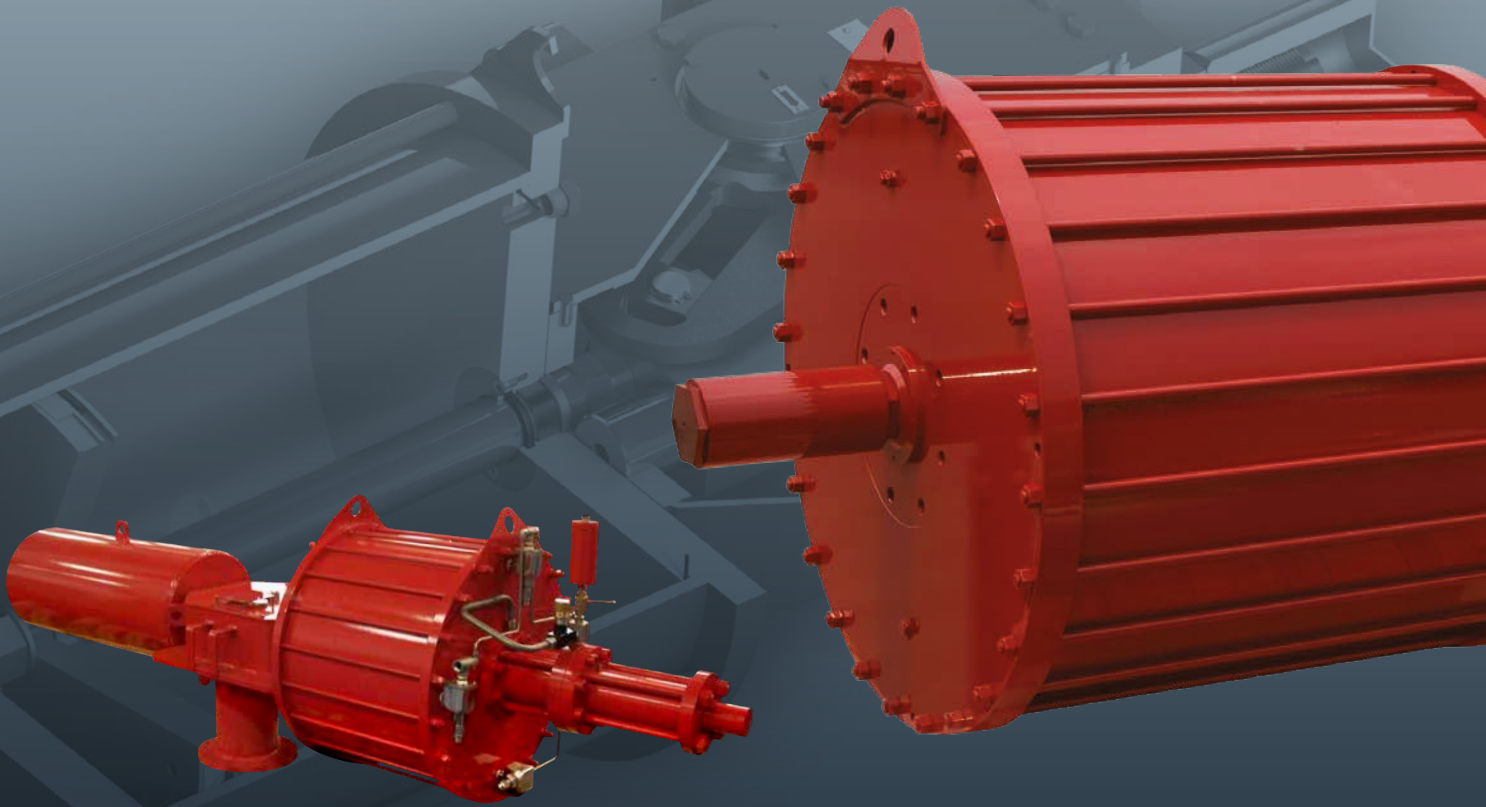


# rotork<sup>®</sup>

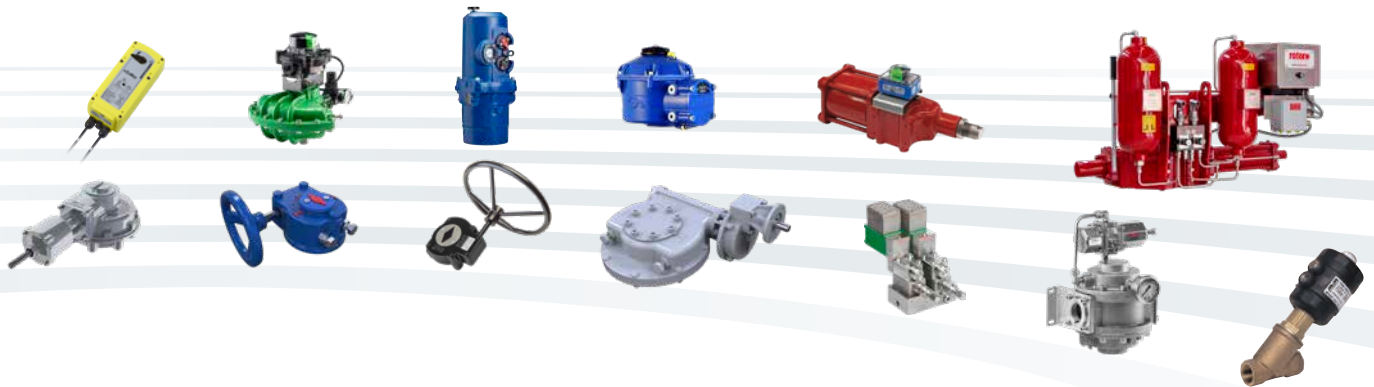
Keeping the World Flowing  
for Future Generations

## GP and GH Range



Pneumatic and Hydraulic Actuators for Quarter-Turn Valves

## Reliability in critical flow control applications



### › Reliable operation when it matters

Assured reliability for critical applications and environments. Whether used infrequently or continuously, Rotork products will operate reliably and efficiently.

### › Quality-driven global manufacturing

We offer products that have been designed with over 60 years of industry and application knowledge.

Our research and development ensures cutting edge products are available for multiple applications across multiple industries.

### › Customer focused service and worldwide support

Rotork solve customer challenges and develop new solutions that are tailored to the needs of our clients.

We offer dedicated, expert service and support from initial inquiry, to product installation, to long term after sales care.

### › 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 and GH Range

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### Comprehensive product range serving multiple industries

Rotork products offer improved efficiency, assured safety and environmental protection across sectors such as the Power, Oil & Gas, Water & Wastewater, HVAC, Marine, Mining, Pulp & Paper, Food & Beverage, Pharmaceutical and Chemical sectors.

### Market leaders and technical innovators

We have been the recognised market leader in flow control for over 60 years.

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

### Global presence, local service

We are a global company with local support.

Manufacturing sites, service centres and sales offices throughout the world provide unrivalled customer services, fast delivery and ongoing, accessible support.

### Corporate social responsibility is at the heart of our business

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

## Fluid Power Actuators and Control Systems

# rotork®

Rotork 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 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 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.



# GP Range Pneumatic and 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

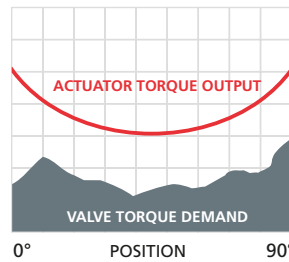
Spring-return units can be assembled to provide operation in either direction. The spring-return module is inherently safe since it can only be removed from the centre body after all spring forces have been released. Centre bodies incorporate a pressure relief valve.

## Two Torque Output Profiles

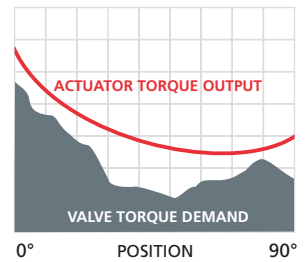
GP and GH range actuators can be supplied with either symmetrical or canted torque arms. The classic symmetrical yoke delivers peak torque at both ends of stroke. The canted yoke is a Rotork design innovation that delivers peak torque at only one end of stroke. Use of canted arms can often reduce actuator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



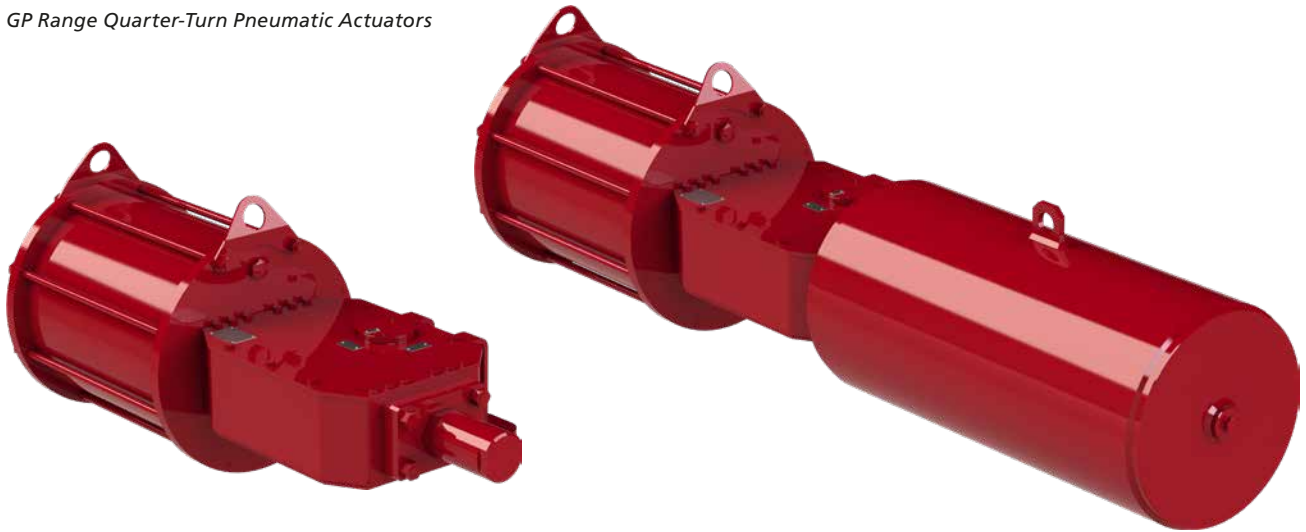
SYMMETRIC SCOTCH YOKE



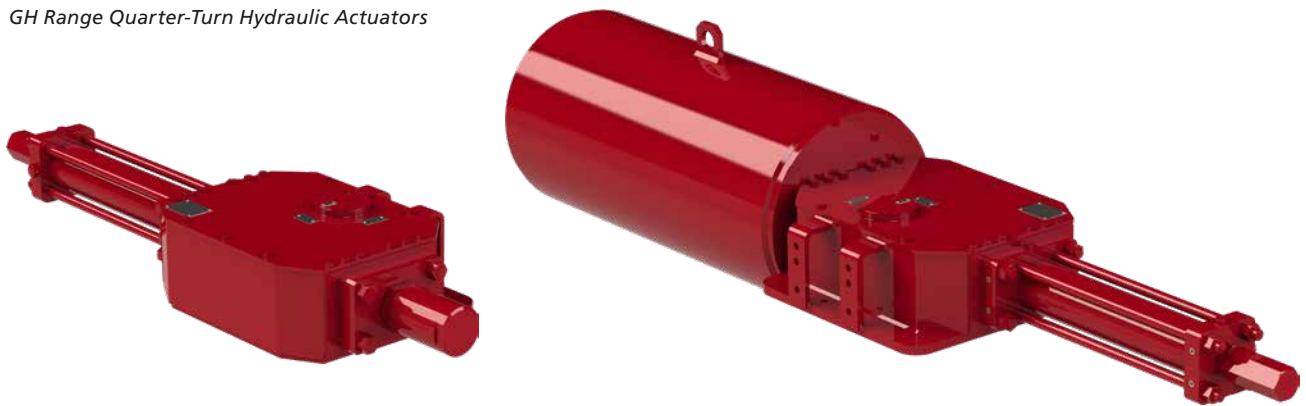
CANTED SCOTCH YOKE



## 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

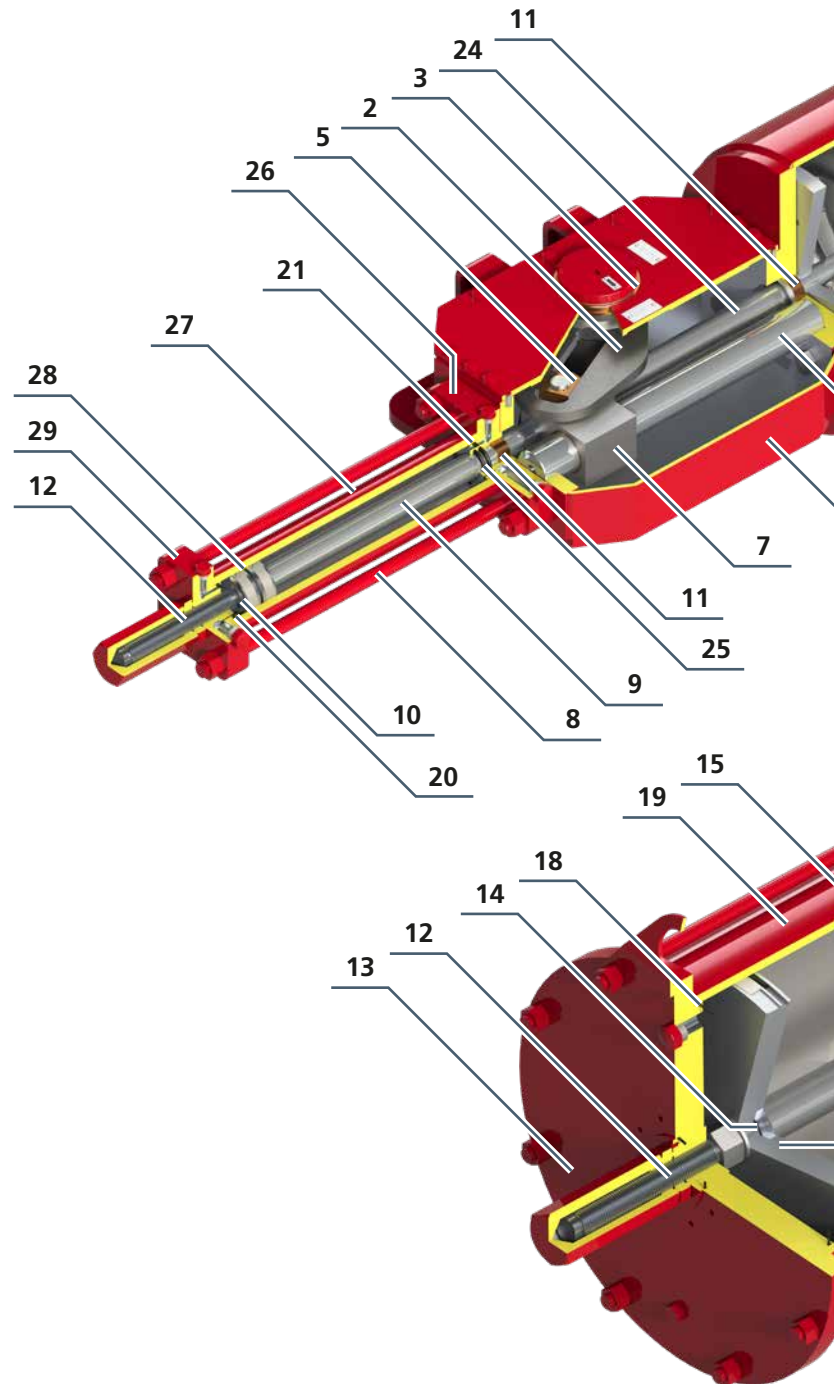
Totally enclosed weatherproof centre body fabricated in carbon steel or ductile iron (depending upon size) provide an excellent strength to weight ratio. The scotch yoke mechanism is available in either symmetric or canted design to meet application specific valve torque demand requirements with minimum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

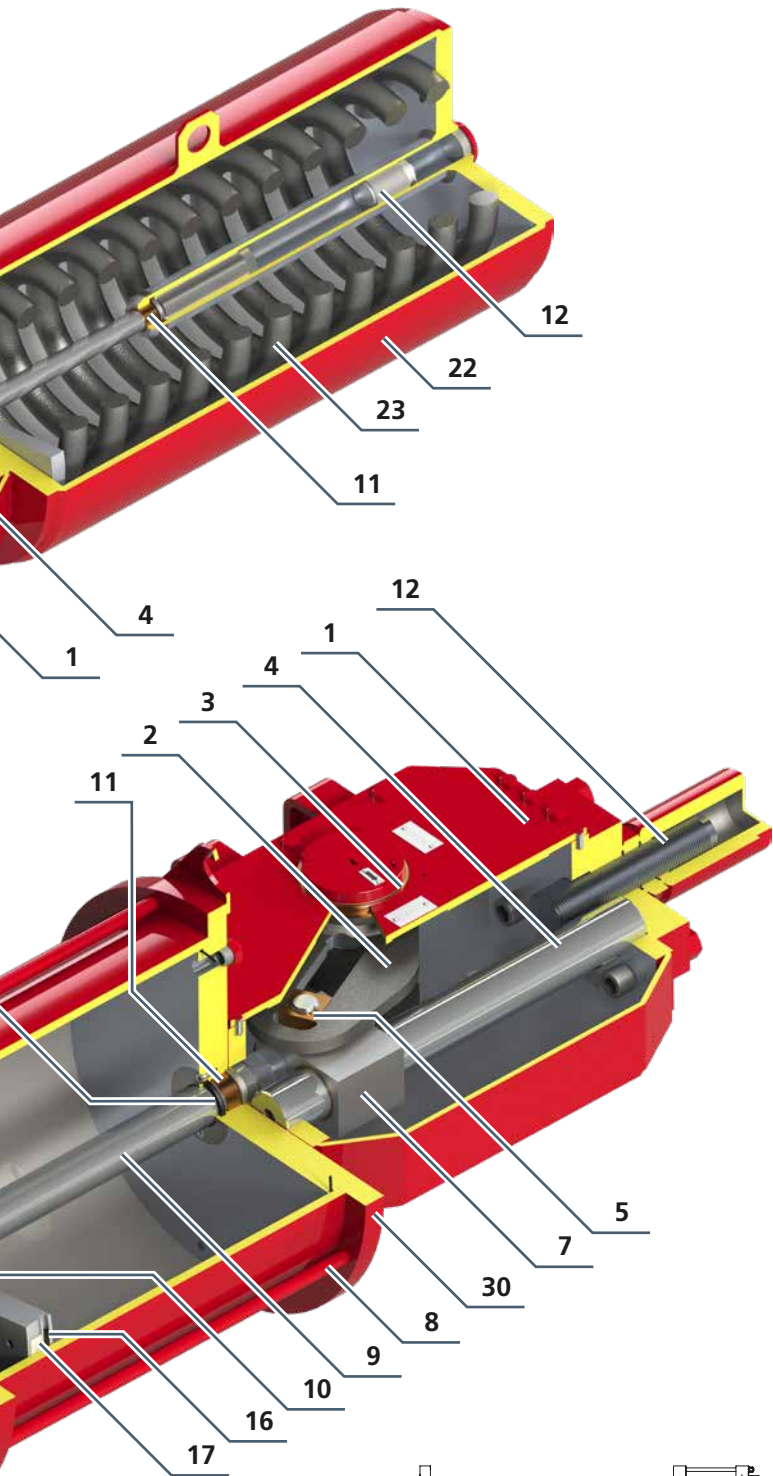
### Available Options

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/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.





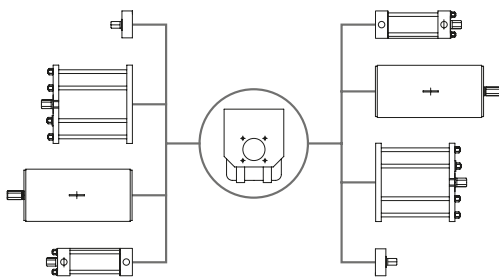
ITEM	DESCRIPTION	MATERIAL
1	Centre Body	Carbon Steel or Ductile Iron
2	Yoke	Carbon Steel or Ductile Iron
3	Yoke Bushing	Bronze
4	Thrust Bar	Alloy Steel (chromium-plated)
5	Sliding Block	Bronze
6	Pressure Relief Valve	Stainless Steel (not shown)
7	Guide Block	Carbon Steel
8	Tie Rod	Alloy Steel
9	Piston 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 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
- Pneumatic cylinder design in accordance with EN13445

### 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's *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 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

#### 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 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.



## Site Services

Rotork understand the value of prompt, punctual and superior site services. Rotork Site Services have specialist expertise, insight and experience in service support for mission-critical flow control and instrumentation solutions for oil and gas, water and wastewater, power, chemical process and industrial applications. We offer global frontline support backed by dedicated in-house experts.

Our service solutions increase plant efficiency and reduce maintenance costs, while workshop services return equipment to as-new condition. Our experience and understanding of the flow control industry means we have extensive insight and ideas of what we can do to provide significant value to our customers and their operations.

Rotork Site Services is comprised of two main areas; Lifetime Management and Site Services. Lifetime Management is the suite of services within Rotork Site Services which help you manage the risk associated with aging assets and includes our Reliability Services offering. Site Services comprises essential actuator service, repair, maintenance and upgrades.

Rotork has specialist expertise, insight and experience in flow control.

We provide insight into how we can deliver value to our customers.

Our service solutions increase plant efficiency and reduce maintenance costs.



## Site Services

### Lifetime Management

The services available within Lifetime Management offer a complete solution to managing the risks associated with the life cycle of your equipment and their obsolescence (which compromise reliable performance and valuable uptime).

The aim of Lifetime Management is to provide you with constant support and minimum- to- no disruption to your production flow. It is a customisable service offering designed to seamlessly maintain and improve your assets. We manage the inherent risks associated with advances in technology, component obsolescence and ageing equipment for you. We are committed to helping customers maximise the continuous, fault-free operation and working life of their actuators. Supporting the continuous and reliable operation of your plant allows for improved performance and increases in valuable uptime.

#### Lifetime Management covers:

- Reliability Services
  - Health Check
  - Planned Maintenance
  - Enhanced Warranty
  - Predictive Maintenance
- Upgrade Services (retrofit)
- Planned Shutdown Support (service or run time)
- Life Cycle Services (based on years in service or run time)
- Overhauls/Refurbishment
- Customised Spares Programme
- Training
- Consultancy



### Site Services

Rotork's Site Services comprises the essential on-site actuator service, repair, maintenance and upgrades part of our service offering, plus the commissioning of new actuators and applications. It includes off-site work completed at a Rotork Support Centre including recertification, automation, testing and product selection.

Our decades of experience in the industrial actuation and flow control markets means that customers can rely on us to understand their problems and to deliver reliable, economic solutions. Rotork's talented and experienced engineers have an in-depth understanding of the problems that are faced in the field and they know how to fix them.

On sites where providing evidence of valid asset certification is a legal requirement, Rotork engineers can carry out the necessary OEM level inspections and provide the statutory paperwork to comply with regulations.

- Planned Shutdown Support
- Actuator Workshop Overhaul
- Field Support
- Valve Automation Services
  - On-site
  - Off-site
- Global Support



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[www.rotork.com](http://www.rotork.com)

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

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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](http://www.rotork.com)

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