

# INTEWA



## **AQUALOOP - TAP**

**Portable drinking water production up to 1600 L / day**

**Disinfection of water with power-free, geodetic pressure**

**Assembly and Operating Instructions**

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## 1. General

**AQUALOOP-TAP** (AL-TAP) is a water filter for the disinfection of water. The cleaning principle is based on ultrafiltration membrane technology, upon which substances in the water, like microorganisms such as bacteria and viruses, are withheld.

The result of filtration is clear, hygienic water (Pay attention to safety instructions, Cap. 2).

For more information on the filtration performance, see the link below:

<http://www.intewa.de/products/aqualoop/technik/membranen/>

*AL-TAP* filters the water only due to the geodetic gravity and is therefore completely independent from electricity.

### **The following raw water sources can be treated by *AL-TAP*:**

- Rainwater
- Surface water
- River water
- Well water

### **The following raw water sources cannot be treated by *AL-TAP*:**

- Raw water with dissolved organic or inorganic substances which exceed the drinking water regulation limits
- Domestic and industrial wastewater

### **Application areas:**

- Households, schools, homes
- Camping grounds / Field camps
- Emergency aid
- Disaster response

### **Advantages:**

- No electric power necessary
- Small footprint, only one tank
- Easy installation, commissioning and operation
- Removal (membrane barrier) of solids, bacteria, viruses, worm eggs
- No chemicals necessary during operation
- Robust process, no precision mechanical parts
- If necessary, easy cleaning (mechanical and chemical)

## 2. Safety Precautions



Before installing the product, these installation and operating instructions must be read carefully. The indicated instructions herein must be strictly observed. Modifications to the product are not permitted, otherwise any warranty expires.



Chemicals in the raw water are not removed by the filter! Therefore, depending on the water source, a preliminary raw water analysis should be carried out.

Periodically, the hose system must be cleaned or replaced in order to avoid contamination of the treated water.




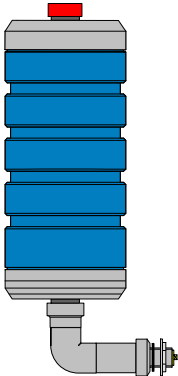

**For drinking water applications, the treated water must be analyzed prior to use.** Contamination on the treated water side must also be avoided ie. as a result of contamination of the outlet valve. This must never lie on the ground but must hang freely.

If the system is not used regularly, the hose system must be cleaned before use.

The following points must be adhered to for the installation and operation:

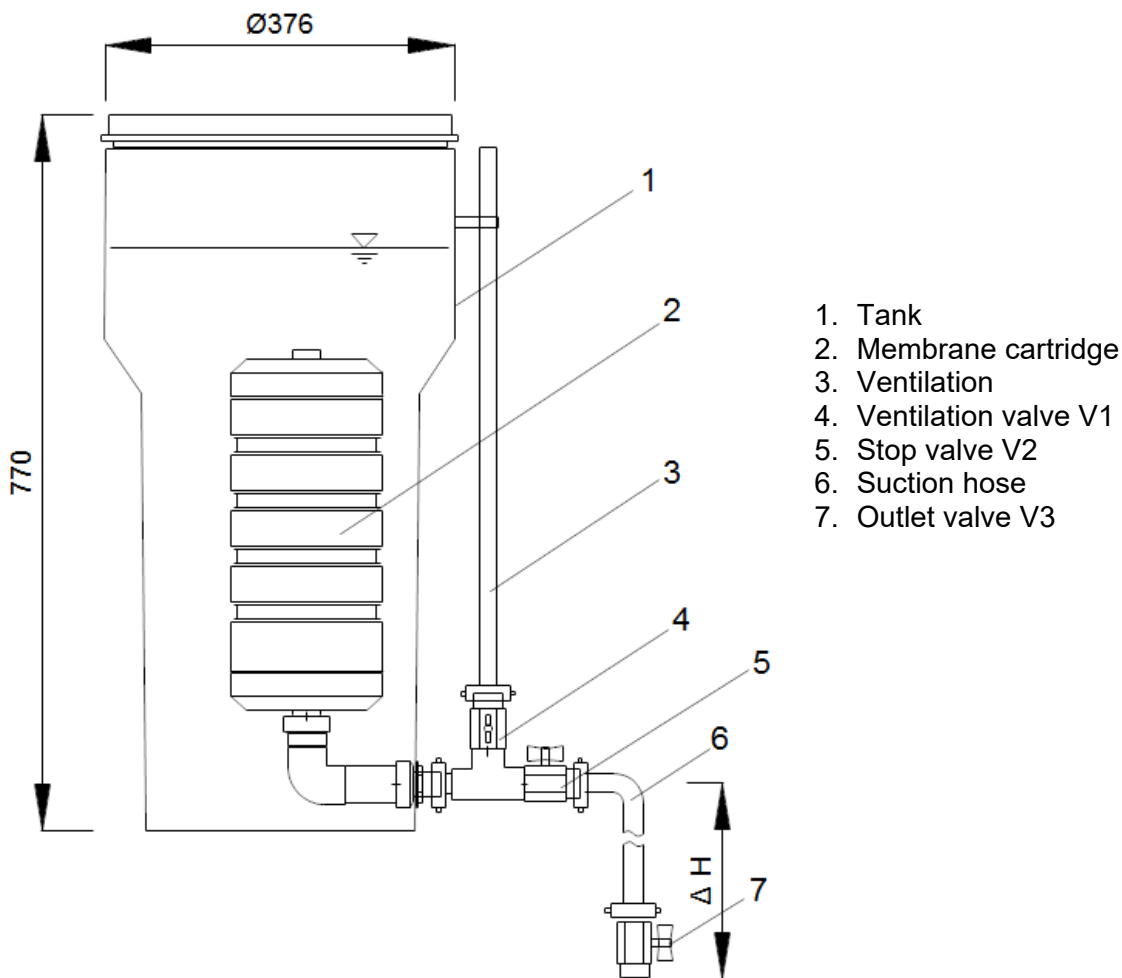
- Inspect the product before installation for any visible defects. If defects are present, the product may not be installed.
- All products must be checked regularly for proper condition.
- If deterioration of the filtration results occurs (eg. turbidity increases), the system must be immediately stopped, cleaned and checked.
- The operator is responsible for compliance with safety and installation requirements.

## 3. Deliverables

		
60 litre container	Membrane cartridge and tank fasteners	Valve unit with ventilation and suction hose

## 4. Technical Data

Dimension:	Ø 376 x 770 mm
Tank volume:	60 L
Membrane filter surface area:	6 m <sup>2</sup>
Membrane fibre material:	PE
Membrane fibre type:	Hollow fibre
Average Pore Size:	0.02 µm
Temperature range:	0 - 55 °C
Max. membrane pressure:	0.7 bar
Max. free chlorine @ 25°C or less:	5000 ppm @ 5 pH during chemical cleaning
Max. cleaning load (free chlorine):	1 Mil. ppmh (cumulative hourly)
Material:	HD-PE, food-safe (Tank)
Total weight incl. packing:	8 kg
Membrane cartridge service life:	up to 10 years



## 5. Installation

### General notes:

The membrane cartridge has two terminals, which must not be reversed.

- a.) The upper side has six openings and is sealed with a red cap!
- b.) The lower side of the filtration terminal has 24 slots. This side is provided with the elbow connection.

a.) Top side



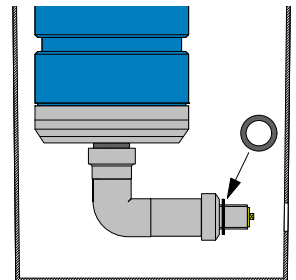
b.) Filtration connection (under)



### Installation:

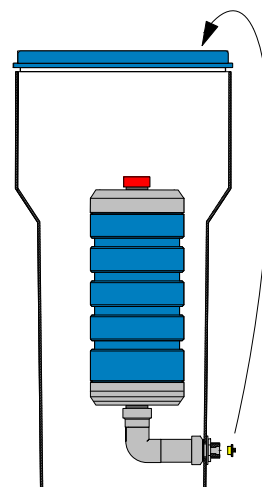
1. Mount the membrane cartridge with connecting bend in the tank (locknut).

Note: The rubber seal must lie on the inside of the container wall.

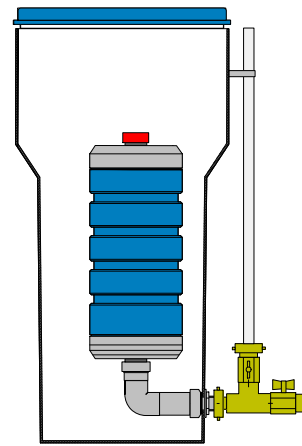


2. Remove the yellow protective plug on the connection and screw into the storage hole in the tank lid.

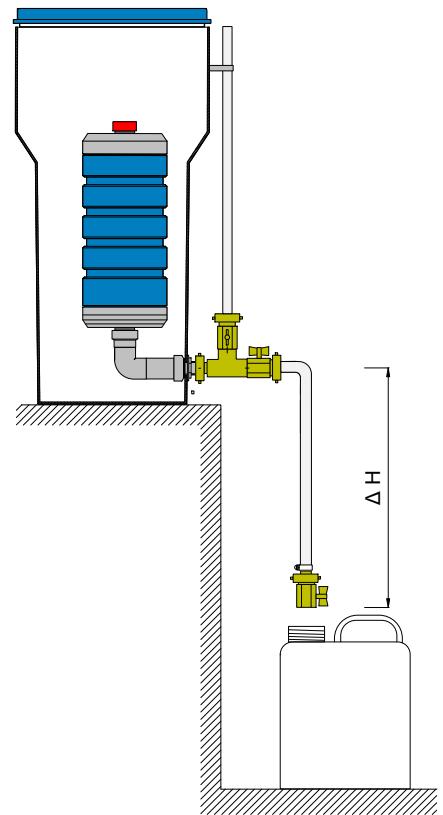
(The protective plug is required for the mechanical cleaning of the membrane.)



3. Assemble the valve unit and ventilation hose.



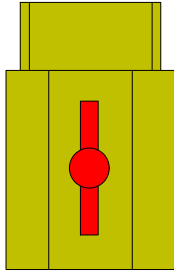
4. Place the *AL-TAP* in an elevated position and assemble hose. (If necessary, shorten suction hose).



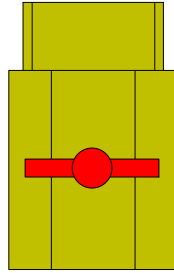
## 6. System Venting and Filtration Operation

### Ventilation:

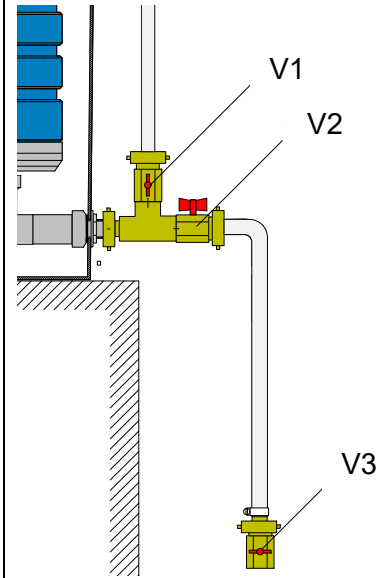
1. Open the ventilation valve V1 and stop valve V2 and close the outlet valve V3.



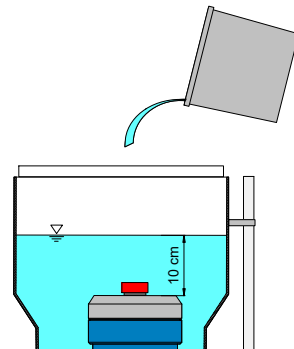
Valve OPEN



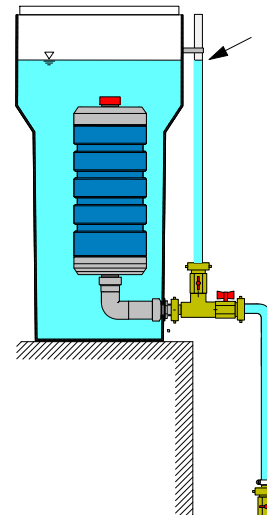
Valve CLOSED



2. Fill the container with water, so that the cartridge is submerged with at least 10 cm of water above.



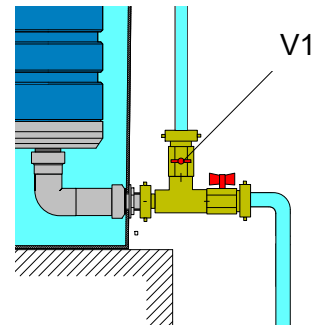
3. Wait until the suction hose (after stretching out, it should hang down) is completely filled with water and the water level in the ventilation hose has equalized with the water level in the container (approx. 10-20 minutes).





4. Close ventilation valve V1.

The filter station *AL-TAP* is now ready to filter.



**Note:**

With the first use of the cartridge, the first 20 litres filtered must be discarded to be absolutely sure clear water comes out (fabrication residues can be within the membrane).

**Filtration operation:**

Filtration takes place as soon as the stop valve V2 and outlet valve V3 are opened.

The flow rate depends on the geodetic suction height  $\Delta H$ .

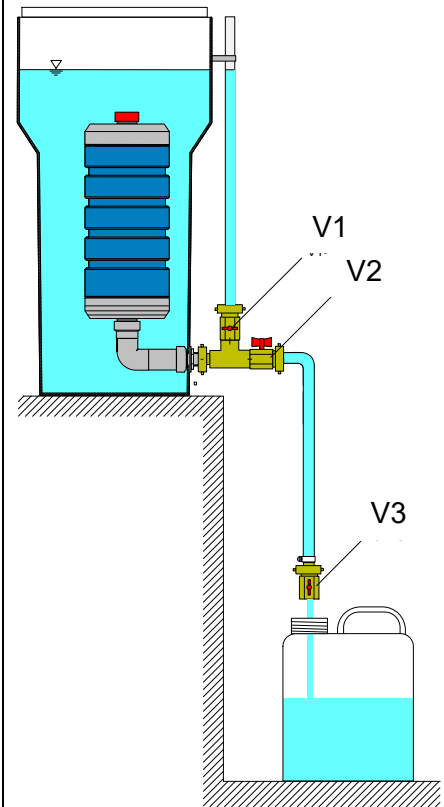
Suction Height $\Delta H$	Flow rate (new cartridge)	Typical Flow rate (in operation*)
0 m	0.7 L/min $\triangleq$ 1000 L/day	0.2 L/min $\triangleq$ 288 L/day
1 m	2.0 L/min $\triangleq$ 2880 L/day	0.6 L/min $\triangleq$ 864 L/day
2 m	3.2 L/min $\triangleq$ 4608 L/day	1.0 L/min $\triangleq$ 1440 L/day
3 m	4.4 L/min $\triangleq$ 6336 L/day	1.4 L/min $\triangleq$ 2016 L/day

*\* Note:*

- The flow rate is strongly dependent on the raw water quality and membrane blockage
- The suction pressure is only ready if the suction hose is completely vented!

*Table: Flow rate as a function of the suction height  $\Delta H$  and blockage*

During filtration operation, filtration is possible down to the membrane base, since the membrane is impermeable to air when saturated. The fibres will dry as air enters the system (at 20°C, after approx. 3 hours). After drying, it is necessary to ventilate the system again according to Chap. 6.



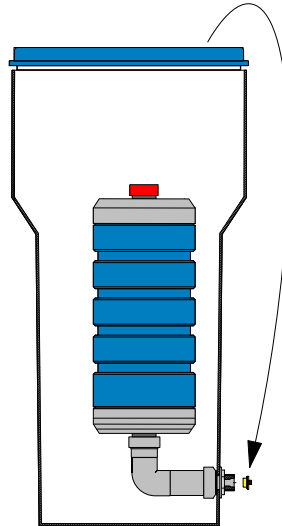
## 7. Cleaning and Storage

### 7.1. Mechanical Cleaning

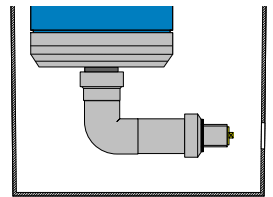
With mechanical cleaning, particulate substances adhering externally to the fibers are removed.

#### Cleaning steps:

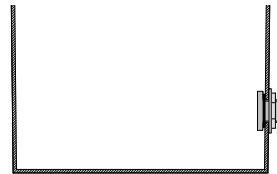
1. Empty the tank, unscrew the valve unit and close the connection with the yellow protective plug.



2. Loosen the lock nut and remove the membrane cartridge with elbow connection out of the container.

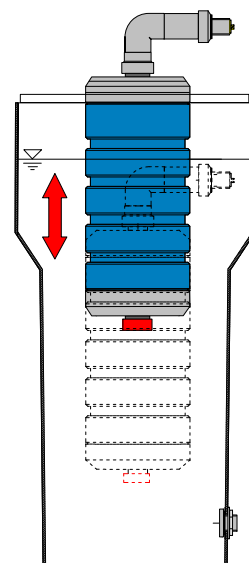


3. After, close the container with sealing plugs.



4. Fill tank to  $\frac{3}{4}$  full with water and flush the membrane with plunging movements (approx. 20 times).

In reverse order, remount the membrane unit and ventilate as described in Chap. 6.



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## 7.2 Chemical Cleaning

An intensive chemical cleaning of the membrane takes place only when the filtration performance is reduced too much in the application despite mechanical cleaning.

Chemical cleaning is carried out with citric acid solution and by a clear water rinse with chlorine solution afterwards.

The citric acid dissolves mineral deposits. The chlorine solution dissolves biological deposits on the membrane fibres.



### **NOTE!**

Never mix the citric acid solution with the chlorine solution!

All components therefore need to be rinsed thoroughly with water after acid cleaning and before the chlorine solution is added!



Observe and follow the warning and safety information of the chemicals used! Protective gloves and goggles must be used during the cleaning process!

### **Cleaning steps for acid cleaning:**

1. Fill the container half full of water and add a single dose of cleaning solution (AL-Acid420). Then fill to 8 cm above the membrane cartridge with water (equivalent to approx. 36 L).
2. Start filtration for 6 Liter.
3. After 2 hrs, filter the water through the membrane to empty.
4. If the filtration performance is not achieved (see flow rate table), repeat above steps 1-3.
5. Rinse the system with at least 30 litres of water.

### **Cleaning steps for chlorine cleaning:**

1. Fill the container half full of water and add a single dose of cleaning solution (AL-Chlor660). Then fill to 8 cm above the membrane cartridge with water (equivalent to approx. 36 L).
2. Start filtration for 6 Liter.
3. After 2 hrs, filter the water through the membrane to empty.
4. If the filtration performance is not achieved (see flow rate table), repeat above steps 1-3.
5. Rinse the system with at least 30 litres of water.

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## 7.3 Storage

The membrane can be stored dry after use.

To do this, the membrane is mechanically cleaned and then stored open, so that the membrane can dry completely (do not close the cover).

The special, hydrophilic membrane material makes restarting the system possible without any problems. When used again in water, the membrane material completely softens.

**Caution: The fibres are brittle when dry.**

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## 8. Replacement Parts and Cleaning Supplies

Article description	Code	Art.-No.
AQUALOOP membrane	AL-MEM	230010
AQUALOOP citric acid concentrate 420 ml	AL-ACID420	230091
AQUALOOP chlorine concentrate 660 ml	AL-CHLOR660	230094

## 9. Warranty

For the filter unit, INTEWA GmbH accepts from purchase date, a warranty of 24 months. As proof of this date, please keep the purchase receipt.

Within the warranty period INTEWA GmbH, at its discretion, ensures factory defect repair or replacement.

The warranty does not cover damage due to improper use, wear and tear, or manipulation by third parties. The warranty does not cover those defects which affect the value or usability of the device only insignificantly.

### Caution:

For the quality of the filtered water, the user is responsible. The use of the filtered water for drinking water purposes may only occur with a valid water analysis. Regular analyses are necessary for quality assurance.

## 10. Contact

### For customers in Germany:

For questions, ordering spare parts and for service cases, please contact INTEWA GmbH directly with the device number and the purchase invoice.

INTEWA GmbH  
Jülicher Straße 336  
52070 Aachen

Tel.: 0049-241-96605-0  
Fax: 0049-241-96605-10  
Email: [info@intewa.de](mailto:info@intewa.de)  
Internet: [www.intewa.de](http://www.intewa.de)

### For customers in other countries:

For questions, ordering spare parts and for service cases, please contact your dealer or the responsible general importer who handles the service, with the device number and purchase invoice.

