CASE STUDIES

Power Generation: Inflatable Seat Butterfly Valve Installation

Material Build-Up and Leakage Eliminated, Maintenance Slashed

Introduction

This job story examines the benefits of using inflatable seated butterfly valves as isolation valves. In this case, the isolation was needed on the spray heads of a New England power plant's wet lime scrubber because the valve seats on a standard isolation valve were prone to caking over, preventing complete closure. Isolation valves are used in a fluid handling system to stop the flow of material, most typically for maintenance or safety purposes. They are also used to select where material flows by closing one location, and diverting flow elsewhere. Many different types of valves can be considered "isolation valves" since the description comes from the function and not the design of the valve.

Problem in more detail

The plant burned old tires as boiler fuel. The process involved handling a calcium-sulfate slurry containing 10-15% suspended solids to control stack emissions. Originally, valves with neoprene seats and rubber coated discs were used to isolate three individual spray heads on a wet lime scrubber; however, the valves would continuously be coated with plaster-like calcium sulfate, preventing closure and complete isolation of the spray heads. This was unacceptable since a positive seal is absolutely necessary to prevent untreated flue gas from venting to the atmosphere while an operator is changing strainers on the scrubber.

Solution

AIRMATIC Application Specialists reviewed the situation and recommended the neoprene seat / rubber-coated disc valves be replaced with POSI-FLATE® Inflatable Seated Butterfly Valves at the outlet of each spray head. On the POSI-FLATE® valve, the pneumatic actuated sealing mechanism uses a disc that, when the valve is closed, engages with an elastic seat to completely block the passageway. When the valve is opened, the disc turns 90° to allow the material to pass through. Butterfly valves are often

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favored because they are lower in cost, more compact, and lighter in weight compared to slide gates, pinch valve, or other valve designs. The POSI-FLATE® inflatable seat design is unique in that it eliminates build-up on the valves by flexing away deposits every time it's opened so that a positive seal can be maintained throughout the handling process.

Conclusion

As this case study shows, when the power plant replaced the valves that used solid neoprene seats and rubber-coated discs with POSI-FLATE® Butterfly Valves, material build-up on the valve seats was eliminated and a positive seal was achieved. The plant also reported that downtime has been significantly reduced since the old valves were replaced. Using Inflatable seat butterfly isolation valves increased productivity and safety by decreasing maintenance, downtime, and leakage issues.

If things aren't working as well as they should at your plant, call us at AIRMATIC. We'll Handle It.