



# State-of-the-art heating, cooling and cleaning

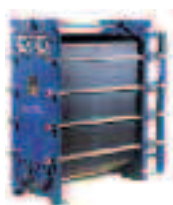


Plate Heat Exchanger, PHE



Braze Heat Exchanger, BHE



Spiral Heat Exchanger, SHE



AlfaNova

## Heat exchangers

Alfa Laval heat exchangers come in a variety of materials, sizes and capacities, from the smallest brazed unit to the largest gasketed and welded units, or the new AlfaNova plate heat exchanger. Whatever your application, Alfa Laval has the right heat exchanger for your specific heating needs.

### Plate Heat Exchangers, PHE

In terms of capacity, Alfa Laval gasketed plate heat exchangers, PHEs, take over where the compact brazed heat exchanger 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.

*Suitable for most duties*

### Braze Heat Exchangers, BHE

Alfa Laval braze heat exchangers are designed to handle pressures from full vacuum to 30 bar and temperatures from  $-160^{\circ}\text{C}$  to  $+400^{\circ}\text{C}$ .

*Suitable for most duties*

### Spiral Heat Exchangers, SHE

Spiral heat exchangers are highly effective in handling sludge, liquids with solids or fibres in suspension, including slurries, and a wide range of viscous fluids.

*Suitable for duties with dirty fluids*

### AlfaNova

AlfaNova is a new type of plate heat exchanger constructed of 100% stainless steel using AlfaFusion, a unique bonding technology that provides high temperature resistance (up to  $550^{\circ}\text{C}$ ) and an exceptional level of hygiene. Copper-free, AlfaNova offers unmatched corrosion resistance. Risk of corrosion caused by elevated levels of chloride and sulphate in the cooling water is eliminated.

*Suitable for applications with high demands on cleanliness, that use ammonia, or where copper or nickel contamination is unacceptable.*

## Centrifugal cleaning modules and systems

Alfa Laval centrifugal separation systems come in a wide range of sizes and capacities. 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, we have it.

### AlfaPure Cleaning Modules

AlfaPure is a range of advanced mobile modules for cleaning water or oil-based fluids. Each module is a complete system that includes a separator and



# solutions from the technology leader



AlfaPure Cleaning Modules

utility equipment. Innovative designs ensure highest separation efficiency. The equipment is easy to operate with minimum space and service requirements.

*Applications: Cleaning of coolants, wash liquid, straight/neat oil, hydraulic/quench/lubrication/compressor/test bed oil, or oily water.*



Emmie and Alfie Mobile Separation System

**Alfie 500 Mobile Separation System**  
Alfie 500 is a complete, compact mobile system, including separator, feed pump and control system. Alfie 500 separates tramp oil from the coolant as well as metal fines and solid particles down to 1 µm. Alfie 200 is designed for permanent mounting on the coolant tank.  
*Applications: Cleaning of water-based coolants.*



Decanter

**Emmie Mobile Separation System**  
A fully mobile, plug-and-play cleaning system for oils, Emmie removes nearly 99% of all particles in the 2 µm–5 µm range. The system also removes virtually all water, without removing the additives.  
*Applications: Cleaning of hydraulic oil, lubrication oil, compressor oil, test bed oil, diesel fuel.*



Basket Centrifuges

Decanters are also suitable for removing sludge from service fluids, 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 coolants/oils.*

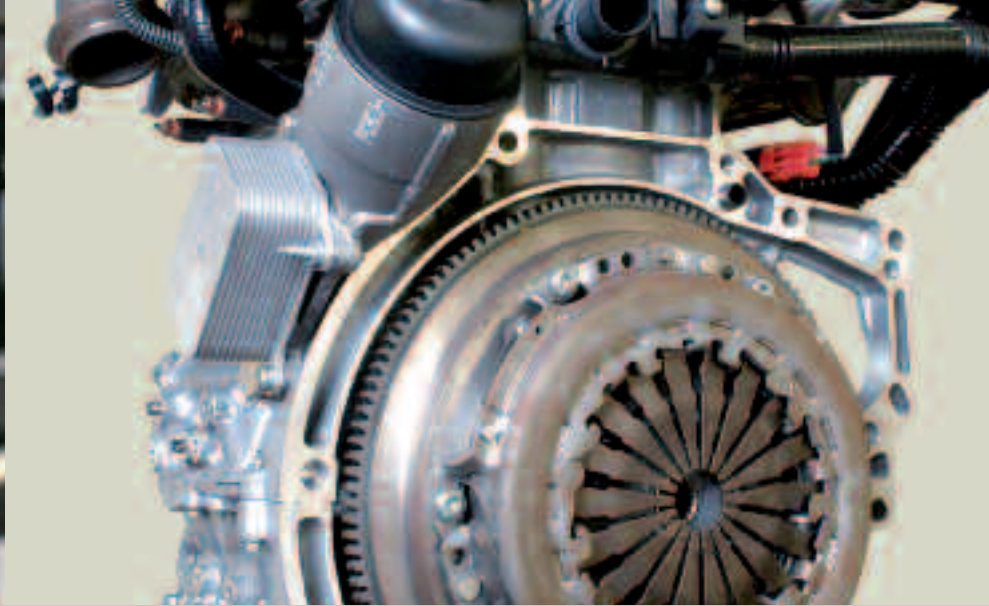
### Basket centrifuges

The TSK Basket Centrifuge has been specially developed for the clarification of different types of fluids; cutting or grinding coolants and oils, wire drawing fluids, paint waste water, and waste oils in small and medium-sized operations.

*Applications: Dewatering of paint waste; cleaning of oils, grinding coolant and phosphatising liquids.*

### Alfa Laval Parts & Service

- More than 70 service centres worldwide
- Regional spare parts distribution network
- Global inventory management and fast delivery of standard parts
- Wide network of distributors and service partners



# heating, cooling and cleaning of service fluids

## Cleaning of service fluids

How do you clean your service fluids? Skimmers, filters, lamella separators, coalescers? Perhaps you use ultra filtration - all these methods have their disadvantages. They are either inefficient or they generate high operating costs. Cleaning by high-speed centrifugal separation, using separators or decanters, is not only highly efficient, it will reduce your operating costs as well!

### Less tool wear, improved end-product quality

Since cleaning by centrifugal separation is highly efficient, removing water, abrasive metal fines and other particles as small as 2  $\mu\text{m}$ , your machine tools give much longer service before wearing out. This means considerably lower tool replacement costs. Reduced tool wear also results in more precise machining and, fewer rejects.

### Increased uptime in your plant

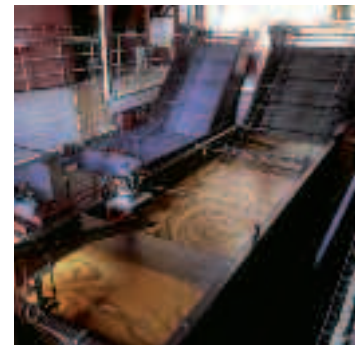
Clean service fluids mean longer production runs without tool changes. Also, fewer breakdowns due to solid particles clogging pumps and other equipment. Since Alfa Laval separators are normally installed in a bypass system, other benefits include more efficient utilisation of machine tools and fewer stops for tank cleaning.

### It benefits your workforce and the environment

Efficient cleaning and recycling of coolants, wash liquids and oils with an Alfa Laval cleaning system inhibits growth of micro-organisms in the service fluids. This ensures cleaner, healthier working conditions in your plant. It also reduces the impact of plant operation on the external environment.

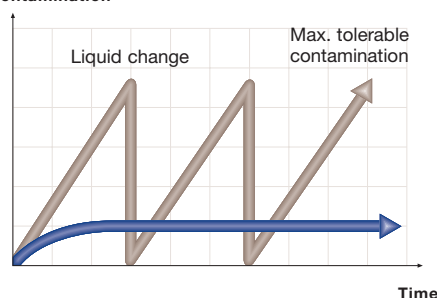
### Fast payback

In a nutshell, having clean service fluids all the time means lower purchasing and disposal costs for fluids, more production uptime, and reduced wear and corrosion on the equipment served. The payback time for an Alfa Laval separation system is therefore surprisingly short, often less than one year.



Tramp oil floating on the surface of coolant.

Contamination



■ Without cleaning  
■ Continuous separator cleaning



### 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  $\mu\text{m}$ , 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  $\mu\text{m}$ .



### 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  $\mu\text{m}$ –5  $\mu\text{m}$  range.

## Compact hydraulic oil cooling and cleaning

Depend on Alfa Laval for:

- Global reach
- Quality products
- Prompt delivery
- World-class customer service
- Round-the-clock technical support



### Solutions for all sizes

Whatever cleaning regimen you require, Alfa Laval probably has a solution to meet your needs. As separation technology experts, Alfa Laval has 20 different separators with a wide range of capacities for tank sizes of up to 50 m<sup>3</sup>. These remove particles in accordance with ISO cleanliness code 13/11/8.



Modular, fully integrated oil cleaning systems, Alfa Laval's compact oil cleaning units provide "start-and forget" operation.

### Partnership for peak performance

Cooling and cleaning hydraulic oil is essential to ensuring peak hydraulic system performance. For all of your hydraulic oil cooling and cleaning needs, you can depend on Alfa Laval as your single supplier.

Alfa Laval offers a comprehensive range of products, unparalleled application expertise and round-the-clock technical service and support. Quality, performance and convenience are key characteristics for all of our cooling and cleaning solutions. Our engineers develop innovative solutions for all types of industrial hydraulic applications and constantly improve these solutions.

For performance, convenience and flexibility, count on Alfa Laval for prompt delivery of compact hydraulic oil cooling and cleaning solutions. Whether designing new systems or retrofitting existing ones, Alfa Laval can help you maximize uptime, extend the service life of your system and ultimately contribute to customer profitability.



## Emmie.2

### Separator system for cost-effective cleaning of oil

Using high-speed centrifugal separation makes it possible to increase the reliability of the oil system and extend the service life of your oil. Alfa Laval's disc-stack separators provide fast, efficient, simultaneous three-phase separation of water and particles.

Emmie.2 removes more than 99 percent of all solid particles between 2 and 5  $\mu\text{m}$  from the oil, and virtually all of the water but none of the additives. It effectively separates airborne dust and undesirable particles from wear on paint, metal, plastic or rubber components from the oil. It also removes water that causes additives to oxidise and decompose, too.

Emmie.2 removes contaminations from many different types of oils whether hydraulic or lubricating oil, compressor or gear oil, cutting or diesel oil. The result is lower costs due to prolonged service life of the oil and less disposal of filters and oil.

Emmie.2 is a complete compact system, including separator, feed pump and control system. The control panel makes it easy to operate. The unit is installed in a bypass system and operates continuously.

#### User-friendly operation

Operator convenience is a key parameter in the design of the Emmie.2. The PLC-based control system is operated by means of a control panel. The symbols and messages in clear text are easy to understand. Quick couplings make it easy to connect the hoses when the cleaning unit is moved from tank to tank.

With its compact and ergonomic design, Emmie.2 is easy to move across the workshop floor. And you can use it to serve several tanks or just one.

- 1 Solid particles accumulate inside the rotating bowl. When the bowl requires cleaning, it can be opened with a few simple operations.
- 2 When the separated water has reached a certain level in the collecting tank, a micro switch is activated, stopping the cleaning process and turning on an indicator light.



- 3 The surface of the rotating bowl is coated with a material that is 12 times harder than steel.
- 4 Large wheels make it easy to move Emmie.2 even when the floor is not entirely smooth.
- 5 The system incorporates a built in electric heater, which heats the oil to reach optimum viscosity prior purifying.

**Meeting your needs**

To meet all your needs, Alfa Laval offers a wide range of stationary or mobile separator systems for all types of fluids. Our offering ranges from systems with capacities suitable for smaller workshops to larger systems designed to clean complex and heavily contaminated fluids.

Our global organization guarantees easy start-up and, if you need a helping hand, an Alfa Laval service engineer is always close by. To support your operations further, Alfa Laval has a network of distributors and service partners who are always available to assist you.

We call this Nonstop Performance.

**Technical data**

**Capacity**

Max flow, 50/60 Hz	200 l/h (0.88 gpm)
Sludge space	0.6 l (0.16 gal)

**Fluids requirements**

Viscosity at separation temperature	Max 40 cSt*
Max. separation temperature	70°C (160°F)
pH value	6–9

**Electrical data**

Voltage	230 V or 100–230 V**
	Single-phase (±5%)
Frequency	50/60 Hz
Amperage (at 230/110 V)	10/16 A

**Weight**

Without heater	60 kg (130 lb)
External heater	34 kg (75 lb)
With heater	100 kg (220 lb)

**Dimensions**

	With heater	Without heater
Length	630 (25")	615 (24 1/2")
Width	680 (27")	520 (20 1/2")
Height	1130 (45")	1130 (45")

\* For higher viscosity oils the oil is heated to reach suitable viscosity.

\*\* Only with optional external heater

Emmie.2 is delivered complete with stand, collection tank for separated water, dive tubes, hoses, service tool kit and instruction book.



The unit is equipped with two dive tubes (left) for suction and return of the oil. Optional is a tank filler device (right) with quick couplings.



The user-friendly control panel. Just choose oil viscosity, press the start button and the system operates without supervision.

**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)



# Alfie 500 for cost-effective cleaning of coolants

## Separator system

Using high-speed centrifugal separation makes it possible to extend the life of your service fluids. Alfa Laval's disc-stack separators provide fast, efficient, simultaneous three-phase separation of oil and sludge.

Alfie 500 removes contaminating oil, grease and solid particles from coolants. The result is lower costs due to reduced fluid consumption, lower disposal costs and improvements in both product quality and working environment.

Alfie 500 is a complete compact system, including separator, feed pump and control system. The control panel makes it easy to operate. The Alfie 500 has a high capacity-to-size ratio. Handling tanks have volumes of up to 15 m<sup>3</sup>. Alfie 500 is installed in a bypass system and operates continuously.

### User-friendly operation

Operator convenience is a key parameter in the design of the Alfie 500. The PLC-based control system is operated by means of a control panel. The symbols and messages in clear text are easy to understand. Quick couplings make it easy to connect the hoses when the cleaning unit is moved from tank to tank.

With its compact and ergonomic design, Alfie 500 is easy to move across the workshop floor. And you can use it to serve several tanks or just one.

- 1 Solid particles accumulate inside the rotating bowl. When the bowl requires cleaning, it can be opened with a few simple operations.
- 2 When the tramp oil has reached a certain level in the collecting tank, a microswitch is activated, stopping the cleaning process and turning on an indicator light.
- 3 The surface of the rotating bowl is coated with a material that is 12 times harder than steel.
- 4 Large wheels make it easy to move Alfie 500 even when the floor is not entirely smooth.
- 5 Suction hose with surface suction device.
- 6 Hose for return of clean liquid.



Alfie 500.

## Meeting your needs

To meet all your needs, Alfa Laval offers a wide range of stationary or mobile separator systems for all types of fluids. Our offering ranges from systems with capacities suitable for smaller workshops to larger systems designed to clean complex and heavily contaminated fluids.

Our global organization guarantees easy start-up and, if you need a helping hand, an Alfa Laval service engineer is always close by. To support your operations further, Alfa Laval has a network of distributors and service partners who are always available to assist you. We call this Nonstop Performance.

## Technical data

### Capacity

Max. flow, 50/60 Hz	500 l/h (2.2 gpm)
Sludge space	0.6 l (0.16 gal)

### Fluid requirements

Max. temperature	70°C (160°F)
pH value	6–9

### Electrical data

Voltage	230 V or 100–230 V single-phase (±5%)
Frequency	50/60 Hz
Amperage	10 A

### Weight

Total weight, incl. stand	60 kg (135 lbs)
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### Dimensions

Length	620 mm (24")
Width	510 mm (20")
Height	1140 mm (45")

Alfie 500 is delivered complete with stand, collection tank for tramp oil, surface suction device, hoses, service tool kit and instruction book.



The Alfie 500 user-friendly control panel.



A float-type suction device is included as standard (left). The optional bellows type (right) is designed for narrow spaces and shallow tanks (up to 100 mm).

## How to contact Alfa Laval

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## AlfaPure Z3 – a sample of clear thinking

For cleaning water-based liquids, e.g. coolants and wash liquids

Using high-speed centrifugal separation it is possible to greatly extend the life of your service liquids. Alfa Laval's disc-stack centrifuges provide fast, efficient, simultaneous three-phase separation of, for instance, water, oil and sludge.

AlfaPure Z3 removes contaminating oil, grease and solid particles from water-based liquids, e.g. coolants and wash liquids. The result is lower costs due to reduced fluid consumption, lower disposal costs and improvements in both product quality and working environment.

AlfaPure Z3 is a complete system, including separator, feed pump, sludge pump and control system. The touch screen based control system makes it extremely easy to operate. The AlfaPure Z3 has a high capacity-to-size ratio. The module requires less than 1.7 m<sup>2</sup> of floor space and can handle tanks with volumes of up to 150 m<sup>3</sup>. In most cases, AlfaPure Z3 is installed in a bypass system and operates continuously.

### User-friendly operation

Operator convenience was a key parameter in the design of the AlfaPure Z3. The PLC-based control system is operated by means of a touch screen. All symbols and messages are easily understandable, simplifying the interaction between operator and machine. The control system handles all settings of valves and pumps automatically. The separator is accessible from the front and the openable cabinet gives easy access to process components. Quick couplings ensure that all components can be serviced quickly and simply.

The system is compact. The stainless steel cabinet is mounted on a 1030 x 1600 mm stainless steel frame. Wheels attached to the frame simplify installation and service by providing mobility, and allowing the system to be wheeled easily from tank to tank. The connection interface makes installation simple.

### Modularized system

The modular design of the AlfaPure Z3 makes it easy to adapt the system to the specific needs of the user. Several options and optional equipment are available:



AlfaPure Z3

- Siemens or Allen-Bradley PLC control system,
- Surface suction device,
- Crossflow filter for heavily contaminated coolants,
- One or two dosing pumps for addition of chemicals,
- Stainless steel design of all components that come into contact with the fluid.

### Meeting your needs

To meet all your needs, Alfa Laval offers a wide range of stationary or mobile separator systems for all types of fluids. Our offering ranges from systems with capacities suitable for smaller workshops, to larger systems designed to clean complex and heavily contaminated fluids. Our global organization guarantees easy start-up and, if you need a helping hand, an Alfa Laval service engineer is always close by. We call this Nonstop Performance.

## Technical Data

### Capacity

Coolants & wash liquids	1000 – 3000 l/h
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### Operating requirements

Separation temperature	15 – 100°C
pH	6 – 14
Operating water pressure	200 – 600 kPa
Instrument air pressure	300 – 800 kPa
Installed power	max 4 kW
Ambient temperature	5 – 55°C

### Dimensions

Length x width x height	1600 x 1030 x 1400 mm
Weight	800 kg

### Electrical system

Multiple voltage supply	210 – 690 V
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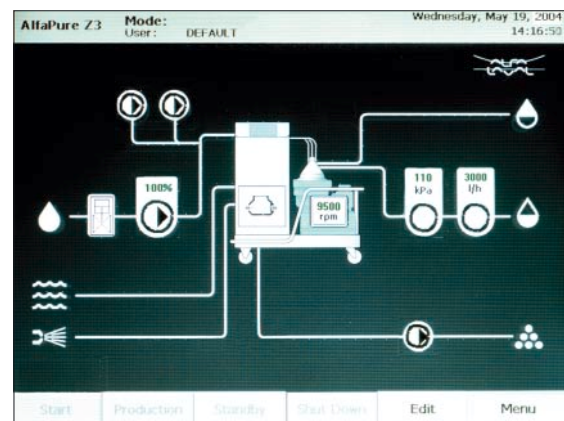
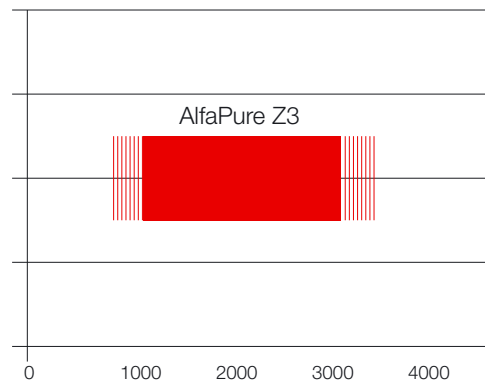
### Connections

Process liquid inlet	ISO-Rp 1 1/4"
Heavy liquid outlet	ISO-Rp 1"
Light liquid outlet	ISO-Rp 1/2"
Sludge outlet	ISO-Rp 1/2"
Operating water	ISO-Rp 1/2"
Instrument air	ISO-Rp 1/4"

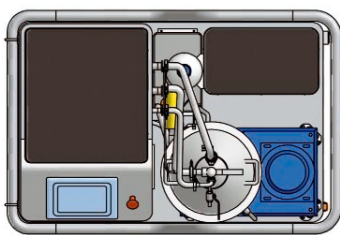
### Shipping data

System incl. centrifuge, bowl and motor	800 kg
Bowl weight	150 kg
Gross weight	1245 kg
Volume	1.9 m <sup>3</sup>

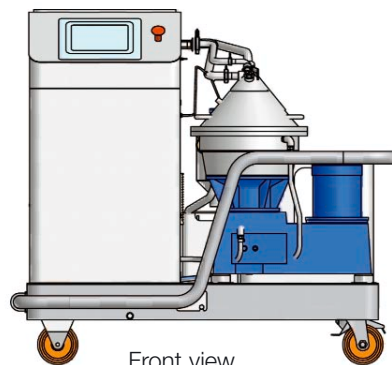
litres per hour



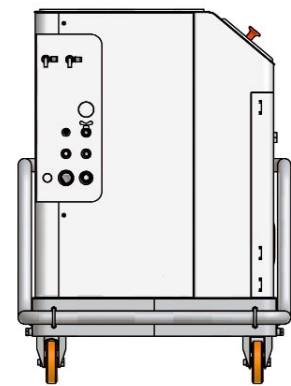
The AlfaPure Z3 user-friendly touch control screen.



Separator from above.



Front view.



Side view, connections.

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Alfa Laval reserves the right to change specifications without prior notification.

### How to contact Alfa Laval

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