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INDUSTRY LEADING FLOW CONTROL NEWS FROM THE WORLD OF ROTORK

# Rotork contributes to Coca-Cola Enterprises environmental improvements

Full Story p3

## Also inside:



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*A Rotork engineer demonstrates the improved control valve performance illustrated by the Rotork CVA actuator's data logger at Coca-Cola Enterprises (CCE).*

# rotalk 38

## INDUSTRY LEADING FLOW CONTROL NEWS FROM THE WORLD OF ROTORK

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WaterAid

# Rotork contributes to **Coca-Cola Enterprises environmental improvements**

COVER STORY

***Rotork CVA electric control valve actuation technology is helping Coca-Cola Enterprises (CCE) to increase efficiency and reduce energy costs at its Wakefield production plant.***

CCE has invested over £100 million over the last five years at the Wakefield site, which is the largest soft drinks production plant in Europe, as part of a long term programme highlighting its commitment to local manufacturing and the development of new technologies. Since installing and acting on the information produced by an Energy Monitoring system, the company has so-far reduced electricity consumption at Wakefield by 13% since 2009.

An important part of the plan involves saving the on-going cost of providing and maintaining an instrument air supply for traditional pneumatic control valve actuation. This is being implemented at Wakefield by the introduction of the Rotork CVA control valve actuator to perform modulating and failsafe valve duties.

A recent example is on the production line where the adoption of Rotork CVA technology for a demanding valve duty has considerably reduced the cost of energy consumption when compared with traditional pneumatic actuation with no loss of performance.

Andy Reynolds, Automation Engineer at the Wakefield plant, takes up the story:

"We were looking for an alternative to pneumatic control valves in order to remove the need for compressed air as much as possible in the area and reduce costs. Based on average air usage of 2 $m^3$/hr for a 3" control valve at £0.05 per $m^3$, the running cost would be £870 per annum. The CVA actuator, using an average of 10 Watts at £0.15/kW, would cost £13 for the same period. This represents a minimum saving of £857 per annum per valve, as this figure does not take into consideration any leaks in the system.

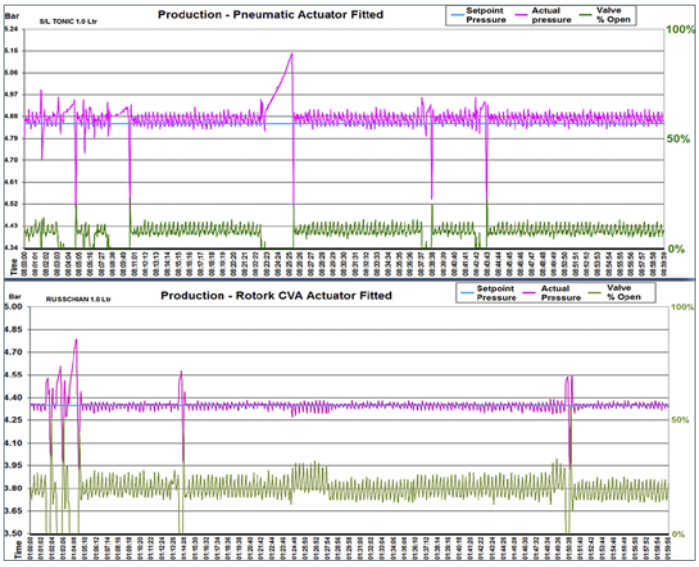
"Up to now, electrically actuated valves could not respond fast enough to maintain good pressure control in the bottle filling machine. Rotork were confident that their CVA actuator would not only give a similar performance to our existing valve, but would also be cheaper to run. Their confidence was so high they offered us an actuator on a sale or return basis if it did not meet expectations in any way.


"To prove this, the performance of the existing pneumatic control valve on the main product feed into the filling machine was first monitored and recorded. Using an adaptor made at Rotork's facility in Leeds, the CVA actuator was then fitted to the same valve and connected to the existing 4-20 mA control signal from the PLC.

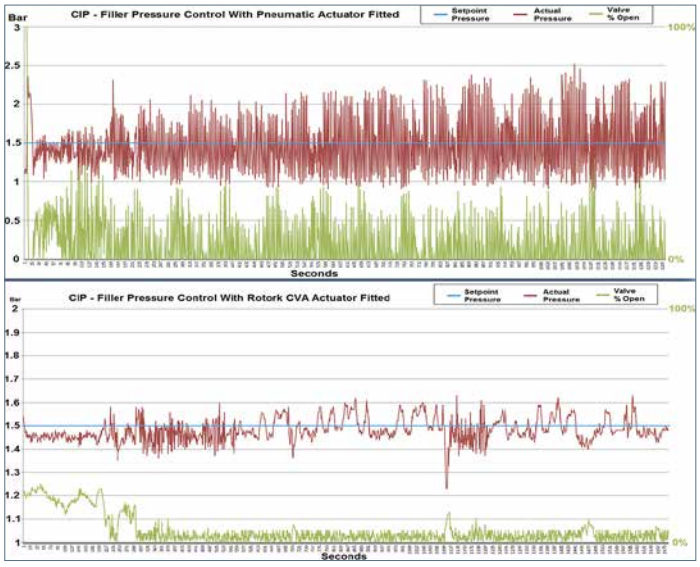
"After running and monitoring the CVA actuator in a 24-7 operation for 1 month, the results from the two actuators were compared. The graphs clearly show that in production mode the CVA performs equally well, if not better than the pneumatic actuator. However, when in CIP (Clean in Place) cleaning mode, the performance of the CVA is much better than the pneumatic.

This is because the CVA actuator does not overshoot the set point like the pneumatic actuator does when the set point is lower and back pressure in the circuit is higher when in CIP mode."

Commenting on the work at Wakefield, Rotork UK Site Services Manager Ian Elliott (pictured above, with CCE Maintenance & Bottle Blowing Manager Lee Baker) said: "We were asked by CCE to improve the production operation, which has been successfully achieved with the added benefit of a reduced reliance on costly instrument air. We are looking forward to the future with this household name company and the opportunity to introduce our innovative products throughout their global operations."




*These two graphs show the improved positional accuracy of the CVA actuator in comparison with the pneumatic actuator in the production mode.*




*These two graphs show the improved positional accuracy of the CVA actuator in comparison with the pneumatic actuator in the CIP (Clean in Place) mode.*

# ‘Drop-in-place’ actuators **facilitate marine turbine damper upgrade in three days**

***The choice of Rotork Type K vane type actuators to replace existing equipment has enabled the control upgrade of a cargo ship’s main propulsion intake dampers to be completed in three days.***

SS Cape Isabel (pictured above) is a 655 ft, 15,000 ton roll on/roll off cargo ship based at Long Beach and operated by the US Military Sealift Command. Launched in 1976, the ship is powered by two steam turbines.

The ship’s two turbine intake radial vane dampers were equipped with pneumatic controllers which had become obsolete. The old actuators did not respond quickly and accurately to signals from the control system, resulting in potentially inefficient combustion and undesirable emissions. Replacing the actuators was necessary to increase efficiency, reduce maintenance and the associated costs that could result from unplanned shutdowns.

The equipment selected to upgrade the old actuators was Rotork Type K damper drives, which provide a direct ‘drop-in-place’ replacement that exactly matches the existing damper drive footprint and output shaft location.

Duplication of the existing drive’s dimensions simplifies the installation, enabling the upgrade to be swiftly completed in a matter of hours.

Type K damper drives incorporate vane type actuators that offer high speed full stroke capabilities of less than 5 seconds, combined with accurate and responsive positioning. The rugged construction is designed to withstand the harsh environments associated with power stations and combustion plants.

Once the two Type K pedestal mounted damper drive units had been delivered to the ship, installation of both units was performed by engineers from Rotork Site Services within three days.

All the work was co-ordinated prior to commencement by the ship’s Chief and First Engineers. Days one and two were taken up with the removal of the old equipment and the installation of new, enabling commissioning, testing and hand-over to be completed during day three.

*Above: SS Cape Isabel (AKR-5062) in her layberth at Long Beach, CA. in May 2009. Photo by Richard Miller BMCS USNR Ret.*

*Right: One of the Rotork Type K damper drive installations on the SS Cape Isabel.*

# Supply vessel takes on board the benefits of Schischek actuation

***Nearly 200 Schischek InMax actuators have been supplied to the automation specialist company Pecol SRL for installation on an offshore oil industry supply vessel under construction in an Italian shipyard.***

The InMax actuators were specified for air and fire control damper operation on the vessel after engineers from Rotork Schischek and Pecol demonstrated the advantages of a compact and robust electrical solution for this duty. Due to the exposed on-deck location of many of the actuators the IP66 AISI 316 stainless steel enclosure version was selected to withstand the corrosive effects of the marine environment.

Rotork Schischek manufactures electric actuators for quarter-turn and linear valve and damper operation with a spring-return failsafe capability and with 'Ex' or 'Red' explosionproof or 'In' non-explosionproof enclosure specifications.

The Max range is designed for quarter-turn operation at output torques between 5 and 150 Nm with a selectable stroke time of 3, 15, 30, 60 or 120 seconds. The selectable stroke time is one of a number of options that are built into the standard product, including the adaptable power supply and choice of on/off, three-position or modulating control.


*Rotork Schischek InMax actuator with AISI 316 stainless steel enclosure as supplied on the supply vessel contract.*

For position signalling and feedback a 4-20 mA or 0-10 V supply can be utilised, whilst two end of travel auxiliary position switches are optionally available. An integral heater automatically maintains reliable actuator operation at temperatures down to -40 °C, facilitating the installation of standard products in extreme environments. In its failsafe version the actuator is available with SIL2 safety integrity level approval.

The supply vessel order follows a similar marine industry order from Pecol involving ExMax explosionproof actuators, supplied for damper control on an Italian naval aircraft carrier.

# Compact actuators for LNG cryogenic valves

***The use of LNG (Liquefied Natural Gas) as a cheaper and less polluting alternative to diesel for generators providing the power to remote sites is becoming increasingly widespread.***

With many thousands of sites throughout the world, oil and gas drilling industry companies are among the operators who have introduced the technique, which involves the use of specialised trailer-based plant to deliver, store and process the gas prior to combustion.

LNG is transported to site in specially designed tankers which also store the liquid gas at the cryogenic temperature of -162 °C. A separate trailer, housing the re-gasification system, normally sits between the tanker and the generator. The main component of the re-gasification system is the vaporiser, which converts the LNG from liquid to gas and feeds it to the point of use. This system, together with auxiliary processes including pressure building in the tanker to improve flow, utilises scores of valves which are typically small, cryogenic and tightly arranged within a compact installation.

Those valves that are automated therefore require a particularly compact and fast acting actuator, capable of providing powerful rotary or linear drive, for isolating and modulating duties in a hazardous environment. This is a scenario that is proving to be ideal for the Rotork Schischek range of electric actuators, due to their small size, flexible power supply range, failsafe capabilities and explosionproof approvals.

An increasing number of ExMax (quarter-turn) and ExRun (linear) actuators are being supplied to OEMs and fabricators in these areas and in other process applications handling LNG in cryogenic environments.

The Schischek self-adaptive universal power supply has a range of 24 to 230 V, AC or DC. Explosionproof certification for Schischek actuators encompasses UL, CSA, ATEX, IECEx, GOST/RTN, INMETRO and KOSHA international standards, with safety integrity levels up to SIL3 also available with failsafe products.

Valve stroke times are suitable for fast operation and selectable at speeds between one and 120 seconds, depending on actuator model. All models are fitted as standard with internal heaters enabling cryogenic operation at ambient temperatures down to -40 °C.

*The Rotork Schischek ExMax actuator is successfully used in LNG cryogenic applications.*

# Rotork wins valve control contract in project to boost Malaysia's oil and gas industry

***Rotork has received orders for over 700 of its latest IQ3 non-intrusive intelligent electric valve actuators with Pakscan P3 two-wire digital control systems for the Pengerang Terminal on the south east coast of Malaysia.***

Situated near to the city of Johor Bahru, the five million cubic metre capacity terminal is a part of the country's Economic Transformation Programme, designed to create a more dynamic and progressive oil and gas industry in Malaysia.

With the completion of Phase 1A of the project, 274 explosionproof IQ3 actuators fitted with Rotork Gears IB bevel gearboxes have been installed to operate gate valves on flow control applications throughout new import jetty and storage tank facilities. The actuators are monitored and controlled by eight Pakscan P3 120-channel hot/standby master stations, situated on-site in three cabinets and linked to a centralised Yokogawa SCADA system.

The well-proven and rugged Rotork IQ3 actuator incorporates advanced data-logging, diagnostic and communication features, providing a high level of functionality and asset management abilities. Innovations have been introduced to enable the operator to access more data in the field and, via the Pakscan P3 network, in the control room. Pakscan P3 delivers secure field communications with inbuilt network redundancy and is specifically designed for valve actuation activities in the spacious environments associated with tank farm installations. Each network is capable of monitoring and controlling up to 240 field units without repeaters on a single two-wire highway with a 20 kilometre maximum length.

*A 'sea' of Rotork actuated valves in one area of the Pengerang Terminal.*

Rotork's success with this project has been assisted by customers' previous experiences with Rotork products and the support of its international sales and service organisation. More than 300 IQ actuators with Pakscan have been operating reliably for nearly five years at DIALOG's Tanjung Langsat Tank Farm, with a local source for service engineers and after sales support provided by Rotork Malaysia.

*Using the non-intrusive hand tool, an engineer from Rotork Malaysia checks the commissioning settings on an IQ3 actuator at the Pengerang Terminal.*

# Customised solutions news from Hiller - when standard products are not the answer


*The custom-built Rotork-Hiller actuator designed for the electro-hydraulic operation of a three-way globe bypass valve within a reactor chemical water clean-up system. Restricting the overall dimensions was a critical part of the design specification, ruling out any possibility of using a standard product.*

***The overriding majority of valve actuation applications in today's industries are fulfilled with standard products. In some cases an actuator may need to be modified to suit specific operating requirements, but here again a solution based on a standard product can usually be found.***

There are occasions, however, when the physical and operational demands of an application rule out anything other than an entirely customised approach to the problem.

The long-standing experience of Rotork-Hiller in the fluid power and motion control industries has been mostly built on the provision of actuators for critical and vital applications calling for the design and manufacture of solutions to suit customers' individual requirements. Unlike other manufacturers therefore, customised valve actuation is the cornerstone of the company's activity.

Among many examples, an actuator recently built in compliance with customer specifications serves as a practical illustration of this activity. The specification called for a self contained electro-hydraulic modulating actuator to operate a three-way globe bypass valve within a reactor water chemical clean-up system. This was a non-safety related application, but the specification also dictated a strict weight limitation and a maximum overall dimension envelope.

Rotork-Hiller engineers put together a package incorporating all the requirements, including a number of components manufactured uniquely for the application. Meetings with the customer and design reviews enabled modifications to be made during the production process until the compact final package was completed.

One of the engineers closely involved with the project takes up the story: "Everything was achieved in a timely fashion during which we designed and built a prototype for proof of concept and life testing in only six weeks, prior to design modifications and final design approval. The design demanded a lot of project specific direction to produce a modular electro-hydraulic actuator with a wide range of linear travel and thrust outputs. The lightweight and compact design delivers a highly accurate and responsive modulating performance and incorporates an intelligent positioner with HART communication protocol.

"The complete package was successfully tested to industry standards for Electromagnetic Compatibility (EMC) at an independent laboratory. The project illustrates how Rotork-Hiller is willing to go the distance and provide customer service at a level that is exemplary."

# Compact fast-acting failsafe actuator calls for innovative solution

*Rotork-Hiller's compact design is the company's first to incorporate a failsafe stored energy accumulator within the dimensions of a fast-acting pneumatic actuator.*

***In another recent contract, an enquiry to build a fast-acting failsafe stop valve actuator for a plant firefighting system demanded an exceptionally innovative design solution.***

The specification called for a very compact pneumatically operated actuator, with no springs for the failsafe function, necessitating the provision of a stored energy accumulator. The addition of a conventional accumulator would have exceeded the dimensional constraints of the specification, so Rotork-Hiller engineers conceived a radical new design which incorporated the accumulator within the pneumatic actuator. The design not only eliminated the size problem but also freed-up additional space for mounting the controls to the actuator. These controls include filters, regulators, solenoid valves and pressure switches, contained within overall actuator dimensions of 470 x 584 x 680 mm (18½ x 23 x 26¾ inches).

The controls reduce the customer's supply pressure of 45 Barg (652 psig) to 31 Barg (450 psig), which is pumped into the accumulator to provide approximately 4.4 litres (1 US gallon) of storage capacity. The actuator delivers a maximum thrust of 27,617 N (6,209 lbf).

When asked about the challenges presented by this project, Rotork-Hiller's Engineering Manager replied: "Our biggest challenge was the ability to meet the customer's expectations with a unique actuator design, built to stringent specifications and regulatory requirements and supplied within an expedited schedule. With the innovation applied to the design, our lead engineer on the project has confirmed that all expectations have been met or exceeded. One of the best features of this design is the pneumatic system redundancy with the ability to support the failsafe function of the valve in a simplified stand-alone package. The integration of the nitrogen storage accumulator within the actuator body itself can be further developed and potentially applied to all existing Rotork-Hiller failsafe pneumatic designs."

# Site Services contribute to **improved efficiency for Thames Water**

***Thames Water is the UK's largest water company, providing essential services for 15 million customers in London and the Thames Valley.***

The company invests heavily in new technologies and improvements to increase efficiency and meet the challenges imposed by strict environmental regulations. A framework agreement for the supply of Rotork valve actuators contributes to the achievement of these objectives through the upgrading and automation of flow control equipment in many areas of Thames Water's operations.

Rotork Site Services also assists Thames Water with the design and installation of valve and actuation plant upgrades.


*David West, Thames Water's West London Abstraction Engineer, uses the hand held setting tool to operate an IQ3 actuator at the upgraded reservoir inlet site.*


*Using the non-intrusive setting tool, Rotork Site Services engineers confirm the commissioning settings on an IQ3M actuator.*

As illustrated by two recent examples, these contracts often include extended scope engineering disciplines that can be provided by Rotork Site Services, resulting in a simplified contractual route and a reduced requirement for additional sub-contractors. Both examples involve the installation of Rotork's latest IQ3 non-intrusive intelligent valve actuators, incorporating sophisticated diagnostic technologies for increased efficiency, reduced maintenance and improved long term asset management.

The first site is a river take-off inlet to a raw water pumping station, where IQ3M modulating actuators have been installed to replace locally operated electric motors on three large river gates. The upgrade enables the gates to accurately maintain a steady flow into the pumping station under all ambient conditions by automatically responding to changes to the condition of the river. The old motors were controlled from a switch panel inside an adjacent kiosk, but the unpredictable requirement for operation at any time, day and night, could cause operating delays which, combined with the restricted ability to accurately position the gates, resulted in potentially problematic fluctuations in the water supply to the pumping station.

The IQ3M actuators now operate automatically from a 4-20 mA control signal from ultrasonic level sensors and a PLC, enabling accurate, responsive and virtually unlimited gate movement in small increments, 24 hours a day, without any human intervention. The installation is monitored in the site's central control room, from where the actuators can also be remotely operated if necessary.

In addition to the supply and installation of three Rotork IQ3M actuators and multi-turn gearboxes, the work undertaken by Rotork Site Services also involved the design and manufacture of new adaptation

between the river gates and gearboxes, the removal of the old motors and cabling, the installation of electrical isolators and new power and control cabling between actuators and the kiosk, modifications to the distribution board in the kiosk and the provision of an uninterrupted power supply. Mechanical and electrical installation and commissioning of the actuators was completed within the time allowed, without interruption to the normal operation of the treatment works.

At the second site, at another major water treatment works, Rotork has automated large manually operated penstocks on the inlet to a reservoir.

Rotork Site Services performed a complete mechanical and electrical upgrade on one 60 inch and four 54 inch penstocks, involving the removal of old gearboxes and pedestals, the design and installation of new pedestals and installation of IQ3 actuators and bevel gearboxes. The electrical work encompassed new isolators and floodlights, cabling between the actuators and an existing kiosk and modifications to an existing distribution board.

In both cases, the replacement of old equipment with Rotork actuators has improved the efficiency of what had been laborious and time consuming processes. David West, Thames Water's West London Abstraction Engineer, comments:

"At the first site the new inlet gate actuators and associated automated control system will allow us to run the inlet channel at a higher level than was previously possible. This will save us significant pumping energy costs by increasing the suction head on all our raw water pumps. At the second site, installation of actuators and site lighting makes isolation of this statutory reservoir quicker and safer. What was recently a very physical four man job for several hours is now carried out by Rotork actuators."

*One of the Rotork IQ3M actuator and gearbox installations on the river gates; the actuator is fitted with a vandalproof cover to prevent unauthorised local operation.*

# Extended scope contract provides a simplified flood defence solution

***There are many good reasons for introducing a level of automation to manually operated river sluice gates. Sluice gates are vitally important for defending against flooding during periods of persistent rainfall, when swift and reliable operation can prevent serious disruption and damage to property.***

Alternatively, during periods of drought, sluice gates play an important role in maintaining the river level.

The automation of a sluice gate is a relatively simple operation in itself. However there are many factors including the location of the gates and the availability of power which can turn the exercise into a multi-disciplined task demanding a range of mechanical, electrical, civil engineering and project management skills.

This was the situation facing Canford School, a co-educational boarding school set in 250 acres of ground on the banks of the River Stour in Dorset, when an upgrade was needed to the operation of three river sluice gates. Installed many years ago, the gates enable the upstream area of the river to be accessed, mainly for school sports use in year-round rowing activities. The two-metre square gates were equipped with open mesh gearboxes and handwheels, together with counterbalancing weights attached to each gate by a lifting chain and open pulley.

Manual operation of the gates took a long time and required a great deal of effort, as well as presenting a potential trapping risk to the operator. In recent times, changing weather patterns had also increased the risk of flooding to school property. Automation was therefore essential not only because of the flooding threat but also from a health and safety viewpoint.

Following a consultation with the Environment Agency, Canford School selected Rotork Site Services to perform the project on the sluice gates. Rotork's proposal encompassed all aspects of the task in an extended scope contract, enabling them to organise the total supply of the work together with project management services.

A major benefit of this approach for the customer is the simplified contractual route that the extended scope contract enables, by minimising the number of separate sub-contractors that need to be employed.

Central to the upgrade was the installation of three Rotork IQ electric valve actuators and a local control centre.

However, being in a wooded environment some 60 metres distant from the nearest power supply, considerable extra work was also required, as summarised below.

- A full survey of the existing sluice gates and hinterland. Measuring existing equipment for design and fabrication of adaptation for the actuators and protective shielding for the open pulleys and chains.
- The supply and installation of an isolation and distribution board to an existing power supply in a building 60 metres from the river.
- A cable detection survey and excavation of the cable route. Supply and installation of power cabling with a total length of 110 metres in ducting above and below ground between the power supply, the local control kiosk and the actuators. Installation of a concrete pad and a GRP kiosk for the local electrical control panel.
- The design, fabrication and installation of the actuator control panel, providing local isolation and push button open and close operation for each gate.
- The supply of lifting equipment to remove the existing open mesh gearboxes and pedestals, one at a time to facilitate manual operation of two gates at all times.
- The design, fabrication and installation of three new actuator mounting pedestals and six pulley guards.

*Final inspection in progress following completion of the automation upgrade of Canford Sluice.*

- Installation of Rotork Gears IB9 sealed gearboxes with machined drive nuts to suit existing spindles and cover tubes to protect the spindles and prevent potential entanglement. Installation of three Rotork IQ35 electric actuators. Setting the actuator open and close limits and commissioning of the completed installation.

Following the completion of the work the time and effort required to operate the sluice gates has been dramatically reduced, enabling the school to manage the river level and flow with increased efficiency and in complete safety. In the future there may be scope to further upgrade the operation by installing river level sensors, the signals from which would operate the actuators fully automatically.

# Complete range of **Soldo safe and hazardous area switchboxes now in stock at Valvekits**

***Rotork Valvekits has completed its off-the-shelf offering of Soldo switchboxes for quarter-turn actuators and valves by adding the safe area SP range to the hazardous area Soldo ranges that it already holds.***

The compact, economical and corrosion resistant Soldo SP range is designed for valve and damper applications requiring waterproof environmental protection to IP65 (NEMA 4 & 4X) in a standard ambient operating temperature range of -15 to +80 °C.
The switchbox body is manufactured from reinforced PPE (polyphenylene ether) with integral NAMUR (VDI/VDE3845) mounting legs, eliminating the requirement for separate brackets. All models feature a flat or optional 3D local position indicator, protected by a UV resistant polycarbonate cover. SP switchboxes are available with electro-mechanical, proximity and magnetic proximity switch options for general purpose and low current applications.

Switch setting is easily and accurately achieved by tool-free adjustment of high resolution splined cams. A reinforced M20 x 1.5 cable entry is fitted as standard, with alternative options available.

The addition of the safe area SP range complements Rotork Valvekits' existing stockholding of Soldo switchboxes for hazardous area applications, encompassing the SK and SQ explosionproof ranges and intrinsically safe models from the SP range. SK and SQ switchboxes are internationally certified for installation in EExd Zone 1 and 2 hazardous areas by ATEX, IECEx, GOST (Russia) and CCOE (India).

This extension of the Soldo agreement completes the third Rotork Valvekits stockist/ distributor agreement to have been announced in the last year.

In 2013 the company was appointed as the UK distributor for the well established Centork range of pneumatic valve positioners and as

*The addition of the safe area SP range completes Rotork Valvekits' stockholding of Soldo switchboxes.*

the exclusive stockist and distributor for the industry-leading Pneumatrol Namur range of solenoid valves.

# Type K assists compliance with strict **environmental legislation for furnaces and power plants**

***Environmental legislation demands ever stricter efficiency and control of emissions from industrial boilers, furnaces and other power plant processes.***

For example, in the USA the Environmental Protection Agency has recently introduced the MACT (Boiler Maximum Achievable Control Technology) Rule requiring operators to carry out tune-up procedures either annually or bi-annually, affecting an estimated 14,316 boilers and process heaters, whilst other nations' legislation is equally onerous.

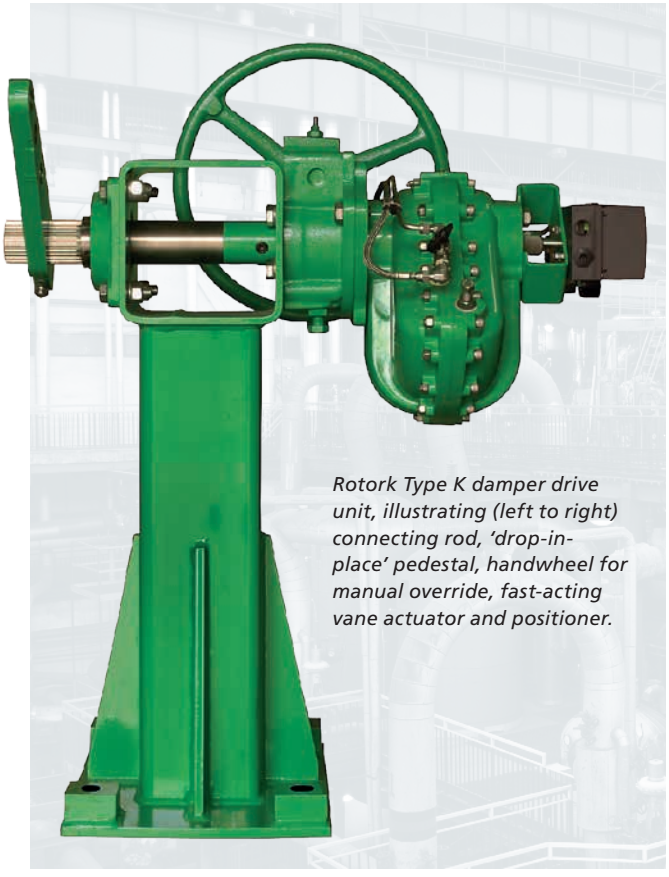
The precise and swift operation of dampers for the accurate control of combustion air and flue gas is essential for the achievement of reduced emissions, improved boiler draft control and lower fuel consumption, which can also result in dramatic cost savings.

However, many boilers employ old technologies that are not accurate or powerful enough to position the dampers with the necessary speed to meet contemporary requirements.

Replacing obsolete equipment with fast acting Rotork Type K damper drives offers many advantages, contributing to improved burner management and cleaner performance. In addition, the Type K offers a swift 'drop-in-place' retrofit solution that precisely fits the application without any field engineering or fabrication. Existing connection rods and linkages can be used without modification; commissioning is quickly and simply completed.

Type K damper drives provide a 100% duty cycle, with a continuous modulating service rating of 3,600 starts per hour. An output torque of up to 28,200 Nm (20,800 lbf.ft) is available with high speed stroke times as low as 3 seconds full scale.

The rugged, open frame construction is designed for virtually maintenance-free operation in harsh, high temperature environments up to 150 °C (300 °F).



*Rotork Type K damper drive unit, illustrating (left to right) connecting rod, 'drop-in-place' pedestal, handwheel for manual override, fast-acting vane actuator and positioner.*

# Rotork increases its **valve instrumentation product range**

***In line with its strategy of extending its offering of flow and pressure control products, Rotork has announced that Young Tech Co. Ltd. (YTC) and Rotork Midland (formerly XFC) have now joined Fairchild and Soldo in the Rotork Instruments division.***


*The YT-3300 smart positioner is one of the products now available from Rotork Instruments.*

YTC is a Korean-based, ISO9001 certified manufacturer of positioners and accessories mainly associated with pneumatic valve actuation. YTC products, including electro-pneumatic, pneumatic and smart positioners, solenoid valves and I to P converters, are widely recognised in worldwide flow control markets and industries. International hazardous area certifications include ATEX, IECEx, CSA and FM.

The positioners are used to provide accurate feedback and control for modulating control valve designs across a broad range of industries including oil and gas, chemical and water treatment.

In particular the smart positioners provide diagnostic information using HART protocol. The acquisition further enhances Rotork's position in the Asia-Pacific market, whilst increasing YTC's presence in Europe and the Americas.

Based in Wolverhampton, UK, Rotork Midland has been known for over 60 years as a leading designer and manufacturer of stainless steel control equipment for the oil and gas industries under brand names including Midland-ACS, Alcon and Landon Kingsway.

The company has an enviable reputation for delivering innovative solutions for a wide range of applications. These include control systems for pneumatic and hydraulic control valves, electro-pneumatic and electro-hydraulic actuators, local control panels, manifolds and components such as solenoid valves, level controls, gas detection and fire-fighting equipment.

*Further YTC products available from Rotork Instruments include the YT-940 I to P convertor (right), YT-1200 pneumatic-pneumatic positioner (left) and YT-1000 electro-pneumatic positioner (middle).*


*Some products from the Rotork Midland solenoid valve range.*

# Compact low power electric actuator for choke valves

***In the latest development of its successful range of CMA electric control valve actuators, Rotork has introduced a new version specifically designed for the demands of choke valve operation.***


Built with extensive industry experience, the CMR-250/GB3 actuator meets exacting requirements for low power, high torque modulating control in a compact package for applications including severe service upstream wellhead production and injection valves. The low power requirement and a 24 VDC option enables solar powered and battery back-up supplies to be introduced in remote locations, whilst the all-electric technology delivers considerable system simplification and economy in any environment by eliminating the on-going costs associated with an instrument air supply.

Easily adaptable to suit any type of valve, the CMR-250/GB3 delivers a maximum output torque of 45 Nm (400 lbf.in). Available for a range of single-phase or DC power supplies, the design combines a brushless motor with permanently lubricated, high efficiency gears to achieve accurate, responsive and continuous modulating control. Rotary output speed is adjustable down to 50% of full speed.

The compact actuator enclosure is environmentally sealed to IP67 as standard and available with ATEX, IECEX, FM and GOST hazardous area certification. The wide ambient operating temperature range (-20 to +65 °C for explosionproof models and -30 to +70 °C for watertight models) facilitates long-term reliability and maintenance-free operation in the harshest of environments.

Actuator set-up is performed in a logical menu-driven process using an internal electronic 6-segment LCD display and pushbuttons. User selectable adjustments encompass speed, dead band, zero and span, command signal type, standard or reverse action and loss of signal position. A standard 4-20 mA signal is used for control and feedback, whilst digital network options include Rotork Pakscan, HART®, Profibus®, Modbus® and Foundation Fieldbus®. A hard-wired RIRO (Remote-In-Remote-Out) option is also available.

As with all Rotork products, the CMR-250/GB3 actuator is backed by the worldwide sales and service network of the Rotork flow control group, providing a local source for complete support in every territory using fully trained engineers.

# Explosionproof CMA actuators deliver 'Performance Plus' process valve control

***Available in quarter-turn, rotary and linear versions, robust Rotork CMA actuators perform numerous process control valve, metering pump and damper applications.***

Single-phase or DC electrical power is all that is required for simplified installation and control valve actuation in safe or hazardous areas. Explosionproof certification to international standards is available.

The latest 'Performance Plus' development introduces a user selectable increased shut-off torque/thrust option. Developed in response to industry feedback, this option enables a more tailored and cost-effective sizing regime to be applied to both the modulating and tight shut-off demands of the control valve. A tight shut-off is often required as part of the valve duty, leading to potential over-sizing of the actuator for mid-travel modulating operations. The increased torque/thrust option is selected and configured during the actuator set-up programme, as part of a logical menu-driven process using an internal electronic LCD display and pushbuttons.

A new model size has also been introduced to the rotary CMA design, creating a range that is suitable for virtually all process control applications. Upgrades to internal electronics and HMI enhancements complete the list of improvements across the range.

For additional functionality, all rotary CMA actuators have output speeds that are adjustable down to 50% of full speed, in 10% increments

The maintenance-free CMA drive train, permanently lubricated and environmentally protected to IP67, can be mounted in any orientation. Accepting an industry-standard 4-20 mA control signal, the CMA provides accurate and repeatable positional control. Resolution is 0.2% on linear and quarter-turn applications and 2 degrees on the multi-turn models.

Manual operation is available as standard whilst optional extras include local pushbuttons and selector switch, digital position indicator and network compatibility.

*From top to bottom: CMA Rotary, Quarter-turn and new model Linear 750.*

# Rotork supports advanced environmental protection technologies **at Shanghai Disney Resort**

***Rotork valve actuators are supporting advanced environmental protection technologies at the Combined Cooling, Heating and Power Plant (CCHP) constructed to serve the spectacular new Disney Resort in Shanghai.***

*Above: A portion of the model of the proposed Shanghai Disneyland.*

*Right: Artist's impression of the Combined Cooling, Heating and Power Plant (CCHP) at the new Disney Resort in Shanghai.*

As a key infrastructure project for the Shanghai International Tourism and Resorts Zone, the CCHP is a grid-tied, gas-fired power plant which co-generates cooling and heating via engine waste heat and produces compressed air by self-generated electricity.

The plant will supply hot water and chilled water for space heating and cooling, domestic hot water and all the compressed air needs for the Shanghai Disney Resort's daily operation in the most energy efficient and environmentally friendly way. The project is designed, constructed and operated by the Shanghai International Tourism and Resort Zone New Energy Company Limited and will become operational in time for the resort's opening, scheduled for the end of 2015.

Rotork IQ and ROMpak electric actuators are providing a key control element for the automated operation of butterfly valves, gate valves, control valves and blower fans in the power plant, biological aerated filters and pipelines. The actuators' proven record of reliability contributed to their selection for this prestigious project by the customer and OEMs. Efficient IQ non-intrusive technologies, including integral data loggers, enable the operator to monitor and analyse the condition of critical and safety-related valves, whilst compact ROMpak actuators deliver reliable and economical operation of small valves.

The orders were placed with Rotork Trading (Shanghai) Co. Ltd., who will also provide local support for the installed actuators.

# Rotork reliability rewarded by the Shan-Jing gas pipeline

***The Shan-Jing Gas Pipeline network is one of China's key national projects, supplying natural gas from the western province of Shaanxi to the capital city of Beijing.***

Construction of the first pipeline began in 1992 and by the end of 2010 three pipelines, with a total length of 3000 kilometres, had been completed along the same route.

Modern, reliable and safe automation has always been high on the agenda of the Shan-Jing project. For the first pipeline Rotork supplied hundreds of its then new IQ1 intelligent electric valve actuators, sharing the actuation contract with a competitive actuator manufacturer.

During the next seven years, the unrivalled product quality, reliability and after-sales service demonstrated by Rotork so impressed the customer and end-user that in 2004 Rotork IQ2 actuators were specified for the entire second pipeline, eliminating the inclusion of any competitor. Since then, the experience with the IQ1 and IQ2 actuators on both pipelines has enabled Rotork IQ technology to be solely specified again for the third pipeline.


*Rotork IQ intelligent non-intrusive electric valve actuators – including the latest IQ3 version shown here - are now universally adopted on all three Shan-Jing gas pipelines.*

At the same time, the decision was made to retrofit new IQ actuators on the first pipeline to replace the competitor's actuators.

This work will be completed by the end of 2014, at which time the entire Shan-Jing gas pipeline network will be operated with Rotork IQ intelligent electric actuators, including some of the latest IQ3 models.


*The Shaan–Jing pipeline is a natural gas pipeline in China, which runs from Jingbian County to Beijing and Tianjin.*

# Caught on camera at Houston...

***Caught on camera at the Houston headquarters of global valve distributor Lockwood International, Rotork's Donnie Anderson couldn't fail to notice this impressive combination of trunnion mounted ball valves fitted with Rotork IW Series manual gearboxes.***

The gearboxes, which are stocked by Lockwood, are operating the valves via stem extensions that are fitted when valves are going to be installed underground or in out of reach locations.

IW Series gearboxes are designed with customer stocking in mind, featuring a removable output sleeve to facilitate machining. The combination of a separate output sleeve and base plate provides the maximum flexibility for on or off centre mounting on the valve without additional modifications.

The totally enclosed, sealed and lubricated for life enclosure is available with IP67 or IP68 environmental certification and is suitable as standard for an operating temperature range of -40 to +120 °C (-40 to +250 °F). They are one of a number of Rotork Gears products stocked and distributed by Lockwood, who claim to maintain the largest valve stock inventory in the western hemisphere at 25 strategic locations.

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Rotalk is published and printed by Rotork Controls Ltd. in the UK.

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