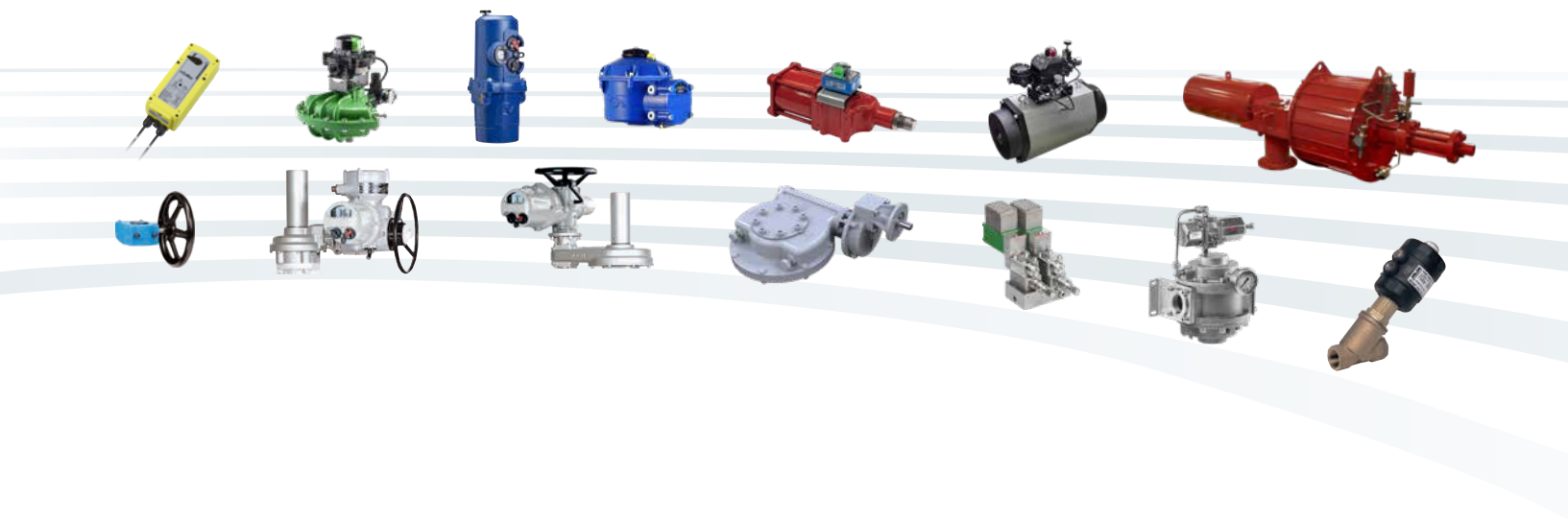
rotork®

Keeping the World Flowing
for Future Generations

Modular Electro-Hydraulic Actuator

On/Off and ESD electro-hydraulic actuator

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.

Modular Electro-Hydraulic Actuator

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.

Environmental, Social and Governance is at the heart of our business

Our ambition is to become recognised as a sustainability leader within our industry. We are positioning ourselves to better understand and predict customers' needs and play our fullest role in enabling smart solutions for global sustainability challenges.

Introduction

Originally developed for the Pipeline Industry, Rotork Modular Electro-Hydraulic Valve Actuator offers 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 a bespoke architecture meeting the specific need.

Application

- Onshore and offshore on/off, ESD valves
- Gas pipeline ESD, linebreak shutoff systems
- HIPPS systems
- SIS systems
- Process Safety System
- Ballast control
- Tanker loading/offloading facilities

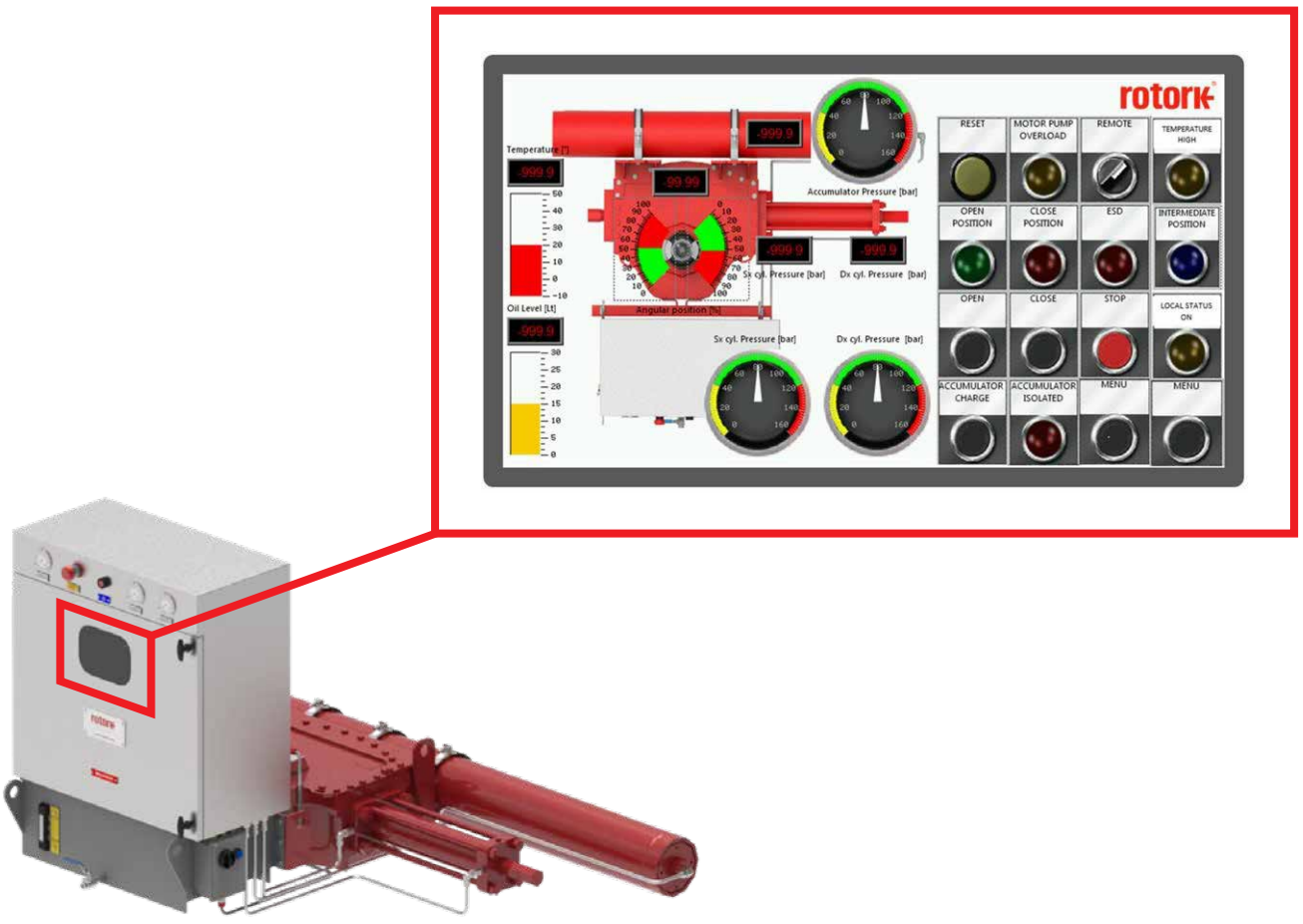
Key Benefits

- Only requires electrical power
- 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
- Fail safe or fail last operation
- Zero emission
- Local control, non-intrusive setting and easy troubleshooting via the contemporary digital interface/HMI
- Remote control via hardwired 24 VDC signal or Modbus protocol
- Local indication (position/actuator and accumulator pressure/oil level/temperature)
- Accumulator ensures pressure back up to keep the system under pressure
- Ability to consider low-power infrastructure (including solar) – for standby and operational
- Flow rate up to 50 l/min
- Modular mechanical architecture and functional flexibility in Controller – from basic on/off to multiple voting (1oo1, 1oo2, 2oo2) SIL-rated ESD
- Partial stroke, full stroke, solenoid valve test and accumulator monitoring for an insightful diagnostics over modern fast network protocols
- Safety Integrity Level up to SIL 3
- Suitable for rotary and linear actuations
- Suitable for Zone 1, 21

Features

Application Data			
Working Temperature	Standard Temperature -10 to +50 °C Low Temperature -30 to +50 °C	**Supply Voltage**	Single Phase 240 1Ph VAC Three Phase 400 3Ph VAC
Ingress Protection Rating	IP65	**Frequency**	50 [Hz] 60 [Hz]
Hazardous Area	II 2 GD Zone 1, 21		
Explosion Proof Protection	Ex db IIB T4/T5 Ex tb IIIB Db	**Max Power Consumption**	0.9 [KW]
Safety Integrety Level	SIL 2 SIL 3	**Max Current Consumption**	Single Phase 3.5 [A] Three Phase 2.0 [A]
Actuation	Rotary Linear	**Protocol**	Modbus
		Min Working Pressure	120 [barg]
ESD Voting	On/Off Local ESD 1oo1 1oo2 2oo2	**Max Working Pressure**	180 [barg]
		Max Flow Rate	50 [l/min]
		Diagnostic Function	Full Stroke Test Partial Stroke Test Solenoid Valve Test
ESD Reset	Auto	**Position Feedback**	4-20 [mA]
	Manual	**Accumulator Feedback**	4-20 [mA]

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



Features

Local Control and Indication

A 7" human machine interface screen is front-mounted on the electrical control cabinet allowing access to local controls and settings and showing actuator variables, status and alarms.

Local Controls

Local controls suitable for the normal operations are provided on the HMI main screen.

The Local/Remote selector switches the system from "remote" control mode to "local" control mode and vice versa.

The "Open" and "Close" push buttons engage the opening and closing strokes, while a "Stop" push button inhibits the automatic strokes.

Additional menu pages are dedicated for the diagnostic functions to engage the full stroke, partial stroke and solenoid valves test allowing to set the parameters, plot the test variables and store the results.

A "Reset" push button resets the motor-pump from the overload protection mode.

The "Pump ON" and "Pump OFF" push buttons engage the motor-pump to charge the accumulator locally and manually.

Dedicated menu pages allow calibration, ESD voting selection, actuator parameters and the automatic diagnostic interval setting.

Local Indicators

Gauges and numeric displays on the screen show the actuator position, actuator and accumulator pressure, reservoir oil level and temperature.

Additional LEDs indicate end of travel limits (Open and Closed), intermediate position, the motor-pump overload protection, ESD, oil level limit, temperature limit, accumulator and ESD by-pass status.

Remote Control

Two types of remote control are available: via hardwired signals and via Modbus protocol.

Remote Hardwired Control

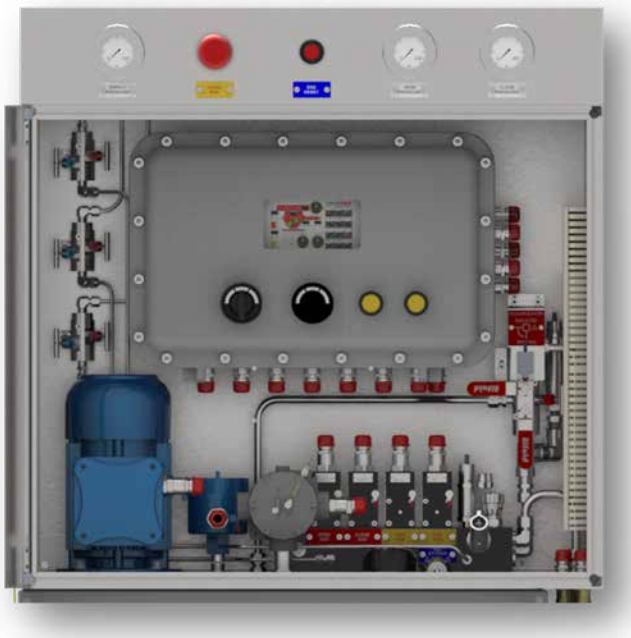
With this configuration the actuator is remotely controlled via hardwired power 24 VDC signals to command actuator opening and closing strokes, actuator stop and motor-pump overload protection mode reset.

Remote Protocol Control

A Modbus RTU protocol is provided to allow the system variables real time monitoring, parameters set-up, diagnostic functions engagement and data log in addition to the other functions provided in the hardwired control system.

Manual Override

The hydraulic power unit is equipped with a manual hand pump to override the actuator upon loss of power or control signal.



Features

ESD Functions

Remote ESD

The ESD voting can be set via HMI according to the remote signal's quantity and logic. The modular philosophy of hydraulic and electric hardware allows fast architecture changes.

- On/Off
- 1oo1
- 1oo2
- 2oo2

Local ESD

To engage the fail action locally, a safety mushroom button is provided on hydraulic power unit front panel.

Reset

A reset push button is provided locally on hydraulic power unit front panel to restore the normal functionality after an ESD event.

Diagnostic Functions

The embedded automation manages various diagnostic functions to achieve the safety integrity level required up to SIL 3.

- Partial Stroke Test
- Full Stroke Test
- Solenoid Valves Test
- Accumulator monitoring

Variables Monitoring

Local Position Indicator

Mechanical position indication is available via a 3D beacon in UV-resistant polycarbonate mounted on the actuator.

Actuator and Accumulator Pressure Indication

The hydraulic power unit is fitted with a sight pressure gauges to indicate independently the actuator chambers and accumulator pressure.

Oil Level and Temperature Indicator

The hydraulic power unit is fitted with a sight oil level and temperature gauge in UV resistant polycarbonate.

rotork®

www.**rotork**.com

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

Rotork plc
Brassmill Lane, Bath, UK
tel +44 (0)1225 733200
email mail@rotork.com

PUB189-001-00
Issue 09/22