



Passing the Erosion Test

EroSolve solves wet steam erosion problem at Indian power plant

The Challenge

A power plant in India was experiencing problems with frequent trim erosion and resulting leakage in one of its high-pressure turbine bypass valves. As this was requiring frequent repairs and affecting plant efficiency, the customer contacted IMI CCI for a solution.

Having originally supplied the Sulzer® technology HP valves about five years previously, IMI CCI engineers visited the plant in July 2019 to review the installation and piping. They discovered that, during start-ups, instead of dry saturated steam, wet steam was flowing through the valve during start-ups due to insufficient drainage in the pipeline. Flashing condensate/ wet steam is highly erosive when it passes over the trim parts at high velocity and a high angle of impingement. However, the customer ruled out adding drains to the piping on cost grounds.

The Solution

The IMI CCI team suggested replacing the trim with the EroSolve solution. This is designed to delay erosion and extend the life of valves in precisely these types of wet steam/condensate operating conditions.



Original seat (top) vs EroSolve seat

the EroSolve trim has successfully completed five cold start-ups, whilst the earlier trim was eroding after two to three cold start-ups.

The EroSolve solution is available across all turbine bypass products available from IMI CCI, and can transform the way wet steam erosion problems are dealt with in critical service steam applications. Before any upgrade, IMI CCI engineers thoroughly evaluate the valve installation and associated piping, valve operating conditions and trim damage photos to make sure that we provide the right solution and recommendations for solving the problem.

The trim upgrade was installed in January 2020. When the valve was opened after a year of operation, both the plug and seat ring sealing surfaces were intact and there were no indications of erosion or damage. The team carried out a dye penetrant test which showed the sealing surfaces to be in perfect condition. To date,



Sealing surface

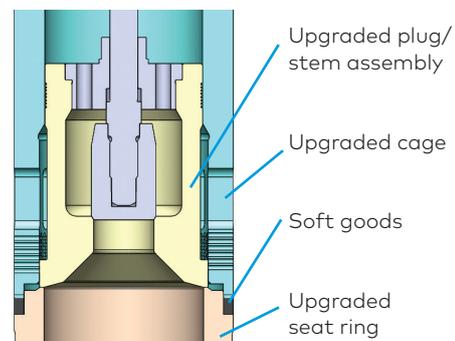


Original plug erosion (top) vs EroSolve plug still intact

Adding Value by Using the Best Engineering Expertise

The EroSolve solution addresses:

- Severe trim erosion
- Frequent repair or maintenance
- Downtime due to unplanned shutdowns
- Noise and vibration
- Cracking of spray nozzle, pressure reducing stages and downstream pipe
- Water hammer
- Energy and profit loss



For more information contact us at erosolve@imi-critical.com