



For *Severe Service* Control Solutions, Turn to Fisher Technology & Innovation

## Control Valve Case History

Industry: Power  
Application: Soot Blower Steam Pressure Control

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### Overview:

A coal fired power plant in central Alberta was experiencing frequent trim failure in one of their soot blower control valves, a 2" Fisher design HPS. Failures included excessive seat wear and valve stem breakage. Poor shutoff in the valve led to poor steam pressure control for the soot blower, and valve stem breakages caused unscheduled outages of the soot blower and increased maintenance costs.

Spartan Controls was contacted to review the existing control valve strategy. The valve trim was standard EQ% trim. This trim is not suited for the pressures and temperatures the control valve was operating at. Another contributing factor to the early trim failure was the customer was only changing the seat ring and valve plug during maintenance. The cage, which provides guiding for the valve plug, was not changed and showed significant wear. The worn cage allowed the valve plug to vibrate and "rattle", which caused the valve stem to fatigue and break just above the valve plug.

### Process Conditions:

The process conditions at the soot blower control valve were:

P<sub>1</sub>: 1983 psig      P<sub>2</sub>: 450 psig      T: 806 °F  
Q<sub>min</sub>: 1,714 lb/hr      Q<sub>norm</sub>: 28,000 lb/hr      Q<sub>max</sub>: 33,793 lb/hr

### Solution:

After reviewing the process conditions, it was determined that Fisher Soot Blower Trim should be installed. This trim has much harder seating and guiding surfaces than the previous trim 201, and would provide greater service life. We also recommended the installation of High Seal packing to provide better valve stem guiding. Better stem guiding greatly reduced the chance of another failure of the valve stem.

### Customer Benefits:

More accurate control of the soot blower steam pressure allows the most effective use of the soot blowers. This in turn makes for a more efficient boiler. Also, since installing the soot blower trim and High Seal packing, there has been no unscheduled maintenance required for this valve, saving the customer money in maintenance costs and downtime of the soot blower.



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Battle River U3 Soot Blower Valve.doc

