Linear and Rotary Actuators
<table>
<thead>
<tr>
<th>Section</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>Motorized Linear Slides</td>
<td>Ezlimo EzS II Series</td>
</tr>
<tr>
<td></td>
<td>Ezlimo SPV Series</td>
</tr>
<tr>
<td>Motorized Cylinders</td>
<td>Ezlimo EzC II Series</td>
</tr>
<tr>
<td></td>
<td>Ezlimo EzA Series</td>
</tr>
<tr>
<td></td>
<td>Ezlimo PWA II Series</td>
</tr>
<tr>
<td>Common Parts for Motorized Linear Slides/Motorized Cylinders</td>
<td>Common Controller</td>
</tr>
<tr>
<td></td>
<td>Accessories</td>
</tr>
<tr>
<td>Compact Linear Actuators</td>
<td>DRL Series</td>
</tr>
<tr>
<td>Hollow Rotary Actuators</td>
<td>DG Series</td>
</tr>
<tr>
<td></td>
<td>Accessories</td>
</tr>
</tbody>
</table>

This catalog contains information necessary for informed product selection. Additional product details and information not outlined in this catalog can be found in each product's individual operating manual. Operating manuals can be downloaded from our website or obtained by contacting technical support or your nearest Oriental Motor sales office.
Overview of Linear and Rotary Actuators

Motors offer excellent controllability and are therefore used as the drive sources of various automated equipment. In many cases, a motor is combined with various mechanical components such as a ball screw, belt and pulley, and rack and pinion, to convert the motor rotation to a different type of motion needed to drive the equipment. Oriental Motor has various linear and rotary actuators consisting of a motor assembled with the necessary mechanical components, to meet the various needs of automated equipment.

Features of Linear and Rotary Actuators

Equipped with a motor offering excellent controllability, our linear and rotary actuators offer the following advantages over hydraulic and pneumatic actuators:

- The actuator is very stable when operated, even at low speeds. It also offers smooth acceleration and deceleration operation.
- Motions can be programmed with multiple stopping points.
- With a linear and rotary actuator using a stepping motor, adjustment of position and speed can be performed easily using data. Setup change is also simple, as all you need do is to change the data.

Advantages of Using Linear and Rotary Actuators

When automated equipment is designed, various factors must be taken into consideration including the production line layout, installation environment, ease of maintenance, configuration of electrical wiring and control system, and so on. This means many man-hours are needed to select the motor and other mechanical components and create a parts list, drawings, operating manuals, and the like. Oriental Motor offers various linear and rotary actuators to help you improve your design productivity. Use of linear and rotary actuators can reduce this time and offers the benefits explained below.

Higher Design Efficiency

The primary feature of automated equipment is its ability to implement a series of basic operations such as “transfer,” “push” and “rotate.” In other words, you can design automated equipment by selecting and combining linear and rotary actuators capable of performing these basic operations. Since all you need is to select an actuator, you can save the time and effort.

Shorter Production Time and Higher Quality

When building equipment in-house by assembling a motor and mechanical components (see the illustration on the right), the quality of assembly affects the traveling resistance and position accuracy, therefore adjustments will be needed to achieve the expected operating performance. On the other hand, our linear and rotary actuators are complete products guaranteed to provide the specified operating performance, so use of linear and rotary actuators reduces adjustment work and ensures uniform quality.
Motorized Linear Slides
The motor is integrated with a linear motion mechanism, which makes an actuator ideal for transferring loads.

Motorized Cylinders
The motor is integrated with a linear motion mechanism, which makes an actuator ideal for pushing and pulling load.

Compact Linear Actuators
A stepping motor is integrated with a ball screw. An ideal actuator for pushing and pulling small loads or fine-tuning applications.

Hollow Rotary Actuators
A motor is integrated with thrust bearings and a rotary table. Ideal for index-drive and high thrust load applications.
How to Select an Actuator

As components of automated equipment, linear and rotary actuators are used in many different ways. From the viewpoint of "motion," they are classified as follows.

- **Transfer**
  - Transferring loads
  - Transferring loads (Vertical)
  - Moving a CCD camera

- **Push, Pull**
  - Storing loads
  - Driving mechanism for a micrometer head X-Y stage
  - Centering of a board

- **Rotate**
  - Positioning a table
  - Transferring by arm
  - Adjusting an optical axis
We have a broad selection of linear and rotary actuators. Select one that best suits your required specifications (transfer speed, transportable mass, resolution, accuracy), functions, system configuration and other applicable conditions.
Types of Linear and Rotary Actuators

Oriental Motor offers a full lineup of linear and rotary actuators meeting the needs of various applications.

Motorized Linear Slides ➔ Page E-7

EZS Series Using an αSTEP Motor
- AC Power Input
- DC Power Input
- Standard model of the motorized linear slides
- Adopting a Stainless Sheet
- Compact and high-precision

SPV Series Using an αSTEP Motor
- AC Power Input
- DC Power Input
- High-speed operation is possible due to a belt drive
- Long stroke
- Employing an aluminum frame structure

Motorized Cylinders ➔ Page E-47

EZC Series Using an αSTEP Motor
- AC Power Input
- DC Power Input
- Adopts our αSTEP technology
- Employing a lightweight rod
- Compact and high-precision

EZA Series Using an αSTEP Motor
- AC Power Input
- DC Power Input
- Adopts our αSTEP technology
- LM Guide is housed within the cylinder
- No external guide required

PWA Series Using an αSTEP Motor
- AC Power Input
- Adopts our αSTEP technology
- High-power, high thrust force
- Suitable for push-motion operation

Compact Linear Actuators ➔ Page E-119

DRL Series Using a Step Angle 0.72° Stepping Motor
- DC Power Input
- The compact body houses the linear motion mechanism and the rotating components
- Employing a 0.72° step stepping motor
- Wide variation

Hollow Rotary Actuators ➔ Page E-129

DG Series Using an αSTEP Motor
- AC Power Input
- DC Power Input
- Features a hollow table that allows large-inertia discs or arms to be installed directly
- Adopts our αSTEP technology
- High-power, high rigidity