rotork®

Keeping the World Flowing
for Future Generations

M-EH

Modular electro-hydraulic solutions

Table of contents

Rotork

Rotork is a market-leading provider of flow control and instrumentation solutions. We have served global industrial actuation and flow control markets for more than 60 years, delivering results in all regions and in all environmental situations.

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

Partnering with Rotork provides the following:

- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all 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

Our service engineers work with industrial partners to design, update and maintain their plant and equipment.

Introduction

Originally developed for the pipeline industry, Rotork M-EH modular electro-hydraulic solutions offer a robust and reliable valve automation solution for on/off duty.

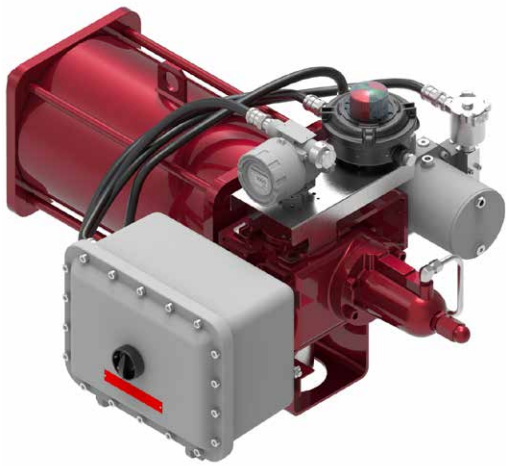
Typically used in applications where external pneumatic or hydraulic power sources are unavailable, these fully modular and compact solutions provide to the customer with a bespoke architecture to meet specific needs.

Applications

- Onshore and offshore on/off, Emergency Shutdown (ESD) valves
- Upstream production trees
- Gas pipeline ESD, linebreak shutoff systems
- High-integrity pressure protection systems (HIPPS)
- Safety Instrumented Systems (SIS)
- Process safety system
- Ballast control
- Tanker loading/offloading facilities

Key benefits

- Only requires electrical power – any supply
- Zero emission
- Combines the simplicity of electrical operation with the high torque/thrust and fast action capabilities of hydraulic high pressure control
- Self-contained with reduced piping and built-in hydraulic power source reduces transit damages, installation costs and oil leak risks
- Suitable for rotary and linear actuations
- Fail-safe or fail-last operation on both spring-return and double-acting actuators
- Always spec compliant and certified
- Flexibility in the configuration, from base to advanced, to satisfy any application challenge
- Retrofittable on existing actuators
- Optional lockable cabinet to prevent unauthorised operation. Glass window on the front door and gauges/ buttons top mounted as options as well

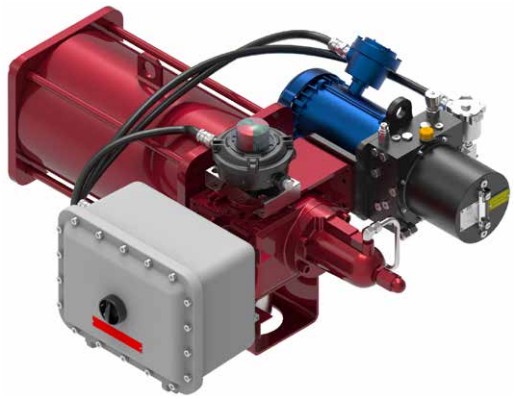


Variants and features

Basic (on/off)

Designed for simple on-off applications with no partial stroke test (PST) facility or diagnostics, the system is self-contained and features low power consumption in a relay-based system, leaving the input signal handling to the end user.

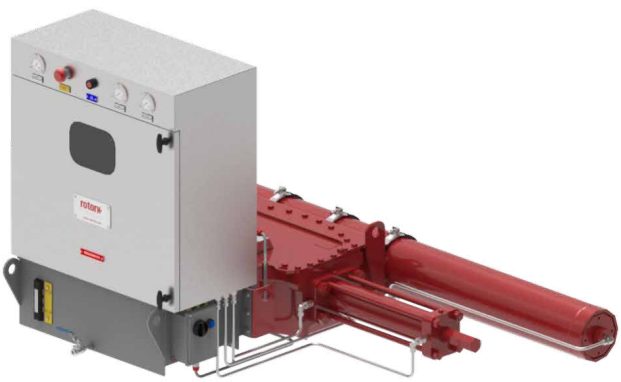
- Remote control via hardwired signal (electro-mechanical logic)
- Local indication (position/actuator and accumulator pressure/oil level/temperature) via pressure and position gauges
- Minimum flowrate of 30 l/min (adjustable), extendable to any customer request
- Optional accumulator for pressure back up
- Suitable for low-power infrastructures (including solar) – for operation and standby



Advanced (on/off)

Thanks to the intelligent PLC/EHPC210 controller, the system can be programmed to accomplish any customised logic and includes the following features in addition to the Basic (on/off) product:

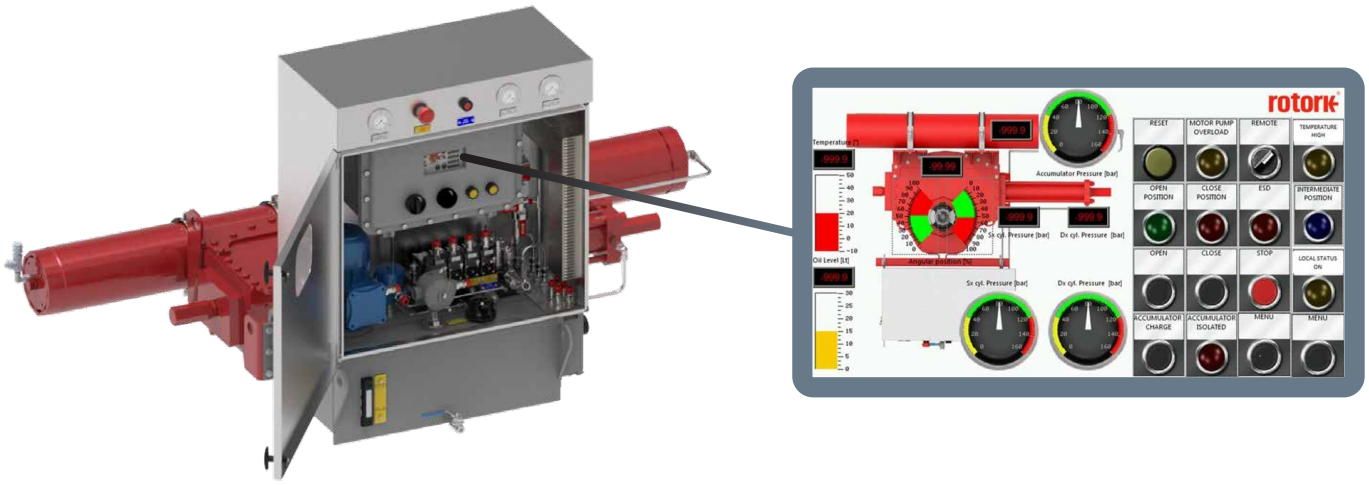
- Local control, non-intrusive setting and easy troubleshooting via the user friendly digital Human Machine Interface (HMI)
- Optional network protocol (Modbus® RTU, Modbus® TCP/IP, PROFIBUS®, PROFINET®)
- Local indication (position/actuator and accumulator pressure/oil level/temperature) via HMI
- Modular mechanical architecture and functional flexibility in controller – from basic on/off to multiple voting (1oo1, 1oo2, 2oo2) SIL-rated ESD
- Partial stroke test (PST), full stroke test, solenoid valve test, accumulator monitoring and line break functionality for detailed diagnostics and analysis over modern fast network protocols
- Safety Integrity Level up to SIL 3
- Optional lockable cabinet to prevent unauthorised operation

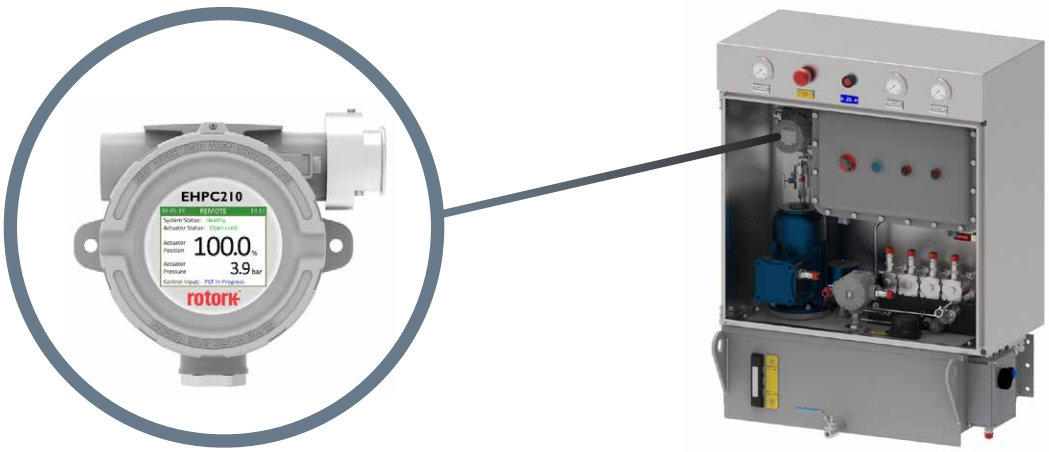


Variants and features

Application data			
Working temperature	Standard: -10 to +50 °C (+14 to +122 °F) Low: -30 to +50 °C (-22 to +122 °F)	**Actuation**	Rotary Linear
Ingress Protection rating	IP65/NEMA4	**Supply voltage**	AC (three-phase and single-phase) DC voltages
Hazardous area	II 2 GD Zone 1, 21/Class1 Div1 Gr C&D		
Safety Integrety Level	up to SIL 3	**Frequency**	50 Hz 60 Hz
ESD voting	On/Off Local ESD 1oo1 1oo2 (advanced only) 2oo2 (advanced only) Line Break (advanced only)	**Protocol (Advanced only)**	Modbus RTU Modbus TCP/IP PROFIBUS PROFINET
ESD reset	Auto Manual	**Diagnostic function (Advanced only)**	Full stroke test Partial stroke test Solenoid valve test

If different supply voltage, comunication protocol or a specific configuration required, please contact Rotork.





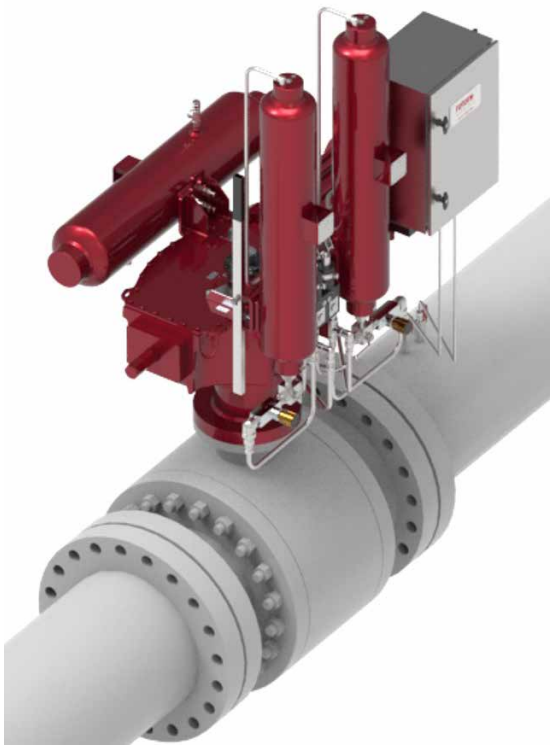
Retrofittable on existing installations

Retrofit on existing gas-over-oil or high pressure gas actuators to meet emission reduction requirements.

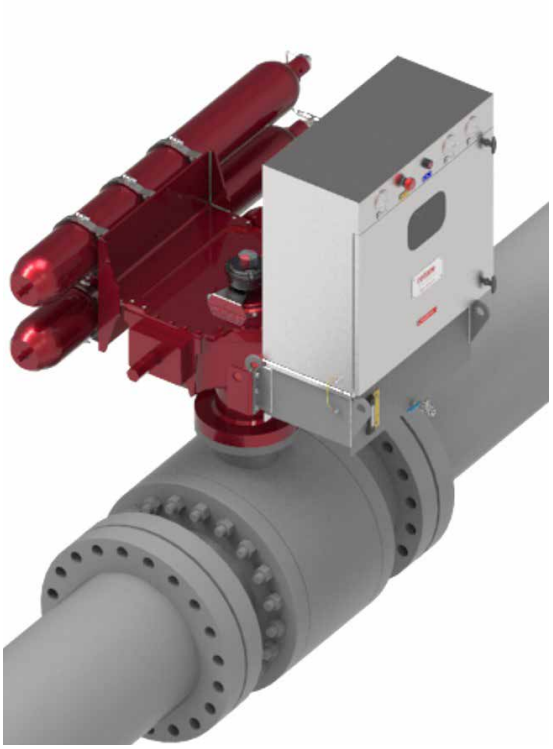
Gas powered actuator solutions like gas-over-oil and high pressure gas have been used for decades by gas transmission companies on pipelines, but new regulations now require operators to reduce natural gas emissions, hence the need for alternative solutions that do not emit gas into the atmosphere.

Unlike gas re-injection systems where the gas is still the fluid motive power with the potential to emit fugitive emissions, Rotork's Modular Electro-Hydraulic solutions are a true zero emission product that is modern, versatile, reliable and suitable for retrofitting to existing gas-over-oil and high pressure gas actuators.

Contact Rotork for upgrade solutions to change your existing gas emitting installations into full zero bleed, zero emissions valve control.



Before



After

Other applications available

Modulating duty

Rotork electro-hydraulic solutions are not limited to on/off service, as solutions for process control are available too.

The servo-control hydraulic actuator is a self-contained electro-hydraulic solution specifically designed for valve position control using a continuous process command signal.

The precision of a hydraulic system combined with an embedded electronic motion control system guarantees high accuracy in achieving the valve target position.

The architecture consists of three primary components:

- High performance rack and pinion double-acting hydraulic actuator
- On-board hydraulic power unit based on a close-loop hydraulic circuit with a reversable gear pump
- Electric control cabinet complete with embedded motion control automation and a touch screen user friendly Human Machine Interface (HMI)

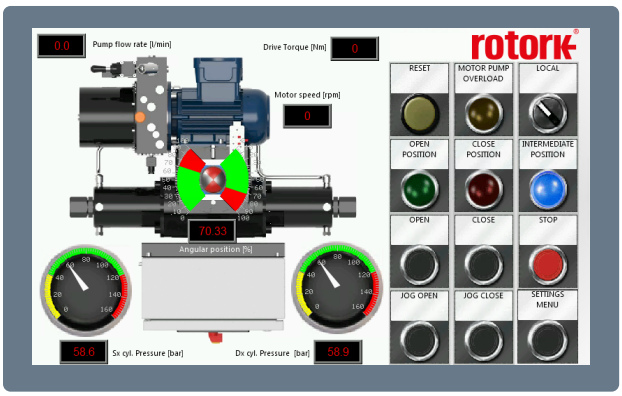
Actuator drive torque, angular speed and rotation direction are governed by the reversable gear pump displacing oil between the cylinder chambers. The gear pump flow rate and direction of rotation are controlled by an electric motor piloted via a motor-driver.

The control system manages pressure and flow rate in the hydraulic circuit to achieve the target position according to the process command signal within the requested stroking time.

An analogue feedback signal is displayed on the monitor screen in real-time indicating the actuator angular position.

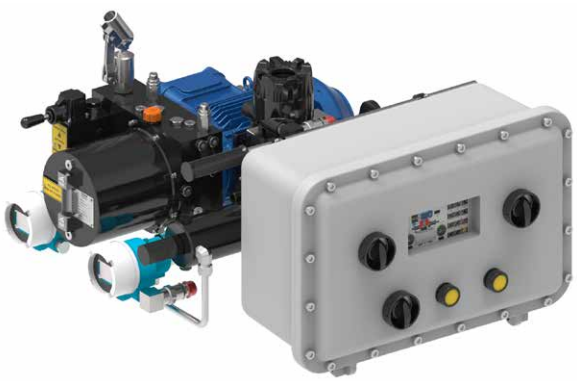
The field HMI allows the actuator to be controlled locally with access to all the parameters defining the motion dynamics.

The hand pump allows the actuator to be stroked manually in case of power supply failure.



Key benefits

- Only requires electrical power
- Self-contained with fully-enclosed built-in hydraulic power source reduces installation and maintenance costs
- Non-intrusive setting and easy troubleshooting via the HMI – optional touch screen available
- Remote control via 4-20 mA or hardwired 24 VDC signal
- Local control via touch screen HMI
- Modulating control accuracy to 0.3%
- Local indication (position/pressure/torque/flowrate)
- Low power consumption
- Torque and speed adjustability
- Alarm indication via status relays
- Available both non-hazardous and hazardous execution
- Manual override



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PUB189-002-00
Issue 10/24