



For **Severe Service** Control Solutions, Turn to Fisher Technology and Innovation

WhisperFlo® TRIM TACKLES ANTI-SURGE VALVES' RESPONSE AND CAPACITY LIMITATIONS

A Middle Eastern ethylene plant recently experienced capacity issues with its main compressor, anti-surge valves—the most critical valves in the facility. A compressor surge event occurs when gas begins to flow in the reverse direction through the impellers in a compressor. This can have undesirable consequences in terms of upsetting operations, altering internal compressor clearances, and stressing compressor seals. The anti-surge or recycle valves allow a portion of the compressor flow to be diverted back to the compressor inlet to ensure that the compressor does not experience a surge event. Because of the existing valve's limited capacity, however, plant managers were concerned about protecting their compressor.

Typical requirements of any anti-surge valve include: fast stroking speeds (less than two seconds), high capacity, extreme noise attenuation (up to 30 decibels - dBA), and stable throttling control. All of these requirements must be met to protect the compressor in a surge event as well as protect the piping from noise-induced vibration.

The existing valves were very noisy and undersized for the valve-outlet velocity. Turbulence, caused by the difference in gas velocity between the valve outlet and larger downstream piping, added to the unacceptable noise levels.

Plant personnel turned to Fisher for an improved solution, one that would address capacity needs, meet noise requirements, and minimize piping changes. Fisher's Local Business Partner worked with factory-based severe-service and Engineered-Products personnel on this challenging application.

Their solution consisted of five fabricated valve types, each incorporating the proven WhisperFlo® noise attenuation 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 trim was also characterized to match capacity with the complex compressor-performance curve. Fabricated valve bodies provided flexibility in meeting the existing face-to-face dimensions.

Only one of the five valves required piping modifications. This was a tremendous feat, given that each valve nearly doubled capacity without adversely impacting noise generation.

The valves were equipped with Fisher's fast-stroke, anti-surge accessory package, which reduced the overall cost of accessories while improving long-term performance. FIELDVUE® Digital Valve Controllers will provide performance diagnostic and monitoring capabilities for these critical valves.

To meet a tight turnaround schedule at the plant, Fisher-Marshalltown Manufacturing personnel built and shipped the valves in 13 weeks. This allowed the customer to get the ethylene unit back online in record time.

For more severe service solutions see us at www.fishersevereservice.com.

