LINEAR ACTUATORS, BALL AND PLANETARY ROLLER SCREWS

HIGH PERFORMANCE DESIGN INCREASES MACHINE PRODUCTIVITY

WHAT MOVES YOUR WORLD

MOOG

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 consump
  - 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)

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.

Applications include:

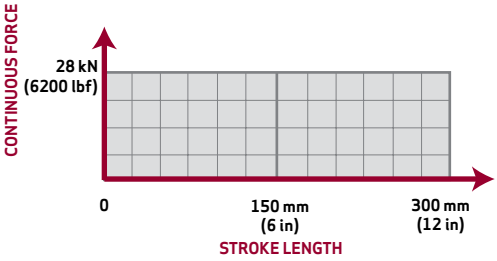
- Actuation for damper control
- Vehicle barriers
- Pick and place robotic applications
- Process industry valve control
- Edge guide system for web control
- Manufacturing press applications
- Gas Turbine Air Control

STANDARD ELECTRIC LINEAR SERVOACTUATOR RANGES

IDEAL FOR MOST LINEAR ACTUATION APPLICATIONS

KEY FEATURES

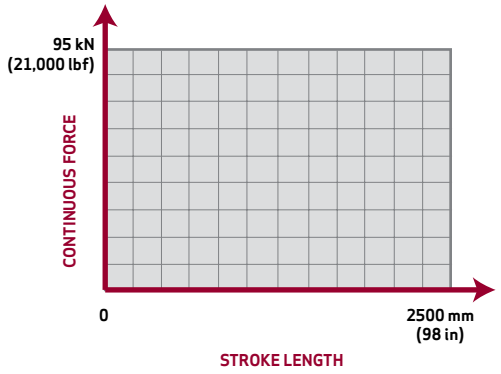
- Smaller footprint than Flexible actuator across all sizes
- 150 and 300 mm stroke lengths available
- Maximum force of 72.3 kN
- Absolute Encoder
- Rod speeds to 641 mm/sec



Frame	Lead mm (in)	Continuous Stall Force kN (lbf)	Peak Stall Force kN (lbf)	Brake Holding Force (optional) kN (lbf)	Maximum Speed mm/sec in/sec	Stroke Lengths mm (in)
Size 3	5 (0.20)	4.3 (970)	14.6 (3,282)	5.0 (1,122)	321 (12.6)	150 (6.0)
	10 (0.39)	2.2 (485)	7.3 (1,641)	2.5 (561)	641 (25.2)	300 (12.0)
Size 4	5 (0.20)	8.8 (1,971)	22.2 (4,985)	16.1 (3,614)	205 (8.1)	150 (6.0)
	10 (0.39)	4.4 (986)	11.1 (2,493)	8.1 (1,807)	410 (16.2)	300 (12.0)
Size 5	5 (0.20)	27.8 (6,242)	72.3 (16,243)	33.3 (7,478)	146 (5.7)	180 (7.0)
	10 (0.39)	13.9 (3,121)	36.1 (8,122)	16.6 (3,739)	291 (11.5)	300 (12.0)

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

Frame Inline and Foldback designs	Lead mm (in)	Continuous Stall Force kN (lbf)	Peak Stall Force kN (lbf)	Brake Holding Force (optional) kN (lbf)	Maximum Speed mm/sec in/sec	Stroke Lengths mm (in)
Size 3	5 (0.20) 10 (0.39) 20 (0.79)	1.0 to 4.1 (229 to 915)	3.6 to 11.9 (801 to 2,675)	1.3 to 6.9 (280 to 1,559)	318 to 1,600 (12.5 to 63.0)	Up to 1,500 (59.1)
Size 4		2.9 to 9.8 (657 to 2,193)	10.6 to 26.3 (2,390 to 5,912)	4.0 to 26.9 (904 to 6,036)	170 to 1,133 (6.7 to 44.6)	Up to 2,000 (78.7)
Size 5		6.8 to 48.9 (1,527 to 10,997)	13.0 to 70.6 (2,918 to 15,881)	8.3 to 59.9 (1,870 to 13,461)	181 to 800 (7.1 to 31.5)	Up to 2,500 (98.4)
Size 6		19.8 to 96.0 (4,451 to 21,581)	37.5 to 115.6 (8,432 to 25,987)	20.0 to 140.5 (4,487 to 31,588)	138 to 635 (5.5 to 25.0)	

BALL SCREWS AND PLANETARY ROLLER SCREWS

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/sec^2
- Single or multi-start

RANGE OF BALL SCREWS

Nominal Diameter**	Step mm	4	5	6	8	10	12	14	15	16	20	25	30	32	40
	16	■	■			■				■	■				
	20	■	■	■	■	■					■				
	25	■	■	■		■	■		■		■	■			
	32	■	■	■	■	■	■		■	■	■	■		■	■
	40	■	■	■	■	■	■			■	■	■			■
	50	■	■	■	■	■	■		■	■	■				■
	63		■	■	■	■	■				■	■			
	80		■			■	■	■		■	■	■	■		
	100		■			■					■				

** Smaller diameters are available.

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/sec^2
- Number of starts: 5

RANGE OF PLANETARY ROLLER SCREWS

Nominal Diameter*	Step mm	2	4	5	6	8	10	12	15	16	20	24	25	30	36
	15	■	■	■	■	■									
	20	■	■	■	■	■									
	21	■	■	■	■	■	■								
	23	■	■	■	■	■	■								
	25	■	■	■	■	■	■		■						
	27	■	■	■	■	■	■		■						
	30	■	■	■	■	■	■		■		■				
	36	■	■	■	■	■	■	■							
	38													■	
	39			■			■		■		■				
	44				■			■		■		■		■	
	48			■		■	■		■	■	■	■	■		
	56				■			■		■		■	■	■	
	60			■			■	■	■		■		■	■	
	64							■		■		■		■	■
	75			■			■		■	■	■		■	■	
	87								■		■		■		

* 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.

Argentina
+54 11 4326 5916
info.argentina@moog.com

Australia
+61 3 9561 6044
info.australia@moog.com

Brazil
+55 11 3572 0400
info.brazil@moog.com

Canada
+1 716 652 2000
info.canada@moog.com

China
+86 21 2893 1600
info.china@moog.com

Finland
+353 9 25 17 2730
info.finland@moog.com

France
+33 1 4560 7000
info.france@moog.com

Germany
+49 7031 622 0
info.germany@moog.com

Hong Kong
+852 2 635 3200
info.hongkong@moog.com

India
+91 80 4057 6605
info.india@moog.com

Ireland
+353 21 451 9000
info.ireland@moog.com

Italy
+39 0332 421 111
info.italy@moog.com

Japan
+81 46 355 3767
info.japan@moog.com

Korea
+82 31 764 6711
info.korea@moog.com

Luxembourg
+352 40 46 401
info.luxembourg@moog.com

Netherlands
+31 252 462 000
info.thenetherlands@moog.com

Norway
+47 6494 1948
info.norway@moog.com

Russia
+7 8 31 713 1811
info.russia@moog.com

Singapore
+65 677 36238
info.singapore@moog.com

South Africa
+27 12 653 6768
info.southafrica@moog.com

Spain
+34 902 133 240
info.spain@moog.com

Sweden
+46 31 680 060
info.sweden@moog.com

Switzerland
+41 71 394 5010
info.switzerland@moog.com

United Kingdom
+44 1684 296600
info.uk@moog.com

USA
+1 716 652 2000
info.usa@moog.com

www.moog.com/industrial

Linear Actuators and Ball Screws Brochure
Moog/Rev.1, August 2011,