

rotork

FLOW CONTROL NEWS FROM ROTORK



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PRODUCT

New Rotork *Master Station* launched for valve actuator control

PRODUCT

Major flow control contracts for Rotork at giant Chinese refinery

APPLICATION

Rotork CK actuators used in US wastewater plant upgrade

APPLICATION

Increased valve automation improves operations at solar power plants

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Keeping the World Flowing

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Welcome to the latest edition of Rotalk, bringing you the latest flow control news from the world of Rotork.

In this issue we introduce the recently launched Rotork *Master Station*, an innovative system to monitor and control valve actuators and plant equipment. The Rotork *Master Station*, which features an intuitive touch screen user interface, now supports both Modbus® RTU protocol with third party integration and Pakscan™ Classic, Rotork's standard two-wire loop system.

Elsewhere in the issue, we look at how Rotork products are being used to benefit applications around the world including an order for 2,500 electric actuators at a Chinese oil refinery. Zhejiang Petroleum & Chemical Company has specified intelligent IQ3 actuators to control the flow of crude oil and refined products at its refinery under construction on the island of Zhoushan, near Shanghai.

Also in the oil and gas industry, Chinese company Hengli Petrochemical (Dalian) Refinery Co. Ltd. has ordered Rotork electric and pneumatic actuators, as well as valve gearboxes, to carry out flow control at one of the largest refineries in the country.

Meanwhile, in Europe hundreds of IQ3 actuators fitted with Rotork IB gearboxes are being installed at two Spanish solar power plants to operate outlet valves on a Heat Transfer Fluid pipeline.

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NEW ROTORK MASTER STATION LAUNCHED FOR VALVE ACTUATOR CONTROL

ROTORK HAS LAUNCHED THE LATEST GENERATION OF ITS INNOVATIVE MONITORING AND CONTROL SYSTEM FOR VALVE ACTUATORS AND PLANT EQUIPMENT.

Suitable for use in all industries, the Rotork *Master Station* is capable of operating up to 240 actuators across three separate field networks allowing the optimum network to be used in different plant areas.

It now supports Modbus® RTU protocol with third party device integration and Pakscan™ Classic, Rotork's standard two-wire closed loop system, which has more than 170,000 existing devices installed in networks around the world.

The Rotork *Master Station* has many features to enable the management of the assets connected to it. Whether the interest is in condition based monitoring or predictive maintenance, it is all possible with the Rotork *Master Station*. A large touch screen interface and web pages share the same intuitive menu structure focused on providing quick device set up, interrogation and issue resolution.

Multiple host connectivity is included and the presence of multiple databases enables the *Master Station* to maximise data transfer efficiency.

The *Master Station* can be supplied with built-in redundancy support via a hot standby configuration, allowing a replica unit to assume network control in the event of an error in the primary unit.

All network communications are secured with fault tolerance, allowing for plant operation to continue, even if a fault occurs.

Installation is low cost and simple through the use of a single twisted pair cable instead of expensive multicore cabling. The wired control loops can operate on long loop lengths up to 20 km without external repeaters, further reducing labour, installation and commissioning costs. The Rotork *Master Station* is available with either 19 inch rack or panel mounting options and all wiring is easily accessible from the front panels.

All Rotork and third party actuation products are supported while the Rotork *Master Station* can replace existing Pakscan IIE and P3 Master Station systems without the need for additional changes to the network or devices, allowing it to be easily integrated into installations.

Rotork provides service and commissioning support from all our global offices as well as online documentation that will assist commissioning, service and maintenance teams. Rotork offer training for customers in the Rotork *Master Station* and Pakscan networks, both in-house and on-site.

NEW COMPACT PRESSURE SWITCH IS UNSHAKEABLY ACCURATE

A new Rotork pressure switch has been designed to withstand shock and vibration in critical operations in the rail, commercial vehicle and industrial sectors.

The lightweight and compact pressure switch from Rotork's Midland-ACS brand is an electro-mechanical design which delivers accurate, reliable and repeatable performance for a variety of applications including compressors and braking systems.

The switch is able to operate in ambient temperatures ranging from -40 °C to +85 °C (-40 °F to +185 °F) and features a silicon rubber diaphragm suitable for neutral gases and liquid fluids.

Working set-point pressures can be selected in four adjustable ranges from 0.2 - 2 bar to 1.6 - 16 bar, while the maximum allowable inlet pressure is 24 bar. Pre-set pressure options are also available.

IP65 environmental protection in accordance with EN 60529, including electrical connections, together with corrosion protection (salt spray) to ISO 9227, provides suitability for installation in exposed locations.



Long-term reliability is enhanced further by UL and CSA approved triple layer gold plated micro-switch contacts.

The pressure switch is shock and vibration tested in accordance with EN 61373 (Category 1 Class B).



ROTORK ADDS PLUG AND SOCKET OPTION TO IQ RANGE

ROTORK IQ INTELLIGENT ELECTRIC VALVE ACTUATORS ARE RECOGNISED FOR BEING TECHNICALLY ADVANCED, ROBUST, RELIABLE AND USER-FRIENDLY. THESE QUALITIES HAVE NOW BEEN FURTHER ENHANCED WITH THE OPTION OF A BESPOKE PLUG AND SOCKET ELECTRICAL CONNECTION.

The new optional Rotork plug and socket interface provides a fast connect / disconnect option for IQ3 multi-turn and IQT3 part-turn actuators, encompassing 3-phase, 1-phase and DC (IQT3 only) electrical variants and including many actuators with explosionproof EXd enclosures conforming to ATEX, IECEx, CSA and CSAus international standards. The plug and socket terminal cover maintains the integrity of the actuator's double-sealed enclosure and IP68 watertight environmental protection (submersible in 20 metres of water for 10 days).

A plug and socket interface is favoured in some industries for providing quick and easy field wiring and quick removal or interchange of actuators for maintenance and other operating requirements. The Rotork solution provides further flexibility to the advanced, user-friendly design of the IQ actuators. These include secure Bluetooth® non-intrusive setting and commissioning, an information-rich display, real-time status reporting and configurable data logging to provide detailed analysis of the valve condition and asset management support.

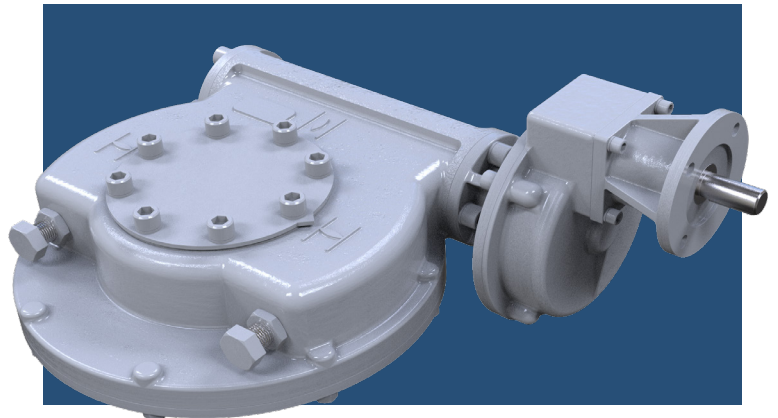
ROTORK DESIGNS HIGH TORQUE VALVE OPERATORS

High Torque versions of Rotork's IW series of quadrant worm gear operators have been introduced.

Created for rugged service duties with low or no maintenance, IW High Torque operators have been specifically designed with increased torque ratings for motorised ball, plug and butterfly valve applications which are operated infrequently.

They are available for both clockwise and anti-clockwise valve operation and feature a minimum safety factor of twice the maximum output torque to accommodate stall torques. The tightly controlled manufacturing tolerances mean there is very little backlash between the worm and quadrant to deliver accurate, self-locking movement and reduced vibration during travel.

As with all IW series gearboxes, they feature a removable output sleeve to facilitate machining to suit the valve. The separate output sleeve and base plate gives the maximum flexibility for on or off centre mounting on the valve without any extra modifications.



The totally enclosed, sealed and grease lubricated for life enclosure is available as standard with IP67 environmental certification, suitable for submerged duty at a depth of one metre for 30 minutes, in a standard operating temperature range of -40 °C to +120 °C (-40 °F to +250 °F).

A comprehensive range of gear ratios combined with a selection of auxiliary input spur gear reducers delivers an output torque range of 1,050 to 203,000 Nm.

All inputs and outputs can be supplied to ISO standards or other specifications. Options include an IP68 enclosure, suitable for submerged duty at 15 metres for 72 hours, high and low temperature trims, limit switches, flexible extensions and approval for AWWA applications.

ROTORK INCREASES VERSATILITY OF MANUAL VALVE REMOTE POSITION INDICATORS

Designed for manually operated valves that are buried, in chambers or otherwise difficult to access, the Rotork ECL Position Indicator enables the remote handwheel operator to see the valve position.

Versatility has been increased with the introduction of a second, larger model, designated ECL BB. The ISO 5211 F10 flange dimensions of the original ECL are increased to F14 on the ECL BB, increasing the maximum circular stem acceptance to 40 mm with a 12 mm keyway, or a 36 mm square bore. Other flange and bore dimensions are available on request.

Housed in a sturdy aluminium IP67 watertight casing, the ECL is constructed with gear ratios that match the gearbox ratio, enabling the

open, closed and intermediate valve positions to be accurately viewed at the handwheel. The introduction of the ECL BB extends potential applications to a considerably increased range of valve sizes and duties.

Standard operating temperature range is -40 °C to +120 °C (-40 °F to +250 °F). Options include an IP68 enclosure for submerged applications (1 metre for 72 hours), high temperature duties up to +200 °C (+392 °F) and low temperature duties down to -60 °C (-76 °F).





ROTORK SELECTED FOR STRATEGIC TANK FARM AUTOMATION

ROTORK IQ3 INTELLIGENT ELECTRIC VALVE ACTUATORS WITH PAKSCAN DIGITAL CONTROL NETWORKS HAVE BEEN SELECTED BY HORIZON TANGIERS TERMINALS S.A. FOR THE AUTOMATION OF THEIR STRATEGICALLY IMPORTANT TERMINAL IN MOROCCO.

ROTORK HAS SUPPLIED OVER 100 IQ3 ACTUATORS FOR THE MOTORISATION OF EXISTING GATE AND BUTTERFLY VALVES

The project, designed to optimise storage capacity and increase security, involves the automation of tank inlet and outlet valves and firefighting water network valves.

Rotork has supplied over 100 actuators, including new actuated valve packages and actuators for the motorisation of existing gate and butterfly valves. In addition to supplying the products, Rotork's responsibilities include retrofitting existing valves, installing new actuated valves and commissioning. The actuators will be remotely monitored and controlled by two hot-standby Rotork Master Stations equipped with Pakscan digital control software, operated via a Distributed Control System by a Siemens PLC in the site control room.

The selection of the Rotork automation solution was assisted by the proven

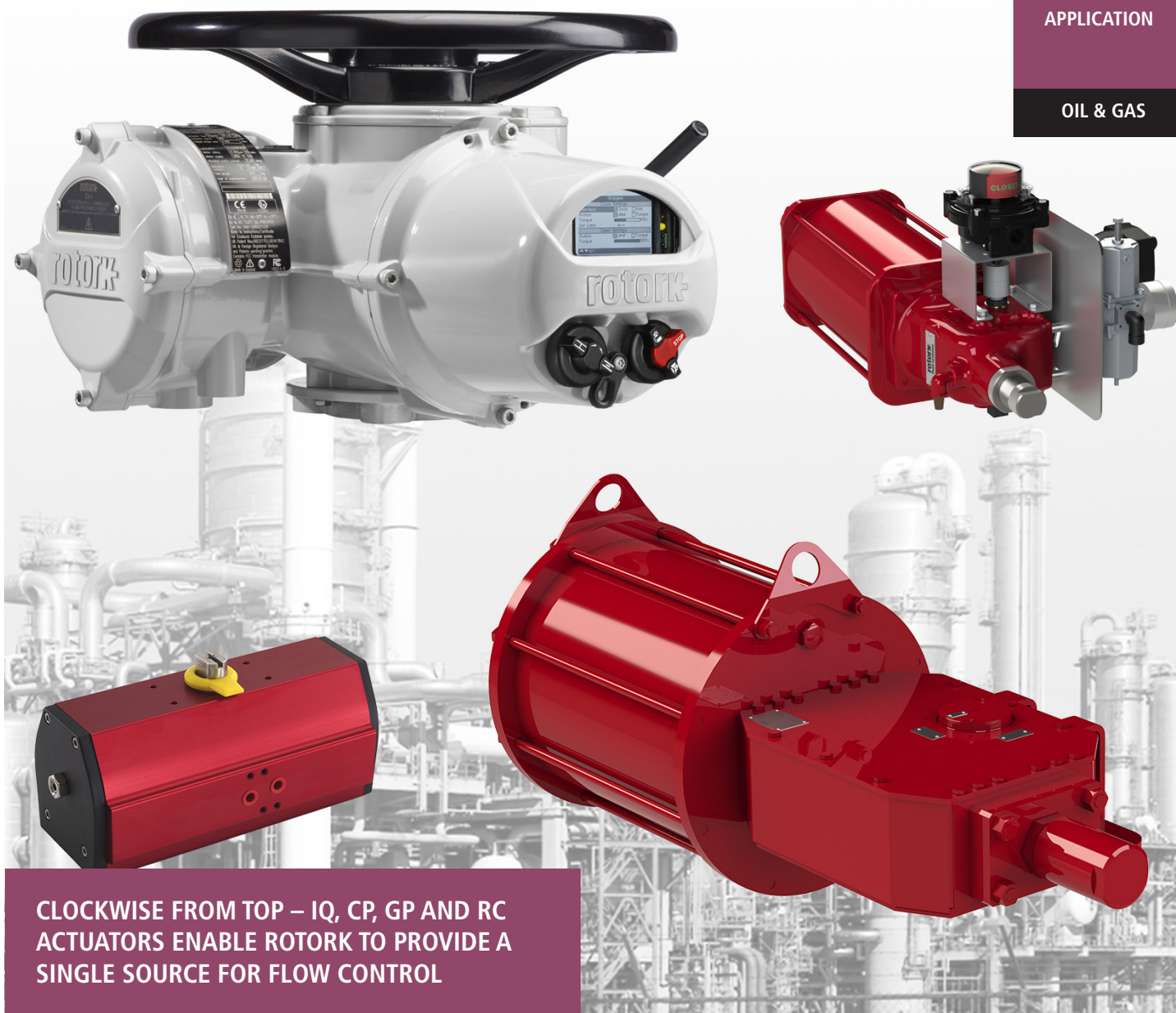
performance and user-friendliness of IQ3 intelligent actuation technology in many other hazardous area tank farm installations, combined with the local availability of technical support to achieve the objectives of the project.

The actuators are IQ3 explosionproof non-intrusive intelligent multi-turn and part-turn designs with double-sealed IP68 watertight environmental enclosures. As well as proven reliability, the IQ3 actuator incorporates advanced functionality facilitating predictive maintenance and asset management. The integral datalogger records detailed operating information including valve torque profiles, valve operations and alarms. Downloading and analysing this data can make a vital contribution to long-term asset management.

Pakscan is a digital control system designed specifically for valve actuators, with actuator

focused features that are unavailable from other designs. For example, each Rotork Master Station has the capacity to monitor and control up to 240 actuators on a single fault tolerant field network, up to 20 kilometres long, without repeaters. This is an important reliability and economic consideration in the spacious environments of tank farms.

Strategically located on the north-western African coast, this terminal has a storage capacity of over 532,900 cubic metres for petroleum products and blending components, with marine, rail and road tanker access. In addition to supplying the North African regions requirements, the terminal also provides bunker services for the international petroleum marketing companies. These combined activities are expected to serve a total of 300 million consumers.



CLOCKWISE FROM TOP – IQ, CP, GP AND RC ACTUATORS ENABLE ROTORK TO PROVIDE A SINGLE SOURCE FOR FLOW CONTROL

MAJOR FLOW CONTROL CONTRACTS FOR ROTORK AT GIANT CHINESE REFINERY

Rotork has received major contracts to supply electric and pneumatic valve actuators and valve gearboxes to Hengli Petrochemical (Dalian) Refinery Co. Ltd. for flow control in its new refinery and petrochemicals complex, one of the largest in China, at Changxing Island in Dalian City.

The latest contract involves approximately 2,000 explosionproof electric actuators to operate gate valves and ball valves in tank farms. All these units are Rotork IQ non-intrusive intelligent multi-turn actuators with double-sealed IP68 watertight protection for enhanced reliability, an important consideration in the site's saline ambient environment. In addition to providing optimum reliability, the IQ actuator is also designed for advanced functionality, particularly in those areas associated with predictive maintenance and asset management.

IQ actuator dataloggers record detailed operating data including valve torque profiles, the number of valve operations and alarms. The ability to download and analyse this information can make a vital contribution to effective long-term asset management of

the refinery. The IQ actuators are combined with Rotork Gears IB multi-turn and IW quarter-turn secondary gearboxes to meet the operating demands of the wide range of valve sizes and types.

Pneumatic actuator orders encompass Rotork CP, GP and RC ranges of scotch yoke designs for quarter-turn valves. The combination of these ranges facilitates the direct-drive actuation of valves of virtually any size.

The ability to deliver complete electric and fluid power solutions, with local manufacturing and service support in China, enables Rotork to provide a single source for flow control on the project.

APPLICATION

OIL & GAS



THOUSANDS OF ROTORK ELECTRIC ACTUATORS INSTALLED AT ZHOUSHAN OIL REFINERY

MORE THAN 2,500 ROTORK IQ3 ELECTRIC ACTUATORS HAVE BEEN INSTALLED AT A CHINESE OIL REFINERY AND PETROCHEMICAL COMPLEX.

Zhejiang Petroleum & Chemical Company Ltd, which refines oil and manufactures chemical products, ordered the actuators for the refinery which is in construction on the island of Zhoushan, near Shanghai.



MORE THAN 2,500 ROTORK ACTUATORS HAVE BEEN INSTALLED AT THE REFINERY

The actuators operate gate valves, ball valves and butterfly valves to control the flow of crude oil and refined product at the plant.

Zhejiang Petroleum & Chemical Company Ltd also purchased IB multi-turn bevel gearboxes which provide a torque range up to 8,135 Nm (6,000 lbf.ft) and a thrust range up to 1,320 kN (296,750 lbf.ft).

Zhejiang Petroleum & Chemical Company Ltd, which also offers oil storage and transportation services, says Rotork's reputation for quality as well as the reliability of the IQ3 were key in its decision to buy from the business.

Rotork's intelligent IQ3 electric multi-turn electric actuator allows the user unprecedented access to a wealth of data to maximise plant efficiency. Available in 1-phase, 3-phase and direct current variants, the IQ3 relays real-time information on an advanced dual stacked display which can be accessed even in the event of a power outage.

When complete the entire Zhoushan plant will feature two refineries capable of producing 400,000 barrels a day and two ethylene plants capable of producing up to 1.4 million tonnes a year.

ROTORK ACTUATORS INTEGRAL TO ENVIRONMENTAL AND COMMERCIAL IMPROVEMENTS ON OIL TANKERS

Rotork CMA valve actuators are playing a vital part in a system designed to reduce harmful oil tanker emissions during sea voyages. During fluctuating conditions while on the oceans tankers often emit VOCs (Volatile Organic Compounds) which can affect both the environment and commercial productivity.

Although the controlled release is often undertaken when the gas pressure approaches a pre-set point, it is not always clear at what pressure a manually controlled release should be stopped. This poses a risk of excess vapours being released causing air pollution and a loss of cargo.

To meet this challenge the VOCON Valve and Reporting System controls the vapour pressure in oil cargo tanks to minimise and fully control VOC emissions.

The system, which is equipped with the most advanced reporting capability available, features a venting control valve operated by a Rotork CMA electric process valve actuator which is installed on the bypass line between the Insert Gas (IG) main pipeline and the mast riser.

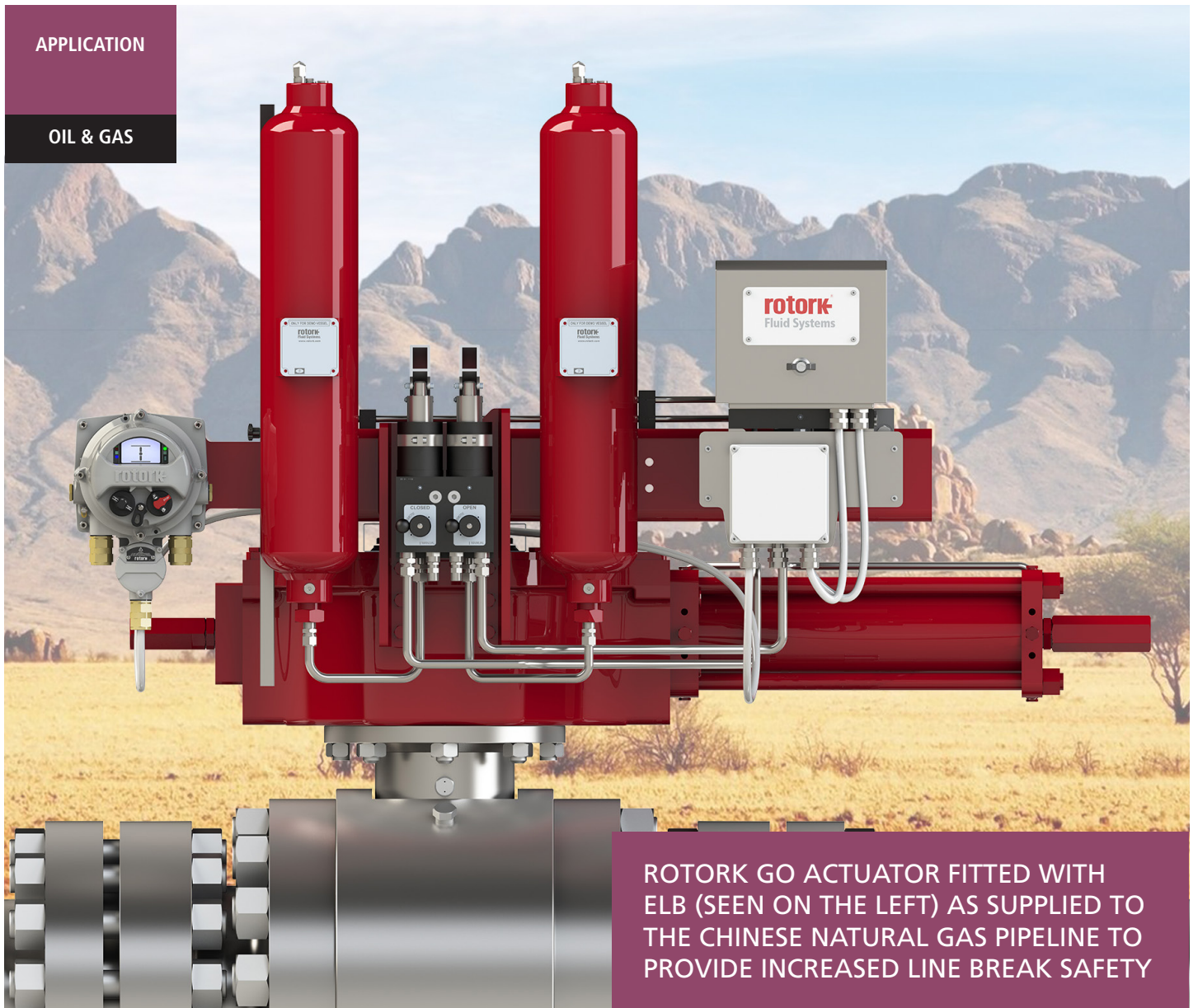
In automatic mode the actuator modulates the valve position in response to a control signal from a pressure transmitter to control the vapour pressure in all the cargo tanks. This critical duty reduces VOC loss by maintaining a constant pressure in the cargo tanks during the voyage.

The compact and robust CMA actuator selected for this duty is environmentally sealed to IP67 and internationally certified for use in Zone 1 hazardous areas. The wide ambient operating temperature range of -20 to +65 °C (-4 to +149 °F) facilitates long-term reliability and maintenance-free operation in the harsh environments experienced on the decks of oil tankers.

Accepting an industry-standard 4-20 mA control signal, resolution is 0.2%, delivering the accurate, repeatable and backlash-free positional control demanded by the VOCON application.

**VOCON VENTING CONTROL VALVE WITH
ROTORK CMA ACTUATOR INSTALLED ON THE
DECK OF AN OIL TANKER**





ROTORK GO ACTUATOR FITTED WITH ELB (SEEN ON THE LEFT) AS SUPPLIED TO THE CHINESE NATURAL GAS PIPELINE TO PROVIDE INCREASED LINE BREAK SAFETY

CHINESE PIPELINE SELECTS ROTORK ELB FOR INCREASED LINE BREAK SAFETY

Rotork actuators have been fitted to improve safety on a natural gas pipeline in China.

Rotork Gas-over-Oil pipeline actuators have been fitted with Electronic Line Break (ELB) units to monitor line breaks and protect remotely installed valves. The ELBs will allow the pipeline operator to monitor its running condition and the open/closed status of the valves. Whenever an ELB reports a line break the operator can quickly close the appropriate valves and isolate the problem.

The Rotork ELB is a robust, self-contained system that combines pipeline pressure monitoring with intelligent valve control. It continuously monitors upstream and downstream pipeline pressure dynamics to provide early detection of pipeline breaks and initiate automatic valve actuator movement to a pre-selected emergency position.

The ELB is housed in a compact, environmentally sealed and explosionproof casing which can be mounted on the actuator or remotely. Valve actuator control - selectable as fail close, fail open or stay put - is based on Rate-of-Drop and Rate-of-Rise of the

pipeline pressure as well as high and low pressure limits. A remote Process Shut Down input with the option to override all functions is also available to drive the valve to the pre-determined fail position.

The ELB also provides an array of programmable alarm and alert indications and has an extensive range of features that can be configured to meet end users' specific requirements. These include up to six remote inputs and four configurable solenoid outputs, Partial Stroke Testing and Modbus® network connectivity.

Setting menus displayed on the large HMI window are the focus for non-intrusive programming and commissioning using Rotork IQ intelligent electric actuation technology. In normal mode the LCD display indicates valve position. The same window also displays visual indication of status, alarms, event, trend and operation logs and diagnostic data.



IRISH WATER CHOOSES ROTORK FOR PENSTOCK UPGRADE

As part of a major modernisation programme at the Kilkit Water Treatment Plant in County Monaghan, Irish Water has installed Rotork's intelligent CKc range of modular electric actuators at the site.

A ROTORK ENGINEER CARRIES OUT COMMISSIONING ON THE CKc ACTUATORS INSTALLED AT THE KILKIT WATER TREATMENT PLANT

In a contract awarded to Rotork by Coffey Water Ltd., inlet penstocks have been automated with CKc actuators to provide reliable on/off control, position monitoring and data logging of operating history to support asset management.

CKc actuators were selected as they offered a fully compliant and cost effective solution to meet the desired specification of the application, which included a quick delivery schedule. In addition to supplying, installing and commissioning the actuators, Rotork's responsibilities also included the design and fabrication of the adaptation components required to automate the previously hand operated penstocks. Rotork worked closely with the contractor to provide a comprehensive and fully engineered solution.

The penstocks are now fitted with CKc double-sealed actuators which are certified IP68 watertight and temporarily submersible. Increased penstock protection is provided by independent torque and position sensing, continuous valve position indication, even during power loss, and a safe, motor-independent handwheel.

CKc actuators incorporate the Centronik integral starter and control module providing local control switches, monitor relay and a datalogger enabling data extraction for analysis, diagnostics and asset management. CKc actuators also feature simple, rapid and secure commissioning and configuration using local controls or a Rotork Bluetooth® Setting Tool. The modular CK design provides flexibility to suit individual applications, while plug and socket connections between modules assist efficient installation, commissioning and maintenance.

The penstock project is part of a contract for Irish Water to upgrade the Lough Egish Regional Water Supply which will see a €4.5 million investment in the Kilkit Water Treatment Plant to benefit approximately 12,000 consumers in County Monaghan. Once completed the upgraded treatment plant will have an increased design output of 5.5 million litres per day (MLD) which will ensure that current water demands can be met, with capacity to meet future development needs.

ROTORK COMPLETES AUTOMATION CONTRACT TO ASSIST DECARBONISATION AT LYNEMOUTH POWER STATION

Rotork has completed a contract to supply fully automated pneumatic control systems on high capacity biomass rail freight wagons supporting the decarbonisation project at Lynemouth Power Station in Northumberland.

Rail freight manufacturer Astra Rail/Greenbrier Europe and leasing company Nacco have supplied GB Railfreight with 50 hopper wagons to support the biomass haulage contract awarded by Lynemouth Power Ltd. Each with a payload of 70 tonnes, these auto-loading and discharging wagons run in two rakes (coupled groups) of 24 between the Port of Tyne and Lynemouth Power Station, delivering 37,000 tonnes of biomass per week.

The Rotork design for auto-loading and discharging enables all controls, hand valves and visual indicators to be located in one place, providing safe and convenient access. Top and bottom hopper doors are operated by a magnetic sensor valve from a lineside magnet. The innovative design allows any wagon in the rake to be the arming wagon.

The fully automated control system enables quicker loading and unloading, requiring only supervision without manual intervention during operation. The proven design also allows for wagons to be separated and used in other rakes without any further configuration.

Lynemouth Power Station has generated electricity since 1972. The plant was originally built and operated by Alcan with the purpose of providing safe and secure energy for the production of aluminium at the adjacent Lynemouth Smelter.

The station ceased burning coal in 2015 and has now been converted to burn sustainable biomass, enabling the supply of up to 390 megawatts of low carbon electricity to the National Grid, enough for 450,000 homes.



ONE OF THE NEW RAIL FREIGHT WAGONS EQUIPPED WITH ROTORK AUTOMATED PNEUMATIC CONTROL SYSTEMS NEARING COMPLETION IN THE ASTRA RAIL/GREENBRIER EUROPE FACTORY

ROTORK CK ACTUATORS USED IN US WASTEWATER PLANT UPGRADE

Rotork CK actuators have been installed as part of an upgrade at a North American wastewater treatment plant.

The modular electric valve actuators were selected as part of a valve improvement project at the site. The new valves are equipped with Rotork CKc double-sealed water tight actuators to provide reliable on/off control, position monitoring, alarm signalling and data logging of operating history to support asset management. The CKc includes a Centronik module which provides intelligent control to allow for integration with all site control systems.

Among the features introduced with the introduction of CKc actuators at the plant is simple, rapid and secure commissioning and configuration using local controls or a Rotork Bluetooth® Setting Tool. The modular CK design provides flexibility to suit individual applications, while plug and socket connections between modules assist efficient installation, commissioning and maintenance.

Increased valve protection is provided by independent torque and position sensing, continuous valve position indication, even during power loss, and safe, motor-independent handwheel operation.

The Centronik integral starter and control module provides local control and houses a datalogger enabling data extraction for analysis, diagnostics and asset management. For valves experiencing high temperatures or strong vibrations the Centronik module can be remotely mounted in a safe area up to 100 metres from the actuator.

All Rotork CK double-sealed actuators are certified IP68 watertight and temporarily submersible, providing suitability for all valves in non-hazardous environments.



THE CENTRONIK INTEGRAL STARTER AND CONTROL MODULE PROVIDES LOCAL CONTROL AND HOUSES A DATALOGGER ENABLING DATA EXTRACTION FOR ANALYSIS, DIAGNOSTICS AND ASSET MANAGEMENT



INCREASED VALVE AUTOMATION IMPROVES OPERATIONS AT SOLAR POWER PLANTS

Hundreds of Rotork actuators have been chosen to improve operations at two solar power plants in Spain.

ROTORK IQ3 MULTI-TURN ACTUATORS WITH ROTORK GEARS IB GEARBOXES ARE BEING FITTED TO OVER 300 VALVES AT TWO SOLAR POWER PLANTS IN SPAIN

Rotork IQ intelligent electric valve actuators with Rotork Pakscan two-wire digital control are providing key valve automation functions at the sites which will make them more efficient and economical. These plants utilise parabolic mirror concentrating technology combined with a molten salt thermal storage system to maximise their power generation.

Rotork has worked with the plants' owner to secure the installation of several hundred IQ actuators on each site. The owner chose the Pakscan control system thanks to its extremely long range bus communication capabilities and cost savings. Each Rotork Master Station can operate a bus loop of up to 20 kilometres in length with no deterioration in communication performance or the need for repeaters, making it ideal for the spacious environment of a solar power plant.

In addition to the actuators installed when the sites were first built, new actuators have subsequently been retrofitted to manually operated valves to increase the scope of automation across the sites. The retrofit projects are being carried out by Rotork Site Services, who support all actuator operations with a range of activities including retrofitting, maintenance, repair, extended scope projects and asset management.

More than 300 actuators are also being fitted to the outlet valves of the solar field loops on the Heat Transfer Fluid (HTF) pipes that carry the heat transfer oil between the solar concentrating parabolic mirrors, the steam plant and the power generation circuits. The majority of the actuators are IQ3 electric multi-turn units with IB gearboxes, providing on/off control.



These actuators will enable individual HTF circuits to be automatically isolated when essential maintenance is required. Automation will enable the open or closed position of each valve to be remotely indicated and monitored via the Pakscan control system, improving the safety and environmental integrity of operations.

Dataloggers within the IQ3 actuators facilitate valve diagnostics by recording historical operating data and valve torque trends. Using Rotork's Insight 2 software this data can be analysed on a PC to predict any potential operating issues, enabling maintenance to be planned in advance without interruption to normal plant operations.



ROTORK DELIVERS HEAVY-DUTY HYDRAULIC ACTUATION PACKAGE FOR SLURRY PIPELINE VALVES

A slurry pipeline for a mine in Brazil is the destination for a packaged solution of Rotork high-torque, heavy-duty hydraulic valve actuators, control systems and a hydraulic power unit (HPU). The Rotork RHQ rack and pinion actuators will control 6" and 28" Class 600 metal seated ball valves installed on a tailing adduction slurry pipeline in the greater Belo Horizonte region of Brazil.

Slurry pipelines can be challenging for operators; actuated valves are required to meet ISO 5208 sealing specifications - zero leakage. The arduous duties demand very high torque actuators to deliver accurate valve control, rapid shut-off and the ability to prevent the potential risk of pipeline fracturing. Precise flow control is also critical. If the abrasive slurry moves too quickly it can destroy the pipeline from the inside, if it moves too slowly it can separate out and cause a blockage. Remote locations of slurry pipelines often require the use of hydraulic actuators with a HPU.

The RHQ actuators are designed for the most challenging applications, typically found in industries such as mining. The balanced design, comprising four power cylinders and rugged rack and pinion mechanics, creates a very compact footprint and provides efficient power consumption. The balanced design also minimises potential problems resulting from pipeline vibration, which can occur with slurry pipelines. Cylinder life is optimised through the combination of electroless nickel plating and redundant piston seals, while individual cylinders are easily serviced on the valve without

ROTORK HPUS MEET ANY GLOBAL ENGINEERING AND MANUFACTURING STANDARDS INCLUDING FM, NEC, ATEX, CSA, ANSI, CE AND ASME

disturbing other parts of the actuator. IP68 watertight environmental protection supports reliable long-term operation, with hazardous area certification also available.

The RHQ actuator is powered using a Rotork HPU. Rotork HPUs meet any global engineering and manufacturing standards including FM, NEC, ATEX, CSA, ANSI, CE and ASME. Materials and construction can be customised for hazardous, corrosive or environmentally sensitive areas. The HPUs can include accumulators, redundant pumps or controls, and the multiple prime movers can be solar powered or gas powered pumps to back-up traditional electrical drives. Both the RHQ and HPU are available with ratings for operation in extreme temperatures.