



We deliver

Solutions for the manufacturing industry





Why complicate matters? Choose Alfa Laval instead!

Why complicate your business when you can get all you need from one supplier? You probably know that Alfa Laval offers some of the best products in the world when it comes to heat transfer, separation and fluid handling. And we will continue to do so. As a world market leader, Alfa Laval continuously pushes technology forward.

But this is only part of what we do. Alfa Laval is primarily about solutions. Our experience goes back almost a century, and our knowledge is based on thousands of applications globally.

Alfa Laval's worldwide organization will be there for you all the way. From the planning stage through installation and operation to our Nonstop Performance service concept. This will guarantee maximum uptime and low life-cycle cost for applications where we are involved.

So, if you are in the manufacturing industry and you need to heat or cool fluids, Alfa Laval can make it easy for you. Time and time again, wherever you are located in the world.



Alfa Laval gives you more

Your local partner – with global resources

Alfa Laval's business activities focus on making our customers' operations easier. We will provide you with technologies and solutions that will help you optimize your manufacturing processes and keep them running year after year. One of many examples is our easy-to-use design software, which makes it simple to size and select the right heat exchanger for your application.

With our global network of sales companies, we are always close to you, regardless of where in the world you do your business. In this way we can offer you fast and reliable deliveries, securing Nonstop Performance.

Low life-cycle cost

When you choose Alfa Laval heat exchangers, you get both reliability and innovative design. Our products will minimize the need for maintenance, service and support, and give you maximum uptime in production.

We can supply the right heat exchanger for any application. Our superior plate design ensures optimal heat transfer, giving closer temperature approach. This makes it possible to extract maximum benefit from all the heat energy within the system. One of the advantages is that the need for cooling/heating media will be reduced. And by improving your operation with Alfa Laval heat exchangers, you will cut down on your energy consumption. Plus you will get as much as 95 percent heat recovery.

All these Alfa Laval advantages add up to lower life-cycle cost for your installation.

Compactness and flexibility

Alfa Laval plate heat exchangers are very compact and easy to install. They can be installed even in extremely confined spaces as they take up only 20 percent of the space of a comparable shell-and-tube heat exchanger. Naturally, a compact model takes less material to build, an advantage made even greater if your installation requires exotic – and thus more expensive – metals like titanium or special alloys to deal with aggressive media.

Our heat exchangers are very flexible. For example, take our gasketed plate heat exchangers, which are easy to integrate with existing systems. If your required capacity should change, the number and specifications of the plates can easily be increased, reduced or altered in other ways.

The environmental solution

Alfa Laval helps the industry meet the increasing global demand for environment-friendly operations. Our products ensure minimum energy consumption for optimum process effect. You will get maximum heat recovery and a reduction in the use of cooling and heating media. The turbulent flow created by our heat exchanger plates minimizes the need for cleaning, resulting in reduced environmental impact. And due to the low hold-up volumes, smaller amounts of detergents are used when cleaning. Consequently, there will be less detergent waste.

Due to the compact design of our heat exchangers, material consumption is reduced, and there is less material to recycle. Furthermore, Alfa Laval's gasketed plate heat exchangers are easily dismantled, making recycling so much easier.





Continuously improves your performance

As your business partner, we are dedicated to securing Nonstop Performance for your operation. We achieve this by offering outstanding service combined with unique knowledge and experience of your processes and applications.

It goes without saying that our global parts and service organization provides service, repairs and spare parts around the clock. But for us, service has a wider perspective.

Covered by a Performance Agreement, our “full house” of service offerings allows us to tailor an individual service package that will fit your requirements like a glove. Or we help you choose your solution from our standard range.

But we take service one step further. We will recondition your heat exchangers, even if we did not supply them. With our vast resources come the knowledge and ability to recondition all heat exchangers, whatever brand you are using. This AllBrands service is available on site or at the nearest of our 30 global Alfa Laval plate heat exchanger centres. In case of

operational disturbances, we have reconditioning engineers on call 24 hours a day 365 days a year.

This advanced customer support concept ensures that your processes run more efficiently. It raises your competitiveness, and it improves your bottom line.

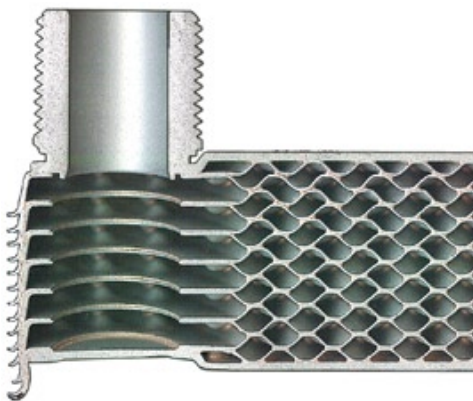
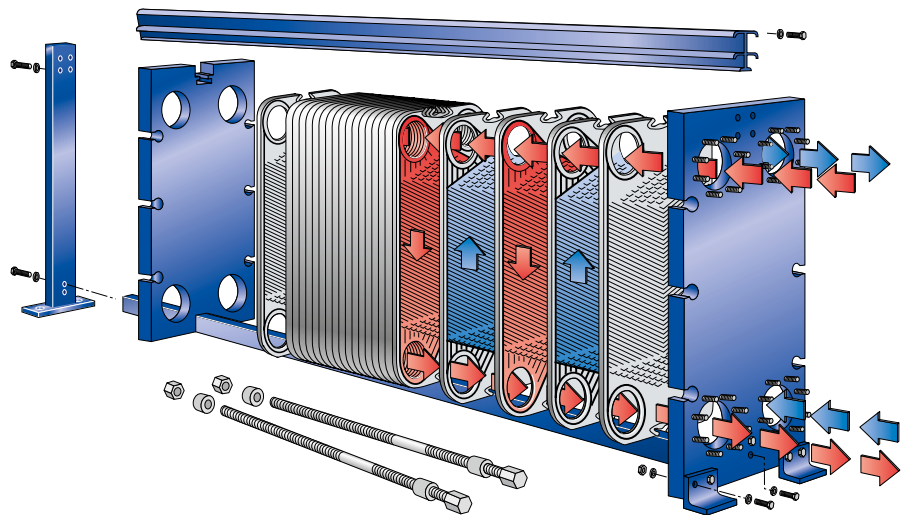
- Genuine Alfa Laval parts on short notice
- Repairs and reconditioning at our Service Centres worldwide
- On-site service
- Preventive maintenance minimizing the risk of unforeseen breakdowns
- Technical advice and trouble-shooting
- Reconditioning service for plate heat exchangers
- Tools, cleaning chemicals and cleaning-in-place (CIP) equipment
- Personnel training
- Performance Agreements

Alfa Laval heat transfer technology

Alfa Laval heat exchangers come in a variety of materials, sizes and capacities – from the smallest brazed unit to the largest gasketed or welded plate heat exchanger. We can also supply air/liquid coolers for the production of industrial cooling water. So, regardless of your application, Alfa Laval is able to offer the right heat exchanger to fit your specific heating needs.

Working principle

The basic plate heat exchanger consists of a series of thin, corrugated plates that are either gasketed or welded together. The plates are then compressed in a rigid frame to create an arrangement of parallel flow channels. One fluid travels in the odd-numbered channels, the other in the even-numbered.



Superior brazing technology

Alfa Laval brazing technology offers the most compact and cost-effective heat transfer solutions. Brazing the stainless steel plates together eliminates the need for sealing gaskets and thick frame plates. The brazing material seals and holds the plates together at the contact points. Our brazed heat exchangers are always brazed at all contact points, which ensures optimal heat transfer efficiency and pressure resistance.

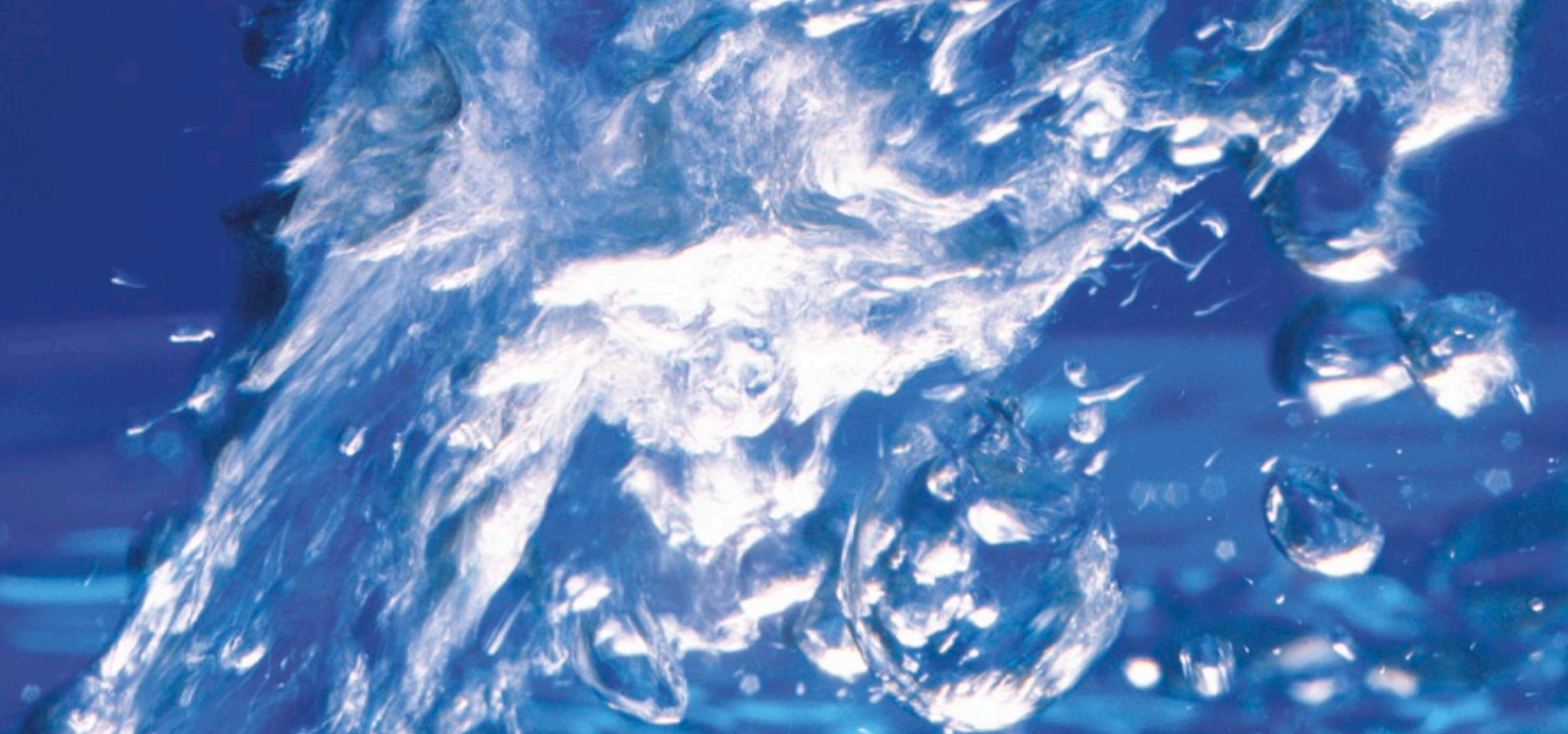


Plate technology

Alfa Laval is the largest manufacturer of plate heat exchanger solutions in the world. We use design and manufacturing processes that are quite simply in a class by themselves, for example:

- Single-step pressing of plates, which results in greater uniformity, less physical stress, thinner plates and more efficient heat transfer.
- Patented distribution area design, resulting in maximum use of the heat transfer area, the greatest turbulence in the flow, optimum fluid distribution, higher design pressure capabilities and minimal fouling.

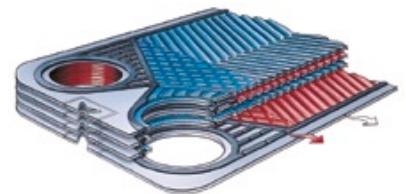
Alfa Laval produces plates in many different materials, the most common being:

- Stainless steel
- Hastelloy C
- SMO
- Graphite
- Titanium

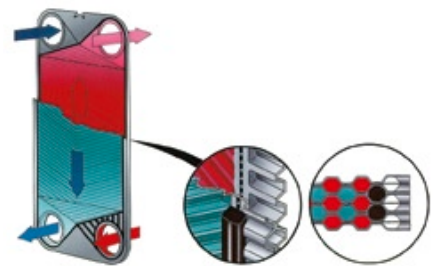
Alfa Laval special plate innovations

Depending on customer needs, Alfa Laval is able to provide a complete range of fully optimized plate heat exchanger designs, sizes and applications. We can meet virtually any operational specification, from the most delicate to the most aggressive. Some examples of our plate innovations are:

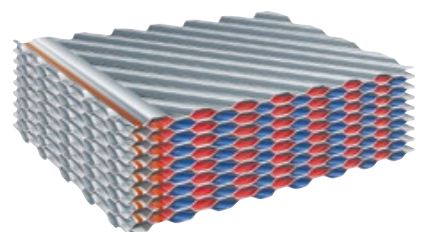
- **Double-wall plate**
Designed for applications where reliability against intermixing is extremely important. Failure of one plate results in external detection without inter-leakage. The second wall provides a double barrier between fluids, meeting local health code regulations.
- **Semi-welded plate**
Allows aggressive and difficult fluids to be handled in a plate heat exchanger. Expands the pressure range.
- **Wide-gap plate**
Ideal for fluids containing fibres or coarse particles.
- **Fully welded plate**
Laser-welded for high temperatures and pressures.
- **Diabon F nonmetallic (graphite)**
Excellent resistance to corrosive substances. No porosity or permeability. Resists cracking and breakage.



Double-wall plate



Semi-welded plate



Fully welded plate

Gasketed plate heat exchangers

Most plate heat exchangers look similar from the outside. The differences lie inside, in the details of the plate design and the sealing methods used. The gasketed plate heat exchanger range from Alfa Laval is the result of years of experience and development in heat transfer technology.

Lower installation costs

With its compact design, the Alfa Laval plate heat exchanger requires 20–50 percent less space than a comparable traditional installation.

Easy to clean

The turbulence created by Alfa Laval's special plate patterns eliminates stagnant areas and pockets, which reduces fouling. And our gasketed plate heat exchangers can easily be opened, giving access to the plate surfaces.

Flexible concept

Our gasketed plate heat exchangers are very flexible. And as your needs change over time, it is a simple matter to adapt the unit for new capacities by adding or removing plates from the pack.

High heat transfer efficiency

The Alfa Laval plate heat exchanger offers up to five times greater heat transfer efficiency than a comparable shell-and-tube unit. The plate pattern creates more turbulence, which, in combination with the low hold-up volume, ensures impressively high heat transfer values and efficient temperature control.

Operational security

The gasket design minimizes the risks associated with internal leakage. If a gasket failure should occur, any leakage to the atmosphere is easy to detect.

Special plates for corrosive media

For applications with aggressive media, Alfa Laval can supply you with plates in materials that are corrosion resistant, like titanium, SMO and Hastelloy C.



Applications

Cooling of oil, equipment cooling, process temperature control for a wide range of applications in the manufacturing industry.

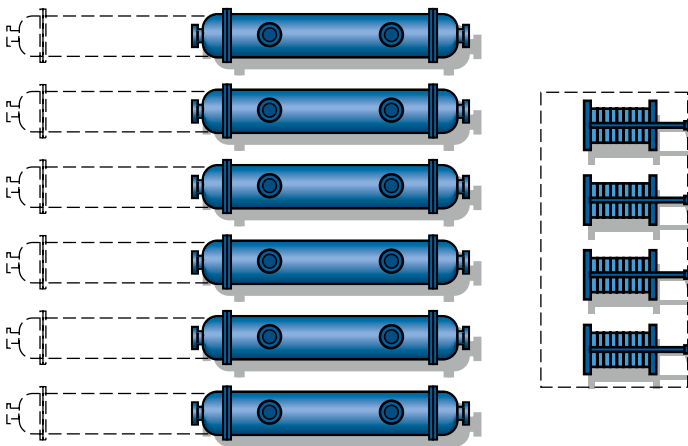
Steam heaters – TS-M Series

The steam heaters in Alfa Laval's TS-M Series are world-first products. They are the first heat exchangers to be purpose-built for heating and condensing duties using industrial steam. The unique geometry and strength of the stainless steel plates, the special high-temperature gaskets and robust frame provide levels of economy, performance and temperature control unmatched by other heat exchangers.



Applications

Space and water heating using industrial steam.



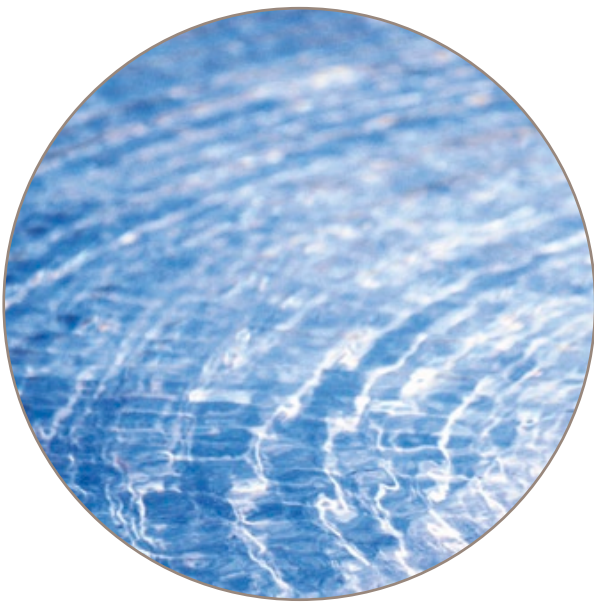
One advantage of Alfa Laval's heat exchangers is their compactness. They often take up only 20 percent of a shell-and-tube installation with the same capacity.

Reducing costs in many ways

Alfa Laval plate heat exchangers have many advantages. For example, the small size and low weight mean low initial installation costs while high heat transfer efficiency means low operating costs throughout the unit's working life. Another advantage is the major reduction in maintenance requirements compared to traditional equipment, which cuts down on service costs.

Brazed heat exchangers

Alfa Laval designed the original brazed plate heat exchanger. This concept eliminates the need for gaskets and frame parts. The compact design, high performance and genuine reliability of these heat exchangers ensure continuous, efficient fluid heating and cooling. The result is maximum equipment uptime and reduced maintenance costs.



Combining compactness and performance

Alfa Laval's brazed heat exchangers comprise a number of stainless steel plates brazed together in a vacuum furnace along with two cover plates. They are brazed with either copper or nickel and designed to handle pressures from full vacuum to 32 bar and temperatures from -160°C to $+400^{\circ}\text{C}$. Although they are extremely compact, our brazed heat exchangers offer the same performance as a traditional installation three times as large.

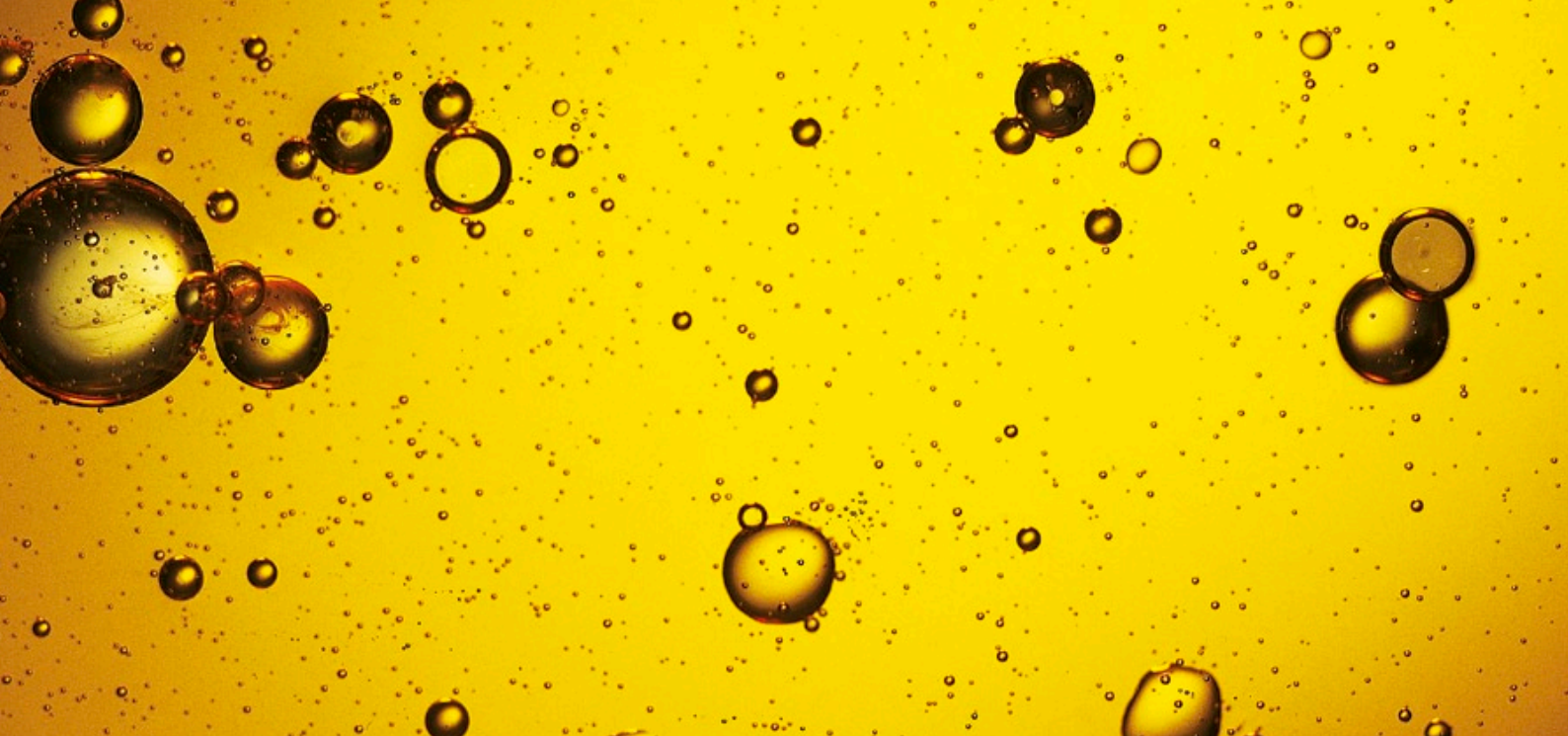
Superior plate design

Alfa Laval brazed heat exchangers offer continuously high heat transfer due to their self-cleaning design. One advantage of this is that the high liquid turbulence keeps surfaces clean, avoiding constriction or blockage of flow paths. Another is that the smooth, uniform plate surfaces minimize the risk of particles being trapped or deposited.

Applications

Cooling of oil, equipment cooling, process temperature control for a wide range of applications in the manufacturing industry.





DOC – Dedicated Oil Cooler

Alfa Laval's DOC is the efficient solution for cooling hydraulic oil. It is the most robust brazed plate heat exchanger available, designed to withstand both continuous high pressure and high temperature operation.

The DOC's specially designed stainless-steel mounting blocks allow high tightening torque and good spanner

grip to ensure fast and secure unit installation. Another feature of this sturdy heat exchanger is the shelf-type support bracket that holds the DOC firmly in position, and at the same time facilitates quick and easy mounting. It is screwed into the unit's mounting blocks and also into the wall. On request, the DOC can be delivered with nipples for in-line performance control.

Applications

Hydraulic oil cooling and lubrication oil cooling.



Solutions for all needs

One of the key advantages of choosing Alfa Laval as your supplier is the exceptional range of top quality products and technologies available. We can, of course, supply you with reliable, cost-effective equipment for any heat transfer requirement you may have. Alfa Laval also provides a range of separators for cleaning of industrial fluids.

Air/liquid cooler

Alfa Laval's rugged and reliable air/liquid cooler combines high efficiency with low power consumption and low noise levels. It works in a closed system, thus avoiding costly and performance-reducing problems like corrosion, bacterial growth and suspended solids.

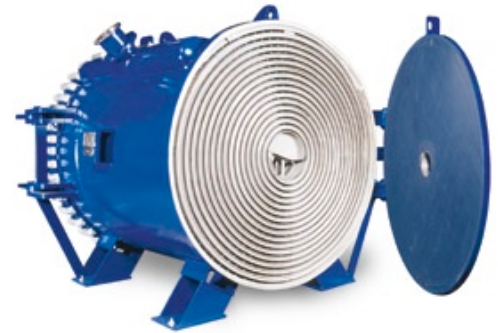


AlfaBlue

Alfa Laval's air coolers are made with cross-fin copper tubes and advanced corrugated aluminum fins, giving a compact design and high capacity. Typical applications are cooling of water, brine, oil and cooling agents. They present an excellent alternative to conventional cooling towers.

Heavy-duty heat exchangers

For tough tasks, including high temperatures and pressures, as well as hard-to-handle fluids, Alfa Laval offers you various, very sturdy heat exchangers.



Compabloc

A versatile welded plate heat exchanger for use as liquid-to-liquid exchanger, interchanger, reboiler, condenser, evaporator, and steam heater.

Spiral heat exchanger

The ideal heat exchanger for sludge and for liquids with solids or fibers in suspension. The fluid channels are easily accessed, exposing the whole of the heat transfer area – with no special tools or lifting equipment required.



AlfaDisc

Smaller, sleeker and more efficient heat exchangers deliver big on thermal efficiency and cost savings. The all-welded AlfaDisc plate-and-shell heat exchanger opens up a whole new world of possibilities by combining the thermal efficiency of Alfa Laval plate heat exchangers with the ability to handle up to 540°C and 100 bar.



Alfa Nova

Copper-free and corrosion resistant. Made of 100% stainless steel, the AlfaNova is not affected by acidity, alkalinity or hard water. Can handle pressure variation without fatigue problems and is capable of handling temperatures of up to 550°C.



Cleaning of industrial fluids

Separators have become an essential part of many industrial applications today, and for very good reasons. For example, oil contaminated by particles or water may cause costly production problems. Alfa Laval offers an extensive range of separators for cleaning industrial fluids. Everything from coolants and wash liquids to oils, other emulsions and paint waste. With separators, it is economically acceptable to remove particles down to 1 μm , in contrast to the traditional use of filters.

AlfaPure Cleaning Modules

A range of advanced mobile modules for cleaning water or oil-based fluids. Each module is a complete system that includes a separator and utility equipment. Innovative designs ensure highest separation efficiency. The equipment is easy to operate with minimum space and service requirements.



Alfie 500 – mobile coolant cleaning system

A compact mobile system for cleaning of waterbased metal-working coolant emulsions. The Alfie 500 separates tramp oil from the coolant as well as metal fines and solid particles down to 1 μm .



Emmie – mobile hydraulic oil cleaning system

A fully mobile, plug-and-play cleaning system for industrial oils. Emmie removes virtually all water and nearly 99% of all particles in the 2 μm –5 μm range.

Whatever your industry – we deliver

Whatever your industry – automotive, metalworking, electronics, plastics or other – you want maximum uptime in production and a long service life for equipment and fluids. This is what Alfa Laval delivers. We have extensive knowledge in the fields of heat transfer and separation technology. We are able to supply you with the most reliable, cost-effective equipment and systems for maintaining your industrial processes. And there is always our Nonstop Performance concept to guarantee trouble-free operation.

Hydraulic oil cooling

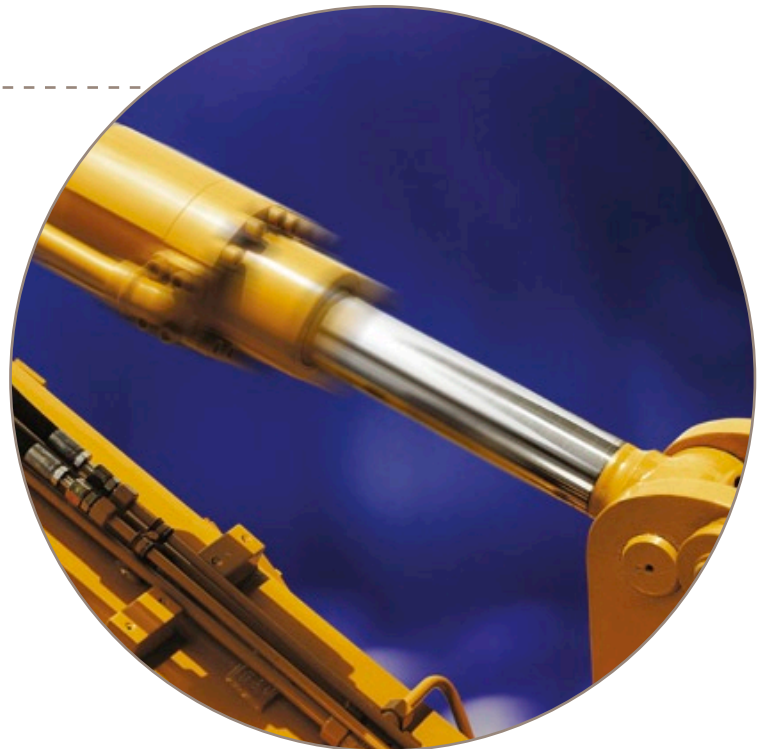
Hydraulic systems are used in a wide range of applications and play a key role in many industrial processes and machinery. The Alfa Laval DOC (Dedicated Oil Cooler) heat exchanger has been specially developed to fulfil the specific requirements of oil cooling. The compactness and low hold-up volume of our heat exchangers enable the most accurate temperature control and low cooling water demand.

*Suitable Alfa Laval products:
DOC oil cooler, brazed heat exchanger,
plate heat exchanger*

Steam heating

Steam is widely used in industry as an efficient and powerful heating media. Alfa Laval's TS-M Series are the first plate heat exchangers specially designed for steam. With their compactness, they are excellent in packaged solutions. Spirax Sarco Ltd., the leading player in the steam industry and a global Alfa Laval alliance partner, has developed its successful steam heater package Easiheat™ with our TS6M heat exchanger as a core component. The result is a complete unit for the control and efficient use of steam.

*Suitable Alfa Laval products: TS-M
plate heat exchangers, plate heat
exchangers*



Industrial cooling

Manufacturing processes that generate excess heat rely on an efficient cooling system. Alfa Laval's high-quality plate heat exchangers are reliable key components in many production lines, removing excess heat. It is both environmentally and economically sound to make use of this surplus heat.

*Suitable Alfa Laval products: Plate heat
exchangers, brazed heat exchangers*



Compressed air

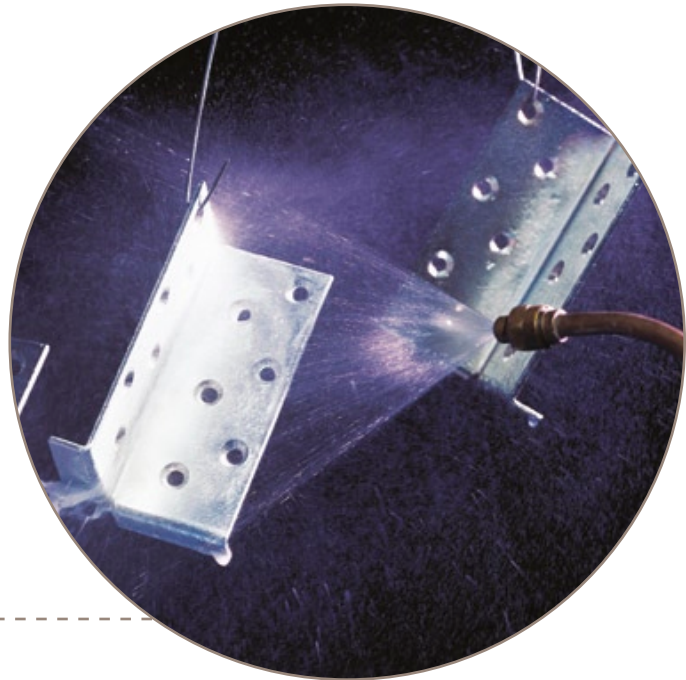
Compressed air is used in virtually all fields of industry, providing power for a multitude of manufacturing operations. Alfa Laval's heat exchangers can be utilized for air cooling, oil cooling, air drying and heat recovery.

Suitable Alfa Laval products: Plate heat exchangers, brazed heat exchangers, DOC oil cooler

Surface treatment

Controlling the process temperature is a key factor for successful surface treatment, such as phosphatizing, anodizing and pickling. The Alfa Laval plate heat exchangers are compact and largely self-cleaning, and can handle even the most aggressive fluid.

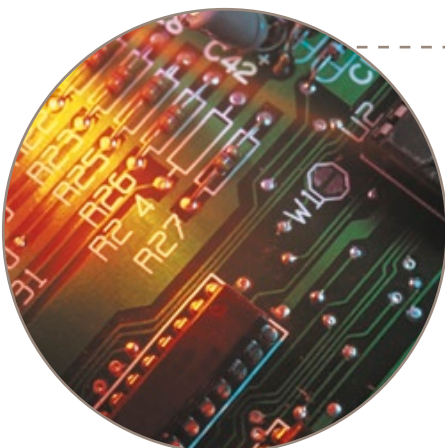
Suitable Alfa Laval products: Plate heat exchangers, Diabon plate heat exchangers, brazed heat exchangers



Production of semi-conductors and printed circuit boards

The manufacturing of semi-conductors is a highly sensitive process. Product quality is largely dependent on high cleanliness and accurate temperature control of the process water. For this purpose, Alfa Laval can supply heat exchangers with plates in high-grade steel alloys and titanium, and with high-purity gaskets in chemical-resistant materials.

Suitable Alfa Laval products: Plate heat exchangers, brazed heat exchangers



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, foodstuffs, 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

AlfaPure, AlfaRex, DOC and Emmie are trademarks owned by Alfa Laval Corporate AB.
Compabloc and Alfa Laval are trademarks registered and owned by Alfa Laval Corporate AB.