

Rotork Fluid Systems ready to meet all challenges

Rotork's Fluid Systems division recently completed the first shipments of three new products, one of which – the Skilmatic SI 3rd Generation – is built at their new manufacturing facility in Leeds, UK. Despite only being opened in September 2014, this factory has fast become a centre of innovation and development, where engineers are working hard to meet future challenges from changing markets. To find out more about the strengths of this new plant as well as the capabilities of Rotork Fluid Systems as a whole, Valve World headed to Leeds to meet Divisional Managing Director Mr. David Littlejohns.

By James Hoare and David Sear

On arrival at Rotork Fluid Systems' premises in Leeds, Valve World was given a warm welcome by Divisional Managing Director Mr. David Littlejohns. He then promptly handed over safety glasses and gave a quick run-down on safety instructions before leading us through the doors of the factory

shopfloor. "I want you to see for yourselves how efficiently this factory is laid out and how we make our actuators," he said by way of invitation. There are a couple of reasons why Mr. Littlejohns is always keen to take guests through the factory. Firstly, he's an engineer

at heart, having started with Rotork on the factory floor aged just sixteen. This means he enjoys talking about all things technical and can do so with authority. And secondly, he says that allowing visitors 'to smell the grease' can provide a much better appreciation of what Rotork is all about.

Rotork Fluid Systems is a market leading manufacturer of fluid power actuators and control panels.

with its predecessor, all of the control solenoids continue to be incorporated into the controller mounted to the top of the actuator. This avoids the need for a separate control cabinet alongside the actuator, which simplifies installation, decreases the footprint and makes the entire unit that much more reliable." Mr. Littlejohns describes the 3rd Generation of the Skilmatic as 'yet another disruptive product' from Rotork. "By that I mean that the Skilmatic SI₃ is a major step forward in technology and eclipses all other designs currently available by being a 'cousin' of the market leading Rotork IQ3 intelligent electric actuator. It is a unique product that gives customers a whole new way to automate their valves and will signal a new standard in the market." Asked about applications, Mr. Littlejohns notes that the SI₃ is perfect for emergency shutdown (ESD) and remotely operated shutoff valve (ROSoV) duties. "Following some well-documented accidents many end users are looking to ramp up safety systems in tank farms. The Skilmatic is ideal thanks to its electric hookup, low power requirements and smart failsafe capabilities. All the customer might need is a tank-mounted sensor, a length of cable, a suitable valve and of course our actuator. In fact, if the client so desires we can take total responsibility for the entire system, acting as the main contractor for the hardware, software and installation."



Mr. David Littlejohns joined Rotork some thirty years ago as an apprentice at the Bath headquarters and has gone on to work in various roles in the UK and the USA. He is currently the Divisional Managing Director of Rotork Fluid Systems.

Once inside, the well-marked walkways allow exceptionally close access to all key areas. Mr. Littlejohns: "When acquired this building was an empty shell, so we have been able to design the internal layout to meet our exact needs. One of the first things I insisted on doing was to incorporate a safe, circular pathway, such that visitors can view our stores, assembly and test areas up close without having to don protective clothing." It is not just engineers who want to visit. Recent guests have included procurement managers from engineering contractors, HSE officials from major end users and even a group of financial investors who expressed very positive sentiments about the clean and streamlined manufacturing set-up.

3rd Generation

Valve World's tour started with a walk alongside the well laid out stores area before stopping at an assembly station designed for the newly introduced Skilmatic SI₃ electro-hydraulic actuators. The immediate impression of the SI₃ is of an actuator which packs a lot of punch; an impression that Mr. Littlejohns readily confirms. "Skilmatic actuators can deliver up to 600,000 Nm of torque which is appropriate for the safe operation of large valves in critical applications. This is in fact the 3rd Generation of the Skilmatic product range and our design team has gone to great lengths to develop an engineered product suited to harsh environments. For example, as



Skilmatic electro-hydraulic development incorporates synergy with Rotork's market-leading IQ intelligent electric actuation technology, with non-intrusive set up and interrogation, data logging and asset management benefits.

Compact

Continuing the tour, Mr. Littlejohns notes that Rotork's engineers have also taken up the challenge of developing a powerful actuator for use where space is at a premium. "Our CQ Compact actuators have a fully concentric, balanced design and are available in pneumatic and hydraulic models with torque outputs of up to 600,000 Nm. They deliver a reliable and self-contained solution for applications demanding functional integrity and safety, but only require a minimal space, making them ideal for offshore oil & gas installations." As Mr. Littlejohns further points out, the symmetric design means the actuator is perfectly balanced, facilitating assembly and disassembly. Indeed, Valve World learnt that the actuator can be safely disassembled in the field to allow access to internal parts for maintenance.

If the Skilmatic and CQ ranges have been designed to deliver very large torque outputs, then the GT and K-TORK actuators also available from Rotork Fluid Systems can fairly be said to sit further down the scale. The GT model, for example, is a rugged rack-and-pinion pneumatic actuator available in single and double acting designs and with a range of options such as solenoid valves, switchboxes and mounting accessories supplied for high volume applications including HVAC and process industries. The K-TORK also on display at Leeds is immediately recognisable as a vane actuator, a design which Mr. Littlejohns describes as 'truly rotary'. "The beauty of a vane actuator is that it does not require the conversion of a linear motion to a rotary motion. The result is a simple, highly accurate and reliable quarter-turn

pneumatic actuator that is suited to the most demanding process flow control applications. This is another acquisition success story, as we have expanded the range and boosted sales via our global network," he comments.



The new CQ actuator has an innovative space-saving configuration of the internal components.

Actuator overhaul

At the end of the tour Mr. Littlejohns proudly points out the well-equipped laboratory, used to test both new components as well as existing products. "Having our own facility here right next to the production and engineering teams means that we can be much more responsive when it comes to product testing, design validation and life-cycle testing."

In addition to research, development and manufacture, Leeds is also one of Rotork Fluid Systems' worldwide network of Centres of Excellence, where fluid power actuators are packaged with control equipment to meet the specific requirements of customers and applications. Before leaving the factory, Mr. Littlejohns notes that the building is home to more than just Rotork Fluid Systems. "The UK sales office, for all actuator and gearbox products, is based on site. This is also one of Rotork Gears' manufacturing plants, producing worm, bevel and spur gearboxes as well as valve accessories, mounting kits and adaption."

And, pointing towards a large workshop area clearly set up for actuator maintenance, Mr. Littlejohns remarks that it is also a service centre for Rotork UK. "Rotork UK ships a complete range of Rotork products to customers throughout the UK and also offers a full service capability for the overhaul and repair of actuators. Rotork engineers gain experience from servicing and repairing all types of actuators at Leeds. Actuators returned from harsh duty and environmental conditions can provide our engineers with invaluable insight which can be used to improve the design of future products."

More than oil & gas

On the way back to reception Mr. Littlejohns provides a global view of Rotork Fluid Systems' portfolio. "Our extensive suite of products covers pneumatic, hydraulic and electro-hydraulic actuators as well as control systems. Off the top of my head we have over thirty different ranges, all boasting an impressive

pedigree and covering a wide number of applications. What I would like to stress though is that whilst oil and gas is a major end user market we do deliver actuation solutions to a much broader range of industries."

Asked to provide examples Mr. Littlejohns quickly lists power generation, water and wastewater treatment, petrochemicals, marine, HVAC, and general industry before noting an initially surprising sector - nuclear power. "Many countries see nuclear power as an important part of their energy mix. Therefore we have been further developing our range of Hiller fluid power valve actuators, electric actuators and gears to meet the current and future needs of this



Example of the K-Tork pneumatic vane actuator, packaged with equipment from Rotork Instruments (switchbox and pressure regulator).

specific market. Key Hiller products include actuators for the main steam isolation valves as well as the main feedwater isolation valves. Incidentally, we have the know-how and approvals to deliver turn-key packages to clients, by which I mean the complete valve and actuator assembly."

As it serves such a wide range of applications and industries, practically no two purchase orders are the same for Rotork Fluid Systems. High volume standard items like the GT rack-and-pinion actuator can be delivered 'off-the-shelf' whilst engineered equipment such as the new Skilmatic SI₃ is built to order. However, Mr. Littlejohns is confident that in all cases, Rotork can readily deliver actuators within a timeframe that meets customers' expectations. "We



Since September 2014 the Rotork Fluid Systems UK factory has been housed within a new GBP 8 million facility in Leeds.

can do this for several reasons. Firstly we have a global network of factories, giving us tremendous manufacturing flexibility. We also keep large stocks of components to facilitate quick assembly. Moreover we incorporate commonalities and synergies throughout all our models, be they standard products or bespoke engineered actuators.

For example, the controller on our Skilmatic models built right here shares some of the same key component parts as the IQ electric range manufactured in our corporate HQ facility in Bath and Rochester, USA."

Asset Management

Before concluding the interview, Mr. Littlejohns takes a few minutes to discuss an industry trend: Asset Management. This, he states, is increasingly important to customers looking to streamline maintenance, reduce downtime and ensure the best possible performance of their plants. "Our IQ3 and now SI₃ come as standard

with built-in diagnostic capabilities that can help indicate the condition of the valve and actuator providing real-time feedback which can be used to monitor and improve the efficiency of the process itself. Some customers want this data fed back to the control room via a fieldbus whilst others prefer to use our handheld device to retrieve the information from the point of source. We can even - naturally with their permission and the appropriate data feedback infrastructure - access the actuator remotely and interpret the data for them." This ability to deliver a fitting and tailored solution to customers is a significant strength for the Rotork Group as a whole, concludes Mr. Littlejohns. "You have seen the Leeds facility and hopefully have a sense of how passionate Rotork Fluid Systems is at developing new products and bringing them to the market. But that is equally true for all of Rotork's manufacturing, sales and service centres worldwide. Around the globe, we are working proactively and as a team to meet our customers' future actuation and control challenges."

Facts & Figures

Name:	Rotork PLC
Divisions:	Rotork Controls, Rotork Fluid Systems, Rotork Gears, Rotork Instruments
Main products:	Electric, pneumatic, hydraulic and electro-hydraulic actuators for on/off, modulating and control duty; gearboxes; instrumentation products for flow control, pressure control, flow measurement and pressure measurement.
Key markets:	Oil & gas, water and wastewater, power, marine, mining, pharmaceutical, paper and pulp, rail, HVAC and biomedical.
Turnover:	GBP 594 million (2014)
Manufacturing facilities:	31
Employees:	3,789
Offices:	73