Data sheet

VENTIL AQUA

Electrostatic oil cleaner model D2

Combined high performance unit to remove dirt, sluge and varnish from hydraulic oil

The electrostaic oil cleaner model D2 removes particles, sludge and varnish from hydraulic oil

Hydraulic systems

In order to operate hydraulic systems without failure, hydraulic systems are equipped with precise high-tech components. Sludge, resin, varnish, and dirt particles in the oil cause friction, wear and malfunction of the hydraulic system. More than 80% of hydraulic failures are caused by impurities in the oil.

Improved precision

The Friess EFC electrostatic oil cleaner removes sludge, varnish, oxydation products and particles from hydraulic oil and other mineral oils. Malfunction of hydraulic system is reduced and operating life of the hydraulic oil is extended. The cleaned hydraulic oil is much cleaner than new oil.

Your advantages:

- Fast return of investment because of longer life for your oil
- Precise operation of your hydraulic system
- Improved process reliability
- Less production cost
- Improved availability of your machines
- Less cost for maintenance, repairing and oil change
- Up to 70% less downtime
- Up to 95% less consumption of hydraulic oil
- Up to 100,000 hours and more service live for your hydraulic oil

Techical Data

Pump capacity:
2.5 l/min

Volume of cleaning cell:
9 l

Dirt holding capacity of cleaning elem.:
approx. 330 g

Surface of cleaning el.:
4,576 m²

Power consumtion:
350 W

Voltage:
230 V

Weight:
85 kg

Dimensions:

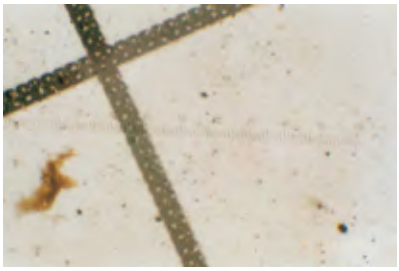
length:	450 mm
width:	400 mm
height:	940 mm

Recommended oil:
hydraulic oil type H, HL, HLP
lubrication oil type C, CL, CLP
synthetic oils based on PAO

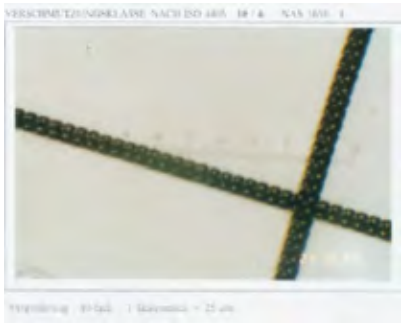
FRIESS GmbH

Working principle:

Just connect the electrostatic oil cleaner with two tubes with your hydraulic tank and it will clean your oil independent from production. The hydraulic oil is pumped through an electric field caused by 14,000 V between the electrodes in the cleaning cell. The electric field force attracts the particles onto the surface of the cleaning elements between the electrodes. The particles are stored on the surface of the cleaning elements, while the oil is returned to the main tank. The special design of the cleaning elements cause a turbulent flow between the electrodes. The turbulences flush the particles towards the surface of the cleaning elements. The result is a fast and effective cleaning. Particles down to 0.05 µm will be removed. The electrostatic oil cleaning has now influence to the liquid additives of the oil. The liquid additives remain in the oil while particles are removed by the electric field force. The high voltage of 14,000 V removes soft and hard particles as well as resins, oxydation products, sludge and varnish. The unique design makes sure that particles of all sizes will be collected in the cleaning cell. The result is an extreme clean oil. The clean oil is able to flush out sticky sludge from the system. Water in the oil can be removed by an optional dewatering cartridge. The cartridge is equipped with fibers that are able to absorb water. The fibres absorb the non-emulsified water and dry the oil.



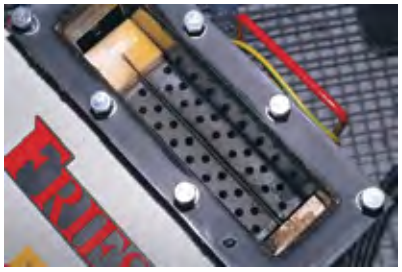
Filter membrane pore size 0.8 µm showing dirt particles and oxydation products in used oil



Filter Membrane pore size 0.8 µm after filtration of electrostatic cleaned oil

High Capacity

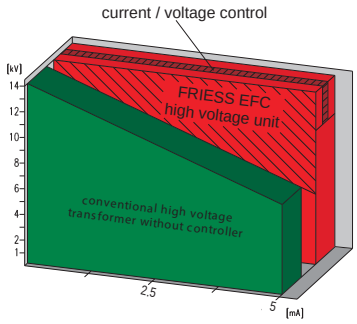
The new designed electronic high voltage unit supplies high electrostatic field force in order to ensure best possible separation of particles. Compared to conventional transformers the electronic high voltage unit of the model D2 supplies constant 14 kV at any current between 0 - 5 mA.



Cleaning elements with collected dirt in electrostatic oil cleaner model D2

User friendly

The new designed control unit makes handling easy: All messages are shown on a display. The comfortable menu structure allows fast and safe operation. All functions are controlled by sensors and safety switches.



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Data sheet

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Electrostatic oil cleaner model D4

Combined high performance unit to remove dirt, sluge and varnish from hydraulic oil

The electrostaic oil cleaner model D4 removes particles, sludge and varnish from hydraulic oil

Hydraulic systems

In order to operate hydraulic systems without failure, hydraulic systems are equipped with precise high-tech components. Sludge, resin, varnish, and dirt particles in the oil cause friction, wear and malfunction of the hydraulic system. More than 80% of hydraulic failures are caused by impurities in the oil.

Improved precision

The Friess EFC electrostatic oil cleaner removes sludge, varnish, oxydation products and particles from hydraulic oil and other mineral oils. Malfunction of hydraulic system is reduced and operating life of the hydraulic oil is extended. The cleaned hydraulic oil is much cleaner than new oil.

Your advantages:

- Fast return of investment because of longer life for your oil
- Precise operation of your hydraulic system
- Improved process reliability
- Less production cost
- Improved availability of your machines
- Less cost for maintenance, repairing and oil change
- Up to 70% less downtime
- Up to 95% less consumption of hydraulic oil
- Up to 100,000 hours and more service live for your hydraulic oil

Techical Data

Pump capacity:
4 l/min

Volume of cleaning cell:
45 l

Dirt holding capacity of cleaning elem.:
approx. 1 kg

Water holding capacity of dewatering cartridge:
max. 4 l (option)

Surface of cleaning el.:
27,456 m²

Power consumtion:
450 W

Voltage:
230 V

Weight:
120 kg

Dimensions:

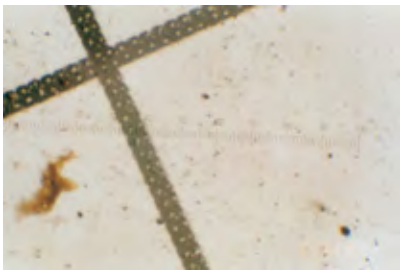
length:	825 mm
width:	640 mm
height:	1080 mm

Recommended oil:
hydraulic oil type H, HL, HLP
lubrication oil type C, CL, CLP
synthetic oils based on PAO

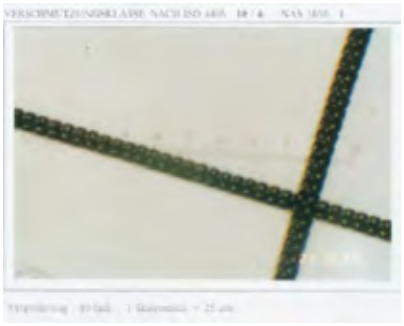
FRIESS GmbH

Working principle:

Just connect the electrostatic oil cleaner with two tubes with your hydraulic tank and it will clean your oil independent from production. The hydraulic oil is pumped through an electric field caused by 14,000 V between the electrodes in the cleaning cell. The electric field force attracts the particles onto the surface of the cleaning elements between the electrodes. The particles are stored on the surface of the cleaning elements, while the oil is returned to the main tank. The special design of the cleaning elements cause a turbulent flow between the electrodes. The turbulences flush the particles towards the surface of the cleaning elements. The result is a fast and effective cleaning. Particles down to 0.05 µm will be removed. The electrostatic oil cleaning has now influence to the liquid additives of the oil. The liquid additives remain in the oil while particles are removed by the electric field force. The high voltage of 14,000 V removes soft and hard particles as well as resins, oxydation products, sludge and varnish. The unique design makes sure that particles of all sizes will be collected in the cleaning cell. The result is an extreme clean oil. The clean oil is able to flush out sticky sludge from the system. Water in the oil can be removed by an optional dewatering cartridge. The cartridge is equipped with fibers that are able to absorb water. The fibres absorb the non- emulsified water and dry the oil.



Filter membrane pore size 0.8 µm showing dirt particles and oxydation products in used oil



Filter Membrane pore size 0.8 µm after filtration of electrostatic cleaned oil

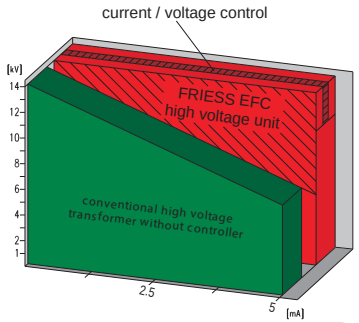
High Capacity

The new designed electronic high voltage unit supplies high electrostatic field force in order to ensure best possible separation of particles. Compared to conventional transformers the electronic high voltage unit of the model D4 supplies constant 14 kV at any current between 0 - 5 mA.

Electrostaic oil cleaner model D4 connected with hydraulic tank of injection molding machine

User friendly

The new designed control unit makes handling easy: All messages are shown on a display. The comfortable menue structure allows fast and safe operation. In case of leakage the oil will be collected in the saftey pan underneath the cleaning cell and the pump will be switched off. All functions are controlled by sensors and safety switches.



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Electrostatic oil cleaner model D8

Combined high performance unit to remove dirt, sluge and varnish from hydraulic oil

The electrostaic oil cleaner model D8 removes particles, sludge and varnish from hydraulic oil

Hydraulic systems

In order to operate hydraulic systems without failure, hydraulic systems are equipped with precise high-tech components. Sludge, resin, varnish, and dirt particles in the oil cause friction, wear and malfunction of the hydraulic system. More than 80% of hydraulic failures are caused by impurities in the oil.

Improved precision

The Friess EFC electrostatic oil cleaner removes sludge, varnish, oxydation products and particles from hydraulic oil and other mineral oils. Malfunction of hydraulic system is reduced and operating life of the hydraulic oil is extended. The cleaned hydraulic oil is much cleaner than new oil.

Your advantages:

- Fast return of investment because of longer life for your oil
- Precise operation of your hydraulic system
- Improved process reliability
- Less production cost
- Improved availability of your machines
- Less cost for maintenance, repairing and oil change
- Up to 70% less downtime
- Up to 95% less consumption of hydraulic oil
- Up to 100000 hours and more service live for your hydraulic oil

Techical Data

pump capacity:
8 l/min

volume of cleaning cell:
45 l

dirt holding capacity of cleaning elem.:
approx. 2 kg

water holding capacity of dewatering cartridge:
max. 4 l (option)

surface of cleaning el.:
27,456 m²

power consumtion:
500 W

voltage:
230 V

weight:
140 kg

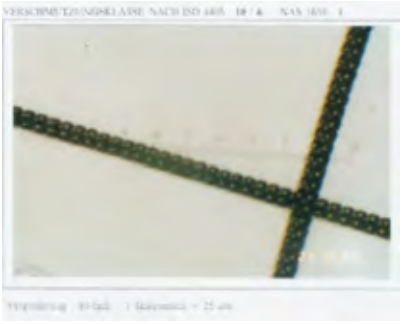
Dimensions:

length:	815 mm
width:	640 mm
height:	1090 mm

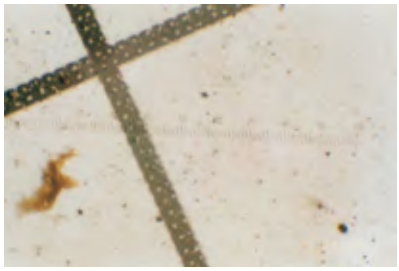
recommended oil:
hydraulic oil type H, HL, HLP
lubrication oil type C, CL, CLP
synthetic oils based on PAO

Working principle:

Just connect the electrostatic oil cleaner with two tubes with your hydraulic tank and it will clean your oil independent from production. The hydraulic oil is pumped through an electric field caused by 14000 V between the electrodes in the cleaning cell. The electric field force attracts the particles onto the surface of the cleaning elements between the electrodes. The particles are stored on the surface of the cleaning elements, while the oil is returned to the main tank. The special design of the cleaning elements cause a turbulent flow between the electrodes. The turbulences flush the particles towards the surface of the cleaning elements. The result is a fast and effective cleaning. Particles down to 0,05µm will be removed. The electrostatic oil cleaning has now influence to the liquid additives of the oil. The liquid additives remain in the oil while particles are removed by the electric field force. The high voltage of 14000 V removes soft and hard particles as well as resins, oxydation products, sludge and varnish. The unique design makes sure that particles of all sizes will be collected in the cleaning cell. The result is an extreme clean oil. The clean oil is able to flush out sticky sludge from the system. Water in the oil can be removed by an optional dewatering cartridge.The cartridge is equipped with fibers that are able to absorb water. The fibres absorb the non- emulsified water and dry the oil.



Filter Membrane pore size 0,8µm after filtration of electrostatic cleaned oil



Filter membrane pore size 0,8µm showing dirt particles and oxydation products in used oil

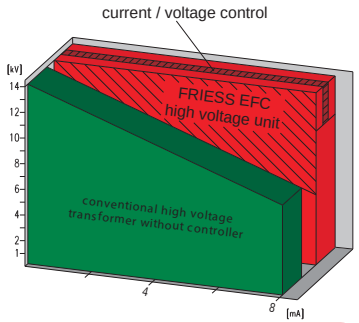
High Capacity

The new designed electronic high voltage unit supplies high electrostatic field force in order to ensure best possible separation of particles. Compared to conventional transformers the electronic high voltage unit of the model D8 supplies constant 14 kV at any current between 0 - 8 mA.

electrostaic oil cleaner model D8 connected with hydraulic tank of injection molding machine

User friendly

The new designed control unit makes handling easy: All messages are shown on a touch screen monitor. The comfortable menue structure allows fast and safe operation. The control unit stores the data of 100 hydraulic systems. The model D8 calculates the necessary cleaning time based on stored data. As soon as cleaning time is finished, a message is shown on the display, and the cleaner can be connected with the next hydraulic tank. If you type in oil volume and viscosity of the oil, the control unit will calculate the necessary cleaning time. In case you switch of the system all data will be stored and you can continue cleaning with calculated data after restart. In case of leakage the oil will be collected in the saftey pan underneath the cleaning cell and the pump will be switched off. All functions are controlled by sensors and safety switches.



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Electrostatic oil cleaner model D16

Combined high performance unit to remove dirt, sluge and varnish from hydraulic oil

The electrostaic oil cleaner model D16 removes particles, sludge and varnish from hydraulic oil

Hydraulic systems

In order to operate hydraulic systems without failure, hydraulic systems are equipped with precise high-tech components. Sludge, resin, varnish, and dirt particles in the oil cause friction, wear and malfunction of the hydraulic system. More than 80% of hydraulic failures are caused by impurities in the oil.

Improved precision

The Friess EFC electrostatic oil cleaner removes sludge, varnish, oxydation products and particles from hydraulic oil and other mineral oils. Malfunction of hydraulic system is reduced and operating life of the hydraulic oil is extended. The cleaned hydraulic oil is much cleaner than new oil.

Your advantages:

- Fast return of investment because of longer life for your oil
- Precise operation of your hydraulic system
- Improved process reliability
- Less production cost
- Improved availability of your machines
- Less cost for maintenance, repairing and oil change
- Up to 70% less downtime
- Up to 95% less consumption of hydraulic oil
- Up to 100,000 hours and more service live for your hydraulic oil

Techical Data

Pump capacity:
16 l/min

Volume of cleaning cell:
90 l

Dirt holding capacity of cleaning elem.:
approx. 4 kg

Water holding capacity of dewatering cartridge:
max. 4 l (option)

Surface of cleaning el.:
54,912 m²

Power consumtion:
650 W

Voltage:
230 V

Weight:
235 kg

Dimensions:

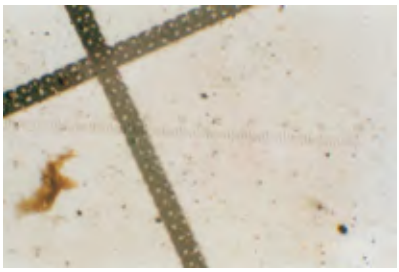
length:	1150 mm
width:	800 mm
height:	1090 mm

Recommended oil:
hydraulic oil type H, HL, HLP
lubrication oil type C, CL, CLP
synthetic oils based on PAO

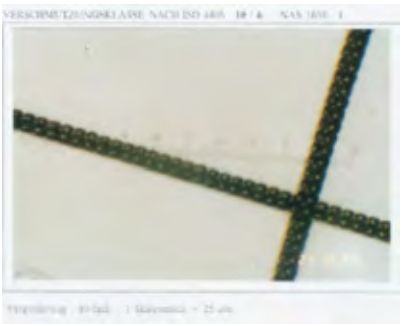
FRIESS GmbH

Working principle:

Just connect the electrostatic oil cleaner with two tubes with your hydraulic tank and it will clean your oil independent from production. The hydraulic oil is pumped through an electric field caused by 14,000 V between the electrodes in the cleaning cell. The electric field force attracts the particles onto the surface of the cleaning elements between the electrodes. The particles are stored on the surface of the cleaning elements, while the oil is returned to the main tank. The special design of the cleaning elements cause a turbulent flow between the electrodes. The turbulences flush the particles towards the surface of the cleaning elements. The result is a fast and effective cleaning. Particles down to 0.05 µm will be removed. The electrostatic oil cleaning has now influence to the liquid additives of the oil. The liquid additives remain in the oil while particles are removed by the electric field force. The high voltage of 14,000 V removes soft and hard particles as well as resins, oxydation products, sludge and varnish. The unique design makes sure that particles of all sizes will be collected in the cleaning cell. The result is an extreme clean oil. The clean oil is able to flush out sticky sludge from the system. Water in the oil can be removed by an optional dewatering cartridge. The cartridge is equipped with fibers that are able to absorb water. The fibres absorb the non- emulsified water and dry the oil.



Filter membrane pore size 0.8 µm showing dirt particles and oxydation products in used oil



Filter Membrane pore size 0.8 µm after filtration of electrostatic cleaned oil

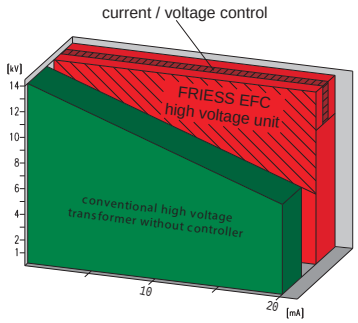
High Capacity

The new designed electronic high voltage unit supplies high electrostatic field force in order to ensure best possible separation of particles. Compared to conventional transformers the electronic high voltage unit of the model D16 supplies constant 14 kV at any current between 0 - 20 mA.

Electrostaic oil cleaner model D16 at work

User friendly

The new designed control unit makes handling easy: All messages are shown on a touch screen monitor. The comfortable menue structure allows fast and safe operation. The control unit stores the data of 100 hydraulic systems. The model D16 calculates the necessary cleaning time based on stored data. As soon as cleaning time is finished, a message is shown on the display, and the cleaner can be connected with the next hydraulic tank. If you type in oil volume and viscosity of the oil, the control unit will calculate the necessary cleaning time. In case you switch of the system all data will be stored and you can continue cleaning with calculated data after restart. In case of leakage the oil will be collected in the saftey pan underneath the cleaning cell and the pump will be switched off. All functions are controlled by sensors and safety switches.



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Oil dewatering

Coalescing filter system for removal of water from hydraulic oils

Fries coalescing filter systems remove water from hydraulic and lubricating oils in a simple, fast and reliable way.

Longer lifetime for hydraulic oils:

Even a small percentage of uncombined water in hydraulic and lubricating oil harms the oil considerably. An excessive water content in combination with pollution leads to an oxidation of the oil. The generation of corrosion nests in pipes can create undesirable dirt particles and even destroy sensitive sliding sufaces. The formation of steam bubbles and a reduced lubricity in hydraulic oils can cause operational malfunctions.
The application of a FRIESS oil dewatering system can prevent all of these common disadvantages.

Your advantages:

- Fast amortization because of the extended lifetime of oil
- Lower wear of pumps, valves, cylinders and seals
- Dewatering until a remaining water content of less than 500 ppm of water
- Simple and fast installation
- Oil dewatering requires no machine standstill and no supervision
- The bypass system prevents pressure drop
- All additives remain in the oil

Technical data:

Flow capacity
8 l/min

Max. water content of the oil
> 30 %

Water content after dewatering
< 500 ppm

Max. oil volume of the system
max. 10 m³

Max. water disposal
20 l/day

Oil viscosity
max. 100 mm²/sec

Power consumption
300 W

Tension
230 V

Weight
70 kg

Dimensions
Length: 600 mm
Width: 550 mm
Height: 1100 mm

FRIESS GmbH

Operation:

The oil dewatering system is installed in the bypass flow of the hydraulic system. The hydrous oil is conducted through the coalescing filter via the bypass. The special water-repellent filter material and the specific pore structure make the small, dispersed water droplets combine to a bigger water drop. Because of the gravity, the enlarged water drops sink to the ground of the filter casing. From there, the water can be drained manually or automatically.
If the volume of the water droplet doubles, the downforce quadruples. By using the physical differences between water and oil, the water content of the oil is reduced to less than 500 ppm.

Oil dewatering filter

Hydraulic oil before dewatering

Applications:

The coalescing filter system is designed for the application in hydraulic and lubricating oil circuits. The system can be applied as a mobile unit, in order to dewater several small oil circuits or it can be installed stationary in a big oil circuit.
The coalescing filter can also be combined with a Friess - EFC electrostatic oil cleaner. Because of the standard equipping with pressure switch and leakage monitoring, the sytsem can be used continuously without any supervision.

Mobile oil dewatering system

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Friess Skimmtelligent mini

Bypass system for separation of oil from coolant

The oil separator Skimmtelligent mini removes tramp oil from coolant

In many industrial applications the coolant is contaminated with hydraulic oil, lubricating oil and grease.

Why remove the tramp oil?

If coolant is contaminated with oil the cooling capacity of the coolant is reduced. A closed layer of floating oil on the surface of the coolant prevents the contact between coolant and oxygene in the air. The growth of anaerobic bacteria and fungus is accelerated and coolant has to be exchanged after short time of operation. The removal of tramp oil and grease from coolant will improve the lifetime of the coolant. In addition to the improved service life cost for waste disposal and cost for new coolant will be reduced.

Your advantages

- Removes tramp oil from coolant down to less than < 0.1 %
- Improves service life of coolant
- Reduces cost for new coolant and disposal of waste coolant
- Robust construction without moving part except pump
- Optional magnetic filter system in order to remove ferritic particles down to 1 µm

Technical data

Dimensions

Length: 850 mm
Width: 400 mm
Height: 530 mm
(870 mm with magnetic filter as option)

Flow rate of pump

4 l/min

Voltage

230 V, 0,18 kW

Tank volume

50 l

FRIESS GmbH

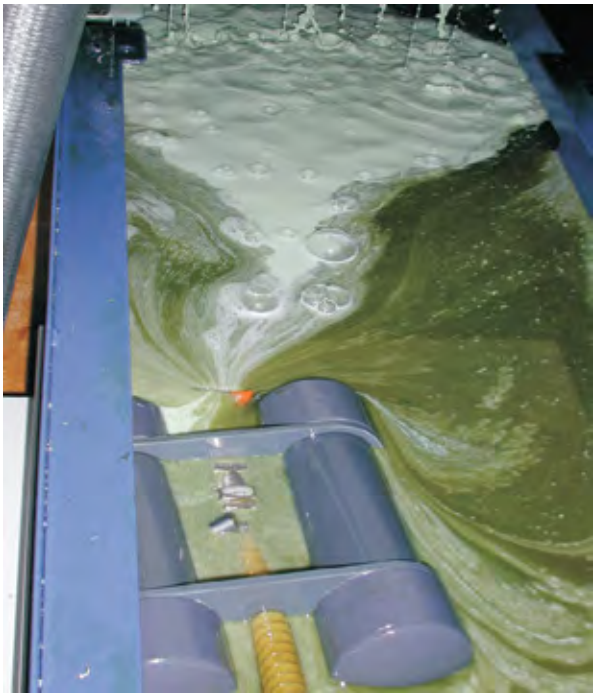
Why using a bypass separator ?

The specific weight of oil is lower than the specific weight of coolant. For this reason normally the oil floats on the surface and can be removed with a Friess oil skimmer. During process the oil often is mixed with the coolant. Because of turbulence in the coolant tank the small oil droplets do not have time to rise to the surface of the coolant. The rising content of tramp oil in the coolant causes bacteria growth and growth of fungus. Finally the coolant has to be changed.

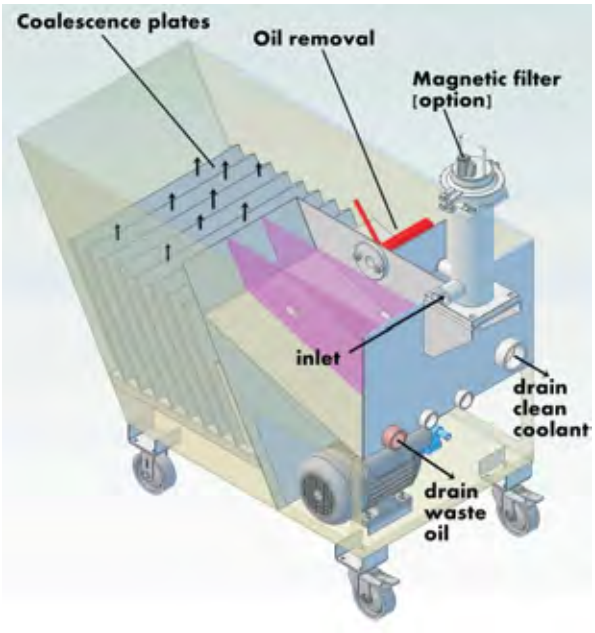
During operation the oil separator Friess Skimmtelligent mini pumps small amount of coolant with tramp oil out of the main system. The separator separates the tramp oil independent from production from the coolant and the clean coolant is returned to the main tank.

Working principle

A positive displacement pump pumps the coolant into the oil separator Skimmtelligent mini. A strainer, which is mounted before the pump, removes bigger particles or chips. A magnetic filter, which is available as option, removes ferritic particles down to 1 µm from the coolant. The coolant floats then into the separator tank of the oil separator Skimmtelligent mini. The coolant mixed with tramp oil flows through parallel plates, which work as coalescer. Even the very low lift of the small droplets is enough to drive the oil droplets to the lower side of the next parallel plate. Many small oil droplets will form few big oil drops. The higher lift of the bigger oil drops drives the oils towards the surface of the liquid. The oil layer flows over an adjustable baffle into a decanter tank. The concentrated oil flows over a second baffle into the oil collecting tank. The clean coolant flows by gravity back into the coolant tank. The separated waste oil can be drained from time to time manually.



Floating suction device



Working principle Skimmtelligent mini

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FRIESS GmbH

data sheet

Oil separator *Skimmtelligent*

Bypass-system for separation of oil from process fluids

The oil separator *Skimmtelligent* removes tramp oil from process liquids like coolant, cooling water, washing water, waste water and other

How does it work

Floating oil and process fluid is pumped by the air driven diaphragm pump into the separator. Because of the low specific weight oil droplets will float on the surface of the process liquid. The built-in coalescing media accelerates the separation of the oil and hydro-carbons to the surface. The floating oil will be removed by an oil skimmer while the clean water or coolant will flow by gravity back into the main tank.

Your advantages

- Short payback time because of longer lifetime of coolant or degreasing bath
- Low maintenance because of corrosive resistant material.
- Changing water levels in main tank have no influence to the separation result. Because of different floating skimmer the separator *Skimmtelligent* can be used for all kind of application.
- Simple installation

Technical data

Dimensions:

	length	width	height
model 10	600 mm	440 mm	1200 mm
model 20	900 mm	440 mm	1280 mm
model 40	1660 mm	510 mm	1230 mm

approx. flow:

model 10	300 l/h
model 20	600 l/h
model 40	1200 l/h

volume of separation tank approx.

model 10	100l
model 20	200l
model 40	400l

max. volume:

model 10	7500l
model 20	15000l
model 40	30000l

:

working temperature:

max. 40/70 °C

pH-value:

5 - 14

max. capacity of oil skimmer

30l oil/h

:

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Working principle

The built-in diaphragm pump pumps mixture of oil and process liquid into the separation chamber. The working principle of the pump avoids emulsifying of small oil droplets with the process liquids.

In the first part of the separation chamber sludge and heavy particles will settle on the bottom. The mixture of oil and process liquid flows through coalescent media. Small oil droplets will stick to the coalescent media. Many small droplets will combine to bigger drops. Because of gravity the bigger drops have the possibility to float to the surface of the liquid. The additional built-in airation accelerates the separation of oil and liquid. The oxygene in the air prevents growth of anaerobic bacteria in the liquid.

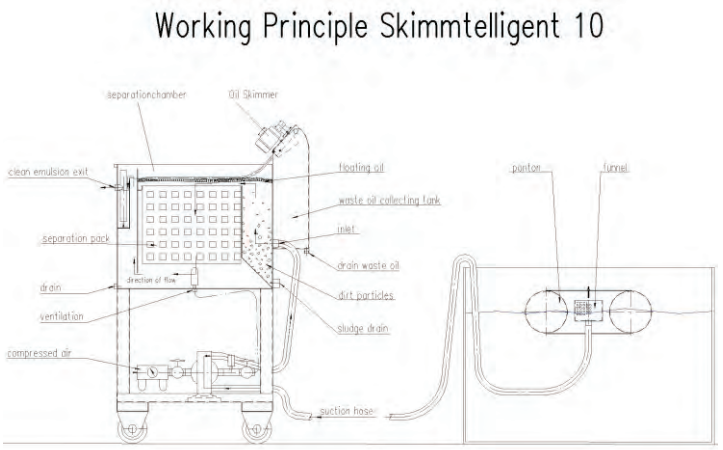
The oil layer, that floats on the surface of the coalescing tank, will be removed from time to time by an oil skimmer model 1U. The removal of the thin oil layer avoids growth of anaerobic bacteria. The clean liquid flows by gravity back into the main tank. All functions are controlled by a small PLC. The system operates as bypass system independent from the production.

Typical application

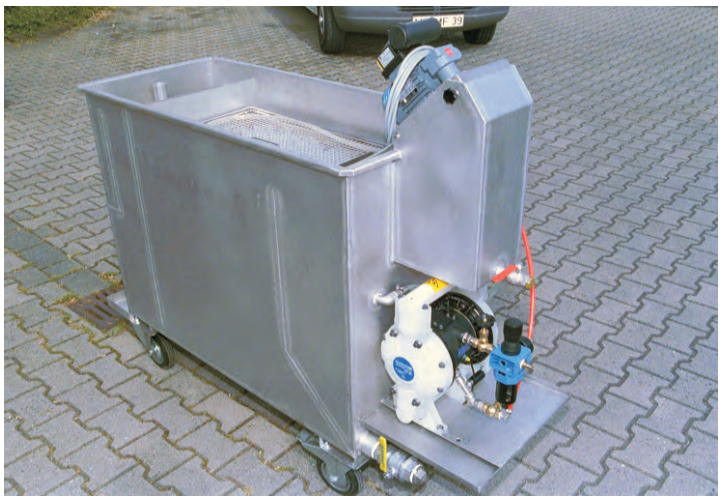
The decanter *Skimmtelligent* is specially designed for industrial applications like

- coolant tanks
- part washer
- cooling water systems
- pretreatment of waste water

In many industrial applications oil gets into the water or coolant. Because of small storage tanks and continuous operation the small oil droplets in the water will not settle on the surface of the tank but remains mixed with the liquid and the liquid has to be changed. The decanter *Skimmtelligent* is able to separate the tramp oil without disturbing the production process. The lifetime of the coolant or washing water will be improved and bacteria growth wil be reduced.



Skimmtelligent 10



Skimmtelligent 40

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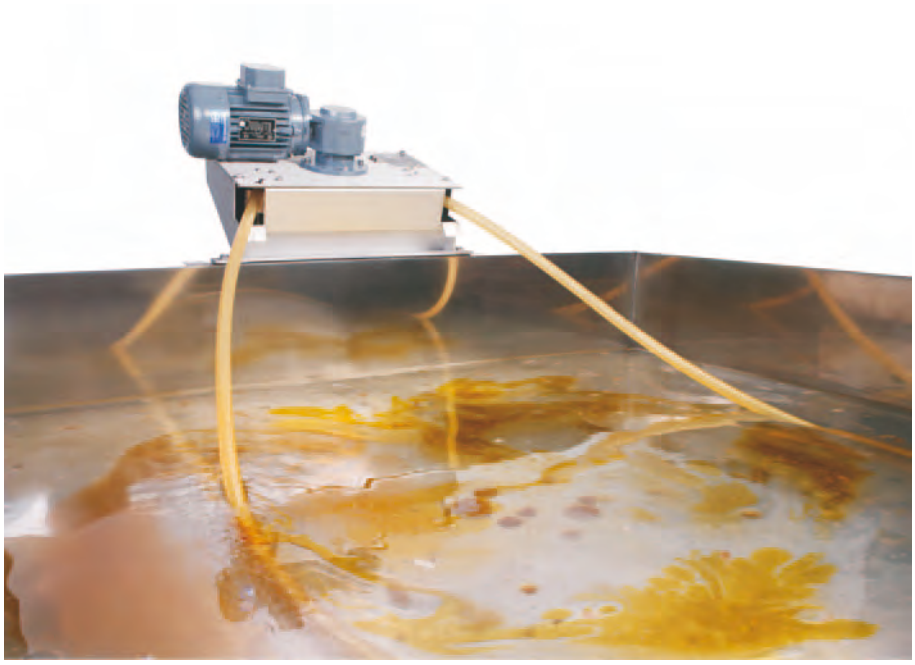
Oil skimmer model W40

compact oil skimmer



Friess oil skimmer model W40 easily, fast and reliably removes floating oil from coolant, degreasing bath or waste water,

Longer lifetime for your coolant:

If surface of coolant is covered with oil, coolant has no contact to oxygene. Missing oxygene causes fast growth of anaerobic bacteria The coolant starts to smell badly. Later the coolant will be destroyed because of bacteria growth. Bacteria in the coolant may cause skin irritation or allergic reactions. Continous removal of tramp oil with the oil skimmer model W40 avoides these problems

Your advantages:

- Quick amortization owing to extended operational life of emulsions and degreasing baths
- Low maintenance due to using stainless steel an abrasive resistant ceramic
- Easy installation as pre-fabricated for mounting are available for nearly all situations
- System adapts to variations of liquid level
- The free floating oil collector tube removes oil from total surface

Technical Data

Oil capacity:
10 - 230 l/h

Surface of basin:
min 800 mm x 800 mm

Installation height above liquid:
max. 600 mm

Working temperature:
- 20°C bis + 95°C

Drive power:
0,09 kW

Voltage:
400 V

Weight:
14 kg

Dimensions incl. oil collecting pan:

Length:	250 mm
Width:	420 mm
Height:	323 mm

Options:

- Electronic speed control
- Decanter tank in order to remove water in the skimmed oil
- Automatic timer
- Atex certificate for using the skimmer in explosion hazardous area
- Stainless steel 1.4571 for using the oil skimmer with agressive media
- Polypropylene for using the oil skimmer with agressive media

Operation:

An endless loop of tube, the oil collector tube, made of special plastic floats freely on the surface of the liquid. Oil and fats as well as dirt particles dissolved therein stick to the outside of the oil collector tube. The oil collector tube is pulled through specially designed highly abrasion resistant ceramic scrapers. The ceramic scrapers remove the oi from the oil colletor tube. The oil floats into the oil collector pan and finally into a storage tank.

Special features:

The oil skjmmer model W40 can be adapted to various shapes of tanks: round or rectangular, open or closed, above or under ground. The oil collector tube will cover the total surface of the tank. It creates a continous flow on the surface of the liquid and will attract and remove the oil even from the corners of the tank. The oil skimmer model W40 is designed for continous operation in industrial applications. The oil skimmer model W40 is made of stainless steel. Drive wheel and scrapers are equipped with highly abrasion resistant ceramic parts and guarantee extended periods of usage even when used for highly contaminated coolants or degreasing baths.

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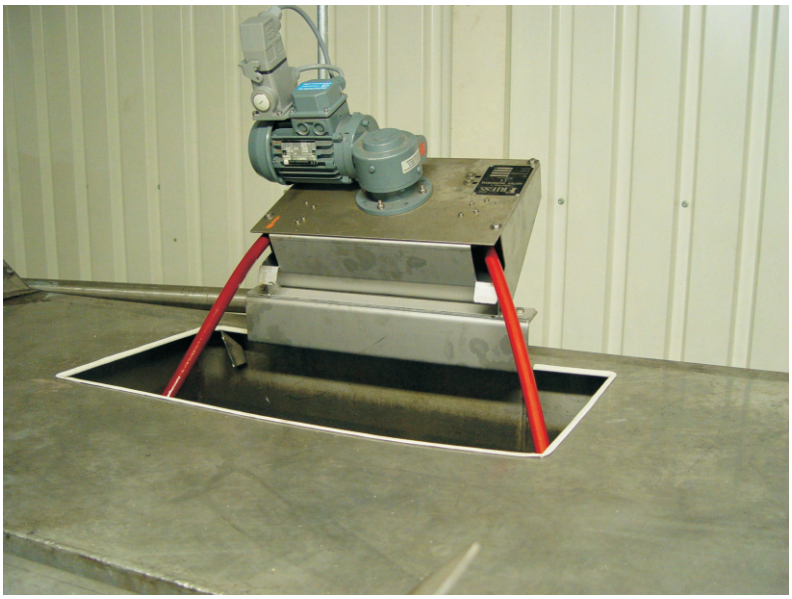
Applications

Degreasing bath
Coolant
Cooling water
Waste water
Rain water



Oil skimmer model W40 at degreasing bath

Oil skimmer model W40 at coolant tank

Oil skimmer model W40 at waste water tank

Oil skimmer model W40 at coolant tank

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Angle belt skimmer WBS

Compact, light oil skimmer for small coolant systems

Simply, fast and reliably the oil skimmer WBS removes floating tramp oil from coolant and other process liquids.

Coolants have many different tasks:

1. Perfect surface quality
2. Longer lifetime for cutting tools
3. Good hygienic
4. Long lifetime of the coolant

Tramp oils, metal chips and other dirt particles cause growth of bacteria, fungus and yeast. The efficiency of the coolant will be reduced.

Tramp oil in the coolant causes damage!

1. Very short lifetime of the coolant
2. Strong odour
3. Skin disease
4. Bad surface quality
5. Higher cost

With the new Friess belt skimmer type WBS you can avoid these disadvantages. The belt skimmer WBS removes floating oil and fats and scum from all type of liquids, for example coolant, cooling water, degreasing baths, waste water and so on.

Your advantages:

- The oil will be removed from big surface because the surface of the liquid is moved by the belt that comes flat on the surface of the water.
- The belt skimmer needs a very small mounting space because of the special construction.
- Fast payback of the oil skimmer because of longer lifetime of the coolant or degreasing bath.
- The Friess oil skimmer requires very few maintenance because of the robust construction and the corrosive resistant materials.
- Dirt particles in the oil will not cause problems because of the slots in the pulley.
- Long lifetime of the belt because the belt is manufactured endless without welding.
- Long lifetime of the bearings because of special seals.
- Strong construction with proven electric motor.

Technical Data

Oil capacity

2 - 15 l/h

lifting height:

WBS 10: 1 73 mm
WBS 20: 364 mm
WBS 30: 698 mm

Width of the belt:

40 mm

Surface of basin:

min. 100 x 200 mm

Drive power:

0,09 kW

Voltage:

230 V

Weight:

8.7 kg / 9.2 kg / 10.4 kg

Dimensions / wxlxh:

WBS 10	80 mm x 305 mm x 540 mm
WBS 20	80 mm x 305 mm x 775 mm
WBS 30	80 mm x 305 mm x 1110 mm

Optionen:

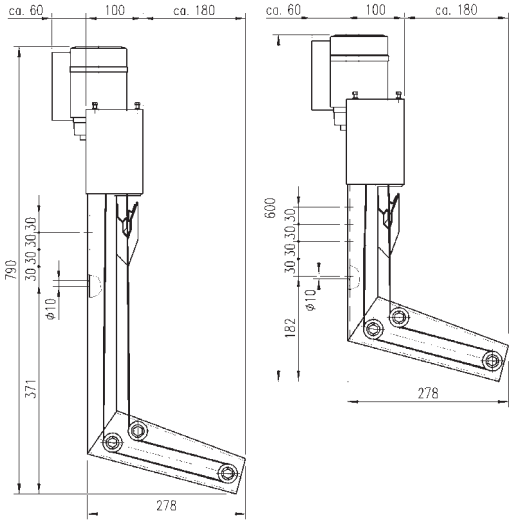
Ständer
Elektrogetriebemotor mit elektronischem Drehzahlsteller

FRIESS GmbH

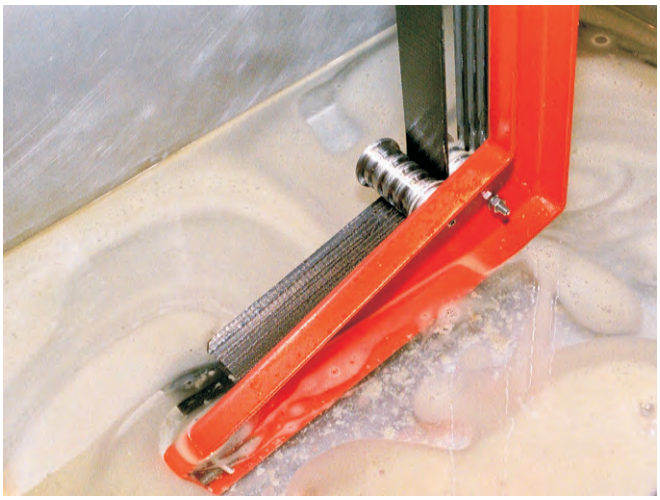
Construction:

An endless belt made of special formulated oleophilic plastic is guided under an angle of 15° to the water surface. Oil and fat and dirt particles, which float on the water surface, will stick to both sides of the belt. The oily belt is drawn by special designed pulleys through stainless steel scrapers. The scrapers remove the oil from the belt and the oil will float into the oil collecting tank. The oil skimmer WBS is designed for continuous operation in industrial applications. Pulleys, scraper and frame of the oil skimmer are made of stainless steel. The pulleys have special grooves, so that dirt particles and oil on the inner side of the belt are pressed into the grooves, thus the oil skimmer is able to transport more dirt particles without malfunction. The bearings of the pulleys have a seal on both sides, so that the dirt particles cannot destroy the bearings.

Because the belt leaves the water surface nearly horizontal, the oil skimmer creates a movement on the water surface. Because of this special design the oil skimmer attracts and picks up oil, that floats 0.5 m or more away from the skimmer. The oil skimmer picks up oil not only from one spot but from the whole surface of the basin.



Oil skimmer model WBS 20 at an emulsion tank



Floating oil is attracted towards the oil skimmer

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Oil skimmer model 1S

A small compact appliance with a large lifting height for tanks with a surface of up to 1m²

Simple, quick and reliable removal of oil and fats floating on all kinds of liquids like coolant, degreasing agent, waste water by the Friess Oil Skimmer Model 1S

This is how it works:

The oil collector tube of the oil skimmer model 1S creates a swirling motion on the surface of the liquid and thereby reliably removes oil and fats even such stuck to the corners of the basin. Because the oil collector tube floats on the surface and can be adjusted to any shape of tank it ensures extensive oil removal as well as a clean separation of oil and water.

Your advantages:

- Quick amortization owing to extended operational life of emulsions and degreasing baths
- Low maintenance costs due to solid construction and use of durable materials
- Easy installation as pre-fabricated kits for mounting are available for nearly all situations
- System adapts to variations of liquid levels
- Special construction ensures that the oil skimmer model 1S can be adapted to various shapes of tanks: round or rectangular, open or closed, above or under ground

Technical Data:

Oil capacity:
2 - 30 l/h

Surface of basin:
min. 500 x 500 mm

Installation height above liquid:
max. 10,000 mm

Level fluctuation:
max. 1 m

Max. length of oil collector tube moving on water surface
2,000 mm max.

Working temperature:
-20°C till + 60 °C

Drive power:
0.09 kW

Voltage:
230 V

Weight:
10.55 kg

Dimensions incl. oil collecting pan:
width: 300 mm
length: 308 mm
height: max. 372 mm

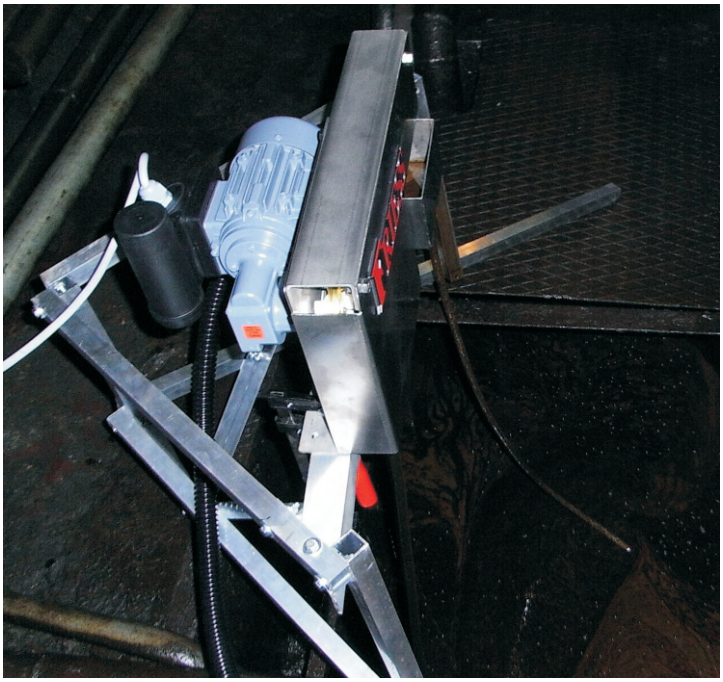
Options:

- Gear motor with electronic speed control
- timer function
- Stainless steel 1.4571 version for operation at aggressive media

FRIESS GmbH

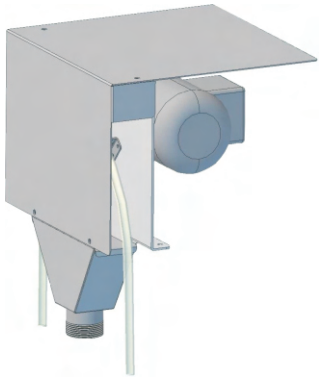
Operation:

A smooth loop of tube the so-called oil collector tube made of a special plastic formula floats freely on the surface of the liquid. Oil and fats as well as dirt particles dissolved therein stick to the outside of the oil collector tube. The oil collector tube is pulled through specially designed highly abrasion resistant stainless steel scrapers. The oil is taken off the tube and then drips into a collection basin and finally the waste oil storage tank.



Special features:

The oil skimmer model 1S is specifically designed for high lifting heights. The oil skimmer model 1S can be mounted up to 10 m above the water level. Especially at underfloor basins, wells and other small basins where the water surface is under the floor you can use the oil skimmer model 1S. The oil skimmer model 1S is specifically designed for constant use in a rough industrial environment. The oil collection basin as well as the casing of the machine are made of stainless steel. The drive wheel is equipped with highly abrasion resistant ceramic parts and guarantees extended periods of usage even when used for highly contaminated cooling lubricants and degreasants. The standard version of the oil skimmer is delivered with a switch, cable and plug and can be used immediately. In addition, the portable version includes a handle, which ensures flexible installation to various tanks.



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Oil skimmer model 1U

accessories and option

Friess oil skimmer model 1U easily, fast and reliably removes floating oil from coolant, degreasing bath or waste water.

This is how it works:

The oil collector tube of the oil skimmer model 1U creates a swirling motion on the surface of the liquid and thereby reliably removes oil and fats even such stuck to the corners of the basin. Because the oil collector tube floats on the surface and can be adjusted to any shape of tank it ensures extensive oil removal as well as clean separation of oil and water.

Your advantages:

- Quick amortization owing to extended operational life of emulsions and degreasing baths
- Low maintenance due to using stainless steel and abrasive resistant ceramic
- Easy installation as pre-fabricated for mounting are available for nearly all situations
- System adapts to variations of liquid level
- The free floating oil collector tube removes oil from total surface

Technical Data

Oil capacity:
2 - 30 l/h

Surface of basin:
min 400 mm x 400 mm

Installation height above liquid:
max. 600 mm

Working temperature:
- 20°C up to + 95°C

Drive power:
0,09 kW

Voltage:
230 V

Weight:
9 kg

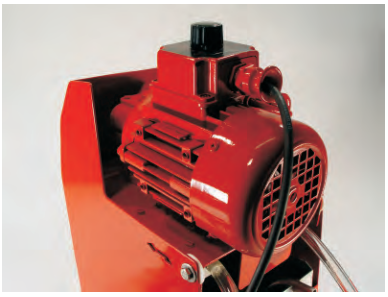
Dimensions incl. oil collecting pan:

Length:	224 mm
Width:	228 mm
Height:	270 mm

FRIESS GmbH

Oil skimmer model 1U with electronic speed controller

To adapt the capacity of the oil skimmer model 1U exactly to your needs the oil skimmer 1U can be equipped with an electronic speed controller. The rotation speed of the drive wheel can be changed between 100 % and 50 % of the nominal rotation speed. Especially at systems with low amounts of floating oil, the amount of skimmed oil and costs for waste disposal are lower.



Oil skimmer 1U with electronic speed control

Oil skimmer model 1U with build in decanter tank

Especially at part washers the amount of oil in the water has to be as low as even possible, so that the surface of the metal parts is absolutely clean. For this reason it is necessary to run the oil skimmer 24 h a day in order to remove the floating oil completely. In some applications the floating oil layer is extremely thin, so that a certain amount of washing water will be removed by the oil skimmer. In the build in decanter tanks the washing water will settle on the bottom and will be guided back into the main tank. While the floating oil is collected in the oil collecting tank, the discharge of washing water is reduced and the amount of waste is reduced, too.

Oil skimmer 1U with decanter tank

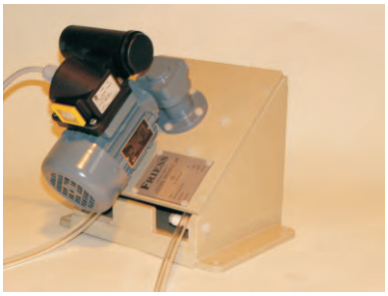
Oil skimmer model 1U flat body

For different reasons, in example bad odour, loss of heat energy or hazardous liquids, many tanks are closed. In order to remove the floating oil with an oil skimmer a part of the basin has to be opened. In order to mount an oil skimmer on a close tank without open areas, the oil skimmer model 1U can be mounted like a cover on a cut out in the cover of the tank. The oil skimmer works while the tank is completely closed.

Oil skimmer model 1U at closed tank

Oil skimmer 1U designed for aggressive media

The standard version of the oil skimmer model 1U is made of corrosion resistant stainless steel 1.4301 and ceramics. In order to use the oil skimmer 1U at aggressive media in the food industry or chemical industry, the oil skimmer model 1U can be made of high resistant stainless steel 1.4571 or 1.4539. When using the oil skimmer 1U at acids in the galvanizing industry it can be made of acid resistant plastic.



Oil skimmer 1U made of plastic

Oil skimmer model 1U with open drain

In many applications not only liquid oil, but also sticky fats mixed with chips and dirt particles float on the water surface, the sticky oils and fat will be removed without problems by the oil collector tube. Because of the sticky substance it may happen that the drain is blocked after a short time. For this application we recommend to use the oil skimmer 1U with an open chute. The sticky sludge will fall from the scrapers direct into a collecting tank.

:

Oil skimmer 1U with open drain

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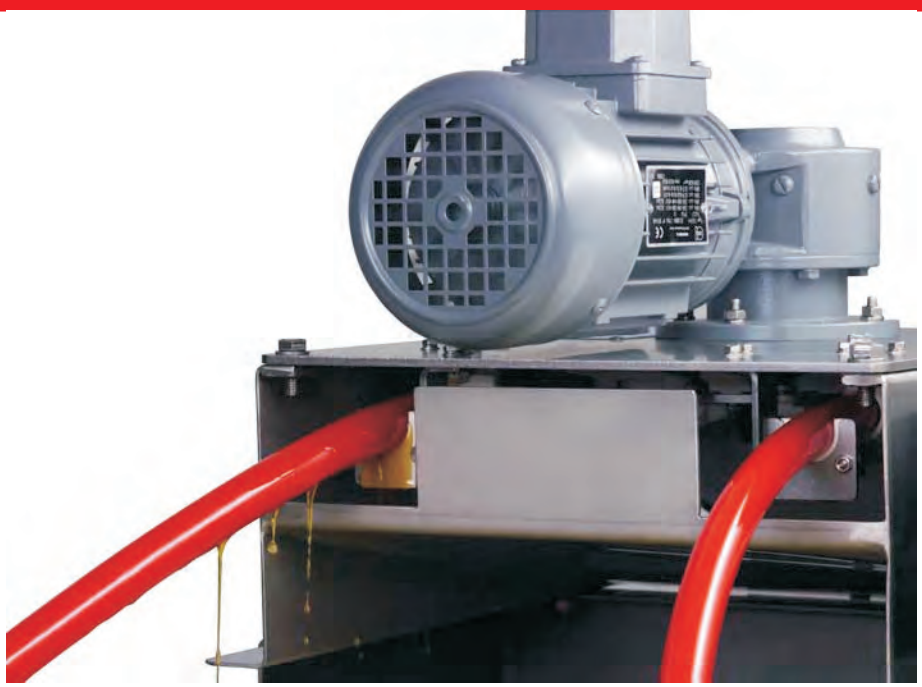
Data sheet

Oil skimmer model 2H

Compact oil skimmer for long and small basins



Friess oil skimmer model 2H removes floating oils from emulsion, washing water or waste water in a simple, fast and reliable way.

Longer lifetime for your media:

When the cooling lubricant is covered with a thin oil film it has no contact to oxygen. A lack of oxygen causes fast growth of anaerobic bacteria. In the first instance, the cooling lubricant smells unpleasant and then it tips over because of the high bacteria loads. High bacteria loads may cause skin irritations, rashes and allergic reactions. By removing the tramp oil continuously with a Friess oil skimmer model 2H, these problems can easily be avoided.

Your advantages:

- Fast amortization due to extended lifetimes of emulsions and degreasing baths
- Low maintenance because of tough stainless steel constructions and abrasive resistant ceramic
- Easy installation because of pre-fabricated mounting systems being deliverable for all situations
- System adapts to variations of liquid level
- The free floating oil collector tube removes oil from the total surface

Technical data:

Oil capacity
10 - 230 l/h

Surface of basin
min 500 mm x 1200 mm

Installation height above liquid
max. 600 mm

Working temperature
- 20°C to + 95°C

Drive power
0,09 kW

Tension
400 V

Weight
14 kg

Dimensions

Length:	400 mm
Width:	390 mm
Height:	375 mm

Options

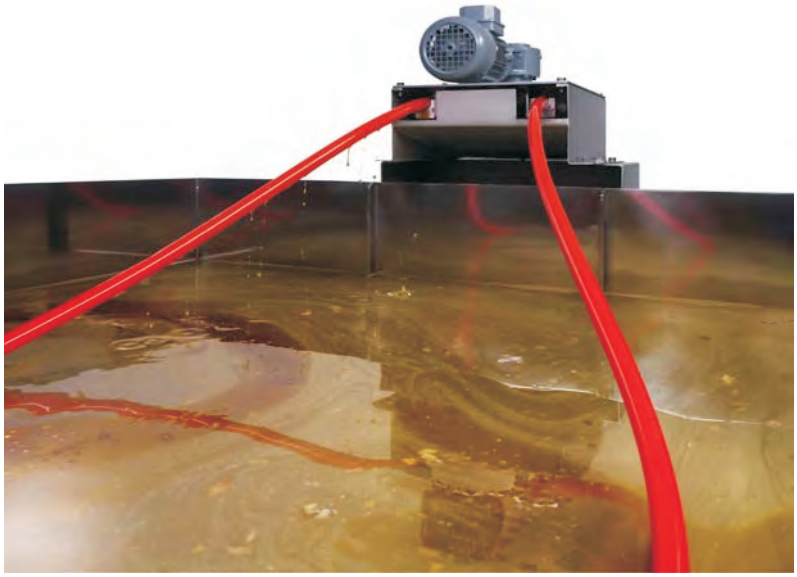
- Electronic speed control
- Decanter tank in order to remove water in the skimmed oil
- Special version for groundwater remediation
- Automatic timer
- Plastic version for using the oil with aggressive media

Operation:

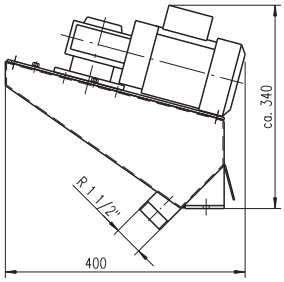
An endless oil collector tube floats freely on the liquid surface. Oil and fat, as well as dirt particles dissolved therein adhere to the outside of the oil collector tube. The oil collector tube is pulled through specially designed highly abrasion resistant ceramic scrapers inside the oil skimmer. In this process, the oil is removed from the oil collector tube. The oil floats into the oil collector pan and finally into a storage tank.

Applications and special features:

The oil skimmer model 2H is specifically designed for the application in long and small basins. The oil collector tube will cover the total surface of the tank. It creates a continuous flow on the surface of the liquid and removes floating oil and fat reliably even from the corners of the tank. The oil skimmer model 2H is designed for continuous operation in industrial applications. The oil skimmer consists of stainless steel. Drive wheel and scrapers are equipped with highly abrasion resistant ceramic parts. This guarantees long lifetimes even for applications in heavily polluted cooling lubricants or degreasing baths. With pre-fabricated mounting systems the oil skimmer model 2H can be adapted to various operating coditions.



Oil skimmer model 2H at stainless steel basin



Oil skimmer model 2H for groundwater remediation

Oil skimmer model 2H

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Datenblatt

Bandskimmer Universal

Leichter, kompakter Ölskimmer für Emulsionsbehälter an Werkzeugmaschinen

Einfach, schnell und zuverlässig entfernt der Friess Ölskimmer Universal aufschwimmende Öle von Kühlschmierstoffen und Emulsionen.

Höhere Standzeit für Ihre Emulsion:

Wenn der Kühlschmierstoff mit einem dünnen Ölfilm bedeckt ist, hat der Kühlschmierstoff keinen Kontakt zum Sauerstoff. Fehlender Sauerstoff bewirkt schnelles Wachstum von anaerobischen Bakterien. Der Kühlschmierstoff riecht zunächst unangenehm und kippt dann aufgrund der hohen Keimbelastung um. Hohe Bakterienbelastung führt zu Hautreizungen, Ausschlägen und zu allergischen Reaktionen. Wenn das aufschwimmende Fremdöl ständig mit dem Ölskimmer Universal von Friess entfernt wird, können diese Probleme einfach vermieden werden.

Ihre Vorteile:

- Schnelle Amortisierung durch Standzeitverlängerung des Kühlschmierstoffes
- Minimaler Wartungsaufwand dank robuster Konstruktion und hochwertiger Werkstoffe
- Einfach und schnell zu montieren
- Zeitschaltuhr für reibungslosen Automatikbetrieb
- Für schwierige Einbausituationen geeignet, da senkrechter oder bis 45° schräger Einbau möglich
- Neigung der Abstreifrinne stufenlos verstellbar
- Endlos gefertigtes Skimmerband ohne Nahtstelle
- Robuster 230V Getriebemotor daher für Dauerbetrieb geeignet

Technische Daten

Förderleistung:
3 - 12 l/h

Förderhöhe:
250 mm

Breite des Skimmerbandes:
40 mm

Empfohlene Beckenoberfläche:
max. 0,8 m²

Erforderliche Einbauöffnung:
min. 45 x 75 mm

Leistungsaufnahme:
9 W

Spannung:
230 V

Gewicht:
3,85 kg

Abmessungen:

Länge:	250 mm
Breite:	120 mm
Höhe:	605 mm

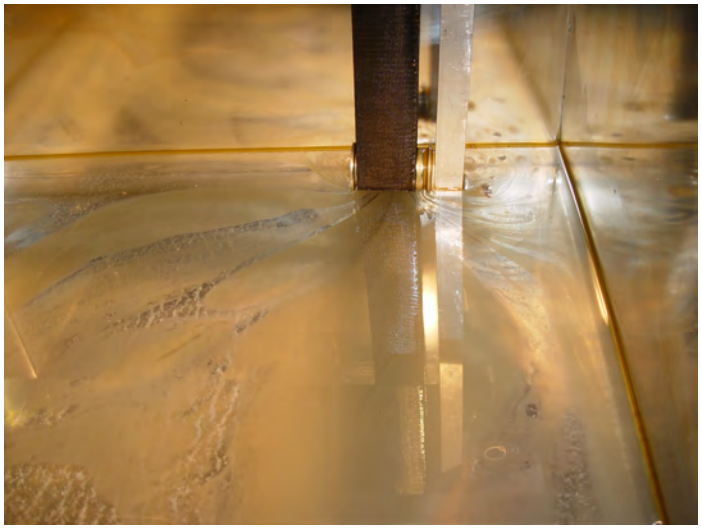
Konstruktionsprinzip:

Hydrauliköl oder Schmieröl, das auf der Oberfläche des Kühlschmierstoffes aufschwimmt, haftet an dem Skimmerband an. Das Skimmerband fördert das anhaftende Öl nach oben. Das Öl wird von den Edelstahlabstreifern von beiden Seiten des Skimmerbandes abgestreift und fließt in einen Sammelbehälter.

Bandskimmer Universal im Einsatz

Einsatzbereiche und Besonderheiten:

Der Bandskimmer Universal ist speziell für den Einsatz an Kühlschmierstoffbehältern an Werkzeugmaschinen konzipiert. Aufgrund der robusten Konstruktion ist der Ölskimmer für Dauerbetrieb im rauen industriellen Umfeld geeignet. Antriebs- und Umlenkrolle sind aus Edelstahl gefertigt und garantieren daher hohe Standzeiten und eine lange Nutzungsdauer. Da der Ölskimmer nicht nur senkrecht über der Badoberfläche sondern auch seitlich mit einer Neigung von bis zu 45° eingesetzt werden kann, ist eine optimale Anpassung an die Verhältnisse am Einbauort gegeben. In Abhängigkeit vom Verschmutzungsgrad des Kühlschmierstoffs und von der Einbausituation kann die Neigung der Ablaufrinne stufenlos verstellt werden. Der Ölskimmer Universal wird serienmäßig mit Zeitschaltuhr, Schalter, Kabel und Stecker geliefert und ist sofort betriebsbereit. Eine zusätzliche stabile, stufenlos einstellbare Haltevorrichtung ist optional lieferbar.



Die aufschwimmende Ölphase wird angezogen

Nach kurzer Einsatzdauer ist die Oberfläche frei von Öl

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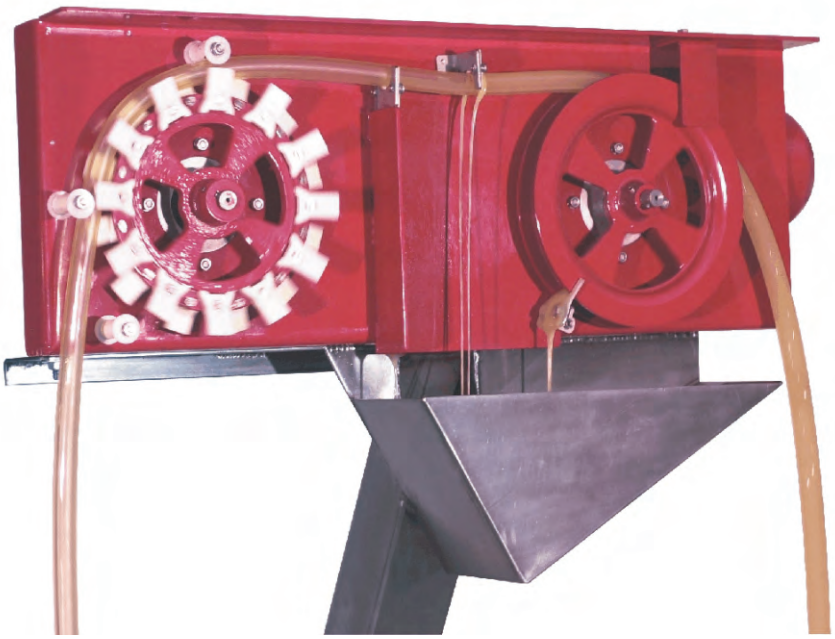
GmbH FRIESS

fact sheet

Oil skimmer model S 100

compact oil skimmer



Friess oil skimmer model S 100 easily, fast and reliably removes floating oil from coolant, degreasing bath or waste water,

Longer lifetime for your coolant:

If surface of coolant is covered with oil, coolant has no contact to oxygene. Missing oxygene causes fast growth of anaerobic bacteria The coolant starts to smell badly. Later the coolant will be destroyed because of bacteria growth. Bacteria in the coolant may cause skin irritation or allergic reactions. Continous removal of tramp oil with the oil skimmer model S 100 avoides these problems

Your advantages:

- Quick amortization owing to extended operational life of emulsions and degreasing baths
- Low maintenance due to using stainless steel an abrasive resistant ceramic
- Easy installation as pre-fabricated for mounting are available for nearly all situations
- System adapts to variations of liquid level
- The free floating oil collector tube removes oil from total surface

Technical Data

Oil capacity:
500 l/h

Surface of basin:
min 1.300 mm x 1.300 mm

Installation height above liquid:
max. 20 m

Working temperature:
- 20°C bis + 95°C

Drive power:
0,18 kW

Voltage:
400 V

Weight:
44 kg

Dimensions incl. oil collecting pan:
Length: 760 mm
Width: 270 mm
Height: 480 mm

Options:
- Automatic timer
- Atex certificate for using the skimmer in explosion hazardous area
- Stainless steel 1.4571 for using the oil skimmer with agressive media
- Polypropylene for using the oil skimmer with agressive media

Oil skimmer model S 100

1. The best method of oil removal

The Friess oil skimmer removes oil from the surface of water or other liquids using a floating tube system. Oil sticks to the outside of the closed loop oil collector tube. The oil collector tube is made of flexible, specially formulated plastic and attracts oil but not water. Oil-covered collector tube is drawn through ceramic scrapers by the oil skimmer S 100. Waste oil runs off into the oil collector pan under the oil skimmer head. The cleaned oil collector tube returns to the water surface to collect more waste oil. Continuous action of the oil collector tube produces a movement on the water surface.

This movement drives oil towards the oil collector tube. With the Friess technology, oil is collected from the whole water surface. Even from 10 m long basins the oil skimmer S 100 will pick the oil from the whole surface and corners of the basin. A water level change of up to 2 m may be accommodated by the oil collector tube floating on the surface.

2. What can the oil skimmer S 100 remove

Oil collector tubes remove all types of floating oil or fat, for example waste oil, mineral oil, vegetable oil, animal fat or oily scum and other sticky fluids from water emulsions or washing solutions.

If the amount of oil on the water is very low or it is a mixtrue of oil and scum, we suggest to use an additional decanter with the oil skimmer S 100. Decanters separate the small amount of water, emulsion or washing fluid from the collected oil. Water is returned to the main tank while waste oil flows into the collector tank.

3. Long lasting, simple, robust and reliable - this is the Friess oil skimmer

The oil skimmer S 100 is made of stainless steel and designed for many years of coninuous operation.

All parts, which contact the oil and dirt laden oil collector tube (drive wheel, pressure pad and scrapers) are made of high abrasion resistant ceramic. Dirt particles in the oil may be very abrasive and quickly destroy conventional scrapers. Friess uses aluminium oxyde ceramic, which is extremely abrasion resistant and may be used in continuous operation for many years.

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4. Friess oil skimmers are used in all industries

Companies in different processes use the Friess oil skimmers:

Automotive-, chemical, paper- and steel industry, quenching companies, diecast and aluminium casting, railway- and aircraft repair shops and food industry. Refineries and waste oil treatment companies make profit from the high quality and the high efficiency of Friess oil skimmer. Typical use of the oil skimmer S 100 is picking up tramp oil and fat from waste water, cooling water, cutting emulsion and washing water.

5. The perfect solution for all application

For your application we can offer the correct solution. You can choose from different mounting options for the oil skimmer S 100. This makes the mounting easy and helps reduce costs. Oil skimmer S 100 is able to lift oil up to 20 m from the fluid surface. Collector tubes can be selected according to system fluid, contaminating/tramp oil and temperature. Working temperatures may range from -20°C up to + 95 °C.

6. Portable or stationary units

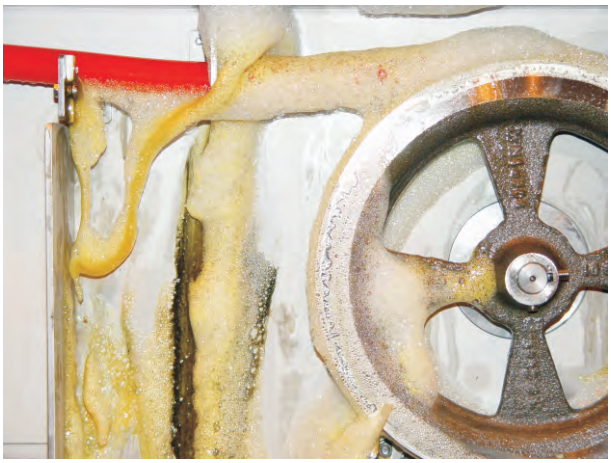
You can use the Friess oil skimmer S 100 as a stationary or portable unit. Mounted on a trailer, one oil skimmer model S 100 can clean two or more basins/tanks. The oil skimmer S 100 comes with a specialised gear/motor-combination drive, which has been proved in thousands of applications.

7. Fast service and delivery

May be you think that the Friess oil skimmer S 100 cannot solve your oil-water mixtrure problem?

Make a simple test with the Friess oil skimmer. Convince yourself from the quality and the efficiency of this machine. Of course we do not deliver just the oil skimmer, but also the necessary mounting equipment waste oil collector tanks etc. and mount the system in your factory.

Use our 25 years of experience in the field of oil water separation.



8. Cost saving

The Friess oil skimmer model S 100 uses two motor-gear drives with extremely low power consumption and high efficiency. Together with the use of high-tec-materials you achieve long service life with low maintenance. This reduces running and maintenance costs.

An oil skimmer pays for itself, as by skimming oil from the surface you extend the life of cooling water, emulsion or washing water.

9. Fits to your application

The oil skimmer model S 100 fits your basin/tank. Depending on the tank layout, we deliver different mounting systems. You can mount the oil skimmer on a frame or a cantilever mount. You can hang it on a beam over the tank. If you need a closed cover around the oil skimmer you can choose from different options available. We can supply your oil skimmer S 100 with explosion proof drive. Just advise us of your specific need. The S 100 will meet it.

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Friess Magnetic filter system FMF 240

The FRIESS Magnetic filter system FMF 240 removes particles from coolant, cutting oil, grinding oil and other process fluids.

Operation principle:

Particles, which are smaller than the pore size of the filter media, will pass the filter media together with the fluid. The number of small particles in the fluid will grow continuously.

The Friess magnetic filter series FMF removes ferromagnetic particles of all sizes down to 1 µm.

The Friess magnetic filter series FMF removes steel particles and iron particles. In addition to that the magnetic filter removes paramagnetic particles like stainless steel, hard metal and other..

In order to clean the magnetic filter system the particles, collected on the magnetic rod, have to be scraped off with a special designed tool.

Your advantages:

- Drastically reduced operation cost due to longer lifetime of fluid
- Does not need any consumables
- No cost for waste disposal because the collected sludge can be recycled.
- Less waste because no consumables have to be disposed
- Less wear at pumps and valves because particles down to 1 µm will be removed.
- No additional energy necessary
- Improved surface quality because of clean coolant
- Longer lifetime of tools

Technical data

max. flow (water based liquid):

FMF 240/1: 70 l/min

max. flow (oil based liquid):

FMF 240/1: 35 l/min

max. pressure:

FMF 240/1: 15 bar

connection:

FMF 240/1: 3/4” BSP

dirt holding capacity:

FMF 240/1: 0,6 kg

number of magnetic rods:

FMF 240/1: 1

weight:

FMF 240/1: 4.5 kg

dimensions:

height

FMF 240/1: 306 mm

bottom plate

FMF 240/1: 110 x 110 mm

FRIESS GmbH

Standard filter

Ⓐ Particles, which are smaller than the pore size of the filter, remain in the liquid and will reduce the efficiency of the liquid. The small particles will cause wear at machines, pumps and cutting tools.

Ⓑ Bigger particles will block the filter pores and the system pressure will rise.

ⒸMore pores will be blocked by dirt particles and filter has to be changed.

Magnetic filtration

ⒶThe magnetic rod will collect all ferritic particles in the liquid.

ⒷEven particles down to 1 µm will be attracted by the strong magnets and will be removed from the liquid.

Ⓒ The flow path of the Friess magnetic filter FMF will not be blocked even if the filter is completely saturated with particles. This guarantees full flow of liquid.

Function of Friess magnetic filter FMF

The liquid is guided through the inlet into the magnetic filter housing. The liquid flows along the outside of the magnetic rod. Ferritic dirt particles will be attraced by the magnetic filter rods and will stick on the surface of the magnetic filter rod. The clean liquid flows to the outlet into the main tank.

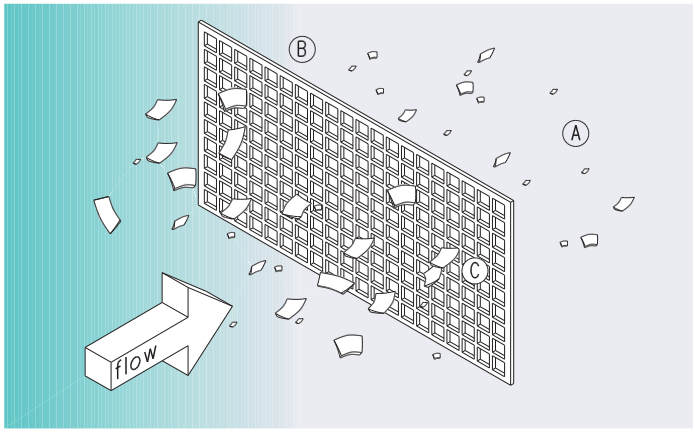
The special designed flow and the extreme high field force of the used magnets guarantees a high efficiency especially in the filtration of small particles down to 1 µm.

Cleaning of the magnetic rod

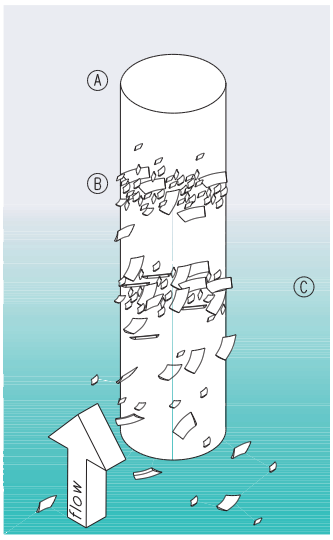
In order to clean the magnetic rod the filter will be supplied with a special designed tool. With this tool it is easy to scrape off the collected sludge. The particles can be recycled because it is ferritic material only.

Typical application

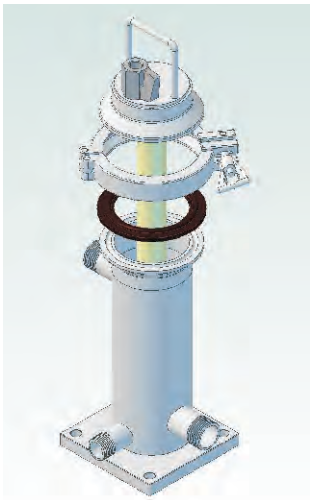
Coolant	Drawing oil
Grinding oil	Honing oil
Washing water	Fuel



Working principle filtration



Working principle magnetic filter rod


Magnetic filter FMF 240/1


Finest debris
collected on magnetic filter rod


Ferritic particles
on magnetic filter rods

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Friess Magnetic filter system FMF 310

The FRIESS Magnetic filter system FMF 310 removes particles from coolant, cutting oil, grinding oil and other process fluids.

Operation principle:

Particles, which are smaller than the pore size of the filter media, will pass the filter media together with the fluid. The number of small particles in the fluid will grow continuously.

The Friess magnetic filter series FMF removes ferromagnetic particles of all sizes down to 1 µm.

The Friess magnetic filter series FMF removes steel particles and iron particles. In addition to that the magnetic filter removes paramagnetic particles like stainless steel, hard metal and other..

In order to clean the magnetic filter system the particles, collected on the magnetic rod, have to be scraped off with a special designed tool.

Your advantages:

- Drastically reduced operation cost due to longer lifetime of fluid
- Does not need any consumables
- No cost for waste disposal because the collected sludge can be recycled.
- Less waste because no consumables have to be disposed
- Less wear at pumps and valves because particles down to 1 µm will be removed.
- No additional energy necessary
- Improved surface quality because of clean coolant
- Longer lifetime of tools

Technical data

max. flow (water based liquid):

FMF 310/1: 100 l/min
FMF 310/3: 150 l/min

max. flow (oil based liquid):

FMF 310/1: 50 l/min
FMF 310/3: 75 l/min

max. pressure:

FMF 310/1: 15 bar
FMF 310/3: 15 bar

connection:

FMF 310/1: 1" BSP
FMF 310/3: 1 1/2" BSP

dirt holding capacity:

FMF 310/1: 0.8 kg
FMF 310/3: 2.4 kg

number of magnetic rods:

FMF 310/1: 1
FMF 310/3: 3

weight:

FMF 310/1: 4.7 kg
FMF 310/3: 13.0 kg

dimensions:

height

FMF 310/1: 396 mm
FMF 310/3: 396 mm

bottom plate

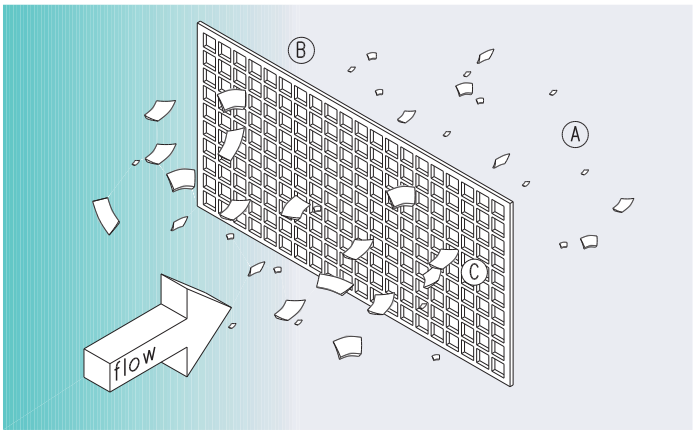
FMF 310/1: 110 x 110 mm
FMF 310/3: 170 x 170 mm

Standard filter

Ⓐ Particles, which are smaller than the pore size of the filter, remain in the liquid and will reduce the efficiency of the liquid. The small particles will cause wear at machines, pumps and cutting tools.

Ⓑ Bigger particles will block the filter pores and the system pressure will rise.

ⒸMore pores will be blocked by dirt particles and filter has to be changed.



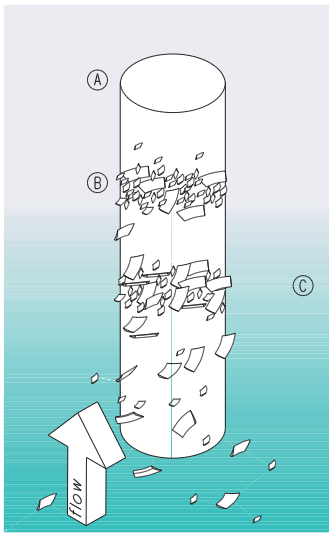
Working principle filtration

Magnetic filtration

Ⓐ The magnetic rod will collect all ferritic particles in the liquid.

ⒷEven particles down to 1 µm will be attracted by the strong magnets and will be removed from the liquid.

Ⓒ The flow path of the Friess magnetic filter FMF will not be blocked even if the filter is completely saturated with particles. This guarantees full flow of liquid.



Working principle magnetic filter rod


Magnetic filter FMF 310/1

Function of Friess magnetic filter FMF

The liquid is guided through the inlet into the magnetic filter housing. The liquid flows along the outside of the magnetic rod. Ferritic dirt particles will be attraced by the magnetic filter rods and will stick on the surface of the magnetic filter rod. The clean liquid flows to the outlet into the main tank.

The special designed flow and the extreme high field force of the used magnets guarantees a high efficiency especially in the filtration of small particles down to 1 µm.

Cleaning of the magnetic rod

In order to clean the magnetic rod the filter will be supplied with a special designed tool. With this tool it is easy to scrape off the collected sludge. The particles can be recycled because it is ferritic material only.


Finest debris
collected on magnetic filter rod


Ferritic particles
on magnetic filter rods

Typical application

Coolant	Drawing oil
Grinding oil	Honing oil
Washing water	Fuel

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Friess Magnetic filter system FMF 420

The FRIESS Magnetic filter system FMF 420 removes particles from coolant, cutting oil, grinding oil and other process fluids.

Operation principle:

Particles, which are smaller than the pore size of the filter media, will pass the filter media together with the fluid. The number of small particles in the fluid will grow continuously.

The Friess magnetic filter series FMF removes ferromagnetic particles of all sizes down to 1 µm.

The Friess magnetic filter series FMF removes steel particles and iron particles. In addition to that the magnetic filter removes paramagnetic particles like stainless steel, hard metal and other..

In order to clean the magnetic filter system the particles, collected on the magnetic rod, have to be scraped off with a special designed tool.

Your advantages:

- Drastically reduced operation cost due to longer lifetime of fluid
- Does not need any consumables
- No cost for waste disposal because the collected sludge can be recycled.
- Less waste because no consumables have to be disposed
- Less wear at pumps and valves because particles down to 1 µm will be removed.
- No additional energy necessary
- Improved surface quality because of clean coolant
- Longer lifetime of tools

Technical data

max. flow (water based liquid):

FMF 420/3: 250 l/min
FMF 420/6: 500 l/min

max. flow (oil based liquid):

FMF 420/3: 125 l/min
FMF 420/6: 250 l/min

max. pressure:

FMF 420/3: 15 bar
FMF 420/6: 10 bar

connection:

FMF 420/3: 1 1/2" BSP
FMF 420/6: 2 1/2" BSP

dirt holding capacity:

FMF 420/3: 3.0 kg
FMF 420/6: 6.0 kg

number of magnetic rods:

FMF 420/3: 3
FMF 420/6: 6

weight:

FMF 420/3: 13.2 kg
FMF 420/6: 19.6 kg

dimensions:

height

FMF 420/3: 511 mm
FMF 420/6: 511 mm

bottom plate

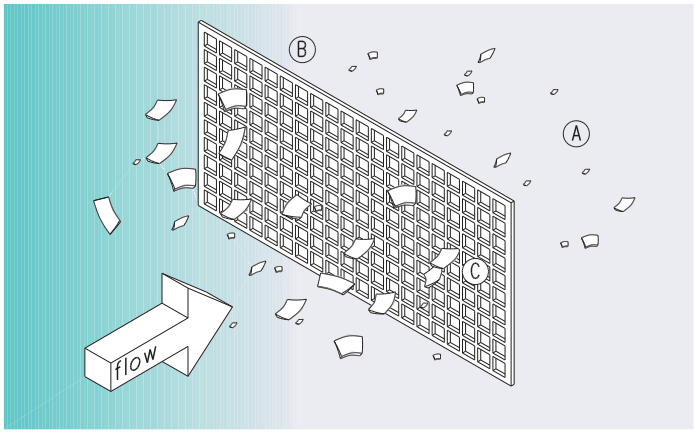
FMF 420/3: 170 x 170 mm
FMF 420/6: 200 x 200 mm

Standard filter

Ⓐ Particles, which are smaller than the pore size of the filter, remain in the liquid and will reduce the efficiency of the liquid. The small particles will cause wear at machines, pumps and cutting tools.

Ⓑ Bigger particles will block the filter pores and the system pressure will rise.

ⒸMore pores will be blocked by dirt particles and filter has to be changed.



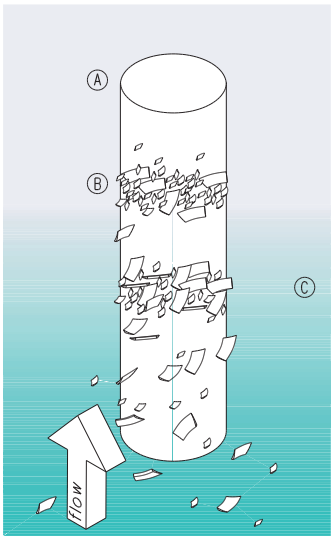
Working principle filtration

Magnetic filtration

Ⓐ The magnetic rod will collect all ferritic particles in the liquid.

Ⓑ Even particles down to 1 µm will be attracted by the strong magnets and will be removed from the liquid.

Ⓒ The flow path of the Friess magnetic filter FMF will not be blocked even if the filter is completely saturated with particles. This guarantees full flow of liquid.



Working principle magnetic filter rod


Magnetic filter FMF 420/6

Function of Friess magnetic filter FMF

The liquid is guided through the inlet into the magnetic filter housing. The liquid flows along the outside of the magnetic rod. Ferritic dirt particles will be attraced by the magnetic filter rods and will stick on the surface of the magnetic filter rod. The clean liquid flows to the outlet into the main tank.

The special designed flow and the extreme high field force of the used magnets guarantees a high efficiency especially in the filtration of small particles down to 1 µm.

Cleaning of the magnetic rod

In order to clean the magnetic rod the filter will be supplied with a special designed tool. With this tool it is easy to scrape off the collected sludge. The particles can be recycled because it is ferritic material only.


Finest debris
collected on magnetic filter rod


Ferritic particles
on magnetic filter rods

Typical application

Coolant	Drawing oil
Grinding oil	Honing oil
Washing water	Fuel

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