made in Germany

eleXion WATER TREATMENT

Operating manual

EN

PUROFILL VA

- **Stainless steel tank for water treatment with ion-exchange resins.**

EN

Chapter 1 - General / Safety instructions

1.1 General information

The stainless steel tanks PUROFILL-VA are used to treat water with ion-exchange resins and other granular filter media for technical applications.

The functional parts are made of high quality stainless steel. The tanks are made of pressure-resistant stainless steel, all rubber parts are made of age-resistant elastomers. The materials used correspond to the recognized rules of technology.

The information in this user manual enables you to operate the device safely, properly and economically. In particular, basic information on installation, operation and maintenance must be observed.

Every person who works with this device must read these operating instructions and observe and apply the information provided.

In addition to the operating instructions, the current and locally applicable regulations for accident prevention and for safe and professional work must be observed.

These operating instructions must always be available at the place of use.

1.2 Field of application

This tank system is used for the treatment of aqueous solutions with ion-exchange resins or other granular filter media.

Undesired substances in the form of ionically dissolved salts or suspended substances can occur in the untreated water. With the help of a suitable filter medium, these substances can be removed from the water or the composition changed so that it can be used for the respective technical application.

With the PUROFILL-VA tank system, aqueous solutions can be treated using the flow principle. In the filter container, filter media are kept in accordance with the respective filtering purpose and the fluid flowing through is treated.

They are used, for example, for the deionization of water with mixed-bed resins, for softening water with ion-exchange resins, for removing nitrate and other salts from water or for filtering water with activated carbon.

Thanks to the robust design made of stainless steel, the PUROFILL-VA tank system can also be used under extreme conditions, such as high temperatures or aggressive ambient air.

EN

1.3 Safety instructions

Please read these operating instructions carefully before using the device and follow the instructions. The operating instructions must be kept at hand at all times.

Personal injury and damage to property caused by failure to observe these operating instructions are not covered by the Product Liability Act. The manufacturer assumes no liability for other damage caused by failure to observe these operating instructions.

Safety instructions warn of dangers and help to avoid personal injury and property damage. For your own safety, compliance with the safety instructions in this operating manual is essential.

The applicable national and international safety regulations must be observed.

Each operator / operator is responsible for compliance with the regulations applicable to them and must independently strive for the latest regulations.

1.4 Safety regulations

The water filter system may only be commissioned by specialist personnel.

The manufacturer‘s instructions for maintenance and replacement of the consumables in the system must be observed. The manufacturer‘s warranty is void if the device is modified.

The manufacturer accepts no liability for damage caused by improper commissioning. It also voids the warranty.

The water filter system must not be operated in potentially explosive areas. The filter system may only be put into operation if it is in perfect condition.

The water filter system may only be used for the treatment of aqueous solutions in accordance with the material compatibility. Treatment of acids, alkalis etc. is only permitted in the diluted state depending on the material usability.

Check the system for possible damage before commissioning. The intended use within the performance limits must be ensured.

Before carrying out any repair work, the device must be disconnected from the water pressure or the mains. Damaged devices must be taken out of operation immediately. Have defective or damaged devices repaired only by specialists authorized by the manufacturer. It is in your own interest. They thus prevent defective repairs.

Observe the relevant and binding standards, such as DIN EN 1717; DIN 1988 etc.

1.5 Disclaimer of liability

Use must be carried out exactly as described in this manual. The manufacturer is not liable for any damage, including consequential damage, that may result from incorrect installation or incorrect use of the product.

1.6 Specific safety and work instructionse

The PUROFILL-VA tank system is only suitable for treating water for technical applications. The treated water is not suitable for human nutrition.

Note that the treated or untreated aqueous solution can be aggressive. Observe the safety data sheets for the filter material and wear protective clothing that complies with the regulations when working with the filter system.

When starting up and if the water filter system has not been used for a long time, the filter should be flushed with a quantity of water corresponding to twice the filter volume before use.

To avoid microbiological contamination, the filter should be rinsed once a year and the filter material replaced.

Don‘t use microbiologically contaminated water or water of unknown quality as feed water for the PUROFILL-VA water filter system without adequate disinfection.

The filter system must not be opened or dismantled during operation. The filter cartridge must not be opened without first relieving pressure.

The stainless steel container is designed for a service life of 10 years. An exchange should take place after this time.

Protect the container system from sunlight and mechanical damage. Do not use near heat sources and open flames. Depending on the application, a safety valve must be installed in front of the input connection in accordance with the European standard DIN EN 1717.

If the water pressure on the inlet side is higher than 10 bars, a pressure limiter must be installed in front of the tank.

To avoid contamination from particles, a filter with filtration degree of $<50\ \mu m$ should be installed in front of the tank.

All parts must be installed in accordance with the country-specific guidelines.

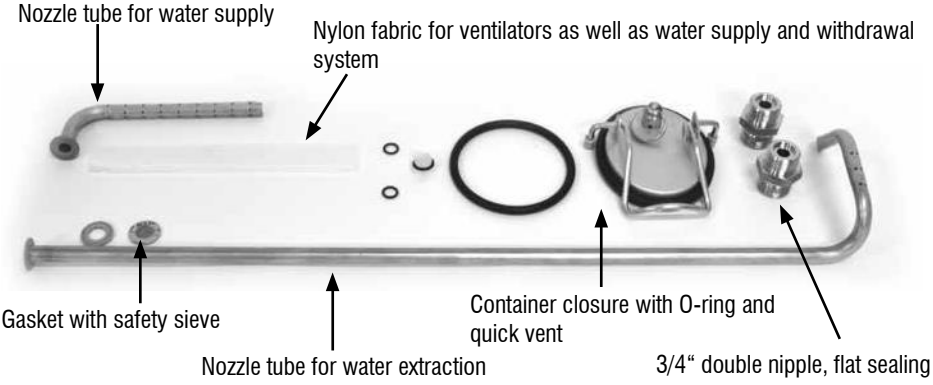
The container system must always be operated within the specified ambient temperatures.

Caution with frost: After commissioning, storage and transport of water-filled systems below 4 ° C should be avoided. Frost can destroy the water filter system.

Chapter 2 - System overview

2.1 Components of the tank system

EN



EN

2.2 Technical data

2.2.1 Physical data

Operating pressure.....max. 10 bar at 60°C - max. 6 bar at 90°C
Water inlet temperature. .....+4 to +90°C
Inlet connection .....3/4“ AG, flat gasket
Outlet connection.....3/4“ AG, flat gasket
Operating position.....vertical
Material .....Stainless steel 1.4571 (AISI 316 Ti)

2.2.2 Dimensions

Type	Filter material volume	Dimensions B x H (mm)	Empty weight in kg	Article No.
PUROFILL-VA.14	14 litres	239 x 398	5,5	44050
PUROFILL-VA.26	26 litres	239 x 703	8,5	44051
PUROFILL-VA.40	40 litres	239 x 1029	11	44052
PUROFILL-VA.85	85 litres	407 x 818	23,5	44054

2.2.3 Chemical resistance container material

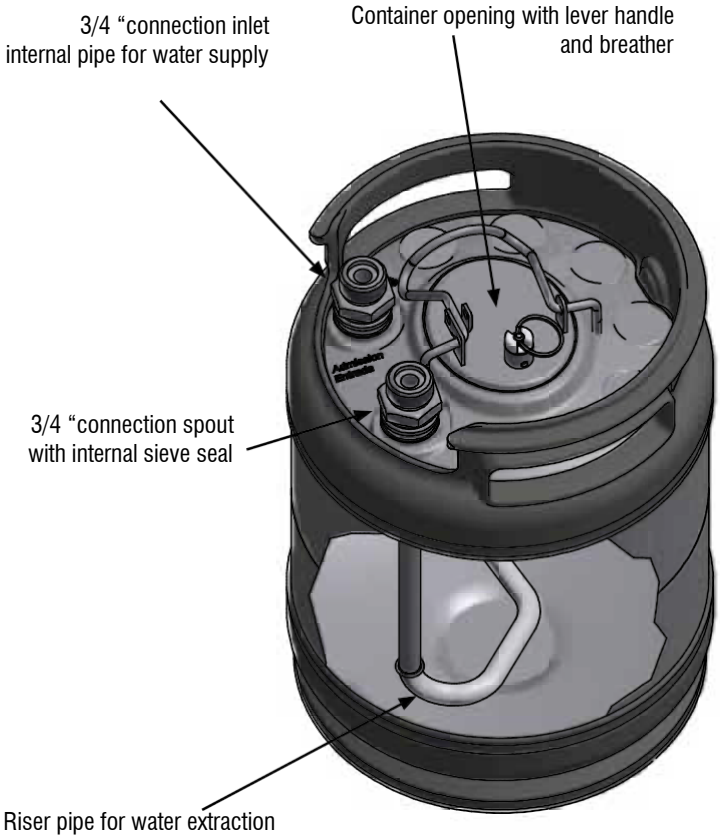
Means of attack	Concentration	Temperature °C	Durability
Waste water (acid-free)	–	to 40°C	0
Chlorine water	–	20°	1, L
Potassium chloride	–	20°	0, L
Calcium chloride	cold saturated	20° cooking	0, L 1, L
Potassium hydroxide	20%	20° and cooking	0
Carbon dioxide = carbonic acid	dry and moist	hot	0
Magnesium chloride	30%	20°	0, L
Sodium chloride	cold saturated hot saturated	20° 100°	0 L 1 L
Sodium hydroxide = Sodium hydroxide solution = Caustic soda	25% 50%	20° cooking cooking	0 1 2
Hydrochloric acid	0,5%	20° cooking	1, L 3, L
Water	–	20°	0

1) 0 = resistant (but see L), 1 = minor attack, 2 = hardly stable, 3 = unstable,
L = Danger of pitting even at 0

The means of attack represent a possible selection. Please contact us regarding the resistance of other means of attack.

EN

2.3 Structure of the container system



2.4 Scope of delivery

- Stainless steel tank.
- 1 piece stainless steel tube with nozzle holes and filter fabric for water supply.
- 1 piece stainless steel tube with nozzle holes and filter fabric for water extraction.
- 2 pieces 3/4“ double nipples for flat gaskets.
- 2 pieces threaded caps 3/4“
- Container closure lid with O-ring, closure bracket, deaerator, filter fabric.

Chapter 3 - Installation instructions / Operation

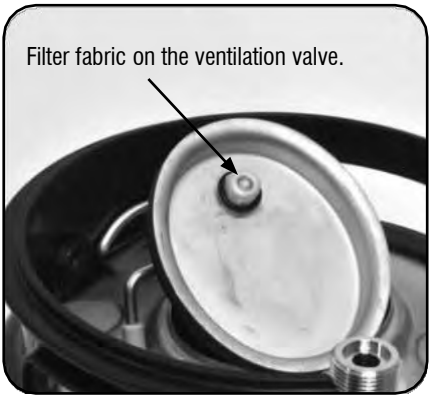
3.1 User information on the closing mechanism

The container is closed by means of a construction consisting of a cover, the sealing o-ring and a bracket.

Before closing, ensure that the filter fabric is attached to the ventilation valve.

To close the container, the o-ring must first be attached to the cover. The cover is turned laterally into the tank, brought into a horizontal position and then pulled straight up so that the o-ring is pressed from the inside against the curve in the wall of the opening of the tank. The retaining bracket is then folded over so that the o-ring is pressed on the inside of the tank.

Please note that the o-ring and the contact pressure from the inside ensure the seal of the tank.



The cleanliness of the sealing surfaces is very important for the tightness of the o-ring seal. In particular when the tank is filled with filter media, such as ion-exchange resins, the sealing surfaces can become dirty. Clean the sealing surfaces and the o-ring every time you reassemble the cover construction.

3.2 User note - safety valve and flow limiter

Whenever the ion-exchange tank is connected to the tab water supply, an approved backflow preventer valve must be installed in the inlet of the water filter system for compliance with the regulation DIN EN 1717,

3.3 User note - nylon fabric on the water inlet and water drain pipe

As soon as the tank is opened, a visual inspection of the nylon fabric should always be carried out. It should be replaced if damaged. Otherwise the filter medium can be rinsed out of the filter tank.

3.4 Installation note - fine filter

When using the filter system with a liquid that is contaminated by undissolved substances, a fine filter with a filter sharpness of at least 50 µm should be installed in the inlet of the filter system to prevent contamination of the nylon fabric.

EN

3.5 Commissioning - preparing the filter media

The easiest way to fill a filter medium into the ion exchange tank is by using a funnel with a large opening.

A funnel for filling the filter media is available from elector under article code 44101.

Open the tank, place the funnel on the opening and fill in the filter material while shaking the tank.

The filter material is distributed and compacted by shaking the tank. Alternatively, you can use a vibrating plate.

The tank should be filled with filter material up to just above the upper pipe of the water supply.

3.6 Operation -Fill with water, bleed and rinse

Close the tank after observing the instructions in 3.1.

Make sure that there is a flat gasket with the safety sieve underneath the double nipple at the outlet connection.

Connect the water inlet and water outlet and fill the tank with water.

Pull the ventilation valve upwards to vent the tank. Vent the tank carefully, trapped air bubbles can severely restrict the function of ion-exchange resins in particular.

Do not operate the ion exchange tank from bottom to top when using mixed-bed resins. This can cause the resins to separate.

New and regenerated filter media mostly have contaminants. Therefore, the filter should be rinsed twice with the container volume after venting.

3.7 Flow rate

The flow rate is based on the application. This usually ranges between 5 and 40 BV/h (bed volume per hour). With a 40 liter container, 40 BV/h corresponds to a flow rate of 1600 litres / hour (40 litres x 40 BV).

3.8 Replacement of the filter media

To rinse the filter media, we recommend flowing water through the entire tank in the opposite direction and also placing the tank upside down.

Connect a water hose to the outlet marked with „OUT“.

Open the tank. Provide a collection option, such as a large barrel or a sandbag, and position the tank so that the filter medium can flow freely into the collection option.

The filter material contained in the tank is rinsed out by the reverse flushing of the tank.

Clean the tank with clean water and check the nylon fabric on the water supply and extraction pipe before filling in new filter media and putting the tank back into operation.

3.9 Disposal

Dispose of the filter media in accordance with the specifications of the respective manufacturer.

The water filter system must be disposed of in accordance with local regulations.

eleXion
elexion water treatment
Wessex House
St. Leonards Road
Bournemouth
BH8 8QS