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Valve Actuation News from Rotork

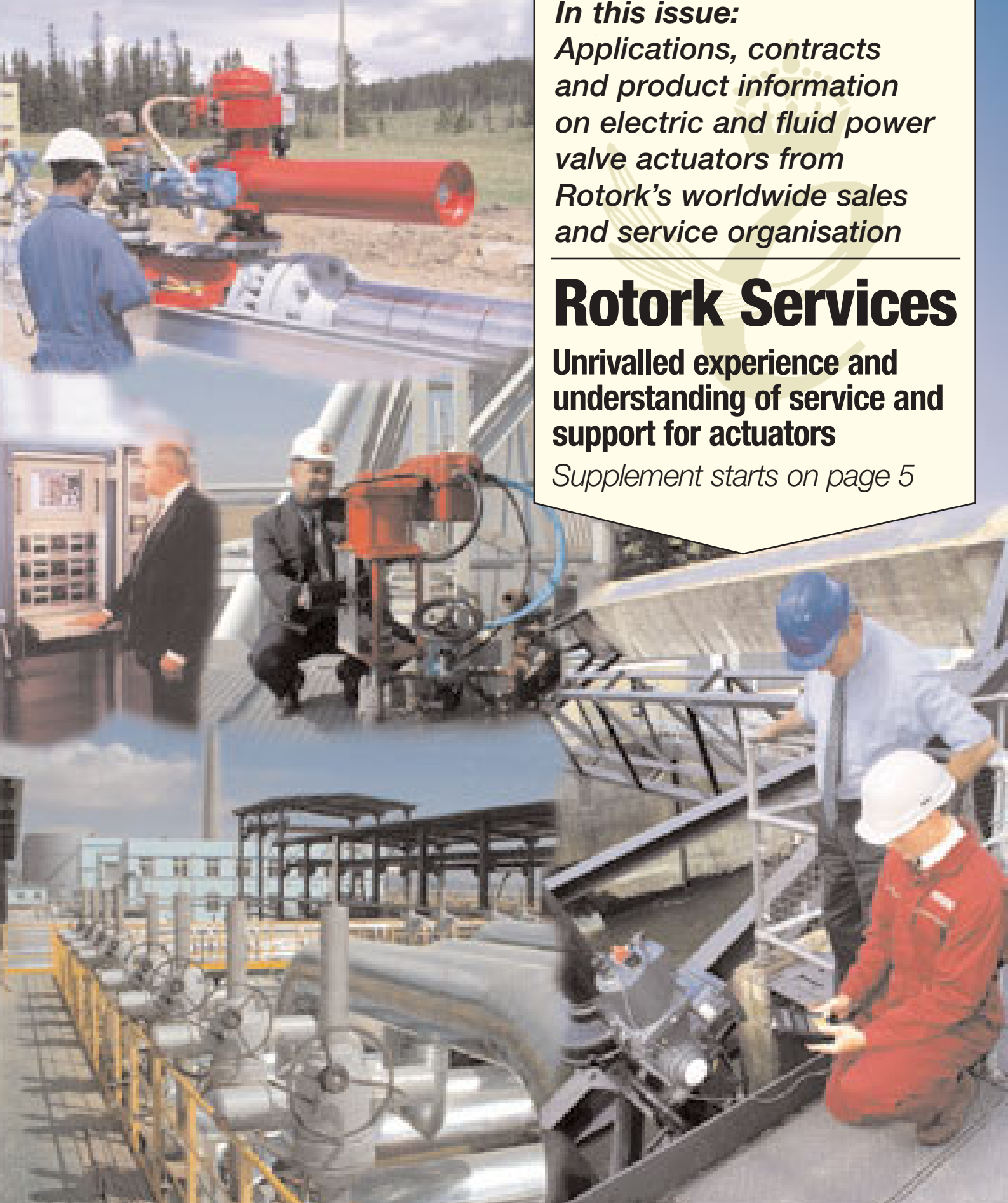
In this issue:

Applications, contracts and product information on electric and fluid power valve actuators from Rotork's worldwide sales and service organisation

Rotork Services

Unrivalled experience and understanding of service and support for actuators

Supplement starts on page 5



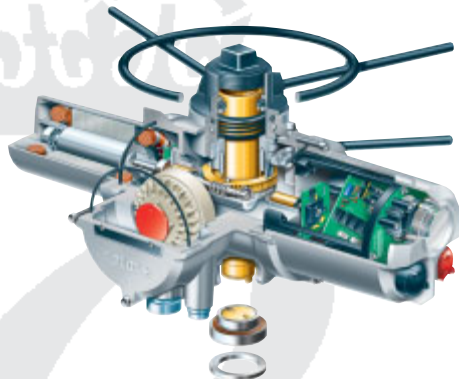
Rotork's IQ wins innovation awards in UK and USA

The application of new technologies inherent in the market leading IQ valve actuator has been recognised by the receipt of prestigious innovation awards on both sides of the Atlantic.

In the UK the IQ actuator has won the Queen's Award for Enterprise, Innovation 2001, whilst in the USA Rotork Controls Inc. is the recipient of Frost and Sullivan's Product Innovation Award. The Queen's Award for Enterprise rewards continuous innovation and development, sustained over five years or more, to levels which are outstanding for the goods or services concerned. The Frost and Sullivan Market Engineering Award for Product Innovation is presented each year to the company that has demonstrated excellence in new products and technologies within their industry.

Frost and Sullivan describes Rotork as an outstanding developer of high technology actuation products that increase facility efficiency and lower the cost and frequency of maintenance. The award cites the IQ actuator as the embodiment of Rotork's market leading qualities, focussed on the development of technologies that prioritise end user needs and satisfaction. In addition, the Pakscan digital communication system receives praise for its advanced 2-wire data monitoring and gathering technologies.

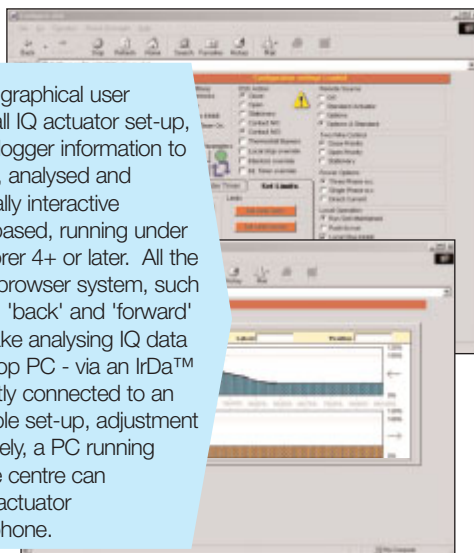
Rotork's award winning IQ features include:



- 'Non-intrusive' enclosure for permanent environmental protection
- Secure infra-red 'point and shoot' configuration and interrogation
- Minimal component count, including application specific integrated circuit electronics, for optimum reliability
- Data logger providing a true history of performance and any problems encountered
- IQ-Insight PC based graphical user interface enabling commissioning and data logger information to be accessed, reviewed, analysed and re-configured
- Infra-red Data Association (IrDA) global communication ability via mobile phone networks
- Local and remote position indication at all times, even during mains power failure
- Rotork Global Warranty and Customer Lifetime Care service

Have you downloaded your IQ-Insight PC software from our website?

IQ-Insight software is a graphical user interface which allows all IQ actuator set-up, configuration and data logger information to be accessed, reviewed, analysed and reconfigured. The visually interactive application is browser based, running under Microsoft Internet Explorer 4+ or later. All the benefits of the Internet browser system, such as linking, bookmarking, 'back' and 'forward' controls and history make analysing IQ data simple and fast. A laptop PC - via an IrDa™ interface - can be directly connected to an actuator on site to enable set-up, adjustment and analysis. Alternatively, a PC running IQ-Insight at a site base centre can communicate with the actuator via a modem and cell phone.



IQ-Insight software can be purchased as a complete kit or is available as an upgrade from the Rotork website.

Download the upgrade from the Documentation section on www.rotork.com. Click on Technical Data, click on IQ Range in the Electrical section and follow the on-screen instructions. Alternatively, order an Insight kit, containing a CD with the Insight software, instructions and the infra-red header cable to connect the actuator to your PC.

Actuation News

Vice President Sales appointed in USA

Howard Williams has been appointed Vice President Sales for Rotork Controls Inc. at Rochester. In his new position Howard is responsible for sales, service and contract activities throughout the USA.

Howard has worked for Rotork in the UK and in the contracts department at Rochester. Recently he has been an Area Sales Manager in the USA, responsible for the startup of Rotork's office, infrastructure and sales on the West Coast and Alaska.

Rotork Canada gets ISO quality registration

Rotork Canada at Toronto has successfully achieved Quality Management System registration in accordance with ISO 9002:94.

The decision to implement a documented Quality System was motivated by increasing customer requirements, special products and the desire to monitor and improve everyday processes as Rotork Canada's product demands grew.

Ricky Mohammed was given the responsibility of creating the Quality System, which has enabled improvements to be made in production processes, subcontractor performance and personnel training, and has been confirmed by the successful completion of the Registration Audit.



CD ROM catalogue for 'digital age' electric valve actuators

The new Rotork CD ROM electric valve actuator catalogue, updated to include a complete information package on the latest generation IQ intelligent actuator range, has been entirely redesigned to utilise the same innovative and interactive user-friendly format as Rotork's recently enhanced website. A new standard feature is the inclusion of viewer-friendly Powerpoint presentations covering most of the products listed, including a comprehensive demonstration of the 'digital age' diagnostic and communication features available from the re-engineered IQ.

Rotork's CD ROM is designed to run on Windows 95, 98 and NT and can be ordered from the Rotork website www.rotork.com

The catalogue is designed to provide the user with all the information required to size, identify, select and order the most appropriate electric actuator or actuator/gearbox combination for any valve operating duty. An interactive torque calculator and sizing programme automatically searches for and creates a graded list of recommended actuator solutions. This is fully supported by specifications, wiring diagrams and dimension drawings which may be downloaded as PDF files for inclusion in general arrangement schemes and documentation, or as DXF files for exporting directly into CAD programmes. As well as the latest IQ intelligent valve actuator, the catalogue covers Rotork's established A, AQ and Q ranges and includes the modulating versions of all relevant actuator designs.

Foundation Fieldbus registered approval



FOUNDATION
www.fieldbus.org

Rotork is the only manufacturer of heavy duty valve actuators currently holding registered approval from Foundation Fieldbus. The Rotork FF-01 option board has recently passed inter-operability testing to the latest ITK4.01 standard, maintaining our unique position in the field of actuator suppliers. The Foundation introduced a requirement for all listed equipment that, for it to remain registered, it must be tested for ITK4 compliance, even if the equipment already held ITK3 certification.

The new ITK4 testing ensures that hardware from different manufacturers can co-exist on the same Foundation network segment without causing any operational problems. ITK4 also includes checking of the block instantiation features that are included in the Rotork device.

Registration is applicable to our entire current range of electric actuators, as well as hydraulic and pneumatic actuators by means of the Rotork Flowpak electrical control package.

The Rotork Foundation Fieldbus card is designed with the most comprehensive list of functions produced to date. With

fourteen digital input, digital output, analogue input, analogue output and PID blocks, in addition to the standard resource and transducer blocks, the card is capable of controlling complex processes. The vital network function of Link Scheduling is included, enabling the Rotork actuator to be the active link master on the bus.

A full listing of Rotork's registered products together with all registered products from other manufacturers can be found on the Foundation web site at www.fieldbus.org

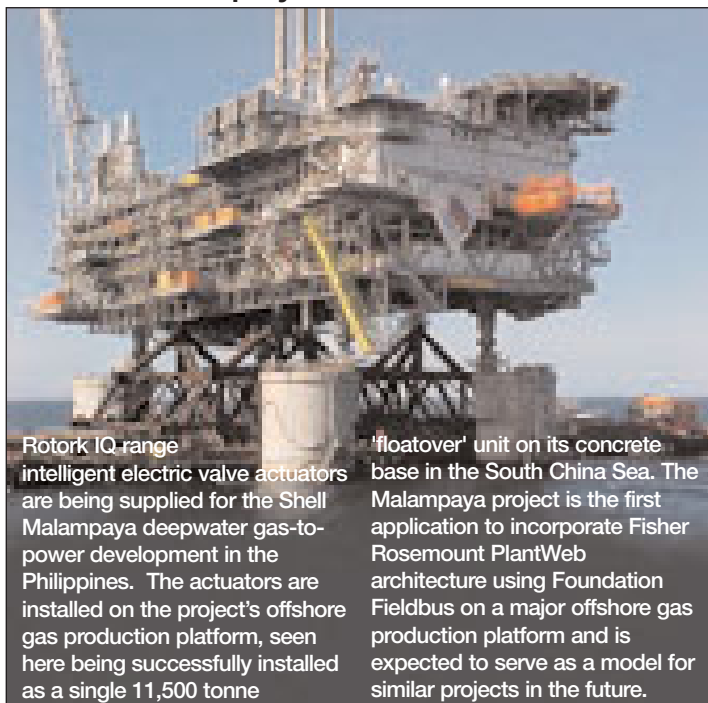


Further good news is that following evaluation at the Fisher Rosemount Hawk site, Rotork actuators are now also listed as approved for connection to the DeltaV automation system, a key part of the PlantWeb architecture that is predominant with Foundation Fieldbus. The testing work done by the Fisher engineers includes fully evaluating the actuator function blocks and ensuring total compatibility with the DeltaV system. Fisher will only approve devices that meet their own stringent standards as well as those of the Foundation.

Full details of the Fisher approval can be obtained from the Fisher web site at www.easydeltav.com/productdata/pds/hrdcont.asp under 'Foundation Fieldbus I/O', 'Third party products' (Page 7), Rotork.

Information on the Rotork Foundation Fieldbus actuators is available in publication S114E, downloadable from our web site at www.rotork.com/docum/frms/prodpub.htm

"New era" offshore platform order with Shell Malampaya



Rotork IQ-range intelligent electric valve actuators are being supplied for the Shell Malampaya deepwater gas-to-power development in the Philippines. The actuators are installed on the project's offshore gas production platform, seen here being successfully installed as a single 11,500 tonne

'floatover' unit on its concrete base in the South China Sea. The Malampaya project is the first application to incorporate Fisher Rosemount PlantWeb architecture using Foundation Fieldbus on a major offshore gas production platform and is expected to serve as a model for similar projects in the future.

Rotork in Control



Rotork IQ90 valve actuators installed on the Da Xie Tank Farm manifolds.

IQ ordered for China's largest port..

More than 200 latest generation IQ valve actuators have been installed at Ningbo Beilun Port on the east coast of China. Situated approximately 300 kilometres from Shanghai, Ningbo Beilun is one of the largest ports on the country.

The actuators are installed on Chinese-built valves in new plant at the Da Xie Tank Farm, operated by the China Sinopec Oil Storage company. Over 170 of the actuators are equipped with Pakscan 2-wire control systems to operate parallel gate valves, whilst the remainder, together with AQ actuators, are controlling butterfly valves in the water treatment plant.

The order was awarded by the Ningbo Port Import/Export Company at the beginning of 2001.

...and non-intrusively automates Thailand petroleum depots

PTT - the petroleum authority of Thailand - has embarked on a programme of automation at all of the country's petroleum depots in order to improve safety and reduce operating costs.

Two major depots in the south of the country at Suratthani and Pakpanang were chosen as pilot schemes for the project. Work here involved retrofitting electric actuators on installed manually operated valves and providing Modbus connectivity with existing Allen Bradley PLC supervisory systems.

Rotork Thailand was awarded the order by contractor Carlton International (Thailand) Ltd to install and commission twenty-eight IQ actuators at Suratthani and fourteen at Pakpanang. All the actuators were equipped with factory fitted Rotork Modbus cards to provide the digital communication with host

PLCs that was specified in the contract. Commissioning at both sites was completed on target by the end of April 2001.

Mr. Lertsak Pornnoparat, PTT's project manager, has expressed satisfaction on a job well done. He was particularly impressed by the labour saving opportunities and safety assurances provided by the Rotork IQ non-intrusive actuator design when used for retrofitting in hazardous areas.

He said: "This was the first time that we had retrofitted actuators in a hazardous area like this and there were concerns about safety in the field as well as interfacing new control circuits with existing PLCs.

"However, all the work has been completed successfully and without disruption, giving us the confidence to proceed with the project at further depots."

Rotork IQ20 actuators perform a fuel loading operation at the Suratthani jetty.



Contract proves "an excellent one-stop-shop for all Rotork products."



Sales manager Ian Elliott attends to the commissioning of a Rotork Skilmatic SL411 linear actuator on a modulating control failsafe application at Brigg Power Station.

Exeeco sales manager Ian Elliott reports the successful execution of a contract involving Rotork's complete range of actuator products and services at the Glanford Brigg power station.

Exeeco's scope of work encompassed the design, manufacture, installation and commissioning of Rotork actuators, adaptation and gearboxes, together with valves and power and control systems to interface with a new DCS.

Ian enthuses: "This has been a very exciting opportunity for us as we have been able to offer all ranges of Rotork actuators from isolating duty IQ's with Exeeco gearboxes to modulating failsafe Skilmatic's and Fluid System pneumatic actuators, with adaptation from Valvekits."

Exeeco's customer on the project is ALSTOM, main contractor for the station's owners Fortum Engineering. ALSTOM was quick to realise Exeeco's ability to offer a total actuation solution to the work required at Brigg power station. Ken Dauris, senior proposals engineer for ALSTOM Power Sector, Customer Service, explains: "Exeeco provided a competitive technical solution to all types of valve and damper actuation, from isolating to failsafe modulating duty. An excellent one-stop-shop for all Rotork products."

Automatic fuel supply control systems in Japan



Senior sales engineer Fumihiko Nishimura completes the commissioning of IQ20 actuators at Hachinohe.

Rotork Japan is involved in a series of orders to introduce automatic control systems at the fuel supply terminals in the country's maritime self-defence facilities.

Senior sales engineer Fumihiko Nishimura succeeded in getting the Rotork actuator and Pakscan package adopted as the standard

system for these automation projects, which have been implemented at five locations. The latest involves 37 IQ actuators retrofitted at Atsugi, following 23 at Hachinohe. More than 250 actuators have now been installed in total, operated by either Pakscan 2E or 2S 2-wire control systems.



Contract News

East European pipeline orders

Contracts to supply hundreds of intelligent electric valve actuators for new oil pipeline and distribution network modernisation projects in Eastern European countries have been received. The orders have been won in the face of fierce international competition, the deciding factor being Rotork's ability to provide the best technological solution to the operating and control criteria, backed by an unrivalled international service network, including dedicated agencies in the area.

In Romania, over 500 'non-intrusive' IQ actuators are being supplied for the modernisation of the 4500km state-owned strategic crude oil pipeline network that links the Black Sea with central Europe. The contract was awarded by German turnkey contractors ABB Pipeline Management, who are responsible for all aspects of the project, including the introduction of modern computerised control techniques. The Romanian pipeline network, operated by Conpet, consists of pipework and valves ranging in diameter from 50mm to over 700mm, connecting oil and gas fields to refineries and tank farms and in some areas linking with railways from remote production fields. In neighbouring Ukraine, almost 300 IQ valve actuators have been ordered for a new oil terminal at the Black Sea port of Odessa and a pipeline linking into the distribution network at Brodi. A further 200 IQ actuators have also been ordered from Rotork's Russian subsidiary for a new Baltic oil terminal and associated pipeline.

Worldwide agreement with Dow Chemical

Rotork has been awarded the worldwide contract for the supply of electric valve actuators to Dow Chemical.

The contract, involving on/off and modulating duties, includes IQ, IQM and AQ actuators, following detailed technical evaluation by Dow's global actuator committee. Rotork's office in Holland, being close to the Dow Benelux site at Terneuzen, performed the negotiations in close co-operation with Rotork offices in Bath, Rochester and Houston. The agreement, seen here being signed by Dow Chemical market supply officer Evelyne Fossaert, encompasses all Dow Chemical's worldwide sites and projects.

Valve control at "world's largest" ethylene plant

Rotork valve actuators have been specified for installation throughout what is thought to be the world's largest ethylene plant, at Joffre in the Canadian province of Alberta.

The \$1.1 billion E3 plant, a joint project between NOVA Chemicals Corp and the Union Carbide Corporation, is designed for a production capacity of 1,275 kilotonnes (2.8 billion lbs.) of ethylene per year. Rotork's Canadian sales office at Calgary was awarded a 'preferred supplier' agreement with NOVA which has resulted in orders valued at over \$2.5 million for the E3 project.

The majority of the Rotork orders involve IQ range intelligent electric valve actuators, together with P and R range pneumatic actuators and Exeeco gearboxes. Rotork Pakscan 2-wire digital control systems are also being supplied to monitor and control many of the installed actuators.

Vietnamese power station

Rotork IQ intelligent electric actuators have been specified for isolating and modulating valve control at a major new power station being built at Pha Lai in Vietnam. Rotork actuators were specified in the USA by Stone & Webster, the Overall Design Engineering Company and Balance of Plant Engineer for the Pha Lai project, following detailed consultation with Rotork's New England power industry agent Philips Engineered Products.

Stone & Webster insisted on using the latest technology intelligent actuators for the contract, which included a large number of modulating actuators for control valve duties. This enabled Rotork to offer IQM actuators which are rated for up to 1200 starts per hour for this duty – double the performance available from the nearest equivalent competing actuator design. This feature, together with Rotork's extensive power industry experience and reference list, made an important contribution to Stone & Webster's decision to specify IQ actuators for the project.

Hong Kong water treatment

More than 370 actuators have been supplied to operate penstocks, butterfly, diaphragm and knife gate valves at the Tai Po treatment works and aqueducts, designed to supply up to 1200 megalitres of water a day to Hong Kong's metropolitan area and the north-eastern New Territories.



Rotork Services

Unrivalled experience and understanding of service and support for actuators

We pride ourselves on designing and building the best valve actuators in the world. But Rotork's ambitions don't stop there. We also offer our customers the highest levels of service and support - carefully tailored to fit their specific requirements and individual demands.

Rotork understands that different customers in different industries and different countries cannot all have the same requirements. Therefore we will not offer a 'one size fits all' service. Instead, by consulting carefully with our customers we build a relationship based on trust and partnership that will help to deliver the highest levels of plant utilisation and low cost of ownership that Rotork products are designed to achieve.

Take a few moments to discover some of the key advantages that only Rotork can provide when you are looking for service and support. Then, have a look at these case studies, illustrating our maintenance, service, retrofit and support activities in action.

✓ Key advantages from Rotork Services:

- ✓ Rotork factory trained technicians offering the best product knowledge
- ✓ Access to Rotork service bulletins guaranteeing the most up-to-date product information
- ✓ Use of genuine Rotork spare parts to the latest specifications
- ✓ As new manufacturer's warranties on all repaired equipment
- ✓ Access to complete historical data base and modification information for accurate reprogramming
- ✓ Predictive maintenance capabilities involving regular downloading and analysis of actuator data logger information to provide accurate valve maintenance and repair schedules and prevent unexpected breakdowns or process interruptions on critical plant
- ✓ Commissioning service ensuring optimum performance and reliability - offering extended manufacturer's product warranty from time of commissioning rather than time of delivery
- ✓ Flexible retrofit solutions, ranging from turnkey contracts including ground works, cabling and control systems to supply only or install and commission packages
- ✓ Service covering electric, pneumatic and hydraulic actuators
- ✓ Rapid response

Rotork Services Supplement



Case Study: Total customer satisfaction in New York



Left: Greg Emerson, a satisfied Rotork customer, with some of the AQ actuators installed on his plant (below).

invaluable" says Greg Emerson, Director of Public Works in the area.

For example, when it became necessary to replace a damaged Pakscan master station, Rotork's service department arrived on site, installed new hardware and software and re-started the plant all on the same day. "You return calls immediately" commented Greg, when asked about the single most important aspect of our service.

"A simple task, but the first and most significant indication that we are going to receive a top quality service."

In the three years since our retrofit engineers converted the waste water plant at Honeoye in New York State to fully automatic 2-wire operation, Rotork has achieved the goal of total customer satisfaction in dealing with enquiries and problems at the site. "Having problems or questions taken care of immediately by the professionals who installed and worked on the equipment is



Rotork Services Supplement

Case Study: BP Unity

“ . . .Rotork provides us with a high degree of confidence that the actuators will perform when required 100% of the time.”



BP Unity is an unmanned riser platform comprising 5 incoming risers from the BP Bruce, Amerada Hess Scott, Enterprise Oil Nelson, Britannia Oil Britannia fields and also the Graben Area Export Lines (GAEL System), comprising of BP ETAP's, Shell Shearwater and TotalFinaElf Elgin fields. The hydrocarbon liquids from these fields are then routed to a common manifold before being tied into the Forties Pipeline System 36inch sealine, which makes Unity a very important node in the Pipeline System's commitment to its customers of 99.8% availability throughout the year.

Rotork technicians were asked to help with the initial commissioning of the electric valve actuators approximately ten years ago when the platform was first built and floated out. Since then the Unity Offshore Team and Rotork have developed a close working

relationship involving annual actuator inspections as well as a rolling programme of having two actuators returned to the Rotork workshop in Bath for overhauling. BP keeps two spare actuators that are used to replace the units returned to Rotork. In order to ensure that the Rotork actuators on the pig reception and bypass valves, as well as ensuring that the HP/LP interface between the incoming risers and the export manifold - a critical step controlled by an actuator opening the bypass valve - is safeguarded, the actuators must be kept in good working order in the harsh operating environment. George Sim, the BP Offshore Installation Manager for Unity calls in Rotork service engineers to carry out the inspection and changeout work every year. This, George says, "has proved to be one of our more successful operations. With the platform being remotely controlled and with the North Sea weather being so unpredictable, in particular, during the winter, manual intervention to address equipment failures could be severely hampered and result in extended downtime and our inability to maintain our high availability commitment. It is therefore comforting to know that the expertise and high standard of service provided by Rotork provides us with a high degree of confidence that the actuators will perform when required 100% of the time".

Case Study: Thames Water health check

Engenica, the mechanical, electrical and instrumentation maintenance provider for Thames Water in London, has used Rotork to carry out a health check and audit on valve actuators, up to twenty years old, installed in main sewage pumping stations in the East London area.

The client Thames Water and Engenica were both keen to establish a data base of all the actuators listing their serial number, type, size and wiring diagram, along with the state of

repair. During a thorough examination and operation of each actuator all external fasteners and internal O ring cover seals were changed and minor remedial repairs were carried out. Actuators requiring more substantial attention were returned to Rotork's workshop for repair.

Working closely with Thames Water's operations people and Engenica's technicians, actuators were brought back to full working condition, interfacing satisfactorily with all the pumping stations' remote control systems.

The health check programme gives Thames Water the assurance that their actuators will continue to operate with complete reliability throughout an extended working life, saving the expense of replacement and removing the risk of unexpected plant disruption.

Case Study: Successful partnerships in Spanish refineries

“technicians permanently based on the refinery”

Rotork Spain, whose headquarters are in Bilbao, have been extremely successful in establishing maintenance agreements on Repsol refineries throughout Spain, where they have technicians permanently based on the refinery working as a totally integrated part of Repsol's maintenance and operations staff. The Rotork personnel are fully trained to work on all actuator products as well as the Pakscan 2-wire control systems that are widely used by Repsol.

All relevant labour and material costs are agreed either annually or every two years, and billing is generated monthly once the customer has agreed the figures against the listed rates and costs which form a part of the overall contract.

As well as carrying out all actuator repairs and preventative maintenance against timescales



agreed with the refinery management, the Rotork technicians work closely with the engineering departments to ensure that all actuator records are updated if a unit is upgraded or modified. The Rotork engineers also liaise with all relevant departments when motorised valves are needed for new projects and plant expansions, as well as undertaking surveys and associated design work to retrofit actuators on existing manually operated valves.

Case Study: Restoration of historic crossing gates

It's not only valves that can benefit from Rotork technology and expertise, as a recent project in Australia illustrates.

Rotork Australia's home town of Ballarat wanted to restore and automate one of its key historical assets - the Lydiard Street railway crossing gates dating from 1885 - but a suitable means of adapting the original linkages from the operating handwheel in the adjacent signal box was proving difficult to find.

The automation contract was awarded to the ABB Signal Group who asked Rotork to design a solution. Rotork's proposal used IQ electric actuators with Exeeco gearboxes to operate the existing linkage rods that control the opening and closing of the gates and the gate locking pins. The key to the proposal's success was the design and production of special levers to connect the gearbox

outputs to the linkage rods at a point adjacent to the signal box. The actuators have been housed in an unobtrusive cabinet in order to retain the original appearance of the historic site. Thanks to the efforts of all involved, a modern and reliable automatic means of operation has been successfully achieved, enabling the gates to be officially re-opened and put back into operation.



Rotork actuators at the centre of Gatwick Airport upgrade programme

Focus on Retrofit

Rotork intelligent electric valve actuators and 2-wire digital control systems are at the centre of a vital modernisation project on the aircraft refuelling infrastructure at London's Gatwick Airport. The scheme is part of a strategy designed to increase the airport's annual passenger throughput to 40 million by 2008. Last year 30 million passengers used Gatwick, served by more than 260,000 aircraft movements requiring 2.6 billion litres of jet fuel. The underground system that distributes this fuel has been recently extended to a new area of the airport and now serves 260 refuelling points on 110 parking stands in three separate areas on the 759 hectare Gatwick site.

The aircraft fuel distribution system is operated by Gatwick Airport Storage and Hydrant Company (GASHCO), a consortium of major oil companies. GASHCO also owns and operates the airport tank farm facility and is managed by Shell UK Ltd. With a total length of 14 kilometres, the underground system comprises pipework ranging in diameter from 600mm to 150mm, itself holding 1.8 million litres of fuel, supplied from three 12,000 cu. metre storage tanks. Refuelling operations, involving pumping fuel at flow rates of up to 54,000 litres per minute, are performed on a 24 hour a day basis.

Following on from the extension project, the control system for the entire network is now being upgraded to introduce fully automatic, centralised monitoring and operation. Rotork Retrofit engineers, working to strict timescales and in close co-operation with the operators and

other contractors to avoid any disruption to the normal operation of this crucial airport activity, have installed new actuators and upgraded the control circuits in those already installed. New IQ intelligent actuators, with Rotork Pakscan 2-wire connectivity, have been installed on valves in the tank farm and apron areas to control the flow of fuel throughout the network. The actuators also have the function of isolating specific pipeline sections in the event of any localised emergency, enabling the rest of the network to operate normally.

Rotork actuators already installed in the network have also been retrofitted with Rotork Pakscan cards to enable them to be linked into the new control system. As with the Pakscan connectivity built into new actuators, the retrofitted cards are fitted inside the actuators' double-sealed watertight enclosures. This is a particularly

"This ambitious project has been skilfully carried out by all involved partners and will ensure that the airport refuelling systems meet with the anticipated increase in fuel demands at Gatwick well into the future."



Above: Mike Ling, manager for Shell at Gatwick, with a Rotork IQ25 installed in the tank farm area.

Left: Realtime Engineering's Douglas Johnson tests the Rotork Pakvision display functions on the Pakscan master station console in the central control room at Gatwick.

important consideration for those actuators installed in underground valve chambers on the apron areas. Due to the high water table at Gatwick these chambers are vulnerable to excessive ingress of water, with the actuators operated in a continuously damp atmosphere. However, Mike Ling, manager for Shell, confirms that the Rotork actuators continue to perform well in spite of the severe conditions in which they operate.

Rotork Pakscan enables the actuators to communicate valve positional, status and diagnostic data to the centralised control system by means of a 2-wire serial loop with dramatically reduced cabling costs. For maximum security and operational flexibility the pipeline is divided into three separate Pakscan loops which are programmed from individual master stations in the central control room. The Pakscan monitoring, operating and interlocking functions are controlled by a Modicon Quantum PLC which is operated by the Fix Dynamics SCADA system that now supervises all fuel pipeline activities. As an integral part of the SCADA function, the Rotork actuators are programmed with their ESD (emergency shut down) overrides

activated to signal, record and immediately action failsafe valve closing sequences if an unauthorised event occurs.

In addition, an independent actuation control back-up is provided by Rotork Pakvision PC-based software. The dedicated Pakscan control and monitoring package can be operated in the control room if there is a problem with the SCADA system.

The new control system, which was designed and installed by control specialists Realtime Engineering, has built-in capacity to handle the further expansion and modernisation planned for future airport developments. With the anticipated increase in jet fuel demand, the built in capacity has provision for additional pumping capacity, the motorisation of the remaining hand operated valves in infrequently operated valve chambers on the airport aprons and the integration of other Rotork actuators situated in the tank farm.

The design and expansion of the airport fuel system and tank farm modernisation at Gatwick has been the responsibility of the Operations Projects team of Shell Aviation Limited, London. Mike Ling summarises the importance of its successful completion: "This ambitious project has been skilfully carried out by all involved partners and will ensure that the airport refuelling systems meet with the anticipated increase in fuel demands at Gatwick well into the future."



Rotork valve actuators unlock filtration cost savings for the UK's largest recycled newsprint manufacturer

When the UK's largest producer of recycled newsprint had a valve actuation problem, they knew exactly who to contact for the solution. Graham Covus, in charge of utilities maintenance at the giant Aylesford Newsprint mill, had previously worked in the power generation industry, where he had been impressed by the reliability of Rotork electric actuators in demanding and arduous applications.

"Problems with unreliable electric actuators in our water treatment works were increasing the operating costs of our filtration plant. I was confident that replacing them with Rotork actuators would enable us to run the filters with the efficiency and economy that was expected, and save us tens of thousands of pounds a year."

Aylesford Newsprint recycles about 500,000 tonnes of newspapers and magazines annually, collected from some 120 local authorities, paper merchants and waste management companies throughout the UK. At the ultra-modern eighty acre mill site, the used paper is mixed with water and pulped, and then undergoes an ink removal and cleaning process before being re-made into 40 tonne reels of 'Renaissance' newsprint. The waste water from the recycling process is passed through an on-site three-stage biological treatment plant at an average rate of 15,000 tonnes (cubic metres) a day, enabling it to be drained into the River Medway in an environmentally clean condition.

The dirty water is pumped into three primary treatment filters which remove the larger suspended solids by trapping them on rotating screens. The specially designed filters are equipped with integral flushing nozzles that regularly backwash the rotating screens to keep them clean by spraying them at high pressure. For economy, the backwashing process was designed

to use filtered water from the units, however problems with the actuators fitted by the filter manufacturer prevented the satisfactory operation of the flushing valves when mill paper effluent was used. As a result it was necessary to use clean and expensively dosed process water to ensure that the flushing nozzles did not become blocked and interrupt effluent backwashing.

Graham Covus explained "The actuators that came with the filters lacked the necessary power to operate the flushing valves properly. Adjusting their torque and position settings was an incredibly complicated and time consuming operation that still failed to solve the problem. In my experience, Rotork actuators would give us the robust and durable service demanded by this type of repetitive application, together with straightforward setting up and commissioning.

"In the event it was the strength of a basic Rotork actuator design, rather than the brains of the intelligent version, that best suited our requirements for this application, enabling us to change over with the minimum modification to existing site wiring for starter circuits and linking to the Honeywell Measurex DCS that supervises plant wide operations.

"However, our first Rotork IQ intelligent actuators have also recently been introduced in other plant areas to control parts of the process steam distribution network."



Graham Covus with some of the Rotork 7A actuators at Aylesford Newsprint.

Rotork Services Supplement

Case Study: Drinking water quality upgrades

Rotork Services has supplied actuated valve packages for an important water quality improvement programme undertaken by South West Water.

The programme of modernisation, which involves the majority of water treatment plants in Devon and Cornwall, has been implemented to improve the efficiency of backwashing processes to optimise the operation of existing sand filters. This has been achieved by the installation of Rotork AQ electric actuators on new or existing backwashing valves to precisely control their opening and closing speed profiles. Careful attention to this process prevents any water hydraulic shock effect.

South West Water's process partner Purac is the main contractor for the project at eight filtration plants in Devon. A typical site is at the Tottiford Reservoir, where two sets of eight filters process up to 32 megalitres a day. Rotork's scope of supply at Tottiford encompassed the design

"Rotork's scope of supply included completely new actuated valve packages"

and fabrication of sixteen completely new actuated valve packages, including installation by Rotork's Retrofit Department. The Rotork AQ actuators are operated by an ABB Kent Taylor three-term controller under the supervision of a Modicum PLC in a control system package designed and installed by Purac.

Each day at least eight of the filters are backwashed in a sequence by which the actuators are programmed to operate at a graduated speed profile to shut off the water supply, allow in the reverse wash water and finally bring the filter back on line. The plant is designed to work on a 'stand-alone' basis, although operating data from the PLC is communicated to South West Water's central control at Exeter by telemetry.



One of the Rotork AQ 115 actuators installed at Tottiford Reservoir.

New framework agreement with Thames Water

Rotork's position as the leading supplier of valve actuation and control equipment to the UK's water and waste treatment industries has been strengthened by the award of a second term for our framework agreement with Thames Water.

The new agreement, won in the face of severe competition from European actuator manufacturers, continues the five year agreement - the first of its kind with a UK water utility - that expired at the beginning of this year. Rotork will supply electric valve actuators, control systems and associated services, including the retrofitting of new actuators on existing valves and penstocks, at all Thames Water operated sites in the UK.

John Waters, who negotiated the framework agreement, explains:

"The Thames Water framework is amongst the most prestigious contracts available to equipment manufacturers such as Rotork; we knew that we would have to overcome stiff competition to succeed. In the event, the technical merit and reliability of our products, combined with our track record and ability to deliver within the strict parameters demanded, convinced Thames Water to award us a second term."

Rotork has been amongst the pioneers in establishing framework agreements with the UK's water and waste treatment companies. In addition to Thames Water, there exist similar relationships with Severn Trent, Southern Water, South West Water, Northumberland Water and East of Scotland Water.

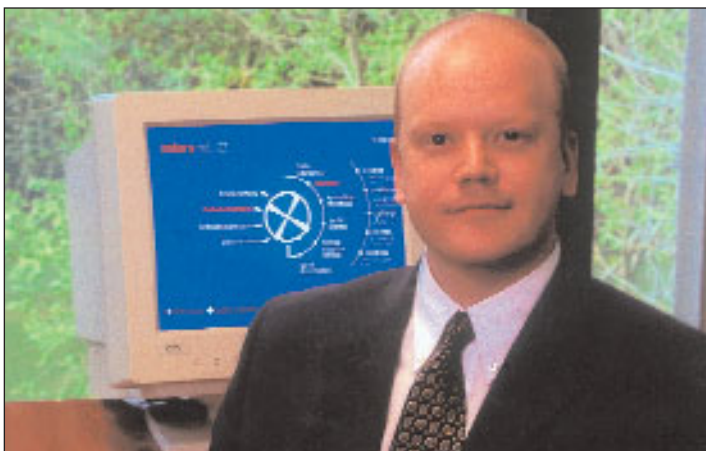


Rotork Fluid System

The innovative Rotork EH electro-hydraulic actuator has successfully mastered a very sour gas pipeline application in Calgary, Canada. The customer selected EH due to concerns about the venting to atmosphere characteristics of conventional gas-over-oil actuators. The EH offers an alternative solution with a fully enclosed power unit containing an electric motor, hydraulic pump and reservoir.

In addition, the integral Rotork Flowpak provides all the benefits of simplified remote control and indication associated with electric actuators, together with local pushbutton control.

(Model shown: EH32503SR1500)



New Managing Director for worldwide fluid power valve actuator business

Continuing growth in international medium and heavy duty fluid power valve actuator business has created the need for a Managing Director to take control of Rotork Fluid System's activities on a worldwide basis.

Peter France has been appointed to Rotork's Board of Directors following three years as Director and General Manager at Rotork Singapore, where he was responsible for electric and fluid power valve actuator activities throughout South East Asia. As Rotork Fluid System's first Managing Director, Peter's expertise will be focussed on co-ordinating and enhancing the worldwide sales and marketing activities of

fluid power actuator manufacturing plants at Rochester, USA and Lucca, Italy.

A programme of product harmonisation is being completed, providing an unrivalled selection of standard and customised pneumatic and hydraulic actuator products and systems to meet the diverse demands of industries including onshore and offshore oil and gas production, chemical processing and pipelines. Fluid power products are fully supported by Rotork's network of 119 valve actuation subsidiary offices and agents in 71 countries, as well as specialised fluid power actuator centres of excellence in the UK, Canada and Singapore.

Managers appointed in the USA and UK

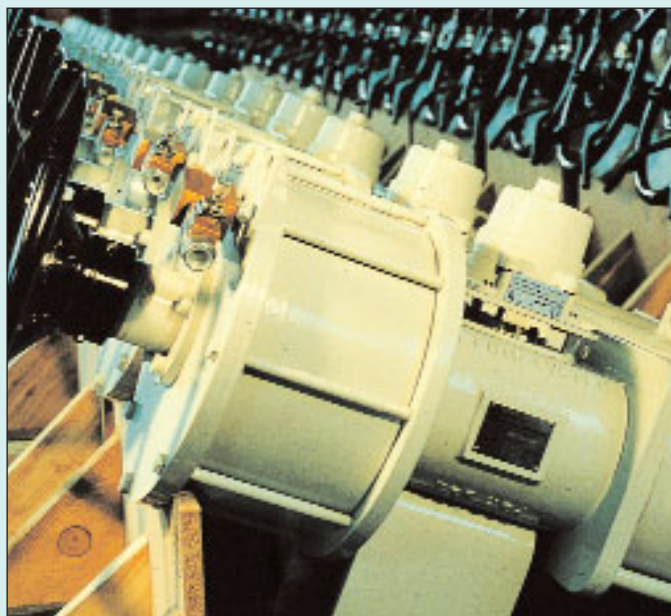
Fred Washburn is Rotork Fluid System's new General Manager in the USA, bringing with him 17 years of actuator experience and a wealth of technical knowledge.

Fred joined Rotork at Rochester as Senior Applications Engineer and has been Engineering Manager for the past 13 years. He has recently achieved an MSC in manufacturing management and leadership to add to his BSc in mechanical engineering and MBA.

Meanwhile **Mark Thomas** has been appointed Director of Fluid System operations in the UK. Mark, who has been involved in fluid power actuator sales throughout his career at Rotork, will now direct the activities of the UK division from the Leeds centre of excellence.

Peter France describes these appointments as "further steps in achieving our goal of being the world's leading supplier of pneumatic and hydraulic actuators."

Fluid System contract news



Malaysia

Heavy duty actuators for very large isolating and modulating valves are being supplied for a liquid natural gas processing plant at Tiga.

actuators to operate both valve types.

Iran

More than 200 pneumatic actuators will have been delivered on completion of the second part of the South Pars onshore and offshore project this year.

Libya

The Attahaddy Field Development scheme for the Sirte Oil Company is a 100% Rotork actuator project. Fluid System is supplying linear hydraulic actuators, complete with hydraulic power packs, to operate Bonney Forge through conduit gate valves, together with RP and GP pneumatic actuators for Grove ball valves. Meanwhile, Rotork's Milan office is supplying electric

Algeria

An order for 200 actuators for the Ohanet natural gas plant has been won following the demonstration of a skilful understanding of the applications, combined with the impressive product support capabilities available from our international organisation.

Rotork IQ makes a big splash in the US water industry

The efforts of Rotork sales engineers in the USA's water industry are resulting in the receipt of significant orders for IQ valve actuators at important modernisation and upgrade projects on many city supply systems. In most cases, the benefits of IQ actuators with Pakscan 2-wire control systems are proving irresistible to facility operators and engineers, strengthening Rotork's status as the predominant valve actuator supplier to the US water industry. Recent success stories include:

Cleveland's Crown Jewel



Rich Papp says that the automation used at Crown has allowed them to dramatically increase output without having to increase the size of their facility

The Crown Water Treatment facility at Cleveland (Ohio) has invested in a major renovation to increase its capacity and provide better water quality, as well as improve energy utilisation, worker safety and productivity. More than 180 IQ actuators have been installed, all connected to Pakscan master stations which, in turn, are linked to the facility's Bailey DCS. Pakscan's simple 2-wire serial connection to each Rotork actuator realised significant cost savings in the installation process, whilst facilitating operation and monitoring of all the valves and pumps in the plant, with the added benefit of predictive maintenance data, from password-protected control consoles and desktop engineering workstations. Richard Papp, Crown Plant Manager, describes the renovation as a major success: "Integration of highly effective and reliable automation has enabled us to achieve and even surpass our capacity, water quality and cost efficiency goals.

"An example of how Rotork actuators have really helped us is at our settling basins. We have 25 flocculation tanks and ten settling

basins. Sludge is removed once a shift, a very rugged application for the actuators because they must operate six inch plug valves so the sludge can be pumped out.

"Another example of Rotork reliability is how well they perform on the butterfly valves which maintain the water level on top of the filters. Twelve IQ actuators on 20 inch butterfly valves are operating every two minutes, 24 hours a day."

(A full write-up on the Crown Water treatment facility can be obtained from Rotork Controls Inc. Email your request for Application Field Note 01, Issue 1 to info@rotork.com)



David Milcinovic uses a Pakscan 2S unit to control Rotork actuators in the filtration building

Top: Rich Papp with Rotork IQ 12 & 20 actuators on the backwash pipework.

The New York superintendent decides

Rotork area sales manager Dave Littlejohns made sure that the IQ would be specified for the Newtown Creek upgrade in Queens, New York City by taking one with him when he visited the plant superintendent.

Dave said: "As soon as he saw the benefits of the IQ, he immediately passed on his strong recommendations to the General Contractor who in turn expressed their desire for the Rotork IQ to the valvemaker."

So far, Newtown Creek has generated orders for 135 IQ actuators to operate Dezurik plug valves and butterfly valves, with more phases to follow.

Nearby, nine IQ actuators with Pakscan 2S, touch screen interface (TSI) and In-Vision control software are being installed at one of the reservoirs that supply New York City. Dave takes up the story:

"Although nine actuators does not seem a lot, these units had very special requirements and were subject to extensive witness testing in Rotork's USA and UK factories by the New York Department of Environmental Protection (DEP).

"The main significance is that until we won this order the customer had basically single sourced its actuators from another manufacturer. Based on our performance during the tests, DEP has revised the actuator specification for reservoir applications to IQ, Pakscan 2S, TSI (for interface) and In-Vision. There are at least another seven reservoirs to be upgraded in the next 2-3 years."

Chosen by the Detroit Water Team

At Detroit, approximately 100 IQ and 150 Q range actuators, together with 26 Pakscan 2S masterstations are being installed on another water treatment plant. The majority of the Pakscan loops will control filters and secondary carbon treatment, linking with a Westinghouse SCADA system, whilst two loops are being used for chlorine dosing.

Area sales manager Bob Toth explains that on this project the specification calls for a seven year warranty period.

"Montgomery Watson Engineers at Cleveland were our allies on this job, where two engineering firms form part of a design, build and maintain for seven years consortium including two large contractors that is known as the Detroit Water Team. Originally they were not going to use our Pakscan programming on the filters, until we were able to explain the advantages to their engineers."

Rotork in Control

Pakscan "conquers the Brazilian market"

Hideo Hama, President and CEO of Fluxo Servicos de Petrleo, our agent in Brazil, presents an upbeat report on the important contribution that Pakscan 2-wire control systems have made to the success of Rotork actuators in the Brazilian petrochemical market.

Petrobras, the state-owned Brazilian oil company, is the country's largest user of 2-wire control systems. Following the introduction of a small experimental loop in 1995, the technology has been eagerly adopted at all ten Petrobras refineries as well as petrochemical plants and terminals.

Today, with over 150 systems installed, end users are becoming increasingly demanding and sophisticated in their specifications, which only experienced suppliers are able to satisfy. A recent application involving more than 250 actuators at the Paranaguá Terminal in Paraná State, southern Brazil, illustrates this point.

The customer contacted three electric actuator manufacturers for a turnkey bid including 2-wire system supply, retrofitting actuators on existing valves, commissioning and start up. The customer provided a layout of the valves, with the operators' rooms and the main central control room locations (approx. 1 km apart), and dictated a maximum loop scan time of 2 seconds together with the potential to expand the system capability in the future. The bidder needed to define the total number of loops needed to comply with the scan time, recommend the type of control cable and supply a redundant master station on each loop.

Rotork and Fluxo produced a carefully designed proposal, based on the physical distances and allowable scan time, encompassing five separate loops. Each loop used less than 60 out of the 240 channels available from each master station, providing full redundancy as well as complying with the future expansion requirement. Two master stations were situated in local operators' rooms and three in the main control room, linked by fibre optic cable with RS485 modems.

As a result of this creative solution, the maximum scan time on each loop was well below the prescribed 2 seconds, and all other specified parameters were met. Both the other bidders, who proposed a single loop for all their actuators, were technically disqualified, enabling the customer to reward the endeavours of Fluxo and Rotork with the order.



The Petrobras Paranaguá Terminal in Paraná State, Brazil, where the Rotork agent's careful attention to a detailed spec was rewarded with an order for more than 250 actuators with Pakscan control.

Communication abilities secure Rotork valve actuator contracts at Dutch environmental projects

The ability of Rotork electric valve actuators to fulfil customers' preferences for different open control system technologies has helped to secure contracts at two innovative and environmentally responsible projects in the Netherlands.

In the first, the actuators incorporate Foundation Fieldbus connectivity with a Fisher DeltaV DCS for the supervision of a pioneering district heating scheme in the Westpoort area of Amsterdam. Designed by the utility company Nuon, the "Afval is Warmte" scheme provides 'clean' heat using steam produced from a municipal rubbish incinerator that would otherwise be wasted.

The incinerator provides steam to run generators that supply electricity to the local grid. The waste steam from the generator now passes to new plant where it heats the water in a large holding tank. A closed loop circuit from the tank distributes hot water to local companies to provide economical heating for offices and factories. Currently around twenty companies are included in the scheme, but the number is expected to increase to over 125 by 2004. Rotork has supplied IQ actuators with factory fitted Foundation Fieldbus cards to operate Adams butterfly valves on the "Afval is Warmte" scheme.

A short distance away, Rotork IQ actuators with Profibus connectivity are employed at a large scale pollution clean-up project in the Ketelmeer (Kettlelake), at the mouth of the River IJssel, a distributory of the Rhine.

The River IJssel carries particles of silt, sand and clay which settle on the Ketelmeer floor. This sediment contains waste material from factories along the IJssel and the Rhine - including heavy metals, PCBs and PAHs - which over time has built up into a thick layer of contaminated sludge that is threatening to reach the area's ground water.

The Government authority Rijkswaterstaat studied clean-up methods and carried out numerous tests before deciding that the sludge would have to be carefully collected and permanently stored where it can do no harm.

As there is nowhere to put the sludge on the surrounding land, Rijkswaterstaat designed a unique scheme whereby a huge clay-lined



Rotork IQ35 actuators with Profibus connectivity at Ketelmeer.

pit, or depot, surrounded by a 10 metre high dyke, has been built in the middle of the Ketelmeer itself. The depot is one kilometre in diameter, 45 metres deep and capable of storing 23 million cubic metres of sludge. Once the entire Ketelmeer has been cleaned up, the filled depot will be permanently sealed with layers of clay and sand and converted for recreation and nature reserves.

A scheme of this ambition and scale involves a host of diverse pumping and pipework plant, valves, flowmeters and instrumentation to successfully and precisely dredge the polluted silt from an area equal to the size of nearly 6000 football pitches. In addition, 7 million cubic metres of silt from other areas is being shipped in for treatment and storage. This silt is transported to the depot through more centrally controlled pipework, including plant to add water if the silt is too dry and separators to remove any sand content for use in civil engineering and building.

The entire operation is controlled from a centralised control room within the new administration facility built on the IJsseloo Island beside the depot. A Profibus 2-wire network provides control and monitoring communication between the DCS and field equipment, including the Rotork actuators, which control the movement of the water and silt throughout all the transporting and processing stages. Profibus was selected as an economical and efficient means of accurately collecting the large amount of diverse operating data necessary to ensure that the plant is functioning correctly, and to identify potential problems before they cause any disruption.

New Sales and Marketing Director for Rotork Valvekits



Actuation News

Howard Mutters has been appointed Sales and Marketing Director at Rotork Valvekits, the specialist one-stop supplier of accessories for the valve and actuation manufacturing and distribution industries.

Howard's career in the valve industry spans more than twenty years. He joined Rotork Controls in 1988 as Northern England sales engineer, moving into international sales

Continued overleaf

Ron and Alex retire after 75 years combined service



(left to right) Rotork Chief Executive Bill Whiteley congratulates Alex Forsyth and Ron Court at their retirement party.

Rotork held a party to say goodbye to two long serving members of the international sales and marketing departments. Marketing Director Ron Court and International Sales Liaison Alex Forsyth have retired after a combined time with Rotork totaling more than seventy-five years.

Ron joined Rotork in 1969 as the London-based salesman for the Home Counties. In 1977 he moved to Bath as UK Sales Manager and in 1987 he was appointed International Sales and Marketing Director. In this role he has been the driving force behind Rotork's overseas expansion, particularly throughout the Far East and China. Ron was also a staunch supporter of the development of Rotork's innovative IQ intelligent valve actuators. Ron's recent tasks, as Rotork's Marketing Director, have included the successful creation of a Rotork Fluid System division capable of serving the worldwide requirements of the oil and gas industries.

Alex was one of Rotork's first student apprentices, joining in 1957 when the company was still run at founder Jeremy Fry's Widcombe Manor home. A fluent French, German and Italian speaker, his early career was mostly spent developing Rotork's European activities, including the setting up of Rotork's first manufacturing licensee in Germany in the early 1960's. He then took charge of Rotork's 'foreign desk' to look after

the rapidly increasing number of branch offices, agents and manufacturing licensees throughout the world. In this role he has become the face of Rotork for many overseas visitors, who he would welcome and take care of during their visits to head office.



Following Ron's retirement, Sales Director Carlos Elvira has been appointed Sales and Marketing Director. His marketing activities are supported by the appointment of Tony Scott (pictured) as Marketing and Sales Support Manager. Tony, an experienced Rotork international salesman, has rejoined the company from the drives and controls industry to take up his new position.

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A complete overview and detailed description of our product ranges and global activities. Everything you need to know about Rotork actuators is here.

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Don't forget:

You can use the website to update your Electric Actuator Catalogue CD with the latest sizing information and obtain the latest version of the IQ-Insight software

Howard Mutters (continued)

covering Europe, Russia and Scandinavia. For the past three years he has been based in Bahrain, managing sales and support operations for Rotork actuators in the Middle East.

At Rotork Valvekits his international experience and knowledge will be applied to the consolidation of UK activities and expansion into European and overseas markets. Rotork Valvekits specialises in the prompt and short term delivery of customised and off-the-shelf valve accessories including mounting kits, manual extensions and spring return handles, solenoids, switchboxes and positioners.

The last word: Happy hippos in St. Louis



The St. Louis Zoo in Missouri describes itself as a state-of-the-art biopark, so you would expect it to use only the most up to date equipment, which explains why it has just taken delivery of a Rotork IQ valve actuator as part of the preparation of a brand new hippopotamus exhibit.

Known as the Hippo Harbor and Hippo Landing, the new exhibit will be home to Bibi and Tombi - a pair of 1200lb, female 2 year olds - when it opens next Spring.



Hydro-Kinetics' Mike Berg takes a break from actuator installation to look around the unfinished hippo viewing area at St Louis Zoo.

The hippos flew in by Federal Express Airbus last month and will live in a non-public area of the zoo until their new home is ready. Meanwhile, Mike Berg from Rotork's agent in St. Louis, Hydro-Kinetics, has been busy installing the Rotork IQ actuator on the gate valve that will enable the Hippo Harbor to be regularly drained and kept clean. Keeping the water clean is not only important for ensuring that the hippo's experience an enjoyable environment, it will also enable

visitors to have the best possible view of the hippos as they swim underwater in specially designed areas of the lake.

Zoo spokesperson Martha Fisher explained that the hippos will be able to get used to their new surroundings in good time for the new facility's opening. Thereafter their happiness should be complete as the zoo plans to acquire a male to mate with them. **No children in the viewing area please!!!**