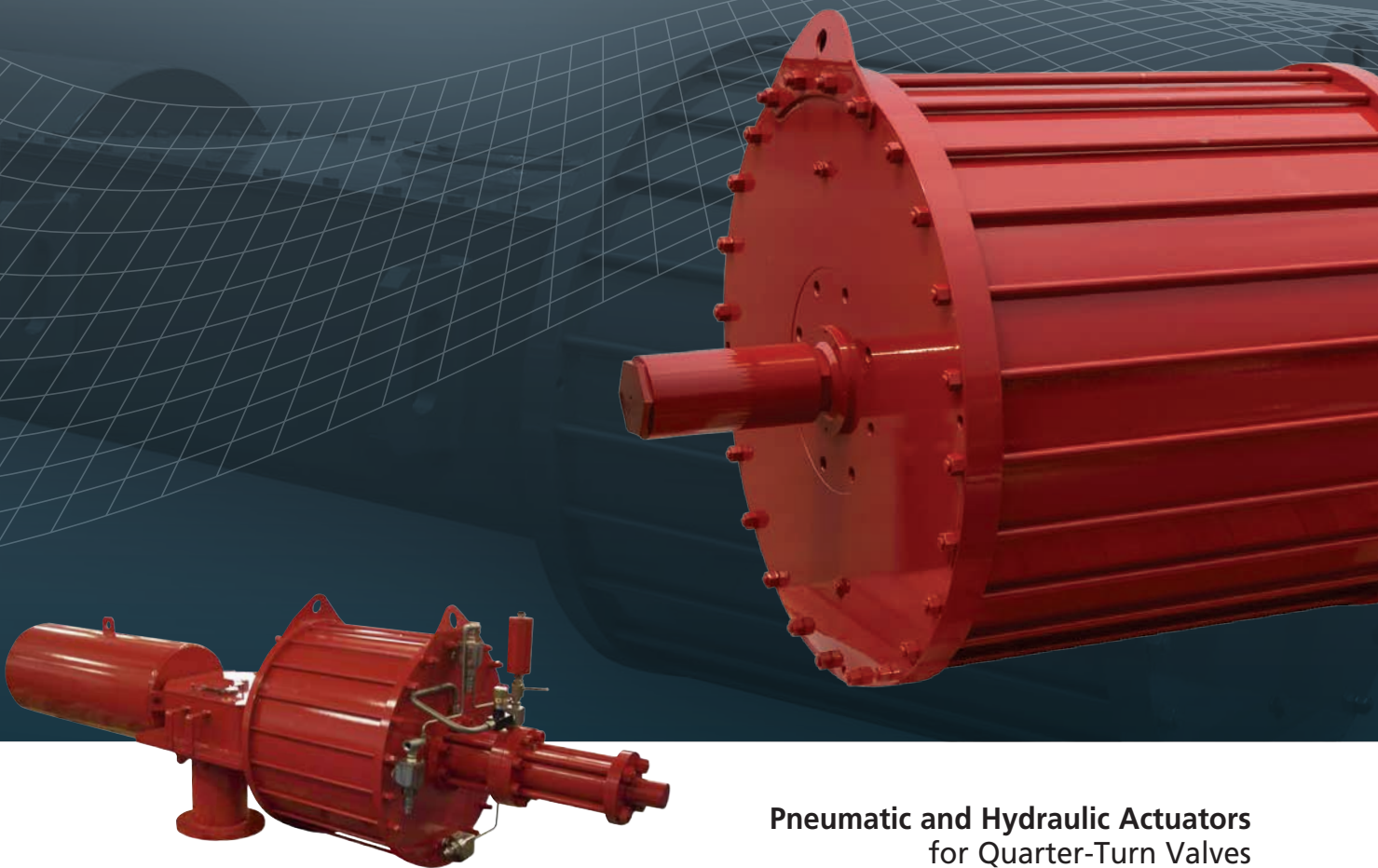


rotork[®]
Fluid Systems

GP & GH Range



**Pneumatic and Hydraulic Actuators
for Quarter-Turn Valves**

Keeping the World Flowing

rotork®

Keeping the World Flowing



**RELIABILITY
IN FLOW CONTROL
CRITICAL
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.

› **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).

› **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.

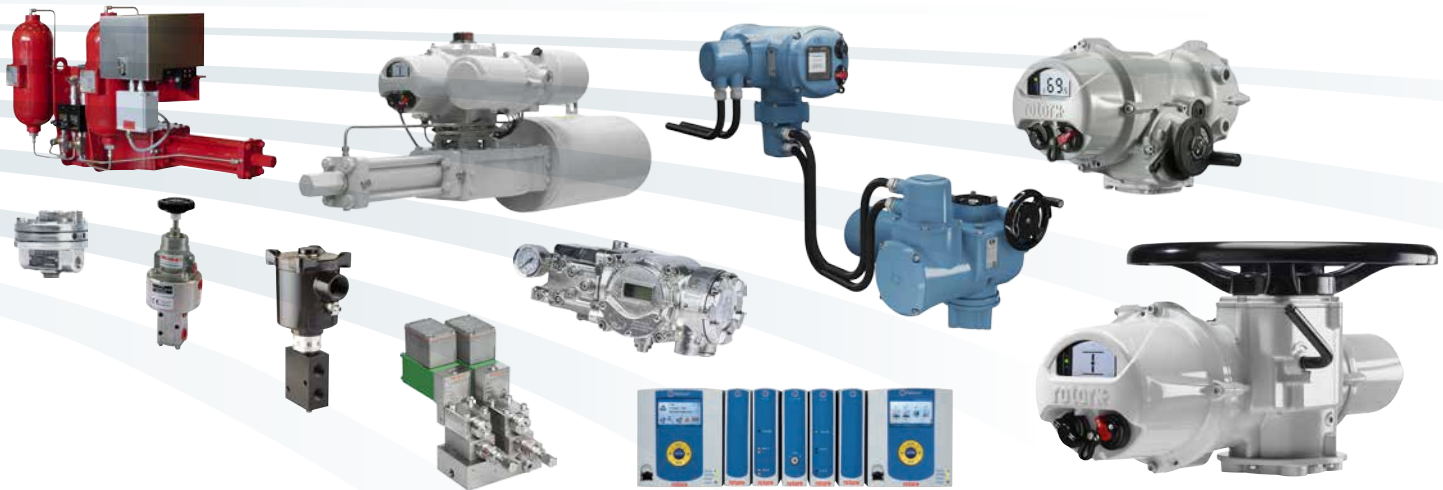
› **Low cost** of ownership

Long-term reliability prolongs service life.

Rotork helps to reduce long term cost of ownership and provides greater efficiency to process and plant.

GP & GH 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® Fluid Systems

Rotork Fluid Systems has 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 Fluid Systems delivers the following product ranges:

- 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 Fluid Systems 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 Fluid Systems 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.



GP Range Pneumatic & GH Range Hydraulic Actuators

Proven, Dependable Design

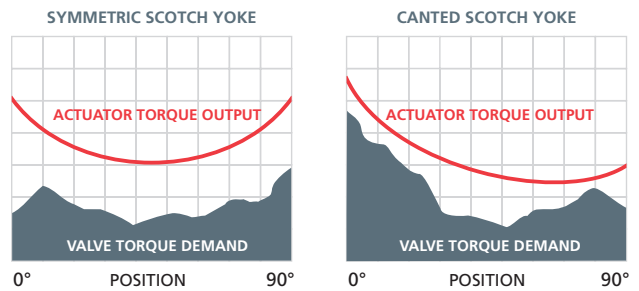
GP and GH range scotch yoke actuators are designed to operate ball, butterfly and plug valves requiring a rotary, quarter-turn movement for either on/off or modulating duty. The robust design has been proven in thousands of diverse applications the world over.

Safety by Design

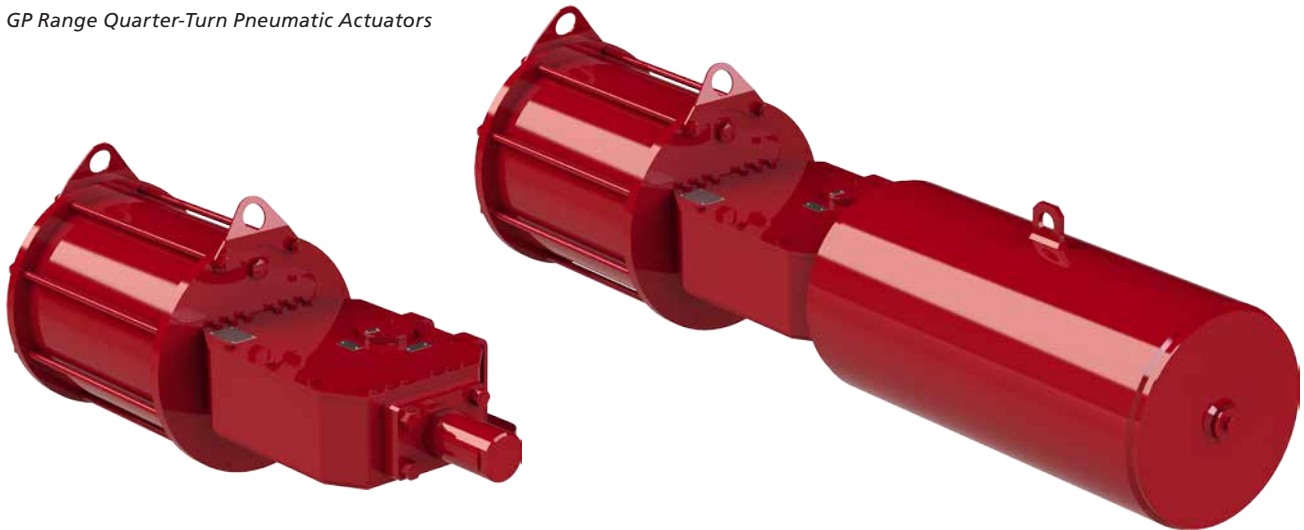
Spring-return units can be assembled to provide failsafe operation in either direction. The spring-return module is inherently safe since it can only be removed from the centrebody after all spring forces have been released. Centrebodies incorporate a pressure relief valve.

Two Torque Output Profiles

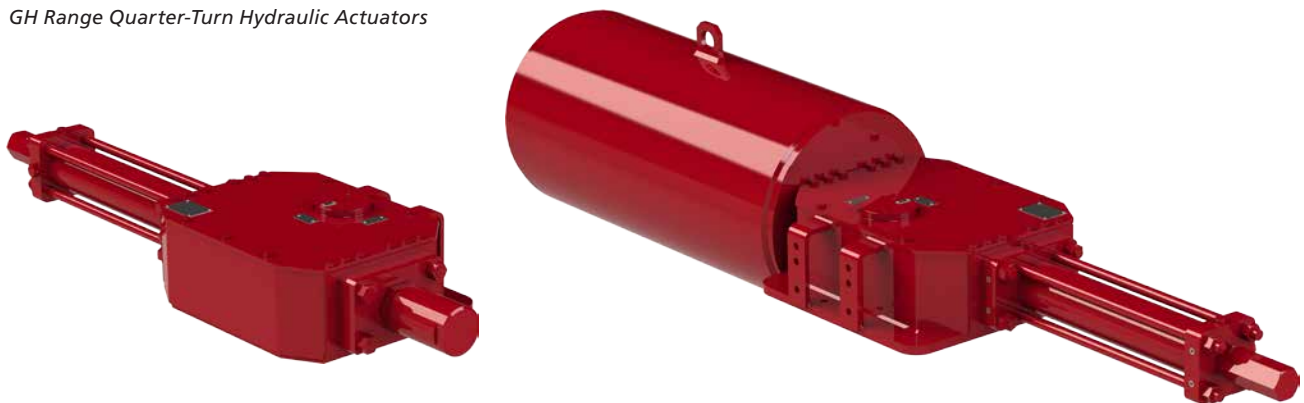
GP and GH range actuators can be supplied with either symmetrical or canted torque arms. The classic symmetrical yoke delivers peak torque at both ends of stroke. The canted yoke is a Rotork design innovation that delivers peak torque at only one end of stroke. Use of canted arms can often reduce actuator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



GP Range Quarter-Turn Pneumatic Actuators



GH Range Quarter-Turn Hydraulic Actuators



Inside the GP/GH Range Actuator

Every Rotork Fluid Systems 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)
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)

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

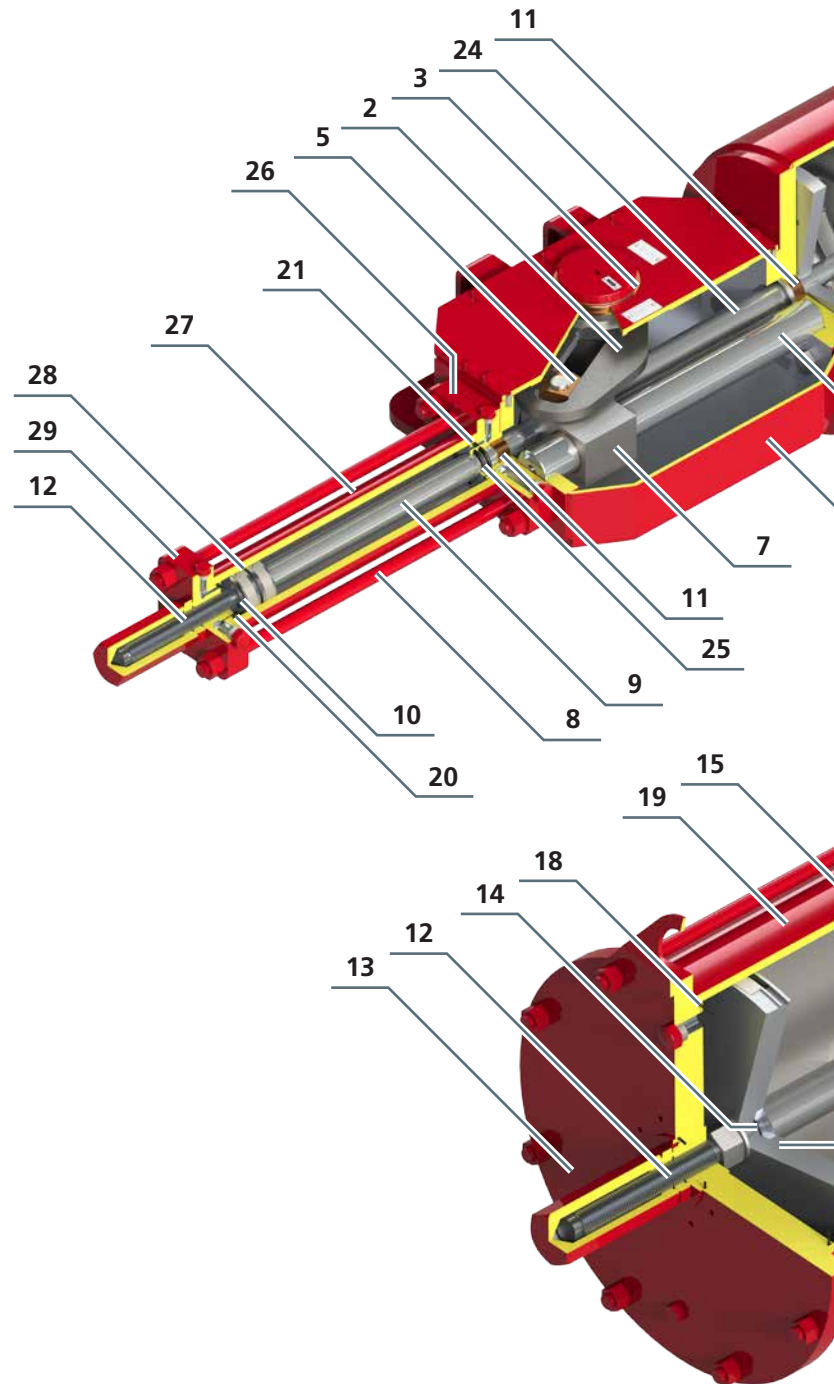
Totally enclosed weatherproof centrebody fabricated in carbon steel or ductile iron (depending upon size) provide an excellent strength to weight ratio. The scotch yoke mechanism is available in either symmetric or canted design to meet application specific valve torque demand requirements with minimum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

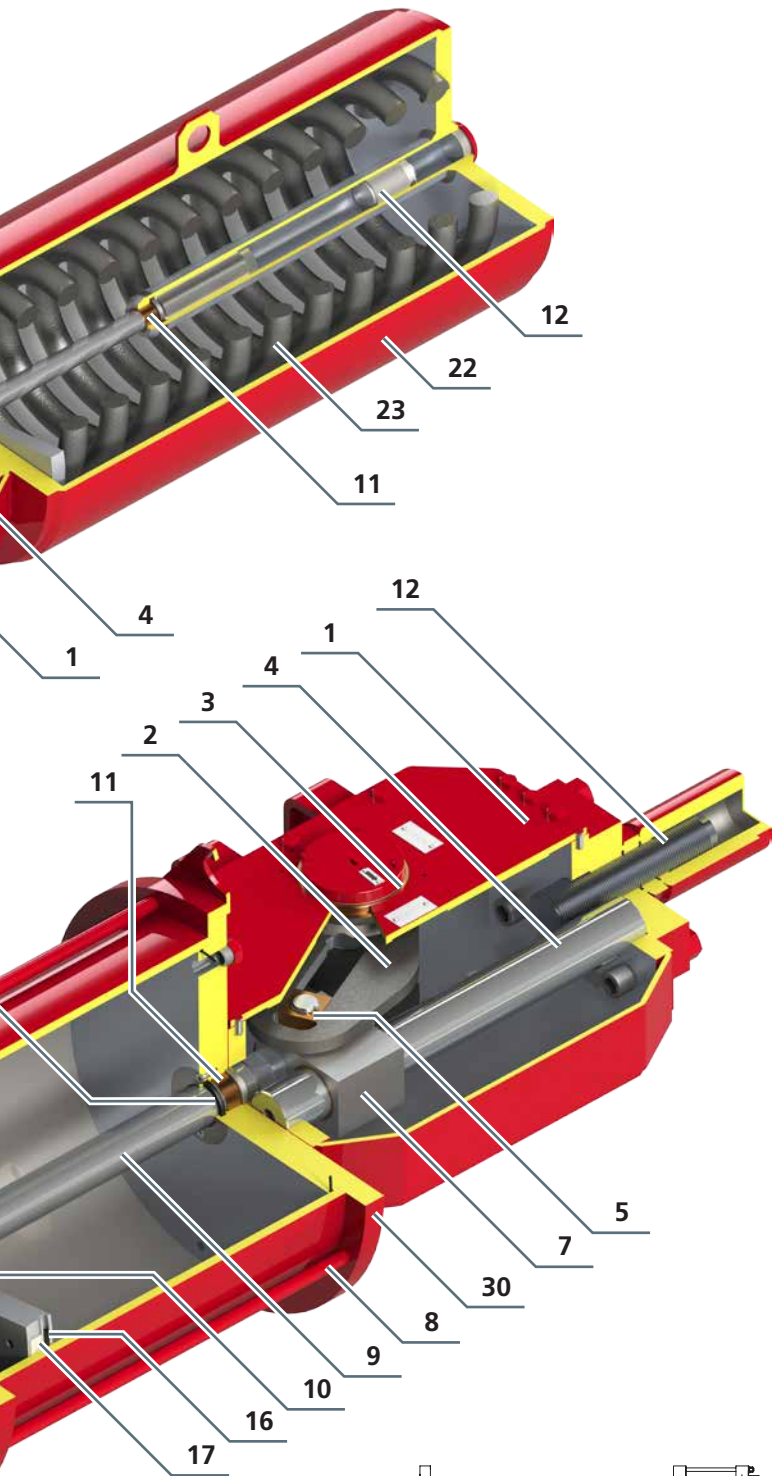
Available Options

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 Fluid Systems 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/RCI200 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.





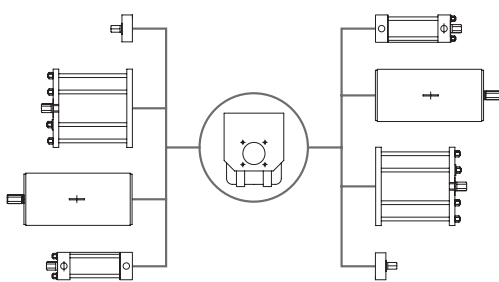
ITEM	DESCRIPTION	MATERIAL
1	Centrebody	Carbon Steel or Ductile Iron
2	Yoke	Carbon Steel or Ductile Iron
3	Yoke Bushing	Bronze
4	Thrust Bar	Alloy Steel (chromium-plated)
5	Sliding Block	Bronze
6	Pressure Relief Valve	Stainless Steel (not shown)
7	Guide Block	Carbon Steel
8	Tie Rod	Alloy Steel
9	Piston 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 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 ten 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. Modular construction and stocking of components by Rotork Fluid Systems' *Centres of Excellence* and a worldwide network of distributors facilitates quick delivery times.



Optional Features

Manual Override

A dependable manual override facility is an important part 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 (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. 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 Fluid Systems 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

TEMPERATURE

GP Range (Pneumatic)

A = Standard
B = High
C = Low
E = Extreme low

GH Range (Hydraulic)

F = Standard
G = High
H = Low
L = Extreme low

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



rotork® Site Services

Rotork actuators are recognised as the best in the world for reliability and safety in the most demanding applications. To maintain this hard-earned leadership position, Rotork Site Services is committed to helping clients to maximise the continuous, fault-free operation and working life of all their actuators.

With established operations and worldwide service centres we are able to offer same-day or next-day service to all our customers. Our Rotork factory trained engineers have skills in both multi-purpose and industry specific applications and carry with them spare parts and specialist test equipment. Our operations utilise a documented Quality Management system established in accordance with ISO9001.

Rotork Site Services aims to be your number one choice for taking care of fault diagnosis, service repairs, scheduled maintenance and system integration needs.

Visit www.rotork.com to identify your nearest Rotork Site Services centre.

Rotork has expertise and specialist knowledge of every aspect of flow control.

Our service solutions increase plant efficiency and reduce maintenance costs.

Workshop services return equipment to as-new condition.



Client Support and Site Services

Global Service and Support

Rotork understand the value of prompt and punctual customer site services and aim to supply our customers with superior flow control solutions, by providing high quality, innovative products and superior service – **on time, every time.**

Whether you have an actuator requiring on-site servicing, a custom design service requirement or a new actuator installation, we can deliver the fastest turnaround with the least plant disruption.

Accreditation and Assurance

Rotork Site Services is accredited with all major safety authorities around the world, providing our clients with reassurance and peace of mind.

Rotork's engineering teams are experts in the design and implementation of actuation solutions for all circumstances and environments. Our knowledge base draws upon previous installations and environmental situations from all around the world.

Our track record of undertaken engineering projects is second to none. Rotork is trusted by major utility and industrial companies throughout the world to design, install and maintain their actuation stock. We keep their plants operating at peak efficiency, helping them to be more profitable and at the same time meet ever tightening industry watchdog requirements.

We have the knowledge and expertise to design, build and install any standard or custom installation for you, anywhere throughout the world.

Asset Management

Rotork is a corporate member of the Institute of Asset Management, the professional body for whole life management of physical assets.



**Giving You Peace of Mind,
Guaranteed Quality and
Improving Your Site Efficiency**



Actuator Workshop Overhaul

- Supporting all Rotork and non-Rotork products
- Workshop facilities including torque testing and re-coating
- Large OEM stock in all workshops
- Fully trained and experienced service engineers
- Fleet of well stocked service vehicles
- Loan actuator facilities

Field Support

- Site repairs
- Commissioning
- Upgrades
- Fault finding
- Maintenance
- Call-out
- Fully equipped service vehicles

Rotork Client Support Programme (CSP)

- Enables users to select a level of service precisely tailored for their individual asset management requirements
- Designed to provide the maximum reliability and availability of actuators over the life of the product – thereby improving production throughput
- Designed to reduce the cost of maintenance year on year
- Designed to allow customers to manage the problem of 'Risk vs Budget' in maintenance operations
- Designed to be flexible – you choose the level of cover you want
- Reports generated on agreed frequency to demonstrate **cost savings** and **performance improvements**

Turnaround, Shutdown and Outage Support

- Preventative maintenance
- Full on-site overhaul and testing facilities
- OEM spares and support
- Support for Rotork and non-Rotork products
- Commissioning support to achieve shutdown time targets
- Project management and supervision of your plant overhaul and return to service dates

Valve Automation Centres

- On Site – Manual Valve Automation
- On Site – Actuator Replacement
- Off Site – New Valve Automation

rotork®

Keeping the World Flowing



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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Formerly F100E. All Rotork Fluid Systems actuators are manufactured under a third party accredited ISO9001 quality assurance programme.

Published and produced by Rotork Fluid Systems.

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