

Rotork, Redefining Flow Control

Rotork GP range, spring-return, scotch-yoke pneumatic actuator installations on the LNG import sea terminal at Quintero Bay, Chile.

In 2010, when the well known international actuator manufacturer Rotork had its last cover story in Valve World magazine, the focus was on the company's German office in Melle and the plans and developments for that location. In Rotork's 2012 cover story, we shifted the focus to the Head Office in Bath, UK, and spoke to Mr. Richard Hudd, Marketing Director for Rotork Fluid Systems, Mr. Tony Scott, Group Sales Support & Marketing Manager, and Mr. Tim Bessex, Sales Director for Rotork Controls, the electric actuator division. The three gentlemen gave us an insight into the current status of the Rotork Group and the variety of services the company provides to its customers, wherever they are located. In addition to this, we learned more about the importance and success of Rotork Fluid Systems as well as the latest development of one of the key actuator products, the IQ3. But read for yourself...

By Christian Borrmann

"I think one of the most important changes that we as a company have undergone is the addition of the Instruments Division," begins Mr. Scott. "Now that we have four divisions within the Rotork Group – Controls for electric actuators and control systems, Fluid Systems for pneumatic, hydraulic and electro-hydraulic actuators and controls, Gears for motorised and manual gearboxes and valve accessories, and Instruments for pressure and flow control instrumentation - the strap line of the company is 'Redefining Flow Control'. We have been able to expand on our position within the valve actuation market to become a more prominent player in the broader flow control market. With our wider range of products and expertise, this is how we want to present ourselves to customers."

"We have experienced a strong increase in the hydraulic and pneumatic market. The growth figures are impressive and we believe that this area still has quite a way to go," continues Mr. Hudd. Mr. Bessex adds: "We utilise the resources we have, the capacity at the various manufacturing facilities to provide the best routes to market for our product lines. For example high volume product lines can be built at multiple manufacturing centres, enabling us to satisfy the large demand for particular flow control products. It is important to us that we continue to build on our manufacturing strengths and capabilities as we see more and more large infrastructure projects around the world. A case in point is Asia, where we are a big supplier for the rapidly growing markets and the large customers that serve and exist in that area."

A global network to support the global markets

Currently Rotork has 20 manufacturing plants worldwide and these facilities are supplying sales and service offices located around the globe, as Mr. Scott points out: It is something we are developing year on year by focusing on the markets which we feel are the most subject to expansion. We have been expanding in the BRIC countries over the last ten years. We have a number of offices and factories in China and in India, with a much increased presence in Brazil and Russia.

We opened our first Moscow office in 1998. Back then we only had a few heads in Russia but now we have a strong team of sales and service people to support the market and have opened a second office in St. Petersburg, which is also supported by our factory in Melle. The Melle plant manufactures products specifically suited to this market. Our factories in India and China serve and support those countries' domestic markets whereas the manufacturing facilities in Europe and the USA support both their domestic and the international markets."

Says Tim Bessex: "We focus on having a diverse business model with actuators and associated control products. We aim to continuously improve our products – electric, pneumatic and hydraulic - so that we can go to the end users, contractors and valve makers, and offer them the best solution for their particular application."

Many of our products and service features are centred on a lower total cost of ownership, and in this respect an important aspect is making sure that the actuator gives the appropriate diagnostic data to enable the customer to establish the life/performance of the valve and actuator and plan preventative maintenance programmes accordingly." And that business model can be universally applied to every market that Rotork supports. Mr. Scott: "When we look at the marine industry we see a big requirement for hydraulic and electric actuators; in the mining sector, they often have slurry pipelines with a requirement for very large, heavy duty actuators. We are able to supply some extremely large units with high torque capabilities to operate these very specialised valves. And for our more traditional markets, such as power, water treatment and sewage facilities, we are able to supply pneumatics and hydraulics in addition to electric actuators. K-TORK, part of the Rotork Fluid Systems Division, manufactures a vane type actuator which is being sold into the municipal water industry, into power and the chemical and petrochemical industries when they need a compact, high modulation, heavy duty actuator. Our wide portfolio of actuators and systems enables us to provide the most appropriate solution for any specific application." Mr. Hudd continues: "When we talk about the gas industry, we are talking upstream to downstream. At the moment we are seeing an increase in demand from LNG



CVA electric control valve actuators recently installed at a Ukrainian compressor station on the pipeline network supplying Western Europe with natural gas from Russia and Central Asia.



Rotork Gears manufactures a wide range of valve gearboxes, designed to withstand the harsh challenges of many environments, including subsea and buried service.

import and export terminals and this has been a real focus for us. In Queensland, Australia they are developing a coal bed methane industry, extracting the gas and transporting it to the liquification plant in Gladstone. This is one example of many similar projects that we see in different parts of the world where shale gas is being developed."

Hand-in-hand cooperation

The increased importance of safety also plays a key role within Rotork and the three gentlemen believe that the awareness of people has certainly increased over the past years, especially after events such as Fukushima or Deepwater Horizon. Mr. Hudd: "All these events have partly been responsible for an increase in the demand we are now seeing for failsafe systems in Asia, in the Americas and elsewhere. It is obviously being driven by big corporations and end users who have corporate and social responsibilities to look after their plants, their people and the environment." In order to meet this demand, Rotork is working closely with its customers to provide the best possible solutions for them. "We like to get involved early on in a project to talk to customers about their various different systems and the safety levels that they are considering for their plant," says Mr. Hudd.

"On any given plant you will have some very critical valves along with some not so critical valves and end user customers tend to categorise these valves quite early on in the design of their plant. They will have what they call a general purpose valve application which is literally an on/off type of valve – an isolation valve; then they will have a protective service type application which will be an emergency shutdown (ESD) or a blowdown valve. These valves tend to be failsafe so they will fail to a pre-programmed position. They traditionally comprise of a scotch yoke pneumatic or hydraulic actuator with a spring which, when the valve is in normal operation, is held compressed by either an air pilot valve or an electric solenoid valve. In the event of a failsafe condition, the electric power or the pilot pressure is removed from the solenoid valve and the air or oil is allowed to be released from the cylinder. The spring immediately pushes the valve to its safe position. It is a very simple and reliable device and a very high safety integrity level (SIL) can be achieved with it. Rotork holds the highest SIL level accreditations for these types of products. With the innovative CVA we can now also supply an electric actuator specifically for continuously modulating control valves with a programmable failsafe function.

The end users will look at their sites and decide on the level of safety they require. We will then talk to them about the different products we have that can satisfy their requirements. We pride ourselves on the fact that we have been working in the industry for many years and we visit end users and contractors in order to understand their requirements. At the end of the day, they understand their plant whereas we understand the actuator solutions appropriate for the application and we work together to try and make sure that the overall plant and system are as reliable, safe and low maintenance as they can be." And Mr. Bessex points out: "All this belongs to the service package that Rotork provides to its customers. Many of them look to us to provide them with advantageous technological solutions and give them the peace of mind that the actuators will perform to specification, every time! The intelligence that the electric actuators have now is at a very high level and there

is a lot of information stored within those actuators that is very useful, not only about how the actuator is performing or how often it is operated. It also gives a good insight into what is happening within the valve. That type of technology, which began within the Controls Division, has now migrated to other actuator designs and we see the same type of control forming part of the standard safety shutdown systems. There is a lot more intelligence now in the control of pneumatic and hydraulic actuators; one of the resultant products is the Skilmatic range of electro-hydraulic actuators, which combines electrical power with a failsafe type of pneumatic or hydraulic actuator in order to provide the best of both worlds. It gives us the ease of connectivity of a typical electric actuator, and the functionality and configurable nature of an electronic type actuator, enabling a more standardised control solution to suit multiple specifications, thus reducing the requirement for different types of equipment and simplifying overall plant complexity and maintenance."

High expectations for the future

When asked what the gentlemen think and expect from Rotork and the flow control industry over the coming years, Mr. Bessex comments that: "We see good growth in markets including Asia, USA and the Middle East. We want to make sure we are positioned correctly to service all our markets and we will do so by ensuring that we further develop our manufacturing base and continue to strengthen our sales and service offices."



The Smart Valve Monitor (SVM) is an advanced partial stroke test and monitoring system for ESD valves. This centralised control cabinet will be installed at a UK gas import plant.



Rotork Skilmatic electro-hydraulic failsafe actuator installed for safety-related valve duty at the Vopak Europoort Terminal in Rotterdam.

Mr. Scott adds: "We are continuing to expand the site support services for actuation and associated products. Supplying

actuators is only part of the equation; we aim to be involved with customers from the plant design stage through to completion and then to have an on-going relationship with the end users in the form of tailor-made service contracts. This is a proven and successful formula for us and our customers, and we feel there is definitely much more scope for this in the future. We value our close relationships with end users and valvemakers who we also work very closely with and since Rotork is independent from any valve group we are able to offer all valvemakers a fair and open relationship." "Rotork Fluid Systems has increased its market share since our last cover story.

The completion of the expansion of our largest factory, in Lucca, has enabled us to improve production flows and operational efficiency. In addition to our substantially increased capacity and enhanced capabilities, we have been working on new designs and advanced technologies to optimise the reliability and efficiency of our products and have launched a number of new developments," says Mr. Hudd. He concludes: "So to round it all up, there is still a lot to come from us. With the strength of all our divisions we will keep striving to support our customers with new technological advancements and unrivalled site services."

Rotork's IQ3 actuator

Rotork recently released the third generation IQ and we had the chance to briefly sit down with Mr. Bessex to learn more about the newest features and technical changes that make the IQ3 so special.

When did the first generation of the IQ come out?

Mr. Bessex: The first IQ generation was launched exactly twenty years ago and we have been strengthening the pedigree of this product ever since. The first IQ introduced revolutionary features such as 'non-intrusive' IrDA communication, solid state switching and torque limiting. The IQ3 introduces new levels of functionality and asset management, combined with further refinements to a rugged mechanical design that has twenty years' experience in the field. Nobody else has this level of experience.

What are the advantages of the IQ actuator?

Mr. Bessex: It is a non-intrusive, double-sealed, intelligent electric actuator. The double-sealing means that the terminal compartment is separately sealed from the rest of the enclosure, so that all the internal parts are permanently protected from the environment even when the terminal cover is removed for site wiring. Once installed, there is no need in the life of the actuator to ever remove any covers for setting switches or commissioning. Communication with the actuator is achieved using non-intrusive Bluetooth® technology using the hand held setting tool or a laptop. Permanent protection from the ambient environment, combined with a proven simple mechanical design and solid state electronics, increases the long term reliability of the actuator; whilst an integral datalogger stores operating historical operating information and events. This is the intelligent area. Using either secure Bluetooth or well proven IrDA technology, we can extract and analyse operational data by means of the setting tool. This allows us to diagnose and check what is going on inside the actuator as well as the valve and help the planning of appropriate preventative maintenance programmes. The final outcome of this will be reduced down time and increased reliability.

Since IQ3 is out – what are the differences between the second and third generation?

Mr. Bessex: We are striving to always make the most innovative and reliable actuator for the market and with IQ3, I believe, we have done so, again. The most obvious update is the change of the display. We have introduced a large, wide angle LCD segment display that provides positional and warning icon information, actuator setup and operating menus, along with detailed diagnostic and operational menu screens. Rotork's state of the art backlit data rich display provides enhanced graphical and multilingual critical information. Selectable screens provide a quick view of operational status and process information in real time. These diagnostic graphics present a window into the process, showing the valve torque and usage profiles along with service logs and facilitating analysis directly at the actuator.

Another new feature is a patented absolute encoder using a unique design with built-in redundancy and self checking which mechanically tracks valve positions even if the actuator is manually operated when the power is off. No power is required for the actuator display to accurately and reliably keep track of its position, whilst an internal long-life indication battery will maintain the actuator display window and provide real-time remote indication during a period of mains power failure.

For more information about the IQ3, please visit: www.iqactuator.com



The IQ3 is the flagship product, designed for isolating and regulating duties on valves of virtually all sizes and description.