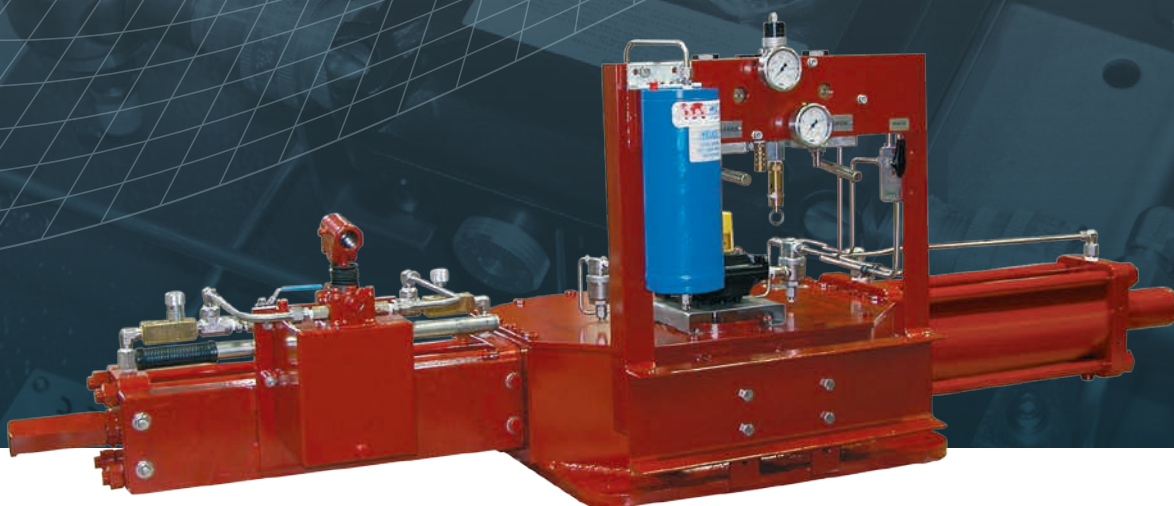


rotork[®]

Fluid Systems

HPG Range



**Direct High-Pressure Gas
Valve Actuators**

Redefining Flow Control

Rotork Actuators – Quality Controlled

Rotork is a global leader in valve actuation technology. We provide a comprehensive range of valve actuators, controls and associated equipment, as well as a variety of valve actuator services including commissioning, preventive maintenance and retrofit solutions.

Rotork Fluid Systems specialises in the production and support of fluid power actuators and control systems. We are dedicated to providing the marketplace with the latest technology, consistently high quality, innovative design, excellent reliability and superior performance.

Rotork Fluid Systems maintains dedicated engineering groups for Applications, Product Improvement and New Product Development so that our customers can gain all the benefits that ever advancing technologies have to offer and to ensure our efforts are in step with the continually evolving needs of our customers.

Most importantly, we have a long-standing commitment to meeting the special needs of a wide range of applications including: oil and gas exploration and transportation; municipal water and wastewater treatment; power generation; and the chemical and process industries.

With over fifty years of engineering and manufacturing expertise, we have tens of thousands of successful valve actuator installations throughout the world.

HPG Range – Direct High-Pressure Gas Actuators

Reliability by Design

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 the construction ensure optimum performance even in the harshest of environments. Our modular construction design facilitates stocking by allowing a minimal amount of components to meet a wide range of valve torque requirements.

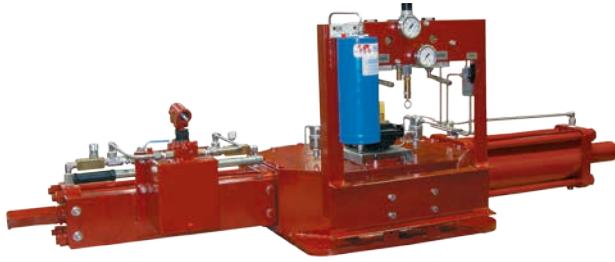
Rotork's HPG range of pipeline actuators are designed to use pipeline gas as the motive power source. Using our industry recognised and proven hydraulic scotch-yoke quarter-turn actuator as the valve prime mover, we have experience designing and supplying direct gas actuators to many end-user specifications. Our actuators are complemented with a variety of Rotork Fluid Systems designed and manufactured high-pressure gas controls.

Manual override is a standard feature of the range. The design incorporates a separate cylinder for hydraulic override to ensure complete separation of high-pressure pipeline gas from the hydraulic fluid. The use of an independent override cylinder allows replacement of power cylinder seals without removal of the actuator from the valve and will even allow for manual operation while the power cylinder is disassembled.

The gas control manifold employs poppet style control valves – a reliable design trusted throughout the industry. They are pilot operated for remote control. Operation is simple and intuitive.



HPG Range – Quarter-turn Actuators



Output

Quarter-turn maximum torque 600,000 Nm / 5,300,000 lbf-in (higher upon request)

Temperature Range

Standard: -29 to 60 °C (-20 to 140 °F)

Low: -40 to 60 °C (-40 to 140 °F)

Super Low: -46 to 40 °C (-50 to 104 °F)

Hazardous Area Approvals

Standard: ATEX - II 2G EEx de IIB T4

Options: IEC - Ex de IIB T4; Explosionproof Class 1, Division 1, Groups C&D

Other approvals available upon request

Standard Features and Benefits

- Scotch yoke quarter-turn actuators with either symmetric or canted yoke designs for optimum sizing of actuator to valve
- Actuators are IP66M/67M third-party certified and approved for environmental protection
- Actuators are CE and ATEX 94/9/CE third-party certified and approved
- Chromium-plated piston rod and electroless nickel-plated cylinder to provide enhanced durability of critical sealing surfaces
- Working pressure 10 to 105 barg (145 to 1,500 psig)
- Manual hand pump for emergency or local operation
- Options with either low-pressure or high-pressure control logic design
- Modular and compact integrated manifold design reduces fittings and potential leakage
- Local control via lever-operated poppet valves on the multi-function manifold
- Stainless steel pressure gauge to measure gas supply pressure with psi / bar scale
- Particulate filter with a stainless steel element is included as standard. The element is easily removable and cleanable
- Stroke time is adjusted via two hydraulic flow control valves providing smooth and precise speed control

Optional Features

- Pressure sensing valves with optional manual reset to monitor pipeline pressure
- Pressure differential valves with optional manual reset to monitor the differential across the valve
- Linebreak detection safety systems sensing pipeline pressure drop over time
- ESD (emergency shutdown) control configurations to suit specific customer shutdown logic requirements
- Custom gas filtration
- Lockable control cabinet in painted carbon steel, or optional stainless steel
- Power gas storage tanks to provide power upon loss of main pipeline pressure
- Pressure vessel certification including ASME U-Stamp, PED 97/23/EC – other approvals on application

High-Pressure Gas Control Systems

A comprehensive range of control systems and schematics have been developed to meet the requirements of end-user direct high-pressure gas applications.

A variety of standard Rotork direct high-pressure gas schematics are listed below. Please contact our international sales departments for further options.

High-Pressure Gas Control Schematics

Schematic	Hydraulic Manual Override	Local Manual Control	Low Pressure Close	Line Break	2-Way Electric Remote
HPG100	✓	✓			
HPG101	✓	✓	✓		
HPG102	✓	✓		✓	
HPG200	✓	✓			✓
HPG201	✓	✓	✓		✓
HPG202	✓	✓		✓	✓

Parts List for HPG200 & HPG201 Schematics

Item	Description	Qty.
1	Rotork Double Acting Actuator	1
2	End-of-Travel Limit Switch Housing (See Note)	1
4a	Poppet DCV (Close)	1
4b	Poppet DCV (Open)	1
5a	Solenoid 3/2 NC Valve (Close)	1
5b	Solenoid 3/2 NC Valve (Open)	1
6	Gas Vent Protector Valve	1
8	Gas Shuttle Valve	1
9	Pilot Gas Pressure Gauge	1
10	Supply Gas Pressure Gauge	1
12	Pilot Gas Regulator	1
13	Pressure Relief	1
15	Remote Lockout Valve	1
16a	Gas Filter	1
16b	Gas Dryer	1
16c	Drain	1
20a	Gas Storage Tank (optional)	1
20b	Relief Valve (optional)	1
20c	Check Valve (optional)	1
20d	Drain Valve (optional)	1
23	Low Pressure Sensor	1
28	Hydraulic Manual Override With Speed Control	1

Legend

Solenoid Connection	-----
High Pressure Gas Line	—————
Low Pressure Gas Line	-----
Hydraulic Fluid Line	—————H—————

Local Manual Operation

Remote Lockout Valve (15) must be in the Manual Operation position.

Depress hand lever on valve (4a) to CLOSE the valve actuator.

Depress hand lever on valve (4b) to OPEN the valve actuator.

The actuator may also be manually operated via the Hydraulic Override (28).

Remote Operation

Remote Lockout Valve (15) must be OPEN to allow control pilot gas to the solenoids.

Energise solenoid (5a) to CLOSE the valve actuator.

Energise solenoid (5b) to OPEN the valve actuator.

Low Pressure Close

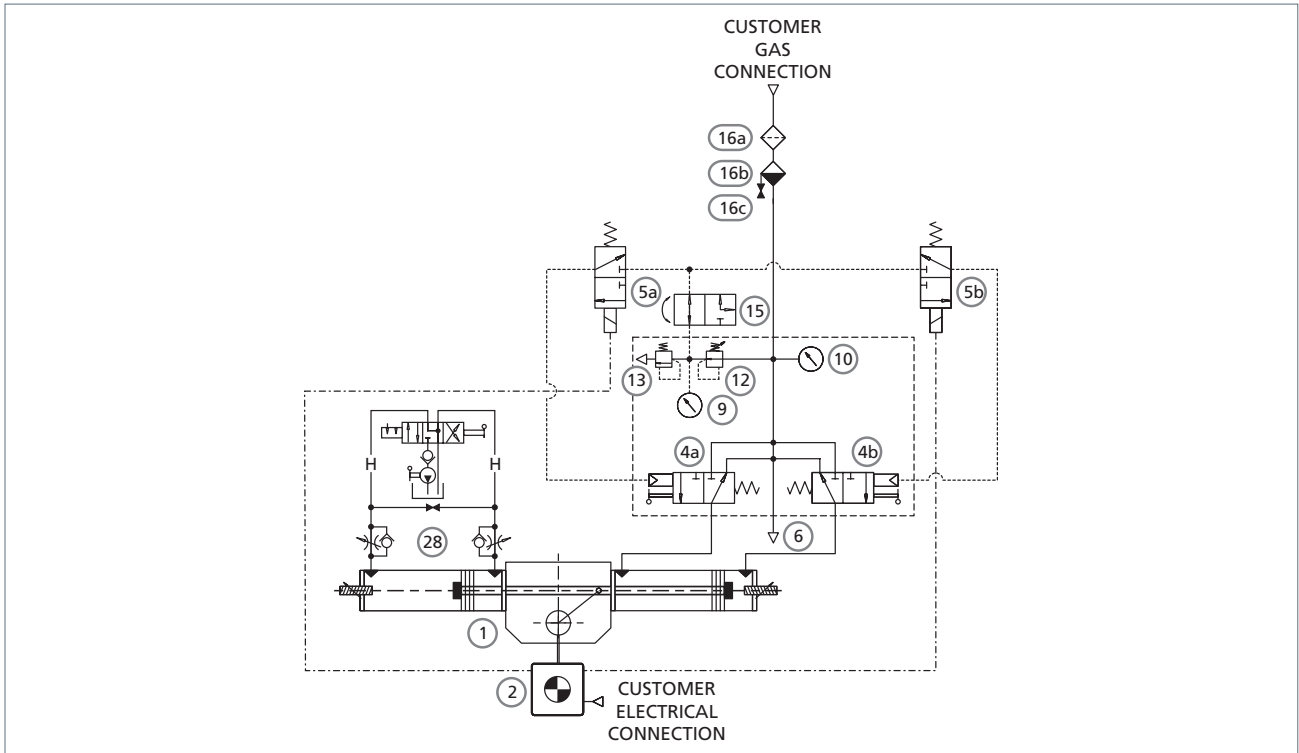
Pressure sensor valve (23) is normally piloted by an external source. If the pilot pressure drops below the setpoint pressure, poppet valve 4a closes the actuator.

Note: A travel limit switch may be used to de-energise the solenoid when the actuator reaches the end of travel.

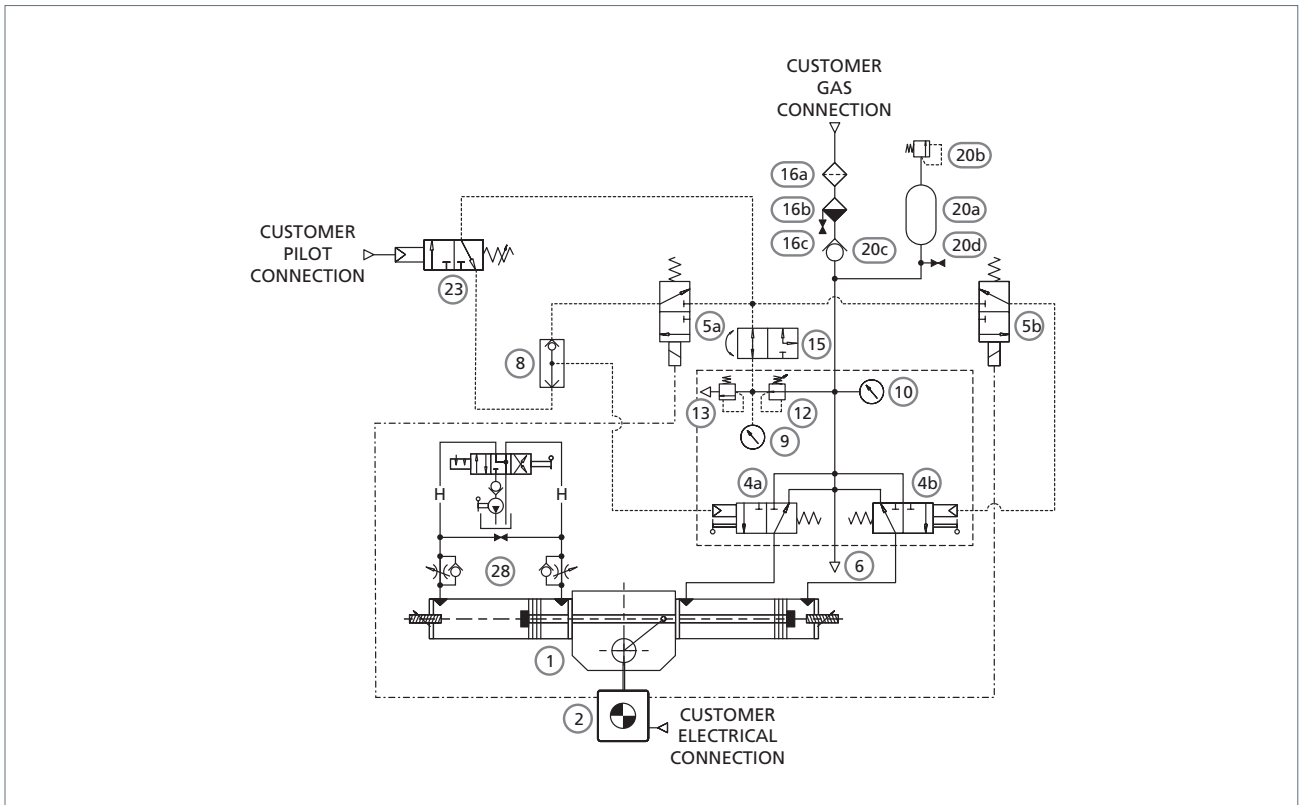
Valves are shown de-energised and in the fail position.

HPG Schematics

HPG 200 2-way Electric Remote Operation & Local Manual Control



HPG 201 2-way Electric Remote Operation with Low-Pressure Close & Local Manual Control



Key Control Components

Complementing the modular design of our high-pressure gas systems are the Rotork designed and manufactured control options ranging from simple local/remote pilot operated valves to pressure sensing and linebreak controls.

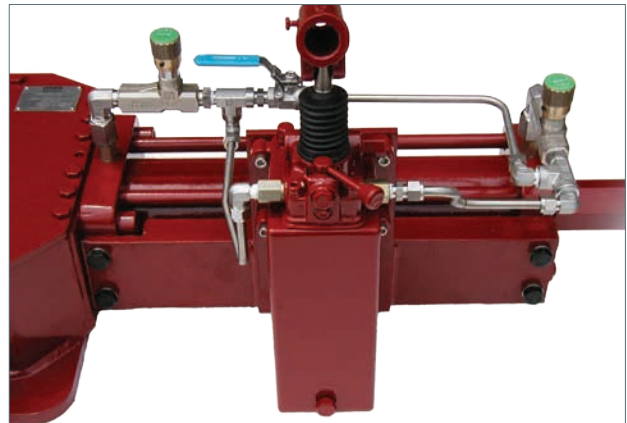
At the centre of our control systems is our multifunction manifold block. The high-pressure, high-flow manifold system allows us to configure a wide variety of control options. Both high and low-pressure control logic designs are available.

Multi-function Manifold Block

- Integral gas filter.
- Leak-free high-flow poppet valve design.
- Anodised aluminium construction.
- Tamper-proof cover (optional).

Hand Pump Override

- Selector valve to permit local operation
- Flow control valves to adjust stroke time in each direction



Available Options

Optional Extras

Dehydrator / Filter

A coalescing filter assembly with purge valve to facilitate removal of water from incoming power gas.

High / Low Pressure Select

This option provides two gas connection ports, one for the upstream side of the valve, and the other for the downstream side. Both connections are fed to a set of valves that select the higher or lower of the two.

Auxiliary N2 Connection

A second inlet gas connection that allows the user to connect a nitrogen supply for test.

Torque Limiting Device (TLD)

A device that limits the actuator maximum torque output to protect the actuator and/or valve stem from damage in the event of overpressure.

High Differential Open Inhibit

Automatic inhibition of opening, when the difference of pressure between upstream and downstream sides of the valve exceeds a set point. This can be achieved pneumatically or electrically.

High or Low Pressure Open or Close

Automatic closure of the valve when the pressure in the pipeline drops below a set point.

Line Break

Automatic closing of the valve when the rate of pressure drop in the pipeline is greater than a set point.

Local / Remote Selector

A manual selector to allow the local user to place the actuator in local mode, thus taking priority over remote signals. This can be achieved pneumatically or electrically.

Electric ESD

A special ESD solenoid valve is added to the circuit, and when it is de-energised, the actuator moves to the fail-safe position.

Electrical Pressure Switch

A pressure switch is placed in the circuit to provide electrical indication when the pressure drops below a set point.

Manual Override Indication Switches

A switch is placed on the manual override selector to provide electrical indication when the actuator has been placed in local hand-pump mode.

High Pressure Ball Valve

Lockable valves are available to provide system isolation during maintenance.

Fire Protection Systems

Rotork Fluid Systems actuators and control systems can be customized 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.



rotork® Site Services

Rotork Site Services provides a comprehensive range of service products, each specifically tailored to meet customers' requirements.

Emergency and Planned Service encompasses installation, commissioning, upgrading, installation of control systems, troubleshooting and repair of damaged or deteriorating assets. Actuator Overhauls are performed in Rotork workshops to bring long service units back to guaranteed 'as new' condition. Health Checks enable customers to prioritise maintenance and replacement planning whilst Preventative Maintenance enhances the integrity of actuators to maximise plant utilisation.

Rotork Site Services has a wealth of experience in Retrofitting new actuators to valves, penstocks and dampers installed on existing plant, as well as the factory assembly of new valves and actuators for plant upgrades and extensions. Capabilities for Extended Scope Projects include surveys, design, procurement, manufacturing and commissioning to cover the broad scope of activities surrounding actuation projects.

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

rotork®

Redefining Flow Control

www.rotork.com

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

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Scan with your smart phone
for more information on
this product range



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Formerly F300E. 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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