



Alfa Laval

Performance Audit optimizes the steam cracker of a global petrochemical company

Service product
Performance Audit

Equipment
Plate Heat Exchangers

Customer
Global Petrochemical Company

"Over the years, this global petrochemicals company has continuously optimized its steam cracker plant in Antwerp, Belgium because every additional 0.1 % improvement counts," says Stijn Moolenaar, Outside Sales Engineer, Alfa Laval Benelux. "Which is why the customer came quickly on board when we recommended an Alfa Laval Performance Audit Gasketed Plate Heat Exchanger to determine exactly how each of the nine titanium plate heat exchangers cooling the steam cracker process water was performing."

Analyzing actual data to determine plate condition

In 2012, when Alfa Laval approached this customer about the Performance Audit, the customer was unable to assess the individual performance of its heat exchangers. "For optimum output, each unit has to perform equally," says Moolenaar. "But we suspected this wasn't the case – in part because of uneven fouling caused by the brackish water from the Schelde River being used as cooling water. We offered a Performance Audit to collect and analyze data on actual operating conditions and determine the state of the plates – without opening the units."

The audit confirmed that performance was uneven and far from optimal.

Bringing each and every heat exchanger up to speed

While each of the units was designed to house 493 plates, the reality was that some units had fewer. Some units had a mixture of high-theta and low-theta plates, making it virtually impossible for each heat exchanger to perform equally and thereby deliver optimal performance.

"The gaskets were near the end of their lifetime. This could cause unplanned maintenance of the units. Therefore we concluded together to take this opportunity to perform a complete Alfa Laval Reconditioning Gasketed Plate Heat Exchanger in our Alfa Laval Service Centre in Waalwijk (NL). This included gaskets change, chemical cleaning of all plates and a plate integrity inspection. We then brought the plate number up to 493 for each heat exchanger and replaced low-theta plates with high-theta plates to improve the performance," says Moolenaar.

Working around the clock to beat the heat

Because sufficient cooling is critical to the performance of the plant, the heat exchangers could only be taken out of service during the colder months of the year – and then only one unit at a time. Each unit had to be up and running again within one week.



"To ensure fast turnaround, we used Alfa Laval Exclusive Stock to guarantee availability of high-theta plates during the entire process," says Moolenaar. "We began the reconditioning process in March 2013 and then stopped two weeks before the summer. We started reconditioning again in October and then put the last heat exchanger back in place in January 2014." Afterwards, another Performance Audit was carried out in order to fine-tune the units and ensure each unit delivered the same performance.

No more guesswork saves maintenance – and plates

Before the Performance Audit and Reconditioning, the customer performed chemical cleaning on a yearly basis based on past history. The company never knew for sure if they were cleaning too much, too little or even too late to prevent the plates from becoming irreversibly fouled. The next step is an Alfa Laval Performance Agreement that provides periodic auditing of the heat exchangers and Cleaning-in-Place can be conducted only when required. "This will save our customer money on unnecessary cleaning– and increase the lifetime of the heat exchangers by ensuring that they are cleaned before plate fouling is irreversible," says Moolenaar.

Optimal performance all of the time

"And finally," continues Moolenaar, "the customer can rest assured that their heat exchangers are providing optimal output at all times – which can only result in increased production output and cost savings on maintenance over time."



Optimize

Our Optimize services keep your equipment ahead of technological advancements, exceeding current standards and future needs. Whether enhancing quality, reducing energy use, or increasing capacity, our new upgrades boost sustainable performance and optimize operations for greater returns.

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