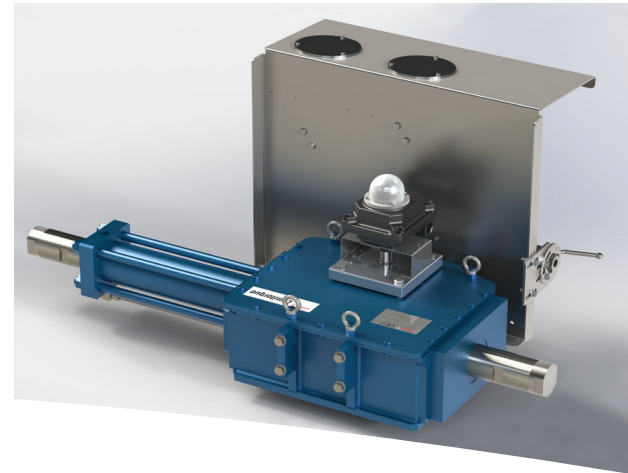




Limitorque™ LHS/LHH

Limitorque Hydraulic Scotch Yoke Actuator



With an operational design life of 25 years and a maintenance interval up to six years*, the LHS/LHH Limitorque Hydraulic Actuators are a part of the Limitorque Fluid Power Systems family of heavy-duty Scotch yoke actuators.

Equipment performance and safety standards continue to evolve and increase across the infrastructure industries. These stringent demands are particularly dynamic in oil and gas, where there is an increasing focus on personnel safety and equipment uptime. To aggressively meet these demands, Flowserve Limitorque is offering the LHS/LHH Hydraulic Scotch Yoke Actuator—specifically designed to meet or exceed the latest and most rigorous requirements.

Features and Benefits

- Available in standard single-acting spring return and double-acting configurations, in torque ranges up to 300 kNm (221 000 ft-lb); contact factory for larger sizes
- Symmetrical and Canted Scotch yoke types to perfectly fit valve torque requirement
- Spring Return Single Acting (Fail Close CW and Fail Open CCW) and Double Acting (Fail Last / Fail-as-is) executions
- True modular design for flexible and easy field conversion from Fail Close CW to Fail Open CCW configuration or vice versa
- End mounted adjustable travel stops $\pm 5^\circ$
- Fabricated carbon steel Scotch yoke housing, hydraulic cylinder and spring can, providing the most rugged actuator available; different materials of construction for polar or offshore applications upon request
- ENP lined cylinders with chrome plated piston rod; stainless steel cylinders, tie rods and spool pieces available upon request

- 207 barg (3000 psig) LHS series, 345 (5000 psig) LHH series; 410 barg (6000 psig) version maximum allowable working pressure (MAWP); upon request
- -29°C to 100°C (-20°F to 212°F) standard operating temperature range; Low temperature -60°C (-76°F) and high temperature 160°C (320°F) ranges available upon request (polar, cold, arid and tropical temperature requirements in accordance with IEC 60721)
- Suitable for use in on/off, modulating and control valve application in general service, protective service and safety applications such as ESD or HIPPS
- Available for use in safety integrated systems up to and including SIL Level 3 in accordance with IEC 61508
- Full range of accessories: switchboxes, positioners; ESD and PST functionalities; custom control panels; fire protection; manual and hydraulic overrides

Key Certifications and Standards Compliance

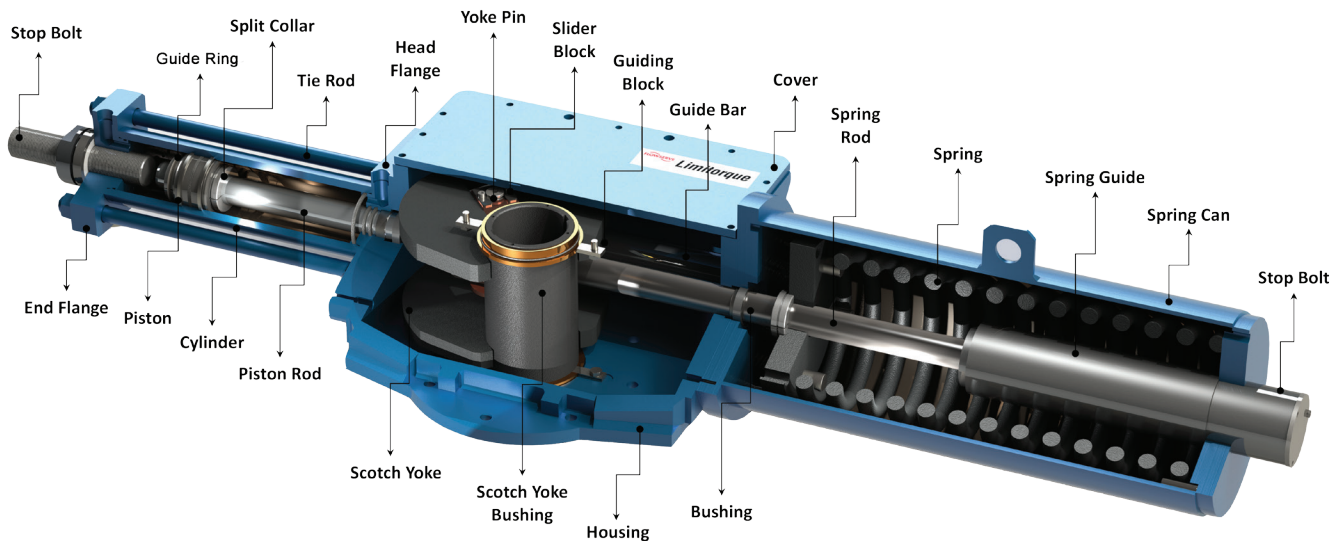
- Available according to ATEX 94/9/EC Ex II 2GD c IIC T6
- NEMA 4 and NEMA 4X configurations, per NEMA 250
- IP66/IP66M and IP67/IP67M configurations
- Standard output valve interface in compliance with ISO 5211
- Actuator spring design in compliance with EN 13906
- Corrosion protection in compliance with ISO 12944-2 and EN 15714-4; optionally available up to and including C5-M
- Available in compliance with NACE specification MR0175 for sour gas applications
- Available in compliance with PED 97/23/EC, ASME BPVC Sec. VIII, Div. 1, EN 13445-3, Part 2 for Unfired Pressure Vessels
- Manufactured and tested in compliance with ISO 9001 and EN 15714-4

* Depending on service conditions, proper installation, operation and maintenance.

Model	MOT Maximum Operating Torque Nm (ft-lb)	MOP Maximum Operating Pressure barg (PSIG)	MAWP Maximum Allowable Working Pressure barg (PSIG)
LHS/LHH-15	6000 (4425)	Variable for every cylinder size.	LHS: 207 barg (3000 psig) LHH: 345 barg (5000 psig)
LHS/LHH-20	12 000 (8851)		
LHS/LHH-25	21 000 (15 489)		
LHS/LHH-30	40 500 (29 871)		
LHS/LHH-35	75 000 (55 317)		
LHS/LHH-40	150 000 (110 634)		
LHS/LHH-50	300 000 (221 268)		
LHS/LHH-60	Consult Factory	Consult Factory	

* MAWP 410 barg (6000 psig) available on request

Anatomy Limitorque LHS Actuator



Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

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