

Fisher® Control-Disk™ Valve Improves Filter Water Flow Control and Plant Availability, Saving E.On \$5000 per year

RESULTS

- Improved backwash flow control, without compromising water-plant capacity at peak demand
- Saved \$5000 dollars per year by avoiding filter media replacement
- Improved plant availability and indirectly, customer service



APPLICATION

Water filter control at a combined heat-and-power (CHP) plant

CUSTOMER

E.On in Northwich, Cheshire, United Kingdom

CHALLENGE

A combined heat-and-power (CHP) plant is capable of supplying 360 to 380 tons of steam every hour. Raw water is cooled and then pre-treated to remove any algae or silt. Next, it passes through one of six dual-media filters (containing anthracite and three different media levels of garnet) before being sent to the filtered-water holding tank. Once the flow across the filter bed drops significantly, a cleaning procedure is initiated. The last step (cleaning) involves air scouring and back washing to remove any material blinding the filter.

Besides providing power to area residents, the E.On-CHP facility supplies steam for two nearby soda-ash (Sodium Carbonate) production plants in Winnington and Lostock. The two sites use a large quantity of steam and return about 37% of the un-used portion to the CHP plant as “hot condensate.”

The constant challenge for the E.On-CHP plant is to replace the boiler feed water lost — either during the steam-transfer process or during boiler blow-down. The E.On-CHP water-treatment operation faces a continuous demand for make-up boiler feed water, between 400 and 520 m³/hour.

The facility has also had problems controlling the back-wash flow. The original butterfly valve in this process could not provide a steady flow rate and caused media to be lost through the filters. The filter materials (anthracite and Fine Garnet) had to be replaced or refilled at an average cost of \$5000 USD per year.

The Control-Disk™ rotary valve offers excellent throttling performance and an equal percentage flow characteristic, which provides an improved throttling range comparable to that of a segmented ball valve. This improved capability enables control closer to the target set point, regardless of process disturbances, and reduces process variability.

“The Fisher® Control-Disk valve not only controls the backwash flow rate more accurately, but also it delivers, when 100% open, a flow rate adequate to meet the water plant demands, without restrictions. Its performance and reliability led to a savings of \$5000/year and enabled us to improve our customer service.”

Neil Price,
Improvement and Performance Coordinator
Winnington CHP, E.On
United Kingdom



SOLUTION

The Emerson account manager recommended the new Fisher Control-Disk butterfly valve for this challenging application. Its unique, patented disk profile and true equal-percentage characteristics enable it to adapt to changing process conditions and to provide control over a wide range. In fact, the valve provides between 15% and 70% travel, without compromising capacity. This performance represents a significant improvement compared to standard butterfly valve designs (25% to 50% of travel).

The 8-inch Control-Disk valve shipped on time and has been working well since its installation (summer 2009).

RESULTS

The Fisher Control-Disk valve improved backwash, flow control in the E.On-CHP plant's water-treatment system. Since it was installed, the plant has not lost any filter media or experienced any down-time due to water problems. Best of all, the Fisher valve's performance has enabled E.On to meet requirements for steam for the two soda-ash plants. E.On not only saved \$5000/year, but also improved its customer service, which is priceless.

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