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rotalk

INDUSTRY LEADING FLOW CONTROL NEWS FROM ROTORK

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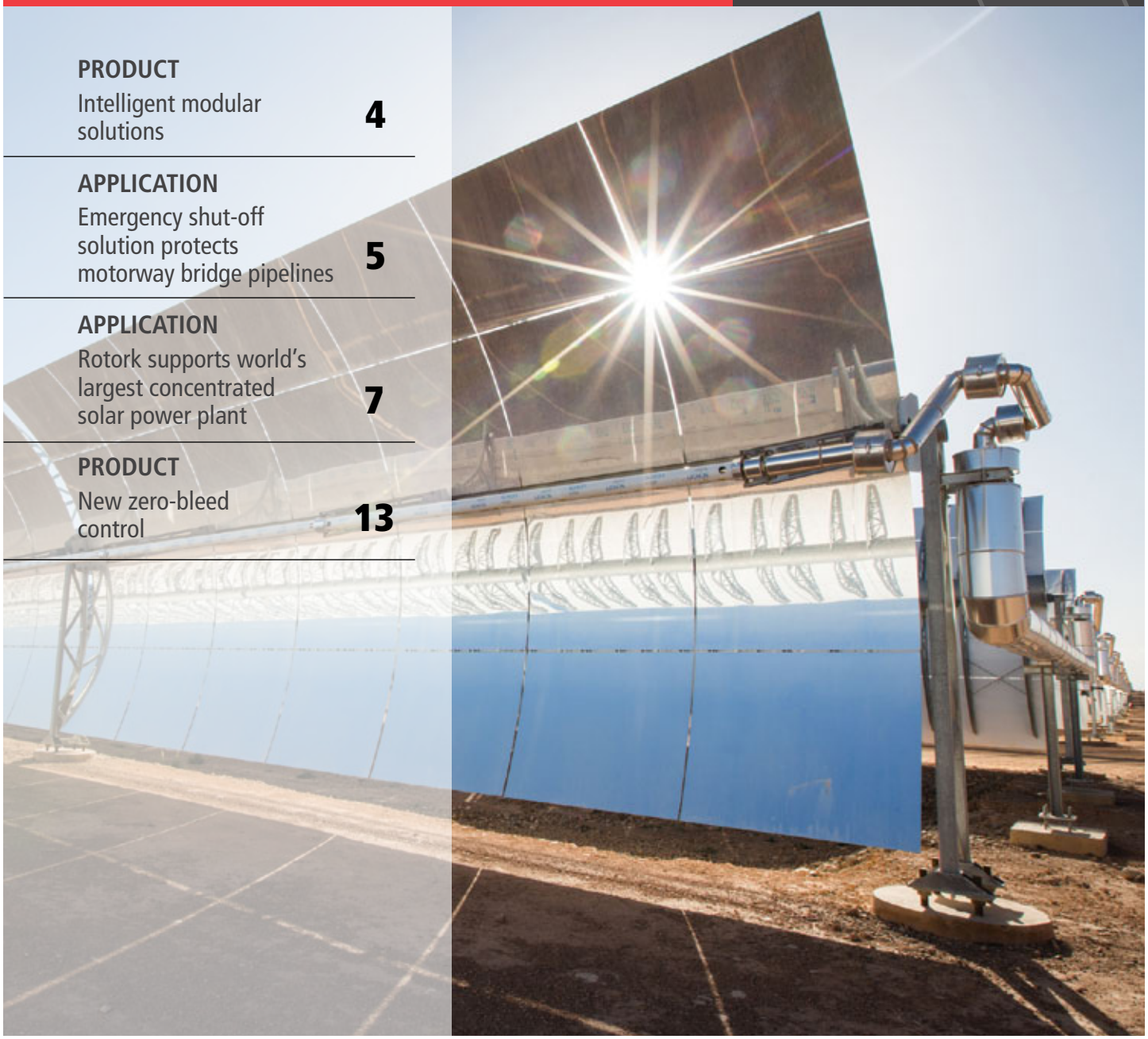

60 Years of
Progress
Reliability
Innovation

rotork®
Keeping the World Flowing

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INTRO

It is with great pleasure that I introduce this special edition of Rotalk magazine which celebrates Rotork being 60.

In 1957 engineering entrepreneur Jeremy Fry began the business of designing and manufacturing the first Rotork valve actuators in a workshop at his Widcombe Manor family home in Bath, UK. From this beginning the company has grown into the market-leading international flow control business that we proudly represent today.

Over the last 10 years we have focused on expanding our global presence and broadening our product portfolio. In 2010 we adjusted our focus from actuation to the wider flow control market, resulting in the creation of the Rotork Instruments division in 2011. Rotork Instruments has grown rapidly and now offers a comprehensive range of instrumentation products and services from market-leading brand names.

Rotork's 27 manufacturing facilities, global network of 69 offices and local agents enables you to locally source our products. We have 430 Rotork engineers who provide life-of-plant maintenance, repair and upgrade services, and we have grown to have the largest network of engineers dedicated to flow control.

Rotork has always focused on our customers, with a local presence in every territory delivering innovative and reliable solutions to meet exacting technical requirements. This is something we remain passionate about as we continue our journey.

I hope you enjoy reading the latest flow control news from Rotork, but more importantly join me in looking forward to the exciting opportunities that lie before us.

1957
2017

rotork®

Keeping the World Flowing

Tim Bessex
Group Sales & Marketing Director

PRODUCT

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Front cover photo credit: ACWA Power

THE VOPAK TERMINAL DURBAN IN SOUTH AFRICA.

TERMINAL UPGRADE

RELIABLE, INTELLIGENT VALVE ACTUATION AND ESD PROTECTION

THE PROGRAMME AIMS TO EXPAND AND ENHANCE VOPAK'S INFRASTRUCTURE TO SATISFY SOUTH AFRICA'S INCREASING DEMAND FOR THESE PRODUCTS, IMPROVE THE SECURITY OF FUEL SUPPLY AND FACILITATE THE IMPORT OF CLEANER FUELS.

Independent tank storage provider Vopak is increasing and enhancing fuel capacity at the Vopak Terminal Durban in South Africa, an important site where activities encompass the import, export and distribution of petroleum products.

The project will increase the site's storage capacity from 177,735 to 234,200 cubic metres (cbm) by replacing a number of existing tanks with new state-of-the-art storage tanks, and installing new ancillary infrastructure including pipelines, pump bays and fire-fighting equipment. Undertaken in several stages, the programme also involves upgrades on existing tanks to achieve the highest safety standards and the replacement of manual equipment with automatic technology.

Much of this work has been carried out by Engineering Process Control (EPC), Rotork's long-standing local agent in Kwazulu-Natal. In 2012, with assistance from Rotork's South Africa facility, EPC began equipment specification discussions with Fluor, the Engineering Procurement and Construction Management (EPCM) consultant, regarding the planned upgrade projects.

234,200 M³

THE PROJECT WILL INCREASE THE SITE'S STORAGE CAPACITY FROM 177,735 TO 234,200 CUBIC METRES.

The first of these was a Tank Overfill Protection project, involving the automation of existing tank inlet and outlet valves, which was completed in 2014. Here, 63 of the latest Rotork IQ intelligent electric multi-turn actuators were installed on gate valves and nine of the latest Rotork IQT intelligent part-turn actuators were installed on triple offset butterfly and ball valves. The work performed by EPC included the design and fabrication of new valve top work adaptation and commissioning of the actuators.

These actuators are monitored and controlled by a single Rotork Pakscan™ Master Station and two-wire digital network, providing open/close valve control and remote position feedback, linked to a Yokogawa Distributed Control System (DCS). Designed specifically for the valve actuation environment, Pakscan incorporates secure field communications with inbuilt network redundancy to maintain control even in the event of equipment or cable failure. Separately wired Emergency Shutdown (ESD) control is connected to the tanks' high level switches and alarms.

The Tank Overfill Protection project also included the automation of existing butterfly valves on the site's drainage system. These valves were equipped with Rotork IQ actuators and quarter-turn IW worm gearboxes in a scheme designed to eliminate the risk of any spillage within the bunds from accidentally draining into the outside environment.

The next upgrade, known as the Fuel 2 project, began in 2014. The work involved the demolition of some old, small chemical storage tanks and their replacement with larger diesel and unleaded petrol storage tanks. These tanks are connected to the recently constructed Transnet New Multi Products Pipeline which runs from Durban to Johannesburg to meet the burgeoning demand for imported refined petroleum products. Connection to the pipeline is provided by a large new manifold and pump bay.

As with the Tank Overfill Protection project, the valves in all critical areas of the Fuel 2 project are automated with Rotork actuators and controlled by Pakscan two-wire networks linked to a Yokogawa DCS. 30 Rotork Skilmatic electro-hydraulic fail-safe actuators operate triple offset butterfly valves on the tanks' inlet and outlet valves. These actuators are equipped with hardwired ESD circuitry which will override the Pakscan control and close the valves in the event of an emergency. Flow control on the new manifold and pump bay is provided by 33 IQ actuated double block and bleed plug valves, whilst an additional two electro-hydraulic actuators operate ball valves on the pipeline pig launcher.

Four Pakscan Hot-Standby Master Stations control four individual loop networks on the two upgrade projects. In the field, a total of 164 Pakboxes have also been installed to isolate individual actuators from mains power and the Pakscan network during partial shutdowns if maintenance is required. In these events the Pakboxes maintain the integrity of the Pakscan network for the operation of the other field units on the same loop.

In the final part of the Fuel 2 project, EPC installed 14 Rotork CP compact pneumatic actuators on triple offset butterfly valves for a back of berth application. EPC has its own Engineering and Installation (E&I) division which has fulfilled the construction scope of the Fuel 2 project, facilitating good communications and successful commissioning of all of the Rotork equipment.

In 2015 EPC began to work with Vopak's new EPCM consultant, Kanty & Templar, on the Fuel 3 project, involving the partial demolition of two plant areas to provide the space for a rebuilt dedicated road, loading facility and additional storage for unleaded petrol and diesel. Once again, EPC has supplied, installed and commissioned all of the Rotork equipment and its E&I division has fulfilled part of the construction.

IQ, IQT and Skilmatic actuators share Rotork's non-intrusive setting, commissioning and data communication technologies.

132+
IQ ACTUATORS

The upgrades at Vopak Terminal Durban incorporate Rotork IQ intelligent actuators and Pakscan digital control networks.

30
SKILMATIC ACTUATORS

The specialised design of the Rotork Skilmatic electro-hydraulic actuator delivers the swift fail-safe operation demanded by ESD duties.

14
CP ACTUATORS

Rotork CP compact pneumatic actuators operate triple offset butterfly valves in a back of berth application at Vopak Terminal Durban.

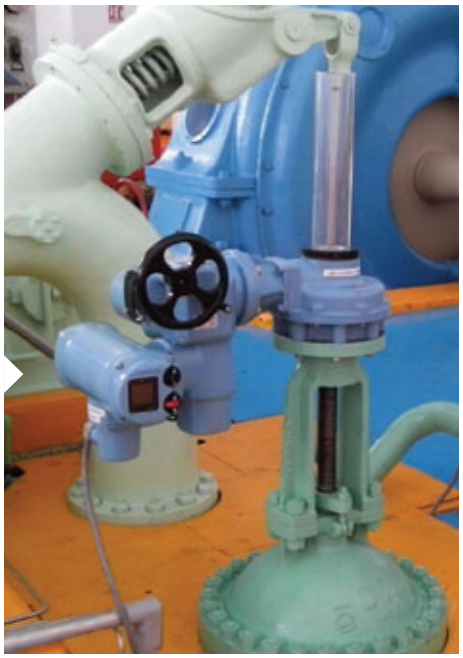
PRODUCT

ROTORK CK VALVE ACTUATORS DELIVER INTELLIGENT MODULAR SOLUTIONS

THE CK RANGE MAXIMUM MULTI-TURN OUTPUT TORQUE IS 10,800 NM.

The innovative Rotork CK range of modular electric valve actuators is designed to meet diverse actuation applications in the power and water industry.

CK actuators, shown here with separately mounted Centronik control unit, deliver modular solutions for diverse applications in the power and water industry.



Built on the cornerstones of reliability and safety inherent in all Rotork products, the CK enhances the scope of Rotork flow control technology. The modular CK design provides flexibility and configurability, enabling quick selection from stock to meet customer specification with short lead times.

The torque range facilitates reliable operation of valve types and sizes typically found in industries such as power generation and water treatment. In combination with secondary gearboxes, the CK range maximum multi-turn output torque is 10,800 Nm (8,000 lbf.ft) and part-turn torque is 205,600 Nm (151,600 lbf.ft). A direct-drive part-turn CK range is also available.

The modular construction presents a wide range of options and features. These range from a standard CK actuator, requiring separate motor controls, to sophisticated Centronik versions equipped with an integral state-of-the-art intelligent digital control unit. The Centronik module can be mounted up to 100 metres from the actuator to provide local operation, configuration and commissioning for valves in inaccessible locations.

All CK versions can provide mechanical valve position indication. Standard features also include oil bath lubrication for extended life, mounting in any orientation, a safe motor-independent handwheel operation available at all times, and IP68 environmental double-sealing.

Increased valve protection is provided by independent torque and position sensing. Plug-and-socket connections facilitate fast and efficient commissioning and maintenance. All actuator sizes can utilise separable thrust or non-thrust bases, enabling actuators to be removed from the valve without affecting valve position.

The Centronik digital control unit provides intelligent control with datalogging for diagnostics and asset management, offering cost-effective integration with centralised and distributed control systems. Compatibility with hardwired, analogue or digital control protocols includes Rotork Pakscan, Profibus, Modbus, DeviceNet and HART.

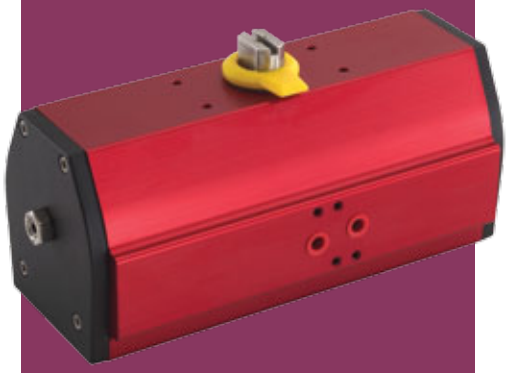
Rapid and secure commissioning and configuration is performed using the actuator selector switches. A handheld Rotork Setting Tool, using infrared or Bluetooth® interfaces, is optionally available for these functions. The actuator display window provides position indication, status and alarms plus user-friendly menu-driven configuration screens.

The Rotork worldwide network of offices and representatives provides a local source for sales, service and support for the CK range of actuators.

EMERGENCY SHUT-OFF SOLUTION PROTECTS MOTORWAY BRIDGE PIPELINES

The Sundsvall Bridge in northern Sweden carries the European Route E4 motorway, spanning a coastal cove to bypass the city of Sundsvall. Opened in 2014, the 2.1 kilometre bridge also carries two 400 mm diameter district heating pipelines which are now protected by an emergency shut-off system incorporating Rotork pneumatic actuators.

A QUICK AND RELIABLE SHUT-OFF SOLUTION WAS REQUIRED TO ENSURE THAT NO DAMAGE OCCURRED IF ONE OF THESE PIPES BURSTS INSIDE THE BRIDGE.



A quick and reliable shut-off solution on either side of the bridge was required to ensure that no damage occurred if one of these pipes bursts inside the bridge. To meet this requirement Rotork has supplied GP, RC and RC200 scotch-yoke actuators and control panels. The spring-return heavy-duty GP actuators are fitted to DN400 ball valves installed on the main pipelines at each end of the bridge.

To reduce the strain on the main lines when this occurs, bypass lines are fitted around the main pipeline ball valves. Valves on the bypass lines are fitted with RC260 compact double-acting actuators. Speed restrictors on these actuators increase their valve closing times to 40 seconds, minimising the risk of excessive water-hammer in the pipeline system during an emergency shut-off.

In addition to the emergency shut-off valves, four valves are installed on each side of the bridge to control the routine flow of water. These are fitted with compact double-acting RC100 actuators on the main lines and RC260 actuators on the bypass lines.

FIRE SAFETY ACTUATION FOR THE HONG KONG EXPRESS RAIL LINK

A proven reputation for reliability in previous transport tunnel projects has contributed to the selection of Rotork RC scotch-yoke pneumatic actuators for critical safety applications on the Hong Kong Express Rail Link (XRL).

The XRL is part of the new 143 kilometre high speed rail connection between Beijing, Guangzhou, Shenzhen and Hong Kong which is designed to reduce the current journey time by 50%. 500 high temperature specification RC200 actuators have been ordered by TROX Technik for the operation of fire dampers inside the railway tunnels, meeting stringent safety standards that demand rapid closure in the event of a fire. The actuated fire damper package is able to continue to operate for two hours at a temperature of 250°C to enable smoke control in the event of a fire. Rotork RC200-SRHT series actuators handle this requirement without the use of a fire jacket.

Compact dimensions, powerful performance and local support from the Rotork global service network have facilitated their selection for road and rail tunnels around the world. Another recent example is the use of RC200-SRHT actuators for the Istanbul Metro subway network expansion project in Turkey.

TROX TECHNIK HAS USED ROTORK RC PRODUCTS FOR MORE THAN 10 YEARS FOR NUMEROUS TUNNEL FIRE DAMPER APPLICATIONS.

ROTORK RC PNEUMATIC ACTUATORS PROVIDE CRITICAL SAFETY APPLICATIONS ON THE HONG KONG EXPRESS RAIL LINK.

IQTF ACTUATORS ARE ONE OF THE ROTORK DESIGNS DELIVERING PRECISE VALVE CONTROL AT THE NOOR CSP PLANTS.

ROTORK SUPPORTS WORLD'S LARGEST CONCENTRATED SOLAR POWER PLANT

Rotork works closely with the solar energy industry to integrate economical and efficient intelligent valve actuation and control solutions into the design of Concentrated Solar Power (CSP) plants. The giant Noor CSP in Morocco is one of the projects using the Rotork solution.

Photo credit: ACWA Power

The Noor I CSP Farm is the first phase of a project for the Moroccan Agency for Solar Energy (MASEN) to bring renewable energy to millions living in Morocco. It is being followed by Noor ll and Noor lll expansions, due for completion by 2018, by when the entire grid will cover 6,000 acres and will be capable of generating up to 580 MW of power, making it the largest CSP complex in the world.

The completed Noor l is made up of 500,000 curved mirrors, each standing at about 12 metres tall. These mirrors concentrate the sun's light onto a pipeline filled with Heat Transfer Fluid (HTF), heating it up to 393°C. The HTF fluid, comprising molten salt and oil, is stored and used to create superheated steam for driving turbines that generate electricity. Construction of Noor ll, which will add 200 MW generating capacity, is now underway.

To date, more than 500 Rotork electric and pneumatic valve actuators have been supplied on the Noor project.

The majority of these are the latest IQ and IQTF intelligent electric actuators operating isolating and regulating valves on the HTF pipework and storage plant, controlled by Rotork Pakscan two-wire digital networks.

The IQTF actuators deliver precise positional control of globe valves installed on the HTF pipework. Economical and reliable valve control is enhanced by the extremely long range network capabilities, built-in redundancy and installed cost savings enabled by Rotork Pakscan. Each Pakscan 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 very spacious environment of a solar power plant.

In addition, large numbers of Rotork CP and GP range pneumatic actuators have been supplied on butterfly valves providing isolating and regulating duties on the HTF and molten salt pipelines.

APPLICATION

INTELLIGENT ROTORK SOLUTION IMPROVES TORQUE CONTROL AT HYDROELECTRIC FACILITY

Forrest Kerr Hydroelectric facility in Canada recently installed Rotork IQ multi-turn electric actuators for improved torque control.

250M³

THE IQ ACTUATORS DIVERT 250M³ OF WATER PER SECOND.

The Forrest Kerr facility consists of a diversion weir, intake structure, de-sanding facility, power tunnel, underground powerhouse, tailrace tunnel and an associated electrical substation and transmission works. Unlike regular hydroelectric plants that impound water within a dam, Forrest Kerr redirects a part of the river water to an intake structure near to the meeting point of Forrest Kerr Creek and the Iskut River. This process leaves behind a smaller environmental footprint and minimises the impact on terrestrial and aquatic ecosystems.

The original actuators, mounted on conventional knife-gate valves, were unable to meet the increased operating torque requirement when excessive sand and grit build-up was experienced around the valves.

Rotork representative Summit Valve and Controls Inc. were invited to present a solution and were ultimately awarded the contract for valve and actuator replacement. The solution consists of Rotork IQ40 actuators mounted on custom-designed knife gate valves with 35 ft (10 m) extended bonnets. The replacement IQs are oversized by design, allowing Forrest Kerr to temporarily increase torque output via Bluetooth® remote when the application conditions are more demanding.

Furthermore, the IQ onboard datalogger offers an insight to the application, monitoring and comparing valve torque requirements relative to the initial 'clean' reference stroke and identifying when excessive sand is building up within the basin.

FORREST KERR IS A 195 MW HYDROELECTRIC FACILITY OWNED AND OPERATED BY CANADIAN ENERGY COMPANY ALTAGAS LTD. IT IS CAPABLE OF GENERATING ENOUGH ELECTRICITY TO POWER APPROXIMATELY 70,000 HOMES IN BRITISH COLUMBIA AND WILL OFFSET MORE THAN 450,000 TONNES OF GREENHOUSE GASES ANNUALLY.

PROJECT

ELECTRIC AND PNEUMATIC ACTUATION CONTRACTS FOR OIL SANDS DEVELOPMENT

In a recent contract, Rotork's facility at Calgary fitted IQ3 intelligent electric actuators to fifteen gate valves, sized 42", 48" and 60", and shipped them to the Suncor Fort Hills oil sands mine project in the Athabasca region of Alberta in Canada.

PRODUCTION CAPACITY OF 180,000 BARRELS PER DAY WITHIN 12 MONTHS.

180,000/day

30 YEARS

ROTORK HAS BEEN A SUPPLIER OF FLOW CONTROL PRODUCTS AND SERVICES TO SUNCOR FOR OVER 30 YEARS, PROVIDING RELIABLE SOLUTIONS IN SOME OF THE MOST DEMANDING OPERATING ENVIRONMENTS.

Suncor is Canada's leading integrated energy company. This contract is one of many for Suncor Fort Hills which involves Rotork on a global scale.

In addition to electric actuators supplied locally from Calgary, over 1,000 CP and GP Range pneumatic actuators have been supplied by Rotork offices in Italy and South Korea. Operating gate, ball and triple offset butterfly valves, the actuators control the flow in applications including extraction, froth treatment, hydro-transport and primary refining, bitumen handling, slurry, water and steam.

Rotork's record of proven reliability, together with the local support available from Rotork Site Services, have made important contributions to the Suncor decision to specify Rotork actuators for the Fort Hills project.

The valve torque profiling and datalogging abilities inherent in Rotork products are also recognised as effective tools for asset management at Fort Hills, which has been designed to utilise Suncor's latest technology and approach to tailings (water, sand, clay and residual oil) management and reclamation processes.

The project is scheduled to produce first oil as early as the fourth quarter of 2017 and achieve 90% of its planned production capacity of 180,000 barrels per day within 12 months. The mine life is expected to be approximately 50 years at the current planned production rate.

GEARING UP

DEVELOPMENTS, UPGRADES AND ALL NEW ROTORK GEARBOX MODELS IN THE SPOTLIGHT.

ROTORK GEARS HAS RECEIVED THE FIRST ORDERS FOR ITS NEW ABAW AWWA WORM GEAR OPERATORS.

ONE OF THE FIRST ORDERS, FROM A WORLD-LEADING VALVE MANUFACTURER, IS FOR 160 GEARBOXES ENCOMPASSING THE FULL ABAW SIZE RANGE, FOR ABOVE AND BELOW GROUND APPLICATIONS IN THE NORTH AMERICAN WATER UTILITIES MARKET.

The latest Rotork Gears ABAW AWWA worm gear operators are designed in accordance with AWWA (American Water Works Association) specifications C504 and C517, which are the AWWA design specifications for manually operated butterfly and plug valves respectively. The AWWA is responsible for setting standards on the design, performance and manufacturing of valves and associated equipment for managing and treating water.

One of the first orders, from a world-leading valve manufacturer, is for 160 gearboxes encompassing the full ABAW size range, for above and below ground applications in the North American water utilities market.

Manufactured from robust, high quality materials, ABAW gearboxes are designed to meet or exceed all aspects of AWWA C504 and C517 design specifications. The fully sealed, grease filled enclosure with self-lubricating sleeve bearings facilitates long term reliable service within a standard temperature range of -20 to +120°C (-4 to +250°F). High and low temperature options are also available.

Other options include stem extensions, square nut inputs, padlock kits, NAMUR and Westlock position indicator mounting kits and open right configuration (input shaft turns clockwise to open valve). Overload capabilities of up to 450 ft. lbs. above rated torque outputs exceed AWWA specifications for preventing gearbox damage from excessive applied torque, delivering the robustness required for long term reliability.

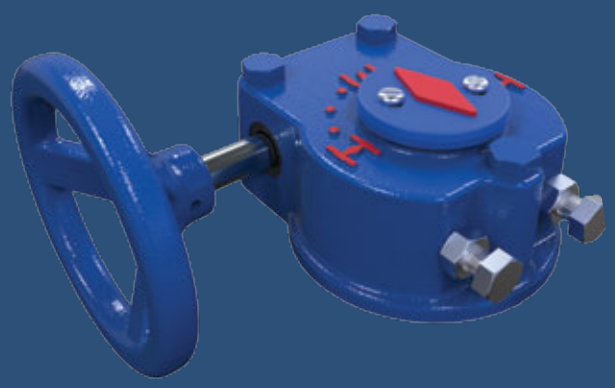
The Rotork worldwide network of offices and representatives provides a local source for sales, service and support for all Rotork Gears products.

MANUAL QUARTER-TURN

The QTW150 gearbox has been designed with simplicity in mind, resulting in a robust design with manufacturing optimised to deliver reliability and consistent performance.

The simple, rugged construction makes the QTW150 ideal for the manual operation of ball, butterfly, plug and other quarter-turn valves in waterworks, gas pipelines, chemical, power, HVAC and most general industrial applications.

The QTW150 is environmentally sealed to IP65 and suitable for an ambient operating temperature range of -20°C to +120°C.



Reliable and consistent performance.

HOB3 HAND OPERATED BEVEL

The HOB3 gearbox is a new addition to the HOB/MPR range of bevel gearboxes.

Manufactured with a cast iron gearcase, ductile iron baseplate and zinc plated fasteners, the HOB3 has been life-tested to ensure that maximum performance, reliability and quality is consistently maintained. The totally enclosed, maintenance-free gearing is grease filled for life and environmentally sealed to IP67.

The maximum torque output of the HOB3 is 315 Nm, maximum thrust 75 kN and maximum bore 40 mm.

The standard ambient operating temperature range is -40°C to +120°C, with high and low temperature options available.

Further options include increasing the IP67 watertight enclosure to IP68, padlockable input, local position indicator, cover tubes, special coatings for aggressive environments and a firesafe trim conforming to ISO10497.

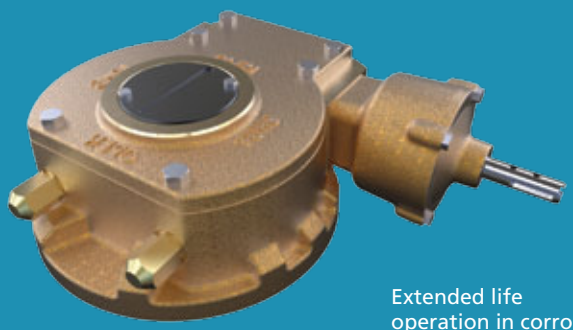
Robust and reliable manual operation of gate valves, globe valves and penstocks.

BR SERIES BRONZE GEARBOXES

Manufactured from high quality cast aluminium bronze and stainless steel materials, BR gearboxes deliver torques up to 61,955 in. lbs and are suitable for ambient operating temperatures up to 200°C (392°F).

Applications include valves in corrosive manhole and vault steam distribution environments where road salts, standing water and high temperatures are common.

Grease filled and o-ring sealed for life, BR Series gearboxes are available for new valves or as retrofit kits for existing installations.



Extended life operation in corrosive environments.

ABM GEARBOX

The ABM gearbox series, for use with motorised quarter-turn valves and dampers, are rugged, industrial grade products manufactured with cast iron housing components, featuring a polyurethane coating and high performance axial bearings.

New models in the ABM range increase the maximum output torque to 2,000 Nm and the maximum output bore to 65 mm, offering increased suitability for many applications in the chemical, power generation, water & sewage treatment, HVAC and general industries.

Extended range for motorised valves.

PRODUCT

ROTORK SPI KEEPS PLANT CONTROL SYSTEMS RELIABLY INFORMED OF MANUAL VALVE POSITIONS

The Rotork Gears SPI Smart Position Indicator provides an accurate and reliable valve position signal for remote indication.

Refinery operators have a pressing requirement to improve the efficiency of flow control in their plants and they want to know from the Distributed Control System (DCS) if valves are open or closed. In a typical refinery, 10% of valves are actuated and 90% are manually operated. This poses a serious problem for end-users if the DCS does not accurately know how many manual valves are opened or closed, which limits the efficiency of their business operations.

To meet this challenge, Rotork Gears has introduced the SPI Smart Position Indicator, designed to provide a vastly improved, more robust, reliable and accurate solution compared with previously available equipment. This innovative solution has led a Spanish end user to place an order for approximately 900 units. With an SPI installed, the control centre is able to monitor any of the valves in the refinery, so operational control is more accurate.

The SPI has a large dial display to show the valve position locally and one or two internal switches or sensors for remote indication. The fully sealed aluminium enclosure provides an accurate and reliable valve position signal. For larger valves that are operated with a gearbox, the SPI is mounted to the gearbox input flange. For smaller valves it can be mounted directly on the valve and an optional thrust base is available for rising stem applications. The SPI uses the same ISO 5210 valve adaption as used for electric actuation, which is considerably more robust than alternative “arm” methods.

Environmentally sealed to IP67, the SPI is available in two IECEx/ATEX Ex certified variants for hazardous areas; an Ex e ‘increased safety’ version for gas and dust applications, and an Ex i ‘intrinsic safety’ version for gas only. Additionally, a non-certified safe area version is also available. The SPI is easy to maintain and, unlike other products, in case of failure, the valve still remains available.

In addition to chemical and petrochemical plants, typical areas of application for the SPI include power stations, public infrastructures, airports and fire hydrant systems.

ZERO-BLEED CONTROL

THE PATENTED BIFOLD FILTER BOOSTER TECHNOLOGY ALLOWS AN EQUIVALENT FLOW RATE OF LARGER SYSTEMS TO BE ACHIEVED BY THE PICØ.

With legislation moving towards lower emissions, Bifold have developed the new Pneumatic Intelligent Controller (PICØ).

1,000,000th

PICØ IS A TRUE ZERO BLEED PNEUMATIC POSITIONER WITH A BLEED RATE ONE MILLIONTH THAT OF EXISTING PNEUMATIC POSITIONERS.

FEATURES

- Patented balanced hard seated solenoid valves.
- Patented proportional fill and exhaust filter boosters.
- Universal Digital Positional Controller.
- Pressure transmitters.

BENEFITS

- Efficient use of compressed air, by only pressurising to fully open actuator - not to a regulator set pressure.
- Higher operating pressures resulting in smaller actuators (10 bar working pressure).
- Allowing controlled and accurate partial stroke with diagnostics of safety factors, without the need to vent any actuator over pressure before initiating movement.

Bifold have developed a revolutionary control system which will transform pneumatic actuation, both in positional control but also on/off and ESD valves.

The PICØ will be available with one control logic head which is then amplified by the Bifold filter booster range from ¼" up to 2".

This exceptional flow is achieved by moving all the pressure regulation and valve control logic away from the flow line, at the same time as combining the filter into the booster itself. This final step results in the maximum possible differential pressure across a single element, maximising flow.

In addition to the positional control capability of the PICØ, which is comparable with the industry leading pneumatic positioners, the PICØ can be used on on/off and ESD actuators because of its true zero leak capability combined with proportional control and high flow.

The Bifold Universal controller, which forms the digital control element of the PICØ, is a fully configurable SMART controller with on screen valve diagnostics, signatures and data capture.

The controller features HART®, Modbus® and Bluetooth® comms as well as fully configurable control logic. Combined with hazardous area certification the PICØ is compliant to leading industry control standards including GE/Nouvo Pignone, 34-SAMSS-634 ZV etc.

PRODUCT

LOW POWER DC

ACTUATOR AND PRESSURE REGULATORS

THE ROTORK FAIRCHILD PAX1 LOW POWER EXPLOSIONPROOF ELECTRIC LINEAR ACTUATOR PROVIDES PRECISE POSITIONAL CONTROL FOR A WIDE RANGE OF APPLICATIONS INCLUDING PUMP STROKE CONTROL, DAMPERS AND TEST EQUIPMENT.

THE RESULT IS A FLEXIBLE, LOW POWER AND FIELD CONVERTIBLE UNIT REPRESENTING THE NEXT GENERATION OF MOTORISED PRESSURE REGULATION.

Operating from an 11-26 VDC power supply, the compact PAX1 actuator delivers a maximum linear thrust of 2,890 N (650 lbf) over a 25 mm stroke at adjustable speeds of up to 60 mm/minute. Accuracy is quoted as +/- 1% of full stroke.

The Fairchild PAX1 Range of motorised pressure regulators is a new design, based on the proven and well-established Fairchild MP2400 Range and benefitting from years of customer feedback and field experience.

The PAX1 is ideal for midstream and downstream natural gas systems demanding precision and reliability.

Integrated within the improved human interface (HMI), push buttons enable local control and facilitate the setting of various options. These include limit switches, travel alarms, high and low set points and analogue feedback. A female hexagon motor drive interface also allows manual operation.

The IP68/NEMA 4X watertight enclosure, combined with FM explosionproof certification and an ambient temperature range of -40°C to +80°C (-40°F to +176°F), optimises use in potential operating environments, whilst the NAMUR standard mounting interface maximises suitability for industrial applications.

1W

The low power consumption, which reduces to less than 1 Watt in standby mode, is ideally suited to solar and battery energy sources.

ROTORK PROVIDES COMPACT SOLUTION FOR CHEMICAL DOSING

Rotork CMA process control actuators deliver a reliable, compact solution for a new chemical dosing application at a water treatment plant expansion at the City of Loveland, Colorado USA.

The chemical dosing skids are part of a new chemical storage building, housing two giant tanks with a capacity of 46 million gallons per day (MGD).

Operating mostly CPVC ball valves and some 4” butterfly valves on the chemical feed pump main and bypass lines, 21 CMQ 500 actuators control the delivery of chemicals to the various processes. The skid-mounted valves and pumps control the dosing of alum, polymer, sodium hypochlorite, fluoride, chlorine dioxide and sodium bisulphite.

LOCAL CONTROLS ON THE ACTUATORS ALSO CONTRIBUTED TO SELECTION, A UNIQUE FEATURE OF THE COMPACT CMA DESIGN.

COMPACT PRESSURE SWITCH

A new addition to the Rotork Midland Series 4500 Range of pressure switches is designed for reliable operation in critical duties in locations prone to shock and high vibration, with ambient and media temperatures ranging from -40°C to +85°C. Typical applications include compressors and braking systems.

The compact design of the ¼” pneumatic pressure switch features a nitrile butadiene rubber (NBR) diaphragm suitable for a wide variety of gaseous and liquid fluid media, including oils with a maximum viscosity of 1,000 m^2/s. Accurate and repeatable performance is provided in adjustable pressure ranges from 0.2 – 2 Bar up to 1.6 – 16 Bar. IP65 environmental protection in accordance to EN 60529, including electrical connections, provides suitability for installation in exposed locations, whilst long term reliability is further enhanced by gold plated microswitch contacts.

Tested in accordance to EN 61373 and available with UL and CSA approvals.

High vibration
Low temperature.

PRODUCT

IQT ACTUATOR UPDATE

INCREASED PERFORMANCE AND VERSATILITY

The new IQT3000 actuator increases the maximum output torque capability to 3,000 Nm (2,214 lbf. ft), enabling the direct drive of an increased range of part-turn valves.

The IQT range now delivers an output torque performance spanning 20 to 3,000 Nm (15 to 2,214 lbf.ft), enabling compact and economical actuation of larger part-turn and linear valves without secondary gearboxes.

PRECISE CHOKE VALVE CONTROL

IQT actuators for choke valves, designated IQTF, provide the vital high accuracy, resolution and reliability demanded by arduous applications associated with oil and gas fields and general process control management.

The standard specification delivers up to 1,800 starts per hour, micro-step motion 0.1% resolution and 0.3% accuracy. The design is available for direct mounting on rotary, rising stem (up to 20 turns) and linear valves and operates with low power consumption on 1- and 3-phase AC or 24 VDC supplies.

APPLICATION

INCREASED SAFETY AT MAURITIUS AIRPORT

An engineer from Electrical & Control Specialists Ltd. installing one of the new Rotork Skilmatic SI actuators in the JUHI fuel storage depot at the SSR International Airport in Mauritius.

In a project to increase safety, Rotork Skilmatic SI electro-hydraulic actuators have been installed in the Joint Users Hydrant Installation (JUHI) fuel storage depot at the Sir Seewoosagur Ramgoolam (SSR) International Airport in Mauritius.

Replacing obsolete electric actuators from another manufacturer, the Profibus-enabled, ATEX-rated failsafe actuators have been installed in critical valve areas to prevent potential spillages by automatically closing-off the flow of fuel on receipt of an overfill alarm signal.

The actuator installation was performed by Rotork's South Africa office and their Mauritian agents, local company Electrical & Control Specialists Ltd., whose responsibilities encompassed removing the old actuators and cabling, designing and fabricating new valve adaption, fitting the Rotork actuators, wiring-up and commissioning.

ESD

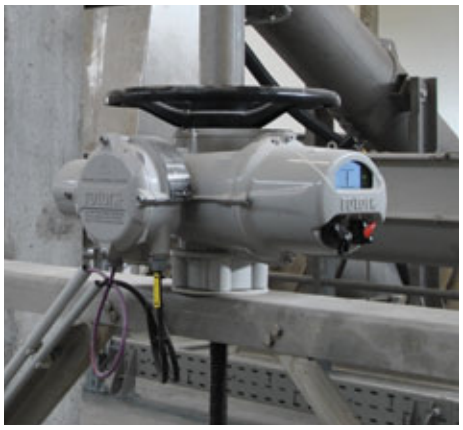
THE SKILMATIC ESD (EMERGENCY SHUTDOWN) FUNCTION AUTOMATICALLY CLOSES THE VALVE.

90,000

THE HIGHLY AUTOMATED TREATMENT FACILITY, SERVING A POPULATION OF 90,000, WAS RECENTLY INAUGURATED BY THE PRESIDENT OF PORTUGAL, MARCELO REBELO DE SOUSA, AND IS NAMED AS A NATIONAL ENVIRONMENTAL BENCHMARK FOR FUTURE DEVELOPMENTS.

SUPPORT FOR PORTUGAL'S PLAN FOR ADVANCED WASTEWATER TREATMENT

The Viseu Sul WWTP in Portugal's Viseu County is the first in the country to adopt advanced membrane filtration (MBR) wastewater treatment technology.



PROFIBUS DP-ENABLED ROTORK IQ INTELLIGENT NON-INTRUSIVE VALVE ACTUATORS SUPPORT PORTUGAL'S PLAN FOR ADVANCED WASTEWATER TREATMENT.

MBR treatment plants work without the addition of chemicals and with relatively low energy consumption, combining secondary and tertiary treatment and eliminating traditional sand and carbon filtration. Centralised process control and automation is facilitated using Profibus DP network technology. It uses Rotork's latest multi-turn and part-turn intelligent non-intrusive electric actuators (IQ and IQT respectively) to operate penstocks and butterfly valves for flow control throughout the wastewater treatment process.

The Rotork IQ Profibus DP interface card provides comprehensive control and feedback data about the valve and actuator using DP-VO cyclic communication. Extensive actuator diagnostics and configuration information is included in the DP-V1 acyclic data supported by the card, enabling valve profiling and diagnostic data collected by the IQ actuator to be incorporated into asset management systems.

The Rotork reputation for all-weather reliability in the global water and wastewater treatment industries, combined with the local availability of technical support from the manufacturer available from Rotork Iberia, also made important contributions to the selection of IQ actuation technology for this landmark project. In addition to being the most advanced WWTP in Portugal, the new Viseu Sul plant will enable the closure of other treatment plants in the area which do not meet the latest environmental regulations.

ABOUT ROTORK TODAY

Rotork comprises four actuation and flow control divisions. In addition, Rotork Site Services works across all four divisions, providing customer care and asset management solutions to our industrial partners and end users all around the world.

Rotork Controls

Rotork Controls' products include the Group's electric valve actuator ranges and network control systems for all applications, and it is the largest independent manufacturer in its sector. It has manufacturing facilities in UK, USA, China, Malaysia, India, Germany and Spain.

Rotork Fluid Systems

Rotork Fluid Systems manufactures and supplies a comprehensive range of pneumatic, hydraulic and electro-hydraulic actuators and control systems that are used in a wide range of applications. It has manufacturing facilities located in UK, Germany, Italy, Sweden and USA.

Rotork Gears

Rotork Gears is a specialist manufacturer and supplier of gearboxes, adaptations and accessories to the international valve and actuator industry. It has manufacturing facilities located in UK, Netherlands, Italy, India, China and USA.

Rotork Instruments

Rotork Instruments manufactures and supplies instrumentation and control products for flow, pressure, temperature and position measurement applications for a wide range of industries. It has manufacturing facilities located in UK, Korea, Italy and USA.

Customer Care

For 60 years Rotork has developed ways of working across borders and time zones to maximise local skills and links, whilst leveraging Group resources and expertise. Our global presence is key to supporting existing customers and new customer requirements.

Rotork continues to deliver high quality, technically advanced and innovative flow control products, with a superior level of service to support customers and protect processes and plants.

CELEBRATING 60 YEARS OF PROGRESS, INNOVATION AND RELIABILITY

Celebrating its 60th year in 2017, Rotork is recognised as one of the leading companies of flow control, serving a wide range of important and strategic industries across the globe with reliable and innovative products.

Today, plant automation and control is taken for granted, but it has not always been so. The first steps in its development can be traced back to the mid 1950's and the beginnings of Rotork in 1957. Responding to the needs of the expanding oil industry in Europe and the Middle East, as well as the growing need for automation in the water and power markets, Rotork soon gained a reputation for quality, innovation and reliability.

Since those early days, Rotork has steadily grown to become a flow control company with a comprehensive range of products. Rotork's products are used extensively in the oil and gas, power, water and waste water markets, and the continuous development of the Rotork product portfolio has enabled expansion into new and diverse market areas including marine, pharmaceutical, HVAC, mining, bio medical, rail, tyre manufacturing, pulp and paper and food and beverage.

1957
2017

rotork®

Keeping the World Flowing

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