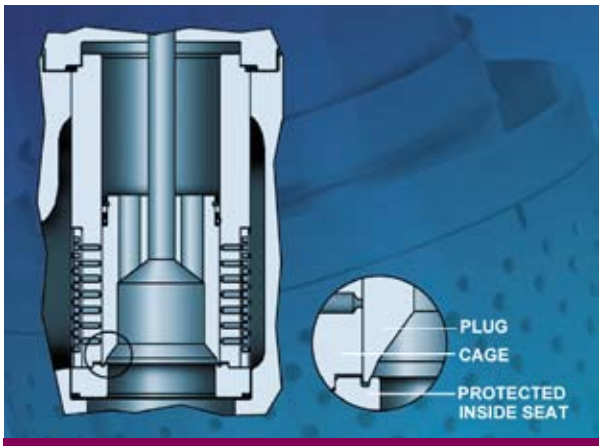
Valve Seat Life Extended in Boiler Feedwater Application Using Fisher® Protected Inside Seat

RESULTS

- Fisher protected inside seat technology addressed valve seat leakage problem due to plug-tip erosion caused by entrained particulates.
- Cavitrol™ III trim with protected inside seat helped extend the seat life of the valve in this demanding application.
- Enhanced valve performance reduced maintenance and plant operation disruptions.



The protected inside seat for control valves with Cavitrol® III Trim addresses seat leakage due to plug-tip erosion.

APPLICATION
Boiler feedwater control

CUSTOMER
Liquified Natural Gas (LNG) plant in Malaysia

CHALLENGE
The boiler feedwater regulator valve plays a critical role in providing feedwater to the boiler during normal operation when the boiler is under pressure. Flow restriction in the valve passages can cause problems in maintaining the boiler water level or cause the loss of treated water due to boiler overflow.

The valve used in this plant was experiencing flow problems. When it was dismantled for inspection, plant personnel found erosion damage to the seating surfaces of the plug. Further investigation showed evidence of debris and particulates being present in the boiler feedwater. Because the flow problem was requiring frequent valve maintenance and repair, plant personnel contacted Transwater, the Emerson Local Business Partner in Malaysia, to help solve the problem.

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SOLUTION

Engineers from Transwater and Emerson Process Management in Asia Pacific investigated the valve erosion problem and proposed that the existing EHT valve with Cavitrol III trim be upgraded with a Fisher protected inside seat.

The Fisher protected inside seat is designed to address seat leakage due to plug-tip erosion caused by entrained particulates in the flowing medium. The damage can occur when the particulate, driven by the water exiting the cage holes, causes serious damage when the plug tip is located in front of the holes for an extended period of time. This damage prevents proper plug and seat contact, resulting in decreased shutoff capabilities of the valve assembly. The decreased shutoff of the valve assembly can then lead to further and accelerated trim erosion damage.

With the Fisher protected inside seat design, a bevel on the inside of the plug tip enters a machined groove in the upper surface of the seat ring. The surfaces for shutoff are the inside of the plug tip and the radius in the groove of the seat ring. This protected seat feature does not allow the controlled shutoff surfaces to be exposed to potential erosion in the flow stream.

RESULT

The Fisher protected inside seat extended the seat life of the valve in this demanding application and improved shutoff integrity. Valve maintenance and plant operation disruption are less frequent due to the enhanced performance. As a result, plant personnel are implementing protected inside seat technology to three other similar valves in the plant.

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

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