

Fisher High Pressure Valves with Cavitrol™ III Characterized Trim Reduce Upgrade Costs by \$140,000 USD and Extend Maintenance Time Interval from 2 Years to 4 Years

RESULTS

- Eliminated vibration and trim erosion
- Extended maintenance interval from 2 years to 4 years
- Saved Power Station \$140,000 USD in feed water system upgrade



The Cavitrol III cage has specifically shaped holes, spaced diametrically around the cage circumference. These holes reduce fluid turbulence, dissipate fluid pressure, and help increase flow capacity.

APPLICATION

Boiler feed water (BFW) recirculation pump and bypass control valves.

CUSTOMER

Independent power producer in a refinery plant in Japan which has been operating for more than 40 years.

CHALLENGE

Both the BFW recirculation pump control valve and BFW bypass control valve were experiencing poor control, severe vibration, and trim erosion. The existing valves were incorrectly sized and had trims that were inappropriate in handling the process requirements. The power plant explored the option of employing an engineering company to identify and solve the root cause throughout the entire feed water system.

The existing valve utilized a positioner with a mechanical linkage and because of this, there was wear, corrosion, and vibration damage causing incorrect feedback and poor loop performance. This led to more frequent maintenance and production losses.

SOLUTION

After proper valve sizing and selection, the Emerson sales office in Japan, recommended the use of a Fisher Cavitrol III characterized trim. The Cavitrol III cage has specifically shaped holes, spaced diametrically around the cage circumference. These holes reduce fluid turbulence, dissipate fluid pressure, and help increase flow capacity. In this case, the cage is characterized, which meant that it was designed to comply with the process conditions to improve the flow control of the valve.

POWER

A Fisher FIELDVUE™ DVC6200 positioner was also installed with the valve. The DVC6200's linkage-less feedback system eliminated issues associated with moving parts and allowed proper loop feedback. The performance diagnostic capabilities also enabled operators to collect the valve performance trend over time, which improved their ability to accurately plan maintenance schedules.

RESULTS

With the elimination of cavitation noise, vibration, and trim erosion, the maintenance interval for the valves was extended from 2 years to 4 years. After experiencing the DVC6200's advanced diagnostic capabilities, the site operation team is now able to collect valve trending to predict when maintenance is required.

The power plant was able to reduce upgrade cost by up to \$140,000 USD. Because of this, they have started identifying other sites in which they can apply Fisher valve solutions and are investigating other Emerson digital transformation offerings.

Emerson's valve offering helped the power plant save \$140,000 USD in engineering costs.

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