

P/H Range

rotork®
Fluid Systems

Pneumatic and Hydraulic Scotch Yoke Valve Actuators

Reliability by Design

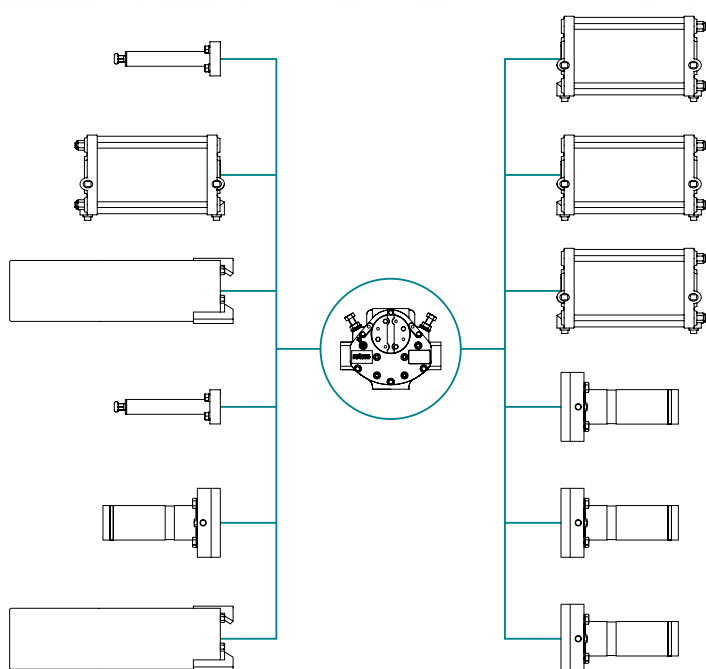
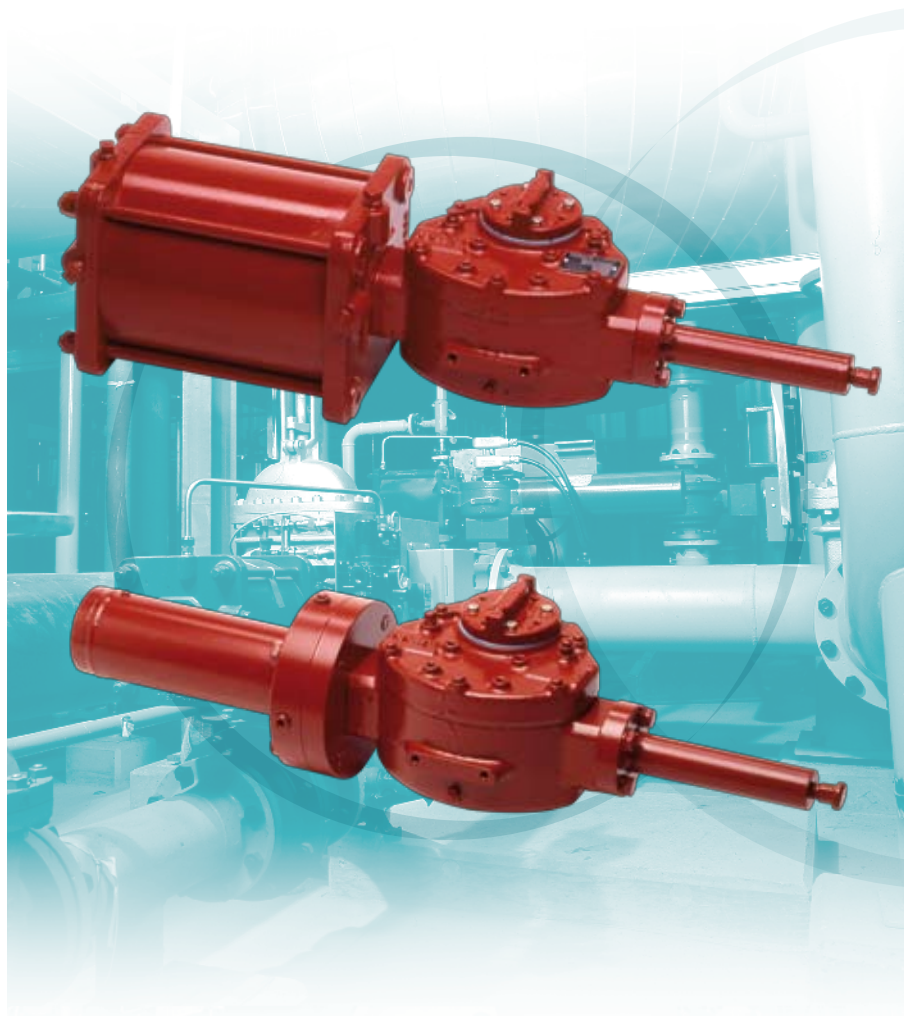
P and H range scotch yoke actuators are designed to operate ball, butterfly and plug valves requiring a quarter-turn movement for either on/off or modulating duty applications. Sharing a versatile, modular, construction and many components; they are available in both double-acting and spring-return configurations. The robust design incorporates double sealing for superior environmental protection and features a one-piece ductile iron cast centrebody to maintain correct bearing alignment. The centrebody is available in two sizes. A pneumatic cylinder can be attached to either or both sides. A spring canister can also be fitted to either side for Emergency Shut Down (ESD) applications. Modular construction and stocking of components by Rotork Fluid Systems' *Centres of Excellence* and a worldwide network of distributors facilitates quick delivery times.

Safety by Design

P and H range actuators have been designed to be inherently safe. The springs are contained within a factory welded spring canister with a unique and patented fastening arrangement that ensures user safety when removing the canister. The pneumatic cylinder features tie rods specially designed for excessive pressure relief and the centrebody is equipped with a pressure relief valve for further operational safety.

High Performance by Design

Superior design features enable a much longer service life than competitive products. P and H range actuators are capable of a least 200,000 cycles under full load. Units in the field with more typical loads may achieve several times that.



Inside the P/H Range Actuator

Every Rotork Fluid Systems actuator is built to provide long and efficient service with a minimum of maintenance. The design, engineering and materials used in their construction ensure optimum performance even in the harshest of environments.

Operating Pressure: Pneumatic up to 250 psi (17 bar)
Hydraulic up to 3,000 psi (207 bar)

Torque Output: Pneumatic up to 88,000 lbf-in (9,942 Nm)
Hydraulic up to 95,425 lbf-in (10,780 Nm)

Temperature Ranges:

Standard: -10°F to 200°F (-23°C to 93°C)
High: -15°F to 325°F (-26°C to 162°C)
Low: -40°F to 200°F (-40°C to 93°C)
Extreme Low: -60°F to 200°F (-51°C to 93°C)

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.

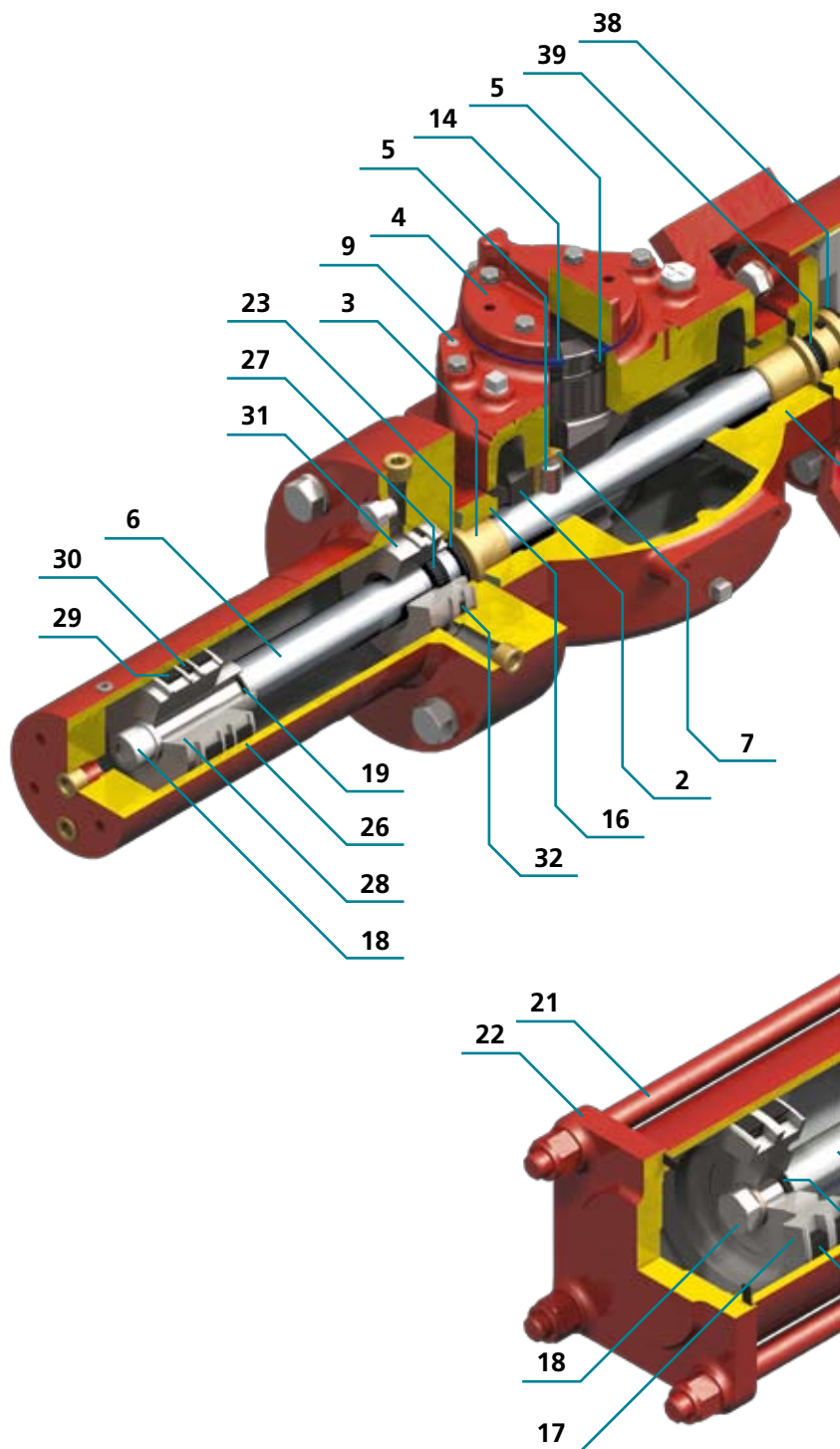
Key Design Features

- Rated life of 200,000 cycles—tested against a full load over the entire output stroke.
- Robust steel and ductile iron construction.
- Single piston rod electroless nickel-plated for corrosion-free durability, lubricity and long life of bearings and crown seals.
- External tie-rods on pneumatic piston cylinder specially designed for excessive pressure relief to ensure operational safety.
- Long life, aluminum bronze friction slipper with low backlash delivers excellent performance for heavy-duty modulating.
- Integral piston rod support ensures long piston, rod and bearing life by maintaining perfect alignment under all load conditions.
- Inherently safe, factory welded spring-return module with unique safety fastening (US Patent No. 4 350 08) ensures containment of spring forces when module is removed.
- Double O-ring sealing for proven protection against leakage in oil-filled service.
- Phosphate and molybdenum disulphide coated torque-plug bearings combined with weather protection seals for maximum environmental protection.

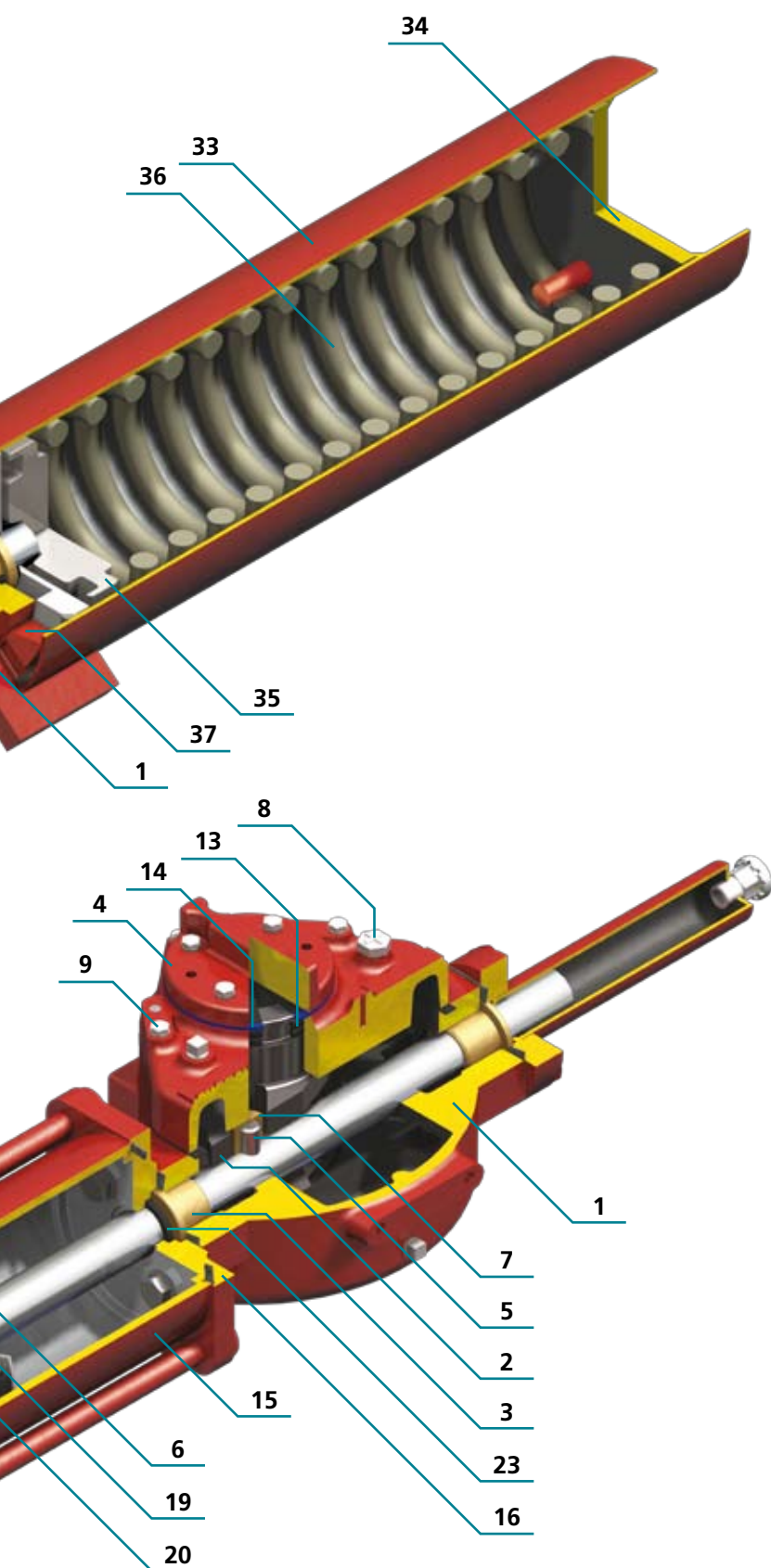
P and H range torque output and dimensional data are available directly from www.rotork.com

Rotork Fluid Systems offers a comprehensive line of fluid power valve actuators and controls including other scotch yoke actuators with output ranges both above and below that of P and H range. Contact RFS or consult our website.

*Typical H25003SR spring-return actuator illustrated.
Also available in double-acting.*



Established Leaders in Valve Actuation Technology



*Typical P25005DA double-acting actuator illustrated.
Also available in spring-return.*

ITEM	DESCRIPTION	MATERIAL	QTY.
1	Centrebody	Ductile Iron	1
2	Yoke	Ductile Iron	1
3	Piston Rod Bushing	Aluminum Bronze	2
4	Yoke Cover	Grey Iron	1
5	Piston Rod Pin	Carbon Steel	1
6	Piston Rod	Carbon Steel (Electroless Nickel-Plated)	1
7	Sliding Block	Aluminum Bronze	2
8	Pressure Relief Valve	Carbon Steel	1
9	Dowel Pin	Carbon Steel	2
10	Stop Bolt Seal	NBR (not shown)	2
11	Stop Bolt Washer	Carbon Steel (not shown)	2
12	Body Stop Bolt	Carbon Steel (not shown)	2
13	Yoke O-ring	NBR	4
14	Environmental Seal	Aramid/NBR	1
15	Pneumatic Cylinder	Carbon Steel (Electroless Nickel-Plated)	1
16	Cylinder Adapter Flange	Ductile Iron	1
17	Piston (pneumatic)	Ductile Iron	1
18	Piston Bolt	Carbon Steel	1
19	Piston Rod O-ring	NBR	1
20	Piston "U" Cup	NBR	2
21	Tie Rod	Carbon Steel	4
22	End Flange	Ductile Iron	1
23	Crown Seal	NBR	2
24	Piston Rod Cover	Carbon Steel	1
25	Air Vent	Carbon Steel	1
26	Hydraulic Cylinder	Carbon Steel	1
27	"V" Packing Seal	NBR/Fiber Composite	1
28	Piston (hydraulic)	Carbon Steel	1
29	Piston Rod Wear Ring	Nylon	2
30	Piston "T" Seal	NBR	1
31	Location Boss	Carbon Steel	1
32	Location Boss O-ring	NBR	1
33	Spring Can Assembly	Carbon Steel	1
34	Spring Can End Assembly	Carbon Steel	1
35	Spring Seat	Ductile Iron	1
36	Spring	Carbon Steel	1
37	Spring Canister Adapter	Ductile Iron	1
38	Spring Canister Seal Ring	Carbon Steel	1
39	Spring Canister Seal O-ring	NBR	2

Special Build Options

P/H range actuators are also available in special build configurations.

NP range actuators for nuclear power plants are suitable for all safety related duty valve applications designated as Class 1E in standard IEEE 323. They are produced in watertight form, enclosure classification IP67 to IEC 529 (NEMA 6, BS5490 and DIN 40050 equivalents). The center body is filled with radiation resistant grease and suitable for operation with the valve in any mounting orientation. An emergency handwheel override is available as an option.

Additionally, Rotork Fluid Systems can provide low pressure pneumatic, oil hydraulic or water hydraulic valve actuators that comply with AWWA C540 standards.

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.



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All Rotork Fluid Systems actuators are manufactured under a third party accredited ISO9001:2000 quality assurance programme.

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As we are continually developing our products, their design is subject to change without notice. POWTG0808

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