

UK Power Station Reduces Maintenance With Fisher® HPS Valve and Whisper® III Trim



RESULTS

- Saved thousands of English pounds per year (avoiding trim replacements) for one critical, soot-blower valve.
- Significantly improved plant efficiency and availability (via increased capacity and use of soot-blowing capabilities).
- Improved valve control, monitoring, and reliability in steam temperatures of 550-degrees Celsius and pressure drops of 120bar
- Two replacement Fisher® valves have operated two years without maintenance.



APPLICATION

A 1000 megawatt coal-fired power station and its partial load, steam-blowing system.

CUSTOMER

A German-based utility for a power station in the United Kingdom.

CHALLENGE

Over a five-year period and through two non-Fisher® valves, this power plant experienced chronic control problems and regular valve-trim failures in soot-blower applications. For several years, the plant frequently ran at partial-load and/or without soot-blowing capabilities. This had a dramatic effect on overall plant performance.

Without soot-blowing, coal ash coats everything and reduces heat efficiency. Soot-blower valves bring extracted steam onto the water pipes and help keep the pipes free of deposited slag. The system takes hot (550 degrees Celsius), high-pressure steam off the boiler at 150 bar-g (bar-gauge pressure) and drops it down to a 27 bar-g set point in the blower lance headers.

Continuing problems with the soot-blower valves led to poor pressure control and trim-replacements costing thousands of pounds each year. Frustrated, the senior station engineers called Emerson Process Management and its Fisher valve division personnel for a cost-effective, long-term solution.

“Adding FIELDVUE digital diagnostic capabilities and Whisper III noise abatement trim to soot-blower valves helped reduce chronic control problems and maintenance costs in high-pressure steam service.”

Maintenance Manager,
UK Power Station



Severe Service

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SOLUTION

Emerson sales personnel in the Stockport office evaluated the process conditions and recommended a two-inch Design HPS (high-pressure steam) valve to replace the larger globe-valve assembly that didn't work. The new Fisher® valve was specified to meet requirements for soot-blowing, severe-service applications. The assembly included a FIELDVUE® DVC6000 digital valve controller with Advanced Diagnostic (AD) capabilities, which improved performance monitoring, and Whisper® III trim, which provides up to 30 decibels of noise attenuation. (The customer also ordered and applied two FIELDVUE DVC6000 Series instruments on 12-inch Vee-Ball® valves, improving control.)

The Whisper III trim minimizes valve noise and its effects (vibration) by utilizing multiple orifices of special shape, size, and spacing. These orifices break up turbulent fluid streams and thereby reduce noise-producing interactions. The trim shifts acoustic energy to higher frequencies that are not readily absorbed by downstream piping. At high frequencies, the piping radiates much less sound in the audible range, reduces strain energy, and combats piping fatigue.

One of the engineers involved in the installation said, "The new Fisher® valve worked so well that our plant operators were able to forget about it. In contrast, prior to the change out, they were continually submitting problem reports and planning corrective actions."

Six months later, the plant ordered another Fisher HPS valve for its second unit. Both valves have been operating trouble-free for more than two years.

"The new Fisher® soot-blower valve worked so well that our plant operators were able to forget about it. In contrast, prior to the change out, they were continually submitting problem reports and planning corrective actions."

Valve Maintenance Engineer
UK Power Station

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