WASSER 3.0

INSTRUCTIONS FOR COLLECTING MICROPLASTIC SAMPLES WITH THE WASSER 3.0 PARTICLE SAMPLING UNIT (PSU)

AREA OF APPLICATION: Sampling of surface waters

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NOTE

These instructions describe the standard procedure (SOP) for microplastic sampling using the Wasser 3.0 Particle Sampling Unit (PSU).

DISCLAIMER & AGB

EXCLUSION OF LIABILITY

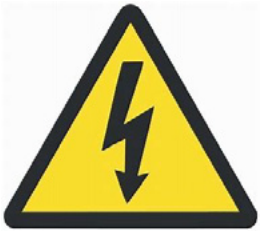
The SOP is the property of Wasser 3.0 gGmbH.
It serves as the basis for our work. Wasser 3.0 gGmbH assumes no liability for personal injury or property damage resulting from the application of the SOP.

SAFETY INSTRUCTIONS

SHARP ELEMENTS

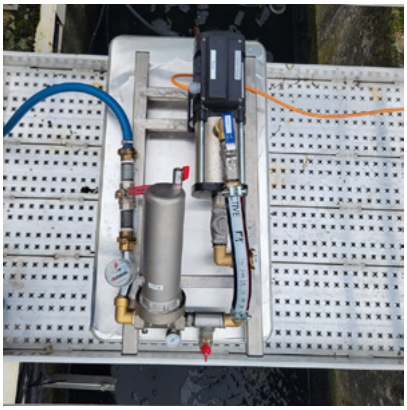
Minor or moderate personal injury: make sure not to cut your hands on the sharp edges when working on the PSU.

ELECTRIC SHOCK

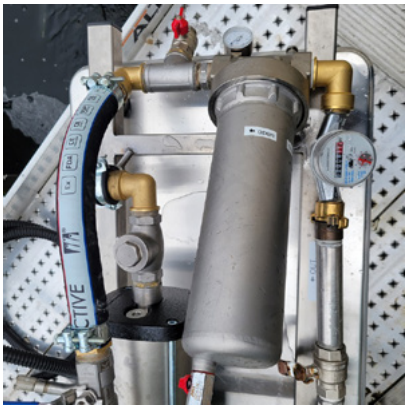


Switch off any external voltage connected to the pump before working on the pump.

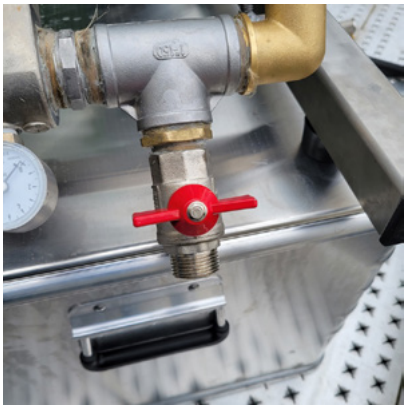
REQUIRED EQUIPMENT



Compact PSU



Filter housing

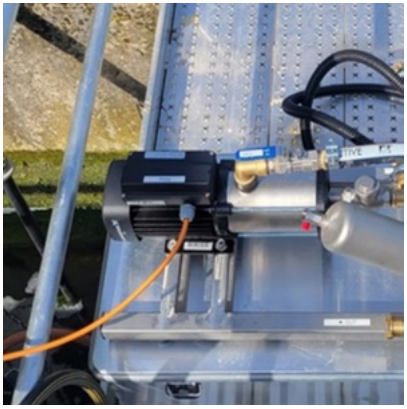


Valve 1

Valve 2

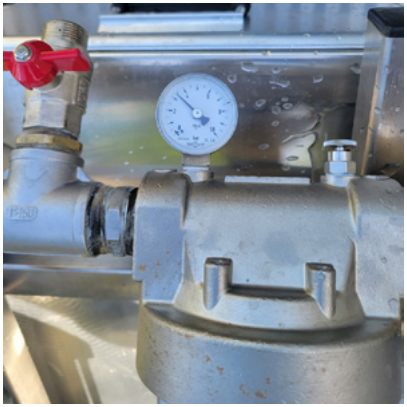
Filter shaft

Pressure spring



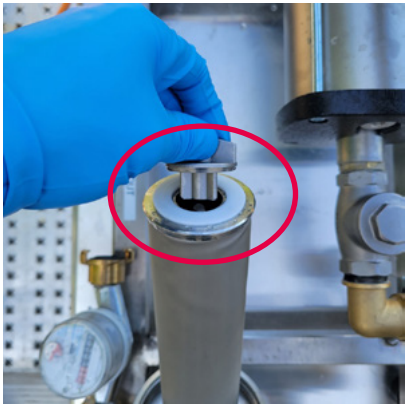
PSU Pump

Water meter



Manometer

Stainless steel suction filter



Fixing screw

5 L beaker

REQUIRED EQUIPMENT

2.5 L Sampling bottle

Pressure spray bottle

Stainless steel filter

Two 1-inch hoses with fittings for all common hose attachments

Generator

Ring wrench

Transport box

Protective gloves

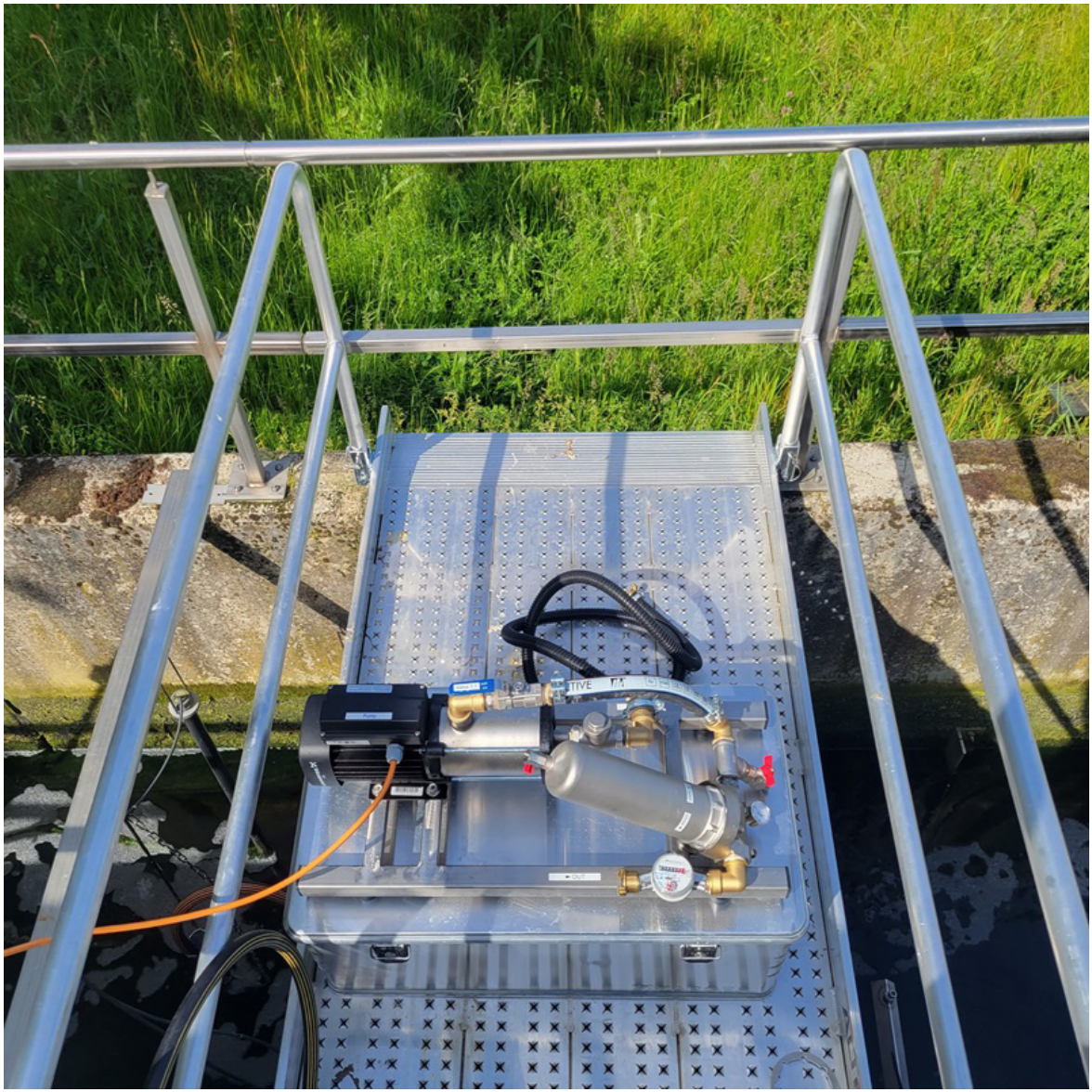
Protective glasses

The system is placed above or near the water, as shown in the picture on page 11.

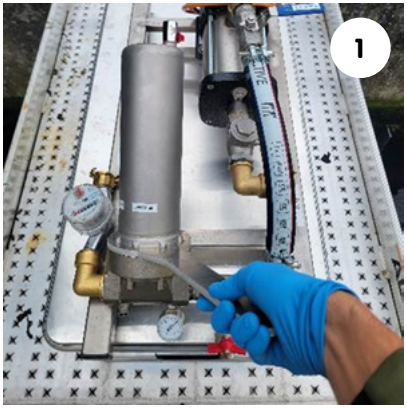
During sampling, the PSU, and the pump may be exposed to splashing water.

Therefore, make sure that the power supply is properly connected, and the cable protected from splash water.

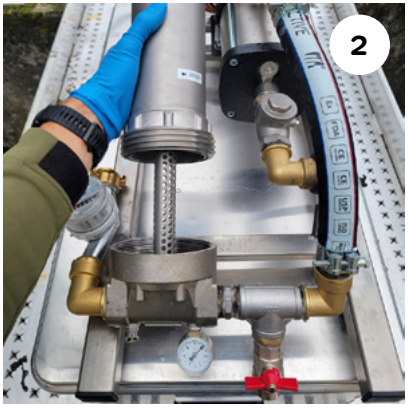
Wear protective gloves and safety glasses during sampling.



INSTALLATION



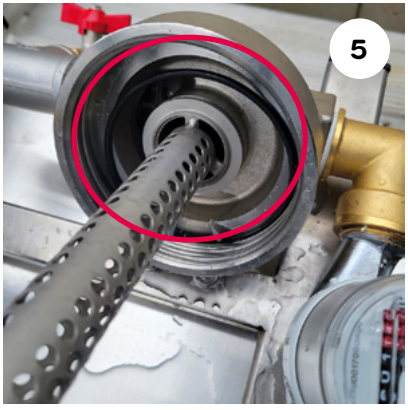
Open the filter housing with the help of the ring wrench.



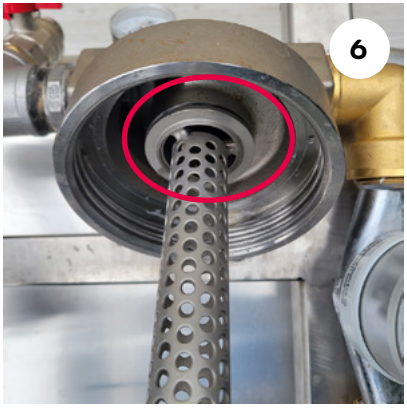
After the first rotation, you can unscrew the filter housing by hand.

Remove the filter housing; inside you will find a pressure spring.

Reach it with your hand and press the pressure spring against the bottom of the filter housing. Place it symmetrically.

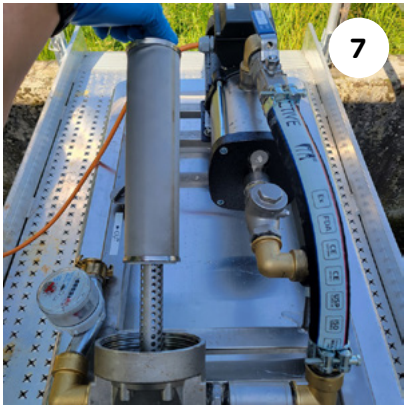


ATTENTION: Check the seal of the filter housing! The sealing ring can sometimes become loose.

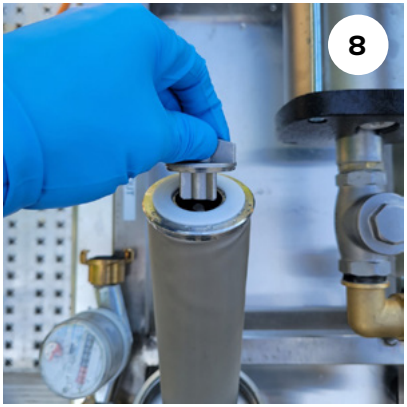


If the filter shaft or sealing ring becomes loose, grab the shaft and push it all the way in.

NOTE: Check this every time.

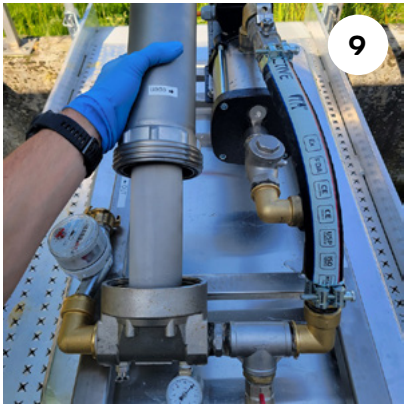


Carefully insert the stainless-steel filter into the filter shaft by holding the stainless-steel filter from the inside.

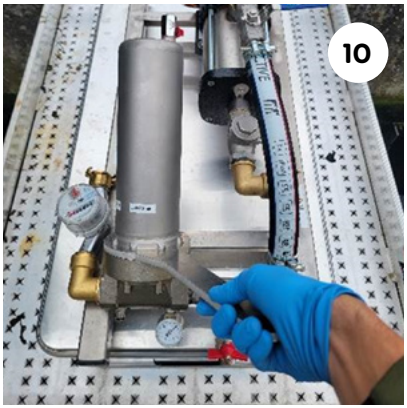


Secure the stainless-steel filter with the screw at the bottom end.

NOTE: Please avoid touching the walls of the stainless-steel filter.



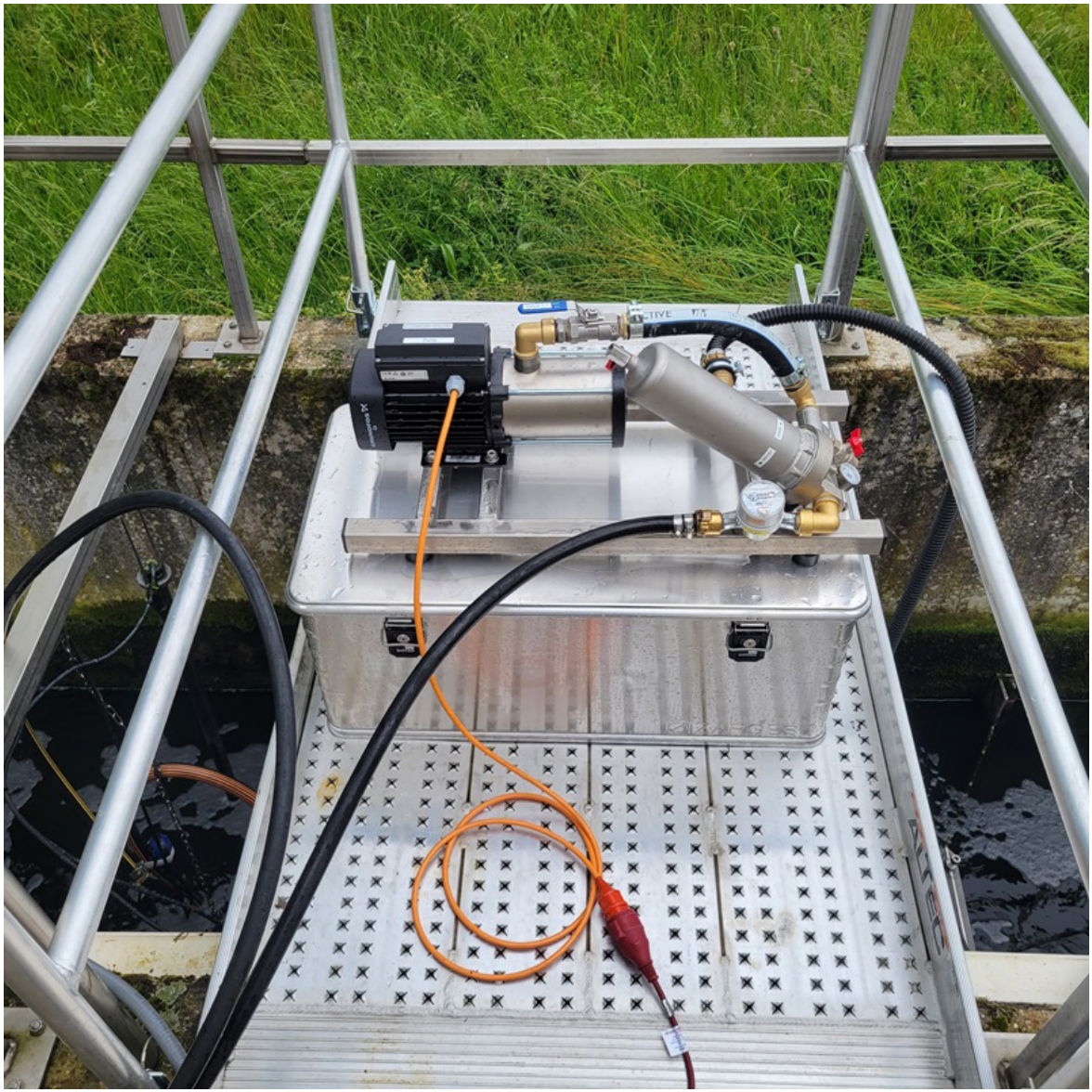
Take the filter housing and carefully slide it over the stainless-steel filter. First screw the filter housing on tight with your hands.



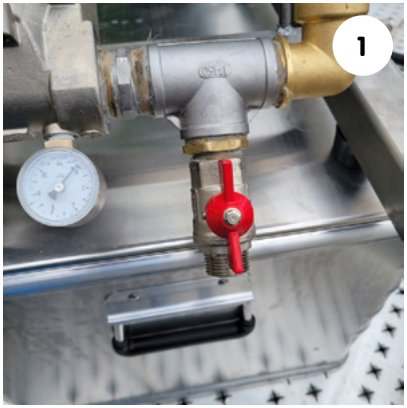
Then tighten the filter housing with the ring wrench. You can hear the pressure spring compressing.

ATTENTION!

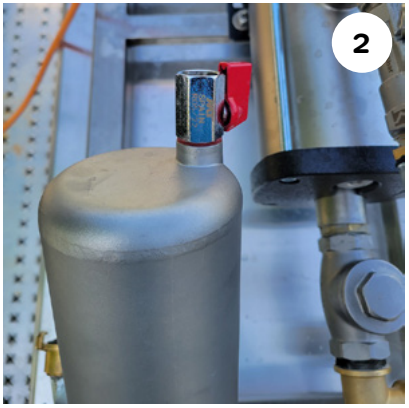
Ensure that the system has been flushed before use.
The flushing must be performed before packing the PSU for sampling, as it requires a tap water connection.



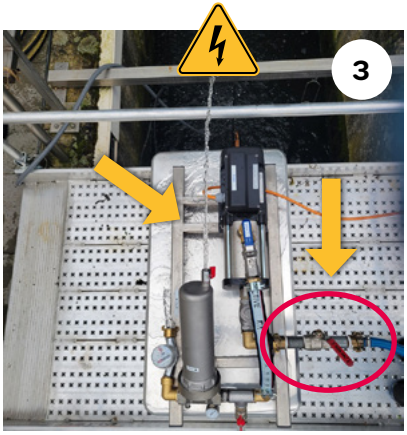
SYSTEM FLUSHING



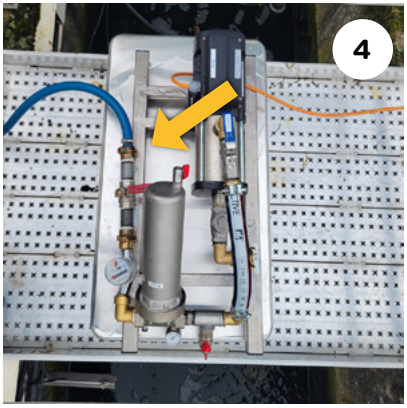
Valve 1 must be in the following position.



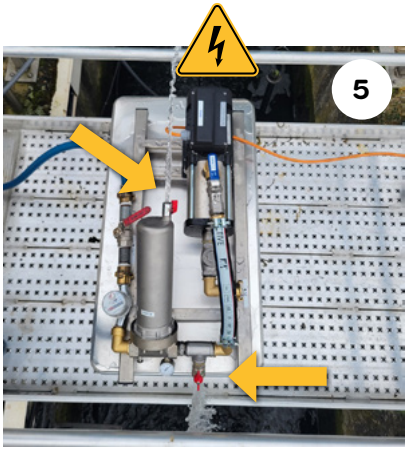
Valve 2 must be in the following position



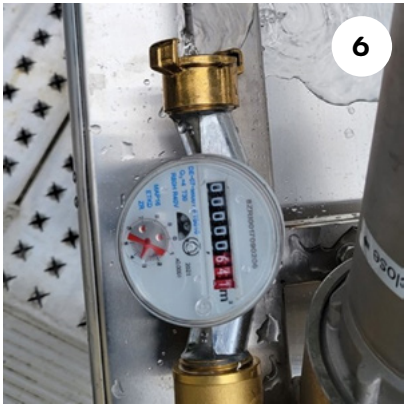
Connect the tap water hose to the inlet of the system. Open the water hose and flush the system for one minute.



Repeat the process from the other side. Connect the hose to the outlet of the system.

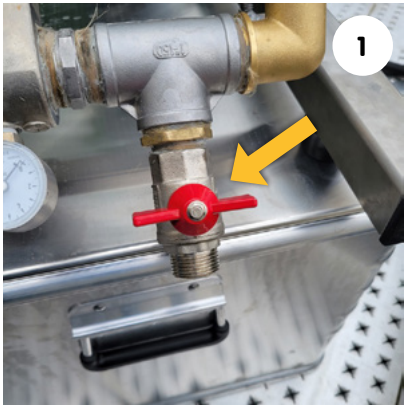


Valves 1 and 2 must be open. Then open the tap water hose and flush the system for one minute.

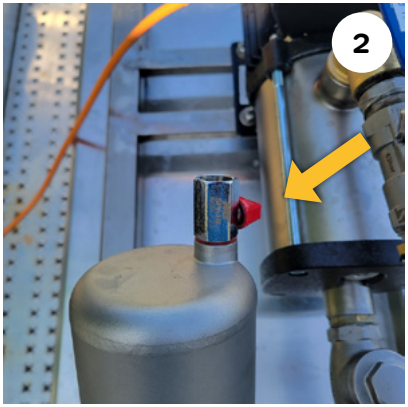


CAUTION: The water meter runs backwards!

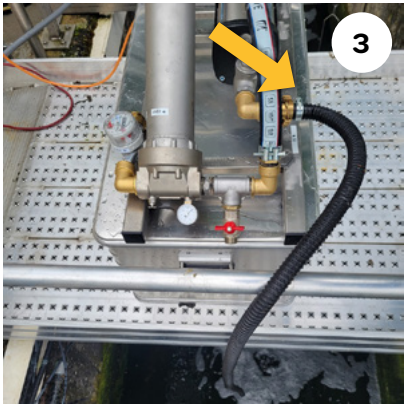
PREPARATION



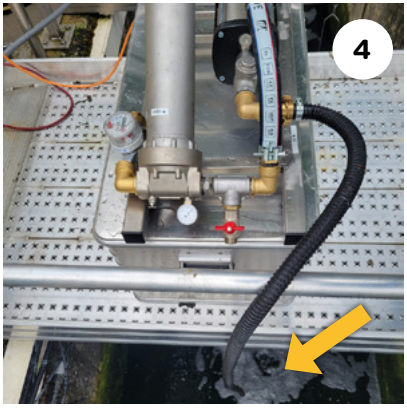
Close valve 1.



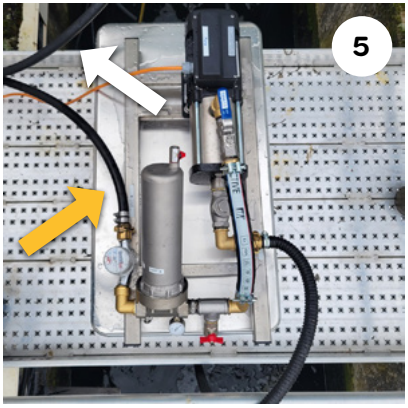
Close valve 2



Connect the wastewater suction hose to the inlet of the system. Hang the other end of the hose into the wastewater discharge.



We recommend placing the hose in the middle of the wastewater effluent discharge. Be careful not to let the hose touch the ground; this will result in the inflow of sediments.

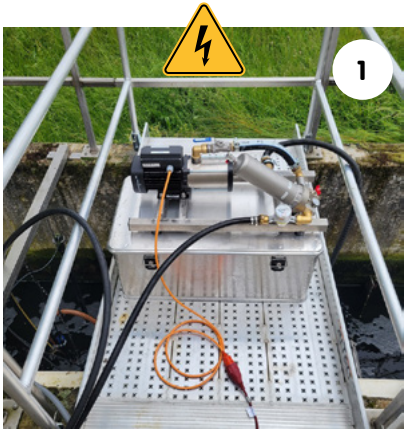


Connect the outlet hose to the outlet of the system. Hang the other end of the outlet hose into the wastewater effluent discharge.

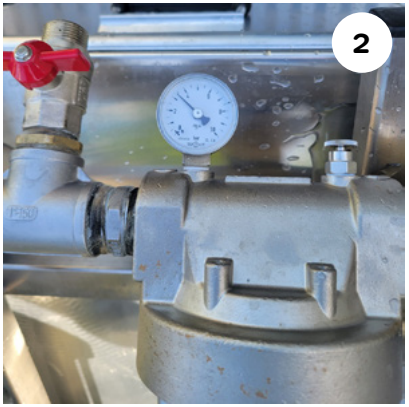
CAUTION: The outlet hose should not be installed in front of the inlet hose. Otherwise, some of the filtered water may be sucked back in, leading to incorrect results.

Switch on the generator according to the manual before plugging in the PSU or any other device

SAMPLING

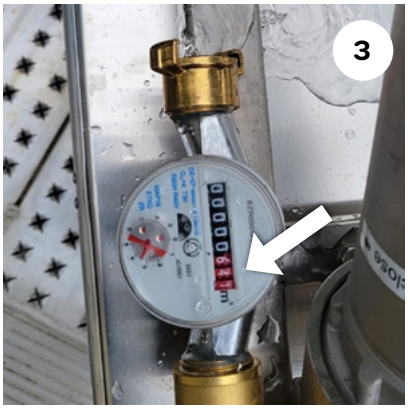


The system is ready for use. The pump starts immediately when you connect it to the power supply. It takes a few seconds for the pump to suck in the water.

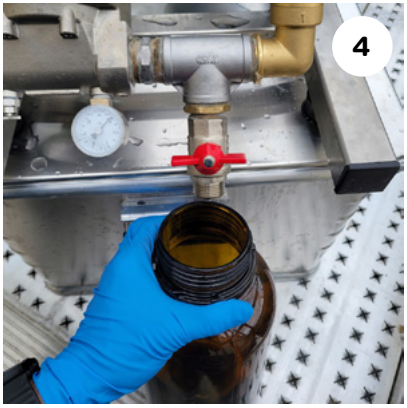


The pressure gauge will start to move. A pressure of up to 4 bar is normal.

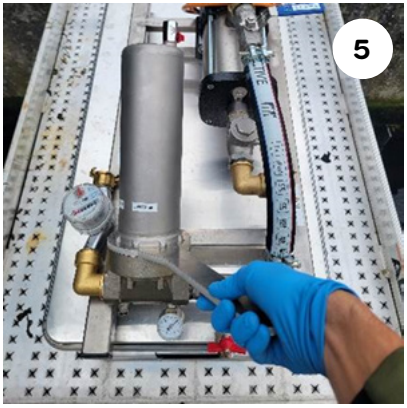
Be sure to monitor the pressure of the system. If the pressure get too high, refer to "Troubleshooting".



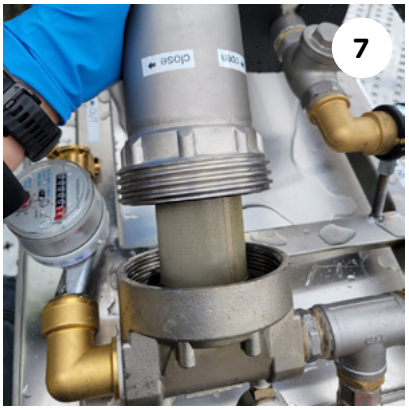
Check the amount of water that has been filter on the water meter. Disconnect the power after 100 L of wastewater effluent has been pumped through the system.



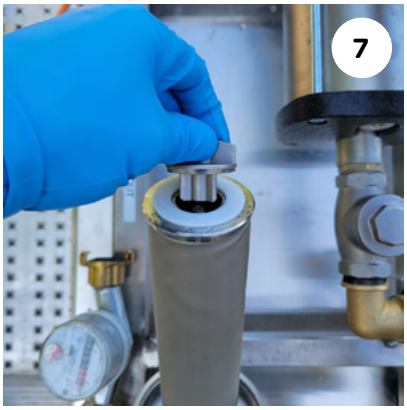
Hold the 2.5 L glass bottle (sampling bottle) under valve 1.



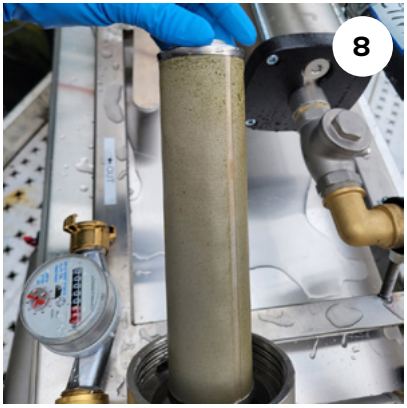
Use the ring wrench to loosen the filter housing.



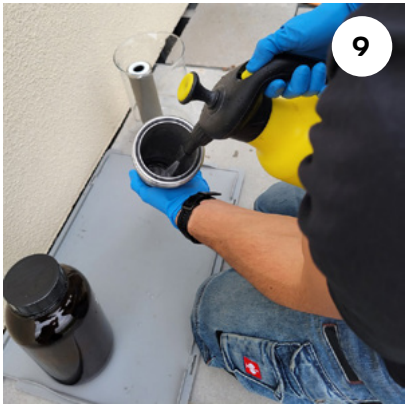
Slowly unscrew and remove the filter housing with your hands.



Unscrew the fixing screw at the bottom of the stainless-steel filter.



Hold the stainless-steel filter from the inside with your fingers and place it in the beaker.



Then rinse the inside walls of the filter housing with the pressure spray bottle.

Flush the water through valve 2 into the sampling bottle. Repeat this two to three times.

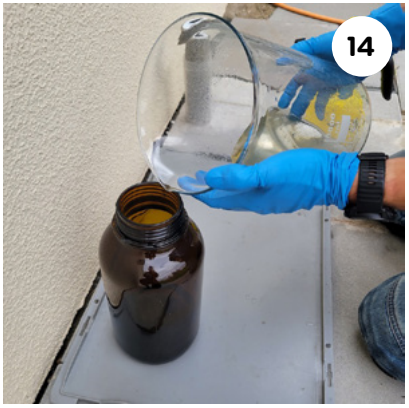
Hold the stainless-steel filter over the beaker (hold it from the inside with your fingers, being careful not to touch the outside of the filter).

Rinse the outside of the filter. When rinsing, hold the stainless-steel filter as deep as possible in the beaker.

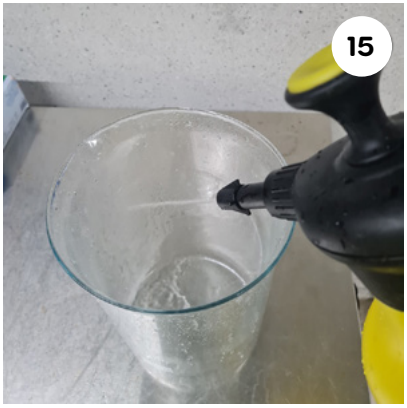
Do not let the stainless-steel filter touch the bottom of the beaker. You can slowly rotate the stainless-steel filter with your thumb.

We recommend rinsing the stainless-steel filter from top to bottom. First rinse the top half of the stainless-steel filter, turn it over and rinse the other half. Repeat this process until the stainless-steel filter is free of particles.

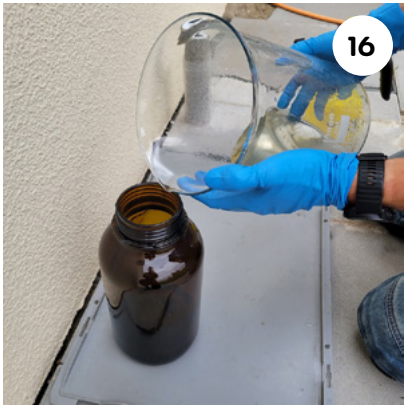
Place the clean stainless-steel filter into the plastic container.



Pour the sample from the beaker into the sampling bottle.



Rinse the beaker two to three times using the pressure spray bottle.



Pour the contents of the rinsed beaker into the sampling bottle.

The sampling is complete.

LABELING: Label the glass bottles as follows:

Sampling number:

WWTP Name: (Name of the WWTP)

Effluent Time: (Time of the sampling)

Location:

**After use, clean the PSU with tap water,
empty the pump and hoses and turn off the generator.**

**Store the PSU in a dry area and keep an eye on any
corrosion caused by the salty surroundings.**

TROUBLESHOOTING

FAULT	CAUSE	REMEDY
The pump runs, but conveys no water.	Pump chamber runs dry.	Fill hoses and pump with tap water.
Pressure > 4 bar	Filter is blocked.	Clean the filter cartridge with a high pressure cleaner.
Water meter is not running.	Turbulent waterflow inside the PSU.	Turn off the pump for 3 sec. and turn it on again (slowly turn on the water tap).

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