



rotork®

Keeping the World Flowing
for Future Generations

Water Industry Application Guide

Safe, reliable and efficient flow control



Q
Perform

rotorq

H
STOP
LBS

rotorq

Intelligent Flow Control for the Water Industry

In the water and wastewater industry, Rotork products control thousands of valves across potable water treatment, desalination, filtration, and distribution networks. We also support level control in dams, reservoirs, and irrigation systems - helping to manage water resources with precision and reliability. Rotork plays a vital role in wastewater treatment, improving effluent processing and ensuring clean, safe discharge from treatment plants.

Our technologies support every stage of wastewater operations, including stormwater overflow protection system, sludge handling and the generation of green energy through aerobic and anaerobic digestion processes.

With a global footprint and decades of experience, Rotork is a trusted partner in delivering intelligent flow control solutions for sustainable water and energy management.

Partnering with us provides the following:

- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all network 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 centres throughout the world

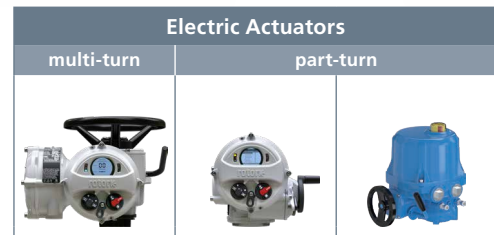
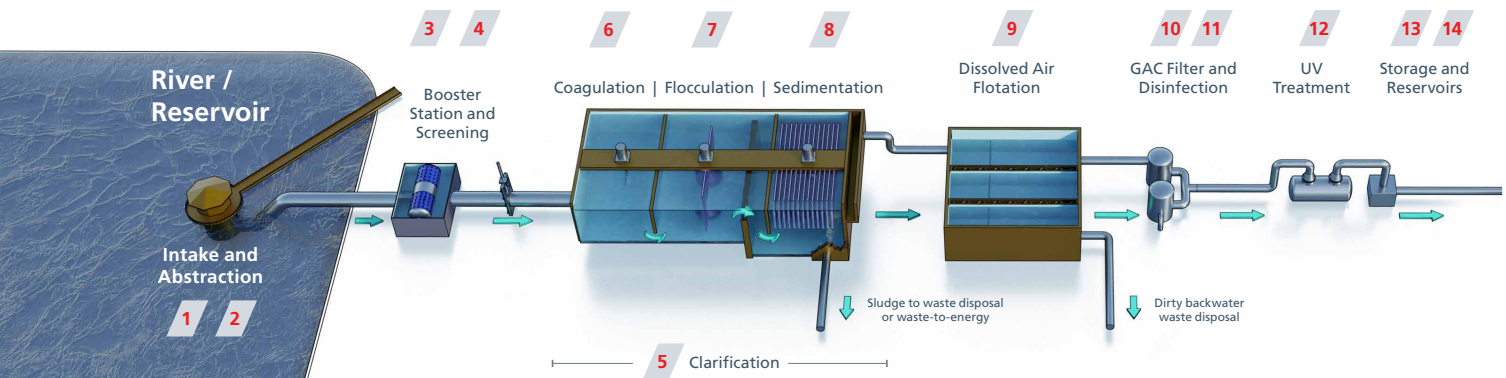
We have over 60 years of experience in valve actuation and control technologies. We combine our expertise and technical know-how with a comprehensive product portfolio to provide tailored actuation solutions – anywhere in the world.

We are committed to continuous product development and innovation. Our focus on quality and our reputation for engineering excellence position us at the forefront of actuation technology, ready to meet the evolving challenges of the future.

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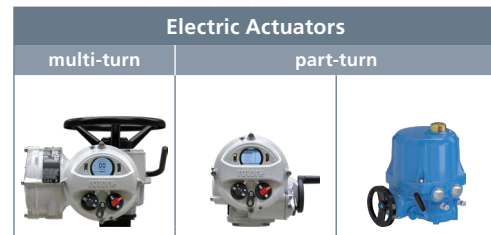
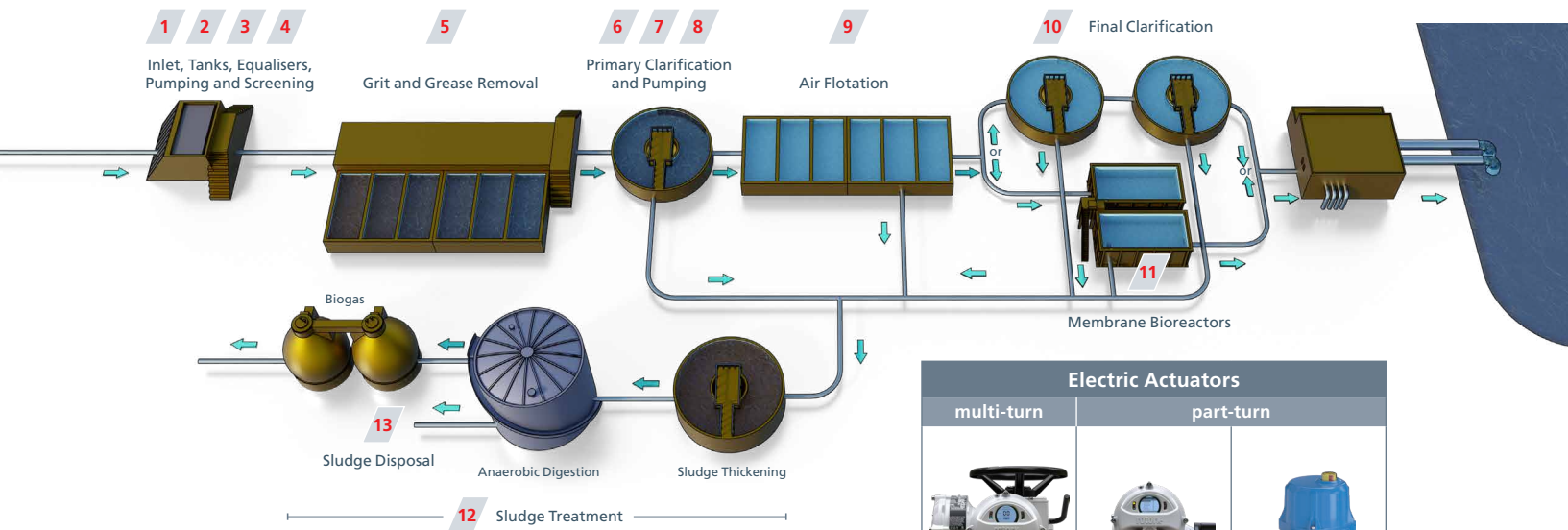
Water Treatment Plants



#	Application	Valve Type	Electric Actuators		
			multi-turn IQ Range	part-turn IQT Range	Noah NA
1	Intake – Pump House Intake	Sluice Gate	✓		
1	Intake – Pump House Intake	Penstock	✓		
1	Intake – Pump House Intake	Sluice	✓		
2	Abstraction – River/Reservoir/Underground Aquifer Intake	Gate	✓		
2	Abstraction – River/Reservoir/Underground Aquifer Intake	Penstock	✓		
2	Abstraction – River/Reservoir/Underground Aquifer Intake	Butterfly	✓		
3	Booster Station – Isolation	Gate	✓		
3	Booster Station – Isolation	Butterfly	✓	✓	✓
3	Booster Station – Flow and Pressure Regulation	Needle	✓ ¹		✓
3	Booster Station – Flow and Pressure Regulation	Plug	✓ ¹		✓
4	Screening – Isolation	Penstock	✓		
5	Clarification – Isolation and Sludge Disposal	Gate	✓		
6	Coagulation – Flash Mixer Inlet, Outlet and Bypass	Gate	✓		
7	Flocculation – Inlet, Outlet and Sludge Water	Sluice	✓		
8	Sedimentation – Filter Water Inlet and Outlet Isolation	Gate	✓		
8	Sedimentation – Filter Water Outlet Isolation and Rinse Diversion	Butterfly	✓ ¹	✓ ²	✓
8	Sedimentation – Washwater Inlet and Outlet Isolation	Butterfly	✓	✓	✓
8	Sedimentation – Air Scour Inlet	Butterfly		✓	✓
8	Sedimentation – Air Vent	Butterfly		✓	✓
9	Dissolved Air Flotation – Inlet Isolation	Penstock	✓		
9	Dissolved Air Flotation – Outlet Isolation - with Fail Close Function	Butterfly / KGV	✓	✓ ³	✓
9	Dissolved Air Flotation – Air Flow Control	Butterfly	✓		
10	GAC* Filter – Filter Water Inlet and Outlet Isolation	Gate	✓		
10	GAC* Filter – Filter Water Outlet Isolation and Rinse Diversion	Butterfly	✓ ¹	✓ ²	✓
10	GAC* Filter – Washwater Inlet and Outlet Isolation	Butterfly	✓	✓	✓
10	GAC* Filter – Air Scour Inlet	Butterfly		✓	✓
11	Disinfection – Isolation Duty	Penstock	✓		
12	UV Treatment – Outlet Isolation (Fail-safe)	Butterfly	✓	✓ ³	
12	UV Treatment – Inlet Isolation	Butterfly	✓	✓	✓
13	Storage – Isolation	Butterfly	✓	✓	✓
13	Storage (Clear Water Reservoir) – Isolation	Sluice	✓		
13	Storage (Clear Water Reservoir) – Isolation	Butterfly	✓		

1: IQM. 2: IQTM. 3: IQT3 Pro Shutdown Battery. *: Granular Activated Carbon

Wastewater Treatment Plants



#	Application	Valve Type	Electric Actuators		
			multi-turn	part-turn	
			IQ Range	IQT Range	Noah NA
1	Inlet, Storm Tanks and Flow Equalisers – Isolation	Gate / Penstock	✓		
2	Pumping – Pumping Station	KGV	✓		
3	Primary Screening – Isolation	Gate / Penstock	✓		
3	Primary Screening – Skimmers	NA		✓ ⁴	
3	Primary Screening – Grit Classifiers - Washout Valve	Ball		✓	✓
3	Primary Screening – Screening	Screen		✓	✓
4	Secondary Screening – Isolation	Gate / Penstock	✓		
4	Secondary Screening – Screening	Screen		✓	✓
5	Grit and Grease Removal Mechanism – Isolation	Gate / Penstock	✓		
5	Grit and Grease Removal Mechanism – Isolation	Butterfly / Sluice	✓	✓	✓
6	Primary Clarification – Inlet and Outlet Isolation	Gate	✓		
6	Primary Clarification – Scum Skimming	Custom Multi-Stop		✓ ⁴	
7	Influent Pump Station – High Pressure Valves	Butterfly / Ball	✓	✓	✓
8	Pumping Station – Isolation	Gate	✓		
9	Air Flotation Units – Inlet Isolation	Penstock	✓		
9	Air Flotation Units – Outlet Isolation - with Fail Close Function	Butterfly	✓	✓	✓
9	Air Flotation Units – Air Flow Control	Butterfly	✓ ²	✓ ³	✓
10	Final Clarification – Inlet and Outlet Isolation	Gate	✓		
11	Membrane Bioreactors ¹ – Inlet Isolation	Gate	✓		
11	Membrane Bioreactors ¹ – Pump Discharge Control	Plug	✓ ²	✓ ³	✓
11	Membrane Bioreactors ¹ – Outlet Flow Control	Butterfly / KGV	✓ ²	✓ ³	✓
11	Membrane Bioreactors ¹ – Airflow Control	Globe			
11	Membrane Bioreactors ¹ – Backwash Inlet and Outlet	Butterfly / KGV	✓	✓	✓
12	Sludge Treatment ⁷ – Influent and Effluent Flow Control	Gate	✓ ²		
12	Sludge Treatment ⁷ – Chemical Dosing for pH Control	Globe			
12	Sludge Treatment ⁷ – Gas Flow Control	Butterfly		✓ ³	✓
12	Sludge Treatment ⁷ – Sludge Flow Control	Pinch			
13	Sludge Disposal – Final Sludge Dispose	KGV			
13	Sludge Disposal – Final Sludge Dispose	Diverter Gate		✓	✓
13	Sludge Disposal – Final Sludge Dispose	Slide Gate			

1: Membrane Bioreactors, or RO Block, or Sequencing Batch Reactors (SBR). 2: IQM. 3: IQTM. 4: IQT3F Pro Multi-port. 5: IQ3ML Pro. 6: IQT3FL Pro. 7: Sludge Thickening, Anaerobic Digestion and Biogas processes









Wastewater Knowledge

Our expertise in wastewater treatment enables us to help you design and upgrade plants to meet the highest environmental standards. Our intelligent flow control solutions integrate with safety systems to minimise pollution and prevent accidental spillages.

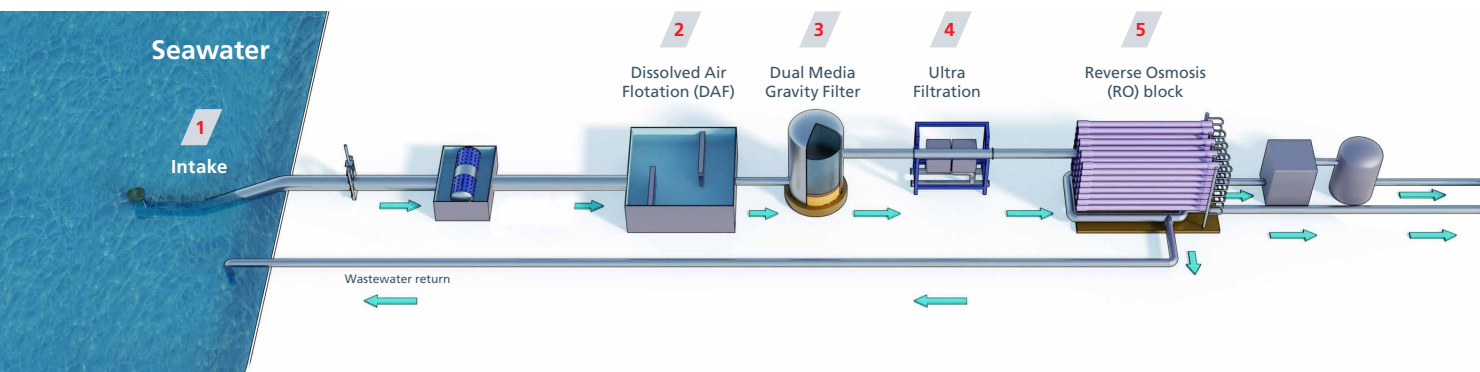
Flow Control Solutions




Our product range includes electric and pneumatic actuators in part-turn, multi-turn, and linear configurations, with torque output options for diverse applications. The multi-turn IQ can also be combined with a gearbox for high-torque part-turn output.

Rotork provides valve control solutions for any application, offering torque, certification, failsafe, diagnostic, feedback and control options. We will work with you to select the ideal solutions for your plant.

Electric Actuators		Gearboxes		Pneumatic Actuators			
linear		part-turn		rack and pinion		scotch yoke	
							
IQ Linear Range	Noah NL	IW	MOW	GTE	GT	RC200	GP/CP
				✓	✓	✓	✓
				✓	✓	✓	✓
				✓	✓	✓	✓
				✓	✓	✓	✓
		✓		✓	✓	✓	✓
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Desalination Plants



		Electric Actuators			
		multi-turn	part-turn		
					
#	Application	Valve Type	IQ Range	IQT Range	Noah NA
1	Intake	Butterfly	✓		
1	Intake	Penstock	✓		
2	Dissolved Air Flotation – Inlet Isolation	Penstock	✓		
2	Dissolved Air Flotation – Outlet Isolation - with Fail Close function	Butterfly	✓		
2	Dissolved Air Flotation – Air Flow Control	Butterfly	✓		
3	Dual Media Gravity Filter – Filter Water Inlet Isolation	Gate / Penstock	✓		
3	Dual Media Gravity Filter – Filter Water Outlet Isolation	Gate	✓		
3	Dual Media Gravity Filter – Filter Water Outlet Isolation	Butterfly	✓ ¹	✓ ²	✓
3	Dual Media Gravity Filter – Washwater Inlet Isolation	Butterfly	✓		
3	Dual Media Gravity Filter – Washwater Outlet Isolation	Butterfly	✓		
3	Dual Media Gravity Filter – Air Scour Inlet	Butterfly		✓	✓
3	Dual Media Gravity Filter – Rinse Diversion	Butterfly	✓ ¹	✓ ²	✓
4	Ultra Filtration – Filter Water Inlet Isolation	Gate	✓		
4	Ultra Filtration – Filter Water Outlet Isolation	Gate	✓		
4	Ultra Filtration – Filter Water Outlet Control	Butterfly	✓ ¹	✓ ²	✓
4	Ultra Filtration – Washwater Inlet Isolation	Butterfly	✓		
4	Ultra Filtration – Washwater Outlet Isolation	Butterfly	✓		
4	Ultra Filtration – Air Scour Inlet	Butterfly		✓	✓
4	Ultra Filtration – Rinse Diversion valve	Butterfly	✓ ¹	✓ ²	✓
5	Reverse Osmosis – Inlet Isolation	Gate / Penstock	✓		
5	Reverse Osmosis – High Pressure Permeate Control	Plug	✓ ¹	✓ ²	✓
5	Reverse Osmosis – Outlet Flow Control	Butterfly	✓ ¹	✓ ²	✓
5	Reverse Osmosis – Brine Circulation	Gate	✓		
5	Reverse Osmosis – Block Isolation	Ball		✓	✓
5	Reverse Osmosis – SWRO Pressure and Flow (Caudal) Control	Globe			

1: IQM. 2: IQTM. 3: IQ3ML Pro. 4: IQT3FL Pro.


Desalination Experts

Rotork has worked with plant designers since the 1960s to develop thermal distillation and reverse osmosis plants that produce fresh potable water from salt water, and these plants are now incorporating renewable energy systems to improve efficiency.

Flow Control Solutions

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Rotork provides valve control solutions for any application, offering torque, certification, failsafe, diagnostic, feedback and control options. We will work with you to select the ideal solutions for your plant.

Electric Actuators		Gearboxes		Pneumatic Actuators				
linear		part-turn		rack and pinion		scotch yoke		linear
								
IQ Linear Range	Noah NL	IW	MOW	GTE	GT	RC200	GP / CP	LP
		✓		✓	✓	✓	✓	
		✓		✓	✓	✓	✓	
		✓		✓	✓	✓	✓	
								✓
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Water Product Portfolio



IQ range electric actuators

IQ multi-turn and IQT part-turn intelligent actuators.

IQ torque output range 14 to 3,000 Nm (10 to 2,200 lbf.ft) or higher with additional gearbox.

IQT torque output range 50 to 3,000 Nm (37 to 2,200 lbf.ft)



IQM and IQTM modulating electric actuators

Suitable for up to 1,200 (IQM) or 1,800 (IQTM) starts per hour (Class C).

Torque output range: IQM - 11 to 544 Nm (8 to 400 lbf.ft) or higher with additional gearbox. IQTM - 50 to 3,000 Nm (37 to 2,2174 lbf.ft).



IQML and IQTFL linear electric actuators

IQML has a linear output drive providing seating thrust output of up to 43 kN (9,667 lbf)

IQTFL are optimised for direct drive linear applications. Thrust range 7.5 to 75.8 kN (1,693 to 17,036 lbf)



IQT3F Pro Multi-port part-turn electric actuators

Part of the advanced IQ Pro range, the IQTF Pro 'multiport' actuators utilise data from Rotork's patented high-resolution absolute encoder to deliver highly accurate bi-directional rotary Multiport Selector Valve (MSV) control.



IQT3 Pro Shutdown Battery part-turn electric actuators

Part of the advanced IQ3 Pro range, the IQT3 Pro with shutdown battery provides fail-to-position functionality in the event of a mains power loss. The shutdown failure mode can change depending on customer requirements.



Noah NA range electric actuators

Compact, modular part-turn electric actuators suitable for industrial valve control. Designed for reliability and safety, they are waterproof to IP67 (IP68 optional).

Torque output up to 3,500 Nm (2,581 lbf.ft)



Noah NL range linear electric actuators

Compact, modular electric actuators with linear output drives engineered for industrial applications requiring precision, reliability, and safety. Waterproof to IP67 (IP68 optional).

Thrust output of up to 35 kN (7,868 lbf)



IW part-turn motorised gearboxes

High torque part-turn worm gearboxes suited for ball, plug and butterfly valves in isolating duty applications. Low lead angle gearing to be inherently self-locking.

Torque range up to 850,000 Nm (626,927 lbf.ft)



MOW part-turn motorised gearboxes

Heavy-duty part-turn modulating worm gearboxes suited for control valves.

Torque range up to 46,775 Nm (34,499 lbf.ft)



GT range rack and pinion pneumatic actuators

Compact rack and pinion actuators in double-acting and spring-return configurations, with wide variety of options to meet application specific requirements.

Torque output to 15,300 Nm (11,285 lbf.ft)



GTE range rack and pinion pneumatic actuators

Cost-efficient rack and pinion actuators in double-acting and spring-return configurations, optimised for applications requiring 90-degree drive rotation.

Torque output to 6,300 Nm (4,647 lbf.ft)



RC range scotch yoke pneumatic actuators

Extremely compact scotch yoke (symmetric yoke) actuators in double-acting and spring-return configurations for fail close/fail open applications. For on/off and modulating duties.

Torque output to 4,400 Nm (3,245 lbf.ft)



CP range scotch yoke pneumatic actuators

Compact heavy duty scotch yoke (symmetric yoke) actuators in double-acting and spring-return configurations for fail close/fail open applications. For on/off and modulating duties.

Torque output to 4,500 Nm (3,319 lbf.ft)



GP range scotch yoke pneumatic actuators

Heavy duty scotch yoke (symmetric and canted) actuators in double-acting and spring-return configurations for fail close/fail open applications. For on/off and modulating duties.

Torque output to 600,000 Nm (442,537 lbf.ft)



Precision valve control instrumentation

Specialist products for control and measurement of flow and pressure including valve positioners, limit switch boxes and solenoid valves.

Trusted wherever there is a need for high precision and reliability.

Network Control

Fieldbus Compatibility

Rotork valve actuators are compatible with most industry standard fieldbus systems as well as Rotork's own *Pakscan* system, providing full integration with your existing plant control systems.

Compatibility for electric actuators is via network cards that are fitted in the main electronics enclosure. Option cards for EtherNet/IP, Modbus TCP and PROFINET are also available with integrated webserver.

Our pneumatic and hydraulic actuators, and electric actuators without option cards, can also be connected to network control systems via a General Purpose Field Control Unit (GPFUCU) which provides basic network control and feedback. These can be housed in weatherproof enclosures.

Rotork Master Station Network Capabilities

The Rotork *Master Station* provides a state-of-the-art control interface for *Pakscan* and Modbus loops. The *Master Station* features redundant host Ethernet Modbus TCP connection as standard with optional redundant Host serial Modbus RTU connection available.

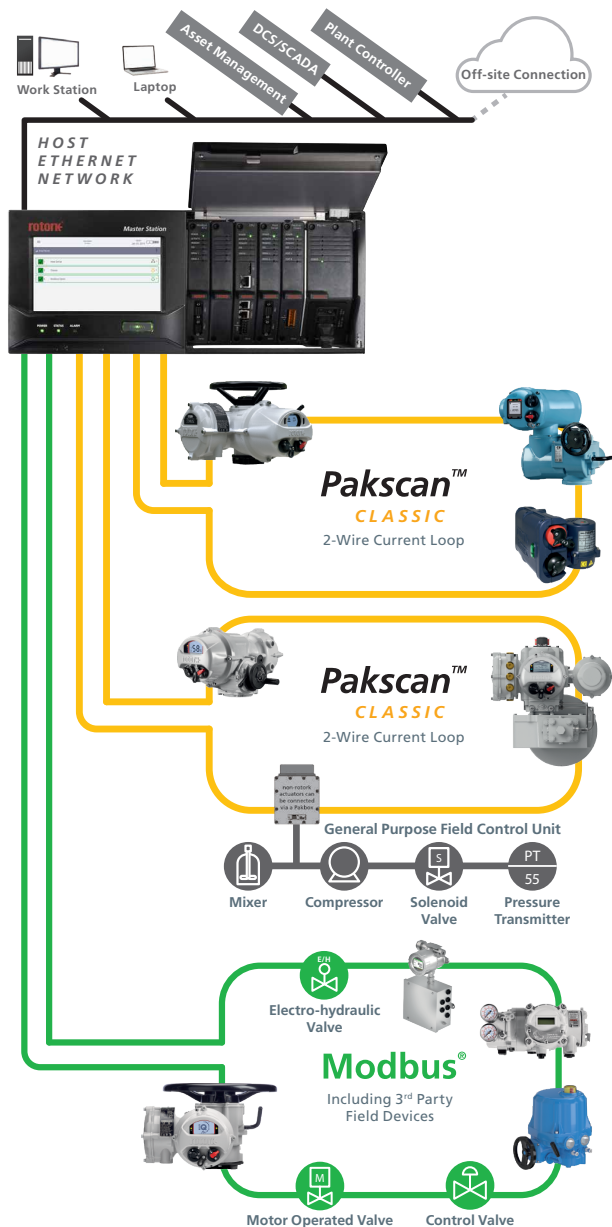
At the heart of the *Pakscan* system is the Rotork *Master Station*, providing the vital link between the control system and the devices in the field. The field devices are connected to the Rotork *Master Station* using *Pakscan* networks which have been designed for use in industries and applications where robust and reliable plant control and monitoring is required.

■ Pakscan Classic field network Add In Module (AIM)

The *Pakscan* Classic redundant loop network has been the network of choice for actuator control for over 30 years. Using robust current loop technology, up to 20 km loop lengths, two independent loops and 240 field devices are possible.

■ Modbus field network Add In Module (AIM)

Modbus field network with standard highway or redundant loop topology options. Other manufacturers' devices are integrated into the network by use of a Rotork field device description file.





Rotork Service

Delivering Local Service Globally

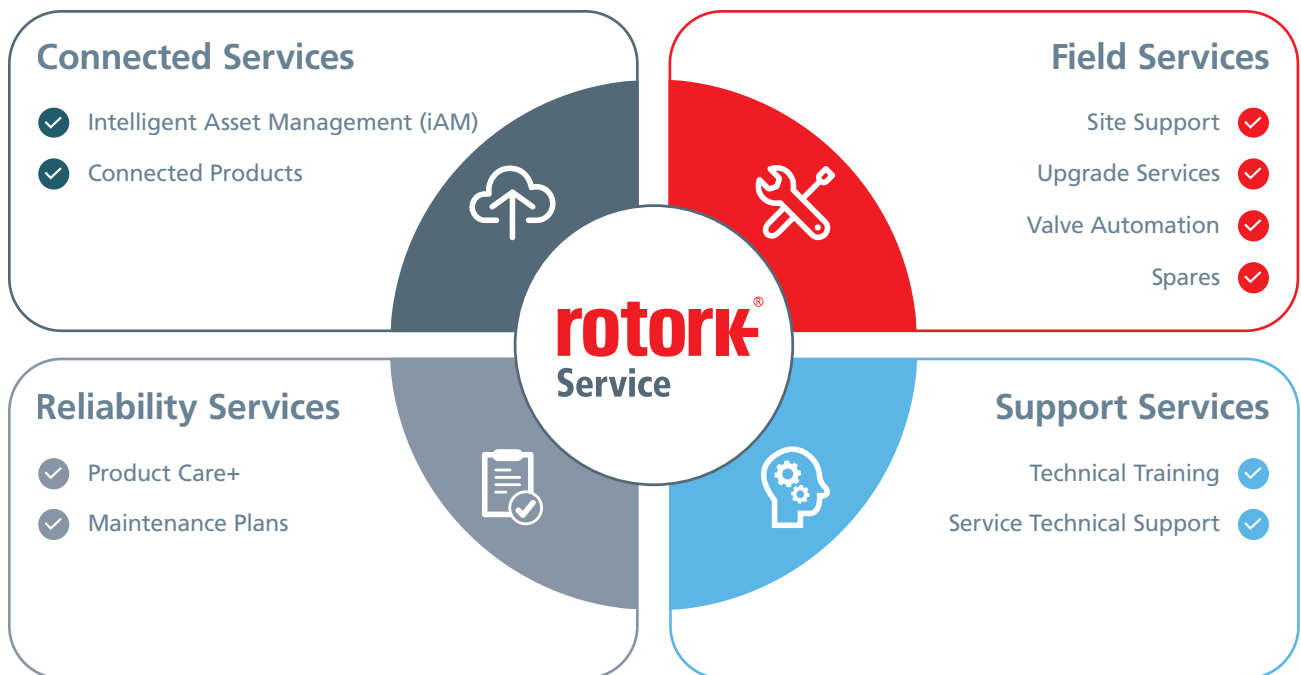
We offer specialist expertise to support mission-critical flow control and instrumentation solutions across oil and gas, water and power, and chemical, process and industrial markets.

With a global presence and decades of experience, we offer services including installation, commissioning, Reliability Services, Intelligent Asset Management (iAM), product upgrades, spare parts, and overhauls.

Our engineers are highly trained, ensuring consistent, high-quality service worldwide. We operate dedicated workshops for the repair, calibration and testing of our products and only use genuine parts to guarantee top-level performance and reliability.

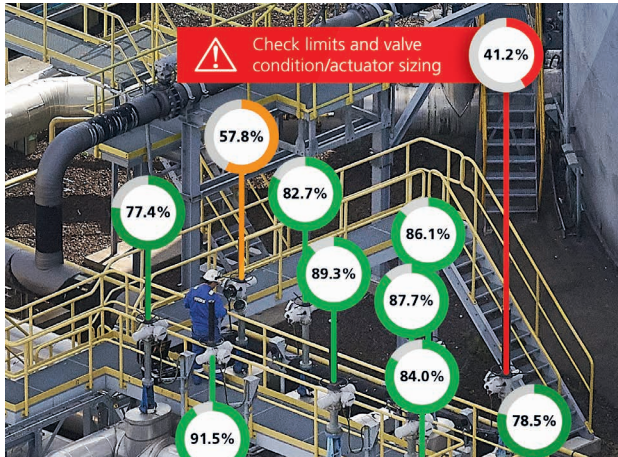
Our service offering covers four key areas:

- › **Connected Services** including Rotork's Intelligent Asset Management (iAM) system
- › **Field Services** including site support, upgrade solutions, valve automation and spares
- › **Reliability Services** including health checks and product maintenance
- › **Support Services** including technical training and support





Rotork Service



Connected Services

Intelligent Asset Management (iAM) is a cloud-based system for intelligent Rotork actuators and the flow control equipment they operate. Effective asset management and maintenance are essential for maintaining site uptime.



Reliability Services

Reliability Services is a customisable approach to maintenance, with options that provide progressively increased levels of coverage and support. Our tailor-made programmes increase reliability and availability and allow customers to have flexibility about what services are most appropriate for them.



Field Services

Site Support

Benefit from our on-site support, from installation to emergency repairs.

Upgrade Solutions

Make sure your assets are prepared for the future with suitable upgrade options.

Valve Automation

Achieve precise and consistent flow control with automation of existing valves and replacement actuator/valve packages.

Spares

Maximise performance and reliability with genuine OEM spare parts.



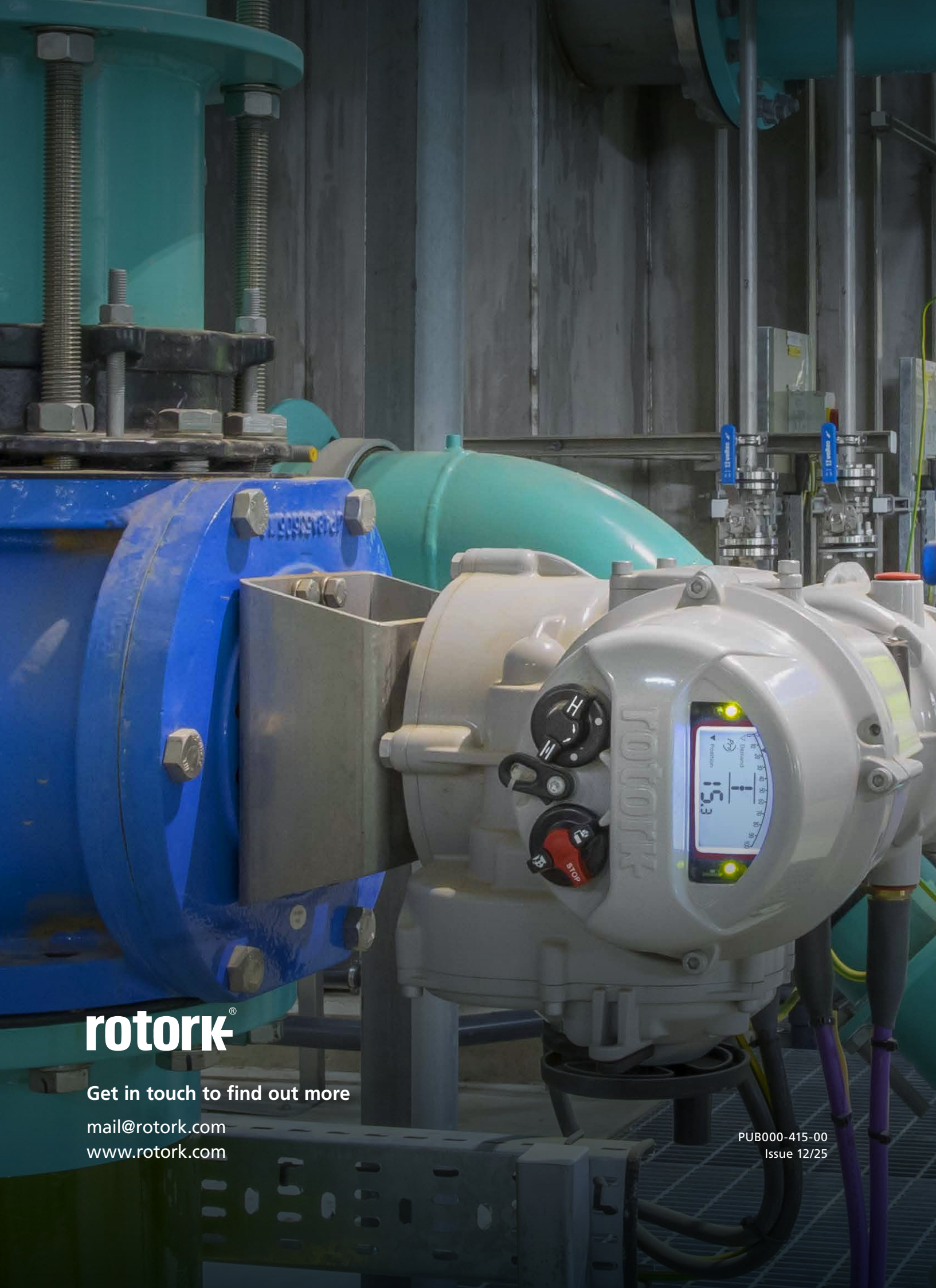
Support Services

Technical Training

Our products and solutions are used in mission-critical applications and it is critical that any workforce is highly trained to ensure a safe and efficient plant. We provide advanced technical training from our strategically located facilities around the world.

Technical Support

We provide expert technical support exactly when you need it – trusted by global industries for over 60 years. Our technical experts draw on decades of our experience to provide you with the right answers and solutions.



rotork[®]

Get in touch to find out more

mail@rotork.com

www.rotork.com

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