

MOOG
SPACE AND DEFENSE GROUP

High Performance Linear Actuation Systems

Moog's line of Linear Electro-Mechanical Actuators offer a product that is affordable, robust and designed to be compatible with a **Naval shipboard environment**. These actuator designs are based on Moog's product heritage in the aerospace, military and industrial markets. Product availability is as noted in the performance chart (see back) and can be readily customized to your specific application's needs.

Moog has the capability to design a solution to fit any Naval application. Actuators can be provided in **power ranges from fractional to over 100 horsepower**.

One of Moog's strengths is designing actuation systems requiring **precise motion control at high bandwidths**. Moog can provide the control systems engineering needed to tune the actuation system for optimal performance.

Additionally, Moog has designed and built actuation systems for **undersea control surface applications**. In these applications, the actuators are designed to withstand a lifetime of undersea exposure.

Moog has been designing **electro-mechanical actuation systems to replace hydraulic actuators** for over 25 years. *In many applications*, Moog can

match the weight, center of gravity and envelop of the hydraulic actuator while improving system performance and reliability.

Moog is a leading provider of precision, high-performance control systems for military and commercial aircraft, satellites and space vehicles, launch vehicles, missiles, automated industrial machinery, medical equipment, and equipment on surface and undersea marine vessels. Moog's Naval Linear actuator is built upon 50 years of actuation system heritage. You can be assured that this actuator will allow your system to perform at its peak.

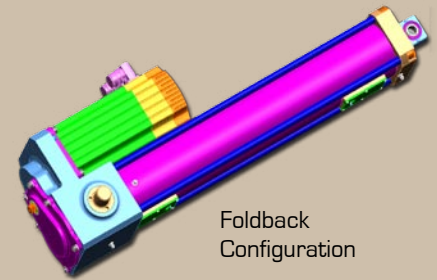


Valve Actuation ■ Steering & Control Surface Actuation
Gun Pointing and Positioning ■ Weapons Robots ■ Auto-Loader ■ Automation
Utility Actuation ■ Motion Platforms ■ Ramp Stabilization

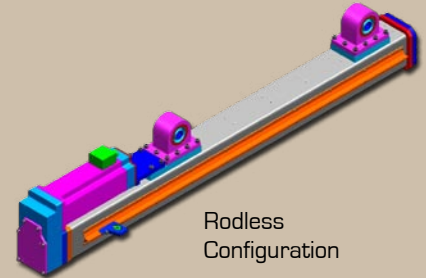


Features and Customization Options

- Prime Mover Is a Permanent Magnet Synchronous Motor (Brushless DC). Induction or Stepper Motors Optional.
- Configured With Standard Internal Brake. Can Be Modified for Internal Clutch for Protection of Integrated Equipment.
- Telemetry Options Include Resolvers, Encoders, Potentiometers, RVDT or Hall Effect Devices.
- Can Be Provided With Integral Temperature, Current or Torque Sensors to Enable Health Monitoring.
- Optimized for Use With Moog's Digital Servo Motor Controller.
- Can Be Configured for Manual Operation.
- Can Be Designed to Withstand Water Immersion



Foldback Configuration



Rodless Configuration

Key Naval Specifications

Ambient Temperature -20°C to +70°C (Operating)
 Explosion Proof Mil-E-2036
 Shock Mil-Std-883C Grade B
 Vibration Mil-Std-167 Type I

Designed for exposure to Humidity, Driving Rain, Salt Fog & Spray,
 Sand & Dust, Solar Radiation and Corrosive Atmosphere

LINEAR ACTUATION SYSTEMS PERFORMANCE CHART

Moog ICD Drawing	Type	Stroke (in)	Peak Drive Force (lbs)	Speed at Peak Force (in/sec)	Peak Power (Hp)	Motor Height (in)	Motor Width (in)	Actuator Body Dia (in)	Pin-Pin Length-Retracted (in)	Weight (lbs)	Screw Type	Brake Holding Force (lbs)	Product Status
CA26335-001	Foldback	4.00	100	4	0.1	8.99	6.00	3.12	14.00	32	Ball	N/A	Preliminary Design
CA26335-003	Foldback	8.13	705	8	1.3	8.99	8.00	3.12	18.13	37	Ball	1,410	Preliminary Design
CA22369	Foldback	16.00	4,300	4	3.9	8.00	4.88	4.88 sq	25.38	83	Ball	12,000	Prototype in Service
CA26334-001	Foldback	10.00	4,500	10	10.1	17.25	8.00	5.75	30.40	260	Ball	N/A	Preliminary Design
CA26335-002	Foldback	14.00	4,600	2	1.8	8.99	8.00	3.12	24.00	44	Ball	4,600	Preliminary Design
CA26332-002	Foldback	10.00	5,200	20	23.3	18.60	6.00	4.75	27.00	360	Roller	N/A	Preliminary Design
CA26333-001	Foldback	87.00	5,500	11	13.4	16.53	8.00	4.75	108.00	408	Roller	11,000	Preliminary Design
CA26333-004	Foldback	42.00	10,800	5	12.7	16.53	8.00	4.75	57.50	270	Roller	22,000	Preliminary Design
CA26332-001	Foldback	20.00	11,500	20	51.6	18.60	8.00	4.75	37.00	448	Roller	N/A	Preliminary Design
CA26334-002	Foldback	6.00	12,800	6	17.2	17.25	8.00	5.75	26.40	276	Ball	N/A	Preliminary Design
CA22368	Foldback	22.50	14,640	1	3.3	9.31	6.02	6.02 sq	33.35	144	Ball	30,000	Prototype in Service
CA23534	Foldback	87.00	25,500	11	62.2	24.59	14.00	7.75	125.45	1,775	Roller	51,000	Prototype Shipped
CA26331-001	Foldback	41.00	37,500	5	43.1	21.65	12.28	5.31	59.75	521	Roller	71,000	Preliminary Design
CA23511-001	Rodless	63.00	2,000	8	3.5	12.00	7.56	5.00 sq	80.30	236	Roller	2,000	Preliminary Design
CA23512	Rodless	96.00	5,565	12	15.0	15.95	7.56	6.00 sq	115.30	560	Roller	5,565	Preliminary Design
CA24014	Rodless	101.00	9,577	13	27.1	19.25	9.75	9.75 sq	74.00	1,171	Roller	9,577	Prototype Shipped