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FISHER® FEEDWATER VALVE WITH Cavitrol® III TRIM PROVIDES MORE ACCURATE CONTROL FOR POWER PLANT

For years, a 120-megawatt power plant in the Midwest relied on an older 6-inch, double-ported valve to control drum level during filling and startup modes. During 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, however, led to vibration, poor level control, and leakage issues.

After reviewing the application and the operating parameters, the Fisher Valve Division and its Severe Service group determined that a replacement 8-inch valve with characterized anti-cavitation trim would provide better control for both fill and startup conditions. Valves equipped with tighter shutoff capabilities have a lower risk of leakage-induced trim damage.

Characterized Cavitrol® III trim was designed to handle the high pressure drop experienced during filling of the boiler as well as the lower pressure drop, higher flow conditions during startup. Each of the Cavitrol III trim stages has successively larger flow areas, providing a staged pressure drop and more efficient operation. In fact, more than 85 percent of the overall pressure drop is taken in the earlier stages where there is little danger of cavitation formation. This allows a relatively low inlet pressure into the final stage and minimizes fluid energy exiting the trim. The ease of characterization increases the plant's turndown capability, improves startup control and ramp rate, and lowers the plant's low-load operating ability.

The Fisher® valve solution also incorporated a FIELDVUE® digital valve controller. This instrument allows the plant to set the minimum travel point of the valve and prevent low-lift erosion while ensuring maximum seat load when the valve is shut. The FIELDVUE positioner also enables plant operators to pull actual valve position into their database to facilitate valve tuning.

Since its installation, the Fisher feedwater valve has performed as desired, improving control during fill and startup operations while extending the service life of its internal trim components.

EWD-TBX VALVE WITH WhisperFlo® TRIM REDUCES NOISE AT A NEW STEAM-PRESSURE-REDUCING STATION

Managers of a chemical plant in Texas were updating their utilities to improve control and increase capacity. The existing steam let-down valve, installed in a horizontal position, was noisy and failed to meet shut-off requirements. Site managers wanted a valve that would correct these issues as well as lower the steam temperature closer to saturation temperature, which will improve heat transfer efficiencies throughout the chemical complex.

The Local Business Partner, Puffer-Sweiven, and the Fisher® Severe Service team studied the application and developed a customized valve to meet the customer's requirements. Those requirements included low-noise, straight-through design, and improved steam temperature control. Because installation restrictions ruled out an angle valve, a custom globe style valve was developed and called a Type EWD-TBX steam conditioning valve.

The customer ordered three new EWD-TBX valves, as well as pressure-control and water-injection valves for the new steam pressure reducing station. The largest of the EWD-TBX valves was a 20-inch globe valve with a 30-inch cooler section welded to the valve body. The design accommodates the expansion of steam due to pressure drop while enabling the proper mix of steam and injected water. This design is key to maintaining control of steam temperature close to its saturation temperature. Fully assembled, the valve met ANSI Class V shut-off standards, measured 10X9 feet, and weighed several tons.

The valve included WhisperFlo®-Level Z trim to reduce noise and increase operating stability. WhisperFlo is a multi-path, multi-stage noise abatement technology that reduces noise by up to 40 decibels (dBA), surpassing conventional noise trims by five to ten dBA. An appropriate body size reduces velocity at the valve outlet, which reduces noise and vibration affecting downstream piping.

The Fisher team made the adjustments necessary to meet an expedited delivery and construction schedule. The “big” valve pictured was installed in March 2005.

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