

HYDRAULIC SERVICE MANIFOLD LARGE FLOW CAPABILITY



Rev. -, August 2018

PROVIDING OFF/LOW/HIGH ISOLATION
CONTROL FOR TEST SYSTEMS AND
HYDRAULIC ACTUATORS

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 machine's 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.

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OVERVIEW

Moog C050-1086 Hydraulic Service Manifold (HSM) provides an effective hydraulic engagement and isolation control to a test system or individual hydraulic actuators. Typically the HSM inlet ports are connected to a central Hydraulic Power Unit (HPU). The outlet ports are connected to servo hydraulic systems or actuators. C050-1086 is designed to be working under 21 MPa system pressure and the maximum rated flow capacity is 1200 l/min (300 gpm).

The HSM can provide Off/Low/High controlled hydraulic pressurization to the test system thus to establish a smooth hydraulic engagement to avoid possible impulse to the test system or damage to the specimen.

Moog offers the C050-1086 HSM in two designs:

- C050-1086A: for regular 21 MPa system, pilot pressure always present without control
- C050-1086A1: for 21 MPa system with additional TÜV certificated safety relief valve to be compliant with CE regulation; pilot pressure with On/Off solenoid control

The HSM also provides additional filtration and has accumulators for removing pressure and flow fluctuation and also providing extra flow during a peak demanding.

Due to its 1200 l/min (300 gpm) rated flow, C050-1086 HSM is typically integrated into large test system such as:

- Moog Hydraulic Simulation Table
- Moog 4 Poster Tire-Coupled Road Simulator
- Large Flow Multiple Axis Testing System



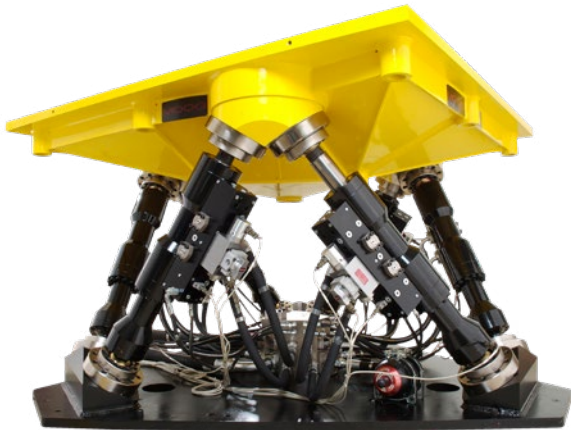
Features	Benefits
C050-1086A - Conventional HSM model	Covers mainly North America and Asia Pacific region - wider acceptance Without additional safety relief valve - cost saving Pilot Pressure presents all the time - the pilot stage of a servo valve to be engaged prior to the system engagement. Better servo control.
C050-1086A1 - "Safety" HSM model	With additional TÜV "Safety Relief Valve" - compliant with European regulations. HSM to be categorized as "Safety Component". Additional Pilot Control is designed - user can cut off the pilot line during a E-STOP
"Off/Low/High" pressure control	Low pressure (adjustable) provides a "Safe-Mode" during system installation, commissioning and tuning. Then the High pressure mode to provide the full power to the normal test and operation.
"Soft-Start" of "Off-to-Low"; 3 to 5 seconds transition time from "Low-to-High" pressure;	The "Soft-Start" will create a smooth engagement of the hydraulic power into an actuator's close loop control. This is especially critical to those test applications where test specimen are sensitive and fragile and the test only utilizes a small percentage of the maximum output force of an actuator. Eliminating the jerk and impact will protect the specimen from being damaged and achieve more accurate test results. The wide range of Low Pressure setting (3.5 to 7 MPa) will create a 3 to 5 seconds transition time from "Low-to-High", and allows the user to select a nice working point to take a balance between safety and the tuning accuracy.

Rapid "Pressure-Unloading" when switching to "Off" mode.	Quickly remove any pressure from actuator(s). This will bring the system from a "Pressurized-Mode" down to a "Safe-Mode" as soon as possible.
1-in/1-out or 1-in/2-out options	To adapt to wider applications, such as: * Hydraulic Simulation Table: 1-in/1-out * Tire-Coupled Road Simulator: 1-in/2-out * Multiple Axis Test Systems: both used
20 µm filter for pressure line 3 µm filter for pilot line	Minimize and eliminate possible contaminations introduced from HPU or piping lines.
Accumulator Certification to meet various regulations	Accumulator Certification of US, EU and China available.
Pilot Pressure (PP) and Shut-Off control as an addition	Pilot Pressure to provide an "earlier engagement" for devices like: servo valve with pilot stage, hydrostatic bearing etc., to ensure proper servo control from open-loop to close-loop. C050-1086A1 has an additional Solenoid valve to provide an ON/OFF control to the Pilot Pressure - to be compliant to the European regulation.
Solenoid Valve with 24 VDC 1 A maximum	Safety and high adaptability to controller

Typical Applications:

With its large flow capability, the C050-1086 HSM is mainly used in large Test Systems:

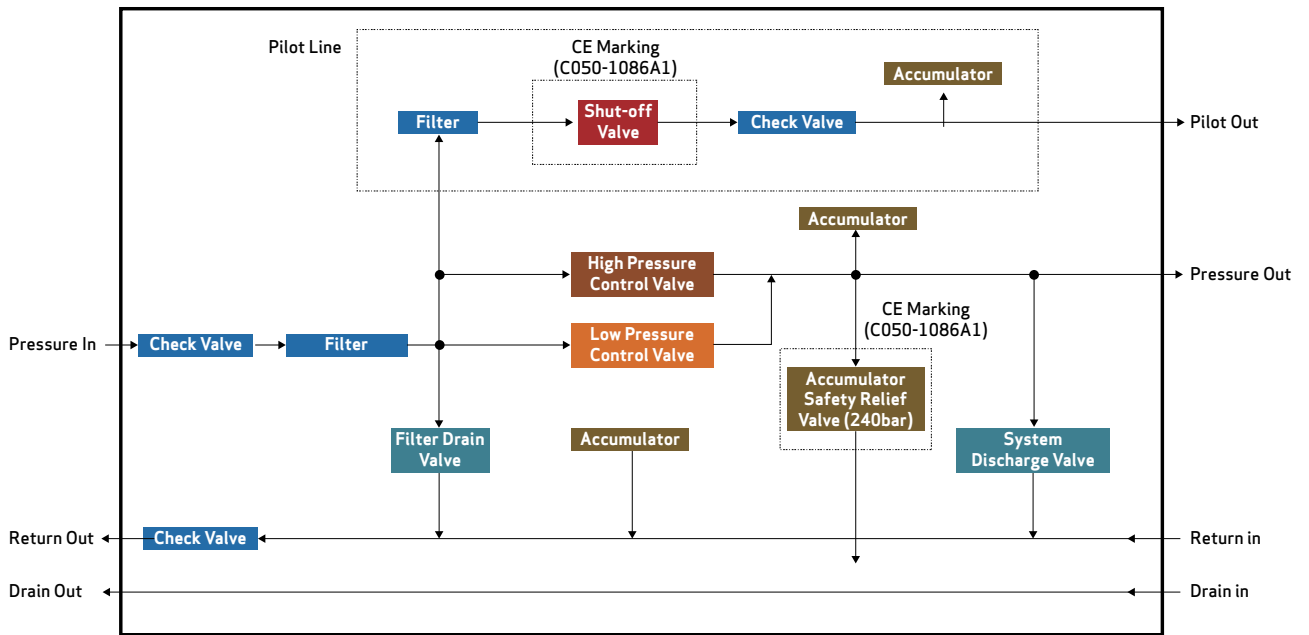
- Hydraulic Simulation System - HST
- Tire-Coupled Road Simulator - 4 Poster
- Large Multiple Axis Test Systems



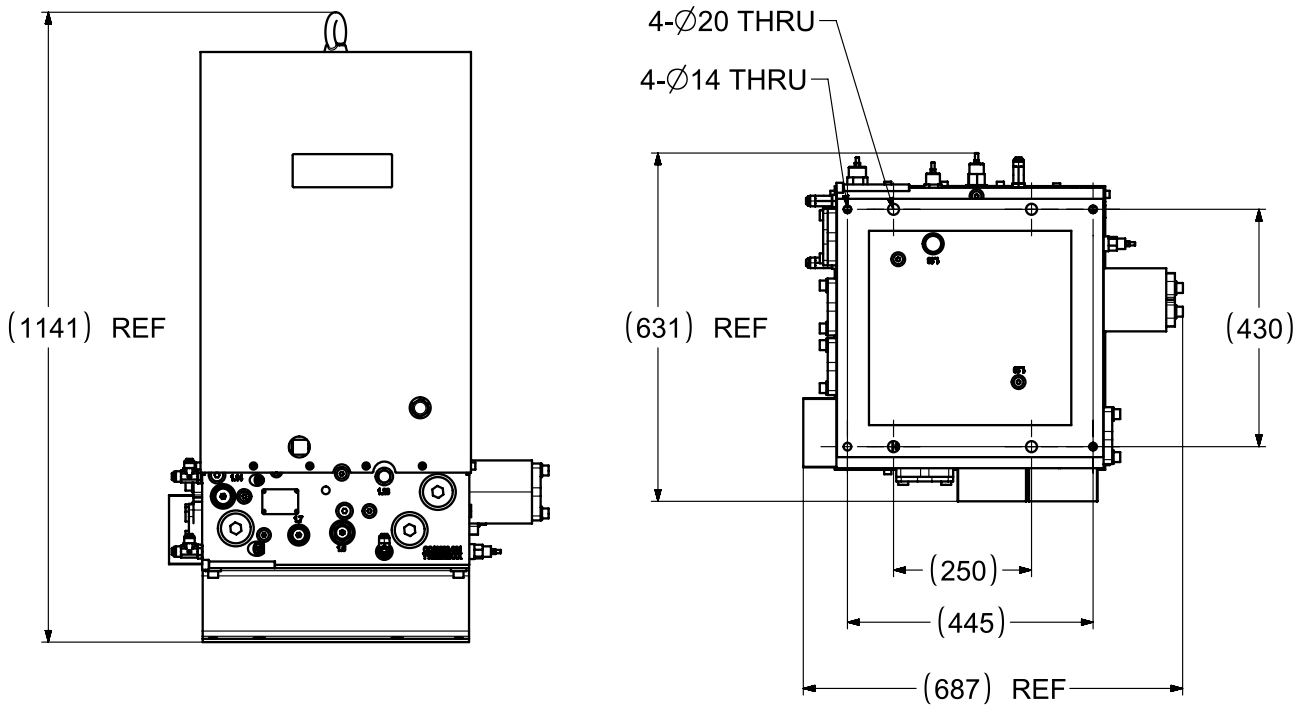
HSM Specifications

Items and Models	(Unit)	C050-1086A	C050-1086A1	Notes
Number of Station		1	1	
Nominal Flow Rating	(l/min)	1200	1200	
	(gpm)	300	300	
Operating Pressure	(MPa/psi)	21/3000	21/3000	
Low Pressure Setting Range	(MPa/psi)	7/1000	7/1000	Factory Setting
Additional Safety				
Safety Relief Valve		No	Yes @240 bar	Factory fixed
Solenoid Control				
Low Pressure Control		Yes	Yes	
High Pressure Control		Yes	Yes	
Pilot Pressure Control		No	Yes	
Solenoid Power Volt	(VDC)	24	24	
Solenoid Current (Max)	(A)	1	1	
Filtration				
Pressure	(µm)	20	20	
Pilot	(µm)	3	3	
Accumulation				
Pressure Line	(l)	4	4	
	(MPa)	12.5	12.5	Factory Setting
Return Line	(l)	4	4	
	(MPa)	0.35	0.35	Factory Setting
Pilot Line	(l)	0.5	0.5	
	(MPa)	7.0	7.0	Factory Setting
Hydraulic Connections - Inlet				
HPU Inlet Port		2" Code 61	2" Code 61	
HPU Return Port		2" Code 61	2" Code 61	
HPU Drain Port		SAE-8, O-LOK, tube end Run Tee SAE-8, JIC 37°, tube end Run Tee	SAE-8, O-LOK, tube end Run Tee SAE-8, JIC 37°, tube end Run Tee	Selectable
Hydraulic Connections - Outlet				
Ports Qty		2	2	1 port can be capped
Pressure Outlet		2" Code 61	2" Code 61	
Return Outlet		2" Code 61	2" Code 61	
Drain Outlet		SAE-8, O-LOK, tube end Run Tee SAE-8, JIC-37, tube end Run Tee	SAE-8, O-LOK, tube end Run Tee SAE-8, JIC-37, tube end Run Tee	Selectable
Dimensions and Weight				
Dimensions	(LxWxH mm)	688x631x1141	927x651x1141	
Weight	(kg)	540	577	

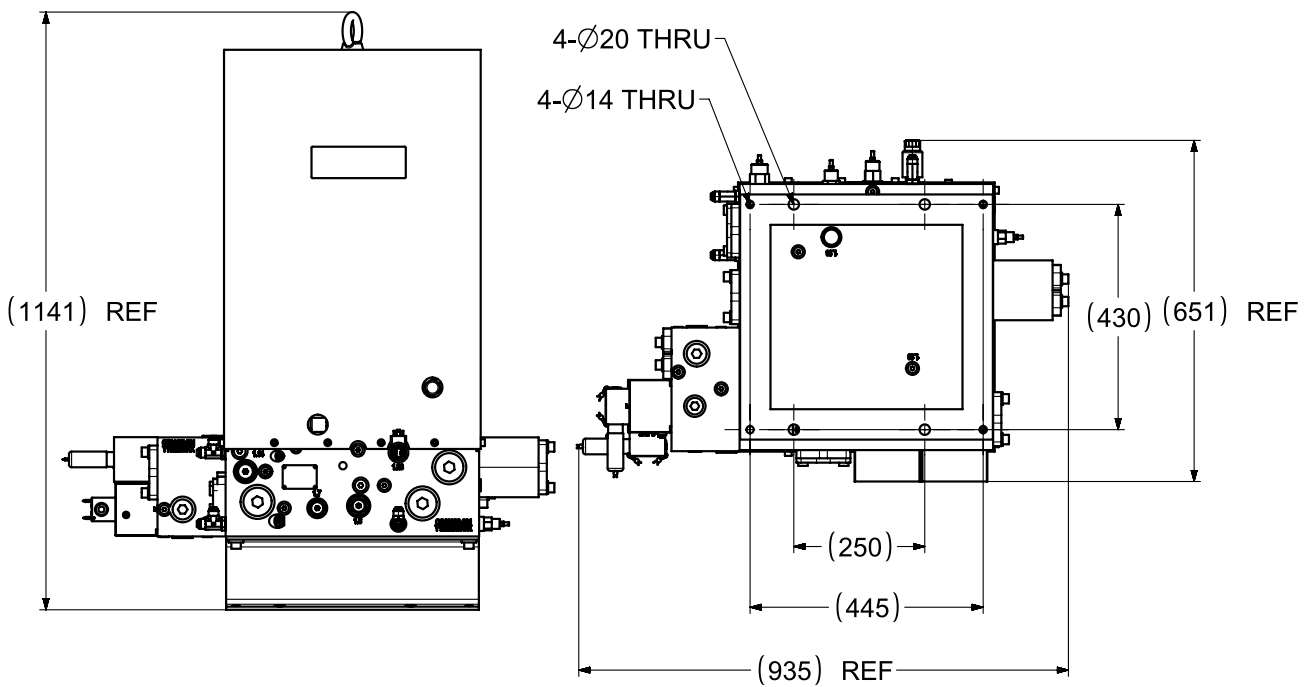
HYDRAULIC SCHEMATIC



PHYSICAL DIMENSIONS (C050-1086A)

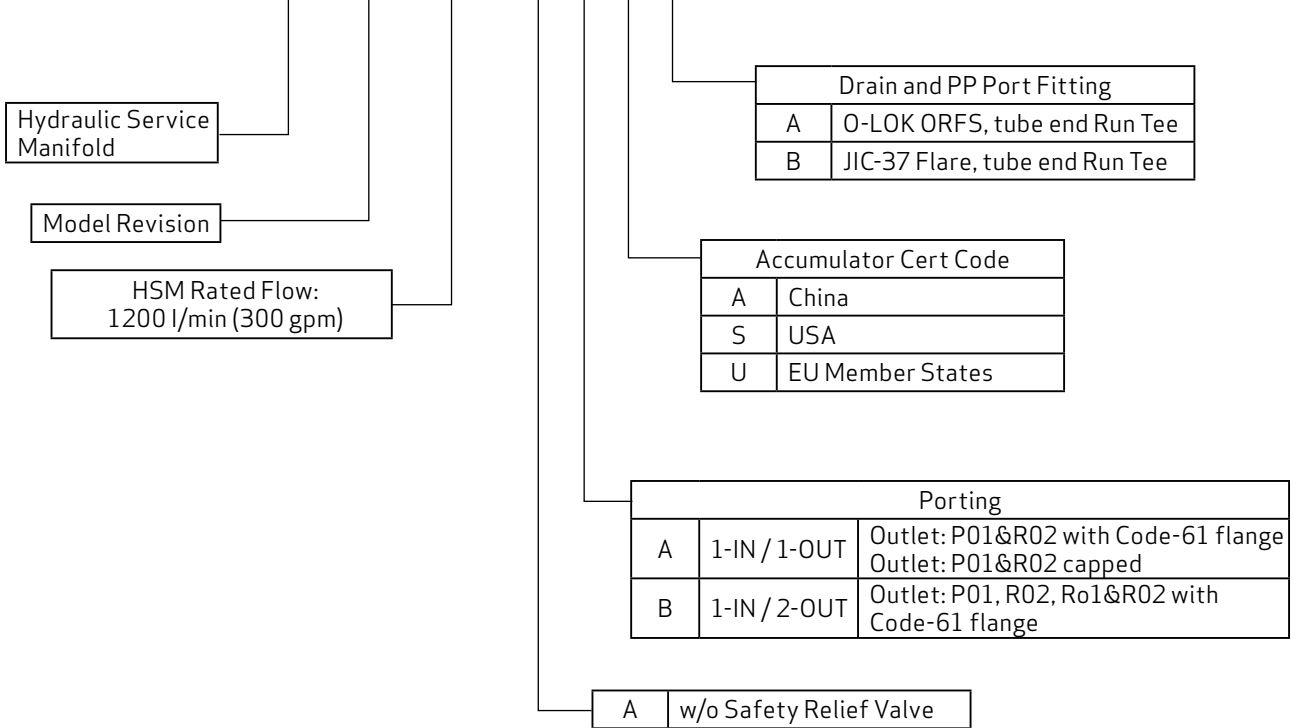


PHYSICAL DIMENSIONS (C050-1086A1)

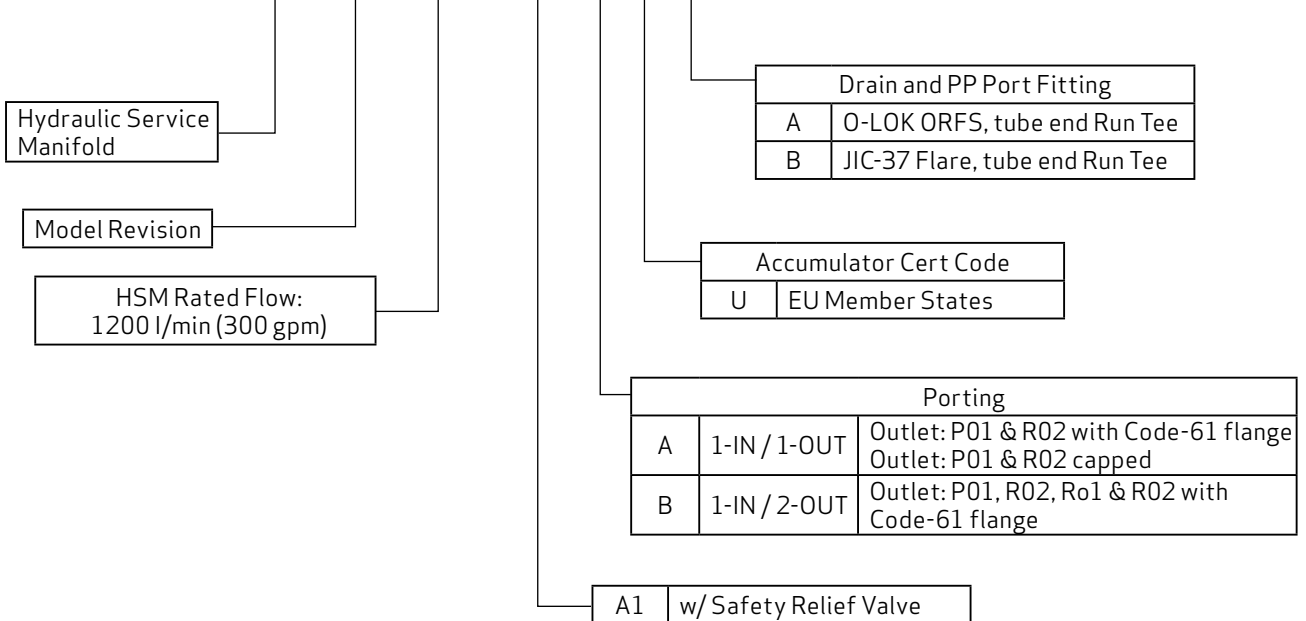


ORDERING CODE

C050 - 1086 A X X X



C050 - 1086 A1 X X X



ABOUT MOOG

Hydraulic solutions

Since Bill Moog invented the first commercially viable servo valve in 1951, Moog has set the standard for world-class hydraulic technology. Today, Moog products are used in a variety of applications - providing high power, enhanced productivity and ever better performance for some of the world's most demanding applications.

Electric solutions

Clean operation, low noise generation, less maintenance and reduced power consumption make Moog electric solutions ideal for applications worldwide. Moog is the ideal partner for applications where transitioning technologies requires special expertise.

Hybrid solutions

By incorporating the advantages of existing hydraulic and electric technologies - including modular flexibility, increased efficiency and cleanliness - into innovative hybrid solutions, Moog offers new performance potential in specialized applications.



Tire Coupled Road Simulator



Flight Simulation

Moog Global Support

Moog Global Support is our promise to offer world - class Repair and Maintenance Services delivered expertly by our trained technicians. With facilities around the world. Moog offers you service and expertise you can count on to keep your equipment operating as it should.

This promise offers many benefits to our customers including:

- Reduce your downtime by keeping critical machines running in peak performance
- Protect your investment by ensuring reliability, versatility and long-life of products
- Better plan your maintenance activities and make systematic upgrades
- Leverage our flexible programs to meet the unique service requirements of your facility

Look to Moog for global support including:

- Repair services using OEM parts are performed by trained technicians to the latest specifications
- Stock management of spare parts and products to prevent unplanned downtime

- Flexible programs, tailored to your needs such as upgrades, preventative maintenance and annual/multi - year contracts
- On-site services bring the expertise to you, providing quicker commissioning, set - up and diagnostics
- Access to reliable services that are guaranteed to offer consistent quality anywhere in the world

For more information on Moog Global Support visit www.moog.com/industrial/service.



MOOG TEST PRODUCTS-FOR EVERY TESTING NEED

Moog engineers are always ready to meet your unique application needs with building blocks or complete turnkey systems that include hydraulic or electric test actuators, Moog servo valves, hydraulic service manifolds, test controllers, software and more.

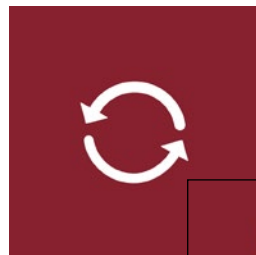
Test Controllers and Software

The Moog Test Controller is a real-time modular control system that can control or collect data from any hydraulic or electromechanical test system. The robust and compact modules have a wide range of transducer inputs and control outputs that can be easily configured for optimum use. The Moog test software allows the end user to control and record all of these signals in an easy to use format providing maximum value for many years of reliable usage.



MOOG REPLICATION

Replicate time history files using state-of-the-art algorithms in an easy yet powerful way

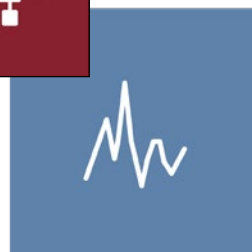
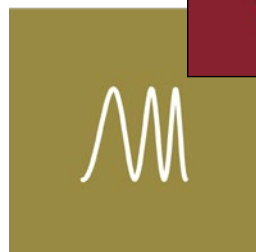


MOOG RUNNER

Build complex, nested durability tests through simple instructions. Run and monitor the progress of the durability test and specimen

MOOG SINESWEEP

Measure the resonant frequencies of your test specimen. Run sine sweep durability tests



MOOG VIBRATION

Run real-time closed loop control to defined random vibration frequency spectra (PSDs)



C086A3 Single Ended Actuator

The Moog Single-Ended Hydraulic Test Actuator delivers higher reliability, less maintenance and cost-effective performance to meet critical needs of test engineers. A wide array of sizes and variety of options of features are available providing a high adaptability to users' need.

Hydrostatic Bearing Test Actuator

Used in the Standard Hydraulic Simulation Table

- Innovative 8 pocket hydrostatic bearing increases side load capacity to 60% of stall output and reduces energy requirements
- Higher level of dynamic performance, reliability, and longevity
- Advanced coating used on the rod significantly improves seal wear for long life and less maintenance
- Fully integrated manifold eliminates the need for any external piping



Polymer Bearing Actuator

Fatigue rated actuators are the heart of high performance test systems. For years, test engineers have been looking for actuators that deliver dependability, less maintenance and high performance, yet are available at an affordable price.

Moog Servo Valves

Because we design our renowned Moog Servo Valves - the world standard in performance and durability - you're assured of a system tailored to your exacting requirements.



TAKE A CLOSER LOOK.

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

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