

Compressed air filter APF35-38 – APF1300

Operating manual EN

Rev. 01_0926



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1 Operating manual EN (English)

1 Introduction

These installation and operating instructions are intended to help users become familiar with the product and use it in accordance with its specified applications. Moreover, these instructions provide important information on safe, correct and economical operation. All instructions contained in this manual must be implemented as specified in order to prevent danger and/or damage.

Additionally, the relevant regional regulations on accident prevention and the recognized technical code of practice for safe and correct operation must be applied. All persons engaged by the user with the installation, commissioning, maintenance, repair and monitoring of the product must have read and understood this manual. The manual must always be available at the operating site.

2 Guarantee

These compressed air filters are manufactured in compliance with the state of the art and are subjected to a comprehensive inspection, including safety features, before delivery. However, dangers to persons and property may still occur if:

- the operating personnel is not trained
- the product is not used in accordance with its intended use
- the instructions in this manual are not implemented
- the product is not maintained and serviced in compliance with the manufacturer's specifications
- no original parts from the manufacturer are used
- the filter continues to operate despite a demonstrable defect.

Any of these factors may lead to automatic invalidation of any claims under guarantee.

3 Used symbols

The following symbols are used in these instructions and/or are affixed to the system:

Symbol	Meaning	Symbol	Meaning
	General warning!		Warning: biohazard!
	Warning: positive-/negative pressure!		Use hand protection!

4 Operation



The personnel employed for installation, commissioning, maintenance, servicing and for daily operation must have the appropriate qualifications for their tasks. In particular, the personnel must have:

- Know-how and experience in handling compressed air and be aware of the corresponding dangers,
- full knowledge of the contents of this manual,
- the appropriate training or qualification.



Before starting any work on the device, the housing must be depressurised.



For safe operation, the product must always be used within the specified operating limits (in particular for operating pressure, operating temperatures, volumetric flow rates and material strength/resistance).

The filter may only be operated with compressed air.

For versions with condensate drain, make sure that the device is designed for the specified compressed air or gas flow rate.

For safety and operating reasons, the compressed air supply must immediately be cut off in the event of any leakage, and the leak must be remedied.

In case of sterile filters, hygiene compliance measures should be taken.

The filters, including all accessories, must be regularly inspected. In particular, the correct functioning of the condensate drain must be verified.

5 Safety instructions

The filter has been built according to state-of-the-art technology and actual safety standards. However, there is a risk of danger that every person working with the filter must be aware of. In particular, improper handling of compressed air may result in serious injury or death. If you are not experienced in using pressure equipment, please ask the relevant experts for help.

- In order to prevent personal injury or damage to the equipment, the safety notes must be observed when using this filter.
- Observe the specific safety notes in the relevant chapters.
- Observe the legal guidelines and the accident prevention regulations.
- Observe the safety notes of the local site regulations.

Overpressure

The filter is pressurised. Suddenly escaping compressed air may result in serious injury. Do not carry out mechanical work on the filter as long as the filter is pressurised.

Hot surfaces

Depending on the temperature of the compressed air the filter surfaces may be very hot. Unprotected touching of these surfaces may cause burns. Avoid direct contact to these surfaces. Restrict access to the surfaces, if necessary, or install thermal insulation on the hot components. Never exceed the maximum allowable temperature of the filter.

Overload

The filter must only be operated with compressed air within the operating conditions. Exceeding the maximum allowable operating conditions may result in serious injury or death. It is the duty of the operator to ensure that the connected pressure source is safeguarded that the maximum allowable operating pressure and the minimum and maximum allowable temperatures are not exceeded.

Unauthorized modifications

Modifications to the filter may result in dangerous operating states. Violations may cause serious injury or death. Never modify the filter function by means of conversions. Never carry out welding work on pressure-bearing parts. Any modifications of the filter must be agreed on with the manufacturer and confirmed in writing.

Suspected misuse

Using the filter for unintended purposes may result in dangerous situations. Violations may cause serious injury or death. Never use the filter as a climbing aid. Never use the filter as a support for external weight loads. Never use filter components for unintended application purposes.

6 Installation & commissioning



The filters are carefully tested in the factory and are handed over to the shipping contractor in perfect condition. However, please inspect the goods for any visible damage and, if any such damage is observed, please enter a comment to this effect on the reception slip. The manufacturer is not responsible for any damage in transit.

Performance data

The filter housings may only be installed under the following operating conditions:

Maximum pressure:	$R_p \leq 2'' = 232 \text{ psi}$ $R_p = 2 \frac{1}{2}'' = 195.75 \text{ psi}$ $R_p > 2 \frac{1}{2}'' = 152.25 \text{ psi}$
Minimum pressure for all housings:	22 psi
Maximum operating temperature:	248 °F
Minimum operating temperature:	33.8 °F
Deviation in vacuum filters:	
Maximum operating vacuum:	-13.3 psi
Maximum operating temperature filter elements:	248 °F
Maximum operating temperature filter element activated carbon:	122 °F

Position



The housing must be installed vertically. When installing, the specified flow direction must be observed (indicated by arrow). Any possibility of transmitting of vibration from piping networks to the filter housing must be eliminated. Make sure that there is sufficient space underneath the bottom of the housing to replace the filter elements. Please also comply with the maximum temperature specifications. Ensure sufficient clearance to the wall, so that e.g. you have space to insert a belt-type filter wrench.

Installation



Ensure that the pipe is depressurised! Once you have selected the location in the pipe according to the treatment stage and the given temperature conditions, create the appropriate connections to connect the filters to the existing pipe according to their connection. The pipes must be suitable for the maximum possible operating pressure. Depending on the size of the housing, it may be advisable to install only the filter head first and then screw on the lower part of the housing after installation. To do this, turn the lower part of the filter clockwise away from the head. Install the filter head in the pipeline (which must of course be depressurised beforehand!) and then screw the lower part of the filter back onto the filter head in an anticlockwise direction. Make sure that the O-ring is correctly positioned in the filter head, that the filter element is seated in the suspension and that the filter is completely closed. We recommend installing a shut-off valve before and after the filter so that the filter housing can be disconnected separately for maintenance.

After installation, slowly open the inlet valve (not included in the scope of delivery). Check all screw connections for leaks. In the event of leaks, shut off and seal immediately. Please note that with automatic float-type drain, the float may lift up to a certain pressure. This should be set to 43.5 psi or higher.

7 Transportation & storage



Even with precaution damages caused by transportation cannot be ruled out. Therefore, always check the filter for damages after transportation and packaging removal. The haulage contractor and the manufacturer or the sales partner must be informed about any damage immediately.

To maintain the filter quality the filter must be stored at a suitable location and properly prepared for storage. Store the filter in the supplied transport packaging. If necessary, the filter should be protected against dust using an additional cover. The place of storage has to fulfil the following requirements:

- indoors
- protected against weather impact (Frost-free)
- dry.

8 Options / Accessories

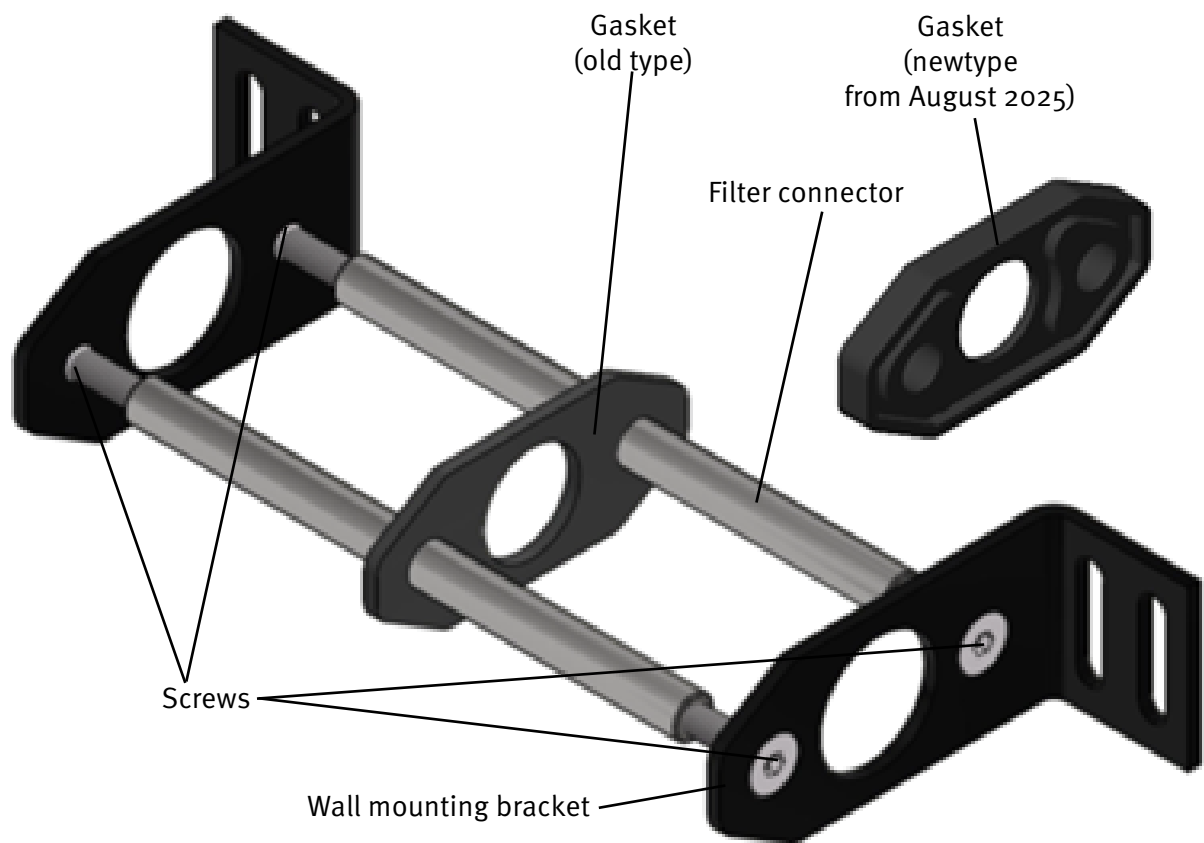
- Wall mounting brackets, including filter connection set
- Filter connection set
- Differential pressure gauge
- Potential-free electric differential pressure gauge
- Manual drain
- Automatic condensate drain
- Oil test indicator
- Moisture indicator

Wall mounting brackets / Filter connecting set (optional at filter sizes APF35-38 — APF765)



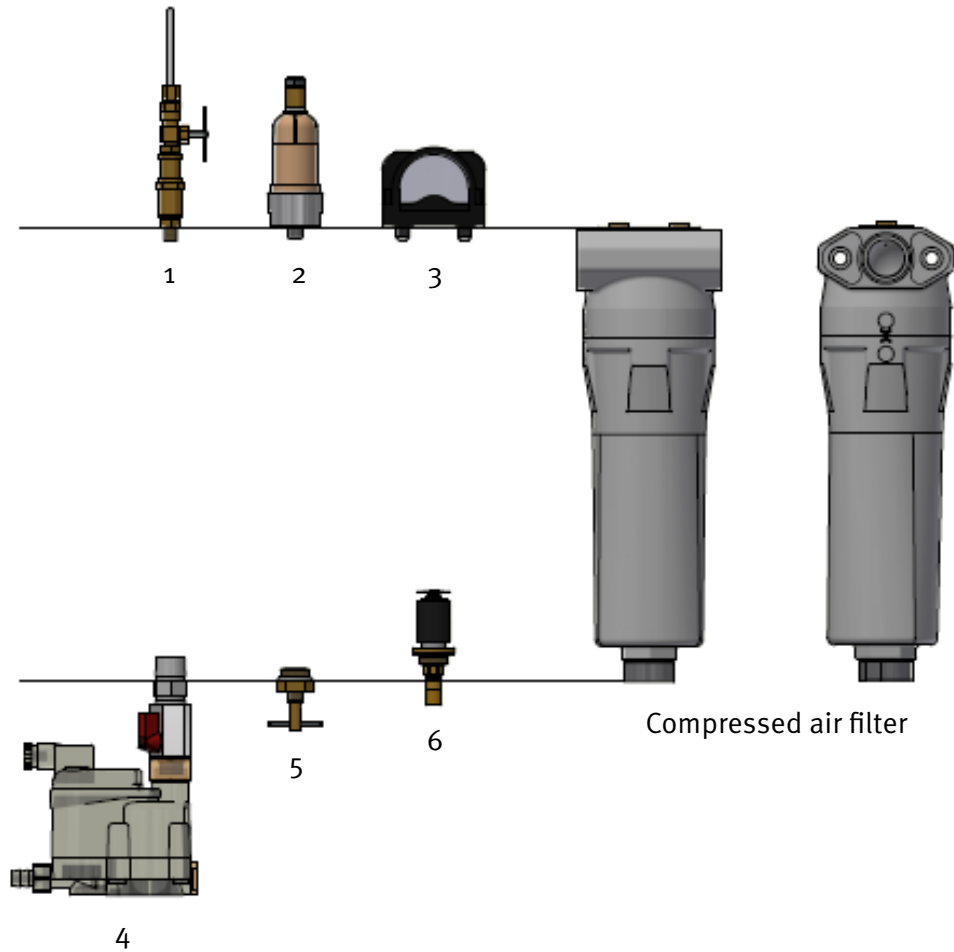
When tightening the screws(DIN 7997), it is essential to observe the specified tightening torques!

Screw	Torque (at gasket old type)	Torque (at gasket new type from Aug. 2025)
M6	8 Nm	10 Nm
M8	8 Nm	25 Nm

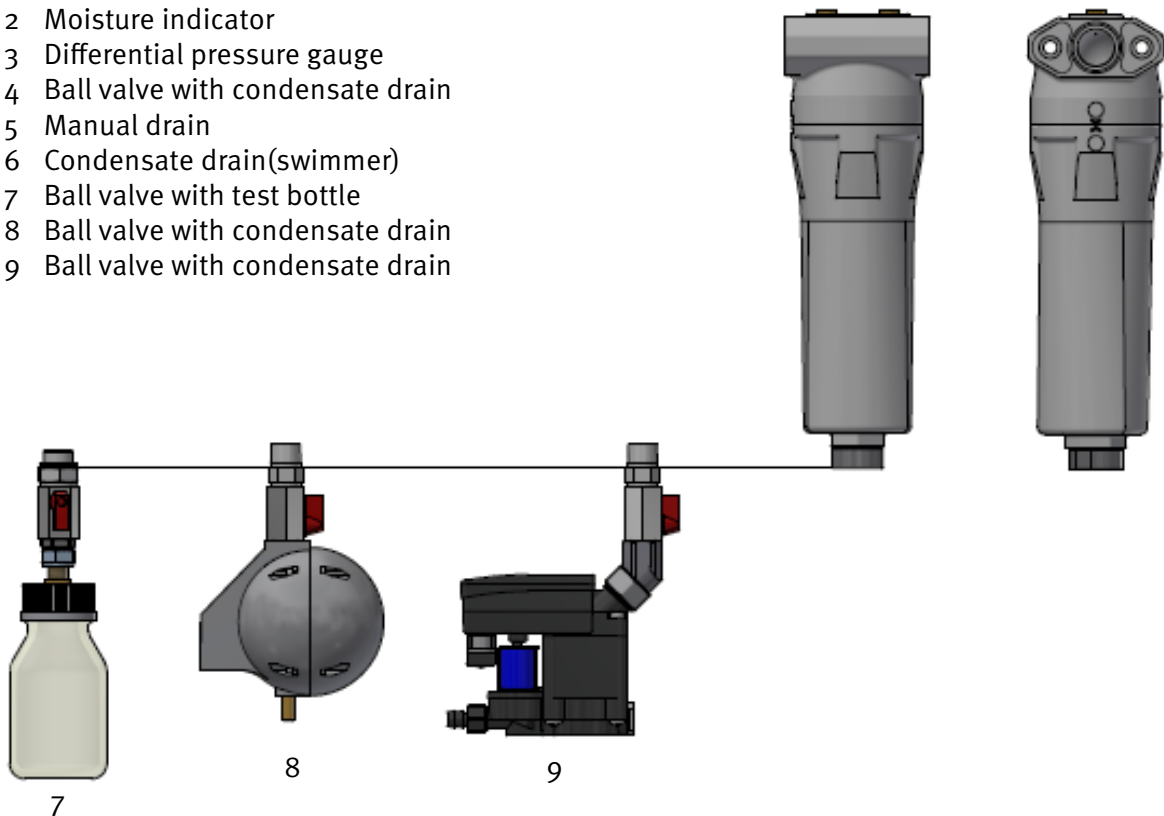


For operating pressures above 145 psi, we recommend replacing the standard filter connection with a seal with a suitable double nipple to ensure a permanently pressure-resistant and reliable connection.

9 Compressed air filters and possible attachments



- 1 Oil test indicator
- 2 Moisture indicator
- 3 Differential pressure gauge
- 4 Ball valve with condensate drain
- 5 Manual drain
- 6 Condensate drain (swimmer)
- 7 Ball valve with test bottle
- 8 Ball valve with condensate drain
- 9 Ball valve with condensate drain



10 Filter types

The filters are designed to remove particulate matter, aerosols, oil vapours and odours from non-aggressive compressed air. Depending on the specific application, different validated filter elements can be installed.

Water separator This type of filter is based on the principle of the „cyclone separator“. Due to the construction of the water separating element, the air is swirled in a rotary movement, centrifugating the water vapour molecules to the housing. In this type of filter, the air flows through the filter from the outside inwards.	WS Metal element with centrifugal effect for initial separation of water vapour and aerosols
Wet filter Filter elements with these specifications separate solid particles by collision and inertia effects, whilst oil and water aerosols are separated by the coalescence effect. Due to gravity, the filtered liquid particles accumulate at the bottom of the filter, from where they are manually or automatically drained. The flow direction is from inside to outside.	VF25 Coarse filter element for separating impurities up to 25 µm particle size
	FF5 Pre-filter element for separating coarser dirt concentrations in a solid or liquid state
	MFO Fine filter element for separating aerosols up to 0,5 mg/m³ and particulate matter up to 1 µm particle size
	MF1 Fine filter element for separating aerosols up to 0,1 mg/m³ and particulate matter up to 0,1 µm particle size
Dust filter These dust filter elements separate solid particles by collision and inertia effects. Due to gravity, the filtered liquid particles accumulate at the bottom of the filter, from where they are drained. The flow direction is from outside to inside.	SMA Ultra-fine filter element for separating aerosols up to 0,01 mg/m³ and particulate matter up to 0,01 µm particle size
	DMF Dust fine filter element for separating particulate matter up to 1 µm particle size
	DF1 Dust fine filter element for separating particulate matter up to 0,1 µm particle size
Activated carbon filter The activated carbon element adsorbs oil vapours and odours, which are imbedded in the activated carbon. An SMA filter must be installed upstream of this element in order to reduce aerosols, water vapour and smallest particles before they reach the element. This upstream filtration increases the adsorption capacity of the activated carbon element. The flow direction is from inside to outside.	DSF Dust ultra-fine filter element for separating particulate matter up to 0,01 µm particle size
	CA Activated carbon filter element for separating oil vapours up to 0,003 mg/m³

Cartridge filter molecular sieve In this cartridge solution, water vapour molecules are imbedded in the open pores of the desiccant, thereby dehumidifying the compressed air. These elements must be operated with pre filter/wet filter (particle filtration 0,01 µm). Installation downstream to refrigeration dryers is recommended. The cartridge includes an integrated dust fine filter element (particle filtration 1 µm) in order to separate any dust. Please pay attention to the design data of the cartridge series.	MSK Molecular sieve cartridge as final dryer stage for compressed air dehumidification by adsorption to a pressure dewpoint of -40 °F.
Cartridge filter activated carbon This filter element adsorbs oil vapours and odours and imbeds them in the activated carbon. A wet filter (particle filtration 0,01 µm) must be installed upstream. The cartridge includes an integrated dust fine filter element (particle filtration 1 µm) in order to separate any dust. The quantity of activated carbon in the cartridge is much greater than in the conventional activated carbon element. Please pay attention to the design data of the cartridge series.	CAK Activated carbon cartridge for separating oil vapours up to 0.003 mg/m³ and odours.
Cartridge filter hobcalide This filter element is filled with a catalyst. The catalyst triggers conversion of carbon monoxide to carbon dioxide by oxidation. The carbon dioxide is then in turn reduced by chemisorption. The catalyst is active only in compressed air dried to at least -18 °F pressure dewpoint. The cartridge includes an integrated dust fine filter element (particle filtration 1 µm). Please pay attention to the design data of the cartridge series.	HC Catalyst cartridge for reducing carbon monoxide to carbon dioxide by oxidation and for chemisorption by catalyst.
Vacuum filter activated carbon The activated carbon element adsorbs oil vapour and odours, which are imbedded in the activated carbon. Upstream sub-micro filtration is recommended to filter aerosols, water vapour and smallest particles. This prolongs the lifetime of the intake capacity of the element. The flow direction is from outside to inside.	V CA Activated carbon element for vacuum pump exhaust filters for separation of oil vapour and odours up to a value of 0,003 mg/m³
Vacuum filter With these filter elements solids are separated by impact and inertia effect, oil- and water aerosols by the coalescence effect. By gravity, filtered liquid particles accumulate in the lower filter container and are drained manually or automatically. The flow direction is from outside to inside.	VP MFO Vacuum pump protection filter for a filtration of particles, humidity vapour and aerosols
	V MFO Vacuum pump exhaust filter for a filtration of particles and dust up to 1 micron, oil carry over at 68 °F 0,5 mg/m³
	V SMA Vacuum pump exhaust filter for for a filtration of particles and dust up to 0,01 micron, oil carry over at 68 °F 0,01 mg/m³
Vacuum filter medical In the first step this filter element separates liquid particles by gravity and drops them into the lower parts of the filter. A dry operation is recommended. Fine layers of filter media separate bacteria.	VMS Medical sterile filter for vacuum devices to protect centralised hospital vacuum plant installations from liquid, solid and bacterial contamination up to 0,001 % regarding to BS3928

Sterile filter This filter element is made with a very good sealing material to hold back bacteria. This bacteria is killed by hot vapour at a min. temperature of 280 °F. The element should be sterilized once a month in an autoclave. The sterilization process can be done up to 50 times. Never take the element into a disinfection bath!	SE Sterile filter for bacteria removal with sterilizable filter element according to BS3928; Contamination capability 0,0001 %
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The desiccants used are not classified as hazardous substances and are therefore not subject to labelling requirements. However, please observe all standard safety measures for handling chemicals. Please also wear your personal protective equipment (safety goggles and respiratory protection). Please also note that the material accumulates contaminants, including oil vapour. This can result in further hazards.

11 Maintenance

11.1 Replacement of filter elements



Depressurise the housing. Secure the shut-off valves so that they cannot be accidentally opened. Check that the unit is unpressurised by manually opening the condensate drain. Use only a suitable tool to unscrew the bottom half of the filter. Unscrew the bottom half of the housing anti-clockwise. Take the element out of the filter bowl.



Take the new filter element from its cartonage, grease the O-ring (we recommend food industry grease), and put the element in the filter bowl. Please make sure that the three wings are positioned in the respective spots inside the bowl. Check the O-ring in the filter housing and apply grease here too if necessary. Also grease the thread of the lower part of the filter.



Remove any dirt from the bottom half of the filter, and then rescrew it clockwise to the filter head.

Reopen the compressed air supply slowly and check for leaks. In the event of any leakage, immediately depressurize the system and fix the leaks.

11.2 Replacement of condensate drain



Due to adhesion and rust and dust particles, the condensate drain may have to be regularly replaced. In this case, first proceed as described above.

Turn the condensate drain clockwise at the flats (metric wrench size 15) to remove it. Then screw in the new condensate drain counter-clockwise in the same way.

Please note that the removed components, in particular filter elements, are contaminated with compressor oils. These must be safely disposed in accordance with regional waste disposal guidelines and regulations for materials contaminated with oil!

11.3 Sterilisation of the filter element

This section only applies when using sterile filters. The sterile filter elements retain germs and bacteria. Due to their structure and high-quality filtration performance, the compressed air must first be treated to particle class 1 and residual oil content class 1 in accordance with ISO 8573-1.

Please note that the filter elements must be sterilised before use. We also recommend drying prior to using a sterile filter. The intervals are to be determined by the operator of the compressed air system. We recommend weekly sterilisation.

With the sterile filter housings provided, only the filter element is sterilised by placing it in an autoclave. The element should be exposed to a steam temperature of max. 280 °F for at least 15 minutes. The element must then be packaged in sterile packaging. The element must not be placed in a disinfectant bath. The O-rings are made of silicone and are therefore temperature-resistant.

The element can be sterilised up to 50 times, afterwards it must be replaced. If redundancy is required during sterilisation, an appropriate distance must be provided.

12 Maintenance schedule

Filter type	Recommended maintenance interval	Measure
WS	-	-
VF25	yearly	Replacement of filter element
FF5	yearly	Replacement of filter element
MFO	yearly	Replacement of filter element
MF1	yearly	Replacement of filter element
SMA	yearly	Replacement of filter element
DMF	yearly	Replacement of filter element
DF1	yearly	Replacement of filter element
DSF	yearly	Replacement of filter element
CA	every 300 - 400 operation hours	Replacement of filter element
MSK	half-yearly	Replacement of filter element
CAK	half-yearly	Replacement of filter element
HC	yearly	Replacement of filter element
V CA	every 300 - 400 operation hours	Replacement of filter element
VP MFO	yearly	Replacement of filter element
V MFO	yearly	Replacement of filter element
V SMA	yearly	Replacement of filter element
VMS	yearly	Replacement of filter element
SE	yearly weekly	Replacement of filter element Sterilisation of filter element
all	yearly	Inspection of condensate drain



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