# Good things come in small packages

## Lanxess keeps on choosing Alfa Laval compact heat exchangers

Case story

Whenever the international chemical company has had to replace a heat exchanger at its production site in Germany in recent years, they've chosen a compact heat exchanger from Alfa Laval – either a Compabloc, or an AlfaNova model. These compact units are not only ideal for the limited space of the plant, they also more than match the old units in terms of performance and efficiency. Plus, the robust AlfaNovas in particular have helped Lanxess wave goodbye to problems with corrosion and leakage. Lanxess purchased nine of them in Q1 2008 alone.

At the Lanxess plant in Germany, phenol-based colorants are produced for colouring everything from children's Lego blocks to plastic components for automotive parts. The organic pigments are created in a reactor and then separated from the solvent in a filter-press. The solids then continue to a dryer, and the solvent is recovered and sent back to the reactor.

Engineer Holger Kuhrt at the Lanxess plant in Leverkusen, Germany standing next to a shell-and-tube heat exchanger that was recently replaced with the compact AlfaNova in the background.

Lanxess currently uses 110 heat exchangers at the site in many duties including cooling and heating of the reactors. Of the 110 units, nearly 75% are Alfa Laval compact heat exchangers. By choosing Alfa Laval compact heat exchangers whenever a shell-and-tube unit needs to be replaced, Lanxess can reduce the size of their units by as much as 80%.

For example, plant engineer Holger Kuhrt says that because they require much less space than shell-and-tube heat exchangers, the AlfaNova units have an obvious advantage. "The AlfaNova heat exchangers are a better match for the compact design of a plant like ours with limited space."

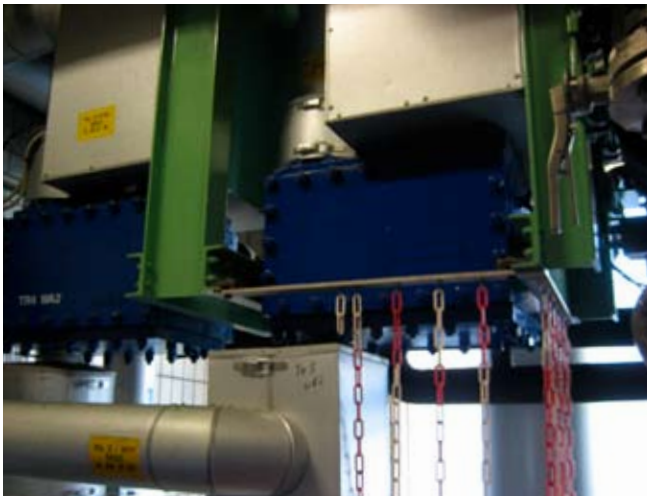
### Fast Facts:

**The customer**
Part of Lanxess AG's functional chemicals division, the plant in Leverkusen, Germany produces phenol-based colorants. Numerous indoor reactors with heating and cooling capabilities are used to produce industrial polymer colouring for everything from children's Lego blocks to plastic components for LCD monitors and automotive parts.

**The challenge**
When the existing shell-and-tube heat exchangers needed to be replaced, the limited space of the plant's layout proved challenging.

**The benefits**
- Less spending and resources used on installing the light and flexible AlfaNova and Compabloc units
- Robust material and design reduce the chance of corrosion and leakage
- The Compabloc is easy to access should repair or service prove necessary

The AlfaNova heat exchangers require minimal installation and piping work, so they are easy to install at the Lanxess plant.



Suspended from the ceiling, the compact Alfa Laval Compabloc units save space at the Lanxess plant

And even in cases where a small unit from another manufacturer has been up for replacement, Lanxess has chosen Alfa Laval heat exchangers for the benefits they offer in terms of cost efficiency and high quality.

**Light, flexible and easy to install**
The Alfa Laval compact heat exchangers weigh only about one fourth of the traditional shell-and-tube exchangers, and they're easy to install wherever it's efficient. No special construction work is needed, and the piping systems required are minimal. Furthermore, nozzles and pass configurations can easily be customized to meet particular requirements.

In the case of the Compablocs, the panels and nozzles can be unlined or lined using the same materials as the plate pack. And the nozzle size is variable and can be selected independently for each side. The flexibility of the nozzle position and type make installation even smoother.

"The result is a very compact installation, which also saved on piping and installation work," says Kuhrt.

**Every unit replaced is more space gained**
Over the past decade, Lanxess introduced six Compabloc heat exchangers as both coolers and condensers. Like the AlfaNova units, Compablocs are light, flexible and easy to install.

The Compabloc units at Lanxess, which are used primarily as condensers for the reactors, are suspended from the ceiling. This saves floor space, and at the same time, the heat transfer area is comparable to that of larger units. In a volume of just $3m^3$, the Compabloc provides a heat transfer area equivalent to $1000m^2$ of a traditional shell-and-tube design.

**Efficient and reliable by nature**
Besides the fact that compact size and easy installation make the AlfaNova and Compabloc units exceptionally practical, Lanxess has found them to be extremely reliable. If the Compabloc, for example, should need service or repair, the welded, gasket-free design allows for easy access. And the combination of robust construction and corrugated parts means the Alfa Laval heat exchangers are unlikely to leak or become corroded. Their efficient and reliable nature has earned the trust of Lanxess:

"If we were to build the plant from scratch today, I believe we would choose Alfa Laval compact heat exchangers for virtually every position," Kuhrt says.

**About the solution**
AlfaNova is a high-performance, cost-efficient plate heat exchanger designed to handle demanding duties in a broad spectrum of industrial applications and utilities. The material is bonded in a patented process, known as AlfaFusion, which is similar to welding. AlfaNova heat exchangers:

- Provide a heat transfer coefficient that is up to five times higher than that of a comparable shell-and-tube unit
- Have a 100% stainless steel and gasket-free design that ensures high mechanical strength
- Can withstand temperatures from -196°C (-320 F) up to 550°C (1022 F) and pressures from vacuum up to 30 bar (435 PSI)
- Both ASME and PED design are available

The Compabloc welded plate heat exchanger is suitable for operation in chemically aggressive environments and for handling high-temperature fluids. With no gaskets between the corrugated heat transfer plates, maintenance is straightforward and efficient. Features include:

- ASME and PED-coded design for up to 35 barg (500 psig) / 350°C (660ºF)
- Corrugated plate pattern that ensures optimized flow
- Superior heat transfer coefficient




**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.