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FISHER OPTIMIZED ANTISURGE VALVES TO BE USED FOR EXPANSION PROJECT IN QATAR

As part of a new expansion project, a gas production facility in Qatar will use Fisher Optimized antisurge valves to protect the valuable compressors in several processes. The new 1.75 billion cubic feet per day (BCFD) gas production, the natural gas liquids production and acid gas injection facilities will incorporate state of art antisurge technology. The Fisher Optimized antisurge valves will protect the compressors from the detrimental effects of surge and rotating stall while enabling the compressors to operate much more efficiently

The 19 custom-designed, 16-inch through 24-inch valves (Figure 1) include WhisperFlo® noise abatement trim. WhisperFlo is a multi-path, multi-stage noise abatement technology that can reduce noise by up to 40 dBA, surpassing conventional noise trims by 10 dBA. The ability to custom-characterize the WhisperFlo trim optimizes the valve size thus minimizing the required downstream pipe size.

To address the fast stroking speed and closed loop performance requirements, the valves are equipped with the field-proven Fisher Optimized antisurge package. This package eliminates the large amount of accessories typically seen in fast stroke applications while also improving long term performance. Also included are FIELDVUE® antisurge digital valve controllers equipped with performance diagnostics that provide real-time diagnostic information.

The Fisher Optimized antisurge solution also dramatically reduces commissioning time in the field. The reduced number of accessories and FIELDVUE instruments allow the plant to commission the valves in a matter of a few minutes rather than the hours required with conventional antisurge valves. Other antisurge valves require the user to be at the device for tuning. The Fisher optimized antisurge solution allows the user to tune and verify performance of the valve in the comfort of the control room.

Because the antisurge valves are critical to plant operation, their performance will be monitored online. Diagnostic information can be collected, viewed and analyzed in real time without shutting down the valve or disturbing the process. A red, yellow or green light indicator identifies potential problems. If an alert is triggered, the problem, potential causes and recommended actions are displayed, allowing the site to schedule maintenance rather than waiting for a failure to occur.

Figure 1: 18” Fisher Optimized Antisurge Valve

All of these features made the choice easy for the end user. Prior to award of the order, a demonstration of a fully assembled antisurge valve was conducted. After seeing the performance of the Fisher optimized antisurge valve in person, the decision was easy.

REPLACEMENT FEEDWATER VALVE PROVIDES MORE ACCURATE CONTROL FOR MIDWESTERN POWER PLANT

For years, a 120-Megawatt Midwestern power plant relied on an older 6” double-ported valve to control drum level during filling and startup modes. During

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startup, this valve would be used to fill the boiler drum. The high pressure drop coupled with the valve's lack of anti-cavitation trim led to issues with vibration, trim damage and subsequent leakage. This damage eventually affected the valve's ability to control level during startup operation.

After reviewing the application and the operating parameters, Fisher's Severe Service group determined that an 8" valve with characterized anti-cavitation trim would provide better control for both fill and startup conditions. Characterized Cavitrol® III trim was designed to handle the high pressure drop conditions experienced during filling of the boiler and also to handle the lower pressure drop, higher flow conditions occurring during startup. Each of the Cavitrol III trim stages has a successively larger flow area that provides very efficient operation since more than 85 percent of the overall pressure drop is taken in earlier stages where there is little danger of cavitation formation. This allows a relatively low inlet pressure into the final stage and minimal fluid energy exiting the trim. The ease of characterization gives the plant high turndown capability allowing the plant to better control startup and ramp rate and further lower the low-load operating ability of the plant.

The valve came equipped with tighter shutoff capability to prevent the potential for leakage-induced trim damage. Coupled with the increased seating force, the solution also incorporated the FIELDVUE digital valve controller. This allowed the plant to set the minimum travel point of the valve to prevent low-lift erosion while ensuring maximum seat load when the valve is shut. The FIELDVUE instrument also enabled the plant to pull actual valve position into their database to facilitate valve tuning.

Since installation, the valves have performed as desired. Control during fill and startup operations has been dramatically improved, as has the life of the internal trim components.

STEAM CONDITIONING VALVES ACCURATELY CONTROL TEMPERATURE FOR LOCOMOTIVE MANUFACTURER

GE Transportation Systems Division in Erie, Pennsylvania wanted to expand their steam distribution system. This expansion required several steam conditioning valves to accurately control steam flow and temperature. The plant had utilized Fisher steam conditioning technology in other applications with trouble-free service.

For this application, 12" and 16" TBX steam conditioning valves (Figure 2) were provided. The TBX solution is designed to handle the most severe applications in today's cycling applications, as well as provide precise pressure and temperature control.

Figure 2: 12" TBX Steam Conditioning Valve

The solution includes the proven Whisper Trim® III noise attenuation trim. The Whisper III trim provides up to 30 decibels of noise attenuation and is custom-designed for the requirements of the application. The Whisper III trim lowers valve noise by utilizing multiple orifices of special shape, size and spacing. These orifices break up turbulent fluid streams, reducing noise-producing interactions. The trim shifts acoustic energy to higher frequencies that are not readily absorbed by downstream piping. At high frequencies, the piping radiates much less sound in the audible range, which also helps to reduce strain energy and to combat piping fatigue.

Because water atomization and vaporization are key elements of any steam conditioning application, the TBX also incorporates a spraywater manifold that produces an optimized spray pattern over a wide operating range and under all flowing conditions.

Since startup in early 2004, the valves have been performing as expected.