

# Valve World

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## Rotork Instruments: focus on innovation

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Rotork Instruments, the youngest division of Rotork, has been established by a string of acquisitions in the last seven years. “There is a gap between actuators and control systems that we intend to fill with tried and tested packaged solutions and new innovative concepts that deliver value to our customers.”

By Lucien Joppen



## Rotork Instruments: focus on innovation

According to Andy Filkins, Business Development Director of Rotork Instruments, innovation is the key word for Rotork Instruments and the Rotork Group. “In our division we are aiming for sustainable and profitable growth”, Filkins says. “As a relatively young addition to the Rotork-family (see box text A brief history, ed.), the Instruments division has grown mainly via acquisitions over the last 7 years. Of course we intend to grow through our existing businesses, mainly by developing innovative solutions that help our customers to meet their goals in their day-to-day operations.”

### Filling the gap

A brief look back into the past. In 2011, the Instruments division within Rotork was established by the acquisition of the American company Fairchild Industrial Products. Back then, Rotork’s management stated the deal would strengthen its ‘presence in the global flow control market whilst remaining close to its core competencies.’ “The main idea behind the Instruments division is to fill the gap between actuation and control systems. A leading manufacturer of actuators (electric, pneumatic and hydraulic, and gear-boxes), Rotork identified this market segment as a natural extension of its existing activities. This is especially relevant for pneumatic and hydraulic





actuation as electric actuators already have sufficient control functionalities. In pneumatic and hydraulic actuation, however, there is room for a supplier that can offer a broad instrumentation platform for the control and management of flow and pressure.”

### Cost as an opportunity

The question is: why would end users choose Rotork Instruments as a supplier? One main advantage, according to Filkins, is the economic and security benefits of only having to use a single supplier for all the control system requirements, instead of many suppliers. “In terms of installation and maintenance/servicing, it becomes a less complicated and ultimately less costly process”, Filkins explains. Cost reduction while maintaining safety levels in critical applications is a big theme across all industries, Filkins adds. “In oil and gas, a very important sector for both for our division and Rotork as a whole, cost management is a priority. This

is driving more innovative solutions that reduce operational costs and/or optimise output. A telling example is the role/use of solenoids as the final element in the control circuit for a pneumatic on/off valve. In solenoids, not only are we able to offer a comprehensive portfolio via our Bifold and Midlands-ACS brands, but we are also expanding this range with fast acting and low power consumption designs. These solenoids are able to provide a higher degree of accuracy and safety combined with lower operating costs, partly because these can function via a solar powered battery system.”

### Innovation driver

The increasing digitalisation of the industry will be a main innovation driver for Rotork Instruments, Filkins states. “There are two issues: the control and monitoring of assets and the capturing and analysis of various data to enable end users to make better business decisions. As I have mentioned before, end users will need new solutions which cost less to operate and require less human intervention in monitoring and/or servicing. Therefore innovation through low energy solutions allowing “wireless power” – using unconventional



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### A brief history

As mentioned before, 2011 was the birth year for Rotork Instruments with the acquisition of **Fairchild Industrial Products**. By acquiring the US based company, Rotork moved into the instrumentation field enabling it to extend its control solutions for both on/off and modulating pneumatic control valve applications. Currently, the Rotork Instruments division consists of six primary brands.

#### Fairchild, acquired in 2011

Fairchild’s product line is focused on pneumatic controls, specialising in pressure regulators, transducers, volume boosters, relays and filters.

#### Soldo, acquired in 2012

A manufacturer of limit switch boxes, proximity sensors, and control accessories for valve automation, with manufacturing operations based in Italy.

#### Young Tech Co., Ltd, acquired in 2014

Based in Seoul, Korea, YTC is a manufacturer of valve positioners and accessories. The acquisition of YTC extends Rotork’s range of instrumentation products in to the process control valve market.

#### Midland Pneumatic, acquired in 2014

Based in the UK, is a leading manufacturer of solenoid valves and instruments under the Midland-ACS, Alcon Solenoid Valves and Landon Kingsway brands.

#### M&M, acquired in 2015

A leading manufacturer of solenoid valves and piston actuated valves for use in commercial and industrial flow control industries.

#### Bifold, acquired in 2015

A leading manufacturer of pneumatic and hydraulic instrument valves and components focused on the oil and gas industry and wider industrial markets, with expertise in a number of niche sectors such as subsea and wellhead control systems.



A sneak peek at Rotork's manufacturing and assembly

rather than conventional power sources, combined with wireless communications which can transmit over long distances will become more attractive” Data collection and analysis are needed to pave the way for concepts such as predictive maintenance. End users are keen to get their hands on as much production related data as they can. Rotork has installed hundreds of thousands of actuators in the past and has considerable knowledge over a period of years. With our asset management software we are able to translate this data into actual advice. There is where we can add value to our customers by minimising downtimes while ensuring/maintaining high safety standards.”

**PICO: Increasing Safety with no downtime and no leakage**

Position control in on/off valves, mainly in pneumatic and hydraulic actuation, is an important function which is covered

by Rotork Instruments. For emergency shutdown valves, partial stroke testing (PST) and sometimes full stroke testing (FST) is required to ensure the valve (system) works according to the site's safety standards.

“A PST is a required, but critical procedure as end users do not want a failure to cause a shutdown of their operations. Therefore, the actuator needs to be moved with precision over a controlled percentage of the valve stroke. There are various ways in which PST can be performed: mechanical, electronic, electric and pneumatic. With our PICO control system we have devised a complete solution, integrating ultra fast, zero bleed solenoid valves, high flow capacity filter boosters and a dedicated electronic control. With this solution we are able to perform the PST's on the fastest valves on the market without endangering continuity of production and without the compromises or risks of conventional systems “

**Filter Booster**

In applications where a fast shutdown (ESD) is required for pneumatic valves, the flow rates through the pneumatic control system play a critical part.

In response to this Bifold has developed a new solution which incorporates the combined functions of a filter regulator and a volume booster. Filkins says “the new “Filter Booster” has a patented design which allows up to 500% higher flow than other market equivalents. Furthermore, the filter booster design eliminates the need for an additional poppet or quick exhaust valve



With its PICO control system Rotork has developed a “complete solution, integrating ultra fast, zero bleed solenoid valves, high flow capacity filter boosters and a dedicated electronic control.”

Kiet Huynh has been recently appointed Managing Director at Rotork Instruments, the specialist manufacturer of precision instrumentation products for



flow, pressure control and measurement. Kiet brings to Rotork the experience of a long and successful career in industrial instrumentation, most recently with Trelleborg Sealing Solutions. He has a passion for team building based on growth in highly innovative environments. “Innovation is key to Rotork staying ahead of the competition”, Huynh says. “We have great engineers who truly understand our customers’ needs and therefore can deliver new products and technologies in a competitive environment. This will allow our customers to grow their business through the help of our technologies.”





*Bifold's Filter Booster incorporates the combined functions of a filter regulator and a volume booster. Filkins says "this product has a patented design which allows up to 500% higher flow than other market equivalent."*

in applications where a fast shutdown is required. Basically, the filter booster simplifies the circuit and reduces overall costs. Combined in a total circuit, Bifold's modular design creates a greater flow capacity through an unrestricted common bore system which allows for considerable cost savings compared to a traditional tube and fitting alternative."

### Modulating Control

As Andrew Filkins has explained, a major part of the business for Rotork Instruments comes from process control applications. Valve positioners are used to control the position of a modulating valve and to enable a fast response to the position of the valve from a command from the control system.

Traditional systems use PID Controllers and Electric to Pneumatic (I/P) converters. In these designs outlet air pressure from the I/P converter is regulated in proportion to



*The YT-3300. At the heart of this range of SMART positioners, YTC utilises torque motor/flapper nozzle technology for converting the electrical input signal to a pneumatic output signal.*

an analogue electrical input signal and the highly accurate output pressure is maintained by an internal feedback sensor. "The Electro-Pneumatic Positioners incorporate the functions of the I/P converter, PID controller and the pneumatic module into a single unit, making the system compact and reducing pneumatic connections between multiple components thus reducing possible leak paths."

### Valve diagnostics

Besides the traditional solutions, Rotork Instruments is also active in digital valve positioners. These product solutions are microprocessor-based with internal logic capability. In basic terms, SMART digital positioners perform the same principle function as the Electro-Pneumatic positioners, Filkins explains. However, the key advantages for using smart positioners are an automatic calibration and configuration which leads

to considerable time savings. Another bonus is the ability to diagnose in-line valve performance via the Distributed Control System (DCS), PC software tools, or handheld communicators. "There are also cost reductions in loop commissioning, including installation and calibration, and the use of diagnostics to maintain loop performance levels. Finally, SMART digital positioners lead to improved process control which reduces process variability."

### Market outlook

The outlook on the market for Rotork Instruments is quite favourable, according to Filkins. "Our business depends partly on oil and gas. Conditions for this market segments have become (slightly) more positive over the last year. The emphasis in these sectors is on cost reduction - both in CAPEX and OPEX - which enables new project development against lower barrel price levels. Because Rotork Instruments is also very active in process control, we are also strong in (petro)chemicals and processing industries in general. Sectors where the need for process control is high. For these types of industries, we see ample room for growth, first and foremost through new project development. In general, the big issues are automation and an increased demand for flow measurement and control."

### More robust and stable solution

According to Filkins, Rotork Instruments benefits from the YTC range of positioners which extends across I/P and SMART digital models applying both Intrinsically Safe and Flameproof protection techniques for hazardous area applications. At the heart of the YT-3000 series SMART positioners, YTC utilises torque motor/flapper nozzle technology for converting the electrical input signal to a pneumatic output signal. The torque motor technology provides a more robust and stable solution than other I/P technologies such as Piezo electric cells or voice coils, enabling the positioner to maintain its high performance in harsh environments subject to higher vibration, higher temperatures, potential for greater ingress of water and where clean instrument air may not always be guaranteed.