LINEAR ACTUATORS, BALL AND PLANETARY ROLLER SCREWS

HIGH PERFORMANCE DESIGN INCREASES MACHINE PRODUCTIVITY
HIGH PERFORMANCE ELECTRIC LINEAR ACTUATION

With rising utility costs and increasing exposure to environmental action, design engineers need a solution that will help them incorporate an electric solution without sacrificing precision, speed and productivity.
ELECTRIC LINEAR ACTUATION FOR MAXIMUM MACHINE PERFORMANCE

Moog has leveraged its rich history in electric servo technology to create an alternative to traditional hydraulic actuation. Our vast experience in servoactuation within Power Generation, Flight Simulation and Subsea equipment have positioned us perfectly for this. We have exploited our motion control expertise to deliver a high performance and efficient product that provides:

- Long-lasting performance and reliability that increases lifetime and return on investment
- Easier installation, creating less downtime so you are operating faster
- Higher efficiency, leading to lower energy costs
- Advanced Ball Screw design to provide higher efficiency results in increased continuous force rating as well as reduced energy consumption
  - Higher efficiency results in increased continuous force rating as well as reduced energy consumption
  - Higher dynamic load capacity provides up to twice the life of competing technologies
- Quick Start-Up
  - Simple mounting means lower installation times
  - Integrates with Moog Servo Drive (MSD)

Applications include:

- Actuation for damper control
- Vehicle barriers
- Pick and place robotic applications
- Process industry valve control
- Edge guide system for web control
- Manufacturing press applications
- Gas Turbine Air Control

BALL SCREWS AND PLANETARY ROLLER SCREWS

At the heart of every Moog Electric Actuator you will find leading edge Ball and Planetary Roller Screws custom designed to suit your application.

Our extensive range enables customers to find the best solution to their specific performance requirements that meets the demands of ISO accuracy for classes 3-5-7.

The range covers a wide selection of static and dynamic loads, an extended range of accelerations up to extremely fast duty cycles plus the availability of alternative designs and re-circulating systems that meet noise and vibration requirements, even in very quiet applications.
STANDARD ELECTRIC LINEAR SERVOACTUATOR RANGES

IDEAL FOR MOST LINEAR ACTUATION APPLICATIONS

KEY FEATURES

- Smaller footprint than Flexible actuator across all sizes
- 150 and 300 mm stroke lengths available
- Maximum force of 72.3 kN
- Absolute Encoder
- Rod speeds to 641 mm/sec

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<tbody>
<tr>
<td>Size 3</td>
<td>5 (0.20)</td>
<td>4.3 (970)</td>
<td>14.6 (3,282)</td>
<td>5.0 (1,122)</td>
<td>321 (12.6)</td>
<td>150 (6.0)</td>
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<td>10 (0.39)</td>
<td>2.2 (485)</td>
<td>7.3 (1,641)</td>
<td>2.5 (561)</td>
<td>641 (25.2)</td>
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<td>8.8 (1,971)</td>
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<td>72.3 (16,243)</td>
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<td>10 (0.39)</td>
<td>13.9 (3,121)</td>
<td>36.1 (8,122)</td>
<td>16.6 (3,739)</td>
<td>291 (11.5)</td>
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FLEXIBLE ELECTRIC LINEAR SERVOACTUATOR RANGES

For higher forces, rod speeds and longer strokes when our Standard Servoactuator does not meet your needs. Many options are available that can be tailored to your exact specifications.

**KEY FEATURES**

- Higher forces, rod speeds and longer strokes than Standard
- Inline and foldback design with internal anti-rotation
- Variety of motor windings for optimum performance
- Several screw leads for speed/force variations
- Maximum force of 115.6 kN
- Rod speeds to 1,600 mm/sec
- Roller screw option available
- Absolute encoder
- Positioned Resolution

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<table>
<thead>
<tr>
<th>Frame and Foldback Design</th>
<th>Lead (mm)</th>
<th>Continuous Stall Force (kN)</th>
<th>Peak Stall Force (kN)</th>
<th>Brake Holding Force (optional) (kN)</th>
<th>Maximum Speed (mm/sec)</th>
<th>Stroke Lengths (mm)</th>
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<tr>
<td>Size 3</td>
<td>5 (0.20)</td>
<td>1.0 to 4.1 (229 to 915)</td>
<td>3.6 to 11.9 (801 to 2,675)</td>
<td>1.3 to 6.9 (280 to 1,559)</td>
<td>318 to 1,600 (12.5 to 63.0)</td>
<td>Up to 1,500 (59.1)</td>
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<td>Size 4</td>
<td>10 (0.39)</td>
<td>2.9 to 9.8 (657 to 2,193)</td>
<td>10.6 to 26.3 (2,390 to 5,912)</td>
<td>4.0 to 26.9 (904 to 6,036)</td>
<td>170 to 1,133 (6.7 to 44.6)</td>
<td>Up to 2,000 (78.7)</td>
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<td>Size 5</td>
<td>20 (0.79)</td>
<td>6.8 to 48.9 (1,527 to 10,997)</td>
<td>13.0 to 70.6 (2,918 to 15,881)</td>
<td>8.3 to 59.9 (1,870 to 13,461)</td>
<td>181 to 800 (7.1 to 31.5)</td>
<td>Up to 2,500 (98.4)</td>
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<td>Size 6</td>
<td>20 (0.79)</td>
<td>19.8 to 96.0 (4,451 to 21,581)</td>
<td>37.5 to 115.6 (8,432 to 25,987)</td>
<td>20.0 to 140.5 (4,487 to 31,588)</td>
<td>138 to 635 (5.5 to 25.0)</td>
<td>Up to 2,500 (98.4)</td>
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Developed to meet the needs of leading-edge machine manufacturers across a wide range of industries, Moog Ball and Planetary Roller Screws are flexible and designed to provide a unique and competitive advantage.

**KEY FEATURES**

- Ground ball screws ISO3408 3-5-7 classes
- Wide selection of screw end shafts (bearing housings, metric threads, socket heads, wrenches, bored heads, etc.)
- Nut customisation (shape, flange, coupling, number of circuits, special machining processes)
- Various lubrication options
- Selection of materials and special processing
- Extremely quiet operation for low disturbance and low noise applications
- Compact design
- Robust design suited for heavy duty applications, vibrations and harsh environment.

**BALL SCREWS**

- ISO3408 classes 3-5-7
- Length up to 3600 mm [141.7 in]

Load capacity:
- Dynamic load up to 400KN
- Static load up to 900KN
- Acceleration 10-12m/sec²
- Single or multi-start

**PLANETARY ROLLER SCREWS**

- Length up to 1800 mm [70.8 in]

Load capacity:
- Dynamic load up to 670KN
- Static Load up to 1400KN
- Acceleration up to 40m/sec²
- Number of starts: 5

**RANGE OF BALL SCREWS**

<table>
<thead>
<tr>
<th>Size</th>
<th>4</th>
<th>5</th>
<th>6</th>
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**RANGE OF PLANETARY ROLLER SCREWS**

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*Smaller diameters are available.

*Special combinations of diameter and lead can be developed.*
TAKE A CLOSER LOOK.

Moog designs a range of products that complement the performance of those featured in this catalogue. Visit our website for more information and the Moog facility nearest you.

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Linear Actuators and Ball Screws Brochure