FISHER IN CONTROL
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Bringing Valve Excellence to China

November 5, 2004 marked an important day for the China control valve industry as the world's leader, Emerson Process Management, opened a new valve manufacturing facility in Wuqing.

Established primarily as a rapid-response manufacturing site and to provide after-sales service, the ISO9001:2000 certified plant producing Fisher valves strongly affirms the on-going commitment to serve China customers better. Drawing on global resources to secure the best possible raw materials, all valve parts are certified to worldwide standards and laser-marked to establish authenticity.

More than 200 people, including customers, top government officials and key Emerson staff, joined in the grand inaugural celebration. At the auspicious hour, Terry Buzbee, President of Fisher; Mike Train, President of Emerson Process Management Asia-Pacific; Frank deJong, Vice President of Fisher Valve Asia-Pacific; Yuan Tong Li, Governor of WuQing Development Zone and his deputy, Zhang Miao Yu, officially opened the plant in a ribbon-cutting ceremony. A lion and dragon dance performance was the climax of the occasion, and was followed by a cocktail reception and tour of the plant.

The opening ceremony and plant visit shed unique insights into the innovation and customer commitment that Emerson Process Management brings to each of its products, solutions and to China.

Emerson Users Exchange Tips

The Emerson Global Users Exchange is a forum for the free exchange of non-proprietary information amongst users of Emerson Process Management's products and services. The 2004 Emerson exchange took place from October 25 to 29, 2004 in Dallas, USA.

Drawing over 1,500 end-users, contractors, Emerson Local Business Partners, suppliers and employees, the conference exposed them to more than 500 technical workshops, business forums and product roadmap sessions. There was also a 40,000 square foot exhibition featuring the latest process technologies.

Petronas Ammonia Syngas presented a paper, together with the Fisher Local Business Partner in Malaysia, Transwater, titled 'Petronas Ammonia Experience in Utilizing ValveLink® and AMS to Optimise Maintenance Planning & Cost'. Their paper clinched one of the 'Best of Conference Awards'. The team took the opportunity to visit the Emerson Process Management facilities in McKinney, Austin, Marshalltown, Minneapolis and Chanhassen.

Mr Azmi Abidin *(left)* and Mr Shahrizal Dahlan of Petronas Ammonia Syngas with their award.

"Wow, what a year FY04 for Emerson Process Management, Fisher Valves and our Local Business Partners (LBP) throughout Asia- Pacific! As I communicated to each employee in September, Fisher Valves AP exceeded many financial goals for the year due to the hard work and commitment of our employees and our Asia-Pacific Representatives."

**Frank deJong,
Vice President,
Valve Division
Asia-Pacific.**

Financial Results

Investments in new products paid off. FIELDVUE® Instrumentation continued to grow at a rapid pace with the timely release of DVC2000 and DVC6000f. The launch of the GX valve has been extremely successful in extending our reach into core industries and penetrating new market segments.

The Business Units focus and solutions selling has led to fantastic sales success throughout the region with wins in new segments such as Anti Surge control valves and high pressure let down service. The Parts business grew very nicely in fiscal year 2004 (FY04) with the successful execution of a US$ 2.3 million spares order. Plans are also in place to grow the rotary valve market in FY05.

The order fulfillment and operations team did an outstanding job in managing and executing a number of complex multi-million dollar projects, such as SECCO.

Operational Excellence and Customer Care continue to be top priorities in FY05 to bring customer satisfaction to new heights.

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Valve Innovation

Digital Accuracy with New DVC2000, Predictive Diagnostics

The new DVC2000 series digital valve controller is the result of extensive consultation with customers. Designed in accordance with NAMUR standards IEC60534-6-1 and IEC60534-6-2, the DVC2000 can be mounted on Fisher and other brand actuators, enabling the industry-leading FIELDVUE® performance to be applied to a wide range of applications across all industries.

Greater Accuracy

The superior performance is made possible by a two-stage, pre-amplifier design that multiplies small changes in the pneumatic signal. A digital tuning algorithm is also used to configure the DVC2000 to suit different actuators. Reliability on both linear and rotary valves is achieved by a contact-less magnetic position feedback system.

Simple Mounting, Usage and Controller Selection

The DVC2000 features a linkage-less design, making it easier to mount and remove the instrument from the valve. The push-button, LCD user interface supports English, Chinese, Japanese, German, Italian, Spanish, and French. This multi-language local interface is available during the quick setup routine, making calibration and tuning an easy task.

The DVC2000 offers an option for an integrated position transmitter and limit switches - versus external mounted options. This helps to simplify valve controller selection by reducing the need for additional engineering and specification.

Self-Diagnosis, Predictive Maintenance

The adage “Prevention is better than cure” applies to plant performance too. The DVC2000 helps identify problems early and avoid unplanned shutdowns, thanks to its unique Performance Diagnostics (PD) capability. Predictive diagnostics is a core feature of Emerson’s PlantWeb digital plant architecture.

Whilst the control valve is operating, critical valve performance information is available to evaluate and make decisions regarding the health of the entire control valve assembly. Information is communicated via the AMS ValveLink® software or directly to the process automation system.

FIELDVUE® DVC2000 Hailed as ‘Breakthrough Product’

Processing magazine has hailed the Fisher DVC2000 as ‘Breakthrough Product of 2004’. The award recognizes products, services and/or technology that have made significant contributions to the process industries within the past year.

New Engineered Products

EA Valves Available in 8”

The Nippon Fisher factory in Sakura, Japan, has announced the immediate availability of 8” EA angle valves. This expands the range of Fisher® e-series angle valves, whose body sizes will now range from 1 to 8 inches.

12” ANSI Class 2500 Compact Boiler Feed Water Valve

A new compact-design and lighter 12” ANSI Class 2500 Boiler Feed water valve has been introduced, expanding Fisher’s severe service product range. The new valve has a shorter face-to-face dimension without sacrificing flow capability, and is therefore able to have a small footprint and requires less piping support.

i2P-100 Transducer - Safe and Easy to Maintain

The all-new Fisher i2P-100 electro-pneumatic transducer ups the ante on safety and maintenance. Collaboratively designed by the Singapore and US engineering teams, the i2P is intrinsically safe and flameproof, certified by FM, CSA, ATEX and IECEx.

The 5-micron built-in filter, plug-in converter, and supply orifice are all modular, which aids easy replacement and maintenance of the i2P. The NEMA 4X housing with separate compartments is designed to prevent corrosion by isolating the pneumatic supply from the electrical components. This unique factory seal isolation design also mitigates safety concerns when Natural Gas is used as pneumatic supply. Parylene C and Flexures gold-plating in the moving coils help resist Hydrogen Sulfide corrosion.

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Sales Bellringers

US$2.3m Parts Order in Qatar

An LNG Train project in Qatar placed a US$2.3m spare parts order with Doha Petroleum, Fisher's Local Business Partner in the country.

Consisting of 870 line items, the huge order was successfully executed to the customer's satisfaction by the Singapore Fast Parts Team with strong support from operation groups worldwide. Fisher's large installed base generates tremendous MRO and Parts opportunities annually.

Good Experience Counts!

EPC contractor Samsung Engineering (Korea), awarded a US$1.2m order to Emerson Process Management Singapore, for the supply of control valves for Thailand's PTT/TTM GSP#1 Songkhala project. The order includes 2 cryogenic valves and 33 severe service valves on critical applications like anti-surge, amine let-down, high temperature hot oil and flare applications. All control valves are to be furnished with the FIELDVUE® DVC6000 Digital Valve Controllers. This order comes in the wake of successful projects with Samsung such as the PTT GSP#5 project last year.

'Fisher No Equal' Win

Satisfied customers has led to Fisher clinching the 'No Equal' position for the supply of valves to Unocal Thailand Platong Oil Central Processing Plant (PLOCPP) phase II.

Worth US$400,000, the contract is for supply of 43 control valves, including high pressure angle valves with Fisher Dirty Service Trims (DST) and FIELDVUE® DVCs with Advanced Diagnostic capabilities for use in water injection applications. These severe service valves are critical to reliable water injection operations in the platform.

Fisher Clinches Thai Pulp & Paper Project

Fisher edged out three major competitors to win a Pulp & Paper project in Thailand for the supply of 188 control valves worth US$326,000.

These valves will be used on a Paper Machine Dryer project at Panjapol Paper Fibre Container Co. Ltd. The valves include 106 units of Vee-ball valves, 48 units of Butterfly valves and 14 units of design GX globe control valves. All valves will be furnished with FIELDVUE® DVCs.

Quantified Business Results

Switch to Digital Positioners Brought Immediate Results

A major petrochemicals business subsidiary of Siam Cement Group, Thailand, Rayong Olefins Co., Ltd. (ROC) started as a world-scale olefins complex in the year 1999, capable of making 800,000 tonnes of ethylene and 400,000 tonnes of propylene per year. When the plant was built, smart devices and systems were still at their infant stage, hence conventional devices and systems were used.

During plant operation, the operator found that some of the control valves in their Olefins plant, which were using a competitor's E/P Positioner, were not sensitive to the signal changes from the control system.

The Advanced Process Control (APC) required the valve to respond to small signal changes as low as 0.5 percent. In reality, however, the valve travel was oscillating (3.7 percent about the set point (see diagram I).

This would mean that the valve was controlling poorly, resulting in process fluctuations and generating excessive process variability.

Diagram I

Whilst searching for a solution, the Instrument Team in ROC was introduced to the Fisher Digital Valve Controller (DVC). Subsequently, a Fisher DVC5000 was installed to replace the existing E/P positioner. The result is as shown in diagram II below:

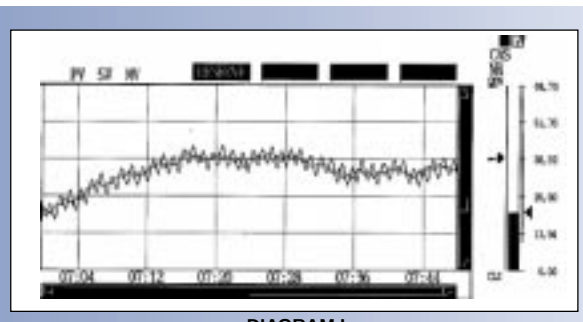

DIAGRAM I

Diagram II

A few days after the installation, Ramesh Kumar, the Instrument Engineer of the plant told the Fisher Local Business Partner that he could immediately see the following improvements:

(a) Hunting has been eliminated
(b) Controllability has improved tremendously
(c) The process variability has been reduced to less than 1.1 percent from set point, which is a 2.6 percent reduction of variability and
(d) Tremendous improvement in the sensitivity of the Valve

He added that this has resulted in a sizeable improvement in the product yield.

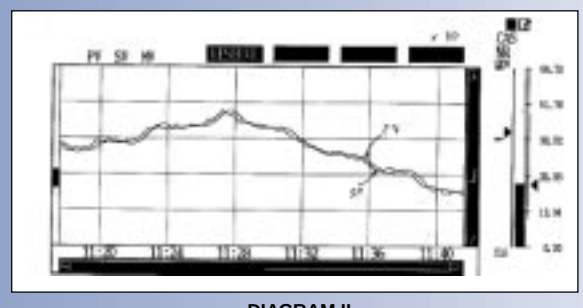

DIAGRAM II

Fisher® Optimized Anti-Surge Valves – The Solution of Choice

A leading gas production end user in Qatar is expanding its gas production processes to meet increased demand. This new facility will use Fisher's Optimized Anti-Surge valves to protect critical compressors from the detrimental effects of surge and rotating stall.

After several demonstrations via a web connection to the Technical Center in Marshalltown, individuals from the end user and the EPC in Japan travelled to Marshalltown to see the valve demonstration performance live. When it was done, one customer viewer commented, "That was the best-performing anti-surge valve I have ever seen."

After the comparison tests with other anti-surge valve vendors, the EPC placed the order with Fisher for 17 Anti-Surge valves ranging in size from 6 to 30 inches in diameter and covering the HP, EW and FB designs. All the valves will include the Fisher® Optimized Anti-Surge actuation system, specially characterized Whisper III and WhisperFlo® (noise abatement) trims designed to meet a minimum turndown of 150 to 1, and FIELDVUE® Anti-Surge Digital Valve Controllers.

> That was the best-performing anti-surge valve I have ever seen.
> - Customer comments

The EPC subsequently awarded Fisher another two anti-surge valves for the NG4 (natural gas liquids recovery) project. These two 24-inch Fabricated Body (FB) valves will have to meet the same, superior performance requirements as the other seventeen.

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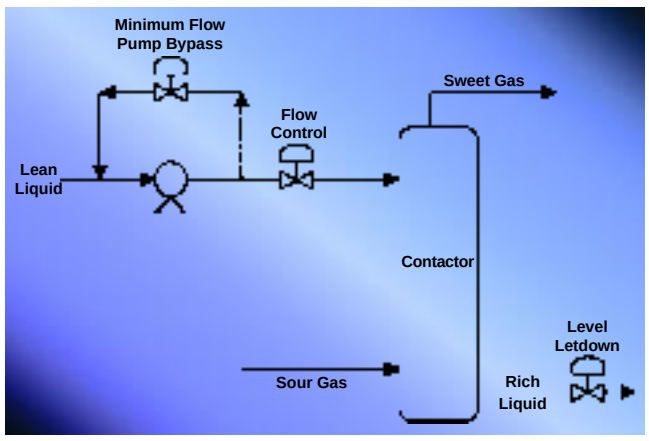
Application Discussion

Lean Amine Pump Recirculation



Amine Treatment Units are found in Natural Gas Processing plants. The main purpose of this process is to remove Acid Gases, mainly H2S, CO2, from raw natural gas stream (sour gas) to make the gas composition meet Sales Gas requirements. The amine unit comprises of a Contactor in which the amine solution and gas are admitted in counter-current directions (refer to diagram). As a result, the amine solution absorbs acid contaminants from the gas stream and collects at the contactor bottom. Contaminant-free gas (sweet gas) exits through the contactor overhead. Amine solution entrained with acid gases (rich amine) collects at the contactor bottom and flows into a Regenerator where acid components are stripped from the amine solution by heat and re-boiling action, and disposed of. The resulting amine solution, which is free from acid gas (lean amine), is recycled to the contactor and the cyclic process continues.

There are two severe service valves in this unit. One is the level valve that controls the contactor level, so as to not to flood the overhead section or allow the level to drop too low and cause inefficient absorption. The other valve is the minimum flow pump bypass valve, which is the topic of this discussion. This valve is to protect the lean amine pump from starvation and closed discharge effects.

Typically, inlet pressure to this valve ranges from 500 to 1000 psi, with an outlet pressure around 100 psi. Temperature is usually 150°F. The valve size can range from 1 to 6 inches depending on the size of the plant. Due to the presence of high pressure drop across this valve, cavitation is likely to occur. Typically, Cavitrol® III 2 stage trim with a good turndown ratio is recommended for this application. The valve is normally in closed position and will open as soon as the flow controller detects a fall in flow through the pump. An 'air-fail-open' action is normally specified for this valve.

The 316 SS body with a standard 400 series trim is typically used. However, some installations may require NACE compliance, in which case a Double Heat Treated 17-4PH SS cage, the 316SS/Stellite plug and seat ring as well as the Nitronic 50 stem is recommended.

As an amine treatment unit is a closed system, some installations may experience solids build-up in the fluid over time, in which case the Cavitrol holes may get plugged. For such installations Fisher's Dirty Service Trim or the NotchFlo® DST is the recommended solution.

Emerson Recognised in Miconex 2004

Emerson Process Management was recognized for industrial excellence during Miconex 2004, the largest process management tradeshow in China. The China Instruments Society presented two awards to Emerson, which were received by Mike Train and Lee Swee Chee.

The awards are:

- Excellent Industrial Control System Award (for Emerson Ovation System)
- Industrial Application Special Achievement Award (Emerson PlantWeb® Digital Architecture DeltaV System)

Baumann Breaks into China F&B Market

The Baumann Valve Division has achieved spectacular success with the China F&B market, following their fruitful maiden participation in the China Brew & Beverage 2004 Tradeshow in September 2004, held in Beijing.

The five-day tradeshow saw Baumann clinch an agreement to provide over 100 units of the B-lite to a local pasteurizer-skid maker. Significant brand awareness was also achieved amongst the 50,000 visitors from the Food, Beverage and Brewery industries.

This win heralds the start of Baumann's increased emphasis on the growing F&B industries in Asia, especially in the OEM sectors.

Newsbites

Emerson Bags Multiple Awards

Emerson Process Management has been honoured with three prestigious awards from consulting firm Frost & Sullivan and Chemical Processing Magazine respectively.

'Process Control & Automation Company of the Year' and 'China Market Leader of Process Control & Automation' Awards by Frost & Sullivan

At Frost & Sullivan's 2004 Excellence in Industrial Technologies Awards Banquet, Emerson Process Management was presented with dual honours—the '2004 Process Control & Automation Company of the Year' and recognition as the 'China Market Leader of Process Control & Automation'.

The 'Company of the Year' award recognizes that Emerson Process Management has demonstrated unparalleled excellence in terms of business development, competitive strategy, and customer service leadership within the industry. Outstanding management, consistent growth, high-quality products and services as well as a positive social and economic impact on local and national communities were other key factors that led to the selection committee's decision.

In China, customers across diverse industries have consistently rated Emerson highly on parameters of product quality, service delivery, application knowledge and project delivery. Post-project commissioning customer support has also been a hallmark. Customers have also reported high satisfaction with the company on parameters of response time and the ability to solve problems in the first call.

Frost & Sullivan also honoured John Berra, President of Emerson Process Management with its Lifetime Achievement Award in the process control and automation industry.

Chemical Users Regard Emerson as Best Technology Provider

In Chemical Processing Magazine's first ever Readers' Choice Awards, Emerson Process Management has been named 'Best Technology Provider' in seven out of 44 categories. These were:

- Flow Instrumentation (63%)
- Pressure Instrumentation (53%)
- Valves / Actuators (44%)
- Temperature instrumentation (40%)
- Process Automation Systems (36%)
- Level Instrumentation (31%)
- Process Analyzers (26%)