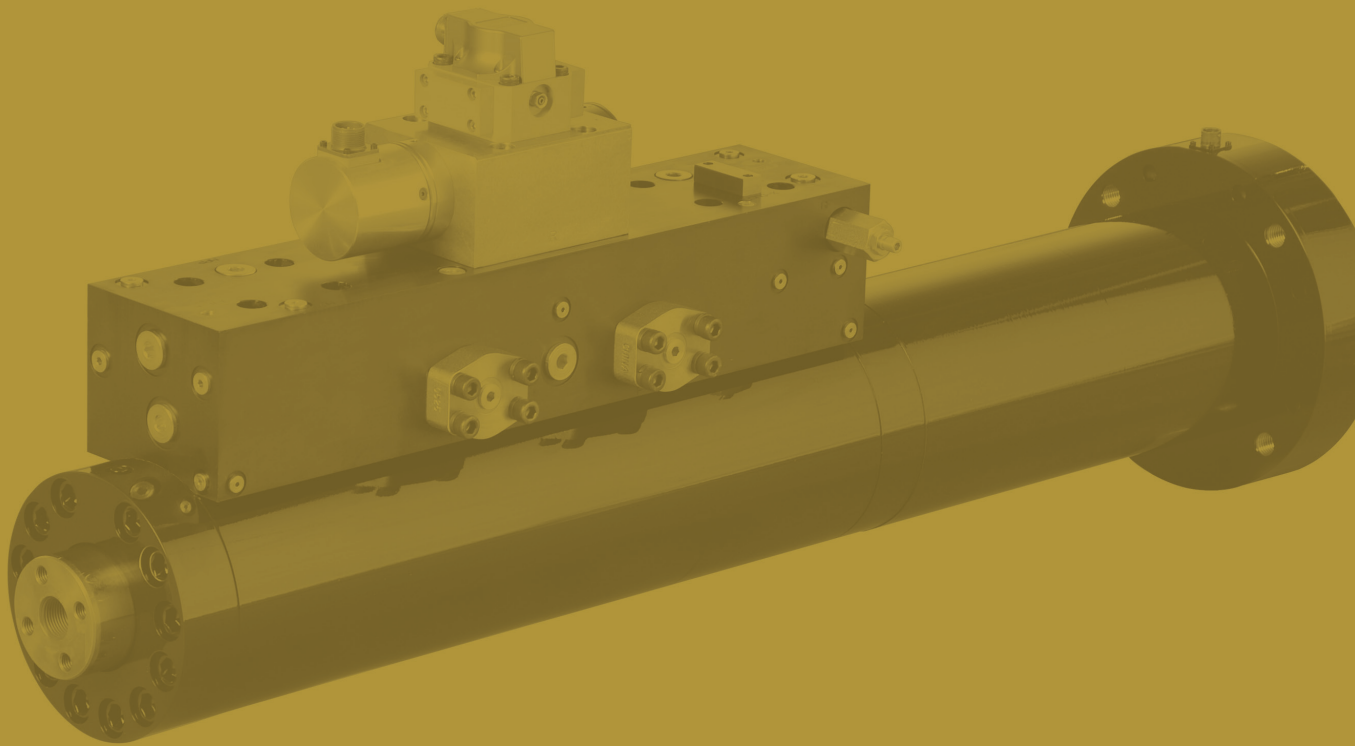


# HYDRAULIC TEST ACTUATOR

## HYDROSTATIC BEARING



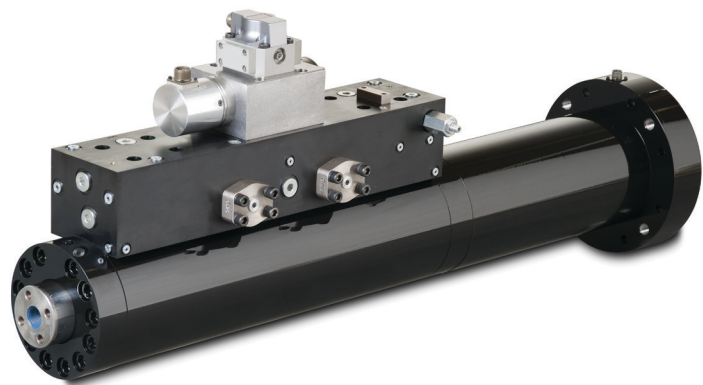
Rev. B 0609

HIGHER LEVEL OF DYNAMIC PERFORMANCE,  
RELIABILITY AND LONGEVITY

Whenever the highest levels of motion control performance and design flexibility are required, you'll find Moog expertise at work. Through collaboration, creativity and world-class technological solutions, we help you overcome your toughest engineering obstacles.

Enhance your products' performance, achieve greater efficiencies, and help take your thinking further than you ever thought possible.

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This catalog is for users with technical knowledge. To ensure that all necessary characteristics for function and safety of the system are given, the user has to check the suitability of the products described herein. The products described herein are subject to change without notice. In case of doubt, please contact Moog.

For the most current information, visit [www.moog.com/industrial](http://www.moog.com/industrial).

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### **INNOVATIVE 8 POCKET HYDROSTATIC BEARING FOR IMPROVED SIDE LOAD TEST CAPABILITIES AND LESS ENERGY NEEDS**

While other actuators have the traditional 4 pocket bearing design we have an innovative 8 pocket hydrostatic bearing design which yields much improved side load test capabilities. Traditional 4 pocket actuators can generate a stall capacity of up to 40% while Moog's new 8 pocket design can generate a stall capacity force of up to 60% increasing your test capabilities significantly. And these higher forces can be reached with less leakage flow, thus causing you to use less oil with lower maintenance. In addition our new hydrostatic bearing actuator requires a smaller HPU making this essentially a cleaner hydraulic application over the traditional design.

### **HIGHER LEVEL OF DYNAMIC PERFORMANCE, RELIABILITY AND LONGEVITY**

Moog has vast experience developing actuators for some of the world's most demanding applications and building high performance motion control components is one of our strengths. Actuators are key to high performance test solutions and our customers have expressed a need for more reliable, high performance components than they can find in the marketplace. We have put some of our top engineers on a new product development project that combines test application knowledge with a long history of actuation experience. The result is the O86-6 series actuator that is the benchmark for strength and durability test applications. Improving the performance of today's test systems, while meeting stricter environmental concerns requires a new kind of building block component. The Moog actuator represents a new breed of component design and robust performance. This new building block can be used in many applications including single and multiple actuator test systems.

#### **Advanced cushion design for higher reliability and safety**

We took a traditional design and made significant improvements developing a truly better cushioning system. The actuator incorporates this advanced design to ensure safety and prevent equipment damage. The O86-6 series actuator has a cushion at each end to ensure that the actuator will be decelerated before reaching end of stroke in both directions.

- Dampens force for test reliability
- Each cushion design is physically tested to ensure proper functioning
- Provides true active cushioning in a properly sealed system

#### **Improved seal wear for longer life and less maintenance**

The actuator's advanced coating used on the rod significantly improves seal wear for long life and less maintenance. A stainless steel rod utilizes proprietary seals and this unique rod coating to provide several performance advantages. This design also provides for a cleaner hydraulic operation creating a more environmentally friendly lab.

- Rod surface 80 HRC
- Extends the seal life
- Clean operation allows for less maintenance time and costs
- Proprietary surface finishing requirements to enhance seal life and minimize oil leakage
- Stainless steel rod to prevent corrosion

#### **Innovative design for less maintenance**

Moog engineers designed the manifold to house all of the piping in the actuator, thereby removing the need for most of the exterior piping. The result is significantly less maintenance requirements and downtime.

- Minimal failure points due to less piping
- Few potential oil leaks over time because of self containment in manifold

#### **Moog Servovalves - World leader in servo-control test systems**

Moog Servovalves have a worldwide reputation for long-life, high performance and excellent after market support. This advanced servo control provides precision movement in these test actuators.

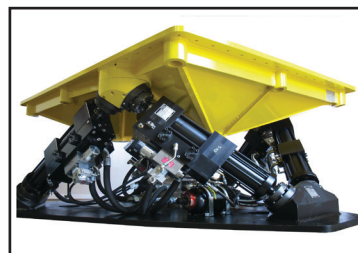
Custom servovalves can also be tailored to meet your unique requirements by developing special configurations that offer even more optimized performance. Benefits include:

- Improved step response
- Reduced hysteresis and increased small signal response with use of high response valves

#### **Solutions built around you**

The Moog hydrostatic bearing actuator delivers higher reliability, less maintenance and increased dynamic performance for test labs looking for the competitive edge. High-quality materials combined with superior engineering such as advanced cushion design and innovative manifold design make these actuators the right choice for a range of system challenges.

To ensure high performance from design to delivery, Moog engineers use the latest tools such as Matlab® and Simulink® system modeling. A rigorous physical testing program ensures that our customers receive components that they can rely on for a trouble-free test process. The combination of innovative design, world-class manufacturing and responsive worldwide customer support, make Moog components the ideal answer for test labs that offer more reliability and the highest performance.



**Simulation Table System**

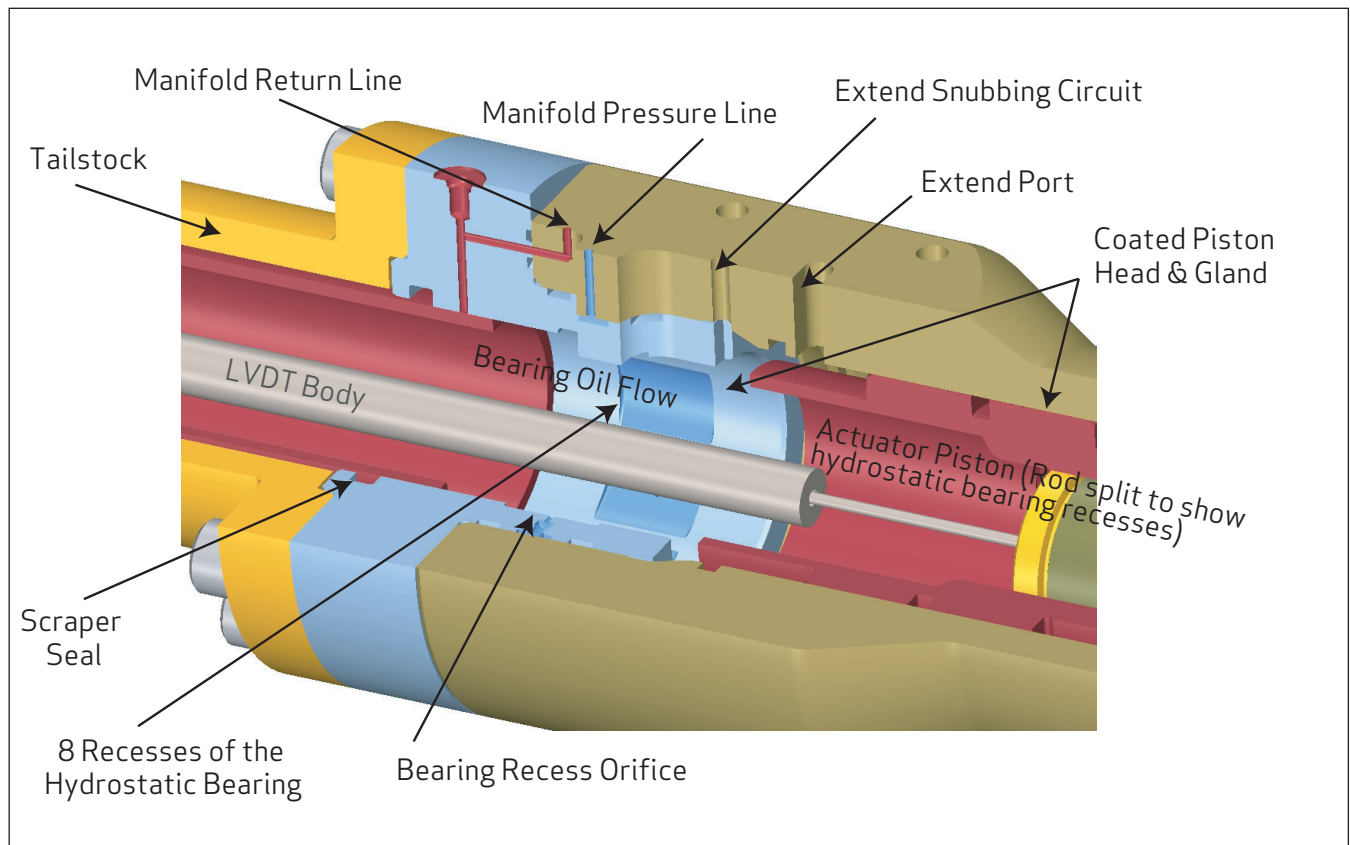


**4-Post Hydrostatic Test Systems**

**STRUCTURAL HYDROSTATIC BEARING ACTUATOR FORCE PRODUCT RANGE**

Force Rating kN (kip)	Stroke Length mm (in)	Rod Diameter mm (in)	Cylinder Bore Diameter mm (in)	Piston Area sq cm (sq in)	Cushion Stroke mm (in)
30 (6.6)	152, 204, 254, 306 (6, 8, 10, 12)	80 (3.15)	92 (3.62)	16.21 (2.51)	25 (0.98)
38 (8.5)	152, 204, 254, 306 (6, 8, 10, 12)	80 (3.15)	95 (3.70)	20.62 (3.20)	25 (0.98)
50 (11)	152, 204, 254, 306 (6, 8, 10, 12)	80 (3.15)	99 (3.90)	26.71 (4.14)	25 (0.98)
100 (22)	152, 204, 254, 306 (6, 8, 10, 12)	100 (3.94)	130 (5.12)	54.19 (8.40)	25 (0.98)
160 (35)	152, 204, 254, 306 (6, 8, 10, 12)	100 (3.94)	145 (5.71)	86.59 (13.42)	25 (0.98)

**CRITICAL COMPONENTS**



**HYDRAULIC INTERFACES**

<b>Hydraulic Distribution System</b>	
<b>Oil Requirements</b> System Fluid System Fluid	Mobil DTE-25, Shell Tellus 46, or equivalent Mobil DTE-24, Shell Tellus 32, or equivalent
<b>Filtration Requirements</b>	To prolong the operational life of active hydraulic components, the hydraulic fluid should be maintained at a cleanliness level of ISO 4406 (SAE J1165) 16/14/11.
<b>Pressure</b> Operating Pressure Maximum Return Pressure Maximum Drain Pressure	3000 psi (210 bar) 200 psi (14 bar) 50 psi (3.5 bar)
<b>Operating Temperature</b>	Hydraulic oil temperature should be maintained between 24°C (75°F) and 57°C (135°F)
<b>Hydraulic Manifolds</b>	
<b>Manifold Ports</b>	SAE four bolt metric flange connection per ISO 6162 TYPE 1 SAE Straight Thread O-ring port - ISO 11926-1
<b>Hydraulic Fitting Requirements</b> Standard Fittings Optional Fittings	SAE O-Ring Face Seal (ORFS) "Seal-Lok" ISO 8434-3 BSPP O-Ring 24° Cone Flareless "E02" - ISO 8434-4
<b>Servovalves*</b> Standard Response High Response	G761, 72, 79-100, 79-200 G761, D765, 79-100, 79-200

\*Moog Application Engineering can help you select the ideal size and type of servovalve to optimize performance.

**ELECTRICAL INTERFACE**

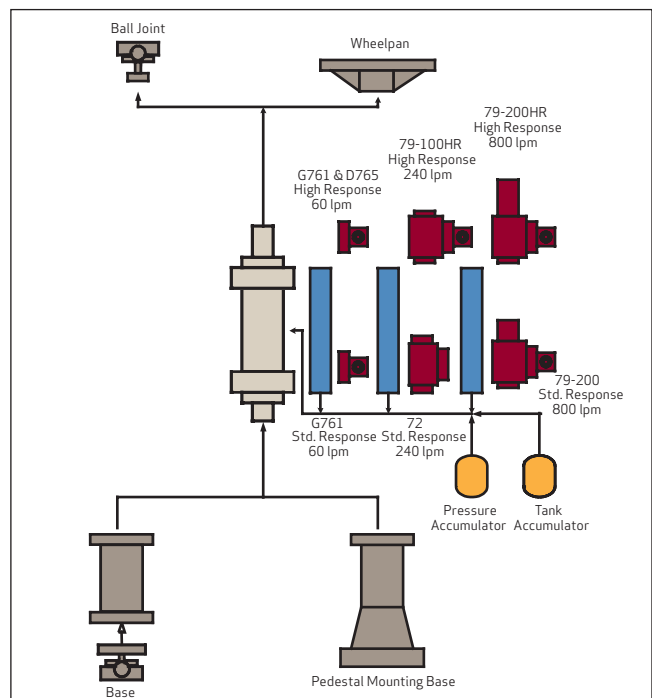
<b>Transducer Specifications</b>	
<b>LVDT Transducer</b>	LVDT excitation (5V peak to peak @ 3kHz)

**MODULAR CONFIGURATIONS**

A variety of available configurations allows you to design the exact actuator that you need for your test system for increased modularity. Moog can provide a series of servovalves and accumulators to match your needs as well as offer a range of joints and bases for maximum efficiency.

**Key for configurations:**

- Joints and Bases
- Servovalves
- Accumulators
- Manifolds



**Solutions designed around you**

Moog engineers are always ready to meet your unique application needs with complete turnkey systems that include servoactuators, servovalves, software and more. Our Portable Test Controller, for example, is the only stand-alone unit on the market that can be extended up to four channels within the same housing.

**Test Controllers**

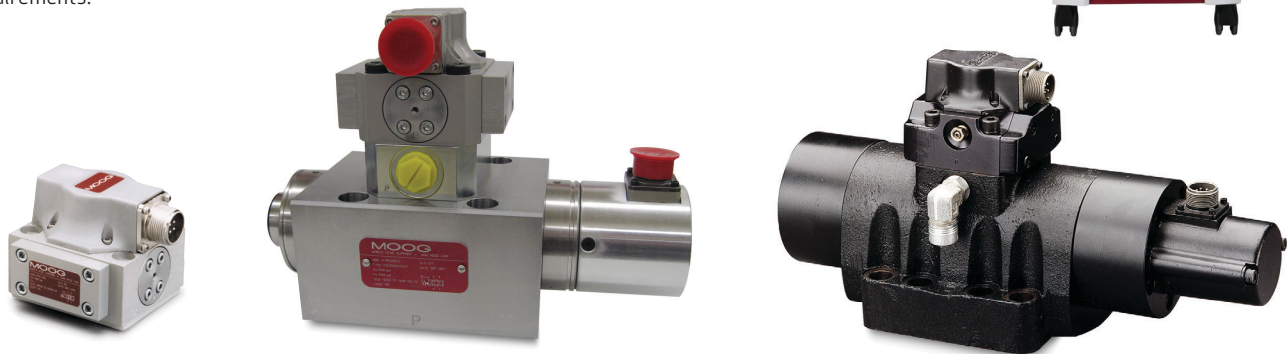
This servocontroller product incorporates Moog' unique force loop technology to handle general purpose tests. With or without a PC, our Test Controllers are flexible with high-performance capabilities to handle complex testing formulas. This makes it an indispensable tool for testing labs. The units offers plug-and-play with industry standard connectors for cost effective and easy integration. The larger Test Controller is ideal for complex systems up to 32 servo channels.

**Test Controllers**



**Moog Servovalves**

Because we designed our renowned Moog Servovalves – the world standard in performance and durability – you're assured of a system tailored to your exacting requirements.



**A HIGHER LEVEL OF SUPPORT**

**Moog engineering on call for you**

Working with Moog means total access to a team of specialists who are committed to your needs long after your solution is delivered.

Our expert engineers are on call across the globe, ready to respond quickly and professionally to help you get the most from your investment. From helping you minimize downtime to keeping your systems working at peak effectiveness, Moog specialists understand the special demands of actuation for strength and durability testing. We're there when you need us.

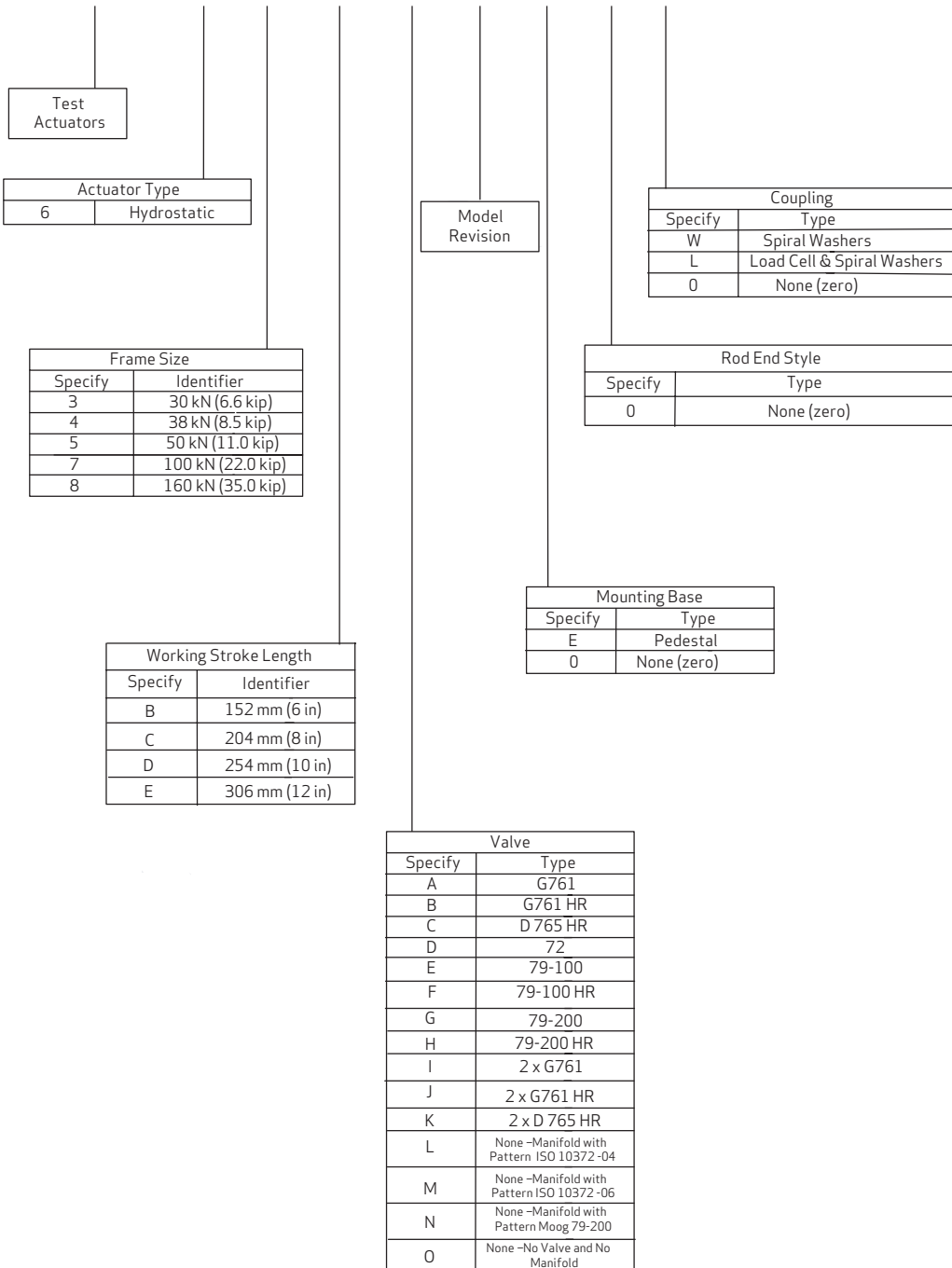
**Take the next step**

Isn't it time you worked with a partner who understands what makes your actuation for automotive applications more productive? Who can offer both the world-class products and collaborative expertise you need to reach the next level of performance? And who is committed to this industry for the long run?

Contact us today. And see for yourself the difference the right partner can make.

**MODEL NUMBER DEFINITION FOR HYDRAULIC TEST ACTUATOR - HYDROSTATIC BEARING**

-086 - 6 X X X - X X X



# TAKE A CLOSER LOOK

Structural Actuator test solutions from Moog are available around the world.  
For more information, visit our Web site at [www.moog.com](http://www.moog.com) or contact one of the locations below.

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