

Compressor Trips Prevented in Purified Terephthalic Acid Plant with Fisher® Antisurge Valves

RESULTS

- The Fisher antisurge valve packages meet stringent plant requirements for compressor antisurge protection and help eliminate costly compressor trips.
- Improved control valve performance has increased plant availability and efficiency.



Fisher EW Series easy-e™ valves feature large internal cavities with expanded end connections and a variety of unbalanced and balanced plug designs.

APPLICATION

Compressor antisurge protection

CUSTOMER

Purified terephthalic acid plant in Malaysia

CHALLENGE

Purified terephthalic acid (PTA) is the primary raw material in the manufacture of polyester fiber, resin, and film used in the production of many consumer products. This PTA plant produces 700,000 metric tons of PTA annually.

Compressed air for the oxidation reactors in the PTA plant is provided by two large compressors. Reliable operation and performance of the compressors are important to ensure excellent yield for each reactor pass.

The plant was experiencing up to three compressor trips per year, causing disruption to production and resulting in financial loss. The plant's reliability team, which was tasked with studying the problem, determined that the compressor trips were due to poor performance of the compressor antisurge valves. Antisurge valves are critical in protecting the compressor from surges as they recycle the discharge air in the event of the compressor operating near the surge region. The reliability team contacted their Emerson local business partner in Malaysia for help in improving the performance of the valves.



SOLUTION

The Emerson local business partner, along with personnel from Emerson Process Management Asia Pacific, investigated the performance of the valves and proposed a solution consisting of two Fisher easy-e™ EW valves each with Whisper Trim™ I noise abatement trim, 657 spring and diaphragm actuator, and FIELDVUE™ digital valve controller for performance monitoring. The valves and actuators were selected for their fast stroking speed, optimal performance, and noise control. In addition, a redesign of the air supply system for the actuators was implemented to improve the performance of the valves and to reduce complexity and maintenance.

Emerson's knowledge in antisurge protection and its proven field solutions was key in gaining customer confidence in this critical application.

RESULT

The Fisher antisurge valves were installed and credited with preventing a compressor trip that could have cost the plant significant financial loss. The valves, actuators, and FIELDVUE digital valve controllers help the plant achieve the stringent dynamic performance specifications for stroking speed, response time, step change, and overshoot to increase plant availability and efficiency.

For more information on severe service solutions, visit www.fishersevereservice.com.

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