



Engineering
GREAT Solutions

Chemical plant seeks solution for poor steam temperature control

The challenge

Accurate and reliable control of steam desuperheating is critical for process industry applications, wherein the downstream processes are sensitive to small changes in steam temperature. A chemical plant in India was facing extensive maintenance costs on the process steam line, increased downtime and poor quality of final product due to the poor steam temperature control performance of a competitor's probe style desuperheater and spraywater valve.

The solution

IMI CCI met with the plant's maintenance and operations team to investigate and determine the root cause of the steam temperature fluctuations. The investigation identified various problem points, including poor rangeability in the spray valve, improper spray injection profiling and mixing

from the probe style desuperheater, incorrect placement of the temperature sensors, and a lack of properly positioned drains; all of which was resulting in excessive water spray injection and undesirable saturated steam going to their downstream chemical process.

The IMI CCI Valve Doctors® determined the best solution to this application would be the DAM desuperheater and the 100DSV DRAG® spraywater control valve. In addition, the Valve Doctors® advised the customer on various piping modifications including relocating both the desuperheater and the temperature sensors and introducing a drain pot after the desuperheater.

The DAM desuperheater is a high performing manifold injection desuperheater which utilises a welded flow profiling liner for optimum spray water/steam mixing, leading to superior evaporation and performance. The DAM also utilises spring loaded spray

injection nozzles which maximise both primary and secondary atomisation by maintaining high water atomisation pressure at any flowrate and injecting perpendicular to the steam flow, guaranteeing fine atomisation and quick evaporation.

The 100DSV DRAG® spraywater control valve offers superior flow control using multi-stage DRAG® disk stack technology, increasing rangeability and improving overall process control. The custom characterised disk stack allows for precise water control at low valve lifts without sacrificing high valve lift performance.

The customer has placed an order to replace the existing competitor product with the IMI CCI recommended solution. This decision was based on the performance of similar solutions at other sites and the reputation of our Valve Doctors® as exceptional problem solvers.

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