



Go with the flow

Cleaning and temperature control of industrial fluids





Technology has moved on...

Automotive, metalworking, electronics, plastics – whatever your industry, service fluids are probably an important part of your process – for lubrication, cleaning, cooling, corrosion prevention or transmission of mechanical motion via hydraulic systems.

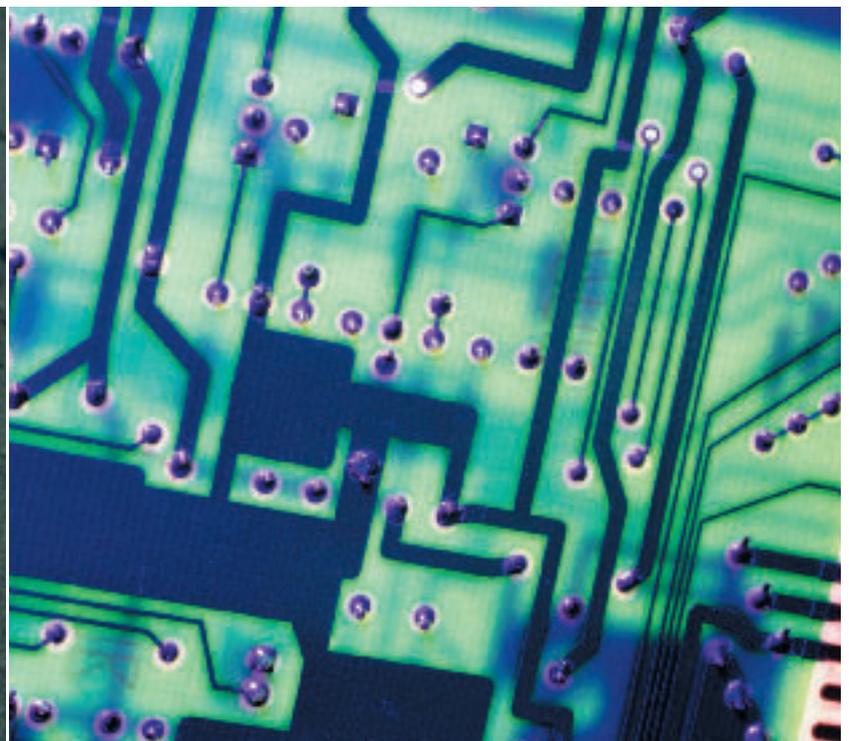
For maximum uptime in production and long service life of equipment and fluids, these fluids must be heated, cooled and cleaned efficiently.

During recent years the technology to achieve this has moved steadily forward. At Alfa Laval, with our extensive know-how in the fields of heat transfer and separation technology, we have been the driving force behind this development.

As a result, we have the most reliable, cost-effective equipment and systems for maintaining your industrial fluids. And the global parts and service network to back them up.

You can rely on our solutions to ensure maximum uptime and lowest operating costs in your plant. So, consult Alfa Laval and...

Go with the flow.





Heat exchangers for precise temperature control

Alfa Laval Plate Heat Exchangers come in a variety of materials, sizes and capacities – from copper and nickel brazed units up to large gasketed PHEs with stainless steel or titanium plates. The range also includes electrical plate heat exchangers, versions with graphite plates

and units for heating water using industrial steam. Alfa Laval also supplies liquid coolers for the production of industrial cooling water.

Cooling:

- Hydraulic oil
- Lubrication oil
- Quench oil
- Compressor oil
- Ultra Pure Water (semi-conductors)

Heating:

- Thermocontrollers (plastics)
- Steam heating/generating
- Burners

Process heating for surface treatment:

- Copper plating
- Nickel plating
- Chromium plating
- Zinc plating
- Degreasing
- Anodizing
- Pickling
- Phosphatizing
- Passivating



Efficient cleaning by centrifugal separation

Whatever the application, whatever the fluid to be cleaned, Alfa Laval has a centrifugal separation system that can handle the job. Small separation systems

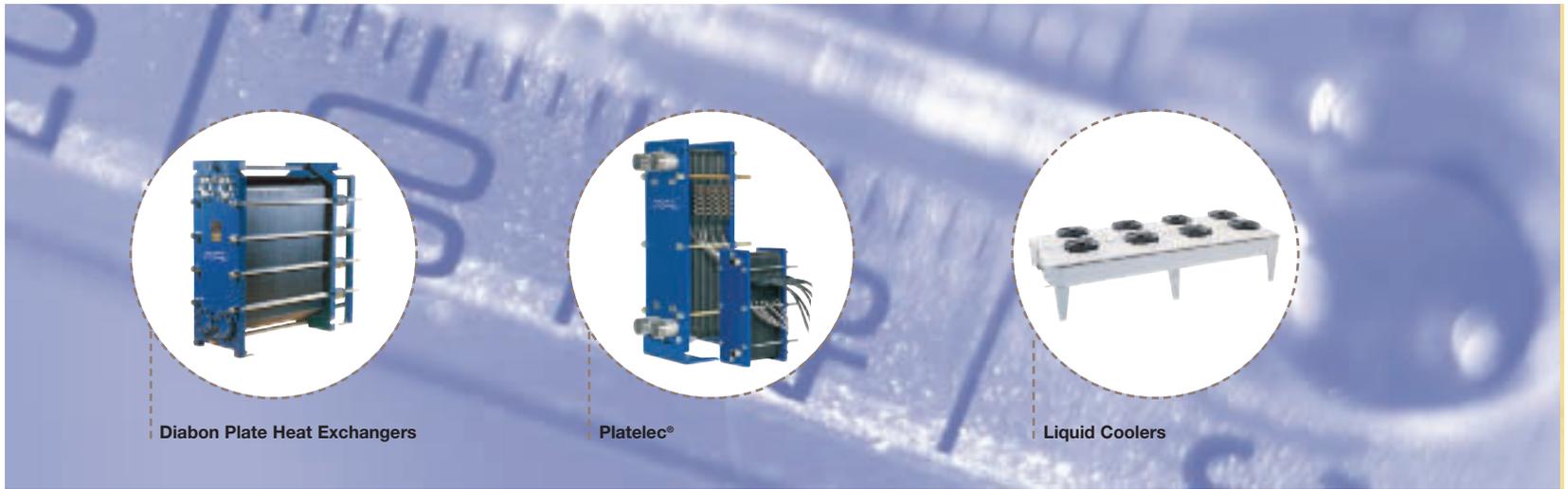
that can be integrated into your production line, compact, trolley mounted separators that can be wheeled around your plant, large module-mounted separation systems – whatever you need in terms of size, capacity and performance, we have it.

Cleaning:

- Hydraulic oil
- Lubrication oil
- Quench oil
- Compressor oil
- Test bed oil

- Cutting, grinding, honing and lapping oil
- Diesel fuel
- Waste oil
- Wash liquid
- Water
- Water-based grinding liquids
- Coolant
- Paint waste
- Ultra Pure Water (semi-conductors)
- Water de-oiling

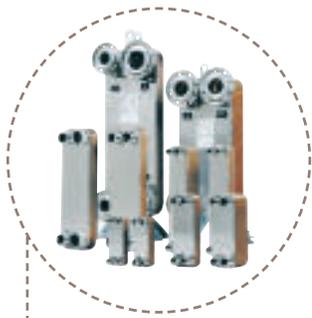




Diabon Plate Heat Exchangers

Platelec®

Liquid Coolers



Brazed Heat Exchangers, BHE

Brazed Heat Exchangers, BHE

Alfa Laval BHEs, in copper or nickel, are designed to handle pressures from full vacuum to 30 bar and temperatures from -160°C to +400°C. Although extremely compact, they offer the same performance as a shell & tube unit three times as large.

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



Dedicated Oil Coolers, DOC™

Dedicated Oil Coolers, DOC™

The Dedicated Oil Cooler, DOC, is an efficient solution for cooling hydraulic oil. Innovative design, combined with low pressure drop over the oil inlet and outlet, ensure the highest cooling effect in relation to flow rate on the market today.

Applications: Hydraulic oil cooling and lubrication oil cooling.

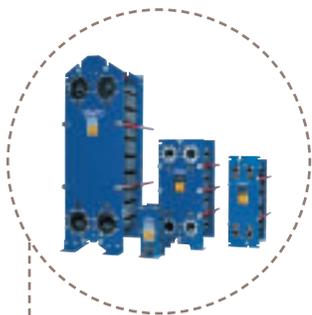


Plate Heat Exchangers, PHE

Plate Heat Exchangers, PHE

In terms of capacity, Alfa Laval gasketed plate heat exchangers, PHEs, take over where the BHE ranges stop. Easy to clean and requiring very little maintenance, Alfa Laval PHEs can be supplied with corrosion-resistant titanium plates for use with aggressive media.

Applications: Cooling of oil, equipment cooling. Process temperature control for a wide range of applications in the manufacturing industries, including surface treatment.



TSM Steam Heater

Steam Heaters, TS-M

Steam heaters in the TS-M Series are 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 shell & tube or conventional plate heat exchangers.

Applications: Space and water heating using industrial steam.

Diabon Plate Heat Exchangers

Diabon, the only graphite plate heat exchanger on the market, utilizes dense, resin impregnated or fluoroplastic encapsulated graphite plate material. Able to handle tough steam heating duties and highly corrosive mixed acids, Diabon opens up new application areas for the PHE.

Applications: Surface treatment, steam heating and cooling of pickling baths, etching of aluminium foils.

Platelec® Electrical Plate Heat Exchanger

In industries such as plastics, efficient thermal control is crucial to product quality. Offering 100% electrical/thermal efficiency, Platelec® provides immediate heating that will give you shorter production cycles and improve your productivity.

Applications: Thermocontroller in rubber and plastics industry, water heating, lubrication and fuel oil heating, steam generation.

Liquid Coolers

Suitable for cooling industrial water, Liquid Coolers are equipped with high efficiency, variable speed fans with specially louvred fins. Power consumption and noise levels are low.

Application: Cooling of industrial water.



AlfaPure Cleaning Module

Alfa Heavy Duty

Basket Centrifuge

AlfaPure Cleaning Modules

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

Applications: Cleaning of hydraulic oil, quench oil, lubrication oil, compressor oil, test bed oil, diesel fuel, coolant, wash liquid and oily water.

Alfa Heavy Duty

Alfa Heavy Duty is the ideal solution for cleaning heavily contaminated waste and lubrication oil. A complete, static system mounted on a module, it comprises a separator and all peripheral equipment.

Applications: Cleaning of waste oil and lubrication oil.

Basket Centrifuges

Alfa Laval Basket Centrifuges are an efficient solution for handling paint waste. Installed as painting booth cleaners in the automotive and other manufacturing industries, they can reduce waste disposal costs by up to 85%. Booth water is recycled. Basket Centrifuges are also an economic alternative for cleaning oils and wash liquid.

Applications: Dewatering of paint waste. Cleaning of oils, grinding coolant and phosphatizing liquids.

Emmie Mobile Separation System

A fully mobile, plug-and-play system, Emmie can be wheeled between oil tanks

in your plant to serve different production stations. Hooked up to your system, Emmie removes nearly 99% of all particles in the 2 µm – 5 µm range. Emmie also removes virtually all water, without removing the additives.

Applications: Cleaning of hydraulic oil, lubrication oil, compressor oil, test bed oil, diesel fuel.

Alfie 400 Mobile Separation System

Using the same concept as Emmie, Alfie separates tramp oil, metal fines and solid particles from your coolants.

Applications: Cleaning of water-based coolants and water de-oiling.

Alfie 200 Mobile Separation System

Specially designed to remove contaminants from coolant in smaller systems, Alfie 200 is a compact unit that is permanently mounted on the coolant tank.

Application: Cleaning of water-based coolant.

Decaners

An efficient solution for dewatering sludge from, for example, painting lines, decaners reduce waste to a minimum and the water can be recirculated. Decaners are also suitable for removing sludge from liquids, such as waste oil, prior to cleaning in centrifugal separators, and for various duties in surface treatment applications.

Applications: Dewatering of paint waste. Removal of sludge from liquids in surface treatment and waste oil applications.



Emmie Separation System



Alfie 400 Separation System



Alfie 200 Separation System

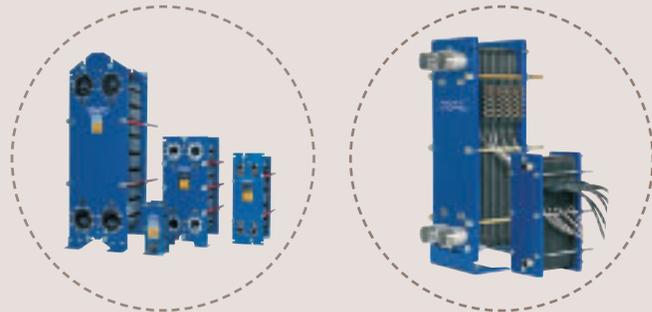


Decanter

Surface treatment

Accurate temperature control for French phosphatizing line

Simpson Technipart, near Lyon, France, manufactures vibration absorption components for the automotive industry. For accurate temperature control in its new phosphatizing line, the company chose Alfa Laval plate heat exchangers.



Part of the global Metaldyne Group, headquartered in Michigan, USA, Simpson Technipart in France has 300 employees engaged in the manufacture of rubber dampers, isolation pulleys and other vibration absorption components for the automotive sector. Customers include major players such as Renault, Ford and Peugeot.

New phosphatizing line

Some months ago, the workshop installed a new phosphatizing line for surface treatment of the components prior to delivery. An Alfa Laval Platelec® V8 electrical plate heat exchanger with an output of 280 kW was installed as a boiler in the primary heating circuit.

After being heated to 80°C by the Platelec boiler, the water enters the secondary circuit incorporating three Alfa Laval M3 FM Plate Heat

Exchangers. These units heat the solutions in the degreasing, pickling, phosphatizing and rinsing baths.

Compact designs, low maintenance

Franck Laramée, the Metaldyne technician responsible for the washing process, explains that Alfa Laval heat exchange components were chosen for their compact designs and low maintenance requirements. “The Platelec takes up little space and gives us continuous efficient performance with low energy consumption. The conventional Alfa Laval Plate Heat Exchangers perform well and are very reliable. The entire system is operating efficiently.”

Cleaning no problem

Franck Laramée is pleased with the low maintenance requirements of the Alfa Laval heat exchangers. “We intend to clean the Platelec once a year as a

preventive measure. For the other plate heat exchangers we have an Alfa Laval Cleaning in Place unit that we can move around the line. We don’t need to dismantle the units, so cleaning them is very easy.”

What does Franck Laramée think of Alfa Laval as a supplier? “We get good service from Alfa Laval and they give us a fast response. In our business, working as a sub-supplier to the automotive industry, this is essential.”

PHEs for surface treatment

Alfa Laval Plate Heat Exchangers are suitable for controlling process temperatures in the following surface treatment applications: Degreasing, pickling, rinsing, phosphatizing, passivating, anodizing, copper plating, nickel plating.



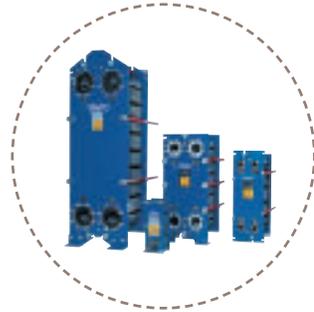
Franck Laramée, responsible for the washing process:
“Alfa Laval plate heat exchangers give us continuous efficient performance with low energy consumption.”





Surface treatment

‘We choose a quality name’



Located near Udine, in Northern Italy, Imel SpA is a leading manufacturer and supplier of surface treatment plants to customers in the manufacturing industries. The company has 40 employees and an annual turnover of 10 M Euro.

Sales Manager Lucio Grillo has been with Imel for 32 years. He explains that Imel has long experience of surface treatment plants for spraying or dipping. “Imel has the know-how and technology to design plants for all kinds of surface treatment. As well as painting lines we supply plants for degreasing, pickling, phosphatizing and other chemical treatments.”



Imel uses Alfa Laval Plate Heat Exchangers as heaters for the chemical treatment baths in its plants. High turbulence over the plate surfaces provides constant stirring of process fluids and minimizes fouling.

Lucio Grillo: “We choose Alfa Laval Plate Heat Exchangers for their quality and because they give us no problems. Also, Alfa Laval is a familiar name in many parts of the world. As a large amount of our production goes for export, it is good for our image to have global sub-suppliers.”

Imel designs plants for degreasing, pickling, phosphatizing and other chemical treatment processes. Alfa Laval Plate Heat Exchangers are installed as heaters in the chemical treatment baths.

Where correct process temperatures are crucial

Plate heat exchangers are an efficient solution for controlling process temperatures in surface treatment, metal plating and anodizing plants in the metal-working, automotive and other heavy engineering industries.

Compact in design, Alfa Laval Plate Heat Exchangers (PHEs) are to a large extent self-cleaning. Tank volumes can be reduced since, unlike submerged coils, they do not steal tank space. Alfa Laval PHEs can be simply adapted for new duties by adding or removing plates.

Surface treatment

‘Alfa Laval PHEs are an efficient solution’

Part of the global Otefal Group, Otefal Ingegneria is located in Cologne, Italy. The company produces plants for painting aluminium coils and profiles, metal plating and anodizing.

Otefal Ingegneria has installed Alfa Laval Plate Heat Exchangers in its plants for many years. Managing Director Mr Di Massimo explains that they are an efficient solution for controlling process temperatures in, for instance, electrolytic baths and tanks used for metal plating and anodizing.

“Correct process temperatures are very important to the efficiency of our plants,” says Mr Di Massimo. “Alfa Laval Plate Heat Exchangers do the job and they are reliable.”

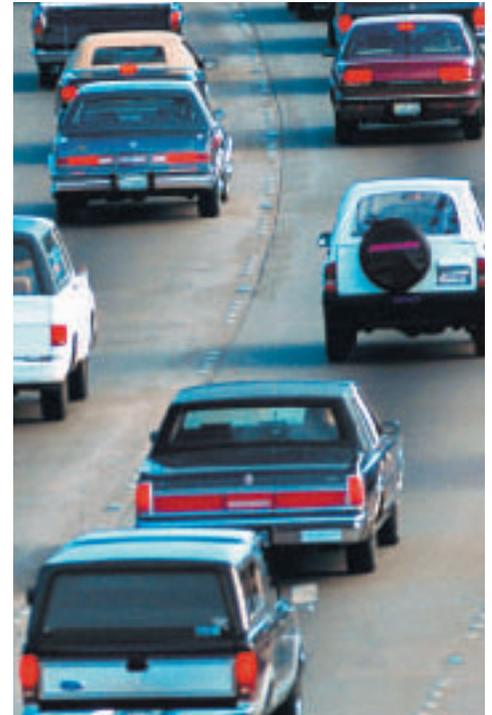
Pasquale Vitiello, Alfa Laval Italy, explains that Alfa Laval also supplies graphite plate heat exchangers. “Our Diabon PHEs (see photo below) with graphite plates and corrosion-resistant gaskets can handle virtually all galvanic baths, including the high temperature types that are extremely corrosive towards metal plates. This makes them the perfect solution for heavy duty anodizing and other tough duties.”



Cleaning service fluids by centrifugal separation

Boosting productivity for the automotive industry

An increasing number of vehicle manufacturers and their suppliers are taking advantage of Alfa Laval's extensive application know-how in the field of cleaning and maintaining service fluids. Higher productivity, lower operating costs and the capability to meet stringent environmental regulations are some of the benefits offered by Alfa Laval.



Maximum uptime

For the automotive industry worldwide, being competitive means cutting costs and increasing productivity. Vehicle assembly plants, engine builders, component manufacturers and other suppliers to the industry all rely on service fluids to keep production running smoothly.

When contaminated, coolants, hydraulic oils, lubricating oils and wash liquids cannot fulfill their intended functions. This means headaches for the plant manager in the form of rejects on the production line, unplanned downtime, and high costs for fluid disposal and replacement.

Know-how and technology

Alfa Laval offers extensive application know-how in this field. The company's innovative technology, based on centrifugal separation, has proved to be by far the most efficient method of cleaning industrial fluids. Compared with competing technologies such as filters, vacuum purifiers and skimmers, centrifugal separation can extend the life of service fluids in a plant many times over.

Plug-and-play systems

Alfa Laval supplies a complete range of compact, dedicated, plug-and-play separation modules for cleaning service fluids. Many are mobile and can be wheeled from station to station. The separators are often installed in bypass systems. The result is a drastic reduction in filter consumption.

Short payback times

Bo Grauers, Regional Sales Manager, Fluids & Utility Equipment, Alfa Laval, explains that although centrifugal separation systems involve a higher initial investment, payback times are short.

"Most automotive plants run three-shift production with high service levels for the equipment. With our systems installed, the number of rejects is drastically reduced, downtime due to failure of service liquids is eliminated and productivity increases.

"A feasibility study conducted by Alfa Laval at one of America's big three automakers showed that by installing centrifugal separation systems to clean

service fluids, the plant could eliminate nearly all unplanned production stoppages, reduce overtime and raise productivity by 30%," relates Bo Grauers. "The entire investment would pay for itself in just four months."

Meeting environmental standards

Environmental regulations governing recycling and disposal of industrial fluids in factories get tougher every year.

ISO 14000 limits the release of contaminants into the external environment by stipulating a permitted minimum level of recirculation.

Preferred technology

The design centres of major vehicle manufacturers are increasingly specifying Alfa Laval separators to achieve a higher degree of recirculation in their coolant and wash liquid systems.

"Using Alfa Laval cleaning systems it is possible to extend the life of wash liquids by up to six times," says Bo Grauers.



“The life of cutting fluids can be prolonged indefinitely – losses must be replaced but it’s not necessary to replace the liquid completely.”

Recycling means major savings

By recycling, a large automotive plant in northern Europe has reduced its annual consumption of cutting oil by 25 m³ and achieved considerable savings in terms of oil disposal and replacement costs.

Handling paint waste

Alfa Laval also supplies a centrifugal decanter system for paint waste. The paint sludge is dosed with polymers and dewatered in the decanter. Most of the water is removed and can be recirculated in the system. The paint sludge is reduced to 40-50% dry solids, providing a major reduction in disposal costs.

‘Nonstop performance’

Alfa Laval is a global company. Wherever vehicles or components are manufactured, Alfa Laval is there, striving to reach its overall goal: “nonstop performance” for automotive customers.

Preventive maintenance plays a key role. Alfa Laval offers comprehensive parts and service agreements covering all Alfa Laval systems in the factory. These eliminate the risk of downtime due to failure of service fluids, providing peace of mind for plant management personnel.

Global partner

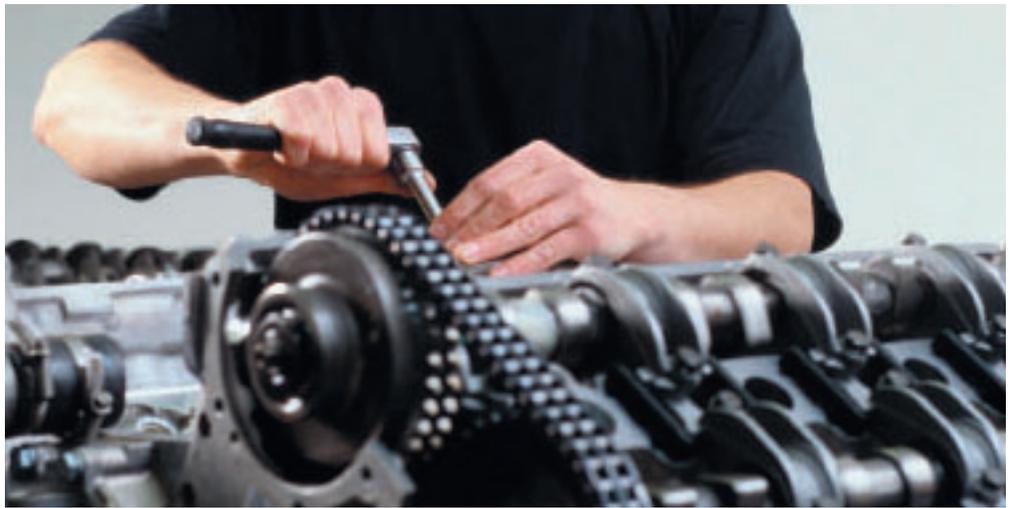
Bo Grauers sees a bright future for Alfa Laval as a global partner to the automotive industry. “Demand for our centrifugal separation systems is growing in pace with the introduction of increasingly stringent environmental regulations for recycling and waste management. The industry knows our products can handle the job,” he concludes.

Alfa Laval in the automotive industry

Cleaning systems for:

- Coolants
- Hydraulic oils
- Lubrication and other oils
- Wash liquid
- Paint waste

Plate heat exchangers for heating/cooling of service fluids.



Coolant and wash liquid cleaning

Alfa Laval prolongs coolant and tool life at Uni Boring

In the US Alfie 400 and AlfaPure coolant cleaning systems are saving Uni Boring money by extending the life of the coolant, the machine tools and the cutting tools. Uni Boring also spends less on tramp oil disposal.

Uni Boring machines engine blocks and other components for major auto-makers. Service Manager Steve Brodersen remembers the old days. “Problems with the coolant filtration systems often meant that someone had to climb into the system to clean out the fine solids and oils that had coated the filter.”

Since installing Alfie 400 and AlfaPure systems, Steve Brodersen says he’s rested better at night because Uni Boring now has cleaner coolant. “You can tell the difference inside the machine tools. We’ve had no problems. That’s the goal.”

One AlfaPure saves USD 145,000

By efficiently cleaning the coolant, and thus extending its useful life, one of the AlfaPure modules saves about USD 145,000 a year, says

Dennis Russ, Uni Boring’s vice president of manufacturing.

Tramp oil disposal costs reduced

Cleaner, longer-lasting coolant extends the life of machine tools and cutting tools and reduces downtime. The company also saves money through lower costs for tramp oil disposal.

Last year Uni Boring invested in an AlfaPure 2000 wash liquid module for cleaning post-machining wash liquid. Dennis Russ is happy with its performance. Once each head is bored, it must be cleaned of any remaining coolant, oils and shavings. “The water gets dirty quickly in the wash cycle,” he said.

“The Alfa Laval centrifuges have eliminated some headaches for us.” concludes Steve Brodersen.

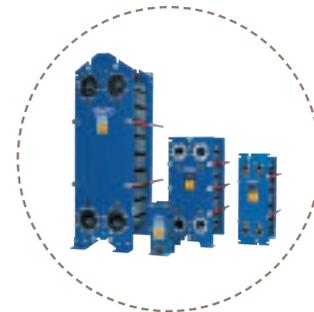




Production of semi-conductors and printed circuit boards

Accurate temperature control, a crucial factor

Process Automation International Ltd., PAL, Hong Kong, designs and supplies equipment for manufacturing semi-conductors, printed circuit boards and various electroplating applications. PAL has chosen to integrate Alfa Laval Plate Heat Exchangers into its systems since the mid-eighties. Chemical Engineer Peter Young explains why.



With subsidiaries and associated companies in key locations throughout the world, Process Automation International Ltd. supplies machines to manufacturers of power chips and high-density printed circuit boards. These electronic components are used for everyday applications ranging from vehicle airbags to computer disc drives.

Sensitive process

Former PAL employee Peter Young now has his own consultancy, ILEX Projects, and works closely with PAL. He emphasizes that the manufacture of semi-conductors is a highly sensitive process. "Product quality depends to a large extent on accurate temperature control

of process water and the solution used to deposit metal on the substrate. "For this reason PAL often purchases PHEs from Alfa Laval with plates in non-standard steel alloys, supplied with gaskets in chemical-resistant materials. Recently, Alfa Laval has supplied PAL with a large number of M6MFL plate heat exchangers with corrosion-resistant titanium plates.

Clean plates crucial

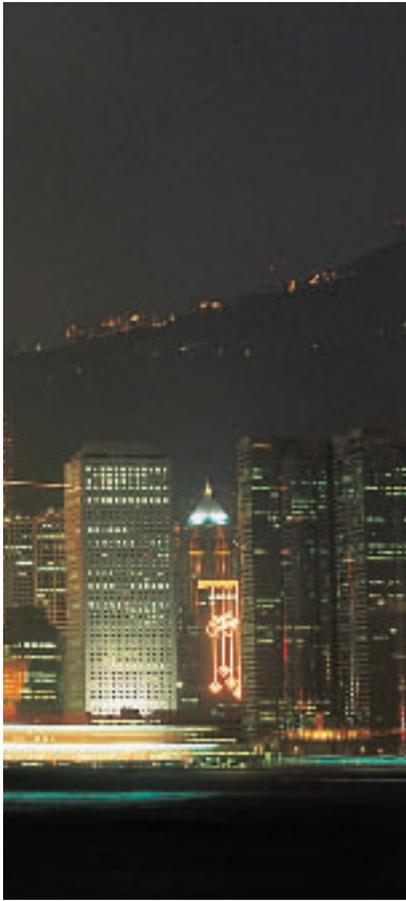
"Alfa Laval provides good technical assistance," says Peter Young. "PAL supplies the chemical specifications for the process and Alfa Laval recommends a material for the heat exchanger plates that will ensure reliability and a long

service lifetime. The plates must also stay clean because any contamination reduces the heat transfer coefficient."

The herringbone pattern on the plates in Alfa Laval plate heat exchangers creates a high level of turbulence over the heat transfer surfaces. This in turn ensures a high heat transfer coefficient and reduces fouling to a minimum.

Tighter temperature specifications

Peter Young points out that PAL's customers and their chemistry providers demand ever tighter temperature specifications. "In the past we used cooling coils which were not so accurate. Nowadays, you get a high intensity



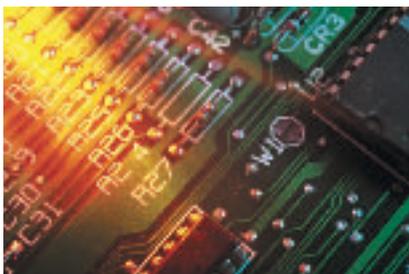
Alfa Laval PHEs installed in PAL's semi-conductor manufacturing operation in Shenzhen, near Hong Kong.

process in a small body of liquid, and control parameters are much closer. The high heat transfer coefficient of Alfa Laval Plate Heat Exchangers is very important in this respect.”

Compact designs important

Another important factor for PAL is the footprint of its machines. “You can supply the best machine in the world but if it takes up too much space no one is going to buy it. The compact designs of Alfa Laval Plate Heat Exchangers allow PAL to integrate them easily into the machines.”

Peter Young says that PAL's aim is to deliver machines that work. He agrees that the quality of Alfa Laval equipment aligns well with PAL's overall objective: “To strive continuously to provide our customers worldwide with quality systems and services that meet or exceed their requirements.”



For the electronics sector Alfa Laval also supplies:

- Nickel brazed heat exchangers for cooling demineralized water for lasers, x-ray units and computers
- PHEs for cooling ultra-pure water (UPW)
- Separators for cleaning of wash liquid in wafer production
- PHEs for electroplating

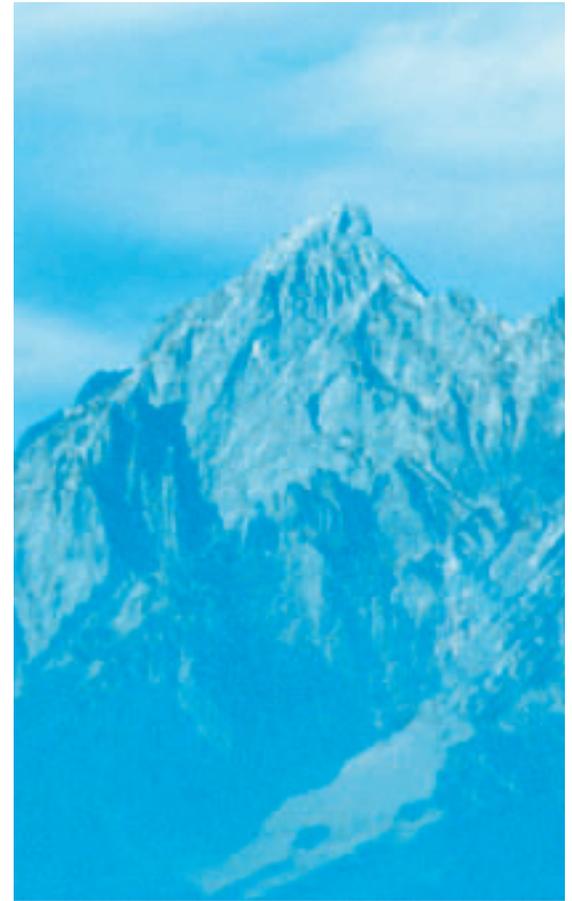
PAL – a global operation

Process Automation International Ltd.'s modern headquarters are located in Hong Kong. The company's main manufacturing operation is situated in a 170,000 sq. ft. facility in Shenzhen, near Hong Kong.

Other operations include IML, Taiwan, which builds horizontal processing and handling equipment, and Beijing Golden PAL, building plating lines for the northern China market.

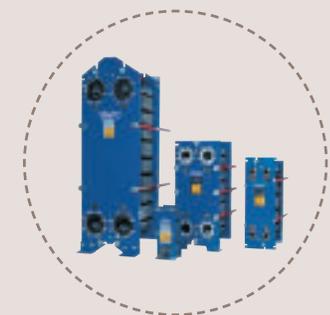
PAL has service centres in the USA, the UK, Singapore/Malaysia, the Philippines, Thailand, Taiwan, Shanghai and various cities in China, in addition to the Hong Kong headquarters.

Customers include: Motorola, Ericsson, IBM, Hitachi, Via Systems, Multek, Wus PCB.



Oil heating

Beating the cold in Kazakhstan



Transporting oil in a cold climate can be tricky. At an oil terminal in Kazakhstan, oil heaters incorporating Alfa Laval Plate Heat Exchangers solve the problem.

The problem arises during unloading. At -10°C, oil becomes a stiff, non-fluid medium. This is the case in Kazakhstan, where Alfa Laval Plate Heat Exchangers have been installed.

The system was built for the oil terminal by Polarteknik PMC Oy, which designs modular oil heaters for crude and heavy fuel oil. The heaters are specially constructed for unloading cold oil from railway wagons.

Cleaning of lubricating oil

No more oil contamination problems at Fundia Dalsbruk

Contaminants in the lubrication oil at Fundia Dalsbruk steel mill, Finland were costing large sums of money in downtime and replacement oil. The installation of an AlfaPure module solved the problem.

Jan-Henrik Sundqvist is responsible for rolling mill maintenance at Fundia Dalsbruk, Finland. Here steel billets weighing more than 1,400 kg are processed into rolls of wire up to several kilometres in length.

Water and lye in the oil

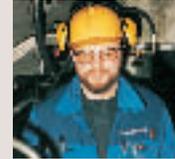
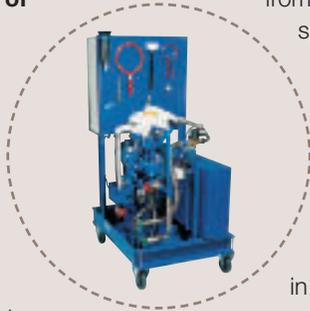
A serious problem at the mill was contaminants, such as lye, entering the oil which lubricates the gearboxes and rollers. "We use lye in the cleaning

system to check the pH values of the water," explains Jan-Henrik, "and water from the cooling system splashes into the oil as it cools the gearboxes." The lye enters and contaminates the oil system. If not removed, it quickly destroys the bearings.

"We have 17,000 litres of oil in circulation which should normally need replacing about every five years. But the amount of water and contaminants in the oil is so high that we have had to replace it every twelve months."

AlfaPure solved the problem

The solution was an AlfaPure oil cleaning module capable of removing water and particles between 2 µm and 5 µm. "The



"The AlfaPure cleaning module has been running problem-free since the day it was installed," says Jan-Henrik Sundqvist.

system has been running problem-free since the day it was installed," says Jan-Henrik. "It runs 24 hours a day and removes all dirt and water from the oil."

The separator bowl is a solids retaining type. It is cleaned on average every two weeks. "We remove between 400 and 700 grams of lye and other contaminants. That shows how much lye has been fouling the oil system and destroying the bearings. The savings in time and money have been considerable!"

Cleaning of hydraulic oil

Small separator – big contribution!

By using Emmie to clean the oil in its hydraulic pump units, Internordisk Spännarmering has cut filter consumption, and oil disposal and replacement costs.

Typical products for Internordisk Spännarmering are large-scale bridge modules, which are pressed together by armoured cables to withstand high loads. The tensioning of the cables is achieved by means of large hydraulic pumps and the company has more than



100 pump units on construction sites throughout Scandinavia. Years ago, condensation was a major problem. Hydraulic pump units in operation outdoors would soon have their oils mixed

with water. Even worse, in low temperatures ice would form in the oil. Dirt particles were another problem. The company had to spend considerable sums on frequent oil filter changes, and was throwing away large amounts of contaminated oil.

Emmie to the rescue!

To solve these problems, the company purchased an Emmie hydraulic oil cleaning system. Emmie is a plug-and-play, trolley mounted centrifugal separation system that can easily be wheeled from tank to tank.

Emmie removes all dirt particles and reduces the amount of water. A typical situation: after cleaning with Emmie for just one hour, the water content of the hydraulic oil is reduced from 4% to just 58 ppm.

PHOTO: BERTIL HAGBERG/PRESSENS BILD



Inaugurated on July 1, 2000, the Øresund Bridge linking Sweden with Denmark is 7.8 kilometres in length. The total volume of cement used during construction was 320,000 m³.

Cleaning of wash liquid

Twice the volume, double the service life

Yudigar SA, one of Spain's largest producers of shopfittings, solved its problems with contaminated wash liquids by installing an AlfaPure 2000 module. The AlfaPure has doubled the service life of the wash liquid and saved the company considerable sums in disposal costs.

Yudigar SA manufactures fittings and shelving made of sheet metal. One of the most important stages in the process is cleaning the fittings prior to painting and finishing.

The company's old cleaning system had a capacity of 14,000 litres of wash liquid. The liquid was so full of contaminants that it had to be changed every three months and transported to a waste water company for disposal. Also, the company did not meet the strict requirements of the European Union relating to discharge of contaminated water.

Mobile module

Yudigar solved the problem by installing an AlfaPure 2000 mobile separator module to clean the water and remove the old oil and sludge. At the same time, cleaning capacity was doubled by installing a second cleaning system with a capacity of 16,000 litres.

Barcelona, Spain. Located in Zaragoza, in the east, Yudigar SA, supplies sheet metal shopfittings to customers throughout southern Europe.

AlfaPure 2000

- A complete module, simple to install, easy to use.
- Requires less than 1 m² of floor space.
- Handles tank volumes up to 100 m³.
- Removes all traces of contaminating oil, grease and solid particles from wash liquids and coolants.

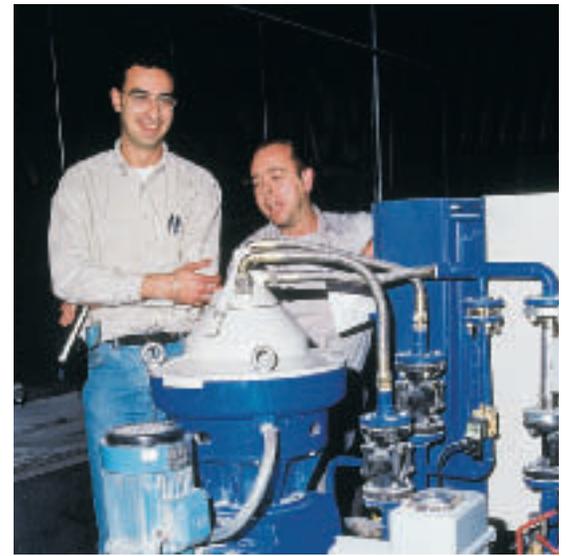
Although the total volume of wash liquid in the plant has doubled to 30,000 litres, the AlfaPure module has doubled the service life of the wash liquid to six months.

Fernando Ibor, head of maintenance and general installations for the factory: "Our AlfaPure 2000 enables us to comply with ISO 14000 and we no longer pay to have the wash liquid removed from the premises.

"The separator is self-cleaning. It flushes the sludge into one tank and the oil into another. In the first year, it removed seven tons of sludge and 2.5 m³ of oil. The oil is sent to an incineration plant and the water is discharged as effluent in the normal manner."

Two systems in parallel

Yudigar runs the old and the new washing systems in parallel. As soon



Fernando Ibor (left), head of maintenance and general installations for the factory: "In the first year, the AlfaPure removed seven tons of sludge and 2.5 m³ of oil!"

as the level of contaminants starts to rise, the separator is connected to the system and run for two days. When it's time to clean the liquid in the other system, the AlfaPure 2000 is simply wheeled from one system to another and plugged in.

"We clean the module once a week and have a maintenance agreement with Alfa Laval for servicing and repairs," concludes Fernando Ibor.





Continental Tyres, Gislaved, Sweden produces about 4 million tyres per year, 80% of which are exported. Installing BEAX Hydraulik equipment enabled Continental to achieve a substantial increase in production. Right: Benny Jonasson, Managing Director, BEAX Hydraulik, Sweden.

Hydraulic oil cooling

DOC™ – developed with our customers

The innovative design of the Dedicated Oil Cooler, DOC™, is partly due to Alfa Laval’s close relationship with its customers. Benny Jonasson contributed his experience of building hydraulic systems to the development of this unique brazed heat exchanger.

“I was particularly interested in the features that facilitate the integration of the oil cooler with the rest of the hydraulic system,” says Benny Jonasson. Managing Director of BEAX Hydraulik, Sweden.

No more damaged connections

“For me, the DOC’s most important feature is the stainless steel mounting block brazed onto the cover plate. With many conventional BHEs the oil and water connections can be damaged by applying too much torque. With DOC units all connections are made to a stainless steel block, that allows a good spanner grip and high tightening torque to be applied when installing the unit.”

Vibration minimized

Benny Jonasson also appreciates the shelf-type support bracket. “In conjunction with the two tapped holes in the stainless steel mounting block, the bracket can be used to hold the DOC firmly in position on the hydraulic system or an adjacent wall. This feature minimizes vibration which can cause metal cracks or splits over the long term.”

The DOC series also offers optional in-line control of temperature and pressure. Nipples brazed onto the back plate permit periodic performance checking, without interrupting operation of the equipment.



“A simple yet effective way of saving time and effort,” points out Benny. “If there are no nipples, it can take us half a day to attach measuring instruments to check the performance of the hydraulic system. With a DOC unit fitted with nipples we can attach the instruments directly.”

‘A well thought-out product’

“All in all, DOC is a well thought-out product and it gives me personal satisfaction to have contributed to its development.”

DOC – state-of-the-art oil cooling for:

- Hydraulic and lubrication systems
- Power packs and filter cooling units
- Heavy gears and other transmission equipment
- Pressing machines
- Compressors

Steam heating

'A world-first product'

UK-based Spirax Sarco is the world leader in steam technology and sales. Its compact steam heater, Easiheat™, is arousing keen interest in the German manufacturing industries. At the heart of the unit is Alfa Laval's TS6M plate heat exchanger.



Dean Tomlinson, Group Business Manager, Heat Exchange Packages, Spirax Sarco, explains that his company has the know-how and experience to add value to Alfa Laval's heat exchange components.

He sees Easiheat™ as a breakthrough. "In the past, for steam you used shell & tube heat exchangers. Plate heat exchangers have traditionally utilized the fluid-to-fluid principle. The TS6M allows us to compete with shell & tube technology using steam heaters one-third the size and less expensive."

Water heating using industrial steam

The TS6M from Alfa Laval is the only plate heat exchanger designed specifically for use with steam. Equipped with heat seal gaskets, the TS6M handles temperatures up to 180°C.

A world-first product!

"Alfa Laval's TS6M heat exchanger is a good example. It is the only plate heat exchanger designed specifically for steam use and, as such, is a unique, world-first product. It is the core component of our successful range of steam heat exchange packages.

"We have integrated the TS6M with Spirax Sarco steam and condensate control equipment to form a complete unit for the control and efficient use of steam. It's a combination of perfectly matched components."

Arousing interest in Germany

Easiheat™ is arousing keen interest in the German market. Keith G. East, General Manager, Spirax Sarco GmbH, Konstanz, points out that people often underestimate the role of steam as a heating medium.

"Most manufacturing processes need heat and the most efficient way of transporting heat around a system is steam."

Based in Cheltenham, England, since 1937, Spirax Sarco is the world leader in steam trap technology and sales. The company employs 3,500 people in 35 companies around the world.

Easiheat™, Spirax Sarco's compact steam heater, is arousing keen interest.

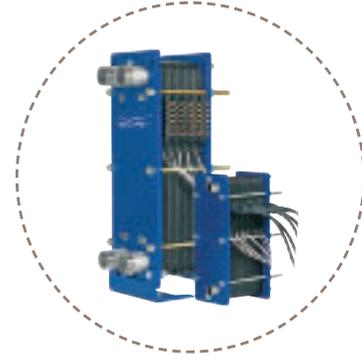


PHOTOS: COURTESY OF SPIRAX SARCO

Thermocontroller

Precise temperature control for a perfect end-product

For the plastics industry, precise process temperature control means shorter production cycles, higher productivity and a perfect end-product. French system builder Parmilleux designs and manufactures thermocontrollers incorporating Platelec®, a high-performance electrical plate heat exchanger from Alfa Laval.



Configured as a thermocontroller, Platelec can both heat and cool fluids. It comprises an electrical block, a channel for the heat transfer fluid and a channel for the coolant, one after the other.

100% thermal efficiency

Since the turbulent flow in the unit increases the heat exchange coefficient and makes it possible to reduce the temperature of the wall, thermal efficiency is 100%.

A true Alfa Laval partner

Parmilleux, with 23 employees, is located in Vaulx en Velin, near Lyon. The company has incorporated Platelec heat exchangers in its thermocontrollers for more than five years, using the V2 size

with EPDM and Viton gaskets – water controlled (90°C and 140°C) and oil controlled (180°C).

Precise temperature control

Why does Parmilleux choose Platelec? Mr. M. Schroeder, General Manager of Parmilleux says: “The very small temperature difference between the Platelec blocks and the fluid to be treated means precise temperature control and gentle treatment for fluids.”

Compact design

Platelec’s size is another important factor. “Incorporating Platelec, we design compact thermocontrollers that can be located close to presses and moulds,” explains Mr. Schroeder. “Also, maintenance is

simple, which is a benefit for our end-customers. The plates can be accessed by removing the tightening bolts.”

Parmilleux also manufactures steam generators incorporating the Platelec V8 version. “The key factor is high thermal performance,” concludes Mr. Schroeder.

Alfa Laval in the plastics industry

- BHE, DOC and PHE for thermocontrollers and mould cooling
- BHE, DOC and PHE for oil cooling in hydraulic presses
- Emmie separators and larger separation modules for cleaning hydraulic oil



Mr. M. Schroeder, General Manager of Parmilleux: “Incorporating Platelec, we design compact thermocontrollers that can be located close to presses and moulds.”



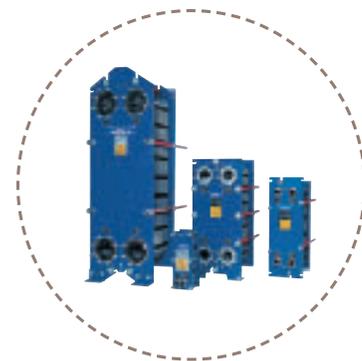


Plate heat exchangers from Alfa Laval continuously remove excess heat from the process at Sarkuysan, Turkey.

Industrial cooling

Efficient process cooling for Turkish wire producer

Copper wire producer, Sarkuysan Electrolytic Copper and Trade, Turkey, has 90 Alfa Laval Plate Heat Exchangers providing crucial cooling for the company's sophisticated production process.



Sarkuysan Electrolytic Copper and Trade is one of Europe's giants in the production of copper wire. About 110,000 tonnes are produced annually in state-of-the-art workshops near Istanbul. Key components are plate heat exchangers, PHEs, from Alfa Laval that continuously remove excess heat from the process.

Cooling crucial

"Our manufacturing process generates huge amounts of excess heat, and it is crucial to cool our production lines in a

reliable, cost-effective way," says Huseyin Gencay, Plant Manager at Sarkuysan.

An annealed wire rod of up to 8 mm in diameter is used in the production of copper wire. The wire is then drawn through numerous dies, each step reducing the cross sectional area by about 20%.

The dies are submerged in a water and oil emulsion, which is circulated through the Alfa Laval Plate Heat Exchangers.

This sophisticated production method enables the wire to be drawn down to 0.05 mm in diameter.

Strong local support

"We have more than 90 Alfa Laval PHEs in operation today. They are high technology products performing optimally. Combined with strong local technical support, they give us peace of mind when it comes to cooling our machinery and thus securing maximum quality," says Huseyin Gencay.

Your partner in Nonstop Performance



PHOTO: CORBIS

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 process and applications.



PHOTO: BRIAN POULSEN

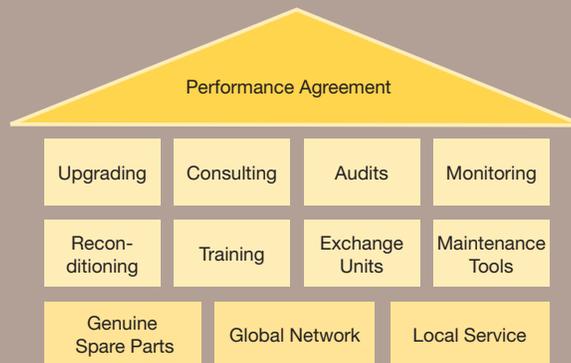
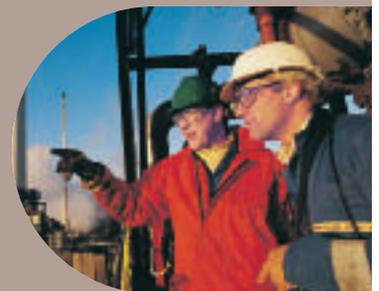
It goes without saying that our global parts and service organization provides service, repairs and spare parts around the clock. But for us service has a wider perspective.

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.

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 at short notice
- Repairs and reconditioning at our Service Centres worldwide
- On-site service
- Preventive maintenance that eliminates unforeseen breakdowns
- Technical advice and trouble-shooting
- Reconditioning service for plate heat exchangers
- Tools, Cleaning Chemicals and Cleaning in Place equipment
- Personnel training
- Performance Agreements



Alfa Laval's "full house" of service offerings

Alfa Laval in brief

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

Our equipment, systems and services are dedicated to assisting customers in optimizing the performance of their processes. Time and time again. We help them 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

Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information.

