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A Newsletter from Emerson's Severe Service Team
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Emerson's severe service team provides global customers with Fisher® severe service control valve solutions. Whether it is severe service applications for the power, hydrocarbon, chemical or pulp and paper industry, Emerson's technical experts deliver sound solutions to address critical applications for aerodynamic noise, cavitation and out-gassing issues, as well as particulate erosion. Please visit our website or contact your local Emerson Sales Office for more information on how the severe service team can help you.

Emerson Expands Line-Up of Control Valve Solutions for Dirty Service and Anti-Cavitation Applications

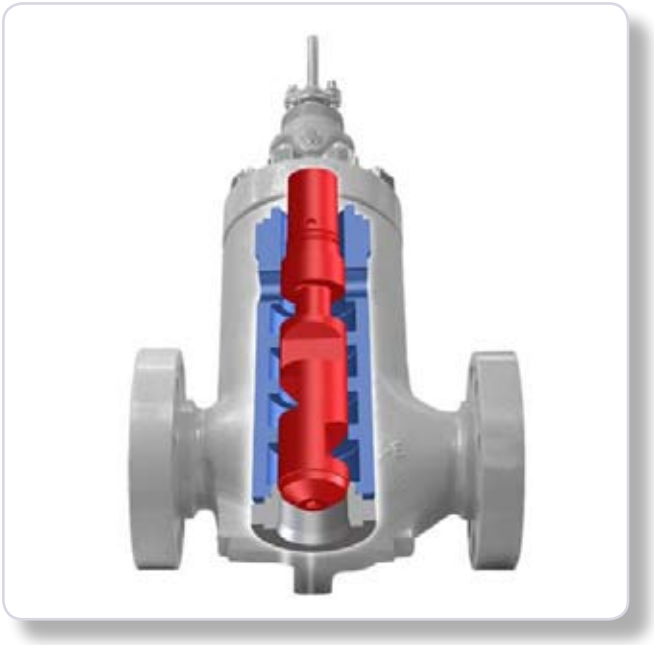
Emerson Process Management has introduced an expanded line-up of Fisher® dirty service control valves that includes the Fisher NotchFlo™ DST valve, and DST trim. Each offers excellent cavitation control for severe service applications containing entrained particulate that would otherwise damage standard trim components.

Typical industries and applications include:
- Oil & Gas Production; water injection pump recirculation, produced/waste water injection well control, separator letdown, and chemical injection pump bypass
- Refining; contactor letdown, rich and lean amine pump spillback, pump spillback/recirculation, and high and low pressure separator letdown
- Power; boiler feed pump recirculation, desuperheater spray water control, feedwater start-up regulator, and superheater bypass.

The NotchFlo DST valve features multi-stage anti-cavitation trim and is available in class 300 to 1500 globe and class 600 to 2500 angle (NPS of 1 to 8) designs. The NotchFlo DST valve is frequently used in high pressure drop applications up to 4200 psi (290 bar) found in the chemical, refining, oil and gas production, and power industries.

The DST Trim is a multi-stage anti-cavitation trim available in class 300 to 2500 (NPS of 1 to16). DST Trim is frequently used in high-pressure-drop applications up to 4200 psi (290 bar) found in the chemical, refining, oil and gas production, and power industries.

Properly-sized dirty service trim decreases cavitation and its resultant noise and vibration. It does this by dropping



pressure across a number of stages. It also allows particulates from 0.25 to 0.75 inches (6-19 mm) (based on valve size) to pass through the trim without plugging. The large open flow paths and expanded staging area also compensates for volumetric expansion in flashing fluids, thus reducing velocities in the trim and downstream piping.

In addition to the expanded line-up of Fisher dirty service control valves the Fisher Cavitrol™ III Trim with improved sealing technologies is available for applications where plug tip erosion and seal wear are issues.

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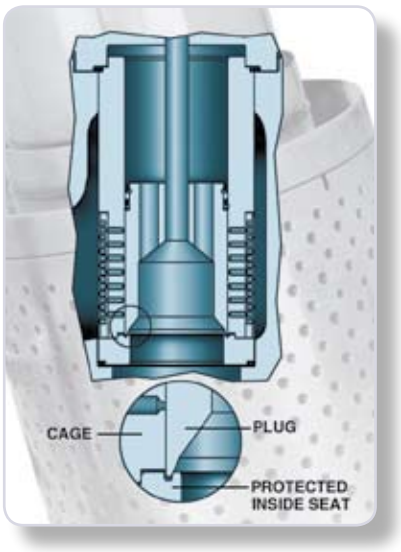
New Protected Inside Seat for Fisher® Cavitrol® III Trim Offers Improved Shutoff and Resistance to Erosion

The new Protected Inside Seat option for Fisher control valves with Cavitrol III trim addresses seat leakage issues due to plug-tip erosion. This phenomenon may be caused by entrained particulate and/or operations at low valve plug opening with high pressure drop.

The improved sealing technologies for the Fisher® Cavitrol® III trim include the protected inside seat and an improved pressure balance seal. Together, both extend the sealing life of the trim by addressing plug tip erosion and seal wear from entrained particulate.



For control valves with standard Cavitrol III trim, shutoff occurs when the radius tip, located on the lower outside edge of the plug, contacts the beveled seat ring. On the new protected inside seat ring design, the plug seat consists of a bevel on the inside of the plug tip that contacts a machined groove in the upper surface of the seat ring. Since seating surfaces are inside the plug tip and the radius in the groove of the seat ring, shutoff surfaces are not exposed to potential erosion.

The pressure balance seal is made of a stronger material and offers an improved seal load profile. The seal is comprised of a jacket made of a modified PTFE with a carbon fiber matrix material. This seal can be applied in any application where the current seal is utilized.

Emerson Opens Comprehensive Southeast Asia Customer Service Center in Singapore

To bring its full range of automation services even closer to the Asia customers, Emerson Process Management opened the Southeast Asia Service Center in Singapore with an open house to mark the occasion.

The new service center is part of Emerson's ongoing growth strategy to bring closer collaboration between the company and its customers, demonstrating a strong commitment to service excellence in Asia.

The new facility offers a comprehensive suite of instrumentation and control services that integrate repairs, diagnostics testing, product maintenance, turnaround services, equipment start-up and commissioning, parts replacement, education and training, and process control optimization consultation to name a few. These end-user services extend over the full range of Emerson technology and expertise including Fisher valves and regulators, DeltaV™ and Ovation® automation systems and solutions, AMS® Suite predictive maintenance, Rosemount® measurement and analytical instruments and flow meters, and Micro-Motion® Coriolis flow meters.

Maintenance Costs Reduced in Boiler Feedwater Valves Using Protected Inside Seat

Challenge. This 2X1 combined cycle power plant produces approximately 540 megawatts of power at full load. The original boiler design utilized a main feedwater valve and a startup feedwater valve in a parallel configuration. The start-up valve was a Fisher® NPS 2 HPT with Cavitrol® III three-stage trim. The main valve was a Fisher NPS 6 HPT with Cavitrol III characterized trim. The valves were specified by the main contractor for the plant.

The valves were operating under very severe conditions. The original specification for the main feedwater valves indicated the highest operating pressure drop would be 664 psi at an inlet pressure of 2506 psi. In fact, the main feedwater valves were experiencing a pressure drop 2500 psi during start-up at an inlet pressure of nearly 3200 psi.

The plant does not shut down the boiler feed pumps overnight. Any excess valve leakage causes the drum level to rise to a point where the operators must open a drain valve to keep from flooding the system. This wastes a significant amount of treated water. The main feedwater valves were opened for inspection due to complaints of leakage, and the trim in each was found to be damaged or worn. New trim was installed in both valves.

Solution. Emerson severe service engineers selected this plant to serve as a beta test site for a new protected inside seat design that it hoped would significantly improve valve performance and reduce maintenance cost in this kind of tough application. For control valves with standard Cavitrol III trim designs, shutoff occurs when the radius tip of the plug, located on the lower outside edge of the plug, contacts the beveled seat ring. On the protected inside seat design, the plug seat consists of a bevel on the inside of the plug tip and enters a machined groove in the upper surface of the seat ring.

Since surfaces for shutoff are inside the plug tip and the radius in the groove of the seat ring, the protected seat feature does not expose shutoff surfaces to potential erosion in the flow stream. The plug and seat are made of 440C to combat the high stress levels found in the plug tip. The protected inside seat, consisting of a plug and seat ring, was installed in the main feedwater valve. It was decided that the existing cage could be re-used.

Result. The feedwater valves have been opened and inspected every six months since the beta test installation and plug and seat wear have been reduced significantly using the protected inside seat. Now, the customer has experienced a significant reduction from the $35,000 to $45,000 they had been spending to replace the seat, plug, and cage prior to use of the protected inside seat.

Emerson Wins Major Order for Saudi Olefin Project Including the Largest Ever NPS 42 Antisurge Valve

Emerson has been awarded an order for the installation of technologically-advanced Fisher® control valves at the Saudi Kayan petrochemical complex in Al Jubail Industrial City, Saudi Arabia. For the project, Emerson will supply 780 Fisher digital control valves including the largest NPS 42 Fisher antisurge valve ever to be built.

Scheduled for operation in 2010, and with an annual production capacity exceeding six million metric tons of petrochemical products, the Saudi Kayan Petrochemical Company, an affiliate of the Saudi Basic Industries Corporation (SABIC), is one of the major suppliers in the petrochemical industry.

The use of high performance valves in critical applications is of significant importance to the profitability of a plant. Fisher digital valves will enable predictive monitoring of the processes and digital valve performance, supporting proactive maintenance that addresses problems before they become issues that affect plant performance.

Superior dynamic performance of the five-meter, 11,000-kilogram large valve with Fisher optimized technology will help ensure a smooth startup for the plant in 2010. This largest-ever Fisher FB valve will be used in the cracked gas compressor 1st stage to provide surge protection.

Providing high reliability, tight control, fast stroking, and easy tuning, the anti-surge valve features a high-seal graphite packing to eliminate fugitive emissions,

Whisper III trim to reduce noise and vibration, a cushioned actuator, Fisher FIELDVUE® DVC6000 Series-PD instrument, and optimized digital valve technology to provide fast stroking with controlled deceleration, high resolution, and minimal overshoot. There are twelve valves of various sizes with optimized digital valve technology in the order.

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