

Orientalmotor

AZ Series

Battery-Free Absolute Mechanical Sensor Equipped Motor
Built-in Controller or Pulse Input Driver



Actuators Equipped with AZ Series









ADVANCED PERFORMANCE

Product Line

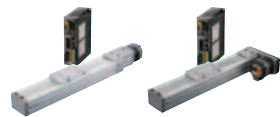
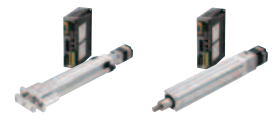

Motor and Driver Types

		Motor					
Power Supply Input	Type	Electromagnetic Brake	Frame Size				
			20 mm (0.79 in.)	28 mm (1.10 in.)	42 mm*2 (1.65 in.)	60 mm (2.36 in.)	85 mm (3.35 in.) 90 mm (3.54 in.)*3
AC Input	Standard Type	None	—	—	●	●	●
		Yes	—	—	●	●	●*4
	TS Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
	PS Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
	HPG Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
Harmonic Geared	None	—	—	●	●	●	
	Yes	—	—	●	●	●	
DC Input	Standard Type	None	●*1	●*1	●	●	—
		Yes	—	—	●	●	—
	TS Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	PS Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	HPG Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	Harmonic Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—

*1 24 VDC only *2 HPG geared type is 40 mm (1.57 in.) *3 In geared type *4 AZM98 only

Driver	
Power Supply Input	Type
AC Input Single-Phase 100-120 VAC Single-Phase/Three-Phase 200-240 VAC	Built-in Controller Type  
	Pulse Input Type 
DC Input 24/48 VDC	Built-in Controller Type  
	Pulse Input Type 

Actuators Equipped with AZ Series

Series Name	Features	Main Specifications
QSTEP AZ Series Type Electric Linear Slides EZS Series  AC Power Supply DC Power Supply	·Small, high-rigidity ·Simple dust-resistant structure	·Stroke 50 to 850 mm ·Max. speed: 800 mm/s ·Max. transportable mass: 60 kg (horizontal), 30 kg (vertical)
QSTEP AZ Series Type Electric Cylinders EAC Series  AC Power Supply DC Power Supply	·High-speed driving is possible from light loads to heavy loads. ·Stable movement even at low speed (1.25 mm/s). ·Small, high-rigidity	·Stroke: 50 to 300 mm ·Max. speed: 600 mm/s ·Max. transportable mass: 60 kg (horizontal), 30 kg (vertical)
QSTEP AZ Series Type Hollow Rotary Actuators DGII Series  AC Power Supply	·Hollow output table makes cable and actuator wiring simple. ·Direct installation of table and arms is possible.	·Max. permissible torque: 12 N·m ·Max. permissible moment: 50 N·m ·Max. permissible axial load: 2000 N·m

Compact, High Rigidity Electric Linear Slides with Simple Dust-Resistant Structure

Providing the high response, low vibration and hunting-free operation of a stepper motor in an electric linear slide.

A wide variety of options to suit the equipment space and environment, including straight type and reversed motor type.



A wide variety of linear slides and drivers are available.

With Battery-Free Absolute Sensor

Stepper Motor and Driver *αSTEP*
AZ Series

- Equipped with battery-free absolute sensor
- Positioning information can be known without a sensor
- High reliability using closed loop control
- Reduced motor heat and reduced energy consumption through high efficiency design

Battery-Free
 Equipped with Multiple-Rotation Absolute Sensor

Absolute Sensor

Linear Slide

Straight Type

Reversed Motor Type
 (Left reverse/Right reverse)

● Photo shows left side type

A Compact Linear Slide that is Thin, Highly Rigid and Features a High Accuracy Guide. Reversed Motor Types Save Space.

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

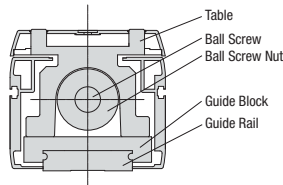
High Rigidity/High Accuracy

Despite the small size, high permissible moment loads have been achieved by using a highly rigid guide.

High Rigidity and High Accuracy Guide

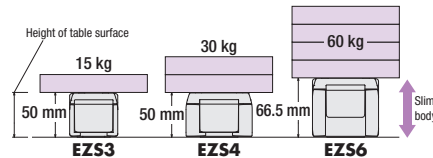
The LM Guide*1 from THK is used as the guide hardware. It is a thin, stainless steel guide that can withstand high moment loads. The guide also has excellent traveling parallelism, which has been reduced to 0.03 mm or less.

*1 Registered trademark of THK, Co. Ltd.



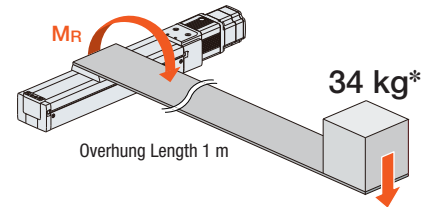
Traveling Parallelism of
0.03 mm or less

Providing Large Transportable Mass in a Slim Form Factor



High Permissible Moment

This series is compact yet effective in handling high moment loads.



*The load is calculated using the static permissible moment 340 N-m of the **EZS6**.

● Permissible Moment in Rolling Direction [N-m]

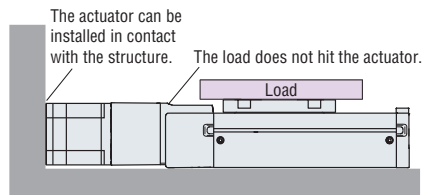
Product	Static Permissible Moment*1	Dynamic Permissible Moment*2
EZS3	52.0	10.5
EZS4	176	27.8
EZS6	340	55.6

*1 Permissible moment load for linear guide while stopped.
*2 Permissible moment load for linear guide while operating.

Space-Saving

Maximum use of the space is possible because the equipment doesn't interfere with the load.

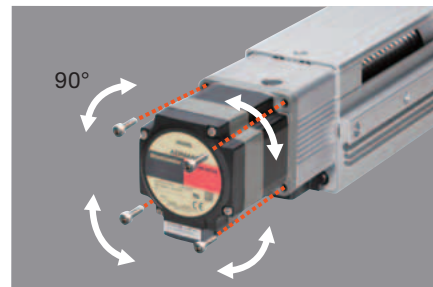
Equipment can be installed in contact with surrounding structures.



Variable Cable Outlet Direction

The motor attachment direction can be changed to any of 4 directions*, allowing the cable outlet to be changed to best suit the installation location.

*3 directions for reversed motor types.

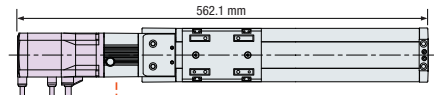


Reversed Motor Type

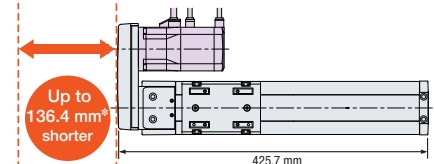
With overall lengths up to 136.4 mm shorter compared to the straight type, reversed motor types can contribute to equipment space-saving.

AZ Series
EZS6 with Electromagnetic Brake Stroke 200 mm

● Straight Type



● Reversed Motor Type

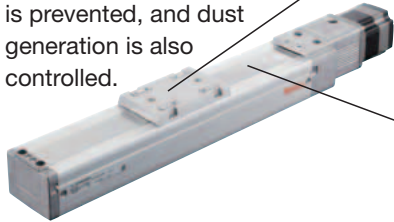


*For electromagnetic brake type

All Products Use a Simple Dust-Resistant Structure.

Simple Dust-Resistant Structure

Through the use of a stainless steel, simple dust-resistant structure, simple dust-resistant infiltration of foreign objects is prevented, and dust generation is also controlled.



Dust Generation Control

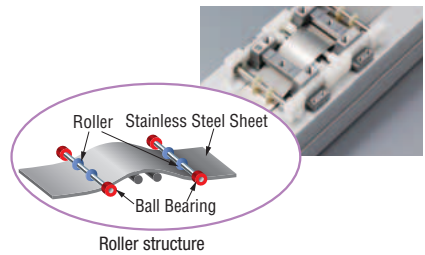
By using a low dust-generative roller structure, the generation of abrasive particles that could abrade and wear the stainless steel sheet is prevented.

Prevention of Foreign Object Infiltration

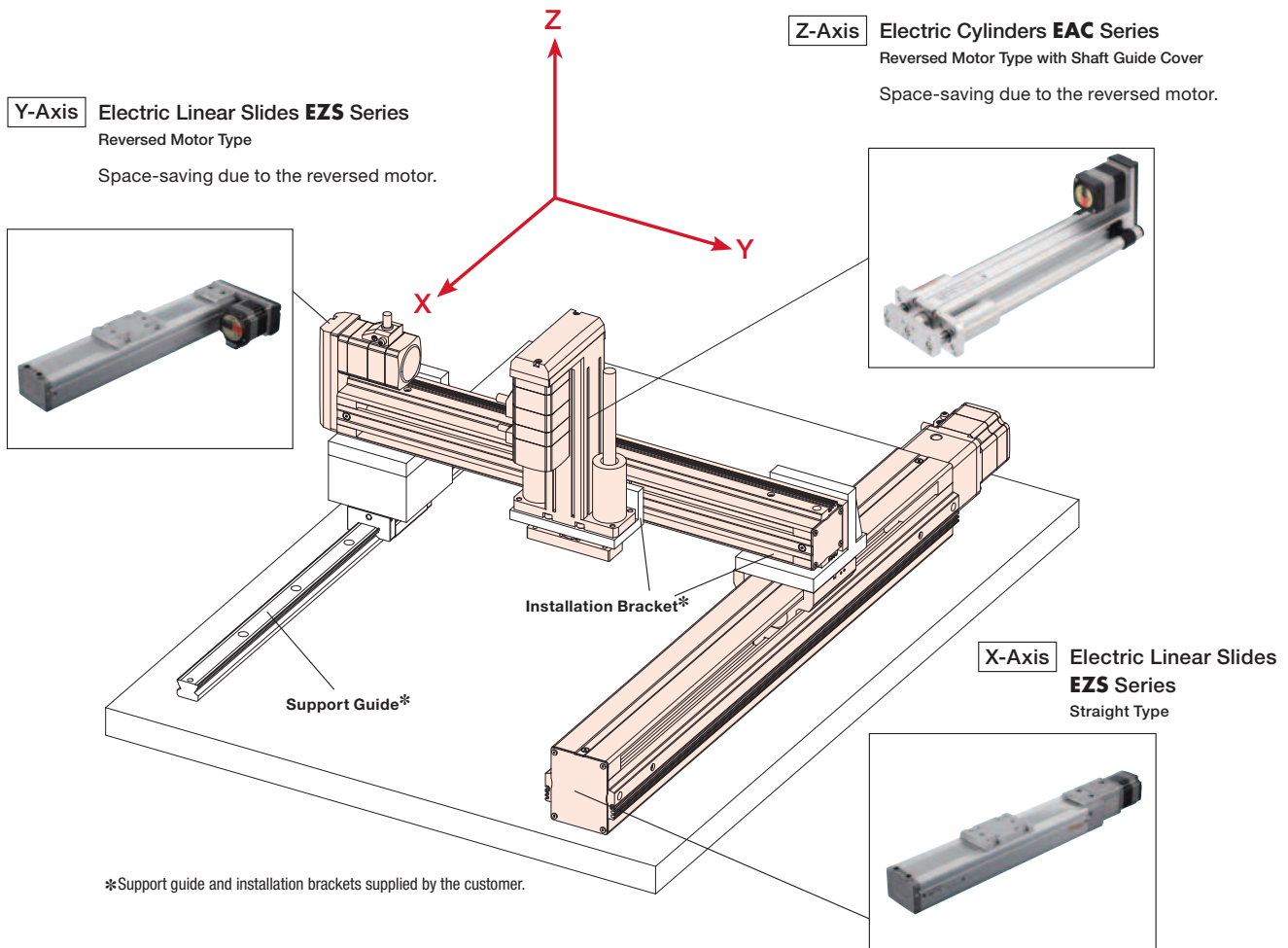
Infiltration of external foreign objects is prevented with a simple dust resistant structure made of a stainless steel sheet.

Low Dust-Generative Roller Structure (Patented)

A low dust-generative roller structure has been built into the table, which provides rolling contact with the stainless steel sheet, thus preventing the generation of abrasive particles. This not only controls the generation of dust, but also improves the durability of the stainless steel sheet.



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



Enhanced Performance with α STEP AZ Series Technology.

Stepper Motors
AZ

Slides
EZS

High Speed Driving

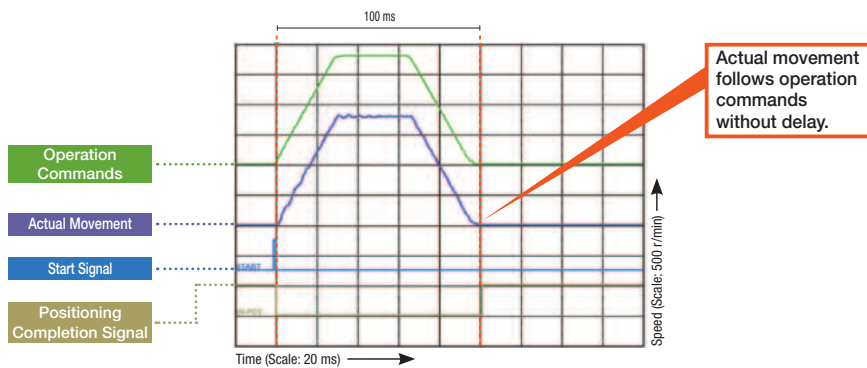
Cylinders
EAC

High Response

By utilizing the high response of the stepper motor, short distances can be covered quickly. Movement follows commands without delay.

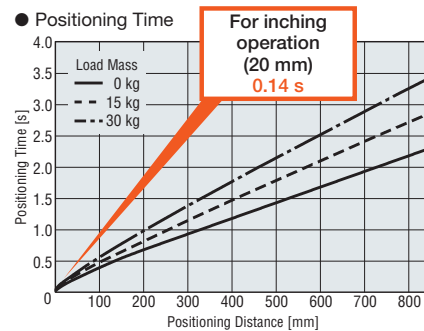
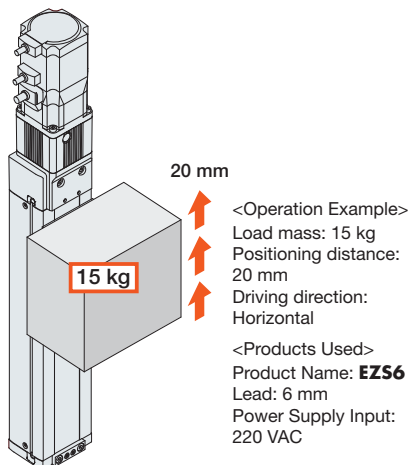
Rotary Actuators
DGI

● Actual Stepper Motor Movement in Response to Operation Commands



Short-Distance High-Speed Driving Even with Heavy Loads

By combining the high response characteristic of stepper motors with a highly rigid guide, high-speed operation even under heavy loads becomes possible.



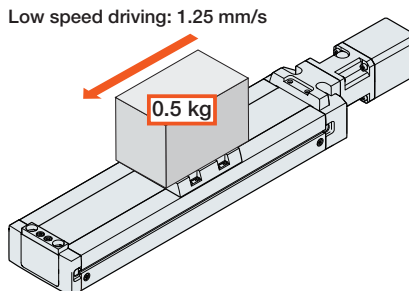
Smooth Movement Even at Low Speeds

Reduced vibration and smooth movement is possible thanks to the standard microstep drive system and smooth drive functions*.

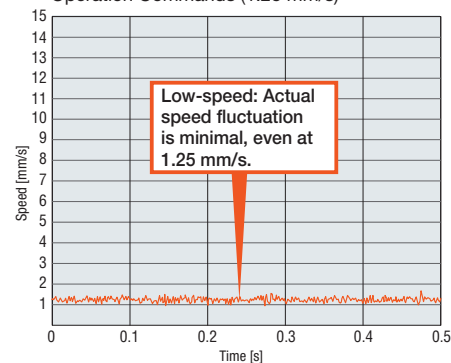
*The smooth drive function automatically microsteps based on the same traveling amount and speed used in the full step mode, without changing the pulse input settings.

<Operation Example>
Load mass: 0.5 kg
Running current: 100%
Resolution: 0.01 mm/step
Operating speed: 1.25 mm/s

<Products Used>
Product Name: **EZS4**
Lead: 12 mm
Power Supply Input: 220 VAC

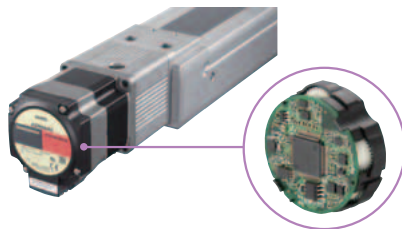


● Actual Linear Slide Table Speed in Relation to Operation Commands (1.25 mm/s)



Useful Functions of the Battery-Free Absolute Sensor

No External Sensors Required



Battery-Free Absolute Sensor (ABZO sensor) Installed

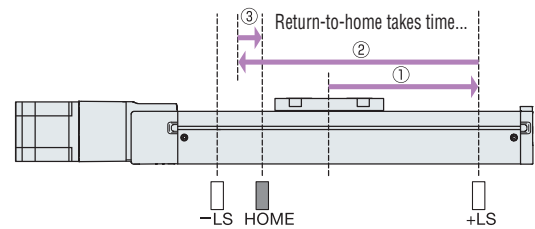
Because the absolute motor sensor (ABZO) is built in, there's no need for a battery to store the positioning information, or for a home sensor, or external sensors or any other external sensors.

- Cost Reduction
 - Simplified Wiring
 - Not Affected by Sensor Malfunctions
 - Improved Return-to-Home Accuracy
- Because variations of the sensitivity of the sensors do not have any effect, return-to-home accuracy is improved.

High-Speed Return-to-Home

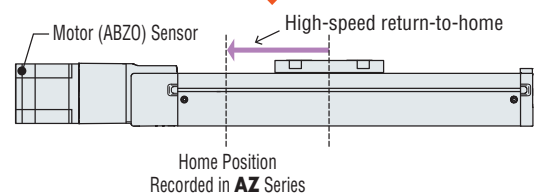
Regular Return-to-Home

With the use of limit sensors and home sensors to detect the home point at low speeds, return-to-home is time consuming.



Return-to-Home Operation of the AZ Series

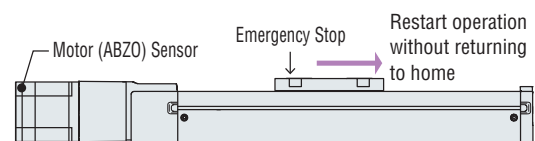
Without the need to detect using limit sensors or the home sensor, the equipment can travel directly at high speed to the home position recorded by the motor sensor.



Return-to-Home Not Required

(For built-in controller type)

Since the position information is known even when the power supply shuts off, operation can resume without return-to-home after an emergency stop or power outage.



No Battery Required

Because a mechanical sensor is used, even if the power supply shuts off, the positioning information can be retained. There are no concerns about shipping regulations when exporting overseas because there's no battery.

Battery Not Necessary



Pre-Set Parameter Settings for Reduced Equipment Setup Time

For example, the items shown to the right do not need to be set.

- Calculation/setting of electronic gear for differences in ball screw lead (Min. movement amount already set to 0.01 mm).
- Re-setting of travel direction coordinates based on motor installation direction (straight/reversed) - regardless of the motor installation direction, the same command causes travel in the same direction.