

Instruction manual

Original instructions



Mobile filter system

SMFS-P-015

To avoid injuries and damage, read these operating instructions thoroughly and attentively.
Retain it for further reference.

Additional operating instructions in other languages can be downloaded at www.stauff.com.

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1 Information about the instructions

These operating instructions includes important instructions and information on the intended use. Keep the operating instructions where they can be accessed by the operating personnel.

1.1 Warnings structure

Coloured signal word boxes emphasise the warnings. Always read the full warning text for effective protection against hazards!

The different colours and signal words of the following boxes designate various hazard levels:

 **HAZARD**

Ignoring this warning results in serious or lethal injuries.

 **WARNING**

Ignoring this warning can result in serious or lethal injuries.

 **CAUTION**

Ignoring this warning can result in minor or moderate injuries.

IMPORTANT

Ignoring this warning can result in damage.

Warnings always have the same structure. They include the signal word, hazard type and source, consequences of failure to comply and steps to ward off/avoid hazards.

Example:

 **WARNING**

Working on electrical equipment

Serious or lethal injuries from voltage

- ▶ Only qualified electricians may carry out work on electrical appliances.
 - ▶ Switch off the machine and secure it against inadvertent reactivation.
 - ▶ Work on live parts may only be carried out under supervision of a second person.
-

1.2 Instructions structure

Instructions are a direct request to carry out a task. They are structured in line with the operation involved. Always carry out the operating steps in the prescribed sequence.

The instructions are structured as follows and marked with the appropriate symbols:

- ▶ Objective of the instruction
 1. Operating step
 - ✓ Effect of the operating step to check if the step has been executed correctly.
 2. Additional operating step
- ☑ Result of the overall instruction

1.3 Orientation tools

The following orientation tools are provided in these instructions:

- Table of contents at the beginning
- Main chapter indicated in the header
- References to other chapters, e.g. to “Information about the instructions” (▶ chapter 1, p. 5)
- Additional information and tips marked with an “i” symbol



Example for additional information

2 For your safety

2.1 Intended use

The mobile filter system is designed for cleaning hydraulic and lubricating oil systems in machines and plants or for filling in new oil.

The mobile filter system is only intended for use with commercial mineral oils.

Intended use includes:

- observing all safety and warning instructions in these operating instructions (▶ chapter 2.2, p. 8)
- use only within the specifications provided in the “Technical data” chapter (▶ chapter 3.3, p. 13)
- observing the maintenance intervals and instructions
- (▶ chapter 7.2, p. 23)

No changes, attachments or conversions may be carried out without consulting the manufacturer. Such modifications can jeopardise the operating safety and are considered to be a violation of intended use.

Misuse

Any use other than that stated in the „Intended Use“ chapter is not permitted.

The mobile filter system must not be used

- in explosive atmospheres
- in unventilated rooms

The mobile filter system must not be used with the following media:

- explosive substances
- aggressive substances
- toxic substances
- highly abrasive substances
- faeces

The basic contamination of the conveyed liquid must not exceed category 22/20/16 as per ISO 4406.

2.2 General safety instructions

Safety instructions help you in avoiding injuries and damage. Ensure that you have read and understood all the safety instructions in these operating instructions.

Safe working entails doing more than just reading the general safety instructions in this chapter. Also read and follow the specific safety instructions in every chapter affecting your work. Also observe information in the referenced documents.

The following safety instructions apply in general:

- Observe the applicable national and international health and safety regulations.
- Only operate the machine ...
 - in a technically satisfactory condition
 - taking into account safety and hazards
 - according to the intended use (▶ chapter 2.1, p. 7)
 - in compliance with these operating instructions
 - with unchanged, complete and correctly installed safety devices and
 - with a correctly installed and functioning control unit
- Wear the personal protective equipment (▶ chapter 2.6, p. 11).
- Immediately rectify malfunctions which affect your safety and the reliable operation of the machine. Disable the machine until the malfunction is rectified and secure it against reactivation.
- Observe all adjustment, inspection and maintenance intervals, including the information on replacing parts.
- For maintenance and repair work, switch off the machine and disconnect the mains plug.
- Work on electrical equipment may only be carried out by qualified electricians. Work on live parts is only permitted under supervision of a second person.
- Be aware of possible residual energies in mechanical and electrical components.
- Use authorised spare parts when replacing components. Non-authorised spare parts can compromise operating safety.
- Check the electrical equipment regularly. Loose connections and burnt cables must be removed immediately.

2.3 Specific safety instructions

The product is designed to the state of the art and the recognised safety-relevant regulations. Nevertheless, its use can entail risks to the life and limb of the operator and third parties or damage to the product and its operating environment.



Electric shock from live parts

- Electrical installation and maintenance may only be carried out by qualified electricians.
- Disconnect the device from the power supply before starting any work
- Check parts for electrical charge before starting any work



Burns from hot surfaces

- Let hot components cool down before starting any work
- Wear protective gloves

2.4 Tasks and duties of the operating company

In addition to the instructions and information in these operating instructions, the general, statutory and other mandatory regulations on accident prevention and environmental protection also have to be observed.

To ensure safety, the operating company has to at least...

- ensure that the machine is only operated as intended, in proper condition, with all safety devices fully installed and without damage
- establish the area of application and prepare the corresponding operating instructions
- acquire the regulations applicable for operation in their most recent version and to familiarise operating personnel with these
- make the operating manual available in a complete and legible form at the operating location of the machine at all times
- ensure sufficient stability
- avoid trip hazards
- ensure sufficient ventilation and lighting of the work areas
- instruct the personnel in safe working
- ensure that unauthorised persons do not have access to the hazard area
- provide personnel with the required personal protective equipment
- have the electrical installation checked by a qualified electrician at least annually

2.5 Personnel qualification

Any work on the machine may only be carried out by qualified and authorised personnel. Personnel trained for the respective work and with appropriate certification are considered to be qualified.

Qualifications

The following qualifications are needed for certain work on the machine:

- **Operating personnel** have been briefed in operating the machine and in its functions. They input the data required for the operation and carry out the required operating steps to operate the machine. They are also responsible for simple maintenance tasks.
- **Setup and maintenance personnel** are responsible for commissioning, decommissioning, setup and configuration of the machine. In addition, setup and maintenance personnel carry out more extensive maintenance work and instruct operating personnel in the functions of the machine.
- **Qualified electricians** are responsible for all work on the electric components.
- **Qualified transport personnel** are qualified for the proper and secure loading and transporting of heavy goods.

Qualified tasks

Certain qualifications are needed for some tasks. Only persons with the specified qualifications are allowed to carry out the tasks listed.

Task	Qualification
Transporting the machine to the destination	Qualified transport personnel
Installation	Setup and maintenance personnel
Troubleshooting	Setup and maintenance personnel
Maintenance and troubleshooting on electrical equipment	Qualified electricians
General inspection and maintenance work	Setup and maintenance personnel





Safety briefing

All those working on the machine must receive a safety briefing at least once a year. Indispensable constituents of this briefing are:

- Personnel qualifications and authorisations
- Functionality and operation
- Area of application and ambient conditions
- Personal protective equipment
- Transport to the place of installation
- Regular maintenance work

2.6 Personal protective equipment

To limit risks during work, use the following defined personal protective equipment:

Symbol	PPE	Life phase	Task
	Tight fitting work clothing	All	All
	Safety shoes	All	All
	Protective gloves	Operation	When working on the system before it has cooled down
		Startup	
		Troubleshooting	
		Maintenance	
	Eye protection	Operation	When working on the system under pressure
		Startup	
		Troubleshooting	
		Maintenance	

3 Machine description

3.1 Overview

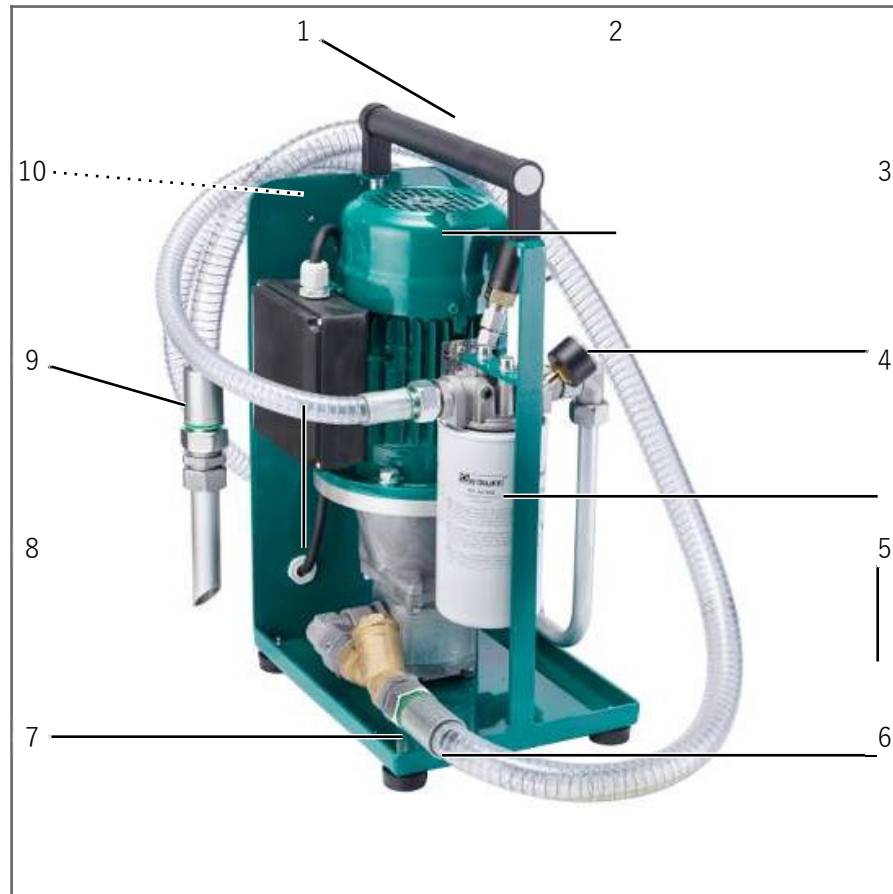


Fig. 1: Overview

- | | |
|--------------------------------------|--|
| 1 Frame with handle bar | 6 Hose on suction side |
| 2 Electric motor | 7 Gear pump with pressure limiting valve |
| 3 Contamination indicator | 8 Hose on pressure side |
| 4 Filter housing with filter element | 9 Lance |
| 5 Pre-filter | 10 Electrical main switch (hidden) |

3.2 Function

The mobile filter system is connected to the external power supply after installation and connection of the hoses at the installation site. After switching on, the medium is fed in by the pump, cleaned in the filter and discharged again through the hose on the pressure side.

3.3 Technical data

Dimensions and weights	
Dimensions (width x depth x height)	258 x 454 x 551 mm
Weight	33 kg

Media compatibility	
Suitable for:	Mineral oils
Upon consultation with Walter Stauffenberg GmbH&Co.KG:	<ul style="list-style-type: none"> • water, especially drinking water • food • flammable liquids • degreasing liquids • DOT brake fluids • phosphate esters (e.g. Skydrol, Hyjet) • HFDR liquids as per ISO12922 based on phosphoric acid esters • HEPG liquids as per ISO15380 based on polyglycol • MIL-L-7080 E • caustic liquids

Hoses and lances	
Material	PVC, reinforced with internal spiral
Length of hose, suction side	150 cm
Length of hose, pressure side	200 cm
Dimensions, suction side	DN 25
Dimensions, pressure side	DN 25
Mesh size of the integrated coarse filter (suction side)	Stainless steel filter 200 µm
Lance length	15 cm

Flow rate	

Flow rate	
15 l/min (depending on viscosity)	

Temperature	
Medium temperature	-15 °C ... +65 °C
Ambient temperature	-40 °C ... +70 °C

Viscosity	
Permitted	10 ... 400 mm ² /s
Recommended (with continuous use)	25 mm ² /s

Pressure	
Operating pressure	2 bar
Switch-off pressure for electric motor	7 bar overpressure
Test pressure	12 bar

Motor with CEE 7/4 connector	
Voltage/frequency	230 V AC/50 Hz
Phase	1
Power	0.75 kW

Motor with CEE 7/4 connector	
Speed	1400 rpm
Motor with CEE connector 3P+N+PE	
Voltage/frequency	400 V AC/50 Hz
Rated current	16 A
Phase	3
Power	0.75 kW
Speed	1400 rpm
Emissions	
Sound pressure level according to EN ISO 11202:2009	below 70 dB(A)
Harmful substances	none

3.4 Type plate



The type plate is located on the side of the machine.

3.5 Display and control elements

The following display and control elements are available for monitoring and control.

3.5.1 Electrical main switch



Fig. 2: Electrical main switch

The main switch has two positions:

- 0 OFF (horizontal): Machine switched off and disconnected from power supply
- 1 ON (vertical): Machine live

3.5.2 Contamination indicator



Fig. 3: Contamination indicator

The contamination indicator shows how contaminated the filter element is while a medium flows through the filter cartridges.

- Green: The filter element is OK.
- Yellow: The filter element is 75% contaminated.
- Red: The filter element is very contaminated and must be replaced chapter ▶ 7.4, p. 24.

3.6 Spare parts and wear parts

IMPORTANT

Replacing components

Machine damage, malfunctions, faults

- ▶ Only Walter Stauffenberg GmbH & Co. KG may carry out work involving opening up the machine!
 - ▶ Only authorised setup and maintenance personnel may carry out maintenance work!
 - ▶ Only use appropriate tools which are in a good condition!
 - ▶ Replace components only with genuine spares or those authorised by the manufacturer!
-

Lists of authorised spares and wear parts can be had from Walter Stauffenberg GmbH&Co.KG.

Replacement filter elements:

Spin-on series filter element SFC-35/36

4 Transport and storage

4.1 For your safety

WARNING

Lifting loads

Serious or lethal injuries from falling/suspended loads

- ▶ Secure all moving components before raising the load!
- ▶ Only use undamaged lifting equipment which is permitted for the weight of the load to be lifted!
- ▶ Attach load attachment gear only at the indicated attachment points!
- ▶ Never leave loads hanging in the lifting devices without supervision!
- ▶ Never stand underneath suspended loads!

WARNING

Transporting the machine

Serious or lethal injuries from tilting or slipping loads

- ▶ Before transporting the machine, secure all its moving components!
- ▶ Secure the machine against overturning or slipping out of position during transport!
- ▶ Only use transport vehicles suitable for the weight of the machine!

4.2 Transport



Information on dimensions and weight can be found in the "Technical data" chapter (▶ chapter 3.3, p. 13) and in the overview drawings and parts lists.

Note the following during transport:

- Transport may only be carried out by an authorised specialist company or by qualified personnel.
- Dispose of all packaging material in a proper and environmentally compatible manner after transport.
- Slide the lances into the respective lance holder for transport.
- Lift the mobile filter system using the handle bar.

4.3 Storage

Note the following during storage:

- The storage location has to be clean and dry.
- The ambient temperature has to be at least 5 °C.
- After a storage period of more than one year, all moving parts have to be checked for sufficient lubrication.

During storage, protect the mobile filter system against the following influences:

- strong sunshine
- high humidity
- strong vibrations
- extreme temperatures

5 Installation

5.1 For your safety

⚠ WARNING

Working on electrical equipment

Serious or lethal injuries from dangerous voltage

- ▶ Work on electrical equipment may only be carried out by qualified electricians.
 - ▶ Work on live parts is only permitted under supervision of a second person!
-

⚠ WARNING

Carrying out installation work

Serious or lethal injuries or machine damage due to incorrect installation

- ▶ Installation work may only be carried out by authorised specialist personnel!
 - ▶ Only use suitable tools in proper condition!
 - ▶ Wear your personal protective equipment for all work!
-



The filter element is not included in the delivery.

During initial commissioning, ensure that all filter elements are installed in the housing and securely attached ► chapter 7.4, p. 24.

Note the following rules before installation:

- The task may only be carried out by qualified personnel.
 - Place the mobile filter system in direct proximity to the tank to be cleaned or filled.
 - Keep space for maintenance work clear around the mobile filter system.
 - Place the mobile filter system horizontally onto a level surface.
 - Keep access to the main switch clear at all times.
 - Keep access to the control elements clear at all times.
 - Models delivered with CEE plugs are intended for fields with clockwise rotation.
- How to install the mobile filter system:
1. Guide the hoses into the corresponding removal or drain reservoirs.
 2. Secure the hoses against sliding out.
 3. Plug the mains plug into the appropriate socket.

6 Operation

To ensure safe operation, the machine may only be used in accordance with the intended use (► chapter 2.1, p. 7).

6.1 For your safety

CAUTION

Incorrect operation or misuse

Injury or machine damage

- ▶ Read the operating manual before working on the machine!
- ▶ Regularly take part in a safety instruction!

CAUTION

Hot machine parts

Burns on hands and arms

- ▶ Never let the pump run dry for longer than 2 – 3 minutes.
- ▶ Before carrying out any maintenance work, let components which become hot during operation cool down.
- ▶ Wear your personal protective gear for all work undertaken on the machine.

6.2 Starting pumping

Before switching on the machine, observe the general safety instructions (► chapter 2.2, p. 8).

- ▶ How to start pumping:
 1. Switch the electrical main switch to “On”.
 - ✓ Depending on pumping height and viscosity, the mobile filter system requires approx. 10 – 15 seconds to fill the filter elements completely.
 - ✓ The pumped medium is emitted on the outlet hose.
 2. **CAUTION! Risk of overheating** Never let the pump run dry for longer than 2 – 3 minutes.

The pump is running

6.3 Stopping pumping

- ▶ How to stop pumping:
 1. Switch the electrical main switch to “Off”.

The machine is switched off.

7 Maintenance

Maintenance comprises all measures for maintaining or re-establishing the safe condition and functionality. This includes:

- Maintenance work to maintain the functionality
- Inspection to identify signs of wear
- Repair or replacement of defective components
- Administrative and technical improvements to increase functional reliability

An overview of the regular maintenance measures can be found in the inspection and maintenance schedule.

7.1 For your safety

 WARNING**Working on electrical equipment**

Serious or lethal injuries from voltage

- ▶ Only qualified electricians may carry out work on electrical appliances.
- ▶ Switch off the machine and secure it against inadvertent reactivation.
- ▶ Work on live parts may only be carried out under supervision of a second person.

 WARNING**Carrying out maintenance work**

Serious or lethal injuries or machine damage

- ▶ Maintenance work may only be carried out by appropriately trained and authorised personnel.
 - ▶ Switch off and depressurise the machine and secure it against reactivation.
 - ▶ Only use suitable tools in correct condition.
 - ▶ Wear your personal protective equipment for all work.
-

7.2 Inspection and maintenance schedule

The following inspection and maintenance schedule provides an overview of all tasks to be carried out. Carry these out as per the detailed instructions in the respective sub-chapters. Observe the warnings in the chapters and the general safety instructions (▶ chapter 2.2, p. 8).

Interval	Task	Personnel
Before each operation	Visual check for leaks on pump, valves, tubes and hoses	Setup and maintenance personnel
Check regularly during operation	Check contamination of the filter element on the contamination indicator and replace the element if necessary ▶ chapter 7, p. 24	Operating, setup and maintenance personnel
20 operating hours	Check pre-filter for cleanliness, clean if necessary ▶ chapter 7.3.1, p. 23	Setup and maintenance personnel
Annually	Visual check of the hoses for wear	Setup and maintenance personnel
Annually	Test run in an area protected against leaking fluids	Setup and maintenance personnel
Annually	Check that all connections and hoses are tight and no unusual noises come from the motor/pump unit	Setup and maintenance personnel

7.3 Cleaning

The machine has to be cleaned regularly. The components to be cleaned, the procedure and the intended cleaning agents are defined in a corresponding operating manual.

7.3.1 Cleaning the pre-filter

▶ How to clean the pre-filter:

1. Ensure that the mobile filter system is disconnected from the power supply.
2. Open the sealing plug.
3. Remove the filter element.
4. Clean the filter element.
5. Install the filter element again.
6. Close the sealing plug.

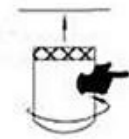
7.4 Replacing the filter element

► How to change the filter element:

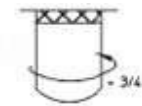
1. Remove the intake hose from the tank.
2. Switch on the filter trolley and wait until no more oil is emitted from the delivery hose.
3. Switch off the filter trolley at the main switch and pull the mains plug.
4. Unscrew the filter cartridge from the thread on the filter head anti-clockwise. (Use filter cartridge key if necessary)



5. Apply oil to a clean cloth and use it to apply oil to the seal of the new filter element.



6. Place the filter element straight onto the threaded connection and tighten clockwise, finger-tight.



7. Turn the new filter elements by another 3/4 turn to ensure a tight fit.

The mobile filter system is ready for operation again.

8 Malfunctions

8.1 For your safety

WARNING

Troubleshooting

Serious injuries or machine damage

- ▶ Troubleshooting may only be carried out authorised qualified personnel!
- ▶ Wear the appropriate personal protective gear for all work undertaken on the machine.

WARNING

Working on electrical equipment

Serious or lethal injuries from dangerous voltage

- ▶ Work on electrical equipment may only be carried out by qualified electricians.
- ▶ Work on live parts is only permitted under supervision of a second person!

Mechanical parts in the hazard area of the machine can cause a malfunction in the process due to poor maintenance or continuous use (e.g. by jamming). Note the following for malfunctions in the hazard area:

- Before troubleshooting in the hazard area, switch off and depressurise the machine if possible.
- Note that any stored (residual) energy on clamped parts can cause uncontrolled movements.
- Use tools or other means to prevent injuries to limbs.

8.2 Troubleshooting procedure

- ▶ How to proceed in case of a malfunction:
 1. Identify the assembly in which the malfunction has occurred.
 2. Trace the cause of the fault on the corresponding display element.
 3. Eliminate the cause of the fault and replace the defective components, if necessary.
 4. If you cannot identify the reason for the fault, contact the manufacturer.

8.3 Malfunctions table

Malfunction	Possible cause	Elimination
Motor does not start	<ul style="list-style-type: none"> • Power supply interrupted • Motor defective 	<ul style="list-style-type: none"> • Plug the plug into the socket • Check the fuses • Turn the electrical main switch • Check/replace the motor
Motor protection switch triggered	<ul style="list-style-type: none"> • Continuous operation at high ambient temperatures • Use of media with impermissibly high viscosity 	<ul style="list-style-type: none"> • Leave to cool down for 10 – 15 minutes • Check whether the viscosity of the oil used is permissible
Pump does not run smoothly/produces noise	<ul style="list-style-type: none"> • Medium highly contaminated • Shaft bearing damaged 	<ul style="list-style-type: none"> • Check pre-filter and clean if necessary • Check motor direction of rotation and swap the phases in the plug if necessary (CEE plug equipped with phase inverter) • Send pump to factory customer service for repair
Flow rate is too low	<ul style="list-style-type: none"> • Filter elements not yet filled • Intake line blocked • Pre-filter blocked • Pressure loss from leak • Filter elements blocked • Hoses kinked • Pump defective • Medium cold or with impermissibly high viscosity 	<ul style="list-style-type: none"> • Wait 30 – 60 seconds • Clear the blockage • Cleaning the pre-filter • Identify the leak and eliminate properly • Check the contamination indicator, replace filter elements if necessary • Eliminate the cause • Send pump to factory customer service for repair • Use coarser filter elements if necessary • Check whether the viscosity of the oil used is permissible
Contamination indicator in the red zone	<ul style="list-style-type: none"> • Filter elements blocked • Medium cold or with impermissibly high viscosity 	<ul style="list-style-type: none"> • Replace the filter elements • Check again after 20 – 30 minutes, use coarser filter elements if necessary • Check whether the viscosity of the oil used is permissible

9 Decommissioning

9.1 For your safety

WARNING

Lifting loads

Serious or lethal injuries from falling/suspended loads

- ▶ Secure all moving components before raising the load!
- ▶ Only use undamaged lifting equipment which is permitted for the weight of the load to be lifted!
- ▶ Attach load attachment gear only at the indicated attachment points!
- ▶ Never leave loads hanging in the lifting devices without supervision!
- ▶ Never stand underneath suspended loads!

WARNING

Carrying out dismantling work

Serious or lethal injuries

- ▶ Dismantling work may only be carried out by authorised qualified personnel!
- ▶ Only use suitable tools in proper condition!
- ▶ Wear your personal protective equipment for all work!



Collect operating media and cleaning fluids containing solvents in appropriate containers to prevent substances hazardous to water from entering the ground or the sewage system!

9.2 Disposal

Following final dismantling of the machine, the operating company has to dispose of all used materials and components in keeping with the provisions in force in the country where machine is operated.

Particular care is required for disposing of materials which are hazardous to the environment, e.g.:

- plastic parts
- rubber parts
- electrical parts
- metal parts
- operating fluids and additives



substances hazardous to water

Use suitable containers for collecting, storing and transporting substances hazardous to water.

10 EC Declaration of Conformity

as per EC Machinery Directive 2006/42/EC, Appendix II 1.A

10.1 EC Declaration of Conformity

1 Declaration of Conformity

EC Declaration of Conformity

as per the EC Machinery Directive 2006/42/EC

We, Walter Stauffenberg GmbH & Co. KG,
hereby declare that the filter trolleys

SMFS-P-015 – STAUFF Mobile Filter System - Portable
SMFS-U-030 – STAUFF Mobile Filter System - Unit

correspond to the EC Machinery Directive and the applicable health and safety requirements based on their concept and design, as well as in the model marketed by us. Any changes to the filter trolley not agreed with us will invalidate this declaration.

EC Directives with which the filter trolleys comply:

EC Machinery Directive ¹	2006/42/EC	05/2006
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Applied harmonised standards:

Safety of machinery	DIN EN 12100
Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs	EN ISO 13857
Safety of machinery - Safety requirements for fluid power systems and their components - Hydraulics	EN 982
Hydraulic fluid power - General rules and safety requirements for systems and their components	EN ISO 4413
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4
Safety of machinery - Electrical equipment of machines	EN 60204-1

Werdohl, 25-03-2014



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¹ on machinery and for changes to the Directive 95/16/EC (new version)
Directive 2006/42/EC replaces Directive 98/37/EC

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Let us know about any questions, suggestions or criticism you might have about your machine or this documentation: