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Warning

Please read this manual carefully before you proceed with the installation. Your failure to follow any of the attached instructions or operating parameters may lead to the product's failure and possible property damage.

Save the manual for future reference.

Thank you for your purchase of this Aquaphor RO. With proper installation and maintenance, this system will provide you with premium quality drinking water. The technology used in the Aquaphor RO enriches the filtered water with minerals in controlled quantities.

This water is highly beneficial for the body as it helps to normalize the physiological processes.**

If you have any questions or concerns, please contact our customer service department at +1 (855) 855 2299 or email sales@aquaphor.com, support@aquaphor.com. We are always happy to answer any questions you may have regarding our product.

Introduction

Aquaphor RO operates by removing contaminants from water at the molecular level. By using your household water pressure to squeeze the water against a special membrane, the water molecules are separated from any impurities that exist.

Rejected dissolved solids are automatically rinsed away through the drain leaving you with only high-quality, delicious water for your use.

1. Operational parameters

Operating temperatures:	Maximum 38 °C (100.4 °F)	Minimum 5 °C (41 °F)
Operating pressure:	Maximum 0.63 MPa (6.3 bar / 91.4 psi)	Minimum 0.19 MPa (1.9 bar / 27.6 psi)
	The operating pressure in your home should be tested over a 24 hour period to attain the maximum pressure. If it is above 0.63 MPa (6.3 bar / 91.4 psi), then a pressure regulator is necessary, and will be required.	
Dimensions (length x height x width):	371 x 420 x 190 mm	
Maximum flow rate membrane cartridge (water temperature +25 °C (77 °F) with a constant pressure of 0.4 MPa (4 bar / 58.02 psi)	For Aquaphor RO-101S – 50 GPD For Aquaphor RO-102S – 100 GPD	
Cleaned water to drained water ratio (water temp. no less than +20 °C / 68 °F)	1:4-1:6	
Mass no more than	6.2 kg / 13.66 lbs	
pH parameters:	Maximum 10	Minimum 4
Iron:	Maximum 0.3 ppm	
TDS (Total Dissolved Solids):	Maximum 2000 ppm	
Turbidity:	Maximum 1 NTU	
Hardness:	Recommended water hardness should not exceed 350 ppm as CaCO ₃ (20.5 grains per gallon). The system will operate with hardness over 350 ppm (20.5 gpg), but the membrane cartridge life may be shortened. The addition of a water softener may lengthen the membrane cartridge life.	

* This statement has not been evaluated by the United States Food and Drug Administration.

1. Operational parameters, Cont.

Table 1. The dependence of minimum necessary operating pressure of the water purifier from mineralization.

Mineralization		Minimum pressure		
mg/L, ppm	gpg	MPa	bar	psi
100.1	5.8	0.2	2	29.01
200.2	11.7	0.25	2.5	36.26
300.3	17.5	0.3	3	43.51
400.4	23.4	0.4	4	58.02
500.5	29.2	0.6	6	87.02

ATTENTION

The efficiency of RO depends on the incoming tap water mineralization and tap water pressure (please see Table 1). The recommended operation of RO requires tap water pressure of at least 0.2 MPa (2 bar / 29.01 psi).

When tap water pressure is less than illustrated in the Table 1, it is highly recommended to install a booster pump in order to obtain drainage ratio.

2. Safety instructions

Warning: RO must be applied to potable water only.

It is highly recommended that a water treatment specialist be hired to install and maintain this appliance.

When installing the appliance into a local water supply, it is recommended that you conduct a full water analysis. If the water analysis does not correspond with the requirements, the life of the filtration and membrane cartridges may be significantly reduced. In this case, it is recommended to use auxiliary water treatment systems (e.g. mechanical filter, de-ironing filter with, or alongside a water softener). Only use microbiological safe water with your Reverse Osmosis system appliance.

Caution: Do not use water that is microbiologically unsafe or water of unknown quality without adequate disinfection before or after using the appliance.

Caution: Reverse Osmosis water should not be run through copper tubing as the purity of the water will leach copper and cause an objectionable taste in the water. Additionally, it will form pinholes in the tubing. Be sure to follow any state or local regulations.

Caution: The Reverse Osmosis system is designed to be connected to cold water only. Never run warm or hot water through your appliance.

3. Product assembly:

№ Component	Quantity
1. RO Housing assembly (1)	1 pc
2. Cartridges:	
2.1. Preliminary water treatment block:	
Replacement filter cartridge K5 (3)	1 pc
Replacement filter cartridge K2 (2)	1 pc
2.2. Reverse Osmosis membrane block:	
Replacement membrane cartridge Aquaphor RO-50S (for Aquaphor RO-101S only) (4)	1 pc
Replacement membrane cartridge Aquaphor RO-100S (for Aquaphor RO-102S only) (4)	1 pc
2.3. Water conditioning block:	
Replacement filter cartridge K7M (5)	1 pc
3. JG connecting tubes (6):	
Red JG tube 3/8" (d 9,5 mm)	1 pc
Black JG tube 1/4" (d 6,35 mm) (drain)	1 pc
Blue JG tube 1/4" (d 6,35 mm) with pressed metal bushing	1 pc
4. Drain saddle (7)	1 set
5. Connection node (8)	1 set
6. Clean water faucet (9)	1 set
7. Service cap (under top lid) for:	
Replacement filter cartridges K5, K2, K7M (K7) (10a)	3 pc
Membrane cartridge (10b)	1 pc
8. Slotted plug (under top lid) (11)	3 pc
9. Plastic key for JG tube (under top lid) (12)	1 pc
10. Operation Manual	1 pc

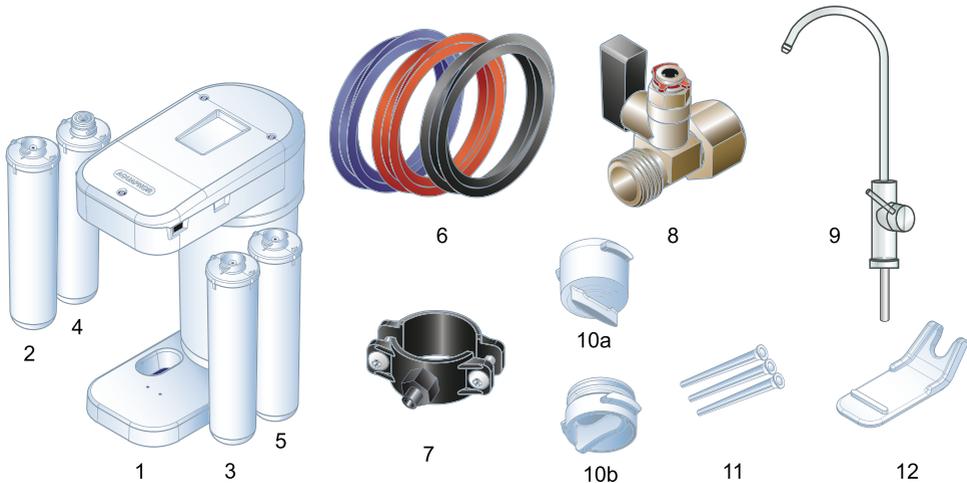


Figure 1. Product assembly

3. Product assembly, Cont.

During transportation, the component parts are located under the top lid. To open the lid, please turn the three plastic latch screws on the cover 90 degrees counterclockwise (figure 2).



Figure 2. How to open the top lid

4. RO design and operation principles

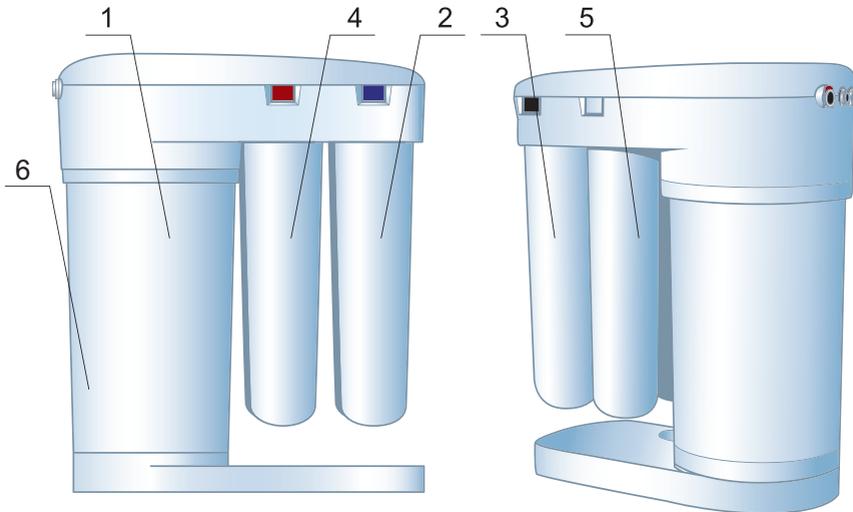


Figure 3. RO main components

- 1 – RO housing assembly;**
- 2, 3 – Preliminary water treatment block;**
- 4 – Reverse Osmosis membrane block;**
- 5 – Water conditioning block;**
- 6 – Storage tank**

- RO housing (1)** consists of an upper plate, with four collectors fixed onto it, to place the replacement cartridges and the RO-hydro automatic unit RO. The upper lid comes with a decorative cover, fixed in place with three plastic latches. An integral part of the RO housing is the treated water storage tank (6). Treated water goes into the storage tank upon exiting the membrane cartridge. This storage tank ensures availability of the required amount of filtered water always.

4. RO design and operation principles, Cont.

- ❑ **Preliminary water treatment block (2, 3)** includes replacement filter cartridge K5 (3) and K2 (2). The preliminary water treatment block removes any impurities that can damage membrane cartridge, such as ferric hydroxide and active chlorine.
- ❑ **Reverse Osmosis membrane block (4)** includes the replacement membrane cartridge Aquaphor RO-50S (for RO-101S) or RO-100S (for RO-102S) and purifies water by removing organic compounds, non-organic compounds, and salts while softening water.
- ❑ **Water conditioning block (5)** includes the mineralizing cartridge K7M. The water conditioning block eliminates unwanted odors and flavors from water while mineralizing the water.

Attention!

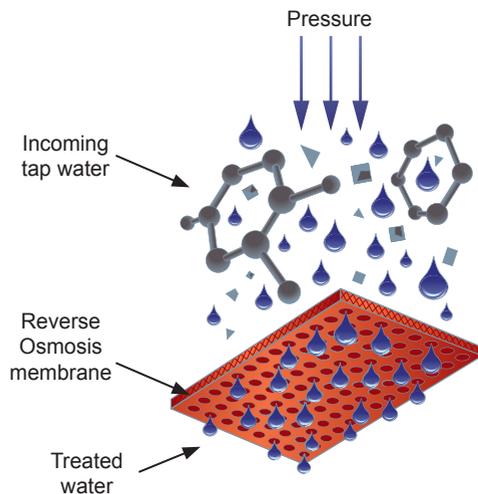
The mineralizing cartridge K7M can be replaced with the K7 cartridge.

How RO works

The water coming from the cold water mains enters RO and passes through the preliminary water treatment block. From there, water enters the Reverse Osmosis membrane block via the automatic check valve. The unit housing the membrane cartridge has two outlets: the treated water outlet and the drain water outlet. On its way to the drain, the water will also pass through a flow restrictor. The flow restrictor flushes the drain water that goes down the drain.

The treated water enters the storage tank that has a built-in membrane. This separates the tank into two chambers: storage and technical. The storage chamber contains the fully purified drinking water, while the technical chamber contains water from the mains. As clear water collects, water from the mains is forced from the technical chamber into the drain, also preventing the accumulation of clear water. When the storage tank is full, the automatic check valve cuts off the water intake into RO.

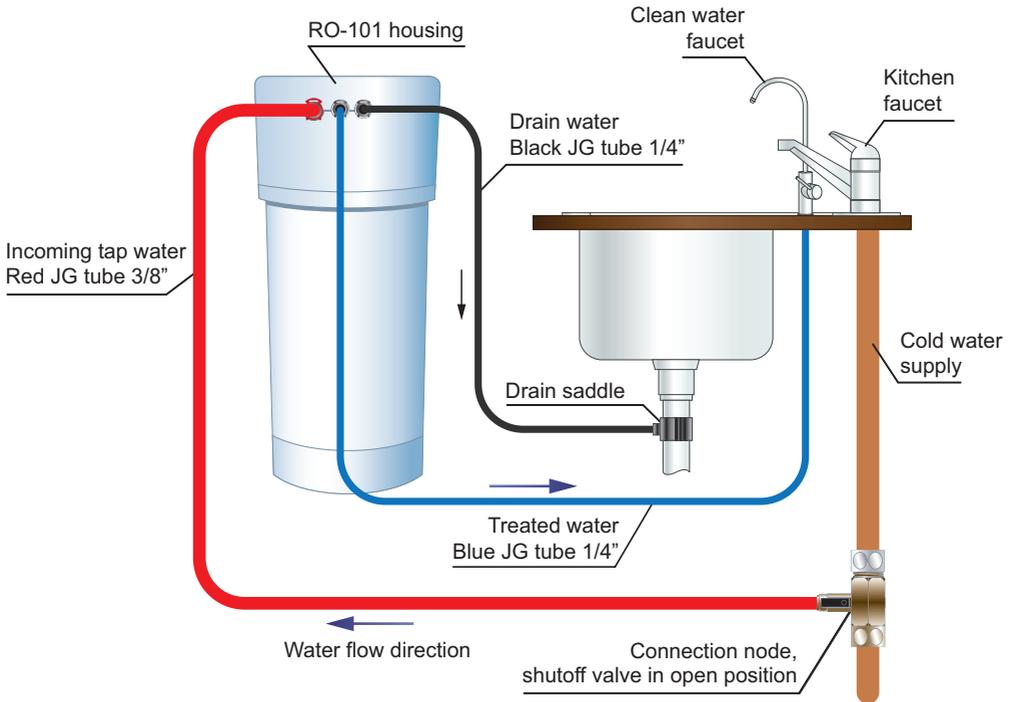
When the clean water faucet is opened, water from the mains enters the technical chamber via the shutoff valve and forces treated water from the storage chamber through the faucet via the conditioning block. The automatic check valve then triggers and opens water supply to the RO-storage tank.



5. RO installation

Attention! Only install your RO by a qualified plumber who is certified to perform the installation in accordance with state law.

Locate the appropriate installation place for the faucet and RO. Take care to ensure that the delivery tubes are pulled freely, without over bending. RO must be installed on a flat, even solid surface as installation on an uneven surface may cause vibration or noise. Additionally, RO must be located away from heat sources, such as kitchen ovens, hot water supply pipes, dishwashers or washing machines, or at least isolated from such heat sources.



Picture 4. RO installation scheme

5. RO installation, Cont.

Connection node assembly

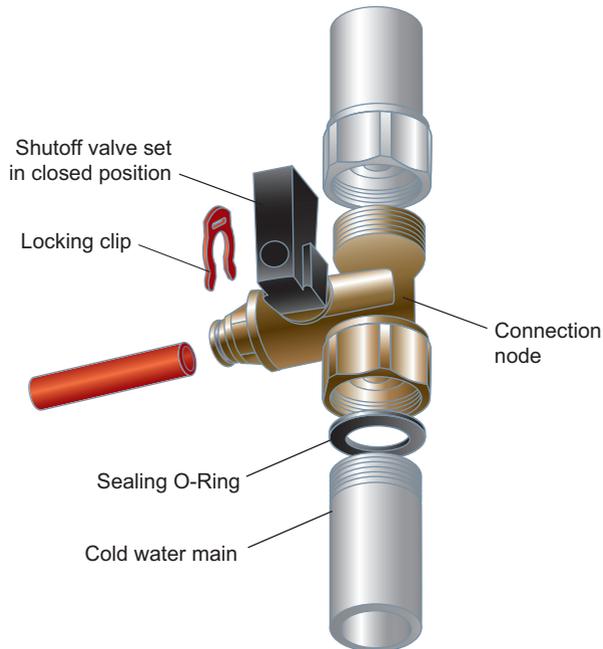


Figure 5. Connection node installation scheme

- Turn the water off at the cold water main.
- Open the kitchen faucet to discharge pressure into the water line.
- Unscrew the nut from the flexible line cap, leading to the faucet on the cold water main.

ATTENTION! Residual water will be left inside of the flexible JG tube after discharge of water. When disconnecting the flexible line, please use a 200 ml or similar size container to drain the water left behind in the tube.

- Screw the cap nut off the connection node and on the cold water main thread.
- Screw the cap nut off the flexible line, and then on the connection node thread.
- Set the shutoff valve on the connection node to the closed position and then make sure that the connection is completely leak-proof by supplying water to the cold water main.
- Connect JG tube (follow the instructions below to correctly connect the JG tubes).

ATTENTION! Make sure that the sealing O-Ring is located correctly in its place and not damaged during installation.

5. RO installation, Cont.

Connection of JG tubes

Pull the locking clip (2) off the plastic plug (1). Then install the previously wetted end of the tube (3) into the fitting piece approx. 15 mm up to the stop. Next, put the locking clip (2) back.

Make sure that the tube (3) is tightened correctly: the tube should not be pulled out by force greater than 8-10 kgf.

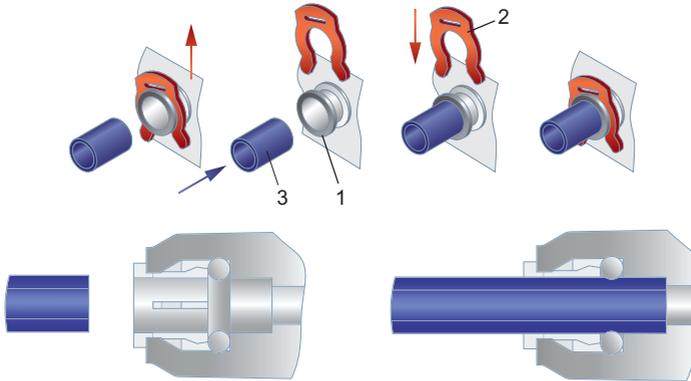


Figure 6. Connection of JG tubes

Disconnection of JG tubes

Pull the locking clip (2) off the plastic plug (1), then pull the tube (3) out by applying pressure on the face of the connecting piece. To apply pressure, use the tube disconnection key (4) included in the water filter set.

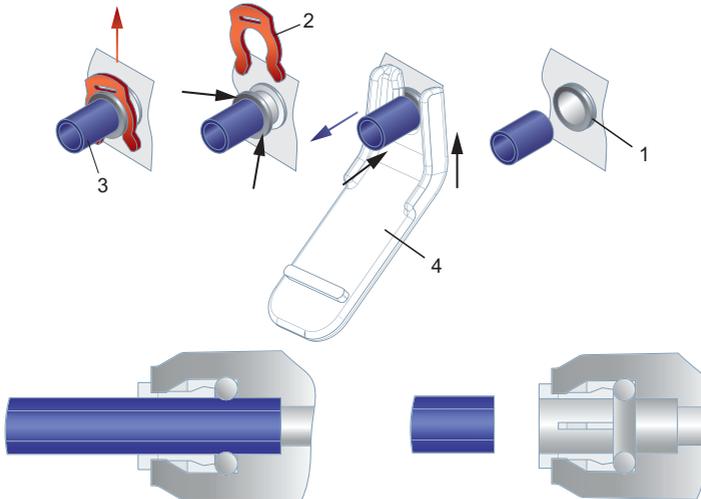


Figure 7. Disconnection of JG tubes

6. Clean water faucet installation

- ❑ Drill the hole in the sink (table top) 12 mm diameter;
- ❑ Put on the thread tail of the faucet (11) rubber gasket (2), decorative stand (3), rubber gasket (4) and insert the faucet into the hole in the sink;
- ❑ Underneath the sink, put plastic (5) and metal (6) lock washers on the thread bushing and screw on the fastening nut (7);
- ❑ Put on the captive-nut (9) on the plastic pipe (10) with pressed metal bushing (8) (fig. 8) and screw on the nut onto the tail end of the faucet.

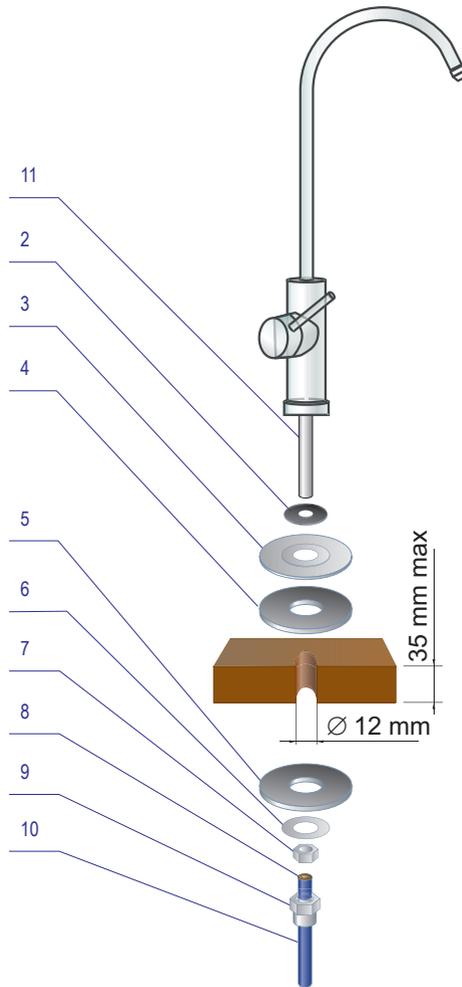


Figure 8. Tube connecting to the clean water faucet procedure

7. Drain saddle installation

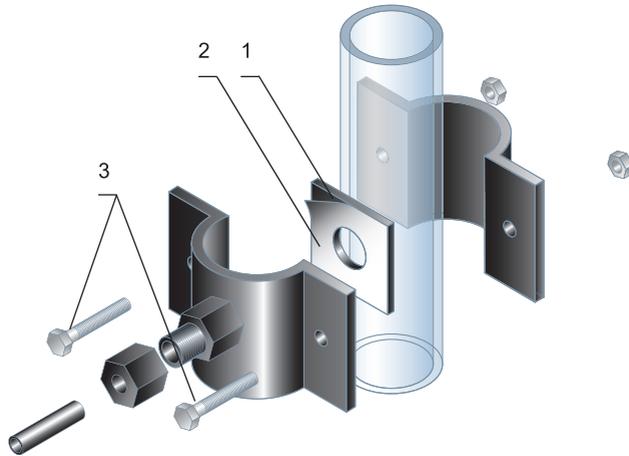


Figure 9a. Drain saddle components

It is best to install the drain saddle on the sink drain before the siphon trap or bend (the drain saddle on most drain pipes is of ~40 mm diameter).

1. Apply the part of the collar with the fitting to the pipe to determine the optimal position of the collar and the pipe hole.
2. Drill a 7 mm hole in the planned tube location on the tube pipe.
3. Remove the cut circle from the sealing gasket (1).
4. Remove the protective tape (2) from the sealing gasket (1). Place the sealing gasket (1) on the collar inner side, so that the hole in the gasket meets the hole in the collar fitting.
5. Install the collar onto the pipe, carefully aligning the hole in the fitting with the drilled hole; tighten the bolts (3). The bolts must be tightened evenly in such a way that the two parts of the collar are located in parallel.
6. Put the plastic nut onto the JG drain tube (1/4", black) so that the tube is protruding from the other side of the nut by a length of 20 mm (see figure 9b).

To eliminate any noise from the water in the drain saddle, push the JG tube deeper into the pipe.

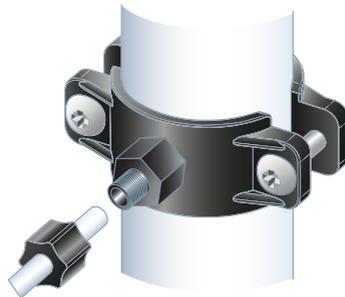


Figure 9b. Drain saddle installation

8. Slotted plug installation

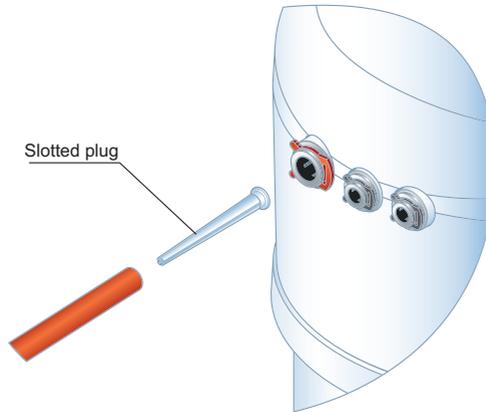


Figure 10. Slotted plug installation

1. Install the slotted plug into the JG tube 3/8" (9.5 mm) tube to a stop, as shown on figure 10.
2. Remove the clip from the JG tube 3/8" socket of the water filter, and then connect this tube end to it (see the connection of the JG tubes on figures 6 and 7).

Attention! The set includes three slotted plugs: one for installation and two are for spares.

9. Starting RO

To start RO, you must connect the supply tube and carry out the flushing procedure of filter and membrane cartridges.

Step 1. Connect the incoming tubes according to the diagram below (figure 11). The tube connection scheme is illustrated on figure 6

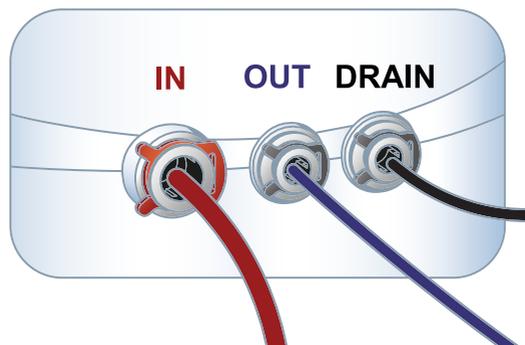


Figure 11. Incoming tubes connection

9. Starting RO, Cont.

Step 2. Preparing RO for operation

- Rotate the three latches 90 degrees in a counterclockwise direction and remove the water filter cap (figure 2).
- Remove the service cap (figure 1; position 10b), which is located under the water filter cap.
- Remove the shrink film from the cartridges.
- Rinse the sealing O-Rings of the cartridges and service cap.
- Arrange the cartridges in the exact order, as demonstrated in Table 2. For convenience, the stop buttons of the collectors have the different color.
- Set the shutoff valve on the connection node into the open position, as shown on figure 4.
- Leave the clean water faucet open for 10 minutes.

Table 2. Positions of RO cartridges in preparation for operation

Stop button colors	Cartridge type
BLACK	K2
BLUE	K5
RED	Service Cap
WHITE	K7M

The noise during the flushing of the cartridges is not a defect.

- Close the clean water faucet.

Step 3. Flushing the membrane cartridge unit

- Set the shutoff valve on the connection node into the closed position, as shown on figure 5.
- Remove the service plug and install membrane cartridge.
- Interchange the K5 and K2 cartridges.
- Turn the shutoff valve on the connection node into the open position.
- Open the clean water faucet, then wait for the water to start flowing.
- Let the water flush through RO for 1 hour.*
- Close the clean water faucet.

Step 4. Flushing the conditioning cartridge K7M

- Close the clean water faucet and fill in the storage tank. This will take 30–50 minutes, depending on water pressure.
- Open the clean water faucet and then wait until all of the water flows out from the storage tank.
- Repeat these steps two more times.
- Close the clean water faucet.
- When the tank is full, RO is ready for operation.

Note: In total, the general flushing of filter and membrane cartridges and startup time will take you about 3 hours.

* Depending on the storage, transportation and operation conditions, the complete flushing of membrane cartridge may take up to 24 hours.

10. Replacing cartridges

The membrane cartridge service life directly depends on operation of the preliminary water treatment unit (cartridges K5 and K2). Therefore, it is always very important to replace the filtering cartridges in a timely manner.

Replacing cartridges K5 and K2 (figure 12):

1. Set the shutoff valve on the connection node into the closed position, and then open the clean water faucet to discharge any pressure.
2. Press the button above the cartridge, and then rotate the used filter cartridges K5 and (or) K2 in a clockwise direction to remove the used cartridge.
3. Install the new cartridges K5 and (or) K2 according to Table 2.

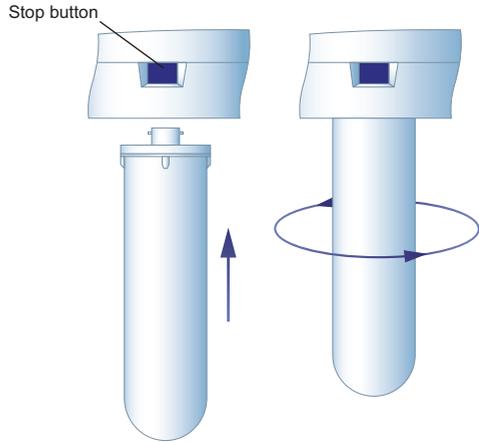


Figure 12. Cartridge installation

4. Press the button above the cartridge, and then rotate the membrane cartridge in a clockwise direction to remove it.
5. Install the service cap instead of the membrane cartridge (figure 1, position 10b), figure 13.
6. Set the shutoff valve on the connection node into the open position.
7. Open the clean water faucet and flush the preliminary water treatment cartridges for around 20–30 minutes.
8. Set the shutoff valve on the connection node into the closed position.
9. Install the membrane cartridge instead of the service cap.
10. Interchange the positions of K5 and K2 cartridges.
11. Set the shutoff valve on the connection node into the open position and close the clean water faucet.
12. Make sure that RO connections are sealed.

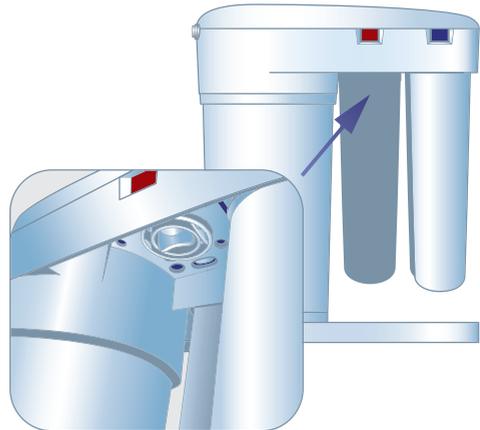


Figure 13. Installation of the membrane cartridge service plug

10. Replacing cartridges, Cont.

Replacing the conditioning cartridge K7M (K7*)

1. Set the shutoff valve on the connection node into the closed position; then open the clean water faucet to discharge pressure.
2. Press the button above the cartridge, and then rotate the used conditioning cartridge K7M (K7) in a clockwise direction to remove it.
3. Install a new conditioning cartridge.
4. Set the shutoff valve on the connection node into the open position; then wait for all of the water to flow out from the storage tank through the clean water faucet.
5. Then close the clean water faucet.
6. When the tank is filled, your RO is ready for operation.
7. Make sure that RO is properly sealed.

Replacing the membrane cartridge

1. Set the shutoff valve on the connection node into the closed position, and then open the clean water faucet to discharge pressure.
2. Press the button above the cartridge, and then rotate the used membrane cartridge in a clockwise direction to remove it.
3. Install a new membranecartridge in place of the removed one.
4. Turn the shutoff valve on the connection node to the open position.
5. Flush the water through RO for duration of approximately 1 hour.**
6. Close the clean water faucet.
7. When the tank is filled, RO is ready for operation.
8. Make sure that RO is properly sealed.

ATTENTION! To avoid any incorrect installation of the membrane cartridge and the resulting loss of sealing of the RO connections, it is not recommended to disassemble it without a fully qualified maintenance specialist. If the RO connections are leaking, immediately close the tap on the connection unit and check the cartridges for correct installation.

* The K7 cartridge is not included in the water filter set and is sold separately.

** Depending upon storage, transportation and operation conditions, complete flushing of the membrane cartridge may take up to 24 hours.

11. Recommended filter replacement

The frequency at which the filter and membrane cartridges should be replaced depends on the quality of the water that enters the appliance. Contact your water treatment specialist for replacement filters and parts.

Note: The installation of the RO appliance on a pre-treated water supply will greatly increase the life of its filters.

Table 3. Recommended filter replacement

Filter Cartridges	Recommended Replacement (months)
Replacement filter cartridge K5 (1)	6
Replacement filter cartridge K2 (2)	6
Replacement membrane cartridge Aquaphor RO-50S (3)	12
Replacement filter cartridge K7M (4)	12

Once purchased, the cartridges can be stored for three years from the manufacturing date.

12. Recommended filter maintenance

The frequency at which the filter and membrane cartridges should be replaced depends on your tap water quality.

Note: Any filter that demonstrates reduced water production or a slower rate of flow is likely to be overdue for a change.

Warning: Shut off the water to the appliance before beginning any maintenance work.

Replacement of filter cartridge K5 (1)

Reduces dirt and other sediment particle matter of 5 micron or larger in the incoming water.

Replace the K5 filter cartridge every three months.

Replacement of filter cartridge K2 (2)

This reduces free chlorine from the incoming water and protects the membrane from any chlorine degradation. Changing frequency of the replacement filter cartridge K2 should be based on the free chlorine levels in the incoming water.

If the free chlorine is 1 ppm or less, then the replacement filter cartridge K2 should be replaced once a year. If the free chlorine level is greater than 1 ppm, then the replacement filter cartridge K2 should be replaced once in every six months.

Replacement membrane cartridge Aquaphor RO-50S (3)

The semi-permeable membrane cartridge (3) separates the majority of the remaining suspended solids and most of the dissolved solids from the water molecules. These separated impurities are then washed down the drain.

The membrane cartridge (3) is critical for the effective reduction of total dissolved solids (TDS). The treated water should be tested periodically to verify that the appliance is performing satisfactorily. A noticeable change in water quality and taste may occur. If this happens, it is an indicator that a filter change is needed. Replace the membrane cartridge at least once a year.

12. Recommended filter maintenance, Cont.

Replacement filter cartridge K7M (4)

The replacement filter cartridge K7M (4) is the final stage of filtration. It filters the water and enriches it with useful minerals that improve not only the taste, but also maintains the correct drinking water salt balance. You should replace the post filter every 6 months.

13. Warranty

Installation, operational, storage and transportation rules described in this manual should be maintained. The manufacturer is not responsible for operation of the Aquaphor RO and possible consequences, in case if:

- RO or components have visible mechanical, thermal or chemical damages;
- requirements for installation and operation of the RO described in present manual were not carried out.

The lifetime of the parts of the RO is:

RO case – 5 years* starting from the manufacturing date;

Connecting pipes – 3 years* starting from the manufacturing date;

Purified water faucet – 3 years* starting from the manufacturing date;

The lifetime (capacity) of the replacement filter cartridges is:

Name of the replacement filter cartridge	Lifetime (capacity) of the replacement filter cartridge
K5	6 months **
K2	6 months **
Membrane cartridge Aquaphor RO-50S/RO-100S	1,5 years ***
K7M	1 year

Data listed above based on the average consumption of the purified water 10–12 liters per day.

Attention!

* Regardless of the operation starting date.

** Lifetime (capacity) of the replacement filter cartridges may depend on incoming water quality. If in the source water contains large amounts of insoluble impurities then cartridges K5 and K2 should be replaced after 1–3 month of operation.

*** Lifetime of the membrane cartridge is depended upon the efficiency of the prefiltration and water conditioning units.

Please replace cartridges in a proper time.

Warranty period of the RO operation (except for replacement filter cartridges and membrane cartridge) is 2 year starting from the purchase date.

The storage period of the RO before operation is maximum 3 years 1.5 year in the temperature range from +5 to +38 °C (40 to 100 °F) with intact packing.

If you have any claims regarding the operation of your RO, please contact the seller or manufacturer.

Manufacturer is not responsible for operational faults occurred due to inappropriate installation or maintenance.

Manufacturer is not responsible for the operational faults occurred due to inappropriate replacement cartridges.

Warranty only valid for use in accordance with instruction and using only unexpired filter cartridges. Failure to timely replace filter cartridges or follow installation or maintenance voids the warranty.

14. Troubleshooting

If the appliance has difficulties working, use the Appliance shutoff valve to shut off the incoming water to the appliance.

Problem	Possible Cause	Solution
Faucet flow rate is very slow.	Shutoff valve is not completely opened.	Open the shutoff valve and faucet completely
Slow flow rate or no water from faucet	One of the replacement cartridges needs to be replaced	Check which cartridge needs to be replaced according to the resource life, and replace the cartridge. In order to determine which cartridge needs to be replaced, please see the instructions below
The storage tank fills very slowly or does not fill at all.	<p>How to check if the cartridges lifespan is over.</p> <ul style="list-style-type: none"> – Close the shutoff valve and open the faucet in order to release the pressure. – Replace the cartridges K5, K2, K7M with service caps (located under the lid). – Open the shutoff valve. – Open the faucet, flush the water from the unit until the flow rate decreases and the tank is empty. <p>If water continues to run faster than 50 ml/min, install the cartridges one at a time K7M, K2, K5 and according the flow rate decreases determinate which of the cartridge (or several cartridges) needs to be replaced.</p> <p>If water runs slower than 50 ml/min, then the membrane needs to be replaced. Turn off the shutoff valve and open it every time you replace each cartridge</p>	
<p>If any other faults are identified, please contact our customer service department at +1 (855) 855 2299 or email sales@aquaphor.com, support@aquaphor.com</p>		

Warranty coupon AQUAPHOR RO

Serial #	<input type="text"/>
Warranty PIN-code	<input type="text"/>
Date of Sell	<input type="text"/>
Seller's stamp	<input type="text"/>
Seller's signature	<input type="text"/>

Please visit our website and register your RO at aquaphor.com/register
for manufacturer's warranty.

Installation information

Installation is carried out: Name of the company which carried out installation:	<input type="text"/>
Name of the service engineer:	<input type="text"/>
Service engineer's signature:	<input type="text"/>
Client's signature:	<input type="text"/>
For installation, operational and technical maintenance, please, contact:	<input type="text"/>

Manufacturer:

EE Westaqua-Invest OÜ division of AQUAPHOR Corp., L. Tolstoi 2A, Sillamäe, Estonia, 40231. www.aquaphor.com

RU AQUAPHOR Corp. division of ELECTROPHOR, Inc., Pyonerskaya Str., 27 lit.A, St.-Petersburg, Russia, 197110. www.aquaphor.ru

**Production facility location, date of
manufacturing and quality control (DD MM YYYY)**

AQUAPHOR RO-101S

AQUAPHOR RO-102S