

Where in the world

From power plants to refineries and from wastewater treatment to marine engineering, the number of applications using Rotork valve actuators seems endless. The list of countries served is also highly impressive; in fact it is so extensive that the title question should be reversed – is there anywhere in the world where you don't find Rotork? Despite a truly global presence, the company's managers are still highly motivated to penetrate new markets, as Valve World discovered during a visit to Rotork's headquarters in Bath, UK.



Non-intrusive IQ actuators have been installed in the freezing conditions of BP Borealis in Alaska.



By David Sear.

Seventy-five countries around the globe, comprising 150 offices and agents, that's a mature, impressive network and something that Rotork's managers take pride in.



Bill Whiteley

"Not everyone is aware of our range of products or the size and reach of our operations. We are proud to say that we have the largest network in the world for service and sales support in our field", says Chief

Executive Bill Whiteley. "We have built this network for a specific purpose, namely to provide all our customers with a local service – be they end users, contractors, valvemakers, etc – and also to facilitate data gathering on their needs. Yet whilst I honestly believe that of all the actuator companies we offer the greatest geographical coverage, we are constantly examining our network and asking ourselves: where do we need more people, where should we be next?"

Being the market leader in the electric valve

actuator business is a pretty impressive achievement for what was once a small electrical and mechanical engineering company in Bristol, UK. In the early 1950's Jeremy Fry acquired a small business active in the then barely acknowledged field of valve motorisation. Jeremy Fry can be credited with recognising the growth potential of this sector whilst demonstrating just how inefficient existing products were. It was his vision in establishing a research and design team, which grew into the present-day Rotork organisation. His aim was for Rotork to create the finest range of electric valve actuators in the world. Today, Rotork's IQ and IQT actuator ranges represent the very latest in technology, offering benefits which, Mr Whiteley says, are simply unavailable elsewhere.

Fifty years of innovation

Delving through the fifty-year history of this British company reveals many examples of significant achievements. In the 1960's, for example, Rotork was the first to utilise O-ring seals in place of gaskets in explosion-proof actuators. This enabled the company

to offer the first truly watertight, temporarily submersible electric actuators. Sales Director Carlos Elvira: "This was an important breakthrough, as the Rotork actuator enclosure meant that additional equipment could now be fitted inside the actuator and protected from the environment. In particular, the inclusion of integral starters saved the considerable expense of separate motor control centres and associated extensive cabling, setting the scene for future plant designers." Today, virtually every Rotork electric actuator is fitted with an integral starter, providing customers with the most reliable, economical and uncomplicated solution.



Carlos Elvira

Another industry standard that was introduced by Rotork is known as Syncrophase. This device automatically corrects the power supply to the motor if phases are connected in the wrong order, preventing the risk of costly damage to the valve/actuator combination by ensuring that the motor always

do you find Rotork?



In Scotland, Rotork Electric Valve Actuators have been used in a new-build waste treatment plant.



Rotork IQ90 valve actuators installed on a large Chinese tank farm manifold.

runs in the correct direction.

Rotork also introduced the double-sealing concept, providing separately sealed, easy access to electrical connections without exposing the internals to any environmental influences. In 2001 Rotork won the Queen's Award for Innovation for the ultimate refinement to this concept: non-intrusive commissioning and interrogation of actuators using hand-held infrared tools. This technology, which is unique to Rotork actuators, was introduced with the IQ range in the 1990's and is an increasingly standard feature. In addition to the IQ and IQT ranges, it is also available for EH range heavy-duty hydraulic actuators and the Rotork Skilmatic electric failsafe actuator range.

Mr Elvira explains: "Our system avoids exposing internal electronics and controls to the environment at all times, even during commissioning in the field, contributing to even greater long term reliability. There are numerous other advantages. For example, on sites with large numbers of actuators and repeated actuator/valve applications, the operating parameters can be pre-loaded into a PC for easy downloading into each unit for

what is called multiple commissioning."

Last, but by no means least, Rotork are also the pioneers of intelligent actuators. The intelligent actuator monitors its own condition as well as that of the valve. Deviations from standard operating conditions can be set to trigger an alarm, allowing timely intervention by plant personnel. Intelligent actuators also store operating data in historical order, which, using dedicated Rotork software packages, can be downloaded, analysed and used to prepare preventative valve maintenance programmes. These abilities enable plant utilisation to be optimised and minimise the risk of disruptive and expensive interruptions or breakdowns.

Rotork's innovative product developments extend beyond the valve into the control room. The company was amongst the first to offer 2-wire digital control systems when Pakscan was launched in the 1980's. Pakscan has undergone constant development and is installed at many sites throughout the world, in water and effluent treatment schemes and of course in the oil, gas and petroleum industries. In addition to Pakscan, Rotork offers Foundation Fieldbus,

DeviceNet, Profibus and Modbus open system connectivity with virtually all of its actuator ranges to meet the preferred requirements of all industries.

Reliable product, reliable delivery

Despite the high level of technology in most of its actuators and the sheer range of permutations available, Rotork is able to offer customers reliable short delivery times. During a tour around Rotork's manufacturing plant in Bath, Marketing Manager Tony Scott pointed out various product features and manufacturing resources that make this possible: "Modularity has always been an important concept, but even so the number of possible customer driven variations within each range is enormous," he comments. "However, we only need to stock a relatively small number of basic component modules to fulfil a wide range of customers' needs." Thanks to this and up-to-date production tech-



Tony Scott

niques Rotork has reduced average lead times to around four to six weeks.

Various cells in the production plant cater for specialised customer requirements extending beyond the contemporary actuator ranges. The dedicated Spare Parts Cell regularly caters for the demands of refurbishing actuators that can have been in service for decades. A recent example involved a power station in Canada where spare parts were required for eighteen actuators that had not been touched since first installed in the 1970's. Identification and delivery of all the relevant seals, bearings and com-



Non-intrusive commissioning of IQ2 actuators at Dardowie sewage treatment plant.

ponents was achieved in record time, utilising archived engineering drawings, build schedules and test certificates that are held in Bath.

Finally, Mr Scott highlights a specific page in the instruction manual attached to each actuator. This states, "No routine maintenance is recommended or required." Mr Scott: "Not only are our designs inherently user-friendly, they are also designed to reduce operating expenses and provide the lowest overall cost of ownership."



Rotork has played a leading part in reconstructing Kosovo's power industry.

Fulfilling dreams

The majority of actuators leaving Rotork's premises are destined for installation in new-build sites. Recent projects include a multi-million dollar contract for the Canadian oil industry giant Syncrude involving electric and fluid power actuators and a large water and environmental improvement project at the Tai Po water treatment works and aqueducts in Hong Kong, involving 370 actuators to operate several types of valves Mr Elvira: "Project work such as a new refinery or water treatment plant can mean supplying anything from



IQ and IQT, the Rotork product flagship.

five to several thousand actuators that all have to function within an integrated control system. Valve actuators are a major factor in the control and operability of the completed plant. Actuators don't just provide the muscle to move the valves; their built-in intelligence can provide feedback to the control room as a major contributor to the operation of the plant. In many cases the importance of the actuator is not appreciated until something goes wrong. That's why we take so much care to ensure that

all our designs have both the valve and the end user in mind. We make actuators that are practical and reliable, whether they are cycled once a minute or once a month." The Rotork strategy behind product development is simple: continually assess the market, ask the customer what his needs are and design the actuator to meet them. The current market leading IQ range was designed as a result of a massive customer survey, asking what features they wanted in an actuator. Mr Elvira: "The IQ range offers convenience and instils confidence. Convenience in that the actuator can be easily installed, set by the valve manufacturer and subsequently interrogated and maintained by the end user. At the same time it is a very robust design, incorporating all of our experience. Customers can therefore be confident they have purchased reliable equipment that will work on time, every time."

Notwithstanding its project work, Rotork also enjoys a good reputation for retrofits, emphasises Mr Whiteley: "We are the most experienced retrofit actuator company in the world. We have been retrofitting since the 1960's, so the level of our success and know-how is unrivalled." To improve the efficiency of existing plants, Rotork first assesses the existing valves and actuators and then works with customers to agree a plan for optimised control and automation. This traditionally involves automating manual valves but can also include replacing or upgrading other types of obsolete actuators – whichever solution best suits the customers' needs. Giving an example of a recent retrofit project, Mr Whiteley talks about the power industry in Kosovo. "Plants here were suffering from a severe lack of maintenance. I am proud of the work that we did to help reconstruct such an essential industry, bringing power to hundreds of thousands of people."



Rotork's Ian Elliott instructs Kosovo B station engineers.



GP range quarter-turn failsafe pneumatic actuators at the Cold Lake oil sands facility.

The future

Whilst its roots lie in electric actuators, today Rotork manufactures an extensive range of products. With the acquisition of specialist manufacturers such as Jordan Controls, Fluid System, Skilmatic, Valvekits and Alecto, Rotork has expanded into diverse areas of valve actuator activity, including pneumatic, hydraulic, gas-over-oil and electric failsafe actuators, manual gearboxes, handwheels, positioners, switchboxes, mounting kits and accessories. This facilitates one-stop-shopping and simplified contractual routes for the customers.



Peter France

Mr Peter France, Rotork Fluid Systems Managing Director comments: "The pneumatic and hydraulic actuator market provides an unrivalled opportunity for Rotork to grow its business. We are developing centres of excellence around the world that can provide our customers with the level of service and support that they have come to rely on from Rotork. These centres of excellence provide technical support on all of our products which include low-pressure pneumatics, Gas / Oil, High Pressure Gas (HPG), linear pneumatic and hydraulic actuators as well as sub sea versions of our standard products. We have developed new and exciting products to complement our existing ranges and when coupled with our electric actuator they provide us with the most complete range of actuators in the world. In 2002/2003 we saw the introduction of our Gas / Oil, CP (small scotch yoke) and EH1.1 (electro-hydraulic) actuators. The complete range of products has enabled us to secure several large projects. Many of them involved electric actuators, Gas / Oil or High-pressure gas units, standard pneumatic quarter turn and linear actuators, as well as manual and motorised gearboxes. The ability of Rotork to offer such a comprehensive range of products allows the customer to standardise on one brand of actuator, therefore benefiting from a single source of supply with all of the



To meet increased demand for fluid power actuators, Rotork Fluid Systems has moved to much larger premises at Lucca, Italy.

Rotork Gears fast-tracked 22 specialised sub-sea valve gear operators to the Shell Exploration Penguins project in the North Sea. ➔

after sales rewards that this brings." Mr Whiteley confirms that Rotork is keen on extending its involvement in different types of valve actuation such as fluid power. "We started developing our first range of fluid powered actuators for operation in Alaska," he comments. "They needed a rugged actuator with reliable performance. We ended up with a very high specification that we were subsequently able to combine with the knowledge inherent with the Fluid System actuators built in Italy, following our acquisition of that company." From these beginnings Rotork is steadily growing its fluid power operations, becoming a world force in the segment by the late



1990's. Mr Whiteley believes in further growth throughout the range of Rotork products. "We are already the market leader in electric actuators. I expect to see us in the same position with fluid power actuators. In addition, Rotork Gears has a complete offering of manual and actuated gear operators and has recently introduced specialised designs for sub sea applications. Besides this we have opportunities to expand on the process control side of our electric actuators. Wherever plants are looking to raise efficiency there is an opening for our products. Rotork has a reputation for the successful introduction of new, cost effective technology to the field of valve actuation, which improves end user performance." ■

FACTS & FIGURES

Name:	Rotork Controls Ltd.	
Product:	Electric, pneumatic, hydraulic, electro-hydraulic and gas-over-oil valve actuators; control systems; valve gearboxes and accessories.	
Applications:	Oil & gas (onshore and offshore), water & waste water treatment, power generation, chemical processing, pulp & paper, mining and marine engineering.	
Offices:	Head office Bath UK, (see photo) 50 subsidiary company sites throughout the world + agents' sites.	
Manufacturing plants:	UK (Bath, Leeds, Mansfield), USA (Rochester NY, Milwaukee), Italy (Lucca), Holland, (Losser), Malaysia (Kuala Lumpur), India (Chennai, Bangalore).	
Staff:	1100 worldwide.	
Turnover:	Over USD 200 million.	