



Longer heat exchanger lifecycles with hyper duplex stainless steels

For a refinery in Germany unscheduled shutdowns were eliminated following the installation of a new tube bundle in a heat exchanger using hyper-duplex Sandvik SAF 2707 HD™ seamless tubes.

As many as 50% of expensive shutdowns in process plants are attributable to unavoidable repairs due to corrosion damage in tube and pipe or associated equipment. The effects of corrosion remain a substantial concern for refineries causing significant increases in operational and maintenance costs.

The existing carbon steel tube bundle in a heat exchanger at the German refinery was prone to failure after around five months' operation and necessitated weekly monitoring. This was creating significant production losses, lower revenues and extra costs.

Examination of the tubes identified pitting and under deposit corrosion as the main causes for the short heat exchanger tube lifetime. To solve this issue Sandvik SAF 2707 HD™ tubing, with its excellent pitting and crevice corrosion resistance, was selected to retube the heat exchanger.

The original heat exchanger was completely revamped with the hyper-duplex tubes and inspected after six months of service. Slight erosion

corrosion was found on the upper tubes, but no failures were detected. The bundle was cleaned, eddy current and hydro tested and the heat exchanger was closed, with no further changes, and left to continue running for a further four years.

Sandvik hyper-duplex tubing is shown to be successful in helping to achieve major reductions in plant costs resulting in more consistent and longer-term performance in demanding refinery operating conditions.

In the case of the German refinery, inspections found that the replacement hyper-duplex tube bundle had reduced the number of plant shutdowns from eight to one over a four-year period resulting in significant cost and operational efficiency savings.

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