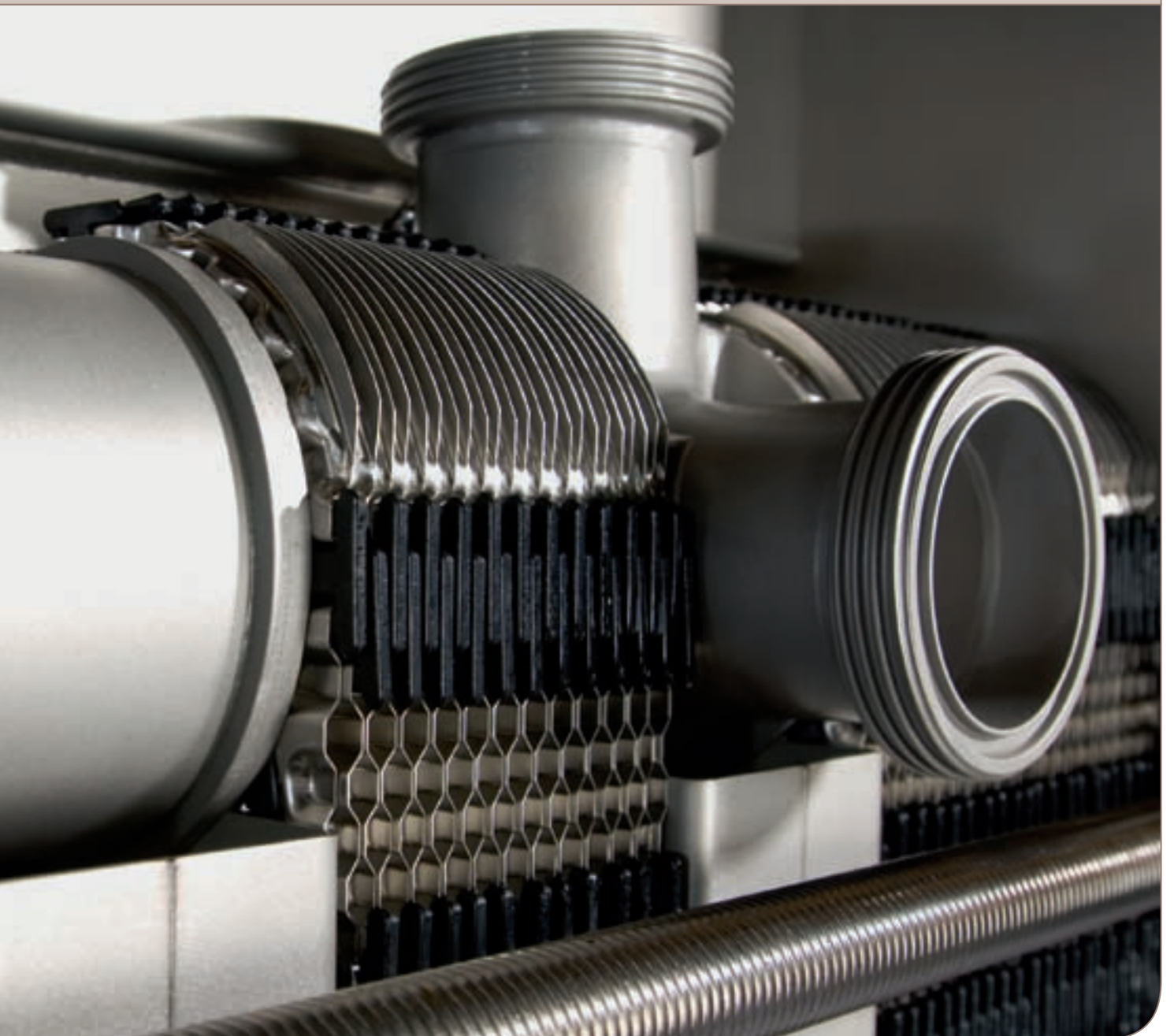




## Heat exchangers for hygienic use

The complete line



# Performance in good hands

Working with hygienic applications is a question of care, attention to detail and dedication to outstanding performance. Alfa Laval has a proven track record in delivering innovative solutions for hygienic applications based on our core technologies of separation, heat transfer and fluid handling.

Superior safety, gentle efficiency and uncompromising cleanliness are the hallmarks of our hygienic pumps, heat exchangers, valves and automation, tubes and fittings, and separation, filtration and tank equipment. Which is why so many customers in the food, biopharm and other demanding industries put process performance and hygiene in the capable hands of our experts, sales companies and partners worldwide.

Here you will find an overview of Alfa Laval heat exchangers for hygienic applications. For complete technical details and product specification, contact your local Alfa Laval supplier or visit us at **[www.alfalaval.com](http://www.alfalaval.com)**

# Gasketed plate heat exchangers

Suitable for a wide range of applications in most industries, gasketed plate heat exchangers are a compact and efficient heat transfer solution. Alfa Laval's gasketed models are designed for exceptional control, which makes them ideal for heating and cooling duties in demanding hygienic processes.

Among the Alfa Laval advantages are our unique Clip plates (see page 6), whose glueless clip-on gaskets can be replaced

with the plates still on the frame. Their innovative design makes full use of our industrial experience, plus the latest developments in material, construction and production methods.

Holding the plates together are sturdy, pressure-graded frames with hygienic and labour-saving features. These offer great flexibility for expansion or rebuilding, as well as small ports that enable CIP (cleaning-in-place) without specialized pumps.



## FrontLine

FrontLine is a top-of-the-line series of plate heat exchangers. Able to meet the highest demands on hygienic control, it features a superior and flexible design that allows easy handling and modification.

Among the main applications for FrontLine are dairy pasteurization, yoghurt cooling, UHT treatment and work with heat-sensitive products. FrontLine frames can be supplied in stainless steel and silver-coated versions, and the Clip plates (see page 6) are available in alternative materials for challenging food-processing tasks. In most cases their Clip plates can be cleaned via CIP (cleaning-in-place), using the same flow as in the process itself.



## BaseLine

With its cost-effective frame design, the BaseLine series of plate heat exchangers is a competitive choice for process and utility duties. Working at pressures up to 10 bar (g), it handles not only heating and cooling, but also pasteurization at low flow rates.

Typical BaseLine applications include simple pasteurization, raw milk cooling, media heating/cooling and CIP (cleaning-in-place) heating.

## FusionLine

Alfa Laval FusionLine is the world's first plate heat exchanger with open flow channels and no contact points on the product side. The 4–6 mm open channel makes it ideal for handling low to medium viscosity products with fibres and particulates, such as juices and soft drinks, prepared foods, soups and sauces.

This unique design and performance is made possible by fusion-bonded plate cassettes on the media side, together with a special gasket. The FusionLine combines the energy efficiency, accessibility and modularity of plate technology with the viscous and particulate-handling capabilities of tube technology.



# AlfaCond and AlfaVap

A smart alternative to bulky and expensive falling film condensers and evaporators, these compact solutions feature deep channels, large ports and laser welding to enable vacuum and low-pressure evaporation and condensation for aqueous and organic systems.

The AlfaCond plate condenser is designed for condensing vapours into liquids at low pressure. The AlfaVap plate evaporator optimizes evaporation processes and provides a much higher thermal efficiency than conventional units.



## M-series

The M-series of plate heat exchangers is an efficient solution for general heating and cooling duties in hygienic applications. In addition, the series is a perfect alternative for heating and cooling service media.

M-series plate heat exchangers are only available with epoxy-painted frames.

## TS6-M

Thanks to its unique plate geometry, TS6-M series of plate heat exchangers is thermally optimized for steam condensation duties. This makes it useful not only for heating water, but also for heating CIP (cleaning-in-place) solution by means of steam.

TS6-M plate heat exchangers are available with either stainless steel or epoxy-painted frames.



# Clip plates

Alfa Laval's Clip plates are custom-designed for the efficient thermal treatment of liquid food and sensitive hygienic products. Based on many years of practical experience in food applications, they offer a well-balanced answer to complex needs.

Clip plates take their name from their glueless clip-on gaskets, which can quickly and easily be removed with the plates still on the frame. Food-grade gaskets are available

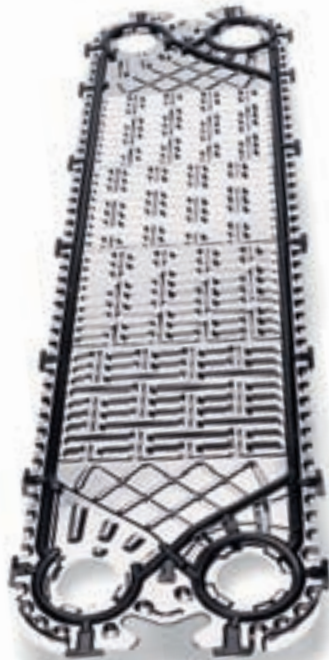
in materials from NBR to EPDM, enabling a perfect match for the application temperature and characteristics.

The plates themselves are available in many geometries and patterns, as well as a choice of stainless steel, SMO or titanium. Their excellent press depth and relatively few contact points prolong operating times, while a unique distribution area ensures an uniform flow over the entire plate surface.



## Standard

Well-proven and extremely heat efficient, our Standard Clip plates meet the toughest requirements in food processing. They feature a chevron pattern for maximum strength at high working pressures, with different chevron angles available for optimal heat transfer at a given pressure drop.



## WideStream

Our WideStream Clip plates have very few contact points, which helps prevent blockage and results in longer uninterrupted operating times. The plates are specially developed for the pasteurization of fruit juices and other products containing pulp and fibres.



## Gemini

With their double walls, our Gemini Clip plates combine excellent heat transfer with increased protection against the mixing of fluids. The plates consist of two sheets that are formed together, which prevents the media from mixing even in the event of a cracked plate.

# Fusion-bonded plate heat exchangers (AlfaNova)

AlfaNova plate heat exchangers are the first in the world to be manufactured from 100% stainless steel. Thanks to AlfaFusion – Alfa Laval's revolutionary technology for bonding stainless steel components – they can withstand even extreme temperatures and pressure fatigue conditions.

Their exceptional performance suits AlfaNova plate heat exchangers to demanding duties in a broad range of industrial applications and utilities. Often employed to heat water or CIP (cleaning-in-place) solution by means of water and steam, they can also be used for general heating and cooling duties.



# Brazed plate heat exchangers

Alfa Laval's brazed plate heat exchangers are extremely compact – a result of high heat transfer coefficients, small hold-up volumes and the use of thin materials. The stainless steel plates are brazed into a package without the use of gaskets, with copper serving as the brazing material.

Operating costs are reduced by the heat exchangers' high thermal efficiency, while the rectangular shape and frontpositioned connections make for easy installation. Resistant to heat, pressure, vibration, and above all corrosion, brazed heat exchangers are perfect in utilities such as heating water with steam.



# Scraped surface and tubular heat exchangers



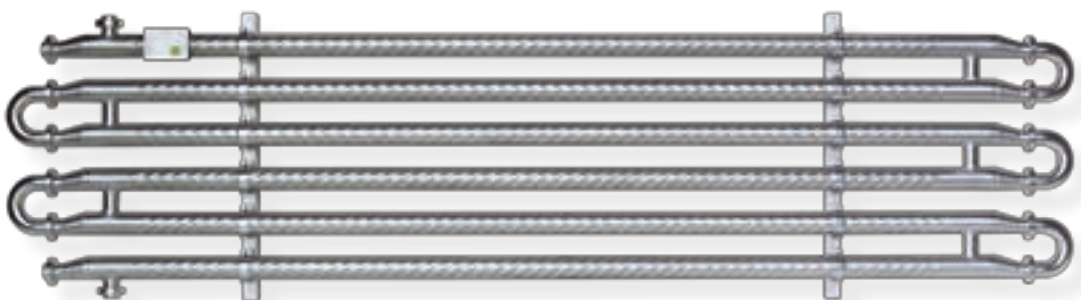
## Contherm

The Alfa Laval Contherm scraped surface heat exchanger (SSHE) handles any viscous, sticky and/or heat-sensitive process fluids as long as they are pumpable. It is widely used within the food and personal care industries.

Available in different versions, Contherm can handle products with low to extremely high viscosities or those containing particulates as well as special application and process requirements, such as evaporation.

## ViscoLine

The Alfa Laval ViscoLine range is a series of highly efficient tubular heat exchangers designed for gentle handling of low to medium viscosity products or products containing particulates. Widely used in the food and beverage industries, it is suitable for heating, cooling, pasteurization, UHT treatment, heat regeneration and other heat transfer duties.





# UltraPure tubular heat exchangers

The biopharm industry requires exceptional certainty, not only when it comes to product hygiene, but also when it comes to isolating products and media. For this reason, Alfa Laval offers a number of specially developed, high-quality tubular heat exchangers.



## Pharma-X

Designed for point-of-use cooling in the biopharm industry, the Pharma-X tube-in-tube heat exchanger eliminates the risk of contamination between the product and cooling media. It consists of three discrete tubes arranged one within the other, curved through 180° to create a bend that takes up thermal expansion.

The Pharma-X heat exchanger can be used in many application areas, including point-of-use cooling on WFI (Water For Injection) ring mains, cooling/heating of pure water in the biopharm industry and cooling/heating of distilled water/WFI for processing equipment.



## PharmaLine

PharmaLine is a double tube sheet (DTS) shell-and-tube heat exchanger that provides full drainability and prevents the risk of cross-contamination. Its bundle of seamless, electropolished tubes handles the flow of product media, with service media running outside the tubes in a crossflow.

Since the unit is flexible in design, size and material, it can be used in any hygienic application with high demands. Typical uses for PharmaLine are in water systems, water for injection, purified water and CIP (cleaning-in-place) systems. PharmaLine is also used for general product heating and cooling duties.



# Handling your hygienic processing needs

Optimizing the performance of hygienic processes is a challenge best met with expertise. Alfa Laval expertise is the result of years of accumulated knowledge and a comprehensive research and development programme.

With this foundation, we work closely with our channel partners to help companies extract the most value from raw materials, minimize waste and emissions, and deliver safe and hygienic products. Ultimately, our ambition is to help companies supply quality products to consumers at competitive prices.

Alfa Laval has served as the standard bearer for the production of hygienic products since Gustaf de Laval invented the centrifugal separator to separate cream from milk more than a century ago. That same ingenuity is applied to all our hygienic components and solutions that safeguard the flavour, texture and appearance of food, dairy products and beverages.

For the pharmaceutical, biopharm and personal care industries, our contributions not only entail hygienic design and superior performance but comprehensive documentation and solutions that are easy to validate. Which in turn raise the quality, cleanliness and uniformity of the final products.

Safeguarding hygienic applications requires entrusting your processes to the safe, competent care of a reliable partner. With Alfa Laval you are in good hands.



# Service for any brand

Having Alfa Laval service your heat exchangers is more than just practical – it makes good business sense. Alfa Laval's local specialists know your industry and its needs, but are also part of a global network of service and support.

Drawing on our many years of thermal transfer experience, Alfa Laval service specialists are experts on heat exchangers, chemicals and cleaning methods. As a result, they can service not only our own heat exchangers, but also plate heat exchangers from other manufacturers.

## **Expertise in every detail**

At Alfa Laval's service centres, we handle all aspects of heat exchanger maintenance. By restoring heat transfer and pressure drop, we ensure quality, productivity and energy efficiency. And by finding and stopping leakage, we reduce production losses and protect your equipment and the environment.

We work with specialized tools and chemicals, as well as brand-quality spares and the best glues and mounting procedures. Many of our services are available in standardized packages, so that you can choose the level that meets your needs.

## **AllBrands service**

Through Alfa Laval's unique AllBrands service, we can restore any plate heat exchanger to optimal working condition. This gives you a single, reliable speaking partner, regardless of the models or brands that you use.

Our qualified specialists, decades of experience and extensive database of solutions make Alfa Laval the simple path to top-notch performance.



### Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuff, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

### 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](http://www.alfalaval.com)

[www.fotoskift.se](http://www.fotoskift.se)



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