

Hygopure 90



EN

Installation and Operating instructions

6046100125L41



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1 Introduction

Congratulations on the purchase of your Hygopure 90 water treatment system. You are the proud owner of a high-quality and reliable water treatment system for the production of demineralised water.

This water treatment system was subject to an intensive quality test. This test checked the system for its function and for leaks.

Please read the installation and operating instructions carefully before starting with the installation. Retain this manual for later consultation.

The Hygopure 90 water treatment system acts reliably and in an environmentally-friendly fashion to remove any bacteria, chlorine, hardness components, nitrates, pesticides, heavy metals, sediment particles, silicates, viruses etc. and provides effective protection for your steriliser. After pre-filtering, the tap water is cleaned via return osmosis. In contrast to all other methods of water filtration, this filter technology removes almost all dissolved and undissolved molecule substances from the tap water. This is based on a purely mechanical procedure without the release of any chemicals or substitute materials. After the reverse osmosis procedure, the permeate is desalinated using an ion exchanger. This produces high-quality demineralised water.

An amazing effect of the reverse osmosis technology is that the membrane predominantly lets just water molecules pass through; the contaminants which it holds back are washed away from a part of the water. The deflection of the water prevents contaminants either from entering the cleaned water or from collecting within the system as with other filter methods. This also prevents blockage of the membrane. In consequence, reverse osmosis membranes also have a very large service life given constant output and minimum maintenance over many years.

The Hygopure 90 water treatment system is fitted with an eco module (water-saving technology). This module consists of a hydraulic pump (permeate pump) and a hydraulic valve (automatic shut-off valve). The eco module increases system efficiency by up to 70% and maintains this constant whilst the storage tank is being filled. Operation of the eco module does not require electricity as the water pressure of the waste water provides the requisite energy. The production of pure water is indicated by a periodic "clicking" of the eco pump and a quiet whistling of the hydraulic valve. The intervals and volume of the noise depends on the tap water pressure.

2 Important information prior to installation

2.1 Installation requirements

The technical operating conditions of this water treatment system:

Water pressure:	from 2.4 to 7.0 bar
Water temperature:	from 4.0 °C to 38.0 °C
Hardness range:	All hardness ranges from soft (up to 8.4 °dH) to hard (> 14 °dH)

In general, tap water satisfies these requirements. Should you be uncertain, please makes inquiries with your local provider.

NOTICE:

- (1) The installation and maintenance of this water treatment system may only be performed by trained and authorised persons.**
- (2) Do not connect the water treatment system to a hot water connection or behind a pressureless boiler.**
- (3) Do not subject the water treatment system to temperatures below 0°C.**
- (4) If the water pressure exceeds 7.0 bar, a pressure reducer must be installed upstream.**
- (5) Use only microbiologically faultless water for the operation of the system.**
- (6) Safety reasons mean that we recommend either installing an aqua-stop valve or only operating the water treatment system under supervision and turning off the water supply outside the operating time. This avoids potential water damage.**
- (7) Comply with all general guidelines, local installations and hygiene regulations.**
- (8) Do not use any aggressive cleaning agents or disinfectants to clean the water treatment system (inc. hose connections and hoses) as these could cause damage to the system and result in water damage. Use only the VEWAMED disinfectant for exterior and internal disinfection. Comply with the specifications of chapter 4 "Care and maintenance of the water treatment system".**

2.2 Inspection of the delivery

The scope of delivery includes the components depicted on page 3. Should a components suffer damage during transport, do not start with the installation. Instead, contact the dealer so that he can replace the system.

System components included in the scope of delivery:

Water treatment system with storage tank

The accessories kit contains:

Water connection valve



Filter key



Steriliser connector



Water tap



Waste water valve



Hose configuration

and

- 1 pressure hose, black (2.0 m)
- 2 pressure hoses, white (each 1.5 m)
- 3 white plug angle connectors for optimal hose installation
- 15 securing rings
- Replacement parts for hose connectors
- 2 cable ties

Optional accessories (e.g. conductance meter, aqua-stop valve) are available from your dealer.

2.3 Recommended tools for the installation

We recommend the following tools for the installation:

- (battery) drill
- Open-ended wrench 14 mm or an adjustable spanner
- Screwdriver
- Hex driver with 2.5 mm tip
- Hose cutter (or scissors or a sharp knife)

2.4 Location of the main components

Before starting with the installation of the Hygopure 90 water treatment system, you must decide upon the optimal placing of the three main components filter system (filter group) storage tank and water tap. Take into account the suitable connection possibilities for the inflow water and the waste water.

Location of the filter group

The Hygopure 90 water treatment system is ideal for undertable installation, but can also be set up directly on the work surface next to the steriliser.

NOTICE:

The Hygopure 90 water treatment system must be placed in an upright position and may not be placed on its rear, otherwise it is impossible to guarantee the functionality of the eco module.

Ensure that you have easy access to the filter group when you later need to change the filter cartridge. When changing the filter cartridge, we recommend that you place the filter group carefully on a towel.

Placing the storage tank

The storage tank should be maintained in an upright position. It is important that the storage tank remains easily-accessible.

The white pressure hose included in the scope of delivery permits the installation of the storage tank with a clearance of up to 1.5 metres from the filter group. In some cases, it is necessary to place the storage tank further away. In this case, please contact your dealer.

Placing the water tap

A surface on the sink or work surface with a 5 cm diameter is required for the installation of the water tap. Both practical and aesthetic considerations are important in locating the water tap. Detailed information pertaining to the installation is provided in chapter 3.1.3 of this manual.

The white pressure hoses included in the scope of delivery permit the installation of the water tap with a clearance of up to 3.5 metres from the storage tank. Should you require longer pressure hoses, please consult your dealer. To prevent an overly-large pressure fall on the water tap resulting from overly-long hose lines, the entire hose length "storage tank to the water tap" should not exceed 8 metres.

2.5 Serial number

Before starting with the installation, enter the serial number of the water treatment system here. The serial number is located on the type plate on the rear of the filter group.

<p>Serial number: _____</p>

Please have the serial number to hand for any questions or for service needs.

2.6 Structure of the Hygopure 90 water treatment system

The following figures show the structure of the water treatment system.



Figure: Hygopure 90 water treatment system - filter group and storage tank

1. Filter group (consisting of a system head and filter housing)
2. Activated carbon block filter (5 microns) in the right-hand filter housing (1st filter stage)
3. Sediment filter (1 micron) in the centre filter housing (2nd filter stage)
4. Ion exchanger in the left filter housing (4th filter stage)
5. Dust cover
6. Storage tank
7. Storage tank valve

Important note:

The mounting eyes for wall mounting are located on the rear of the filter group next to the connection fitting for the blue cold water hose, the black waste water hose and the white storage tank hose.

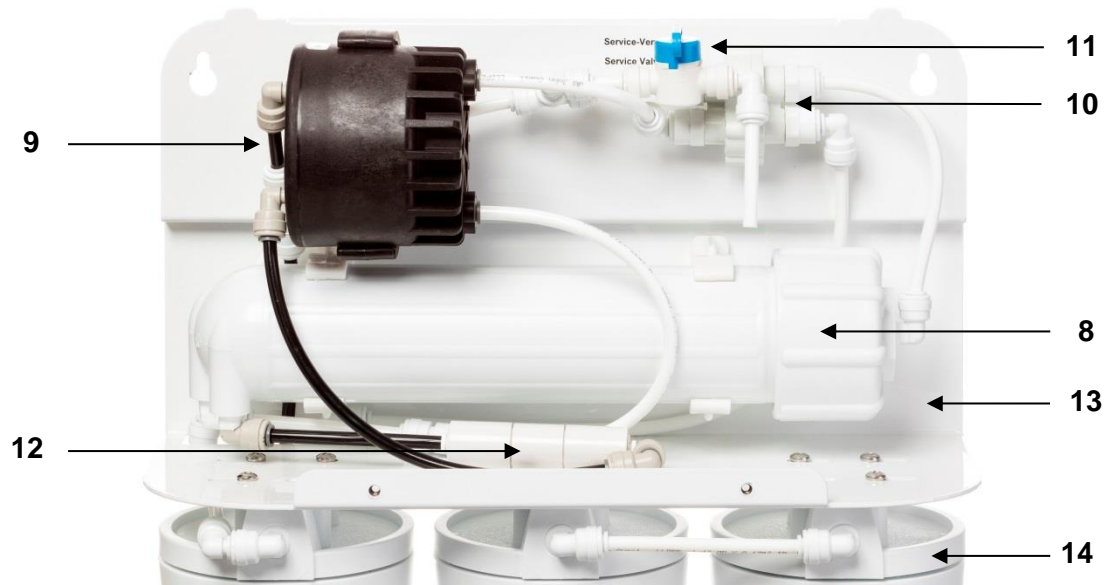


Figure: Hygopure 90 (system head)

- 8. Membrane housing with membrane (3rd filter stage)
- 9. eco pump (permeate pump)
- 10. Automatic deactivation valve
- 11. Membrane service valve
- 12. Reducing valve
- 13. System console (aluminium filter acceptance)
- 14. Filter housing cover

3 Installation and commissioning the water treatment system

3.1 Installing the water treatment system

The main section of the installation now begins. Following all the next steps in a sequential fashion.

3.1.1 Installing the water connection valve

NOTICE:

We recommend that you secure every water treatment unit with an aqua-stop valve on safety grounds. Alternatively, either only operate the water treatment system under supervision and turn off the water supply outside the operating time using a central water supply switch (e.g. ball cock). This avoids potential water damage.

The standard scope of delivery contains a water connection valve (consisting of a tap connection with a 3/4" thread, a nonreturn valve and a water shut-off valve). The scope of delivery also contains a tap connection with 1/2". These tap connections fit all outlet valves (cold water taps) with 3/4" or 1/2" thread. You can plug the grey plug angle connection (included in the scope of delivery) into the tap connection to ensure optimal hose installation.

The nonreturn valve prevents flowback into the water supply. The nonreturn valve and the water shut-off valve are already integrated in the blue water inflow hose and are pre-installed.



Figure: tap connection with an integrated nonreturn valve

Now screw in the fitting water connection valve (tap connection) to the tap hand tight. The water connection valve (tap connection) can be screwed in somewhat tighter if necessary. Keep the tap closed.

Technical tips regarding the hose connections:

The Hygopure 90 water treatment system only uses high-quality John Guest hose connections called "Quick Connect Fittings". When using John Guest connections, you need only connect the pressure hose to the corresponding fitting and you are finished. This enables quick and simple installation. The following figures show the function of the John Guest hose connections:

Connecting the hose: slide the hose into the hose connection to its fullest extent until it is tight. The holding element fixes the hose in the connector. The o-ring creates a permanently leak-free connection. Pull the connection lightly to check it.

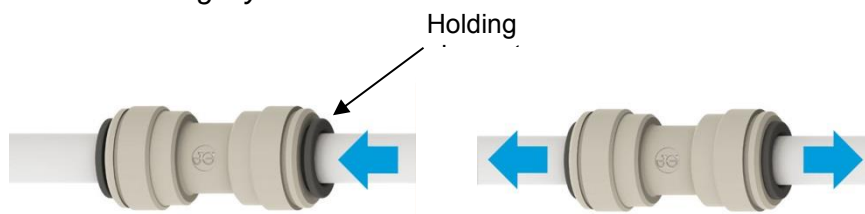


Figure: Connecting the hose

Remove the hose: Check that the system is de-pressurised. Push the holding element into the hose connection and hold using your fingers. You can now remove the inserted hose with your other hand.



Figure: Removing the hose

3.1.2 Installing the waste water valve

Fit the waste water valve to the waste water siphon to enable removal of the waste water. To do so, fix the waste water valve to a suitable position on the waste water siphon using the rubber collar and the pipe clamps. You may need to shorten the waste water connection on the waste water siphon with a saw or a sharp knife so that the rubber collar lies closely on the waste water connection of the waste water siphon. Position the waste water valve in such a way that the connection of the water treatment system for the waste water hose points upwards and at an angle. Screw the hose clamps tight using a screwdriver or an adjustable spanner.

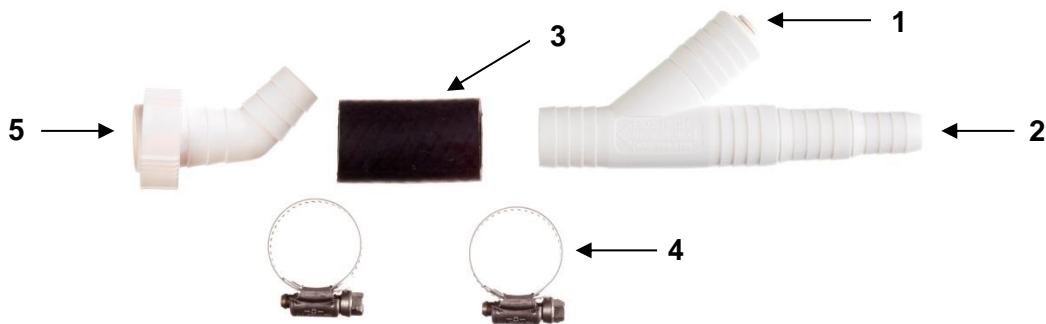


Figure: Waste water valve

1. Water treatment system connection fitting for the waste water hose
2. Connection for the steriliser waste water hose
3. Rubber collar
4. Hose clamps
5. Waste water connection from the waste water siphon

3.1.3 Installing the water tap

A surface on the sink or work surface with a 5 cm diameter is required for the installation of the water tap (the white protective plate of the water tap has a diameter of 4.5 cm). Should you not have this amount of space available, you can leave out the protective plate. In this case, you will require an installation surface with a diameter of 3.3 cm (this corresponds with the trunk diameter of the water tap). Practical considerations are central in locating the water tap, aesthetic reasons also exist.

Ensure that the position of the water tap permits simple installation from below. The water tap should be located far enough from the sink fittings to enable both taps to be operated easily and to prevent interference.

Some sinks have wooden struts or metal clips on the underside. Avoid these locations and look for another position for the water tap.

The drillhole with a diameter of 12 mm must be performed with considerable care. Work with care and comply with all the general protective regulations.

Installing the water tap

Fit the water tap as follows (see following figure):

1. Should the selected position on the work surface or the sink permit the use of the white protective plate, slide the protective plate and directly under the trunk of the water tap followed by the rubber seal. In this case, the small black rubber seal is not required for installation. Should the available space not permit use of the protective plate, slide the slide the small black rubber seal directly under the trunk of the water tap.
2. Push the water tap through the drillhole. Slide on the thick black plastic flat washer from the underside of the work surface or sink.

Tip:

The strength of some work surfaces may necessitate omission of the black plastic flat washer to enable the water tap to be screwed down.

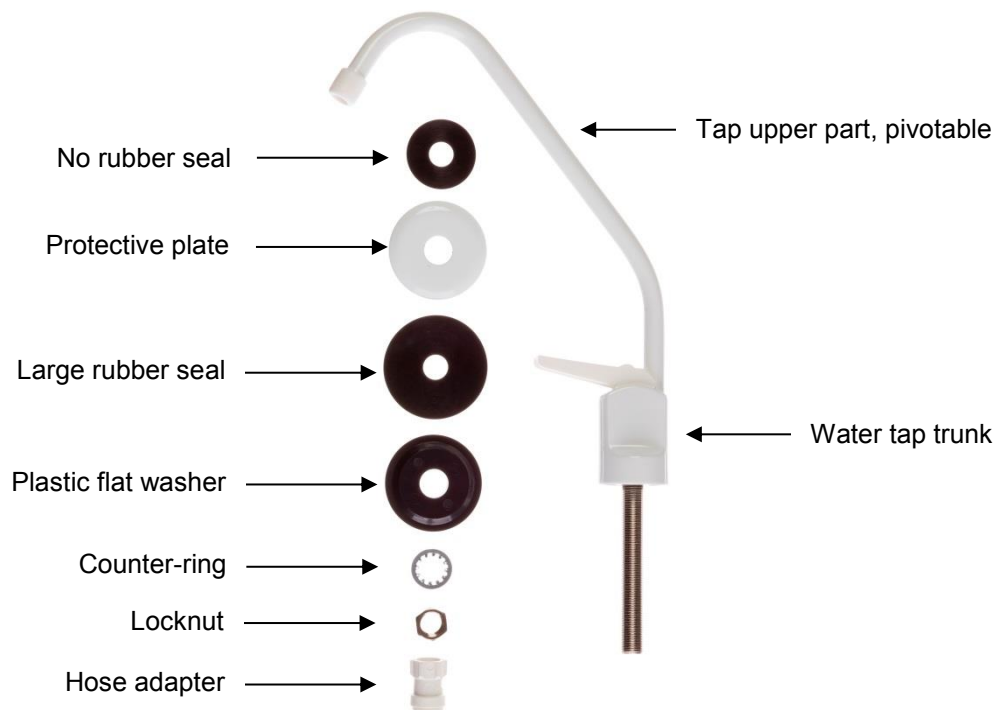


Figure: Installing the water tap

3. Now slide on the counter-ring and screw on the locknut.
4. Now align the water tap by turning the trunk into the desired position. Then tighten the locknut or the fixing nut using an open-ended wrench (14 mm) or an adjustable spanner. Hold the trunk in the desired position. Ensure that the white paint does not suffer damage.
5. Screw on the hose adapter. Do not over-tighten.

The function of the water tap

The water tap has two operating positions:

1. Pulling the lever upwards effects a continuous function. This then latches. This position is recommended if you need to fill a larger vessel or empty the storage tank completely.
2. Should you only wish to remove a small amount, depress the lever. The water only flows when the lever is depressed.

3.1.4 Screwing in the steriliser connector

The water connection with a 3/8" internal thread is located on the rear of the Hygoclave 90 Dürr Dental steriliser. Screw in the steriliser connector hand-tight. The steriliser connector can be screwed in somewhat tighter with an adjustable spanner.

3.1.5 Connecting the pressure hoses

Please use the following tips to connect the pressure hoses:

Tips for connecting the pressure hoses:

(1.) NOTICE: Do not bend the hose

The pressure hoses must not be kinked during installation and connection.

(2.) NOTICE: Do not damage

Install the pressure hoses in such a way that they cannot be damaged by other objects or a cupboard door. As such, we advise that you protect the hoses with a flexible empty conduit.

(3.) Hose length:

*Cut the hoses with a hose cutter, scissors or a sharp knife. Ensure a clean cut at right-angles. The hoses may not be too short, so that the filter group can be removed simply and easily for the purposes of changing the membrane or filter cartridge. Cutting the hoses too short means that you will need to disconnect the hoses from the hose connections when changing the filter. **As such, we recommend that you do not shorten the hoses!***

The connection fittings for the blue cold water hose, the black waste water hose and the white storage tank hose are located on the rear of the filter group.

Install the hoses included in the scope of delivery as follows:

1. First remove the plastic protective sleeves from the respective hose connections.

You can use the plug angle connector (included in the scope of delivery) as required to ensure optimal hose installation.

2. Insert the **black hose** on the quick-connect fitting of the waste water valve and the other end in the grey hose connection (black waste water hose) on the rear-side of the filter group.
3. The **blue hose** serves as a water line and is pre-installed. Now insert this in the tap connection.

4. Connect a **white hose** (1.5 m in length) in the hose connection of the left-hand filter housing (4th filter stage and the other end in the T-connector of the storage tank. Insert the **other white hose** (length: 1.5 m) in the T-connector of the storage tank and insert the other end in the T-connector of the hose "steriliser hose - removal hose" hose configuration.
5. The **white hose of the hose configuration with integrated stop valve (steriliser shut-off valve)** must be connected in the steriliser connector on the rear-side of the steriliser. You can interrupt the water connection to the steriliser using the shut-off valve in the steriliser hose. This is required with a filter change, system disinfection or maintenance of the steriliser.
6. Insert the **other white hose of the hose configuration** (length: 2.0 m) in the water tap hose adapter. **You can perform pressure relief via the water tap when changing the filter or membrane.**
7. Now you can fix the hoses with cable ties. This bundles the pressure hoses tidily. **Do not pull the cable ties too tight, so that the hoses do not suffer damage and you can still slide the cable ties a little if required. Ensure that the pressure hoses are not kinked.**
8. Now you can fix the pressure hoses with the red securing rings. This prevents unintended loosening of the hoses. This makes sense for the water line hose above all. Press the securing ring between the clamping sleeve and the fitting until the securing ring latches. You may need to pull back the hose carefully to do this.

3.2 Commissioning the water treatment system

Commission the water treatment system with the following simple steps:

1. Ensure that the steriliser shut-off valve, the storage tank valve and the water shut-off valve are still closed.



Figure: Function of the storage tank valve, the steriliser shut-off valve, Water shut-off valve and membrane service valve

2. Now open the tap slowly and then then water shut-off valve. Check for leaks in the hose connections. The system will fill with water and production begins.
3. Open the water tap. The steriliser shut-off valve must be closed. Demineralised water will drip or flow out of the water tap for c. five minutes. The flow speed is the production rate with which the water treatment system produces demineralised water. Allow the system to produce for c. 1 hour. This ensures that all the filter cartridges and the membrane are subject to sufficient rinsing. Whilst this is happening, check all the hose connections for leaks.
4. Now close the water tap and open the storage tank valve. The storage tank now begins to fill with demineralised water. The time required to fill the storage tank depends on the water temperature and above all the water pressure. A storage tank with a gross volume of 12 litres requires between 1 and 3 hours to fill. Check the complete system for leaks. Once you no longer hear the click of the eco pump, the storage tank is full.

5. Open the steriliser shut-off valve. The system is now ready for operation.

Check the water treatment system every day in the first week after installation for any leaks. Thereafter make the checks on a weekly basis.

Congratulations,

You have now successfully installed your Hygopure 90 water treatment system.

Please comply with the further specifications in this manual, above all Chapter 4.5 "Important safety information following system standstill".

3.3 Technical information about the eco pump and the degree of efficiency

(1) The Hygopure 90 water treatment system is fitted with an eco module (water-saving technology). This module consists of a hydraulic pump (permeate pump) and a hydraulic valve. The eco module increases system efficiency by up to 70% and maintains this constant whilst the storage tank is being filled. Operation of the eco module does not require electricity as the water pressure of the waste water provides the requisite energy. The production of pure water is indicated by a periodic "clicking" of the eco pump and a quiet whistling of the hydraulic shut-off valve. **The intervals and volume of the noise depends on the tap water pressure.**

(2.) **Given high water pressure and depending on the hose installation, it is possible that the higher energy of the waste water causes the black waste water hose to strike against another object (e.g. the waste water pipe).** If you think that the eco pump is "clicking" too loudly, the cause is in all probability to be found with the waste water hose. In this case, check the hose installation and if necessary, adapt it to the cable ties or secure the waste water hose with an additional cable tie. This prevents the blows (or the disturbing noises) from the waste water hose.

(3.) **The ratio between the raw water produced and the amount of waste water is referred to as the degree of efficiency.** The degree of effectiveness of the Hygopure 90 water treatment system is set to an optimal ratio. Depending on the water pressure and temperature, it lies at between 1.3 and 1.4. This guarantees optimal productivity, a long membrane service life and a high purity level of the permeate.

4 Care and maintenance of the water treatment system

4.1 Cleaning and care from outside

If necessary, the filter group, the storage container and the pressure hoses can be wiped down with a soft, lint-free cloth and warm soapy water. **Do not use any scouring agents, sharp cleaning tools, disinfectant solutions or aggressive cleaning agents to clean the water treatment system (esp. hose connections) as these could cause damage to the system and result in water damage.**

The exterior disinfection can be performed using the VEWAMED disinfectant (**SANOSIL solution S003**). Die SANOSIL Lösung S003 is a 1.5% hydrogen peroxide silver solution which poses no danger to human health and the environment. It has been tested in accordance with DGHM (Deutsche Gesellschaft für Hygiene und Mikrobiologie - The German Association for Hygiene and Microbiology) requirements. This disinfectant is odour-free and can be stored for c. 2 years without loss of effectiveness. Keep the disinfectant shut and at a temperature under 25°C. Keep out of the reach of children!

4.2 Replacement intervals for filter cartridges and membrane

The **pre-filter cartridges activated carbon block filter (filter stage 1) and sediment filter (filter-stage 2)** should be changed when the ion exchanger is exhausted or after a year at the latest.

The **service life of the ion exchanger cartridges (filter stage 4)** depends above all on the daily requirements for demineralised water. For example, with tap water with 14° dH; a permeate of 40 µS; a daily requirement of 5 L demineralised water and a threshold value of 15 µS for the demineralised water, this produces a ion exchanger service life of 260 days (excerpt from the service life table). The ion exchanger cartridge should be also replaced after a year at the latest.

The Hygopure 90 water treatment system cartridge set (consisting of a pre-filter and ion exchanger) is available to this end.

NOTICE:

Hygiene grounds require that you ensure extreme cleanliness when replacing the filter cartridge. Do not touch the filter cartridges directly with your hands; use the packaging, a clean cloth or new disposable gloves to handle the filter cartridge.

Experience shows that the **membrane (filter stage 3)** must be replaced every 3 - 5 years. Hard tap water can require replacement after 2 years.

A high membrane filtration capacity (i.e. retention quota of the membrane) means a longer service life for the ion exchanger. If the conductance of the permeate doubles from e.g. 40 µS/cm to 80 µS/cm the service life of the ion exchanger will halve.

The time depends primarily on the cleaning performance of the membrane. If this falls under 80%, change is required. As such, we recommend that you not only check the conductance of the demineralised water at regular intervals, but also determine the conductance of the permeate (or the retention quota of the membrane). The retention quota of the membrane is calculated as follows:

$$\text{Retention quota in \%} = \frac{\text{EC value raw water} - \text{EC value permeate}}{\text{EC value raw water}} \times 100\%$$

We recommend that you check the retention quota at least once a year (e.g. when changing the cartridge). **You can ascertain the retention quota via the membrane service valve using a hand-held conductance meter.** Proceed as follows:

1. Close the storage tank valve.
2. Use a hex driver (tip 2.5 mm) to unscrew the two fixing screws on the dust cover.
3. Open the water tap and allow the system to produce for min. 10 minutes. Then close the water tap.
4. Now open the membrane service valve and catch the permeate in a clean container (glass beaker). Then shut the membrane service valve.
5. Measure the conductance of the permeate using a hand-held conductance meter.
6. Fill another container with tap water and measure the conductance of the raw water.
7. Return the dust cover to the system console and screw it tight. Then re-open the storage tank valve.

4.3 Servicing the storage tank

We recommend that you subject the air pressure of the empty storage container to regular checks (min. every 2 years), ideally upon every filter change. Only a correctly set pre-pressure guarantees the complete functionality of water treatment system with reverse osmosis.

Tips:

(1.) Air pressure in the storage tank

The empty storage container stands under an over-pressure of 0.5 to 0.6 bar. This air pressure can be measured on the air pressure valve of the storage container (this is protected by a protective cap) and changed if necessary. The air pressure of the storage tank was set carefully before delivery.

(2.) Measuring and setting the air pressure

The air pressure valve of the storage tank functions like the valve on a car or a bicycle tyre. The air pressure is easy to measure using an air pressure monitor.

Proceed as follows to check the air pressure of the storage tank:

1. Close the valve of the water tap then open the water tap and empty the storage tank.
2. Then close the water tap and the storage tank valve. Now remove the short hose with the T connector from the storage tank valve.
3. Hold the storage tank at a slight angle / horizontally over the sink and open the storage tank valve. This enables any residual water to leave the storage tank. Then close the storage tank valve again.
4. Now screw on the protective cap of the air pressure valve. This is located on the underside of the storage tank.

5. Measure the air pressure with a pressure meter and increase the pressure as required (e.g. with a bicycle pump). The empty storage tank must have a pre-pressure of between 0.5 bar (7 psi) and 0.6 bar (8.5 psi). Screw the protective cap onto the air pressure valve.
6. Reconnect the short hose with the T connector to the storage tank valve and open the water connection valve and the storage tank valve.

4.4 Important information pertaining to disinfection

The water treatment system must be disinfected following longer down-time and at least once a year. Ideally, you should combine disinfection with the annual filter cartridge change. To this end, please comply with the note in chapter 4.5 "Important safety information following system standstill" and chapter 4.6 "Replacing the pre-filter cartridges".

The aim of disinfection is to prevent microbial contamination of the system. All system components subject to water flow are much less sensitive to microbiological contamination than locations with standing water i.e. in a storage tank. Microbes could develop here, especially given system standstill.

The disinfection of the water treatment system should be performed by a service technician.

4.5 Important safety information following system standstill

Safety reasons mean that we recommend either installing an aqua-stop valve or only operating the water treatment system under supervision and turning off the water supply outside the operating time. This avoids the danger of water damage.

Given **downtime of the water treatment system of a number of days** (e.g. a over the weekend) it is sufficient if you **close the the water connection and the storage tank valve**.

Given **downtime of the water treatment system of up to three weeks** (e.g. a two-week holiday) **considerations of safety require that you close the the water connection valve and empty the storage tank. Then close the storage tank valve and the steriliser shut-off valve.** After returning, allow the water treatment system to produce for c. 30 minutes whilst keeping the storage tank valve and the steriliser shut-off valve closed. Then open the storage tank valve. If the storage tank is full, empty it completely. The system is ready to operate after the second filling.

Given **downtime of the water treatment system of over three weeks** (e.g. a long holiday) **considerations of safety require that you close the the water connection valve and empty the storage tank. Then close the storage tank valve and the steriliser shut-off valve. A service technician must perform disinfection before commissioning.**

Important information:

Check the water treatment system every day in the first week after disinfection for any leaks. Thereafter make the checks on a weekly basis.

Given the **downtime of the water treatment system over several months** we recommend disinfection and replacement of all pressure hoses and filter cartridges. This should be performed by the works.

Should the decision be made to **decommission the system permanently**, separate the water treatment system from the water supply. The system components are recyclable. The old filter cartridges must be disposed of via the domestic waste.

4.6 Replacing the filter cartridges

Please note:

Hygiene grounds require that you ensure extreme cleanliness during disinfection and when replacing the filter cartridge and the membrane. Do not touch the filter cartridge and membrane directly with your hands; use the packaging, a clean cloth or new disposable gloves to handle them.

As the filter housing is full of water, keep a towel ready.

We recommend that you disinfect the entire water treatment system with every filter change. Disinfection should be performed by a service technician.

The following section describes how to replace the filter cartridges without disinfection:

Process description without system disinfection

1. Ascertain the retention quota of the membrane (see chapter 4.2)
2. Close the water connection valve to switch off the water inflow.
3. Close the steriliser shut-off valve and the storage tank valve.
4. Now open the water tap to allow the pressure to escape from the system. Then close the water tap.
5. Measure the air pressure of the empty storage tank (at least every 2 years, see chapter 4.3).
6. Remove the complete filter group. It is best if you place the filter group on a towel. Ensure that the hoses are not kinked.
7. Working carefully (the housing is full of water) use the filter key to open the three filter housings by turning in anti-clockwise and remove the filter cartridge. Should the filter housing be difficult to open, strike the filter key carefully with your hand. Dispose of the used filter cartridge via the domestic waste.
8. Wash the filter housing with warm water and a little cleaning agent and a soft washing cloth. Clean the respective filter housing cover as required. Rinse out all the soap thoroughly.

9. Check the o-rings (black filter housing sealing ring). This may not be permitted to be damaged or soiled. **The o-rings must be cleaned and greased with every filter change.** Use the grease included from the cartridge set. The o-rings may not twist and must lie evenly in the groove. **Damaged o-rings must be changed, otherwise there is the danger of water damage. We recommend changing the o-rings every 3 to 4 years.**
10. Remove the filter cartridge packaging. Insert the filter cartridge in the corresponding filter housing.
11. Screw the filter housing with the activated carbon block filter to the right-hand filter housing cover, the filter housing with the sediment filter to the central filter housing cover and the filter housing with the ion-exchanging cartridge to the left-hand filter housing cover by turning it in clockwise. You can screw the connections tighter with the filter key. This guarantees optimum protection against leaks. Do not screw down the filter housing too tightly otherwise this could cause problems when attempting to open the filter housing to change the filter.
12. If you need to change the membrane, perform steps 4 to 13 listed in chapter 4.7 "Changing the membrane". Otherwise, proceed to step 13.
13. Remove the waste water hose from the waste water valve. Clean the hose should you find soiling (usually algae). Then return the hose to the waste water valve.
14. Open the water connection valve. The system will fill with water and production begins.
15. Open the water tap. Demineralised water will drip or flow out of the water tap for c. five minutes. Allow the system to produce for 30 minutes whilst keeping the storage tank valve closed. This will clean the new filter cartridges. Whilst this is happening, check all the hose connections and filter housings for leaks.
16. Now close the water tap and open the storage tank valve. Once you no longer hear the click of the eco pump, the storage tank is full.
17. Open the steriliser shut-off valve. The system is now ready for operation

Check the water treatment system every day in the first week after changing the filter for any leaks. Thereafter make the checks on a weekly basis.

4.7 Replacing the membrane

Please note:

Hygiene grounds require that you ensure extreme cleanliness when replacing the membrane. **Do not touch the membrane directly with your hands; use the packaging, a clean cloth or new disposable gloves to handle the membrane.**

Ideally, you should combine the membrane with the filter change.

As the membrane housing is full of water, keep a towel ready. Comply with the remarks pertaining to the function of the hose connections made in chapter 3.1.1.

To change the membrane, proceed as follows:

1. Close the water connection valve to switch off the water inflow.
2. Close the steriliser shut-off valve and the storage tank valve.
3. Now open the water tap to allow the pressure to escape from the system. Then close the water tap.
4. Use a hex driver (tip 2.5 mm) to unscrew the two fixing screws on the dust cover.
5. Then remove the connection hose from the automatic shut-off valve to the membrane housing from the membrane housing cover.
6. Remove both hoses from the lower end of the membrane housing. Remove the white hose from the white elbow connector and then the black hose from the grey elbow connector.
7. You can now pull out the membrane housing from the membrane housing clips carefully.
8. Unscrew the membrane housing cover (clockwise). Remove the membrane by pulling it carefully out of the housing using flat-nose or gaspipe pliers. Dispose of the exhausted membrane via domestic waste.
9. Wash out the membrane housing and the membrane housing cover thoroughly with warm water and a little cleaning agent and a soft washing cloth.
10. Check the o-ring (black housing sealing ring). This may not be permitted to be damaged or soiled. **The o-ring must be cleaned and greased with every membrane change.** Please use the grease included with the filter cartridge. The o-ring of the membrane housing must not twist and must lie evenly in the groove of the membrane housing. **A damaged o-ring must be changed, otherwise there is the danger of water damage.**
11. Remove the plastic packaging of the new membrane and slide the membrane - as depicted in the following figure - **tightly** into the membrane housing (i.e. the upper end of the membrane with the two eyes must remain flush with the upper edge of the membrane housing). Now screw the cover back onto the membrane housing.

Lower end of the membrane:
Press the membrane firmly into the membrane housing. The lower end of the membrane with the two small o-rings is immersed in the membrane housing first.



Figure: Inserting the membrane

12. Return the black hose into the grey elbow connector and the white hose into the white elbow connector. Now return the connection hose from the automatic shut-off valve into the membrane housing cover.
13. Then press the membrane housing back into the membrane housing clips. Ensure that no hoses are crushed between the housing clips and the membrane housing.
14. Now open the water connection valve and the water tap. The system will fill with water and production begins. Allow the system to produce for c. 1 hour. This rinses the new membrane. Check for leaks in the hose connections.
15. Now close the water tap.
16. Open the valve of the storage tank and the steriliser shut-off valve.
17. Return the dust cover to the system console and screw it tight.
18. The system is now ready for operation.

Check the water treatment system every day in the first week after changing the filter for any leaks. Thereafter make the checks on a weekly basis.

5 System specifications

TECHNICAL DATA	
Production capacity:	7.9 L / hour (190 L / day) (at 3.4 bar water pressure and 25 °C water temperature with out tank counter-pressure)
Membrane service valve:	Enables the conductance measurement of the permeate directly after the membrane and before the ion exchanger
Filter stage 1:	Activated carbon block filter OMB with 5 µm filtration for the removal of chlorine, org. connections etc.
Filter stage 2:	Sediment filter PSF1 with 1 µm filtration for the removal of rust, sand and other particles
Filter stage 3:	- High-performance membrane DF50 - Retention quota / filtration capacity c. 95%
Filter stage 4:	Ion exchanger VIO3-10 with high capacity
Ion exchanger service life:	c. 260 days with 5 L dem. water per day; tap water with 14 °dH and permeate with 40 µS (from service life table)
Service life pre-filter:	12 months (depending on the sediment load)
Service life membrane:	c. 4 years (depending on the quality of the raw water / the water hardness)
Degree of efficiency:	Optimally set to c. 1:3 (ratio of permeate to waste water)
Hose connector:	John Guest plug connector
Pressure hoses:	John Guest; colour-coded; 2.0 m long
Filter acceptance (filter sheet):	Aluminium (white)
Further system components:	Brand components of the leading manufacturers
Service life of the filter housing:	10 years
Checked system quality:	Confirmed via test protocol and serial number
System configuration	An optimal system configuration permits a quick service
Operating manual	Installation, handling, maintenance and disinfection
System dimensions (W x H x D):	39.5 x 50.0 x 15.5 cm
Storage tank 12 L (∅ x H):	24.0 x 40.5 cm (inc. tank valve)
System weight	13 kg (inc. packaging)
Scope of delivery:	Complete system with installation material and installation and operating instructions
OPERATION REQUIREMENTS	
Water pressure:	2.4 to 7.0 bar (if the water pressure exceeds 7.0 bar, a pressure reducer must be installed upstream)
Hardness range:	All hardness ranges from soft (< 8.4 °dH) to hard (> 14 °dH)
Water temperature:	4.0 °C to 38.0 °C

CONSUMPTION COMPONENTS	DESIGNATION / ARTICLE NO.
Pre-filter cartridges and ion exchanger:	Hygopure 90 cartridge set: activated carbon block filter, sediment filter, an ion exchanger and grease / 6046100116
Membrane:	Membrane DF50 Hygopure 90 / 604600117
Optional accessories, wear parts:	Aqua-Stop valve LD1 / 6046100151 Hygopure stainless steel water tap 90 / 6046100118 O-ring set for the filter housing / 6046100157 Conductivity measuring device HMEC1 / 604610011 Pressure hose, white / 6046100153 Pressure hose, blue / 6046100154 Pressure hose, black / 6046100156 Water treatment extension set (2 x T-connector, 2 x shut-off tap) / 6046100144

6 Problem-solving (tips and tricks)

You can isolate a technical problem and resolve the majority of technical problems with the following table.

Description of the problem	Possible cause	Solution
The system produces no or very little water (no or only very little water is flowing from the water tap or the steriliser shut-off valve)	<ol style="list-style-type: none"> 1. Water connection valve closed 2. Storage tank valve closed 3. Water pressure and/or water temperature too low 4. Storage tank not yet full 5. Hose line kinked 6. Activated carbon block filter strongly soiled 7. Sediment filter strongly soiled 8. Membrane clogged 9. The pre-pressure of the storage tank is too high or too low 10. eco pump defective 11. The system is installed incorrectly 	<ol style="list-style-type: none"> 1. Open the water connection 2. Open the storage tank valve 3. Measure the pressure and temperature of the water and compare with the installation requirements specified in chapter 2.1 4. Wait until the storage tank is full. The duration of a filling depends above all on the water pressure and lasts c. 1 to 3 hours 5. Remove the kink and replace the hose if necessary 6. Replace the activated carbon block filter 7. Replace the sediment filter 8. Replace the membrane 9. Empty the storage tank and set the air pressure to 0.5 - 0.6 bar (see chapter 4.3) 10. Replace the eco pump. 11. Contact your dealer
The service life of the ion exchanger decreases rapidly	<ol style="list-style-type: none"> 1. Membrane inserted incorrectly 2. Membrane expended 3. Waste water hose kinked 4. Waste water hose clogged 	<ol style="list-style-type: none"> 1. Open the membrane housing and check (see chapter 4.7) 2. Measure the retention quota of the membrane (see chapter 4.2). If this is under 80%, replace the membrane. 3. Remove the kink and replace the hose if necessary 4. Clean the waste water hose. Remove the hose from the waste water valve and then clean.
The eco pump clicks loudly	<ol style="list-style-type: none"> 1. The waste water hose strikes against another object (e.g. waster water pipe or cupboard) 	<ol style="list-style-type: none"> 1. Install the hose new and secure with additional cables if necessary

Description of the problem	Possible cause	Solution
Filter housing is leaking	<ol style="list-style-type: none"> 1. The filter housing has not been screwed on correctly 2. O-ring not greased 3. O-ring damaged 	<ol style="list-style-type: none"> 1. Screw in the filter housing using the filter key 2. Clean the o-ring and grease with special grease 3. Replace the O-ring
Hose connection leaking	<ol style="list-style-type: none"> 1. The hose has not been inserted in the hose connection correctly 2. O-ring of the hose connection damaged 3. Holding element damaged 	<ol style="list-style-type: none"> 1. Press the hose into the hose connection to its fullest extent. 2. Replace the O-ring 3. Replace the holding element
Pure water smells bad	<ol style="list-style-type: none"> 1. Failure to comply with the filter change intervals 2. Ion exchanger expended 3. Membrane expended 4. System is full of germs 5. Waste water hose kinked 6. Waste water hose clogged 7. Reducing valve is calcified or clogged 	<ol style="list-style-type: none"> 1. Check the filter change date and replace the filter cartridge if necessary 2. Replace the ion exchanger 3. Measure the retention quota of the membrane (see chapter 4.2). If this is under 80%, replace the membrane. 4. Disinfect the system (see chapter 4.4) 5. Remove the kink and replace the hose if necessary 6. Clean the waste water hose. Remove the hose from the waste water valve and then clean. 7. Replace the reducing valve
The conductance of the permeate is too high (Retention quota under 80%)	<ol style="list-style-type: none"> 1. Waste water hose kinked 2. Waste water hose clogged 3. Reducing valve is calcified or clogged 4. Membrane inserted incorrectly 5. Membrane expended 6. The membrane housing is defective 	<ol style="list-style-type: none"> 1. Remove the kink and replace the hose if necessary 2. Clean the waste water hose. Remove the hose from the waste water valve and then clean. 3. Replace the reducing valve 4. Open the membrane housing and check (see chapter 4.7) 5. Replace the membrane 6. Replace the membrane housing

Description of the problem	Possible cause	Solution
Membrane housing leaks	<ol style="list-style-type: none"> 1. The membrane was not screwed on tightly enough 2. O-ring not greased 3. O-ring damaged 	<ol style="list-style-type: none"> 1. Screw on the membrane housing cover more tightly 2. Clean the o-ring and grease with special grease 3. Replace the O-ring
The system does not switch off (i.e. the waste water flows from the waste water hose although the storage tank is full)	<ol style="list-style-type: none"> 1. eco pump defective 2. The automatic deactivation valve is defective 3. The pre-pressure of the storage tank is too low 	<ol style="list-style-type: none"> 1. Replace the eco pump 2. Replace the automatic deactivation valve 3. Measure the pressure of the empty storage tank and set the air pressure to 0.5 - 0.6 bar (see chapter 4.3)
No or insufficient waste water	<ol style="list-style-type: none"> 1. Reducing valve is calcified or clogged 2. Safety valve calcified or clogged 3. Waste water hose kinked 4. Waste water hose clogged 5. Membrane clogged 6. eco pump defective 	<ol style="list-style-type: none"> 1. Replace the reducing valve 2. Replace the safety valve 3. Remove the kink and replace the hose if necessary 4. Clean the waste water hose. Remove the hose from the waste water valve and then clean. 5. Replace the membrane 6. Replace the eco pump
Too much water flows from the water tap or the steriliser shut-off valve	<ol style="list-style-type: none"> 1. Membrane inserted incorrectly 2. Membrane not inserted 3. Membrane defective 	<ol style="list-style-type: none"> 1. Open the membrane housing and check (see chapter 4.7) 2. Insert the membrane 3. Replace the membrane



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