Manuel

Mobile Filtration System 230 V

MFT Mikrofiltertechnik GmbH
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Liability Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions are designed for the creation of the manual for the 230V mobile filtration system. MFT Mikrofiltertechnik GmbH assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the mobile-400V filter system and the manual.

Safety instructions

Please note the following precautions:

- All procedures must be performed only by specialists.
- When intervention in the fuel and hydraulic system the environmental protection requirements must be integrated.

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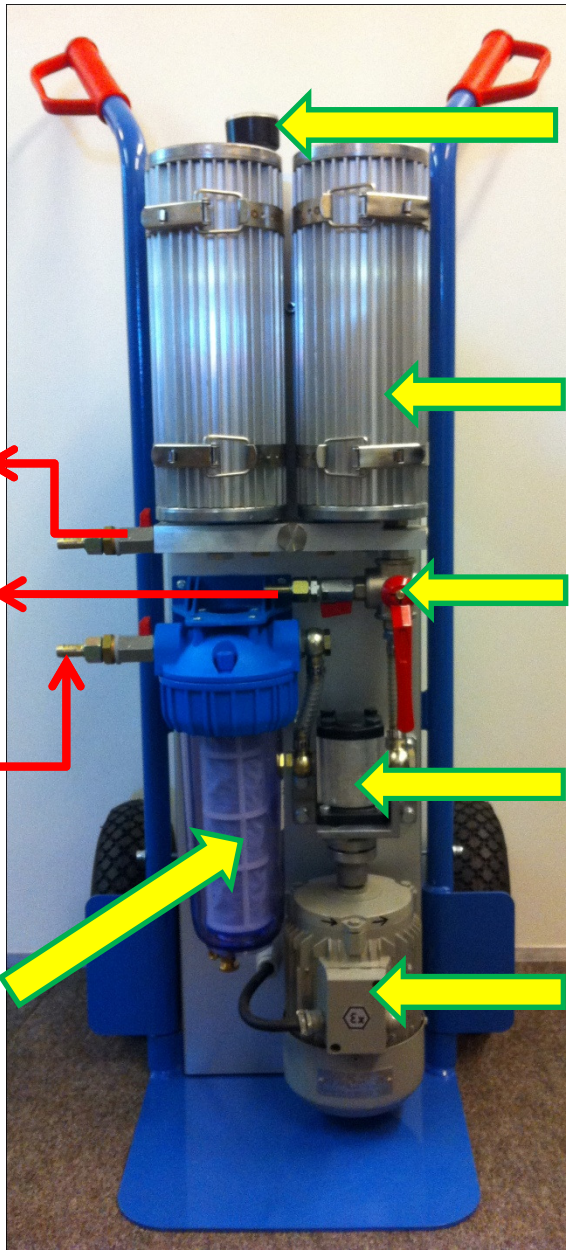
Overview screen



manometer
(for contamination controll)

microfilter (1µ)

micro filtered liquid
(further useful)

three-way cock
(cleaning/tank-to-tank fuel transfer/draining)

only pre-filtered liquid
(for pumping out or over)

gear pump
(15 l/min resp. 6 l/min)

dirty liquid (from tank)

prefilter 50 µ
(to protect the pump and the water trap and drain)

Motor
(400 V, 1350 rpm)

Blue Motor:
(230 V; 1350 rpm)

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Description

This mobile 230V-filtration system is suitable for pumping liquids from A to B. The construction of this system has to perform several functions (depending on the arm position of the 3/2-way cock):
- rough cleaning (50µ) and, simultaneously, free water separation
- fine filtration (1µ) and, simultaneously, binding bound water in the microfilter cartridge

Each filter cartridge absorb dirt and water until it is saturated (150 - 200 ml water). This leads to a pressure increase that is shown on the manometer. The maximum pressure should not exceed 2 bar because it decreases the filter performance. Thus, the filter cartridge should then be changed (see later).

Security:
Inside the manifold block a safety relief valve is installed, which opens at 4 bar and then leads the liquid into bypass. This protects the hose from bursting.
The 230V motor is equipped with a motor protection switch to avoid fusing (for example when the pump is blocked).

Connection of the hoses for filtration

The hoses must be connected to two tanks (the "dirty" fuel and "clean" fuel). They both have to be dunked in the liquid. The pump should not suck air for a long time and the fluid should not be released to the surrounding area.

Also important: the relevant shut-off cocks must be open in filtering mode and closed when not used (see modes).

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Connection to the power supply

The 230V-filter system has a normal connector which can be put into a 230 V outlet.

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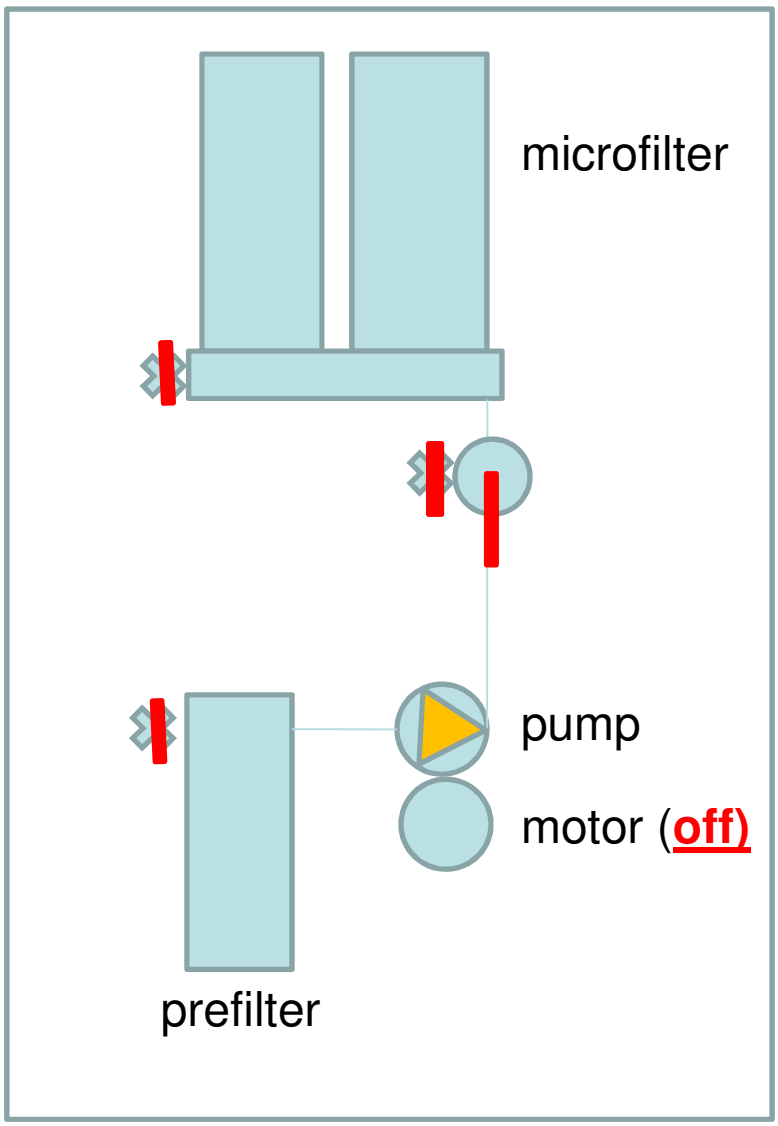
Operation modes

blocking

3/2-way-cock

arm position

shut-off cock



All shut-off cocks must be closed. The arm of the 3/2-way cock does not matter. Generelly the hoses can remain connected. However, the ends should show bottom up to avoid liquid from being released to the surrounding area.

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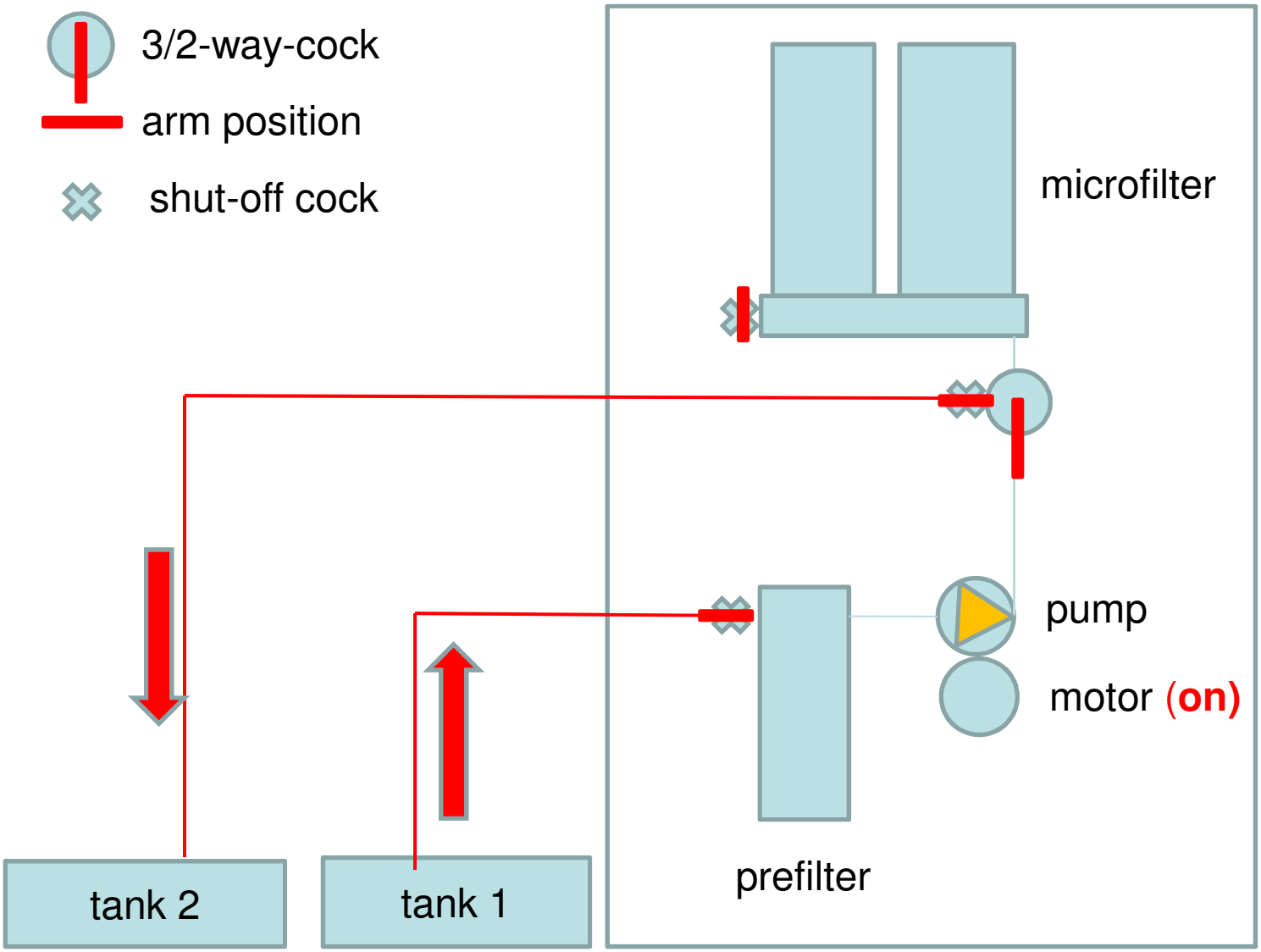
Operation modes

tank-to-tank-transfer



The shut-off cock at the microfilter must be closed, all others open. The arm of the 3/2-way cock must point downwards.

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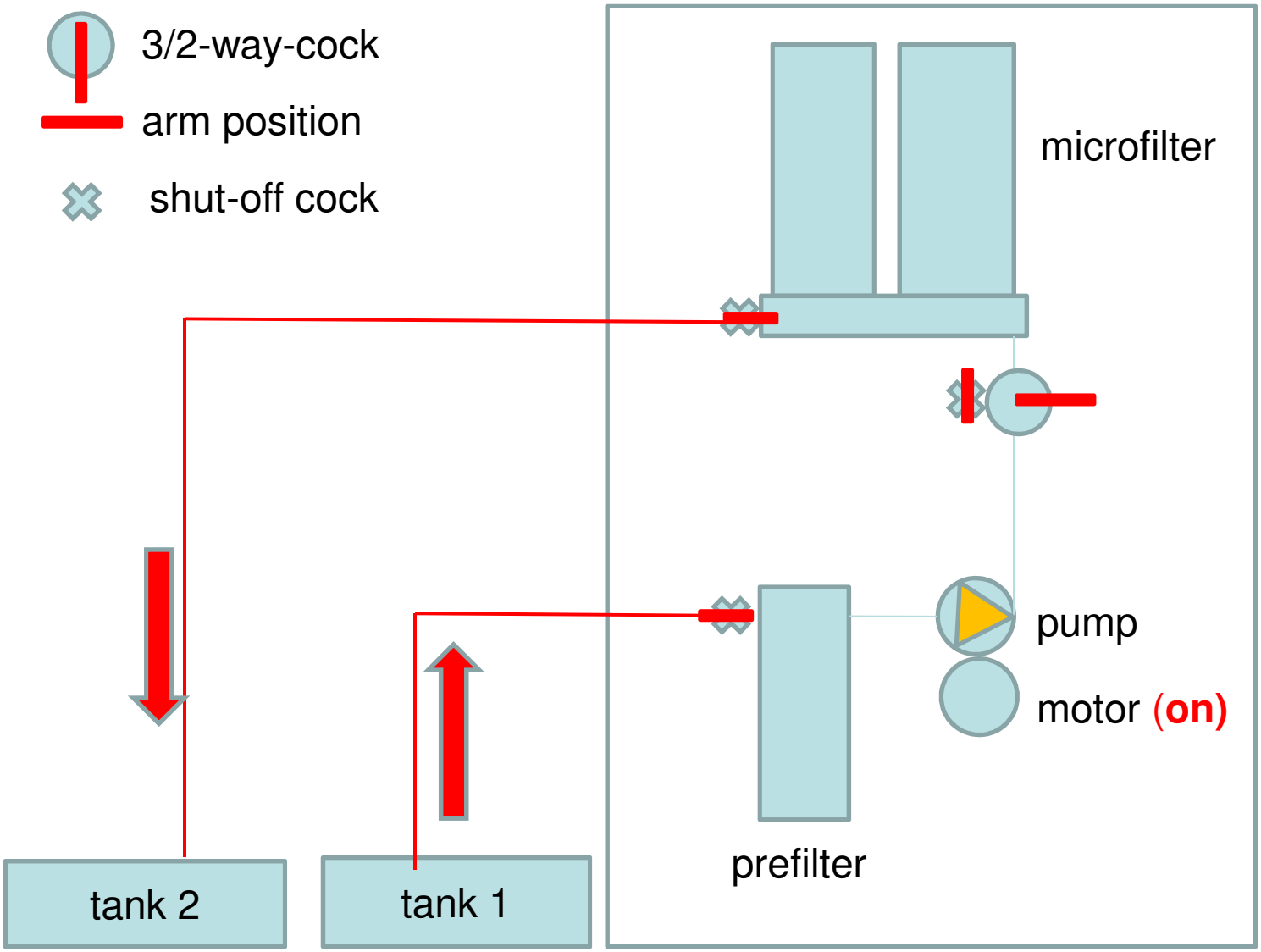
Operation modes

micro-filtration



The shut-off cock at the 3/2-way-cock must be closed, all others open. The arm of the 3/2-way cock must face the right side.

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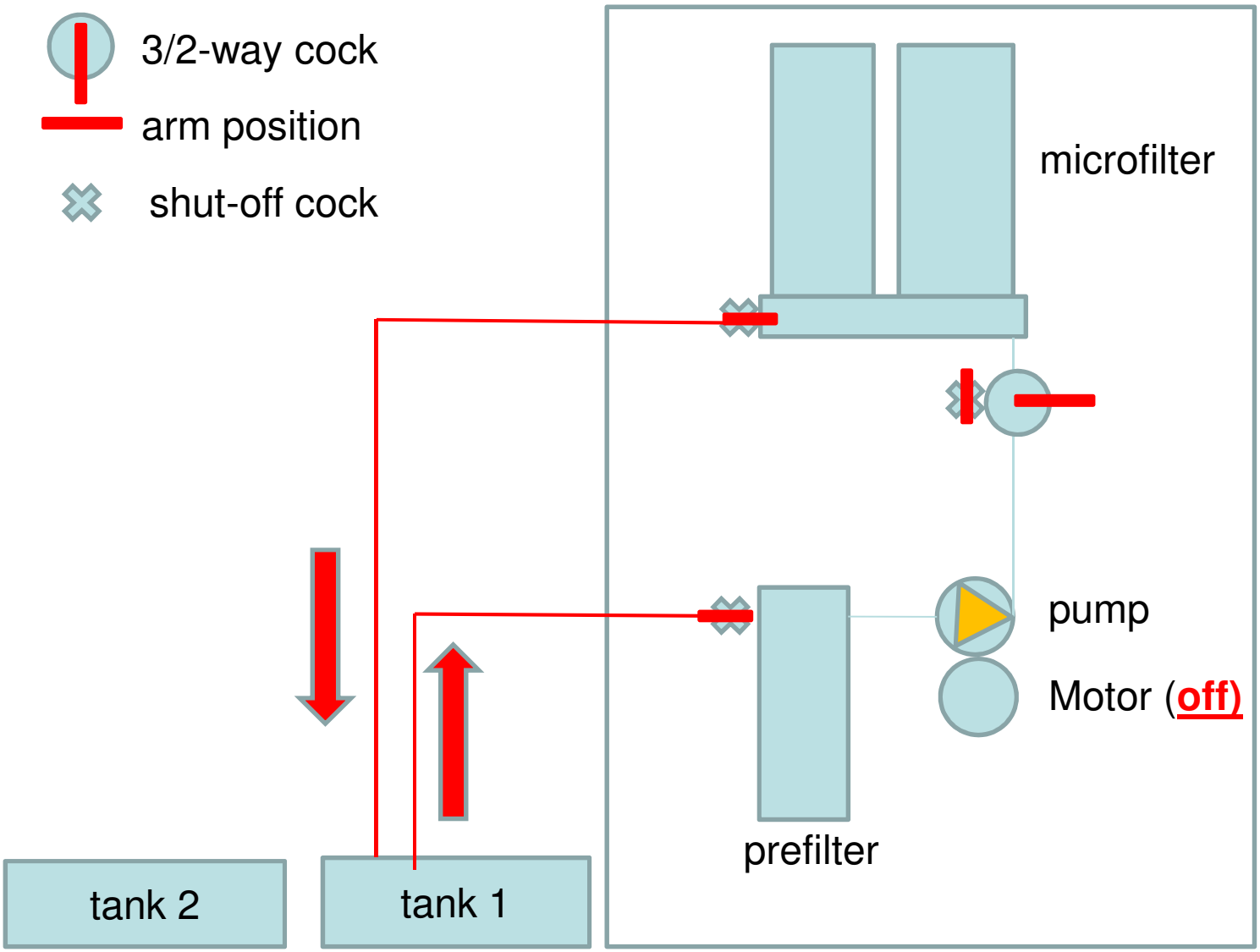
Operation modes

MO-filter draining



The shut-off cock at the 3/2-way-cock must be closed, all others open. The arm of the 3/2-way cock must face the right side. To drain the MO-filters their top covers and the cartridges must be removed and the drainage liquid must be led to the „dirty“ tank.

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Filter cartridges

There are basically two different types of cartridges, which can both be inserted into the casing (always parallelly connected).

emo3-1
emo3-1 is a depth filter with radial flow. It is wound onto a PP-supporting core and consists of very many different fine filter layers (50-100) made of PBT (polybutylene terephthalate), which are produced by a meltblown process. It filters particles down to 1µ with an efficiency of 99.9% but cannot bind water. The length of the cartridge is 299 mm and the filter casing is constructed accordingly.

emo3-er
emo3-er is also a depth filter with radial flow. It is wound onto a supporting core made of galvanized stainless sheet and consists of 100 filter layers, each made up of 4 layers of special tissue. This tissue paper filters the particles down to 1µ and absorbs and stores self-bound water (up to 150-200 ml/cartridge). The length of the cartridge is 280 mm.

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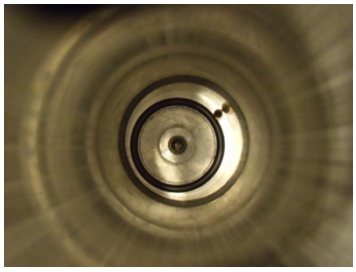
Instruction for the change of filter cartridge type

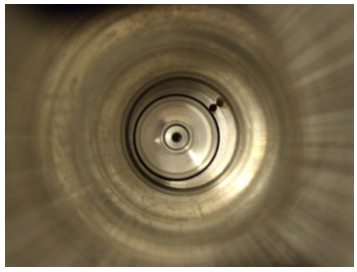
Due to the different length of the filter cartridges adapters must be used when changing the cartridge type. Depending on which cartridges are being used two adapters (per casing) need to be removed or installed to compensate the linear length.

Approach (emo3-1 ⇒ emo3-er), (per casing)

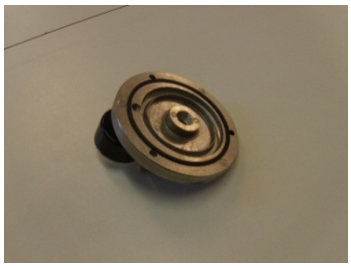
- Starting position: The casings are open and emptied (no cartridges in it).
- Adapter has to be fitted with central fixing screw at the bottom cover
- Adapter has to be fitted with central fixing screw at the top cover
- Tools: Hexagon nut 8, extension, ratchet lever

bottom cover





top cover



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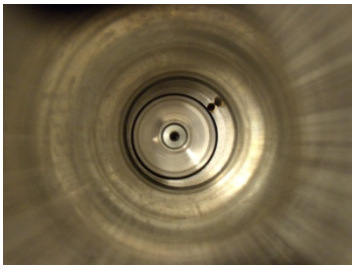
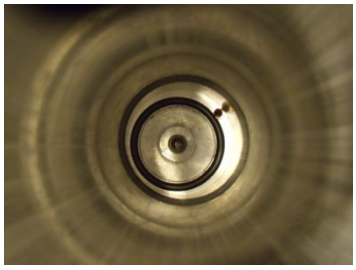
Approach (emo3-er ⇒ emo3-1), (per casing)

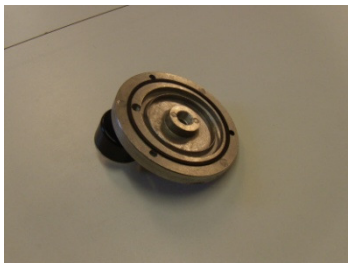
- Starting position: The casings are open and emptied (no cartridges in it).
- Adapter has to be removed with central fixing screw at the bottom cover
- Adapter has to be removed with central fixing screw at the top cover
- Tools: Hexagon nut 8, extension, ratchet lever

bottom cover





top cover



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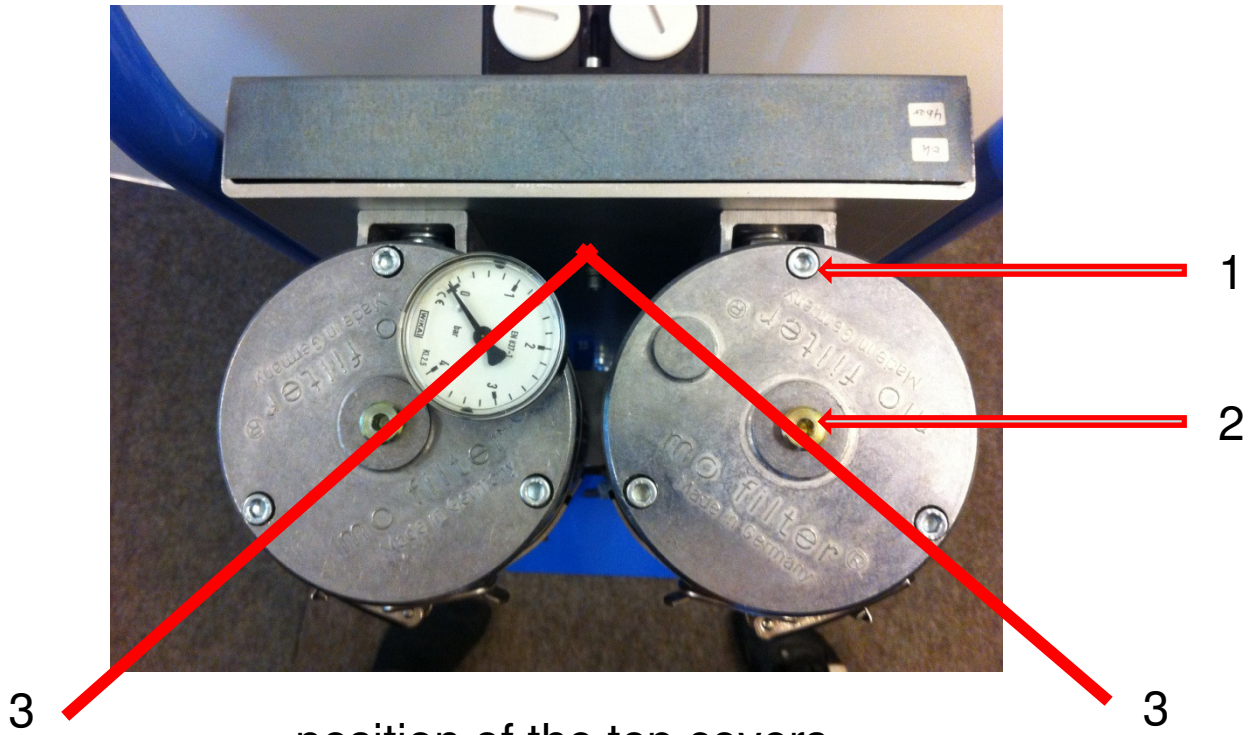
Instruction for the change of MO-filter cartridges

- loose mounting screws (1) in the top cover equally
- remove and dispose used filter cartridges
- empty the filter casing (through the shut-off cock (operation modes/ MO-draining)
- insert new cartridge in accurate position (eccentric guide)
- put the top cover into the right position (3-3)
- tighten all three screws equally
- loose the casing cap screws (2) for the central vent
- start the motor and let it run until liquid comes out of the cap screws
- stop the motor immediately and tighten the cap screws



position of the top covers

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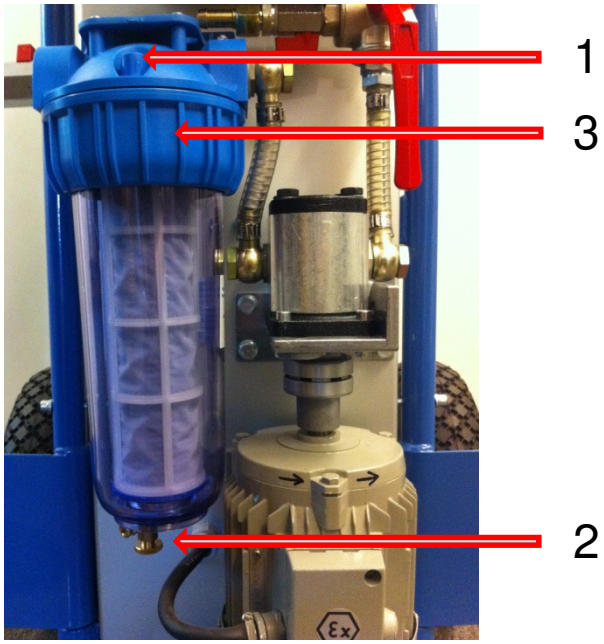
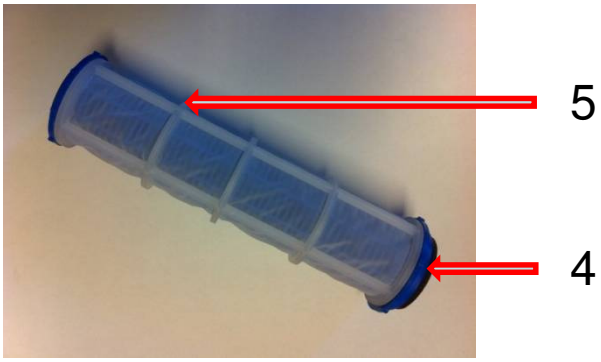
Instruction for the change of prefilter

-first drain the prefilter by
  - loosing air vent screw (1)
  - opening drain cock (2)
- loose the fixing ring (3)
- remove the sight glass
- take prefilter cartridge out of the sight glass
- loose the ring (4) of the supporting core
- replace prefilter (5)
- clean the sight glass (depending on the pollution)

- now everything backwards (in reverse order)
  (be careful regarding the right positioning)





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spare parts list

name of the item	reference number
drive system	
electric motor	EAS 71G 4-A1AA;5W46-ABL
coupling	GE.14-81/141/Kupplung
pump (hydraulic)	PLP10.2,5 D0-81E1-LDG/GD-N
pump (fuel)	PLP10.10 D0-81E1-LDG/GD-N
motor protection switch	PKZM01-1,6; 5063515
filter	
prefilter	
nylon hose for cartridge	ON50
MO-filter	
manometer	MW458
MO-filter cartridge	EMO3-1
MO-filter cartridge	EMO3-ER

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