

Vibration Eliminated in Rich Amine Letdown Valve Using Fisher® Whisper Trim® III

RESULTS

- Severe vibration caused by the original valve was eliminated with the Fisher valve and Whisper Trim III.
- Disruption in plant operation, caused by valve stem breakage in the original valve, was eliminated.



APPLICATION

Rich amine letdown valve.

CUSTOMER

Gas processing plant in Thailand.

CHALLENGE

The most widely used process to remove acid gases in the gas processing unit is the Alkanolamine process, commonly referred as amine unit. This is a continuous operation where amine solution is used to extract acid gases from the production stream at high pressure in the absorber tower. The acid-gas-rich amine (rich amine) leaves the bottom of absorber through a rich amine letdown valve and is sent to a flash drum.

This is a demanding application as rich amine contains entrained gas. Due to the high pressure differential across the rich amine letdown valve, out-gassing takes place at the valve trim. Due to the turbulent two-phase fluid and large amount of gases liberated at the valve trim, severe vibration in the letdown valve was occurring. The vibration was so severe that it caused the valve stem to break.

Seeking a solution, personnel at the processing plant contacted Emerson Process Management, Asia Pacific, to uncover the root cause of the problem and propose a control valve that would not experience the vibration problem.

Fisher® EW Series easy-e® valves using Whisper Trim® III perform exceptionally well in noise and vibration abatement applications.

SOLUTION

Engineers at Emerson Process Management, Asia Pacific, evaluated the application and recommended replacing the existing valve with a Fisher 6" x 4" EWT body control valve using Whisper Trim III in a flow-up configuration. Whisper Trim III utilizes specifically designed, drilled-hole passages to control the rapid fluid expansion experienced in this type of service. The noise and vibration potential is further controlled by a valve body designed to limit high velocity flow at the valve outlet.

These specific trim and body technologies together allow the valve to provide its main function, controlling the level in the amine contactor, without the system vibration typically generated by a standard valve.

RESULT

The new Fisher valve with Whisper Trim III was installed and the severe vibration and valve stem breakage has been eliminated.

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

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