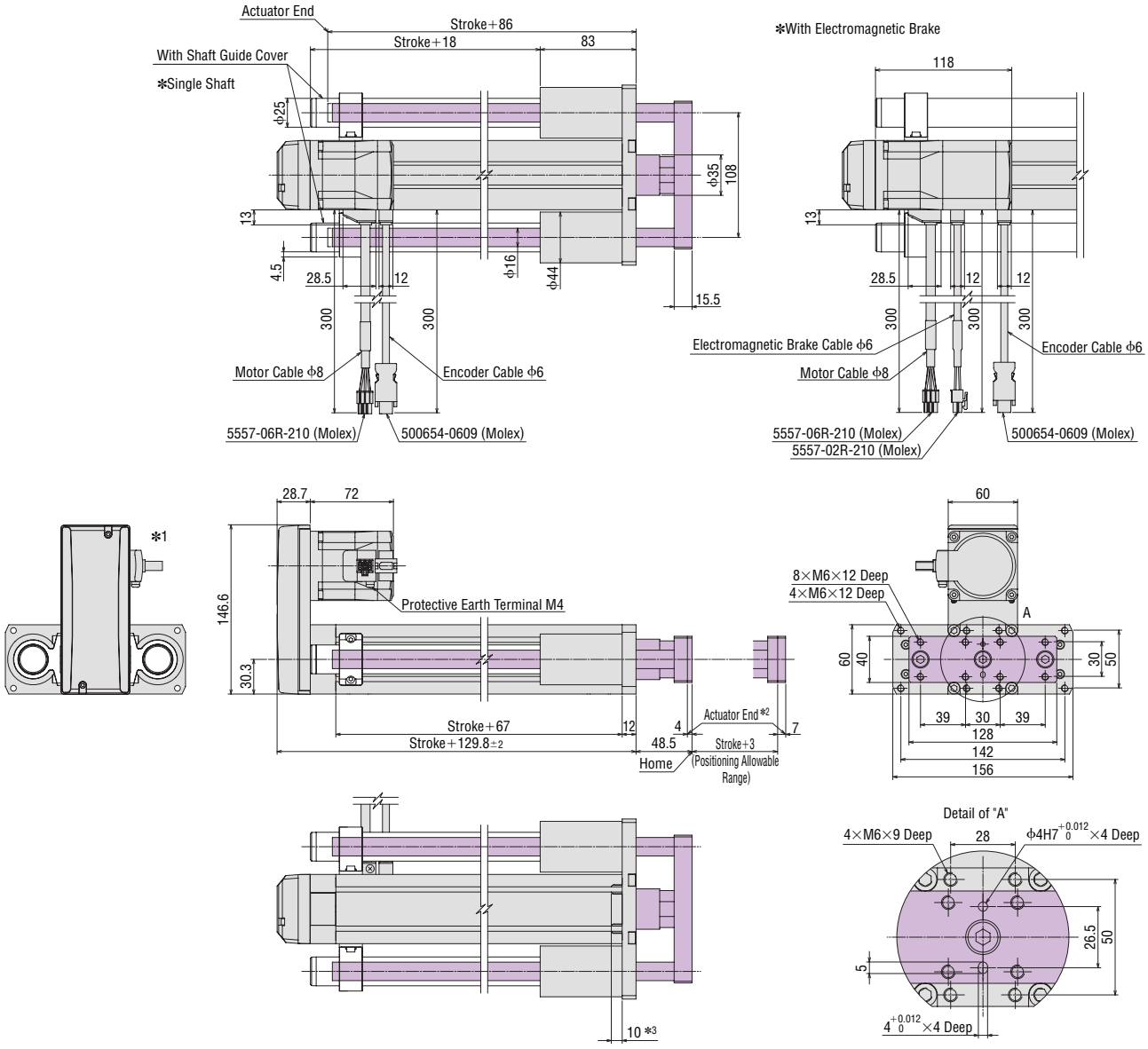
✻1 The direction of the motor cable can be changed in 90° intervals in four directions.
✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.
✻3 The installation plate foot type cannot be installed on this part.
✻4 The brackets [ ] indicate the values for the electromagnetic brake product.
● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	4.1 (4.5)	4.7 (5.1)	5.2 (5.6)	5.7 (6.1)	6.3 (6.7)	6.8 (7.2)
	With Shaft Guide Cover	4.2 (4.6)	4.9 (5.3)	5.4 (5.8)	6.0 (6.4)	6.6 (7.0)	7.2 (7.6)

● Values in ( ) indicate the mass of the type with an electromagnetic brake.

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

●EACM6RW Reversed Motor Type with Shaft Guide/with Shaft Guide Cover



✻1 The direction of the motor cable can be changed in 90° intervals in three directions.

✻2 At the push-motion return-to-home operation, the rod moves to the mechanical limit position. The push-motion return-to-home operation cannot move the rod to the far end from the motor.

✻3 The installation plate foot type cannot be installed on this part.

● The ▭ shaded areas are moving parts.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	4.1 (4.5)	4.7 (5.1)	5.2 (5.6)	5.7 (6.1)	6.3 (6.7)	6.8 (7.2)
	With Shaft Guide Cover	4.2 (4.6)	4.9 (5.3)	5.4 (5.8)	6.0 (6.4)	6.6 (7.0)	7.2 (7.6)

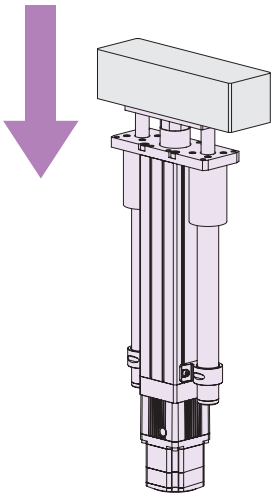
● Values in ( ) indicate the mass of the type with an electromagnetic brake.

● Please download the CAD data from Oriental Motor website.
https://www.orientalmotor.com.sg/

About Use of the EACM6 (AC Input Type) for Vertical Driving

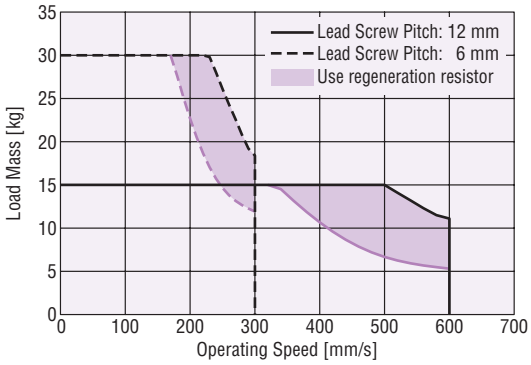
When operating **EACM6*** type electric cylinders in the vertical direction, depending on the driving conditions, an overvoltage protection alarm may be detected. In such case, refer to the operating speed - load mass characteristics diagram, and connect the Oriental Motor's **RGB100** regeneration resistor to the driver.

*Common to all AC input specifications of **D** (lead screw pitch 12 mm)/**E** (lead screw pitch 6 mm), Straight/ Reversed motor type.

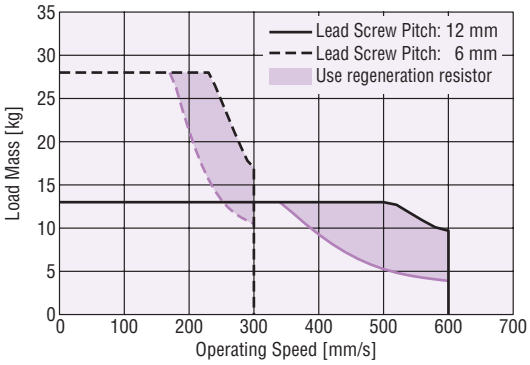


Example of Vertical Use

No Shaft Guide



With Shaft Guide/With Shaft Guide Cover



Region in which the regeneration resistor is required for **EACM6** type (AC Input Type)

Regeneration Resistor

When a regeneration resistor is attached to the special terminal on the driver, the regenerative power that is fed back from the motor is released as thermal energy.

◇Product Line

Product Name	Applicable Product
RGB100	AC Input Drivers

◇Specifications

Item	Specifications
Continuous Regenerative Power	50W
Resistance Value	150Ω
Thermostat Operating Temperature	Open: 150±7°C Close: 145±12°C (Normally Closed)
Thermostat Electrical Rating	120 VAC 4 A 30 VDC 4 A (Minimum current 5 mA)

● Install the regeneration resistor in the place which has the same heat radiation capability as heat radiation plate [Material: Aluminum 350 mm×350 mm, 3 mm thick].

αSTEP AZ Series Drivers (Common to all series)

Types and Features

αSTEP AZ Series Drivers

The drivers can be selected according to the host controller to be used.

◇Built-in Controller Type (FLEX)

Set the positioning data in the driver (256 points). Industrial network control is possible by using a network converter (sold separately).

◇Pulse Input Type with RS-485 Communication

Motor position, speed, alarm and temperature can be monitored by RS-485 communication.

◇Pulse Input Type

Can be controlled by a positioning module (pulse generator).

◇Network Compatible Drivers

EtherNet/IP EtherCAT PROFINET

Drivers compatible with EtherNet/IP, EtherCAT drive profile, and PROFINET. Direct control from the network is possible.

- For product details, please refer to the **AZ** Series Brochure or Oriental Motor website.
- (FLEX) FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters.

AC Input

Product Number

AZD - C D

① ② ③

①	Driver Type	**AZD**: **AZ** Series Driver
②	Power Supply Input	**A**: Single-Phase 100-120 VAC **C**: Single-Phase/Three-Phase 200-240 VAC
③	Type	**D**: Built-in Controller Type **X**: Pulse Input Type with RS-485 Communication Blank: Pulse Input Type **EP**: EtherNet/IP Compatible **ED**: EtherCAT Drive Profile Compatible **PN**: PROFINET Compatible

Product Line

Driver

◇Built-in Controller Type

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-AD**
Single-Phase/Three-Phase 200-240 VAC	**AZD-CD**

◇Pulse Input Type with RS-485 Communication

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-AX**
Single-Phase/Three-Phase 200-240 VAC	**AZD-CX**

◇Pulse Input Type

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-A**
Single-Phase/Three-Phase 200-240 VAC	**AZD-C**

◇EtherNet/IP Compatible Type

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-AEP**
Single-Phase/Three-Phase 200-240 VAC	**AZD-CEP**

◇EtherCAT Drive Profile Compatible Type

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-AED**
Single-Phase/Three-Phase 200-240 VAC	**AZD-CED**

◇PROFINET Compatible Type

Power Supply Input	Product Name
Single-Phase 100-120 VAC	**AZD-APN**
Single-Phase/Three-Phase 200-240 VAC	**AZD-CPN**

Included

Type \ Included	Connector
Built-in Controller Type Pulse Input Type with RS-485 Communication Pulse Input Type	・CN1 Connector (1 pc.) ・CN4 Connector (1 pc.) ・CN5 Connector (1 pc.) ・Connector Lever (1 pc.)
EtherNet/IP Compatible EtherCAT Drive Profile Compatible PROFINET Compatible	・CN1 Connector (1 pc.) ・CN4 Connector (1 pc.) ・CN7 Connector (1 pc.) ・Connector Lever (1 pc.)

Driver Specifications

Driver Product Name			AZD-AD AZD-AX AZD-A AZD-AEP AZD-AED AZD-APN	AZD-CD AZD-CX AZD-C AZD-CEP AZD-CED AZD-CPN	
Main Power Supply	Input Voltage		Single-Phase 100-120 VAC −15 to +6% 50/60 Hz	Single-Phase 200-240 VAC −15 to +6% 50/60 Hz	Three-Phase 200-240 VAC −15 to +6% 50/60 Hz
	Input Current	**EZSM3**, **EZSM4**, **EACM4**	2.7 A	1.7 A	1.0 A
		EZSM6, **EASM6**, **EACM6**	3.8 A	2.3 A	1.4 A
Control Power Supply	Input Voltage		24 VDC ±5%*1		
	Input Current		0.25 A (0.5 A)*2		

*1 If the electromagnetic brake type is extended 20 m with a cable, the specification becomes 24 VDC±4%.

*2 The parentheses ( ) indicate the specifications for the electromagnetic brake type. 0.33 A for **EZSM3**, **EZSM4**, **EASM4** and **EACM4**.

General Specifications

		Built-in Controller Type Pulse Input Type with RS-485 Communication EtherNet/IP Compatible EtherCAT Drive Profile Compatible PROFINET Compatible	Pulse Input Type
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: ・Protective Earth Terminal – Main Power Supply Terminal ・Encoder Connector – Main Power Supply Terminal ・I/O Signal Terminal – Main Power Supply Terminal	
Dielectric Strength		Sufficient to withstand the following for 1 minute: ・Protective Earth Terminal – Main Power Supply Terminal 1.5 kVAC, 50Hz or 60Hz ・Encoder Connector – Main Power Supply Terminal 1.8 kVAC, 50Hz or 60Hz ・I/O Signal Terminal – Main Power Supply Terminal 1.8 kVAC, 50Hz or 60Hz	
Operating Environment (In operation)	Ambient Temperature	0 to +55°C (Non-freezing)*	
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water or oil.	
Degree of Protection		IP10	IP20

* When installing a motor to a heat sink of a capacity at least equivalent to an aluminum plate of 200×200 mm, thickness 2 mm.

Note

● Disconnect the motor and driver when taking an insulation resistance measurement or performing a dielectric voltage withstand test. Also, do not perform these tests on the absolute sensor part of the motor.

The drivers and cables to be combined with the actuators are the same as the αSTEP **AZ** Series.

αSTEP **AZ** Series Brochure is available. When selecting products, please also use the brochure.

Product Number

AZD - K D

① ② ③

①	Driver Type	**AZD**: **AZ** Series Driver
②	Power Supply Input	**K**: 24 VDC/48 VDC
③	Type	**D**: Built-in Controller Type **X**: Pulse Input Type with RS-485 Communication Blank: Pulse Input Type **EP**: EtherNet/IP Compatible **ED**: EtherCAT Drive Profile Compatible **PN**: PROFINET Compatible

Product Line

● Driver

◇Built-in Controller Type

Power Supply Input	Product Name
24/48 VDC	**AZD-KD**

◇Pulse Input Type with RS-485 Communication

Power Supply Input	Product Name
24/48 VDC	**AZD-KX**

◇Pulse Input Type

Power Supply Input	Product Name
24/48 VDC	**AZD-K**

◇EtherNet/IP Compatible Type

Power Supply Input	Product Name
24/48 VDC	**AZD-KEP**

◇EtherCAT Drive Profile Compatible Type

Power Supply Input	Product Name
24/48 VDC	**AZD-KED**

◇PROFINET Compatible Type

Power Supply Input	Product Name
24/48 VDC	**AZD-KPN**

Included

Type \ Included	Connector
Built-In Controller Type Pulse Input Type with RS-485 Communication Pulse Input Type	CN1 Connector (1 pc.) CN4 Connector (1 pc.)
EtherNet/IP Compatible EtherCAT Drive Profile Compatible PROFINET Compatible	CN1 Connector (1 pc.) CN4 Connector (1 pc.) CN7 Connector (1 pc.)

Driver Specifications

Driver Product Name			AZD-KD	AZD-KX AZD-K	AZD-KEP AZD-KED AZD-KPN
Main Power Supply	Input Voltage	**EACM2**	24 VDC±5%		
		EZSM3, **EZSM4**, **EZSM6**, **EASM4**, **EACM4**, **EACM6**	・24 VDC ±5%*1 ・48 VDC ±5%		・24 VDC ±5% ・48 VDC ±5%
	Input Current	**EACM2**	1.6 A		1.6 A
		EZSM3, **EZSM4**, **EACM4**	1.72 A (1.8 A)*2		1.5 A
		EZSM6, **EACM6**	3.55 A (3.8 A)*2		3.3 A
Control Power Supply	Input Voltage		–		24 VDC ±5%*1
	Input Current		–		0.15 A (0.4 A)*3

*1 If the electromagnetic brake type is extended 20 m with a cable, the specification becomes 24 VDC±4%.
*2 The parentheses ( ) indicate the specifications for the electromagnetic brake type.
*3 The parentheses ( ) indicate the specifications for the electromagnetic brake type. 0.23 A for **EZSM3**, **EZSM4** and **EACM4**.

General Specifications

Common to all drivers

Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: ・Protective Earth Terminal – Power Supply Terminal
Dielectric Strength		–
Operating Environment (In operation)	Ambient Temperature	0 to +50°C (Non-freezing)
	Ambient Humidity	85% or less (Non-condensing)
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water or oil.
Degree of Protection		IP10

Note

● Disconnect the motor and driver when taking an insulation resistance measurement or performing a dielectric voltage withstand test. Also, do not perform these tests on the absolute sensor part of the motor.

The drivers and cables to be combined with the actuators are the same as the αSTEP **AZ** Series.

αSTEP **AZ** Series Brochure is available. When selecting products, please also use the brochure.

Cables (Common to all series)

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.
Use the flexible connection cable in applications where the cable is bent and flexed repeatedly.

AC Input

Product Number

CC 050 V Z F B

① ② ③ ④ ⑤ ⑥

①		**CC**: Cable
②	Length	**005**: 0.5 m **010**: 1 m **015**: 1.5 m **020**: 2 m **025**: 2.5 m **030**: 3 m **040**: 4 m **050**: 5 m **070**: 7 m **100**: 10 m **150**: 15 m **200**: 20 m
③	Reference Number	
④	Applicable Model	**Z**: **AZ** Series
⑤	Cable Type	**F**: Connection Cable Set **R**: Flexible Connection Cable Set
⑥	Electromagnetic Brake	Blank: without Electromagnetic Brake **B**: with Electromagnetic Brake

Product Line

For motor / Encoder

For Motor For Encoder

Product Line	Length L (m)	Product Name
Connection Cable Sets	**CC005VZF**	0.5
	CC010VZF	1
	CC015VZF	1.5
	CC020VZF	2
	CC025VZF	2.5
	CC030VZF	3
	CC040VZF	4
	CC050VZF	5
	CC070VZF	7
	CC100VZF	10
	CC150VZF	15
	CC200VZF	20
Flexible Connection Cable Sets	**CC005VZR**	0.5
	CC010VZR	1
	CC015VZR	1.5
	CC020VZR	2
	CC025VZR	2.5
	CC030VZR	3
	CC040VZR	4
	CC050VZR	5
	CC070VZR	7
	CC100VZR	10
	CC150VZR	15
	CC200VZR	20

For Motor / Encoder / Electromagnetic Brake

For Motor For Encoder For Electromagnetic Brake

Product Line	Length L (m)	Product Name
Connection Cable Sets	**CC005VZFB**	0.5
	CC010VZFB	1
	CC015VZFB	1.5
	CC020VZFB	2
	CC025VZFB	2.5
	CC030VZFB	3
	CC040VZFB	4
	CC050VZFB	5
	CC070VZFB	7
	CC100VZFB	10
	CC150VZFB	15
	CC200VZFB	20
Flexible Connection Cable Sets	**CC005VZRB**	0.5
	CC010VZRB	1
	CC015VZRB	1.5
	CC020VZRB	2
	CC025VZRB	2.5
	CC030VZRB	3
	CC040VZRB	4
	CC050VZRB	5
	CC070VZRB	7
	CC100VZRB	10
	CC150VZRB	15
	CC200VZRB	20

Included

Type \ Included	Operating Manual
Connection Cable	–
Flexible Connection Cable	1 Copy

Product Number

CC 050 V Z □ F B 2

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①		**CC**: Cable
②	Length	**005**: 0.5 m **010**: 1 m **015**: 1.5 m **020**: 2 m **025**: 2.5 m **030**: 3 m **040**: 4 m **050**: 5 m **070**: 7 m **100**: 10 m **150**: 15 m **200**: 20 m
③	Reference Number	
④	Applicable Product	**Z**: **AZ** Series
⑤	Reference Number	Blank: **EZSM3**, **EZSM4**, **EZSM6**, **EACM4**, **EACM6** **2**: **EASM2**, **EACM2**
⑥	Cable Type	**F**: Connection Cable Set **R**: Flexible Connection Cable Set
⑦	Description	Blank: Without Electromagnetic Brake **B**: Electromagnetic Brake Type
⑧	Cable Specifications	**2**: DC Input

Product Line

For **EASM2** and **EACM2**

● For Motor / Encoder

Product Line	Length L (m)	Product Name
Connection Cable Sets	**CC005VZ2F2**	0.5
	CC010VZ2F2	1
	CC015VZ2F2	1.5
	CC020VZ2F2	2
	CC025VZ2F2	2.5
	CC030VZ2F2	3
	CC040VZ2F2	4
	CC050VZ2F2	5
	CC070VZ2F2	7
	CC100VZ2F2	10
	CC150VZ2F2	15
	CC200VZ2F2	20
Flexible Connection Cable Sets	**CC005VZ2R2**	0.5
	CC010VZ2R2	1
	CC015VZ2R2	1.5
	CC020VZ2R2	2
	CC025VZ2R2	2.5
	CC030VZ2R2	3
	CC040VZ2R2	4
	CC050VZ2R2	5
	CC070VZ2R2	7
	CC100VZ2R2	10
	CC150VZ2R2	15
	CC200VZ2R2	20

For **EZSM3**, **EZSM4**, **EZSM6**, **EACM4** and **EACM6**

●For Motor / Encoder


For Motor


For Encoder

Product Line	Length L (m)	Product Name
Connection Cable Sets	**CC005VZF2**	0.5
	CC010VZF2	1
	CC015VZF2	1.5
	CC020VZF2	2
	CC025VZF2	2.5
	CC030VZF2	3
	CC040VZF2	4
	CC050VZF2	5
	CC070VZF2	7
	CC100VZF2	10
	CC150VZF2	15
	CC200VZF2	20
Flexible Connection Cable Sets	**CC005VZR2**	0.5
	CC010VZR2	1
	CC015VZR2	1.5
	CC020VZR2	2
	CC025VZR2	2.5
	CC030VZR2	3
	CC040VZR2	4
	CC050VZR2	5
	CC070VZR2	7
	CC100VZR2	10
	CC150VZR2	15
	CC200VZR2	20

●For Motor / Encoder / Electromagnetic Brake


For Motor


For Encoder


For Electromagnetic Brake

Product Line	Length L (m)	Product Name
Connection Cable Sets	**CC005VZFB2**	0.5
	CC010VZFB2	1
	CC015VZFB2	1.5
	CC020VZFB2	2
	CC025VZFB2	2.5
	CC030VZFB2	3
	CC040VZFB2	4
	CC050VZFB2	5
	CC070VZFB2	7
	CC100VZFB2	10
	CC150VZFB2	15
	CC200VZFB2	20
Flexible Connection Cable Sets	**CC005VZRB2**	0.5
	CC010VZRB2	1
	CC015VZRB2	1.5
	CC020VZRB2	2
	CC025VZRB2	2.5
	CC030VZRB2	3
	CC040VZRB2	4
	CC050VZRB2	5
	CC070VZRB2	7
	CC100VZRB2	10
	CC150VZRB2	15
	CC200VZRB2	20

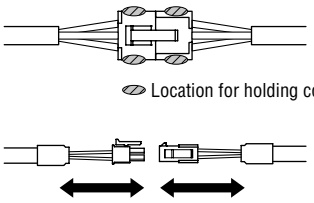
Included

Included / Included	Operating Manual
Connection Cable	–
Flexible Connection Cable	1 Copy

Note on Use of Cables

Notes on Connecting Connectors

Be sure to hold the connector when connecting or disconnecting the connector.
Connecting or disconnecting the connector while holding the cable may cause poor connection.



◇When Inserting Connector

Hold the connector main body and insert it firmly and straight.
Inserting the connector in an inclined state may cause damage to the terminals or a connection failure.

◇When Pulling Out Connector

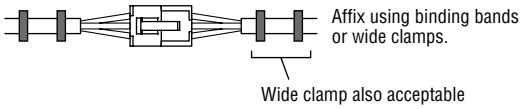
Pull the connector straight out while releasing the lock part of the connector.
Pulling out while holding the cable may cause damage to the connector.

Note on Wiring of Flexible Cables

Do not bend the cable at the connector part. Stress is applied to the connector and terminals, resulting in poor contact or disconnection.

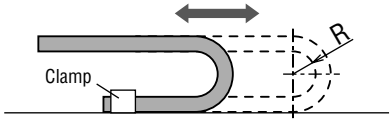
◇How to Fix Cable

Fix the connector at two positions so that it does not move.



◇Cable Length and Bending Radius

Select an appropriate cable length so that the cable is not under tension even when it is moved.
Bending radius (R) should be at least 6 times of the cable diameter.



◇Contact between Cables

When wiring in the cable holder, make sure to prevent contact between cables. Stress is applied to the cable, resulting in early disconnection. Carefully check the precautions for the cable holder before use

◇Twisted Cable

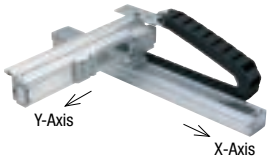
Wire the cables so that they are not twisted. Bending in a twisted state may cause early disconnection.
After wiring, check that the cable is not twisted, referring to the printing on the cable surface, etc.

Peripheral Equipment

Dual-Axis Mounting Brackets (For EZS Series)

Dedicated mounting brackets for using two axes of the **EZS** Series electric linear slide straight type.

● X-Y Mounting



● X-Z Mounting

Features

● Two axes of the EZS Series can easily be used in combination

Using the dedicated mounting brackets allows you to use two **EZS** Series electric linear slides in a biaxial configuration. Various combinations are available such as X-Y or X-Z.

Available Combinations

X-Y Mounting

X-Axis	Y-Axis	Transportable Mass (kg)
EZSM4-D	**EZSM3-D**	2.3 or less
EZSM6-D	**EZSM3-D**	5.7 or less
EZSM6-D	**EZSM4-D**	12.7 or less

X-Z Mounting

X-Axis	Z-Axis	Transportable Mass (kg)
EZSM4-D	**EZSM3-D**	3.5 or less
EZSM6-D	**EZSM3-D**	3.5 or less
EZSM6-D	**EZSM4-D**	6.7 or less

- Only straight type can be assembled.
- The maximum length of a linear slide for the second axis (Y and Z) is 300 mm.
- This is applicable to products with 12 mm in lead screw pitch (**D**). Speed is reduced by half for products with 6 mm in lead screw pitch (**E**).
- Specification values are based on those when the X-axis is mounted horizontally.
- This product is not compatible with use in the clean room environment.

● Simple Streamlined Wiring with Dedicated Cable Holder (Cable holder sold separately)

Dedicated cable holders are available.

Product Number

PAB - S4 S3 R 005

① ② ③ ④ ⑤

①	Dual-Axis Mounting Bracket	
②	First Axis Linear Slide	**S4**: **EZSM4-D** **S6**: **EZSM6-D**
③	Second Axis Linear Slide	**S3**: **EZSM3-D** **S4**: **EZSM4-D**
④	Combination Patterns	**R**: **R**-Type **L**: **L**-Type
⑤	Stroke in Second Axis	

- First axis refers to X-axis, while second axis refers to Y- or Z-axis.

Product Line

50 mm Incremant

Combination of **EZSM4** and **EZSM3**		Combination of **EZSM6** and **EZSM3**		Combination of **EZSM6** and **EZSM4**	
R-Type	**L**-Type	**R**-Type	**L**-Type	**R**-Type	**L**-Type
PAB-S4S3R005	**PAB-S4S3L005**	**PAB-S6S3R005**	**PAB-S6S3L005**	**PAB-S6S4R005**	**PAB-S6S4L005**
PAB-S4S3R010	**PAB-S4S3L010**	**PAB-S6S3R010**	**PAB-S6S3L010**	**PAB-S6S4R010**	**PAB-S6S4L010**
PAB-S4S3R015	**PAB-S4S3L015**	**PAB-S6S3R015**	**PAB-S6S3L015**	**PAB-S6S4R015**	**PAB-S6S4L015**
PAB-S4S3R020	**PAB-S4S3L020**	**PAB-S6S3R020**	**PAB-S6S3L020**	**PAB-S6S4R020**	**PAB-S6S4L020**
PAB-S4S3R025	**PAB-S4S3L025**	**PAB-S6S3R025**	**PAB-S6S3L025**	**PAB-S6S4R025**	**PAB-S6S4L025**
PAB-S4S3R030	**PAB-S4S3L030**	**PAB-S6S3R030**	**PAB-S6S3L030**	**PAB-S6S4R030**	**PAB-S6S4L030**

- Please check our website for selection examples, combination patterns, dimensions, and operating ranges of dual-axes mounting brackets.

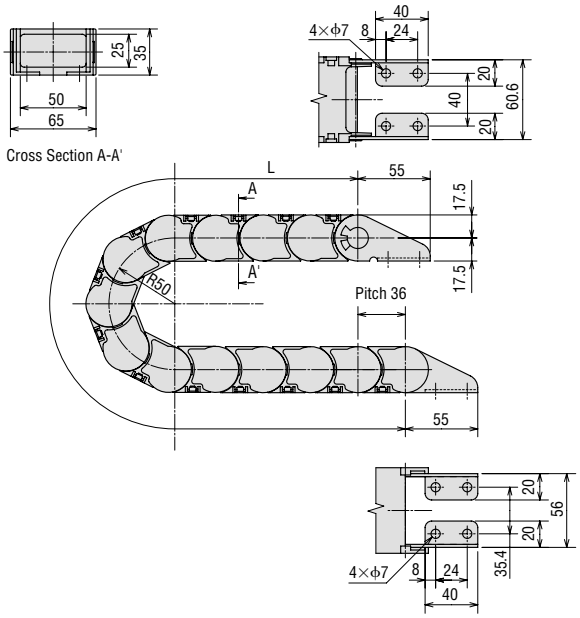
Cable Holders (For EZS Series)

These cable holders protect and guide cables in dual or three axes combinations.
They can be combined with the dual-axis mounting brackets.

Product Line

Applicable Products		Applicable Cable Holder
Applicable Products	Stroke [mm]	Product Name
EZS Series	50 to 70	**PACH65-11**
	80 to 120	**PACH65-13**
	130 to 170	**PACH65-14**
	180 to 220	**PACH65-15**
	230 to 270	**PACH65-17**
	280 to 320	**PACH65-18**
	330 to 370	**PACH65-20**
	380 to 420	**PACH65-21**
	430 to 470	**PACH65-22**
	480 to 520	**PACH65-24**
	530 to 570	**PACH65-25**
	580 to 620	**PACH65-27**
	630 to 670	**PACH65-28**
	680 to 720	**PACH65-29**
	730 to 770	**PACH65-31**
	780 to 820	**PACH65-32**
	830 to 850	**PACH65-34**

Dimensions (Unit: mm)



Product Name	L (mm)
PACH65-11	396
PACH65-13	468
PACH65-14	504
PACH65-15	540
PACH65-17	612
PACH65-18	648
PACH65-20	720
PACH65-21	756
PACH65-22	792
PACH65-24	864
PACH65-25	900
PACH65-27	972
PACH65-28	1008
PACH65-29	1044
PACH65-31	1116
PACH65-32	1152
PACH65-34	1224

(L represents the total length of the dimensions.)

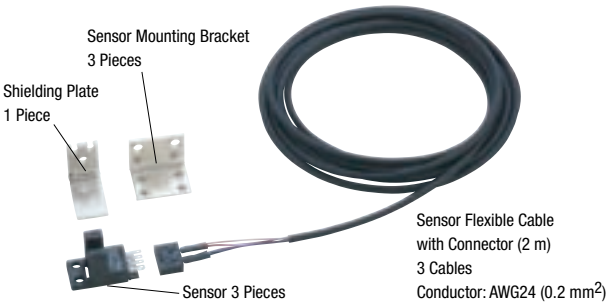
Sensor Sets (For EZS Series)

The sensor sets dedicated to the **EZS** Series consist of three sensors, three sensor mounting brackets, and three flexible sensor cables with connector (2 m) and one shielding plate.
The screws needed for installation are also included.

Product Line

2D & 3D CAD

Product Name	Applicable Product	Sensor Output	2D CAD
PAES-S	**EZS** Series	NPN	D7630
PAES-SY		PNP	



Specifications

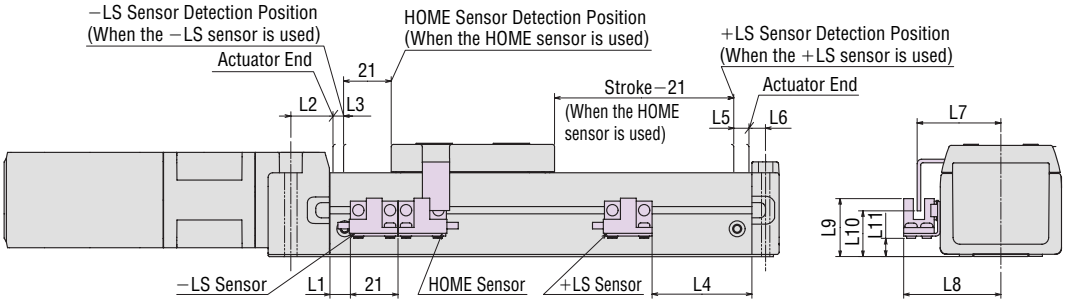
NPN Type

Item	Model: EE-SX674A (OMRON)
Power Supply Voltage	5 to 24 VDC ±10%, ripple (P-P) 10% or less
Current Consumption	35 mA or less
Control Output	NPN Open-collector output, 5 to 24 VDC, 100 mA or less Residual voltage 0.8 VDC or less (at load current of 100 mA)
Sensor Logic	Normally open/Normally closed (Switchable, depending on connection)
Indicator LED	Detection display (Red)

PNP Type

Item	Model: EE-SX674R (OMRON)
Power Supply Voltage	5 to 24 VDC ±10%, ripple (P-P) 10% or less
Current Consumption	30 mA or less
Control Output	PNP Open-collector output, 5 to 24 VDC, 50 mA or less Residual voltage 1.3 VDC or less (at load current of 50 mA)
Sensor Logic	Normally open/Normally closed (Switchable, depending on connection)
Indicator LED	Detection display (Red)

Dimensions of Recommended Sensor Installation Positions (Unit: mm)



Linear Slide Model	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
EZSM3	9	18	5	44	6	7.5	37.3	43.3	25.8	20.4	8.1
EZSM4	9	18	5	44	6	7.5	47.3	53.3	25.8	20.4	8.1
EZSM6	13.5	34	7	87.5	8	13.5	47.3	53.3	42.3	36.9	24.6

Note

- If the stroke is 60 mm or less, all three sensors cannot be installed.

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