

rotork® Process Controls

Established Leaders in Valve Actuation

Capabilities & Facilities

Worldwide Manufacturing Facilities
International Service and Support
Innovative Design and Technology
Industry Leading Reliability

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Contents

rotork® Process Controls

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 Process Controls specializes in the design, production and support of process control actuators. We are committed to providing the marketplace with the latest technology, consistently high quality, innovative designs, outstanding reliability and superior performance.

Rotork Process Controls has its own dedicated engineering group for applications, product improvements and new product development. This enables the benefits of Rotork's actuation technology to be applied to the most challenging process control problems.

The Process Controls group is able to meeting the specialized control needs of our customers in all industrial areas and for all applications. Our actuators are used in chemical, power, municipal water and waste water plants as well as on oil and gas upstream and downstream applications.

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

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A full listing of our worldwide sales and service network is available on our website at www.rotork.com

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Introduction

rotork® Process Controls

With more than 50 years of extensive knowledge and experience, Rotork Process Controls has provided products and services worldwide for virtually every industrial actuator application.

RPC offers four families of electric actuators:

- **Rotary Control Valve Actuators**
- **Linear Control Valve Actuators**
- **Heavy Duty Rotary Actuators**
- **Heavy Duty Linear Actuators**

With the unquestionable ruggedness of our actuators, Rotork Process Controls can meet any actuator requirement for any industrial application. Along with this durability comes accuracy and reliability, ensuring the precision necessary for your critical control applications. Our actuators have been used extensively in these industries:

- | | |
|-------------------|-----------------------|
| • Cement | • Oil / Gas |
| • Chemical | • Pharmaceutical |
| • Food & Beverage | • Power |
| • Glass | • Pulp & Paper |
| • Grain | • Steel |
| • Mining | • Water / Waste Water |

Whatever the application, no matter how difficult and demanding the conditions, accuracy and efficiency are essential at all times. With operating temperature up to 225 °F (107 °C), our actuators are designed and built to perform perfectly under the most exacting requirements.

With a multitude of options, and the ability to tailor solutions to specific requirements, Rotork Process Controls will provide you with the right solution.

Control Valves

Flow Control
Level Control
Pressure Control

Dampers

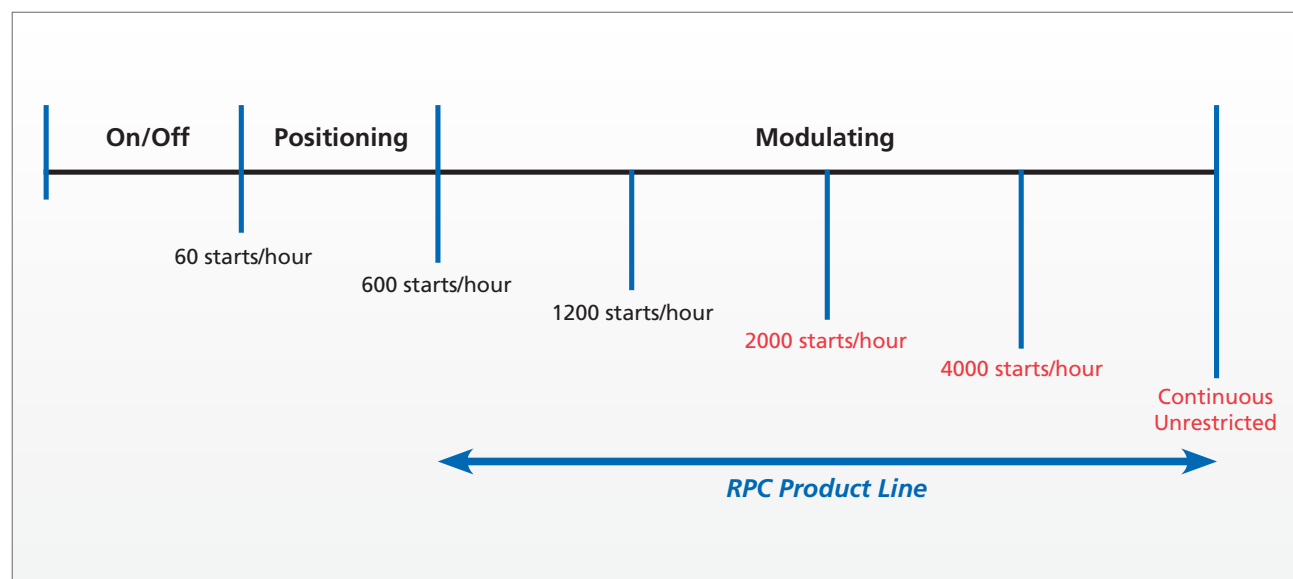
Forced Draft Damper
Induced Fan Damper
Recirculation Damper
Single Over Fired Air Damper

Slide Gates

Solid Material Handling

Custom Actuators

Chemical Dosing
Flow Control



Worldwide Facilities



Rotork Process Controls has manufacturing facilities in Milwaukee WI USA as well as Bath UK.

The Rotork global sales and service network supports all Process Controls products. This network is the biggest global actuation support organization in the world with direct sales offices and Agents in all industrialized countries.

Customer service and field support provides quick and effective response to customer requirements.



Process Controls

Test Facilities – Quality and Safety

Rotork Process Controls is committed to providing our customers with robust and dependable products that meet or exceed their expectations. To that end, we have engineered custom test systems to ensure proper operation and functionality of our products as well as assist in our research and product development endeavors.

Our test systems incorporate the following features:

- Static continuous and dynamic analysis on a full range of torques and thrusts 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.

Our test systems include provision for a temperature controlled and monitored environment.



Quality Assurance

Rotork products are designed and manufactured to the highest possible level of engineering – a principle which drives all areas of our business. To facilitate this objective a documented Quality Management system has been established in accordance with ISO9001:2008. This quality management system embraces every aspect of the company's business and involves all personnel.

Rotork Process Controls is committed to:

- Effectively communicating the importance of meeting customer needs throughout our organization.
- Establishing appropriate levels of competency for all personnel.
- Providing products that comply with all statutory and regulatory requirements.
- Actively promoting our quality policy and helping personnel understand and implement the relevant aspects of the policy in their day-to-day responsibilities.

We are also committed to maintaining compliance with our Quality Management System and to continually working to improve its effectiveness. Quality objectives with measurable outputs are established for relevant functions within the organization. These are reviewed and monitored for effectiveness at Management Review Meetings and form the basis for implementing improvement measures. Our Quality Policy, Quality Manual and procedural documents are periodically reviewed for adequacy and effectiveness. Copies are available to interested parties upon request.



Linear & Rotary Control Valve Actuators

MV-1000 / VA-1000 - Linear

1000 series



- Thrusts:
MV-1000: Up to 200 lbf. (890 N)
VA-1000: 220 to 900 lbf. (979 to 4003 N).
- Linear Travel:
MV-1000: Up to 1.375" (35 mm)
VA-1000: Up to 1.5" (38.1 mm).
- Continuous unrestricted modulating duty.
- Manual override standard.
- Automatic thrust limiting.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single-phase) or DC input power versions.
- Temperature range from -40 to 150 °F (-40 to 65 °C).

GPSA™ - Linear & Rotary actuators

GPSA range



- Linear: Stroke distance up to 1.375" (35 mm).
- Linear: Thrust range up to 200 lbf (890 N).
- Rotary: Rotation 90° to 20 turns.
- Rotary: Torque range up to 350 lbf-in (40 Nm).
- Continuous unrestricted modulating duty.
- Integral PI (Proportional & Integral) control.
- Adjustable speed.
- Output characterization.
- Password protection.
- Non-intrusive setup and calibration.
- Manual override standard.
- HART, Profibus & Foundation Fieldbus available.
- Automatic torque and thrust limiting.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust or torque rating.
- AC input power (single-phase).
- Temperature range from -4 to 150 °F (-20 to 65 °C).

MV-1500 - Linear

1500 series



- Thrusts from 300 to 3,000 lbf. (1,334 to 13,345 N).
- Stroke distance from 0.25" to 4" (6.4 to 101.6 mm).
- Modulating Duty: 2,000 starts per hour.
- Manual override option.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single-phase) or DC input power versions.
- Temperature range from -40 to 150 °F (-40 to 65 °C).



Linear & Rotary Control Valve Actuators

CVA - Linear & Rotary actuators



The CVA range of linear and quarter-turn actuators provides an electrically powered process control operator suitable for most control valve types and sizes. The CVA sets a new standard for process control valve actuators.

Rotork has proven expertise in applying new technologies in the automation of valves to bring enhanced performance and innovative features. This philosophy has now been applied to a new range designed specifically for the exacting demands of process control, specifically continuous modulating control valve applications.

Using the combination of advanced actuator engineering and process control experience, plus specification input from major control valve end users, Rotork have produced a range of control valve actuators that are unique in the industry and provide solutions to many common control issues.

- Linear: Thrust range 200 to 1500 lbf (890 to 6672 N).
- Rotary: Torque range 480 to 2400 lbf-in (54.2 to 271 Nm).
- Electrically powered.
- High performance, continuous unrestricted modulation duty - S9.
- High resolution and repeatability.
- Comparable life to pneumatic operators.
- Optional bus interfaces available.
- Comprehensive datalogging.
- Watertight IP68 and explosionproof enclosures.
- Programmable fail-to-position option.
- Separate, double sealed terminal compartment.
- 'Intrinsically Safe' control & instrumentation compatible.
- Non-intrusive setup/calibration using Bluetooth.
- Optional manual override.
- Available in both Quarter-turn and Linear configurations.

SM-1000 - Rotary

1000 series



- Torques up to 350 in.lb. (40 Nm).
- Rotation: 10 degrees to 20 turns.
- Continuous unrestricted modulating duty.
- Manual override.
- Automatic torque limiting.
- Self-locking drive system to hold in last position and prevent backdriving up to torque rating.
- AC input power (single-phase) or DC input power versions.
- Temperature range from -40 to 150 °F (-40 to 65 °C).

SM-1100 / SM-1500 - Rotary

1100/1500 series



- Torques from 3.5 to 400 in.lb. (0.4 to 45.2 Nm).
- Rotation 40 degrees to 60 turns (SM-1100), 72 degrees to 324 turns (SM-1500).
- Modulating Duty: 2,000 starts per hour.
- Manual override option.
- Self-locking drive system to hold in last position and prevent backdriving up to torque rating.
- AC input power (single-phase) or DC input power versions.
- Temperature range from -40 to 150 °F (-40 to 65 °C).

Heavy Duty Linear Actuators

LA-2400 - Linear

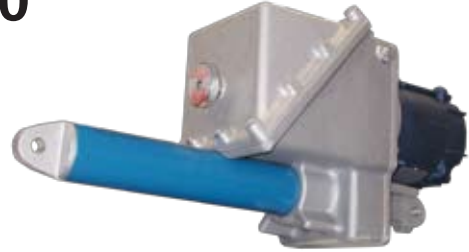
2400 series



- Thrusts from 150 to 1,500 lbf. (667 to 6,672 N).
- Stroke distance from 6" to 24" (152 to 610 mm).
- Modulating Duty: 2,000 starts per hour.
- Manual override standard.
- HART available.
- Automatic thrust limiting.
- Anti-condensation heater and thermostat.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single and three-phase) or DC input power versions.
- Temperature range from -40 to 150 °F (-40 to 65 °C).

LA-2500 - Linear

2500 series



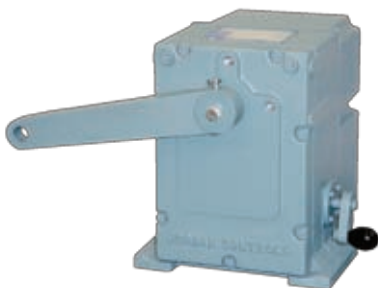
- Thrusts from 800 to 1,600 lbf. (3,558 to 7,117 N).
- Stroke distance from 6" to 24" (152 to 610 mm).
- Modulating Duty: 2,000 starts per hour (indoor/outdoor).
- Manual override standard.
- HART available.
- Automatic thrust limiting.
- Anti-condensation heater and thermostat.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single and three-phase).
- Temperature range from -40 to 150 °F (-40 to 65 °C).



Heavy Duty Rotary Actuators

SM-1700 - Rotary

1700 series



- Torques from 50 to 200 ft.lb. (67 to 271 Nm).
- 90 to 120 degrees rotation.
- Modulating Duty: 2,000 starts per hour.
- Manual override standard.
- Automatic torque limiting.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single and three-phase) or DC input power versions.
- Temperature range from -40 to 185 °F (-40 to 85 °C).

SM-6000 - Rotary

6000 series



- Torques from 370 to 26,000 ft.lb. (271 to 35,256 Nm).
- 90 to 313 degrees rotation.
- Double o-ring sealing.
- Continuous unrestricted modulating duty.
- HART, Profibus and Foundation Fieldbus available.
- Manual override standard.
- Automatic torque limiting.
- Self-locking drive system to hold in last position and prevent backdriving.
- AC input power (single and three-phase).
- Temperature range from -40 to 185 °F (-40 to 85 °C).

SM-5000 - Rotary

5000 series






- Torques from 150 to 12,500 ft.lb. (203 to 16,950 Nm).
- 33 to 90 degrees rotation.
- Modulating Duty: 2,000 starts per hour.
- Manual override standard.
- Automatic torque limiting.
- Self-locking drive system to hold in last position and prevent backdriving up to thrust rating.
- AC input power (single and three-phase).
- Temperature range from -40 to 185 °F (-40 to 85 °C).



Performance Data – Control Valve Actuators





Linear

	Model	Single Phase Voltage	Motor type	DC	Enclosure Certification	Max Thrust lbs (N)	Speed in/sec (mm/sec) at Max. Thrust	Min Thrust lbs (N)	Speed in/sec (mm/sec) at Min. Thrust	Stroke length in (mm)	Manual Override	Operating Temp.	Weight lbs (kg)
	CVL 500	110/240	Brushless DC	Y	IP68	500 (2224)	0.25 (6.35)	200 (890)	0.25 (6.35)	1.5 (38.1)	Option	-22 °F to 158 °F -30 °C to 70 °C	31 (14)
	CVL 1000	110/240	Brushless DC	Y	IP68	1000 (4448)	0.1 (2.54)	400 (1780)	0.1 (2.54)	2 (50.8)	Option	-22 °F to 158 °F -30 °C to 70 °C	44 (20)
	CVL 1500	110/240	Brushless DC	Y	IP68	1500 (6672)	0.1 (2.54)	600 (2669)	0.1 (2.54)	2 (50.8)	Option	-22 °F to 158 °F -30 °C to 70 °C	44 (20)
	MV-1010	120/240	Stepper	Y	IP65; CSA ATEX; FM	100 (445)	0.05 (1.27)	25 (111)	0.25 (6.35)	1.375 (35)	Yes	-40 °F to 150 °F -40 °C to 65 °C	12 (5.44)
	MV-1020	120/240	Stepper	Y	IP65; CSA ATEX; FM	200 (890)	0.13 (3.3)	100 (445)	0.25 (6.35)	1.375 (35)	Yes	-40 °F to 150 °F -40 °C to 65 °C	16 (7.25)
	GPSA™	120/240	Stepper	Y	IP65; ATEX* FM*	200 (890)	0.13 (3.3)	100 (445)	0.25 (6.35)	1.375 (35)	Yes	-4 °F to 150 °F -20 °C to 65 °C	16 (7.25)
	VA-1020	120/240	Stepper	Y	IP65; CSA ATEX; FM	900 (4003)	0.014 (0.35)	220 (978)	0.034 (0.86)	1.5 (38.1)	Yes	-40 °F to 150 °F -40 °C to 65 °C	24 (10.8)
	MV-1500	120/240	Single-phase or DC	Special	IP65; CSA	3000 (13345)	0.03 (0.76)	300 (1334)	0.09 (2.2)	4 (102)	Option	-40 °F to 150 °F -40 °C to 65 °C	40 (18.1)

* = Pending

CSA - Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F & G; CSA Enclosure 4.
FM - Class I, Division 1, Groups C & D; Class II/III, Division 1, Groups E, F & G; NEMA Type 4.
ATEX - Testing and certification varies for RPC products, Apply to RPC for specific actuator information.


Rotary

	Model	Single Phase Voltage	Motor type	DC	Enclosure Certification	Max Torque in lb (Nm)	Speed at Max. Torque	Min Torque in lb (Nm)	Speed at Min. Torque	Total turns available	Manual Override	Operating Temp.	Weight lbs (kg)
	CVQ 1200	110/240	Brushless DC	Y	IP68	1200 (135.5)	15 secs for quarter-turn	480 (54.2)	15 sec for quarter-turn	90°	Option	-22 °F to 158 °F -30 °C to 70 °C	31 (14)
	CVQ 2400	110/240	Brushless DC	Y	IP68	2400 (271)	20 secs for quarter-turn	960 (108.4)	20 sec for quarter-turn	90°	Option	-22 °F to 158 °F -30 °C to 70 °C	44 (20)
	GPSA™	120/240	Stepper	Y	IP65 ATEX (Pending) FM (Pending)	350 in.lbs. (40 Nm)	0.7 RPM	85 in. lbs. (10 Nm)	3.15 RPM	10° to 20 turns	Yes	-4 to +150 °F (-20 to +65 °C)	16 (7.25)
	SM-1100	120/240	Single phase	Y	IP65; CSA	100 (445)	1.2 RPM	3.5 (0.4)	40 RPM	40° to 60 turns	No	-40 °F to 150 °F -40 °C to 65 °C	14 (6.35)
	SM-1015	120/240	Stepper	Y	IP65; CSA ATEX; FM	45 (5)	1 RPM	15 (1.69)	12.5 RPM	10° to 20 turns	Yes	-40 °F to 150 °F -40 °C to 65 °C	12 (5.44)
	SM-1020	120/240	Stepper (w/gearbox)	Y	IP65; CSA ATEX; FM	350 (40)	0.7 RPM	20 (2.25)	10 RPM	10° to 20 turns	Yes	-4 °F to 150 °F -20 °C to 65 °C	16 (7.25)
	SM-1500	120/240	Single-phase & DC brushed	Y	IP65; CSA	400 (45)	15 RPM	40 (4.5)	73 RPM	72° to 324 turns	Option	-40 °F to 150 °F -40 °C to 65 °C	20 (9.07)
	SM-1600	120/240	Single-phase & DC brushed	Y	IP65; CSA	1000 (113)	2.5 RPM	500 (56.5)	5 RPM	72° to 324 turns	Option	-40 °F to 150 °F -40 °C to 65 °C	22 (9.97)

CSA - Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F & G; CSA Enclosure 4.
FM - Class I, Division 1, Groups C & D; Class II/III, Division 1, Groups E, F & G; NEMA Type 4.
ATEX - Testing and certification varies for RPC products, Apply to RPC for specific actuator information.




Performance Data – Heavy Duty Actuators

Linear

	Model	Enclosure Certification	Max. Thrust lbs (N)	Speed in/sec (mm/sec)	Min. Thrust lbs (N)	Speed in/sec (mm/sec)	Max. Stroke in (mm)	Manual Override	Weight lbs (kg)
	LA-2410 LA-2415 LA-2450	IP65 CSA	800 (3558)	0.2 (5)	200 (890)	0.7 (17.8)	24 (610)	Yes	40 (18.1)
	LA-2420 LA-2490	IP65 CSA	1500 (6672)	0.2 (5)	450 (2002)	0.7 (17.8)	24 (610)	Yes	40 (18.1)
	LA-2500	IP65 CSA	1600 (7117)	0.9 (22.8)	800 (3558)	0.9 (22.8)	24 (610)	Yes	105 (47.6)

CSA - Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F & G; CSA Enclosure 4

Rotary

	Model	Enclosure Certification	Max. Torque ft lbs (Nm)	Seconds for quarter-turn at Max. Torque	Min. Torque ft lbs (Nm)	Seconds for quarter-turn at Min. Torque	Max. Rotation Degrees	Manual Override	Weight lbs (kg)
	SM-1700	IP65 CSA	200 (271)	60	50 (67)	12	120	Yes	40 (18)
	SM-5100	IP65 CSA	300 (406)	29	150 (203)	16	90	Yes	80 (36)
	SM-5200	IP65	1000 (1355)	28	600 (813)	28	90	Yes	210 (95)
	SM-5300	IP65	3200 (4338)	47	1600 (2169)	23	90	Yes	350 (158)
	SM-5400	IP65	12500 (16950)	70	5000 (6779)	40	90	Yes	565 (256)
	SM-6000	IP65	370 (501)	10	NA	NA	120	Yes	186 (84)
		IP65	550 (745)	10	NA	NA	120	Yes	186 (84)
		IP65	800 (1084)	10	NA	NA	120	Yes	204 (92)
		IP65	1400 (1898)	10	NA	NA	120	Yes	254 (115)
		IP65	2500 (3390)	10	NA	NA	120	Yes	403 (182)
		IP65	4400 (5965)	10	NA	NA	120	Yes	613 (278)
		IP65	6200 (8406)	10	NA	NA	120	Yes	956 (433)
		IP65	8000 (10846)	12	NA	NA	120	Yes	1589 (720)
		IP65	11000 (14914)	18	NA	NA	120	Yes	1589 (720)
		IP65	16500 (22371)	26	NA	NA	120	Yes	2196 (996)
		IP65	26000 (35251)	42	NA	NA	120	Yes	3453 (1566)

CSA - Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F & G; CSA Enclosure 4

Rotork Site Services

Rotork Site Services division, bringing together project, service and retrofit activities, is active in 47 service centres in over 20 countries, with agents providing support services in a further 55 countries. The total number of expert technicians supporting Rotork customers is well over 1,000.

The division provides services in maintenance, management and the upgrading of installed actuation assets in order to fully support and satisfy the increasing demands for these activities from customers throughout the world. The services are tailored to meet customers' specific needs, encompassing the following:

Emergency and Planned Service

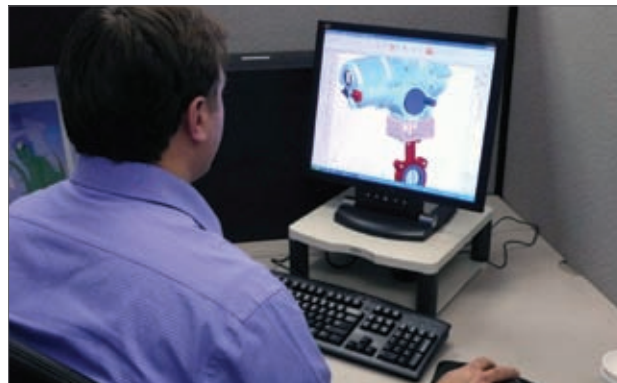
Available for all types of actuator, in all areas (including hazardous environments). Some customers require guaranteed emergency response times, others require planned response for all types of actuator work, including installation, commissioning, upgrading, connection and installation of bus communication systems, troubleshooting and repair of damaged or deteriorating assets.

Actuator Overhauls

After a long service life customers may prefer their actuators to be completely overhauled rather than replacing them with new ones. In our workshops we completely strip and rebuild actuators, returning them to their original state.

Health Checks

Some customers lack detailed information on their assets, making it difficult to prioritise maintenance and replacement investment. We can carry out a detailed and intrusive inspection of the actuators and combine this with build data from our own databases to give customers a holistic view of their assets.



Retrofitting actuators to existing valves

We have extensive experience in fitting actuators to valves, penstocks and dampers that are already installed as part of existing plant. Whether customers are replacing obsolete actuators, changing power sources or motorising manual valves, we offer a tailor made solution to meet customers' specific requirements.



Shutdown Outages

We can support customers in making sure that all their actuators are fully operational and that they meet tight shutdown deadlines. For example some power stations look for us to remove and overhaul in our workshops over 200 actuators when taking a unit out for maintenance. We do this, reinstall and commission the actuators and, where requested, carry out additional actuation projects simultaneously to ensure that customers make the most of their plant shutdown time.

Preventative Maintenance

We provide preventative maintenance to enhance the integrity of actuators and their associated valves. We tailor programmes depending upon the type of actuators, the availability of asset information, and the criticality of the plant to maximise up-time whilst minimising operating costs.

Factory fitting of actuators to new valves

The careful assembly of valve and actuator is critical to ensure that an automated valve performs correctly and reliably. Whilst this service is often carried out by valve manufacturers, if there is a need we can provide this service.

Extended scope projects

This is a growing requirement and some of our service teams have the wide range of skills necessary to offer a "one-stop-shop" to automate part or all of a customer's process. Our capabilities cover all of the installation phases (scoping, design, procurement, manufacturing, installation, commissioning) on the broad scopes that typically surround actuation projects.





Controls

Electric Actuators and Control Systems

Fluid Systems

Fluid Power Actuators and Control Systems

Gears

Gearboxes and Gear Operators

Site Services

Projects, Services and Retrofit

Latest product information and a full listing of our worldwide sales and service network is available on our website.

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