



21 good years with Alfa Laval's Compabloc – and counting

BASF Acetylene, Ludwigshafen, Germany

Case story

"I recently asked Frank Steiglich, BASF's Project Operation Manager for Acetylene, how he feels about us," says Alfa Laval key account manager Selim Guelener, "His answer was simple: 'I'm satisfied.'"

"Actually," Guelener continues, "they've been satisfied with the performance of their Compabloc units for decades, and we've had a good working relationship with them for even longer."

At BASF's acetylene and naphthalene plant in Ludwigshafen, Germany, a steadily growing number of Alfa Laval Compabloc heat exchangers have been delivering safety, reliability – and lower costs since 1993. The first installation was followed by 25 more over the last 21 years – with the most recent commissioning in 2013.



Aerial view of a section of the BASF site in Ludwigshafen, Germany

The first challenge – leakage and unacceptable costs

The plant in Ludwigshafen, which is part of a large production complex, purchased its first Alfa Laval Compabloc to solve a serious problem. Pressure surges regularly caused gaskets in the plate and frame heat exchangers used in their process to fail and toxic product to leak. This was a danger to personnel and to the environment. Each time a gasket leaked, all the gaskets on the heat exchanger in question had to be replaced – at great expense and with a great deal of expensive downtime to follow. In addition, the gaskets contained asbestos, so the 1993 German ban on asbestos eventually made replacement impossible.

Compact + no gaskets = a perfect fit

What BASF needed was gasket-free heat exchangers that were as compact as the plate and frame heat exchangers they were to replace. Compabloc heat exchangers fit the bill. In addition to being all-welded, they were small enough for the limited space available. At the time, Alfa Laval's Selim Guelener had been regularly liaising with BASF's Ludwigshafen complex for years in conjunction with other Alfa Laval equipment. He made the suggestion and an agreement was reached.

Safety + reliability = no competition

Safety is by far the most important factor for the plant, closely followed by reliability – a shutdown means lost earnings of tens of thousands of euros per day. With no leaks and no production stops in the first two years, BASF's

experience with the first Compablocs was so positive that when they were ready to replace more heat exchangers, there was never really a question of turning to anyone but Alfa Laval.

Yearly savings between EUR 300,000 and 400,000

In addition to putting a stop to the dangers of leakage and yearly costs of approximately EUR 200,000 due to production loss that came with replacing leaky gaskets, the Alfa Laval Compablocs have also practically eliminated maintenance costs. This saved BASF an additional EUR 100,000 to 200,000 per year. The first unit commissioned is still in operation today. Like the rest of the Compablocs at the plant, it is cleaned in place, but has never had to be opened for cleaning.

The next challenge – worn-out shell-and-tube heat exchangers

In 2007 and 2008, four more Compablocs replaced 12 carbon steel shell-and-tube heat exchangers used in the absorption/stripper processes. The tube bundles in the 12 shell-and-tube heat exchangers had reached the end of their lives – all too quickly – due to high concentrations of sand in the cooling water. It was clear that higher alloy steel was needed in the application. BASF was faced with a choice between replacing the tube bundles or replacing the heat exchangers with four Compabloc heat exchangers.

25% lower costs, 20% less space

“The Compablocs were around 25% lower in cost compared to re-tubing the existing shell-and-tube heat exchangers”, says Frank Steiglich, Project Operation Manager Acetylene, at BASF, “On top of that, a lot of space was freed up, which resulted in a safer plant for the operators.”

An ongoing relationship and ongoing orders

Today, Selim Guelener is on-site at BASF in Ludwigshafen weekly providing support and advice on investments to improve various plants. “Mr. Steiglich has approached us with new inquiries for 2014. We expect that additional shell-and-tube heat exchangers will be replaced with Compablocs as well as the last gasketed plate and frame heat exchangers, which of course no longer contain asbestos,” he says.

Three of the many Alfa Laval Compabloc heat exchangers installed at BASF’s acetylene and naphthalene plant

Fast Facts:

The customer

With over 133,000 employees and sites all over the world, German-based BASF is one of the world’s largest suppliers of petrochemicals. The plant, which is part of the BASF Ludwigshafen Verbund site, has an annual production capacity of 90,000 tonnes.

Two challenges

- Replace compact gasketed plate-and-frame heat exchangers posing a safety risk and responsible for frequent production stops with an equally compact solution without gaskets
- Replace carbon and steel shell-and-tube heat exchangers suffering from erosion

The benefits

- Safer working conditions
- Savings of between EUR 300,000 and 400,000 yearly due to much less maintenance and downtime
- Reliability – no more production stops due to leaking gaskets
- Maintenance costs and time practically eliminated
- Investment costs 25% lower than for alternative solutions
- Compact design cuts floor space, foundations, piping and installation work

About the solution

The solution

The Compabloc welded plate heat exchanger is suitable for operation in chemically aggressive environments and for handling high-temperature fluids. It’s fully accessible. And with no gaskets between the corrugated heat transfer plates, maintenance is straightforward and efficient.

Features include:

- ASME and PED-coded design for up to 42 barg (600 psig) / 400°C (750°F)
- Corrugated plate pattern that ensures highly turbulent flow
- Superior heat transfer coefficients (3-5 times the coefficient of traditional tubular technology)



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How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com