

rotork®

Fluid Systems

Pneumatic and Hydraulic Linear Valve Actuators

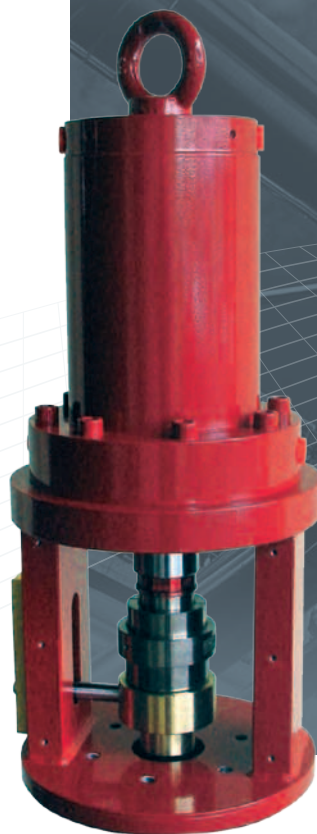
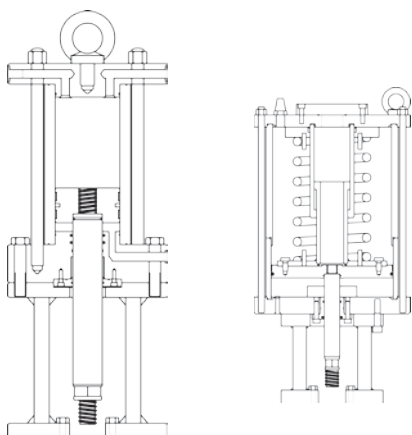
Rotork Fluid Systems' extensive range of linear pneumatic and hydraulic actuators are designed to operate sliding stem valves of all sizes and manufacture. Our proven design and engineering expertise has developed a product suitable for the harshest of environments

In the more than fifty years since the company was founded, Rotork has become the standard for excellence in the field of valve and damper automation for the oil, gas, waster and wastewater treatment industries around the world.

As established leaders in actuation technology, we owe our success to a commitment to quality at every stage, and at every level, of Rotork's worldwide operations. At the heart of the company is an exceptional workforce — the highly trained, forward thinking engineers, technicians, and sales support staff who each play a crucial role in maintaining Rotork's unrivaled reputation for innovation, reliability and first class after sale support.

With several fluid power manufacturing facilities in Europe and the United States, and additional *Centres of Excellence* strategically located around the globe, we are able to offer solutions and design systems for virtually any application — from subsea hydraulics to the most sophisticated yet simple control system.

Contact Rotork for your operational or safety application requirements. We will work with you from conception, to design, to manufacture, to installation, and finally to maintenance and service support.



LP/LH Range Linear Actuators



Established Leaders in Actuation Technology

rotork® Fluid Systems

Linear Actuators

Rotork Fluid Systems manufactures a comprehensive range of double-acting and spring-return pneumatic and hydraulic actuators to suit all valve sizes. These units are specifically sized for each application.

Operating Pressure: Pneumatic up to 12 Bar (175 psi)
Hydraulic up to 250 Bar (3,625 psi)

Max. Thrust:

| | | |
|-------------------------|-----------------|--|
| Pneumatic Double-Acting | | |
| 1,800,000 N | (404,656 lbs) | |
| Pneumatic Spring-Return | | |
| 400,000 N | (89,925 lbs) | |
| Hydraulic Double-Acting | | |
| 5,500,000 N | (1,236,450 lbs) | |
| Hydraulic Spring-Return | | |
| 400,000 N | (89,925 lbs) | |

Temperature Ranges:

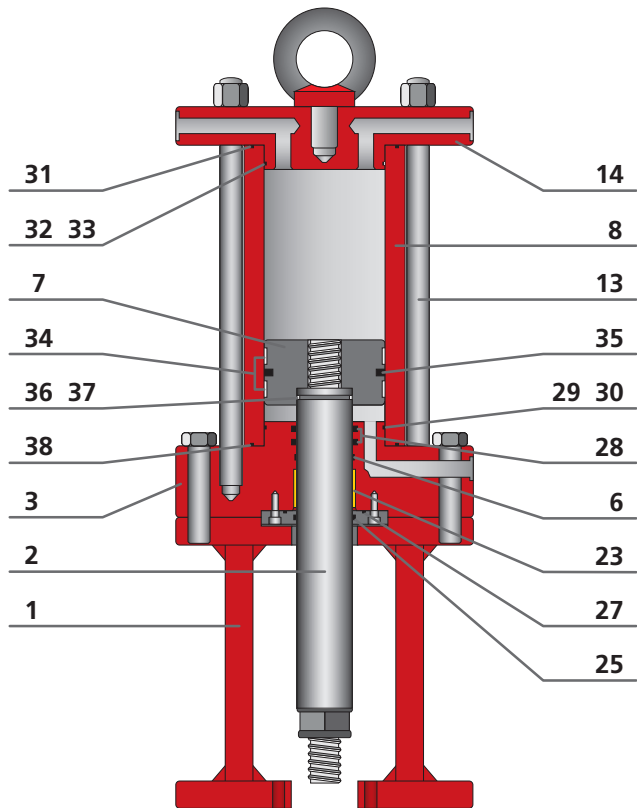
| | | |
|--------------|---------------|-----------------|
| Standard: | -30 to 100 °C | (-22 to 212 °F) |
| High: | -20 to 160 °C | (-4 to 320 °F) |
| Low: | -40 to 160 °C | (-40 to 320 °F) |
| Extreme Low: | -60 to 160 °C | (-76 to 320 °F) |

Override Options

A dependable manual override facility is an important part of many valve/actuator applications. Rotork Fluid Systems has a variety of override options to meet virtually any requirement. Available options include handwheel jackscrew, hydraulic hand pump and gearbox solutions.

Key Design Features

- Carbon steel design single- and double-acting cylinders, electroless nickel-plated to reduce the surface roughness and to provide minimum friction and maximum protection against corrosion.
- Carbon steel piston with PTFE/rubber seals to reduce friction and avoid stick slip effect even after prolonged periods without operation.
- Carbon steel, chromium-plated piston rod to prevent corrosion and to minimise sliding friction on the dynamic seals.
- Visual position indicator directly connected to the valve stem showing actuator/valve full linear stroke.
- Totally enclosed carbon steel spring cartridge with additional safety feature to avoid injury during the disassembly of the spring enclosure.
- Carbon steel open type adaptor with bottom flange machined according to the valve flange.
- Actuators can be fitted with handwheel or hydraulic manual override on request.



Hydraulic double-acting actuator

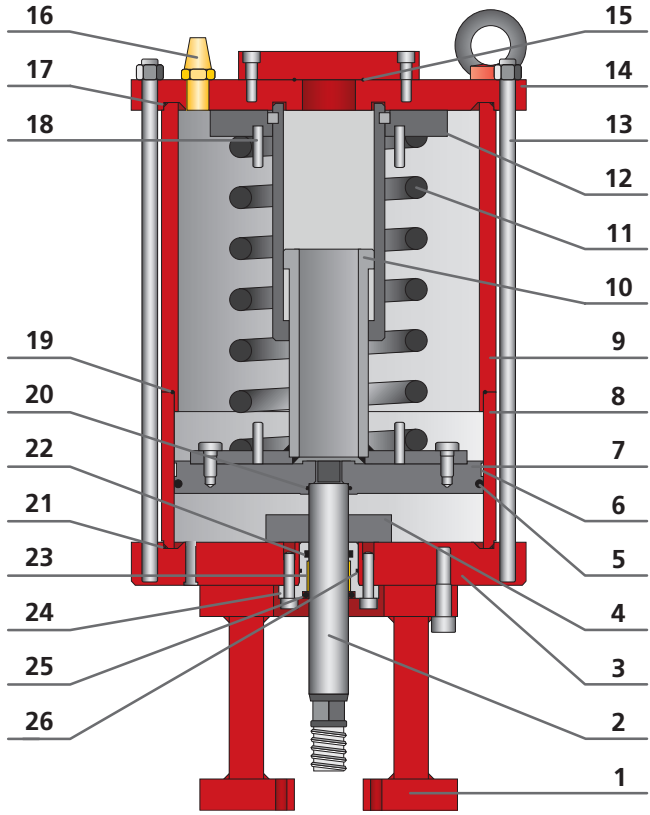


Learn more about Rotork's complete line of valve actuation products at www.rotork.com

Established Leaders in Actuation Technology

LP/LH Range

Full Output Turn Actuator



Pneumatic spring-return actuator

| ITEM DESCRIPTION | MATERIAL | QTY. |
|------------------------------|-------------------------------|--------|
| 1 Adaptor | Carbon Steel | 1 |
| 2 Piston Rod | Alloy Steel (chromium-plated) | 1 |
| 3 Head Flange | Carbon Steel | 1 |
| 4 Spacer | Carbon Steel | 1 |
| 5 O-ring | Buna-N | 1 |
| 6 Sliding Ring | PTFE | 1 |
| 7 Piston | Carbon Steel | 1 |
| 8 Cylinder Tube | Carbon Steel (nickel-plated) | 1 |
| 9 Spring Container | Carbon Steel | 1 |
| 10 Spring Retaining Assembly | Carbon Steel | 1 |
| 11 Spring | Spring Steel | 1 |
| 12 Spring Guide Plate | Carbon Steel | 1 |
| 13 Tie Rod | Alloy Steel | Varies |
| 14 Bottom Flange | Carbon Steel | 1 |
| 15 O-ring | Buna-N | 1 |
| 16 Breather | Sintered Bronze | 1 |
| 17 O-ring | Buna-N | 1 |
| 18 Spring Pin | Spring Steel | Varies |
| 19 O-ring | Buna-N | 1 |
| 20 O-ring | Buna-N | 1 |
| 21 O-ring | Buna-N | 1 |
| 22 Seal | Buna-N/PTFE/Graphite | 1 |
| 23 Shaft Bushing | Steel/Bronze/PTFE | 1 |
| 24 Flange Bushing | Carbon Steel | 1 |
| 25 Seal | PTFE/Buna-N | 1 |
| 26 O-ring | Buna-N | 1 |
| 27 O-ring | Buna-N | 1 |
| 28 Seal | Buna-N/PTFE/Bronze | 2 |
| 29 O-ring | Buna-N | 1 |
| 30 Back-up Ring | PTFE | 1 |
| 31 O-ring | Buna-N | 1 |
| 32 O-ring | Buna-N | 1 |
| 33 Back-up Ring | PTFE | 1 |
| 34 Sliding Ring | PTFE | 2 |
| 35 Seal | Buna-N/PTFE/Bronze | 1 |
| 36 O-ring | Buna-N | 1 |
| 37 Back-up Ring | PTFE | 1 |
| 38 O-ring | Buna-N | 1 |



Hammer blow effect coupling

Stem Coupling

Rotork's standard offering for linear actuators includes a carbon steel, nickel-plated coupling for mating the actuator piston rod to the valve stem. The coupling is supplied machined to suit the piston rod. The opposite end must be machined by others to suit the valve stem arrangement.

An optional coupling design is available upon request. It has added features to ease disassembly and to provide a "hammer blow" effect that facilitates release of the valves.

Complete Control Solutions

Rotork has extensive experience in the design and assembly of all types of fluid power control systems to satisfy any customer requirement for on/off, modulating or ESD (emergency shut down) service. Packages can be mounted on a panel or in a cabinet and mounted either on the actuator or at a remote location. We offer components from all leading industry suppliers as well as those of our own design including limit switch housings, quick exhaust valves, pneumatic and hydraulic manifolds, shuttle valves, linebreak safety systems, a torque limiting device and partial stroke solutions.



Fire Protection Solutions

Rotork Fluid Systems' actuators and control systems can be customized to withstand exposure to both fire and vary high environmental temperatures. A range of fireproof systems are available that include flexible protective jackets, intumescent coatings and rigid enclosure systems. Each system offers unique features to meet a wide range of application requirements. The rigid enclosure system offers our maximum protection level of 1,200 °C (2,192 °F) for up to 120 minutes and can even be retrofit to existing actuator installations.



Extensive Product Range

Rotork Fluid Systems offers the world's most extensive line of fluid power valve actuators. Products include low- and high-pressure pneumatic, hydraulic and electro-hydraulic actuators. Scotch yoke, linear and rack and pinion designs are available in both double-acting and spring-return configurations. We also manufacture special build actuators for subsea and nuclear power applications and specialty products including a hydraulic damper for swing check valves, a manual/hydraulic power handwheel, and the SVM smart valve monitoring system; a comprehensive, non-intrusive valve/actuator partial stroke test and performance monitor.



A full listing of our worldwide sales and service network is available on our website.

www.rotork.com

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Fluid Systems
Fluid Power Actuators and Control Systems

Controls
Electric Actuators and Control Systems

Gears
Gearboxes and Gear Operators

Site Services
Projects, Services and Retrofit