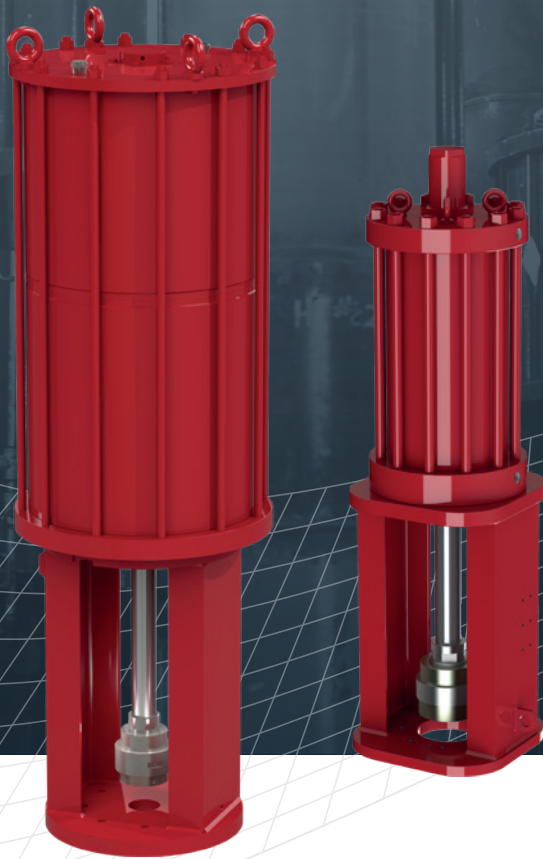


rotork[®]

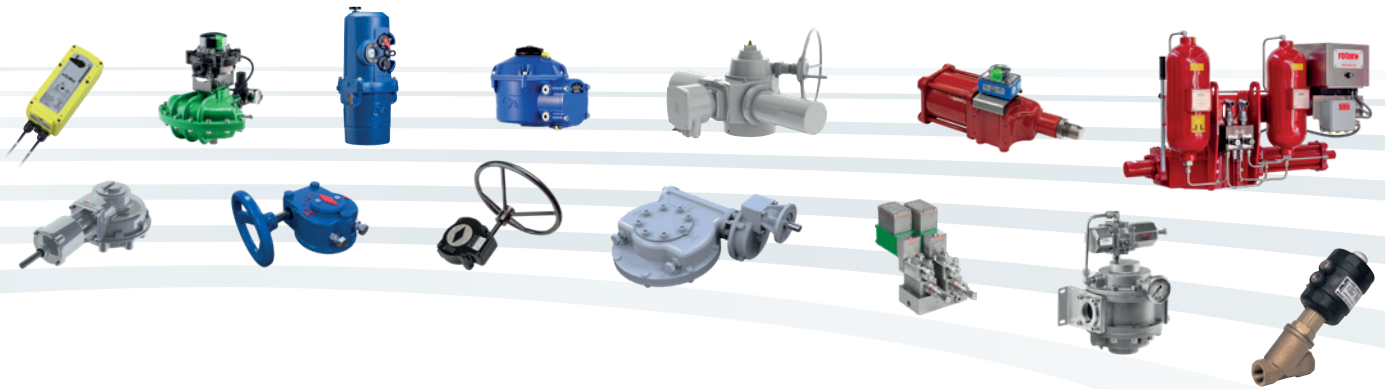
Keeping the World Flowing
for Future Generations

LP and LH Range



**Pneumatic and Hydraulic Actuators
for Linear Valves**

Reliability in critical flow control applications



› **Reliable operation** when it matters

Assured reliability for critical applications and environments. Whether used 24/7 or infrequently, Rotork products will operate reliably and efficiently when called upon.

› **Quality-driven** global manufacturing

Products designed with 60 years of industry and application knowledge. Research and development across all our facilities ensures cutting edge products are available for every application.

› **Customer-focused service** worldwide support

Solving customer challenges and developing new solutions. From initial enquiry through to product installation, long-term after-sales care and Client Support Programmes (CSP).

› **Low cost** of ownership

Long-term reliability prolongs service life. Rotork helps to reduce long term cost of ownership and provides greater efficiency to process and plant.

LP and LH Range

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Comprehensive product range serving multiple industries

Improved efficiency, assured safety and environmental protection.

Rotork products and services are used throughout industry inclusive of Power, Oil & Gas, Water & Wastewater, HVAC, Marine, Mining, Pulp & Paper, Food & Beverage, Pharmaceutical and Chemical industries around the world.

Global presence local service

Global company with local support.

Manufacturing sites, service centres, sales offices and *Centres of Excellence* throughout the world provide unrivalled customer services and fast delivery.

Market leader technical innovator

The recognised market leader for 60 years.

Our customers have relied upon Rotork for innovative solutions to safely manage the flow of liquids, gases and powders.

Corporate social responsibility

A responsible business leads to being the best business.

We are socially, ethically, environmentally responsible and committed to embedding CSR across all our processes and ways of working.

Fluid Power Actuators and Control Systems

rotork®

Rotork has fluid power actuator manufacturing facilities in Italy, Sweden, China, the UK and the USA, providing the capacity to produce a high volume of products, ensuring that you deliver your projects on time.

Rotork offer a wide range of fluid power actuators spanning the following categories:

- Pneumatic rotary and linear valve actuators
- Hydraulic rotary and linear valve actuators
- Electro-hydraulic valve actuators
- Subsea valve actuators
- Vane-type pneumatic valve actuators
- Control systems

Centres of Excellence

Rotork maintains a network of *Centres of Excellence* strategically located around the world. These centres hold stock, provide application engineering and packaging of control components as well as providing sales, service, installation and commissioning support.

Design and Testing

Rotork has dedicated research and development facilities around the world combined with test facilities that include bespoke specialist testing systems, ensuring reliable operation and lifetime functionality of our products.

Our test systems incorporate the following features:

- Static continuous and dynamic analysis on a full range of torques throughout the complete stroke of the actuator
- Cyclic and repetitive tests, with variable parameters such as load, cycle times and temperature
- Automatic or manual setting and recording of pressure, position and temperature parameters
- Hydraulic filtration and flushing capabilities
- Torque testing up to 600,000 Nm (5,000,000 lbf.in)
- Thrust testing up to 10,000 kgf (22,046 lbf)
- Pneumatic pressures up to 120 bar (1,740 psi)
- Hydraulic pressures up to 360 bar (5,220 psi)

Most comprehensive range of pneumatic, hydraulic and electro-hydraulic actuators available.

Superior performance actuators for on/off duty, ESD, HIPPS, protective service and special valve applications.



LP Range Pneumatic and LH Range Hydraulic Actuators

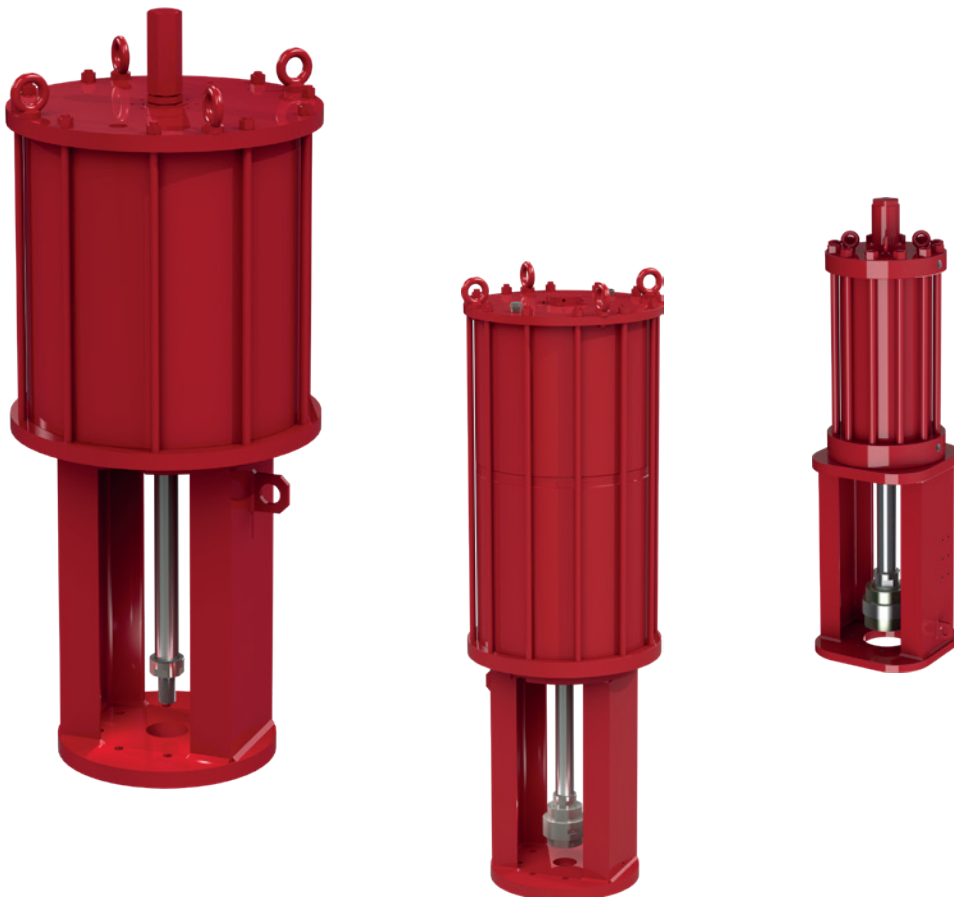
Proven, Dependable Design

Rotork's 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 60 years since the company was founded, Rotork has become the standard for excellence in the field of valve and damper automation for the oil and gas, and water 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 sales support.



Inside the LP/LH Range Actuator

Linear actuators

Rotork 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 210 bar (3,625 psi)
Higher hydraulic pressure available upon request.

Max. Thrust: Pneumatic double-acting
1,800,000 N (404,656 lbs)

Pneumatic spring-return
(spring end thrust)
186,000 N (41,814 lbs)

Hydraulic double-acting
5,500,000 N (1,236,450 lbs)

Hydraulic spring-return
(spring end thrust)
400,000 N (89,925 lbs)

Temperature ranges:

Standard:	-30 to +100 °C	(-22 to +212 °F)
Low:	-40 to +100 °C	(-40 to +212 °F)
Extreme Low:	-60 to +100 °C	(-76 to +212 °F)

For high temperature range up to 160 °C (320 °F), please contact Rotork.

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
- Available for both spring-down and spring-up travel direction
- Optional mechanical stop bolt for travel adjustment

Approvals and industry standards

- Actuators certified in accordance with ATEX Directive
- Actuators certified in accordance with PED Directive
- Actuators certified in accordance with EAC
- Actuators certified IP66M/67M in accordance with IEC 60529
- Management system in accordance with ISO 9001:2008
- Certified suitable for use at SIL3 as a single device in accordance with IEC 61508

Manual override

A dependable manual override facility is an important part of many valve/actuator applications. Rotork has a variety of override options available to meet virtually any requirement. Available options include handwheel in both fixed and declutchable versions, as well as a number of hydraulic override solutions. Gearboxes override available upon request.

Complete control systems

Control component packages are a key part of any actuator/valve installation. 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 or modulating service, or replacement with Emergency Shut Down (ESD) service. Packages can be mounted on a panel or in a cabinet and mounted either on the actuator or at a remote location. Rotork 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.

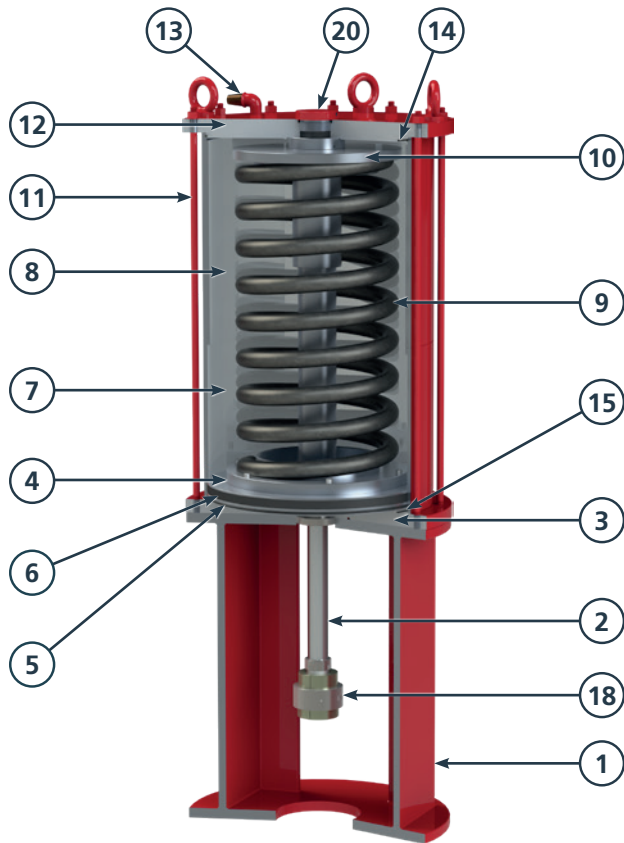
Stem coupling

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.

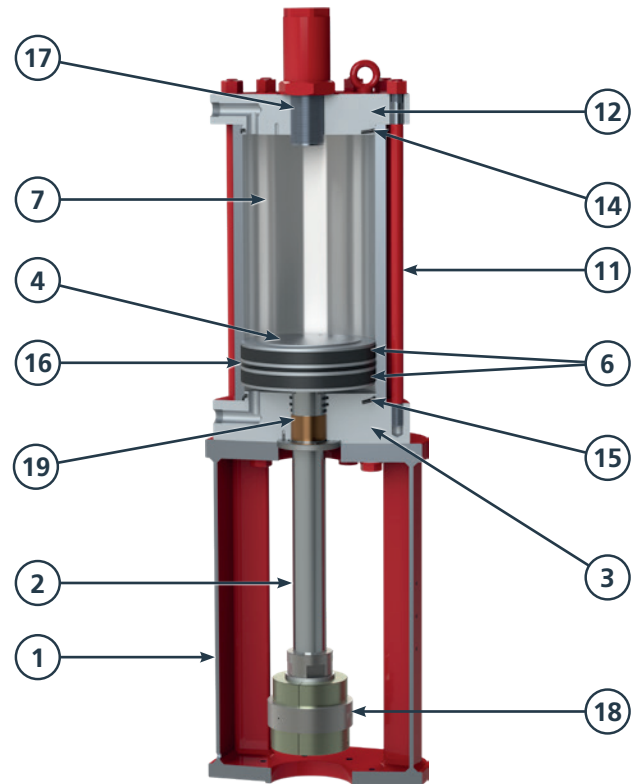
An optional coupling design is available upon request. It has added features to ease disassembly and to provide a "hammer blow" effect that facilitates release of the valves.



Inside the LP/LH Range Actuator



Pneumatic spring-return actuator



Hydraulic double-acting 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	Piston	Carbon Steel	1
5	O-ring	Buna-N*	1
6	Sliding Ring	PTFE	1
7	Cylinder Tube	Carbon Steel (nickel-plated)	1
8	Spring Container	Carbon Steel	1
9	Spring	Spring Steel	1
10	Spring Guide Plate	Carbon Steel	1
11	Tie Rod	Alloy Steel	Varies
12	Bottom Flange	Carbon Steel	1
13	Breather	Sintered Bronze	1
14	O-ring	Buna-N	1
15	O-ring	Buna-N	1
16	Seal	Buna-N/PTFE/Bronze	1
17	Stop bolt (optional)	Carbon Steel	1
18	Coupling	Carbon Steel	1
19	Shaft Bushing	Steel/Bronze/PTFE	1
20	Flange	Carbon Steel	1

(*) Viton or Fluorosilicone are also available



rotork®

www.rotork.com

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

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Rotork is a corporate member of the Institute of Asset Management



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As part of a process of on-going product development, Rotork reserves the right to amend and change specifications without prior notice. Published data may be subject to change. For the very latest version release, visit our website at www.rotork.com

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