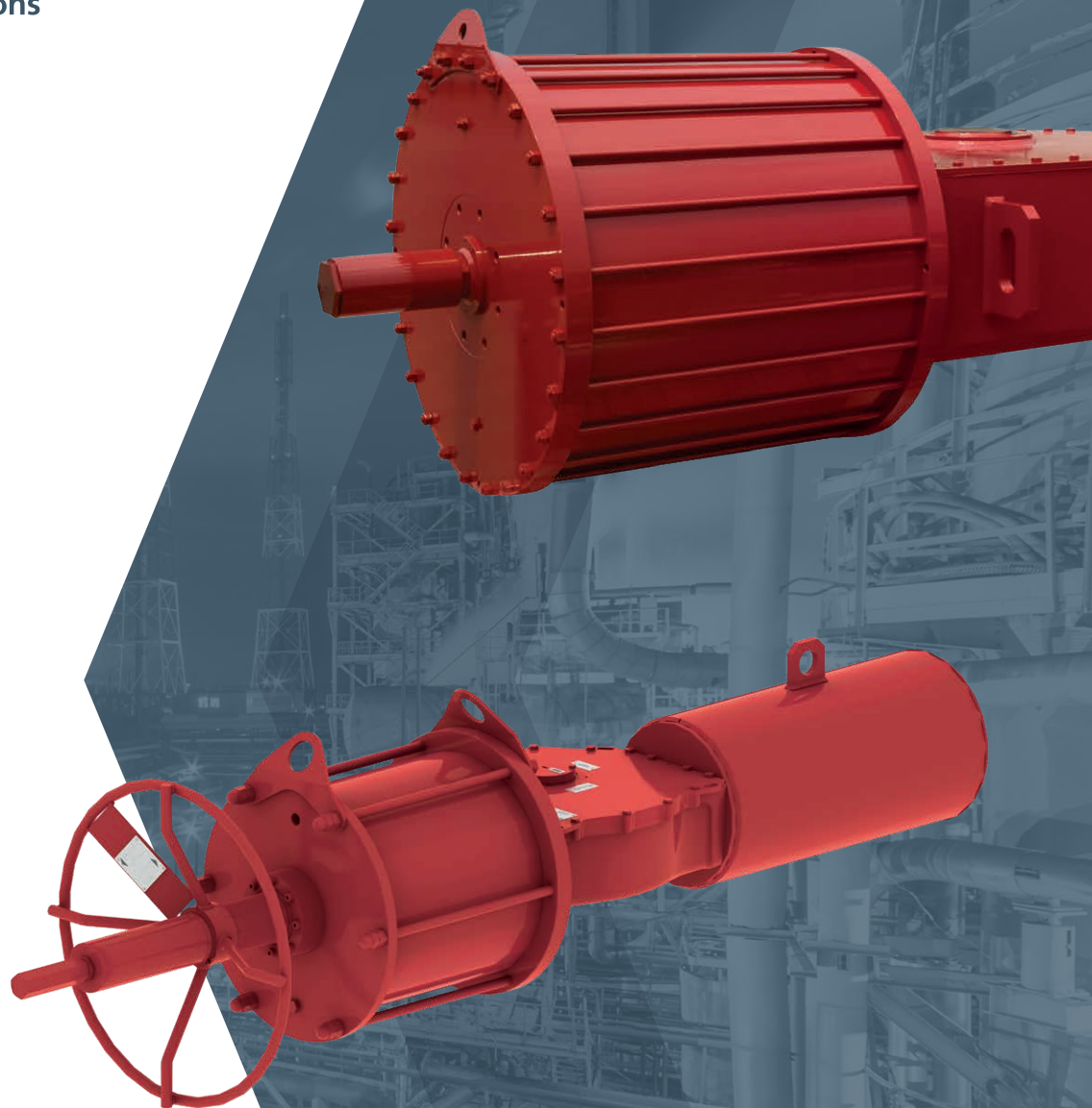


rotork[®]

Keeping the World Flowing
for Future Generations



GP / GH Range

Pneumatic and hydraulic actuators
for quarter-turn valves

Heavy-duty pneumatic and hydraulic scotch yoke rotary actuators for on/off or modulating duty, designed for safe and reliable operation in the world's harshest environments



Rotork is a market-leading global provider of mission-critical flow control and instrumentation solutions for the industrial actuation and flow control markets. These include oil and gas, water and wastewater, power, chemical, process and industrial applications.

Customers rely on us for innovative, high quality and dependable solutions for managing the flow of liquids, gases and powders. We help customers around the world to improve efficiency, reduce emissions, minimise their environmental impact and assure safety.

Our reliability record is second to none. Our products are designed with safety and performance at their core and are put through vigorous testing and certified to international standards. Our products are certified for use in the world's most dangerous and hazardous areas.

Partnering with us provides the following:

- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all network control systems
- Product range with solutions to suit every application
- Assistance with plant planning, development and maintenance through our local support services
- We have innovative research and development centers throughout the world

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

We 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

Support Centres

Wherever our clients are, we can support them. We have Support Centres strategically located around the world, with superior technical assistance, comprehensive resources, dedicated systems and hundreds of directly employed engineers all able to offer OEM level support.

Design and Testing

We have 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 (442,537 lbf.ft)
- Thrust testing up to 98,066 N (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.



Proven, Dependable Design

GP and GH range scotch yoke actuators are designed to operate ball, butterfly and plug valves requiring a rotary, quarter-turn movement for either on/off or modulating duty. The robust design has been proven in thousands of diverse applications the world over.

Safety by Design

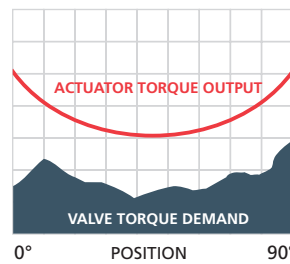
Spring-return units can be assembled to provide operation in either direction. The spring-return module is inherently safe since it can only be removed from the centre body after all spring forces have been released. Centre bodies incorporate a pressure relief valve.

Two Torque Output Profiles

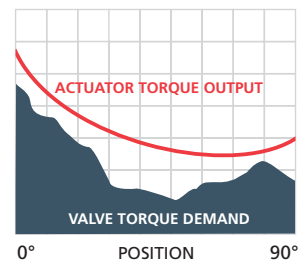
GP and GH range actuators can be supplied with either symmetrical or canted torque arms. The classic symmetrical yoke delivers peak torque at both ends of stroke. The canted yoke is a Rotork design innovation that delivers peak torque at only one end of stroke. Use of canted arms can often reduce actuator size, weight and cost for valves with appropriate torque demand characteristics.



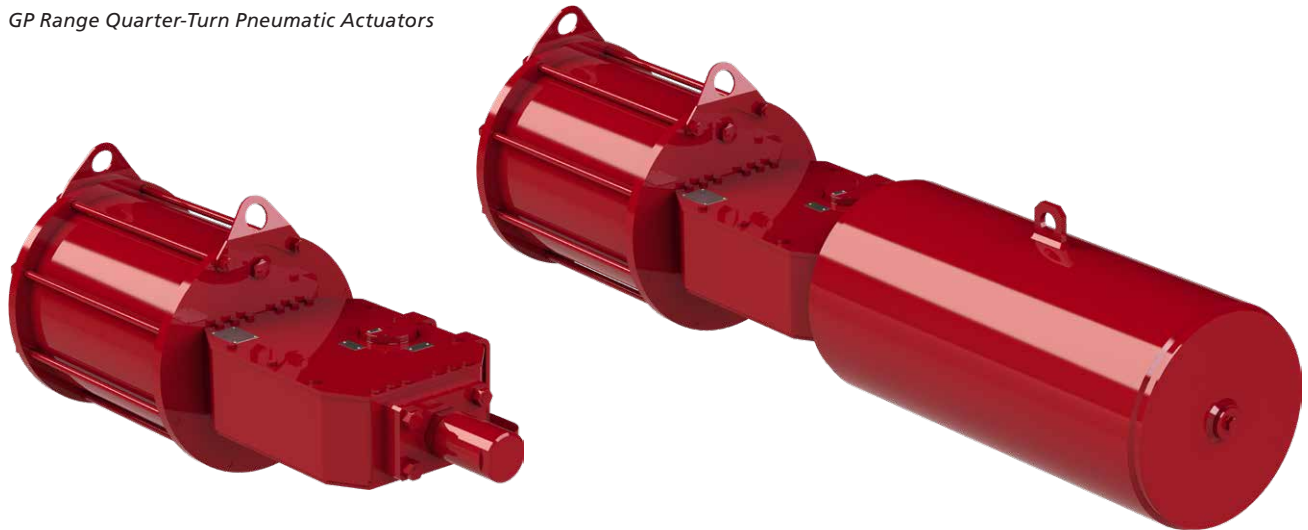
SYMMETRIC SCOTCH YOKE



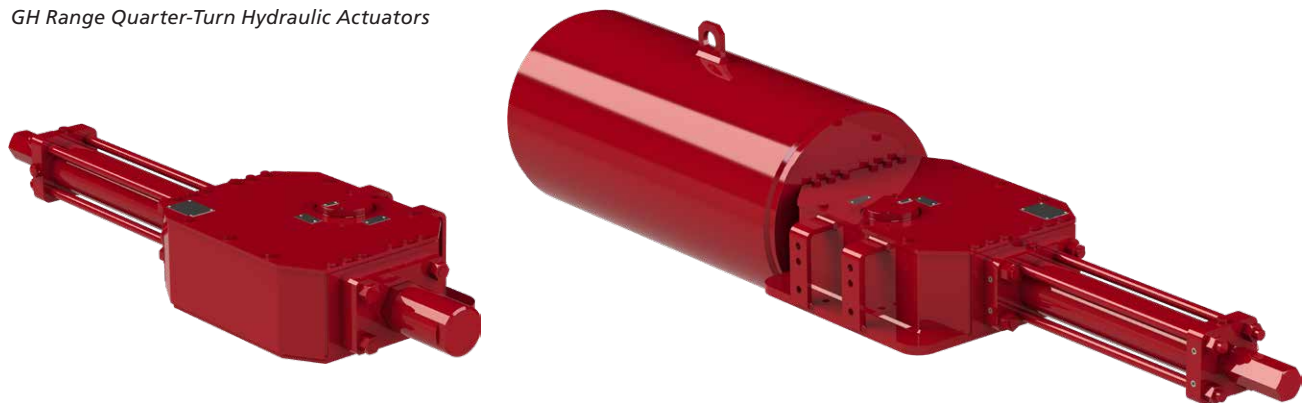
CANTED SCOTCH YOKE



GP Range Quarter-Turn Pneumatic Actuators



GH Range Quarter-Turn Hydraulic Actuators



Inside the GP/GH Range Actuator

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

Operating Pressure: Pneumatic up to 12 bar (175 psi)
Hydraulic up to 210 bar (3,000 psi)

Torque Output: Up to 600,000 Nm (5.3 million lbf.in)

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.

Efficiency and Long Life

Minimum friction is ensured by electroless nickel-plated cylinders and bronze sliding blocks on the torque arm. A dynamic floating piston seal further reduces friction and avoids stick-slip effect, even after prolonged periods without operation.

Environmental Protection

O-ring sealing provides protection certified to IEC IP66M, IP67M.

Corrosion Resistance

Extended service life provided by carbon steel, electroless nickel-plated cylinders and chromium plated piston rod.

Robust Yet Lightweight Design

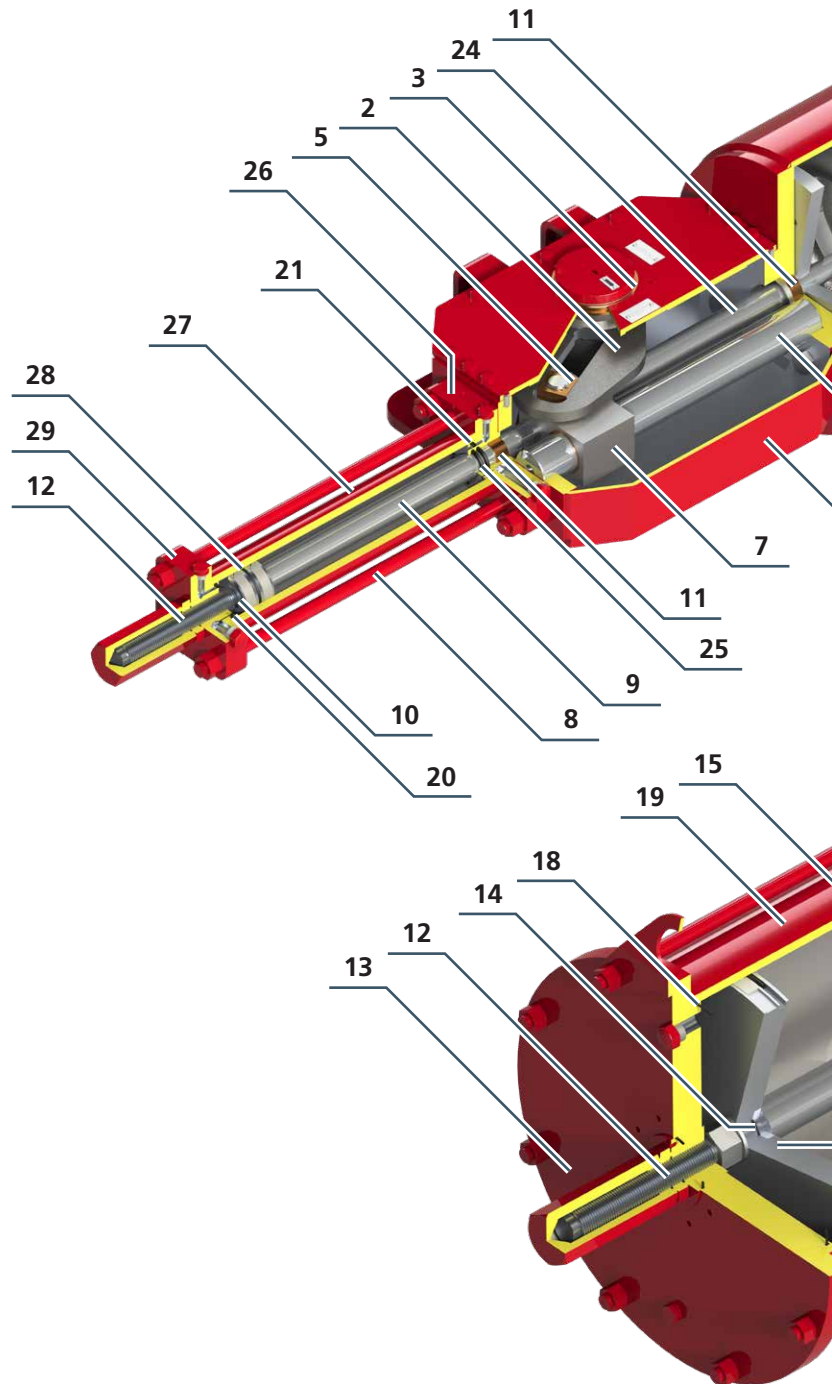
Totally enclosed weatherproof centre body fabricated in carbon steel or ductile iron (depending upon size) provide an excellent strength to weight ratio. The scotch yoke mechanism is available in either symmetric or canted design to meet application specific valve torque demand requirements with minimum cost and weight. The design incorporates a chromium plated alloy steel thrust bar to support the transverse loads of the scotch yoke.

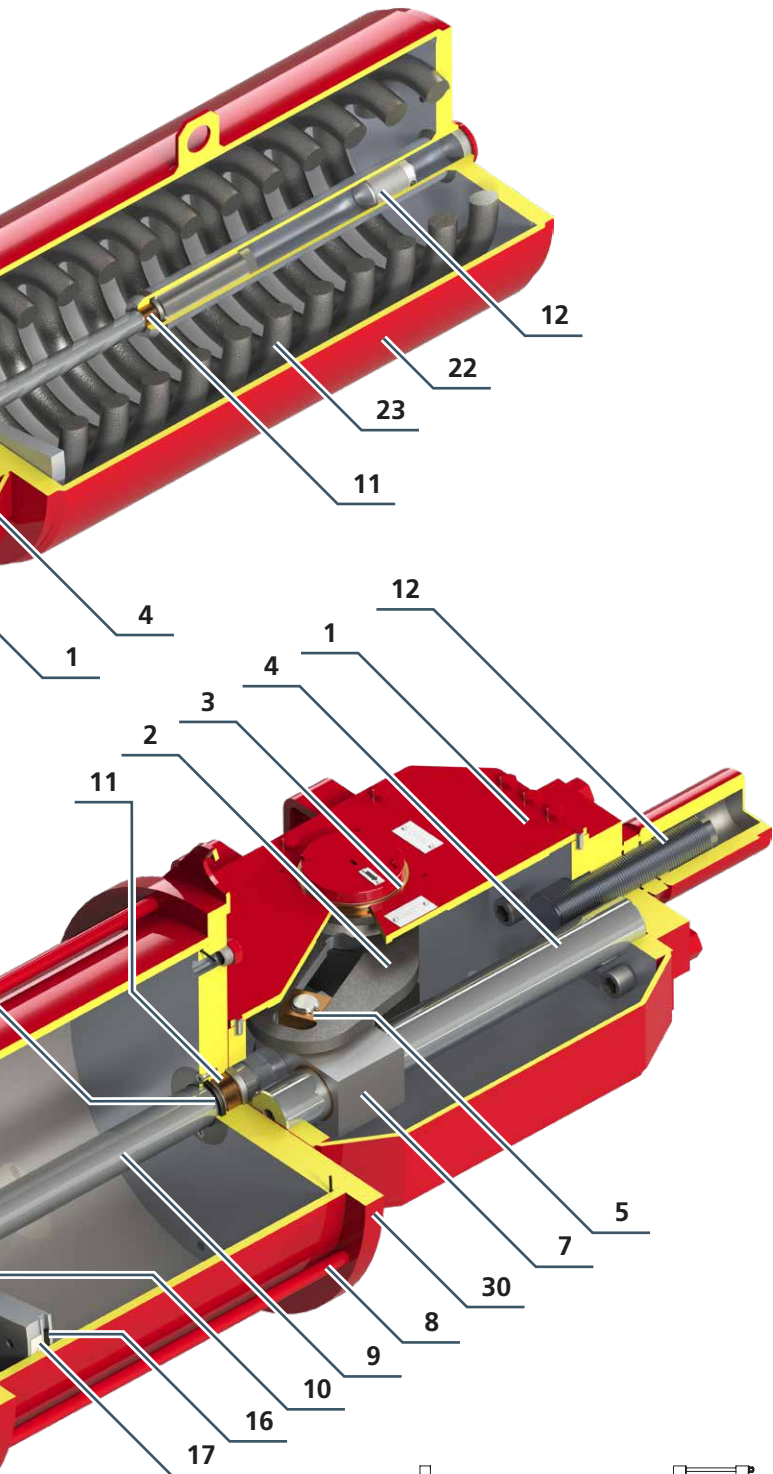
Available Options

Manual override solutions. Stainless steel cylinders and tie rods. Custom paint specifications. Fibreglide® yoke bushing for modulating duty applications.

For quarter-turn pneumatic applications with torque requirements below that of the GP range, Rotork offers two smaller ranges of scotch yoke actuators with outputs up to 4,500 Nm (39,828 lbf.in). Consult PUB013-001 (CP range) and PUB014-001 (RC200 range).

For quarter-turn hydraulic applications with torque requirements below that of the GH range, we offer a robust range of ductile iron bodied rack and pinion actuators with outputs up to 3,700 Nm (29,900 lbf.in). Consult RH range brochure PUB019-004.





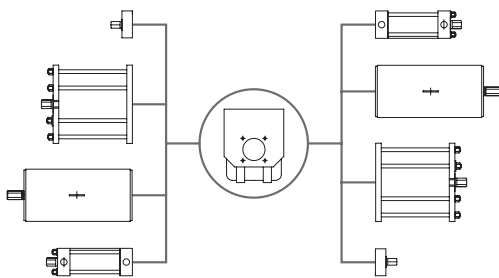
ITEM	DESCRIPTION	MATERIAL
1	Centre Body	Carbon Steel or Ductile Iron
2	Yoke	Carbon Steel or Ductile Iron
3	Yoke Bushing	Bronze
4	Thrust Bar	Alloy Steel (chromium-plated)
5	Sliding Block	Bronze
6	Pressure Relief Valve	Stainless Steel (not shown)
7	Guide Block	Carbon Steel
8	Tie Rod	Alloy Steel
9	Piston Rod	Carbon Steel (chromium-plated)
10	Piston	Carbon Steel
11	Rod Bushing	Steel / Bronze / PTFE
12	Stop Screw	Alloy Steel
13	End Flange	Carbon Steel
14	O-ring	NBR
15	Seal	NBR / PTFE / Graphite
16	O-ring	NBR
17	Sliding Ring	PTFE / Graphite
18	O-ring	NBR
19	Pneumatic Cylinder	Carbon Steel (electroless nickel-plated)
20	O-ring	NBR
21	Seal	NBR / PTFE / Bronze
22	Spring Cartridge	Carbon Steel
23	Spring	Alloy Steel
24	Connecting Rod	Alloy Steel (chromium-plated)
25	Seal	NBR
26	Head Flange	Carbon Steel
27	Hydraulic Cylinder	Carbon Steel (electroless nickel-plated)
28	Seal	NBR / PTFE
29	Bottom Flange	Carbon Steel
30	Head Flange	Carbon Steel

Approvals and Industry Standards

- Actuators certified in accordance with ATEX Directive
- Actuators certified in accordance with IECEx
- 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

Versatility

Rotork GP and GH range actuators share a modular construction design. The centre body is available in 10 sizes. A pneumatic or hydraulic cylinder can be attached to either or both sides. A spring cartridge can also be fitted to either side for Emergency Shut Down (ESD) applications. We offer modular construction and stocking of components by Rotork centres around the world and a global network of distributors facilitates quick delivery times.



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 open or enclosed jackscrews in both gear reducer and declutchable versions, as well as a number of hydraulic override solutions.



Complete Control Systems

Control component packages are a 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, modulating or 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 offers 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 and a torque limiting device.



Fire Protection Systems

Rotork actuators and control systems can be customised to withstand exposure both to fire and very high environmental temperatures. A range of fire-proof systems is available that include flexible protective jackets, intumescent coatings and rigid enclosure systems.

For further information on Rotork's fire protection solutions, consult publication PUB000-004.



Model Number Designation

Example Model Number **G P - 085 S - 100 A / D1 - MH**

ACTUATOR TYPE

G = Scotch Yoke

SUPPLY TYPE

P = Pneumatic
H = Hydraulic

CENTRE BODY SIZE Nominal movement arm (mm)
085, 100, 130, 160, 161, 200, 201, 270, 271, 350

YOKE TYPE

A, S = Symmetric yokes
B, C, D, E, F = Canted yokes

CYLINDER SIZE

SEALS

GP Range (Pneumatic)

A = NBR: -30 to +100 °C (-22 to +212 °F)
B = Viton: -20 to +100 °C (-4 to +212 °F)
C = Fluorosilicone: -40 to +100 °C (-40 to +212 °F)
E = Fluorosilicone: -60 to +100 °C (-76 to +212 °F)

GH Range (Hydraulic)

F = NBR: -30 to +100 °C (-22 to +212 °F)
G = Viton: -20 to +100 °C (-4 to +212 °F)
H = Fluorosilicone: -40 to +100 °C (-40 to +212 °F)
L = Fluorosilicone: -60 to +100 °C (-76 to +212 °F)

CYLINDER / SPRING CANISTER CONFIGURATION

C0D - C9D = Spring-Return Fail Close - Spring Set # 0-9 (D series)
C0E - C9E = Spring-Return Fail Close - Spring Set # 0-9 (E series)
C0G - C9G = Spring-Return Fail Close - Spring Set # 0-9 (G series)
O0D - O9D = Spring-Return Fail Open - Spring Set # 0-9 (D series)
O0E - O9E = Spring-Return Fail Open - Spring Set # 0-9 (E series)
O0G - O9G = Spring-Return Fail Open - Spring Set # 0-9 (G series)
D1 = Double-Acting - Single Cylinder
D2 = Double-Acting - Two Cylinders

MANUAL OVERRIDE TYPE

M, MH, MHD, MD, HPB, HPA, HPC, HP1

Extensive Product Range

Rotork 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 and a manual/hydraulic power handwheel. Rotork also offers complete lines of electric actuators and gearboxes.



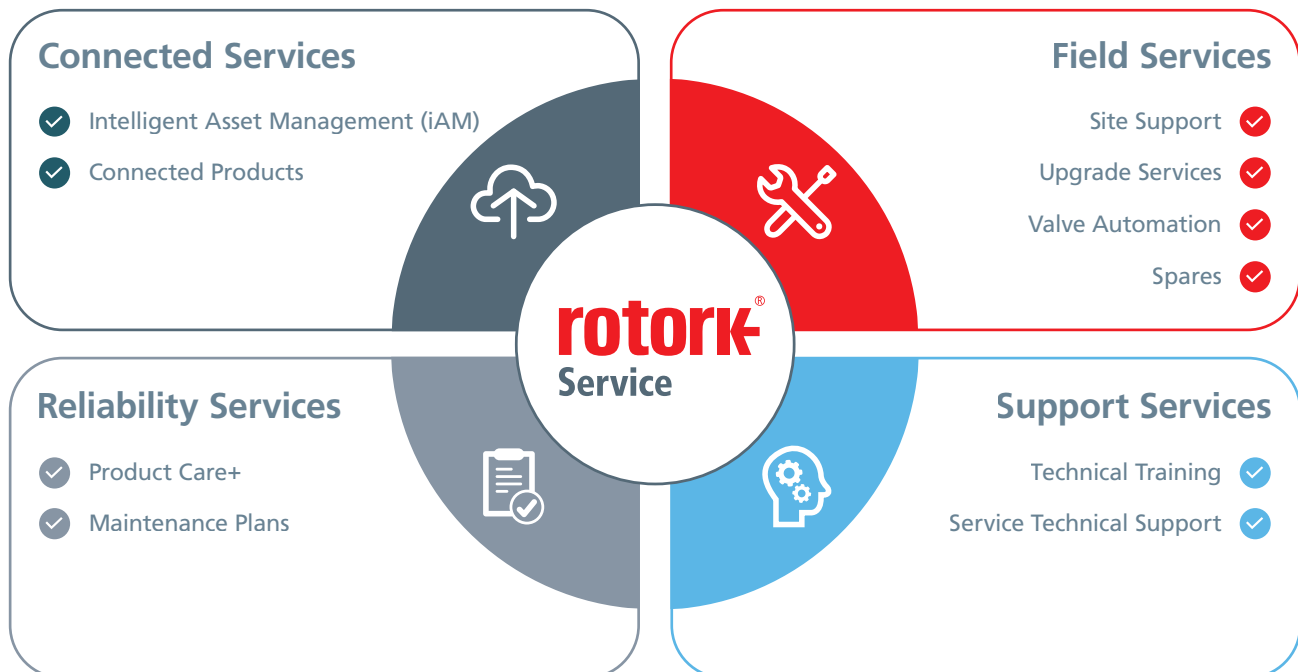
We offer specialist expertise to support mission-critical flow control and instrumentation solutions across oil and gas, water and power, and chemical, process and industrial markets.

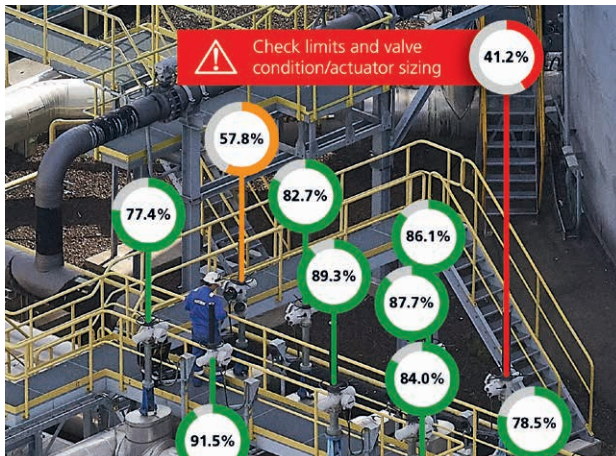
With a global presence and decades of experience, we offer services including installation, commissioning, Reliability Services, Intelligent Asset Management (iAM), product upgrades, spare parts, and overhauls.

Our engineers are highly trained, ensuring consistent, high-quality service worldwide. We operate dedicated workshops for the repair, calibration and testing of our products and only use genuine parts to guarantee top-level performance and reliability.

Our service offering covers four key areas:

- **Connected Services** including Rotork's Intelligent Asset Management (iAM) system
- **Field Services** including site support, upgrade solutions, valve automation and spares
- **Reliability Services** including health checks and product maintenance
- **Support Services** including technical training and support





Connected Services

Intelligent Asset Management (iAM) is a cloud-based system for intelligent Rotork actuators and the flow control equipment they operate. Effective asset management and maintenance are essential for maintaining site uptime.



Reliability Services

Reliability Services is a customisable approach to maintenance, with options that provide progressively increased levels of coverage and support. Our tailor-made programmes increase reliability and availability and allow customers to have flexibility about what services are most appropriate for them.



Field Services

Site Support

Benefit from our on-site support, from installation to emergency repairs.

Upgrade Solutions

Make sure your assets are prepared for the future with suitable upgrade options.

Valve Automation

Achieve precise and consistent flow control with automation of existing valves and replacement actuator/valve packages.

Spares

Maximise performance and reliability with genuine OEM spare parts.



Support Services

Technical Training

Our products and solutions are used in mission-critical applications and it is critical that any workforce is highly trained to ensure a safe and efficient plant. We provide advanced technical training from our strategically located facilities around the world.

Technical Support

We provide expert technical support exactly when you need it – trusted by global industries for over 60 years. Our technical experts draw on decades of our experience to provide you with the right answers and solutions.



Contact us now

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www.rotork.com

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