

Maintenance Costs Reduced in Boiler Feedwater Valves Using Fisher™ Cavitrol™ III Trim

RESULTS

- Protection against cavitation damage to the valve trim in severe start-up conditions
- Achieved flawless start-ups in automatic control
- Saved \$100,000 USD per year on maintenance previously spent on cavitation repair



Fisher Cavitrol III trim can lengthen valve service life and reduce maintenance downtime in your power plant.

APPLICATION

High-pressure boiler feedwater valves

CUSTOMER

A natural gas-fired combined cycle power plant in Sarnia, Ontario, Canada

CHALLENGE

The customer was experiencing ongoing maintenance with three high-pressure boiler feedwater valves, installed as a single valve solution. Upon further investigation, it was discovered that the valves in question were fitted with standard trim, which did not provide cavitation protection under high pressure drop conditions. Cavitation is the formation and collapse of vapor pockets in the flowing liquid in regions of very low pressure and a frequent cause of a valve's structural damage.

After a couple plant outages, the maintenance manager asked the Emerson representative, Lakeside Process Controls, for help in assessing the problem with these valves and determining ways to eliminate the severe leakage and damage that was occurring. The customer had spent almost \$100,000 USD in two outages for valve trim that was damaged by cavitation during start-up and needed a strategy to reduce or eliminate this costly, ongoing maintenance.

SOLUTION

Lakeside Process Controls personnel worked closely with the customer to understand all operating parameters for these valves. They discovered that severe pressure drops were occurring during start-up, resulting in the detrimental cavitation. Customized anti-cavitation trim was recommended for these valves immediately or continued maintenance would be required.

Lakeside and Emerson engineers determined that a special Fisher Cavitrol III 2-stage characterized cage could be implemented to handle all operating conditions and eliminate the cavitation during any type of start-up. This specialized trim could be installed in the existing valve body and the existing actuator and accessories could also be retained. This was a bonus for the customer because it allowed for the trim change to be done directly in the field.

After installing the special trim in the first boiler feedwater valve, the customer continued to notice leakage. Class V shutoff in the revamped Fisher feedwater valve was assured, however. It was later discovered that a manual on/off valve was the source of the remaining leakage and was promptly removed.

RESULT

The customer has been running with this specialized trim in the #1 boiler feedwater valve and they have had flawless start-ups in automatic control. The #2 and #3 boilers underwent changeouts the next year, after the first boiler proved to be more reliable and efficient than the previous units. Using ValveLink™ software, the customer receives detailed insight into the physical condition of the valve and can easily validate the assembly rebuild. No additional maintenance has been required.

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