



# rotork<sup>®</sup>

Keeping the World Flowing  
for Future Generations

## Mission-critical Flow Control for Data Centres

Reliable cooling and automation solutions



# Leaders in Flow Control Technology and Innovation

Rotork is a global leader in mission-critical flow control and instrumentation solutions, trusted by industries worldwide to keep operations running smoothly.

Our customers depend on us for innovative, high-quality, and dependable solutions for managing the flow of liquids and gases. We help customers improve efficiency, lower emissions, reduce downtime, minimise their environmental impact and assure safety.

We operate through water treatment, HVAC and other industrial applications. This enables us to forge deep partnerships and deliver tailored solutions that address each sector's unique challenges.

## 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.

## Sustainability

Our products and operations are designed to support the global shift to net-zero. We help our customers reduce emissions and operate sustainably by enabling greater efficiency and control.

## Contents

|                                     |    |                        |    |
|-------------------------------------|----|------------------------|----|
| Rotork Group                        | 03 | Primary Applications   | 08 |
| Introduction                        | 05 | Secondary Applications | 16 |
| Rotork Applications in Data Centres | 06 | Rotork Operations      | 18 |



# Delivering Innovation for a Changing World

Data centres are the digital engines of modern life, powering everything from AI to streaming your favourite shows. Their critical infrastructure powers everything from cloud computing and AI to global communications and financial systems.

AI and High-Performance Computing (HPC) are driving the surge in processing power requirements. This presents significant challenges for data centres by increasing energy consumption, the need for greater cooling efficiency, water usage concerns, and the pressure to meet stringent sustainability targets while ensuring uninterrupted uptime and maximising CPU/GPU usage.

We understand the need for a perfect PUE of 1.0, which means every watt goes directly to computing power, with no energy wasted on cooling, lighting, or other infrastructure.

Effectively managing the significant heat generated within data centres is a critical challenge for operators striving for cost-efficient and sustainable cooling solutions that meet climate goals and ensure a good return on investment. Implementing reliable flow control systems is a key strategy for tackling these complex issues and reducing downtime.

To thrive in this rapidly evolving landscape, data centres must embrace innovation at every level of their operations. One often overlooked yet vital area is responsive flow control – the precise management of liquids and gases that support essential systems such as cooling.

Our flow control solutions are engineered to meet the complex demands of modern data centres. Our electric, pneumatic, and hydraulic actuators and advanced control systems ensure reliable and responsive operation across critical infrastructure.

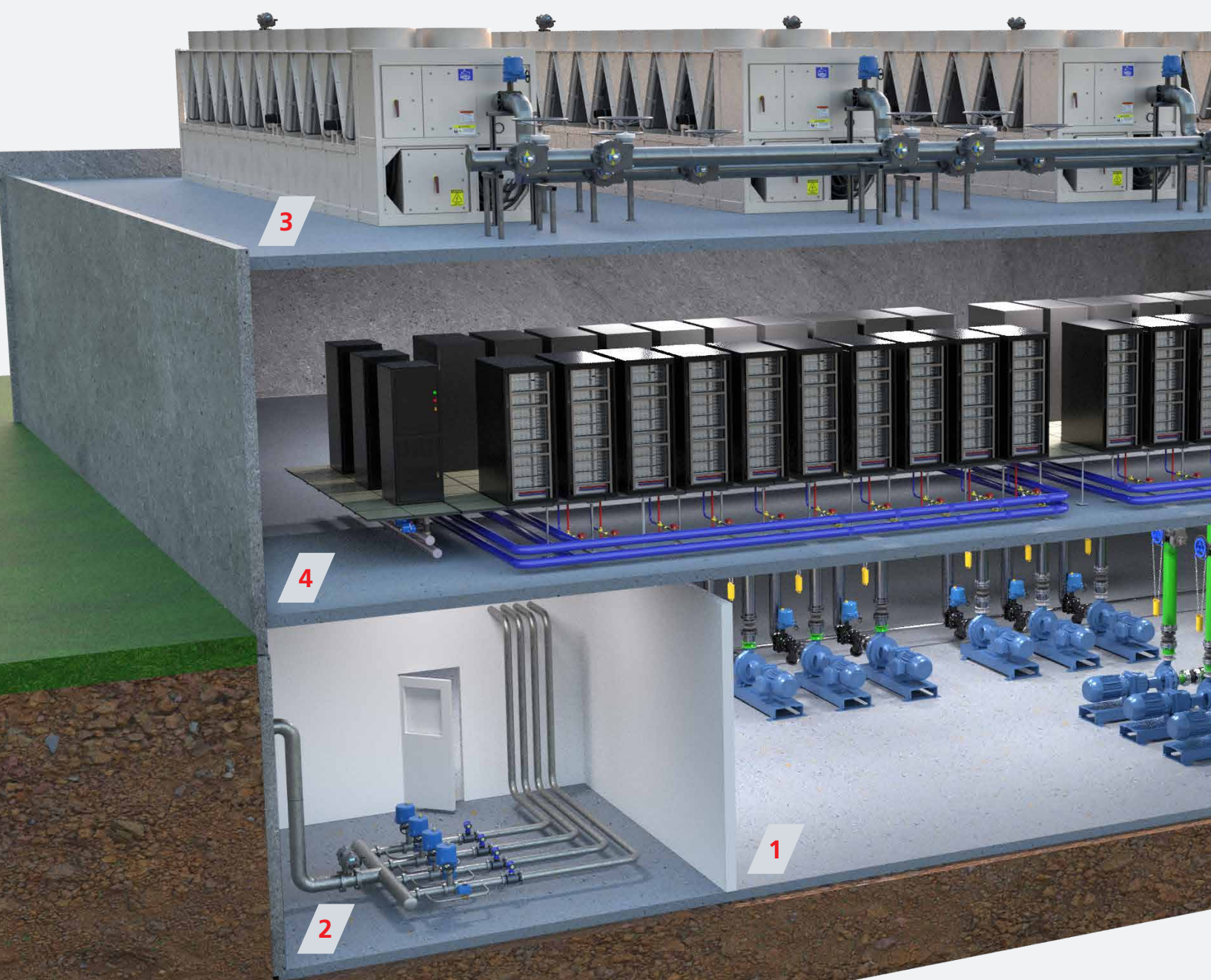
As the digital world evolves, so must the infrastructure that supports it. We are proud to be at the forefront of this transformation, delivering the flow control innovation that keeps data flowing, systems running, and the future moving forward.

**In a changing world, standing still isn't an option.**

## Rotork Applications in Data Centres

# Specialist Flow Control Solutions for Data Centres

Data centre challenges are heating up, quite literally. As demand grows, so does the need for smarter infrastructure. Our flow control solutions operate behind the scenes, ensuring critical cooling systems run efficiently, reliably, and sustainably in the world's most advanced data centres.



## Complete solutions for your applications

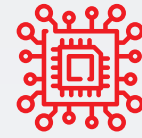
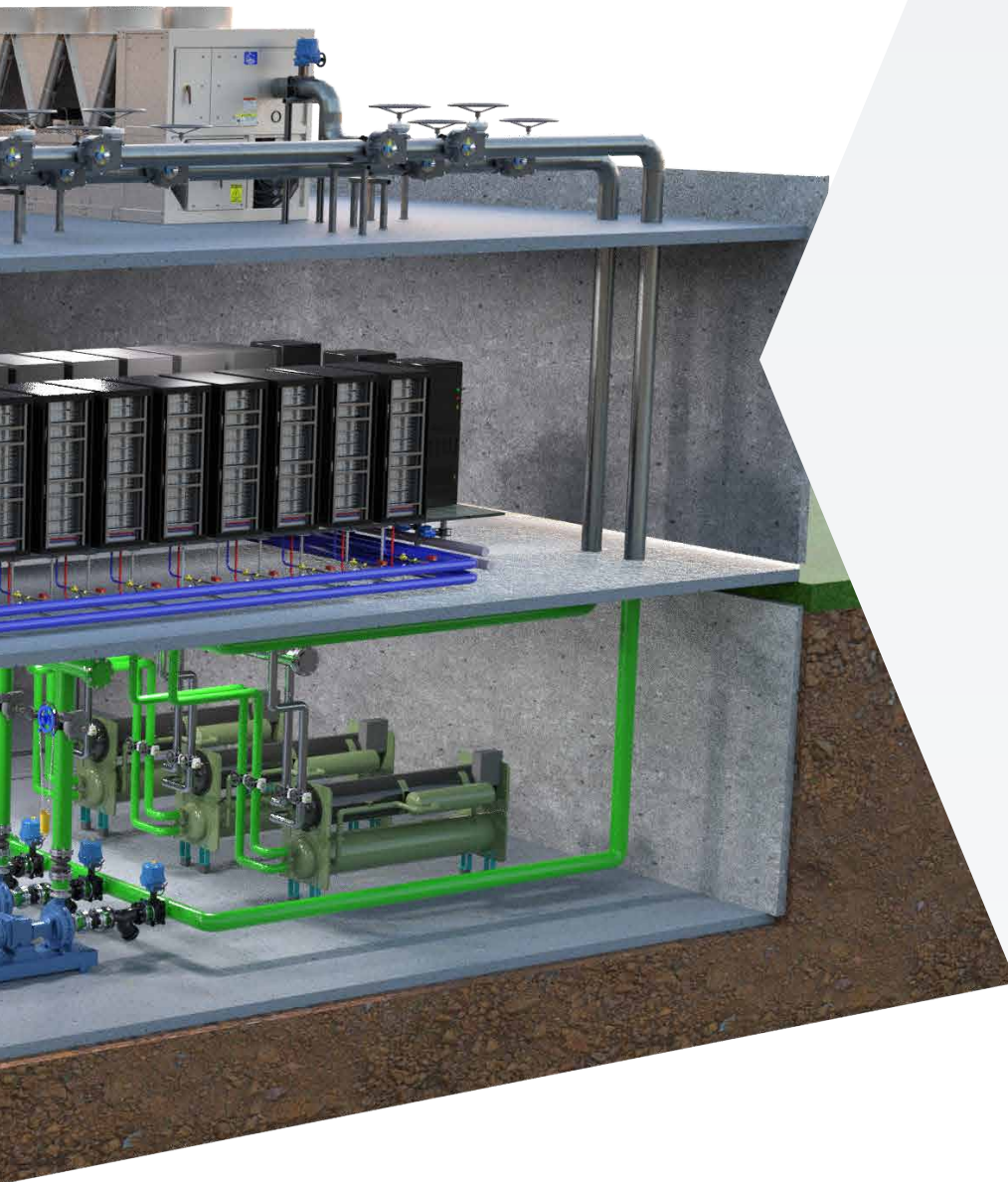
Our automation solutions are designed for use in all grey and white spaces of data centres. We offer a broad range of flow control technologies designed to support the precise management of cooling processes. These solutions help regulate flow throughout the building's liquid cooling infrastructure, contributing to improved energy efficiency and reliable operation of critical infrastructure. We also manage critical bypass circuits, enabling reductions in operational costs whenever environmental conditions are favourable.

### Primary applications

- 1 Plant room flow control
- 2 Water replenishment system
- 3 Air-cooled chillers
- 4 Cooling for server cabinets

### Secondary applications

- Fire safety systems
- Power backup supply



## Efficiency

Enhance cooling performance and reduce energy costs



## Innovation

Compact actuators and sensors for next-gen cooling systems



## Integration

Seamless compatibility with BMS and DCIM systems



## Reliability

Mission-critical flow control for Tier 3 & 4 data centres



## Safety

Intelligent flow control enhances operational safety

## Primary Applications

# Plant Room Flow Control

### Automated Flow Control

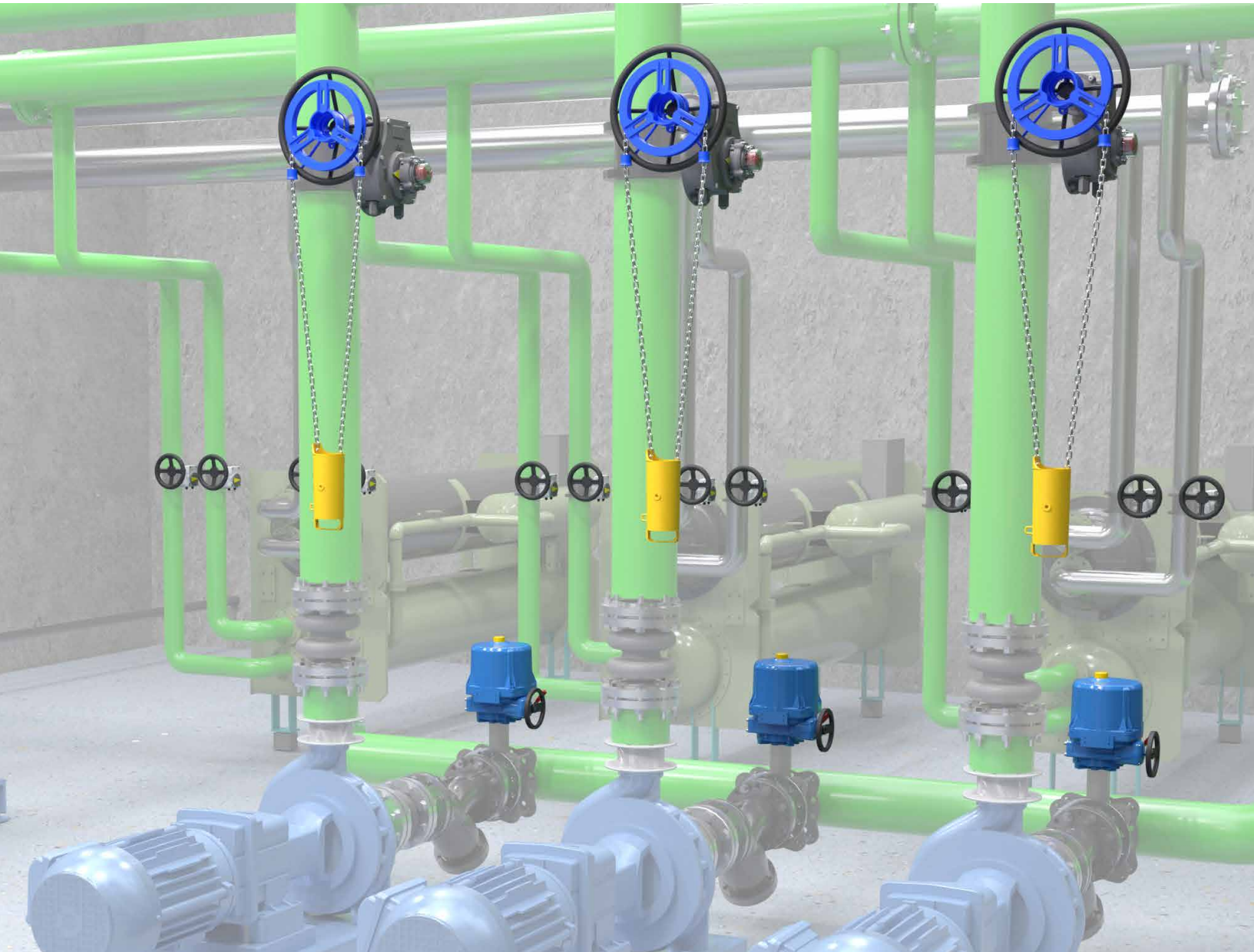
The Chilled Water Return (CHWR) brings warm water from the server room to be cooled, while the Chilled Water Supply (CHWS) sends cooled water back to the servers. Our electric actuators adjust to system demands and ensure efficient cooling, pressure control, and reliable operation.

Centrifugal chillers transfer CHWR heat into a condensed water loop, which is cooled by rooftop chillers. An optional bypass system allows the rooftop chillers to cool the warm water directly. Electric actuators manage this process based on real-time conditions.

### Elevated Chainwheel Gearbox Valve Control

Our chainwheel and gearbox solution for high or hard-to-reach manual valves in chilled and condensed water circuits reduces labour requirements. It is suitable for retrofit and new-build applications, with anti-slip features and a secure lock/tag-out mechanism.

The solution simplifies pipeline design, requiring less space and setup and delivers a safer, more efficient, and HSE-compliant way to operate manual valves.





### **Gearboxes and chainwheels**

Designed to provide reliable performance and safe operating environments, our gearboxes and chainwheels are engineered to provide maintenance-free operation in harsh conditions.



### **Part-turn electric actuators**

The Noah NA part-turn electric actuator delivers a high maximum torque output with a robust compact enclosure that is certified waterproof to IP67 and explosionproof as standard.



### **Limit switch boxes**

Our extensive range of limit switches offer visual indication with a variety of feedback options. All designs are corrosion-resistant and suitable for a wide range of environments in hazardous and safe areas.

## Primary Applications

# Water Replenishment System

The building's main water inlet is controlled by intelligent actuators that precisely control water volume and pressure to meet the varying demands of the data centre.

One area is a water blowdown manifold where our bespoke and efficient designs use electric actuators to manage the separate water circuits. To prevent water hammer, our electric actuators can be slowly opened, or smaller actuator-controlled bypass pipes can be used to allow gradual pressure balancing.

Open circuits with cooling towers require constant water replenishment and treatment to prevent scaling, corrosion, and microbial growth. Closed adiabatic circuits reduce water use but still require water replenishment to remove mineral build-up.





### Intelligent part-turn electric actuators

IQT3 Pro electric actuators deliver high performance and exceptional reliability in demanding environments, offering intelligent control and monitoring for a wide range of valve applications.



### Part-turn electric actuators

The Noah NA part-turn electric actuator delivers a high maximum torque output with a robust compact enclosure that is certified waterproof to IP67 and explosionproof as standard.



### Compact part-turn electric actuators

The Noah SA are highly compact part-turn electric actuators designed to provide reliable valve control in limited space industrial applications and certified watertight to IP67 as standard.



## Primary Applications

# Air-cooled Chillers

Our intelligent, network-controlled actuators significantly reduce the need for manual valve adjustments. However, when manual operation is necessary, our manual gearboxes offer a reliable and cost-effective solution. Engineered for durability, they operate smoothly and effortlessly, even after extended periods of inactivity. These valves are typically used to isolate equipment for maintenance or replacement, ensuring operational flexibility without compromising performance.

Whether using cooling towers, dry/hybrid systems, or adiabatic cooling, all rooftop configurations require valve actuation on the pipelines to maintain system efficiency and reliability.





### Part-turn electric actuators

The Noah NA part-turn electric actuator delivers a high maximum torque output with a robust compact enclosure that is certified waterproof to IP67 and explosionproof as standard.



### Intelligent part-turn electric actuators

IQT3 Pro electric actuators deliver high performance and exceptional reliability in demanding environments, offering intelligent control and monitoring for a wide range of valve applications.



### Gearboxes

Designed to provide reliable performance and safe operating environments, our gearboxes are engineered to provide maintenance-free operation in harsh conditions.



### Limit switch boxes

Our extensive range of limit switches offer visual indication with wide variety of feedback options. All designs are corrosion-resistant and suitable for a wide range of environments in hazardous and safe areas.

## Primary Applications

# Cooling for Server Cabinets

### Individual cabinet cooling and isolation control

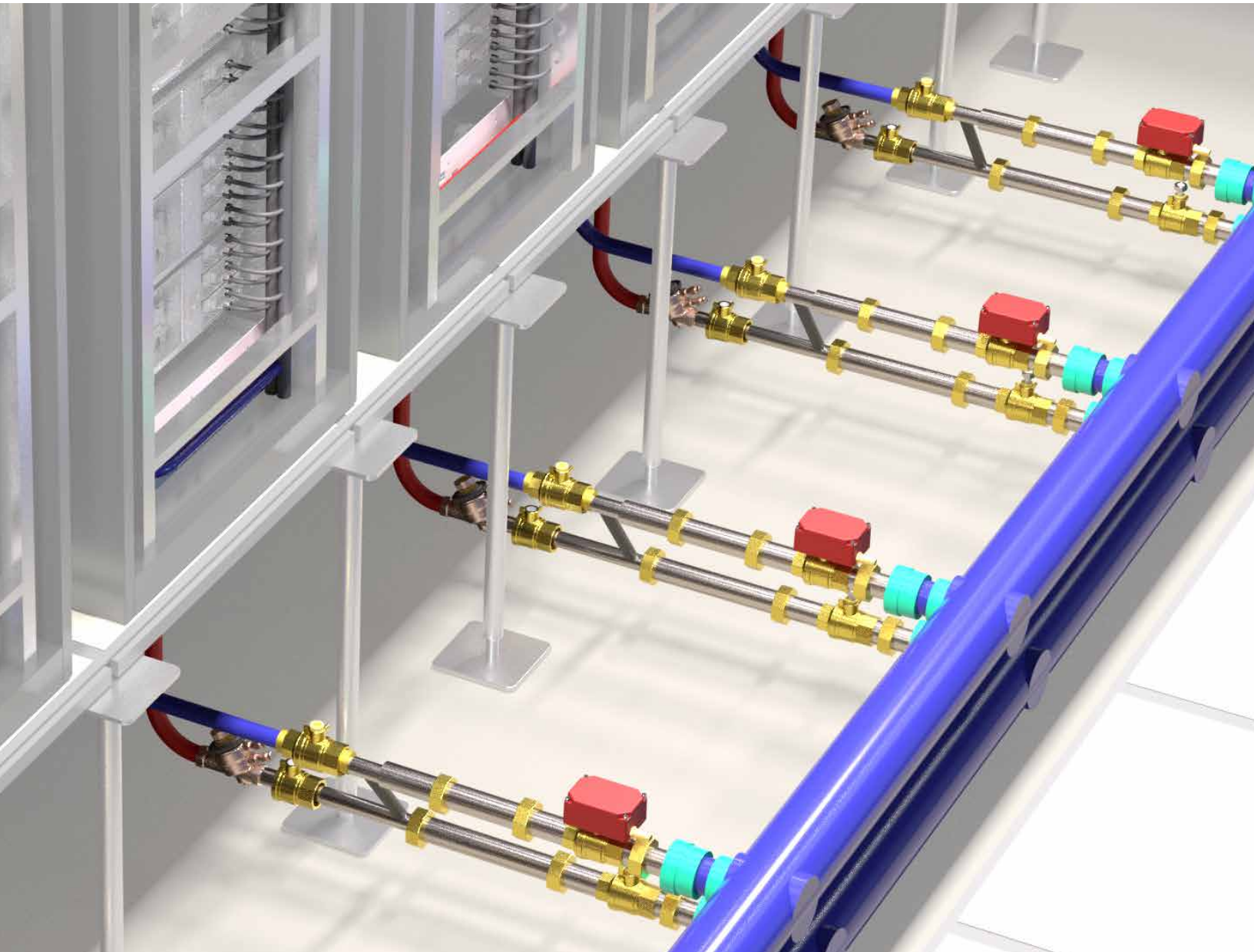
Cooling control for individual cabinets is achieved through compact isolation and regulation valves integrated into the secondary fluid network within the server room. These valves enable precise distribution of coolant to each rack.

Electric actuators, designed for compact installation, ensure accurate coolant temperature control and provide rapid isolation in case of a leak, typically within three seconds. They are ideal for automating underfloor or overhead valve operations in high-performance environments.

### Coolant Distribution Unit (CDU) and zone control

These manage and distribute liquid coolant, ensuring efficient and reliable cooling. Compact electric actuators within CDUs regulate coolant temperature and control flow rates to the server cabinets.

CHWS to the CDUs is controlled by electric actuators designed for larger torque requirements. These actuators can quickly isolate single zones in the event of failure.





### Compact electric actuators

M range multi-turn actuators provide precision modulating control for needle, metering, globe and control valves, as well as pressure regulators. M range part-turn actuators deliver fast open/close operation for ball, diverter, multi-port, shut-off, internal and butterfly valves.



### Part-turn electric actuators

The Noah NA part-turn electric actuator delivers a high maximum torque output with a robust compact enclosure that is certified waterproof to IP67 and explosionproof as standard.

## Secondary Applications

# Ancillary Flow Control in Data Centres

### Fire protection for critical data infrastructure

To ensure the highest level of safety and continuity, our advanced actuation solutions ensure rapid, reliable response in emergencies:

### Water vapour systems

- Electric actuators are used throughout general building infrastructure. They provide precise and dependable control of critical valves, ensuring fast activation.

### Inert gas systems for server rooms

- Pneumatic actuators are used in data halls, computer rooms, backup generator rooms, and other high-priority areas with electrical equipment to control nitrogen-based gas suppression systems. They deliver swift and safe deployment without the risk of water damage.

### Power backup generators

Data centres depend on backup generators to maintain continuous operation if there is a mains power outage.

Our compact electric actuators and solenoid valves are designed for instant operation and provide reliable flow control of the fuel management system, cooling system and exhausting of gases.





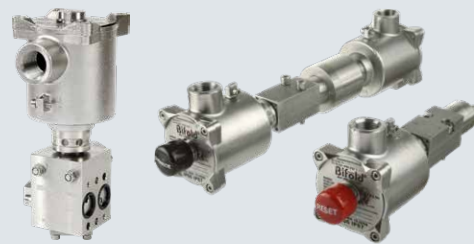
### **Pneumatic actuators for fire protection systems**

Our compact GT range rack-and-pinion and RC200 scotch yoke actuators deliver large output torques with spring-return designs for safety related duties. They are certified for use in the harshest environments around the world.



### **Compact electric actuators for fire protection systems and power backup generators**

M range multi-turn actuators provide precision modulating control for needle, metering, globe and control valves, as well as pressure regulators. M range part-turn actuators deliver fast open/close operation for ball, diverter, multi-port, shut-off, internal and butterfly valves.



### **Solenoid valves for power backup generators**

Manufactured from 316L stainless steel as standard with aluminium options available, our range of pneumatic solenoid valves are ideally suited for demanding applications and corrosive atmospheres. Features include ultra low power consumption <math><1.0\text{ W}</math>, high flow rate up to 11.2 Cv and high pressure versions up to 725 psi / 50 bar working pressure.

## Rotork Operations

# Comprehensive Support Delivered Through Strategic Partnership

We deliver comprehensive, end-to-end customer support, from the initial site survey and bespoke design to expert installation and ongoing maintenance. Our dedicated team ensures seamless project execution and long-term reliability, giving you peace of mind and a partner you can trust every step of the way.



### Site Surveys

Conduct detailed site surveys to assess infrastructure, power, and cooling, laying the groundwork for efficient, compliant, and future-ready data centre solutions.



### Qualified Installation

Our qualified engineers handle every aspect of installation with precision and care, ensuring compliance, minimising downtime, and delivering a fully operational data centre solution.



### Bespoke Design

Deliver tailored data centre designs, aligning infrastructure with your unique operational needs, ensuring efficiency, scalability, and resilience from concept to completion.



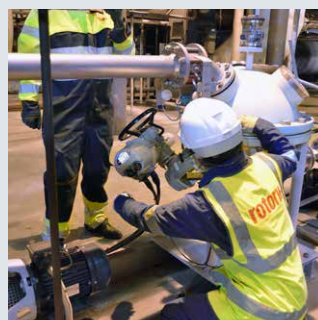
### System Calibration

Expert calibration ensures optimal system performance, accuracy, and reliability, fine-tuning your infrastructure to meet operational demands, reduce PUE and maintain peak efficiency.



### Upgrade Solutions

Tailored to enhance performance, extend lifespan, and future-proof your data centre infrastructure, minimising disruption and maximising return on investment.



### Preventative Maintenance

Keep your data centre running smoothly by reducing downtime, extending equipment life, and ensuring consistent performance through proactive maintenance programmes.





**rotork**<sup>®</sup>

Get in touch to find out more

[mail@rotork.com](mailto:mail@rotork.com)

[www.rotork.com](http://www.rotork.com)

PUB000-412-00

Issue 08/25