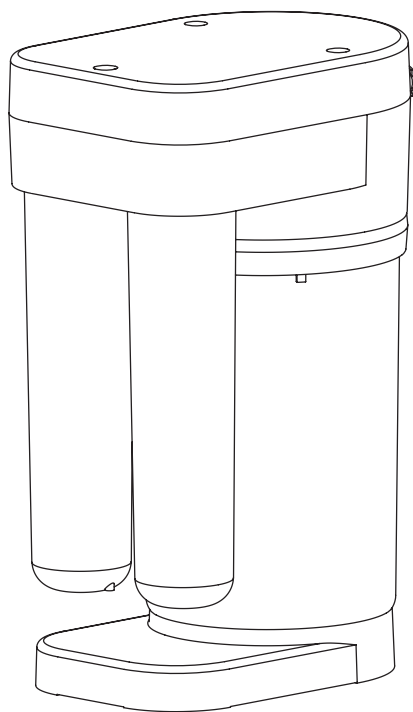


AQUAPHOR[®]

water filters

Operation manual



REVERSE OSMOSIS SYSTEM AQUAPHOR RO-70S, RO-70S EU

1. INTRODUCTION

RO-70S produced in the European Union (Estonia).

RO-70S is designed for additional treatment of drinking water from mechanical and colloidal particles, organic impurities, and, depending on the version, for its mineralization. RO-70S eliminates excessive hardness, foreign flavor, smell and color of water from municipal and local water networks (artesian wells, wells, etc.), while meeting the requirements established by this manual.

The action of RO-70S is based on the transfer of water molecules through a semipermeable membrane by applying pressure exceeding the osmotic pressure.

RO-70S materials are safe, non-toxic and do not release water that is hazardous to human health and the environment.

2. TECHNICAL SPECIFICATIONS

Overall dimensions (length × height × width):		278 × 425 × 190 mm
The pressure of the water supply system is not less than		0.2 MPa (29 psi)
Water supply pressure no more than		0.63 MPa (91.37 psi)
Water temperature		+5...+38 °C (+40...+106 °F)
The maximum productivity of the reverse osmosis membrane (at a water temperature of + 25 °C (80 °F) and a pressure of 0.4 MPa (76 psi))	for the membrane 50 GPD	7.6 liters per hour
	for the membrane 100 GPD	15.2 liters per hour
The ratio of purified water and water entering the drainage (at a water temperature of at least 20 °C (70 °F))		1:4–1:6
Weight, not more than		6.6 kg (14.55 lb)

3. PRODUCT ASSEMBLY

No.	Description	Qty.
1	RO-70S housing assembly (1)	1 pc
2	Cartridges (Fig. 1):	1 pc
	The replacement filtering cartridge (2)	K3 for the RO-70S / K1 for the RO-70S EU 1 pc
	The membrane cartridge (3)	RO-50S (50 GPD) for the RO-70S / RO-100S (100 GPD) for the RO-70S EU 1 pc
3	Connecting tubes (Fig. 2)	
	3/8" tube (d 9.5 mm, L = 1.2 m)	1 pc
	1/4" tube (d 6.35 mm, L = 1.2 m), drainage	1 pc
	1/4" tube (d 6.35 mm, L = 1 m)	1 pc
4	Connection unit (Fig. 3)	1 set
5	Drain clamp (Fig. 5)	1 set
6	Clean water tap with a set of gaskets (Fig. 4)	1 set
8	Service plug (Fig. 7) (pre-installed in the housing)	1 pc
9	Operating manual	1 pc

4. THE DEVICE AND PRINCIPLE OF OPERATION RO-70S

The main components of RO-70S:

- 1 — Housing RO-70S assembly;
- 2 — Preliminary water treatment unit (cartridge K3 or K1);
- 3 — Reverse osmosis membrane unit (cartridge RO-50S or RO-100S);

ATTENTION! The efficiency of the RO-70S depends on the pressure of the water supply. Reliable operation of the RO-70S at a pressure in the water pipes of less than 0.2 MPa (29 psi) is not guaranteed.

1. Under reduced pressure in the water supply system, to obtain the optimum drainage ratio and clean water it is recommended to use a pressure boost kit.

The RO-70S housing (1) consists of an upper plate in which two collectors are fixed for connection of the replacement cartridges and hydro automatics of RO-70S. The top plate is covered with a decorative lid fixed by three plastic fasteners.

An important part of the RO-70S enclosure is the storage tank for clean water. Since the performance of the membrane cartridge is small (depends on the type of membrane element, water temperature and pressure in the water pipe), the water after the membrane cartridge is fed to the storage tank so that you can use clean water at any time and in the desired quantities.

2. The prefilter unit (2) includes a plug-in filter cartridge K3 or K1. The pre-water treatment unit is designed to remove impurities from water that can contaminate the membrane, such as iron hydroxide and active chlorine.

3. The block of membrane (3) enters the reverse osmosis membrane RO-50S or RO-100S. The block of reverse osmosis membrane cleans water from organic and inorganic compounds, salts, and also softens water.

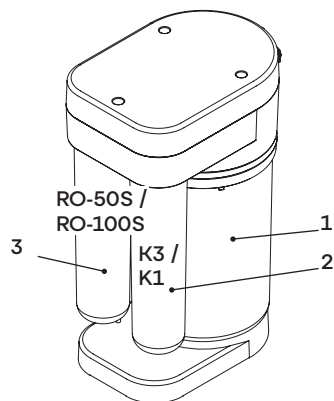


Figure 1

How the RO-70S works

From the cold water supply network, water enters the RO-70S inlet and passes through a pre-filter. Further, through the automatic valve, water enters the reverse osmosis membrane unit. The membrane cartridge has two outputs: a clean water outlet and a drainage water outlet. Passing through the flow restrictor, drainage water goes to the sewer.

Purified water enters the storage tank, which has a built-in diaphragm separating the tank from into two cavities: accumulative and technical. In the storage cavity there is completely purified drinking water, and in the technical — tap water. During the collection of clean water in the storage tank of the system, tap water from the technical cavity is forced into the drainage, without creating resistance to a set of clean water. As soon as the storage tank is full, the automatic valve will block the flow of water into the RO-70S. Once the storage tank is full, the automatic valve will block the flow of water into the RO-70S.

When you open the tap for pure water, the tap water enters to the technical cavity through the inlet valve and squeezes the purified water out of the storage cavity to the tap for clean water.

This action activates the automatic valve and opens the water supply to the RO-70S storage tank.

5. INSTALLING RO-70S

ATTENTION! Installation of RO-70S must be performed by specialists authorized to carry out this type of work.

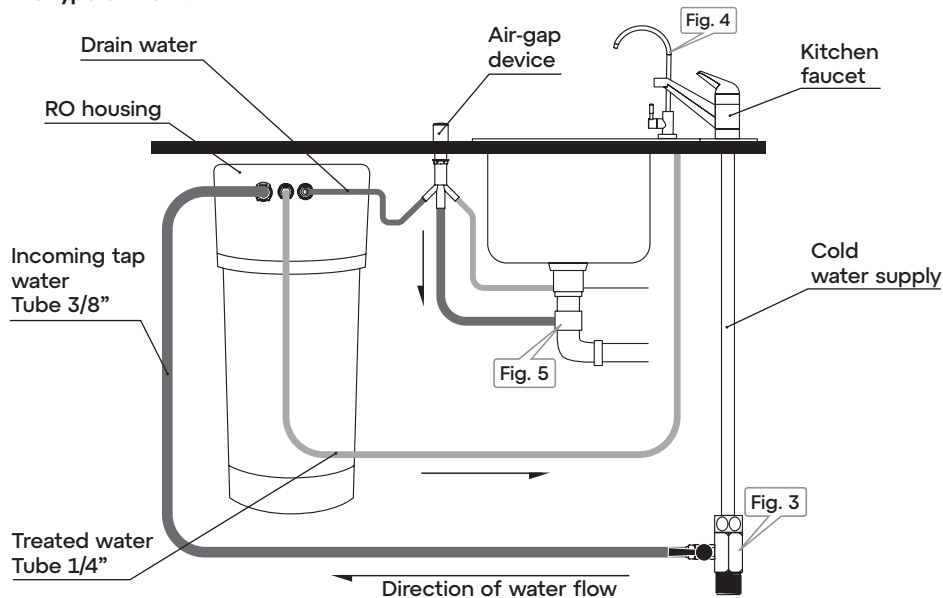


Figure 2

Determine a convenient location of the faucet for clean water and the RO-70S. Pay attention to the fact that the supply tubes must pass freely, without loops or kinks (Fig. 2).

The RO-70S must be installed on a flat, sturdy surface (installation on an uneven surface may result in vibration or noise).

RO-70S should be distanced or isolated from heat sources (cookers, boilers, hot water pipes, dishwashers or washing machines, etc.).

Installation of the connection unit* (Fig. 3)

- Shut off the cold water.
- Open the kitchen faucet to relieve pressure in the water supply.
- Connect the cold water supply water connection.
- Connect the tube 3/8". For this, pull out from under the plastic bushing stopper-clip, insert the pre-soaked end of the tube into the sleeve of the union up to the stop to a depth of approximately 20 mm and reinstall the clip.

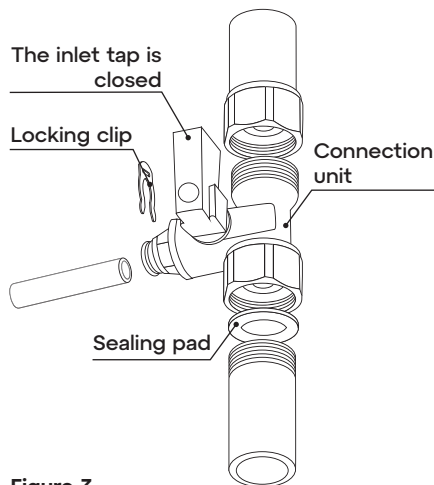


Figure 3

* The manufacturer reserves the right to use the connection points and faucet of a similar design. If necessary, contact the after-sales service.

- Check the strength of the tube fastening:
- At an effort of 80–100 N, the tube should not be able to be pulled out.
- Set the input valve to the position Closed.
- Open the water from the main line.

Important! Make sure that the sealing pad was on its own place and was not damaged during installation of the connection node.

Installation of the faucet for clean water* (Fig. 4)

- Drill a hole in the sink (countertop) with a diameter of 11.5–12 mm.
- Place the decorative stand with gasket (2) on the threaded faucet bushing (1) and insert the faucet threaded bushing (1) into the faucet hole.
- From the bottom of the sink, put the rubber gasket (3) on the threaded bushing of the faucet and screw on the fixing nut (4).
- Remove the locking clips (2 pieces) from the connector (5). Insert the tube from the water purifier (6) into the connector until it stops. Place the other end of the connector onto the threaded bushing of the faucet until it stops. Fixate the connector with the stopping clip.

Attention! Before connecting the filtered water faucet to the Aquaphor water purifier, it is necessary to cut off 20 mm of the free end of the tube coming from the water purifier.

- Check the strength of the tube and connector fastening: with a force of 80–100 N, the connector and the tube should not be pulled out.

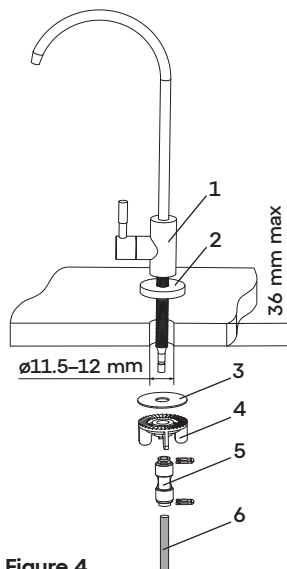


Figure 4

Attention! We recommend that you use the clean water faucet included with this product. The use of other faucets can lead to vibrations and other extraneous sounds.

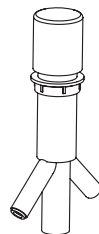
Installing a drain clamp*

ATTENTION! This step is only for only for countries where EN 1717 or NSF/ANSI 58 is not mandatory. In accordance with EN 1717 and NSF/ANSI 58 air-gap device must be used in connecting your RO system to the drain pipe.

Air-gap device must be used in connecting your RO device to the drain pipe.

Without the air gap, wastewater could siphon back into the drinking supply. This can happen when a city main is shut off, causing a drain-down of the system with plumbing done improperly.

Please connect drain tube with air-gap device (not included in delivery set). Please use below scheme to connect your RO. You may use the same air-gap device as for your dishwasher machine or order special air-gap for RO system. Please contact with service to receive more information.



- It is recommended to install the clamp on the sink drain upstream the S-trap (the drain clamp fits most drain pipes about 40 mm in diameter).

* The manufacturer reserves the right to use the connection points and faucet of a similar design. If necessary, contact the after-sales service.

- Place the part of the clamp with the fitting (4) to the pipe and find the optimal position of the clamp and a hole for the tube.
- Drill a 7 mm hole in the pipe wall in the intended place.
- Remove the cut round part from the gasket (1).
- Remove the protective film (2) from the gasket (1). Attach the gasket (1) on the inside of the clamp so that the hole in the gasket aligns with the hole in the clamp fitting.
- Install the clamp on the pipe, aligning the hole in the fitting with the drilled hole in the pipe, and then tighten the bolts (3). The bolts should be tightened evenly so that the two parts of the clamp are parallel.
- Put the plastic nut on the drain tube so that the tube extends from the other side of the nut by at least 20 mm.
- Insert the tube into the drain clamp and screw the nut onto the fitting.

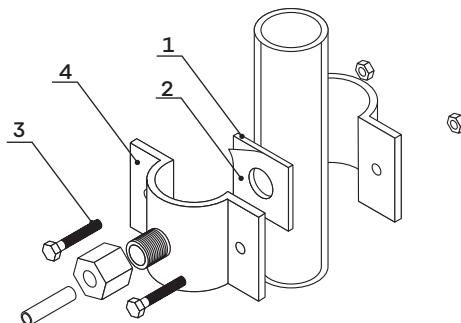


Figure 5

6. STARTING THE RO-70S

To start the RO-70S, it is necessary to connect the supply pipes and carry out the procedure for rinsing the cartridges and the membrane.

Step 1. Connect the supply pipes by following the diagrams below.

The connection diagram of the tubes is shown in Fig. 2.

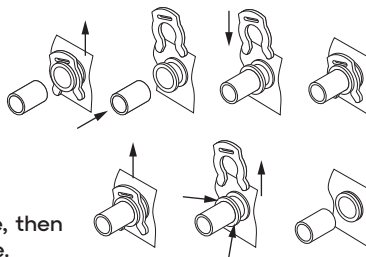
Connection of tubes

Pull the retaining clip out from under the plastic sleeve, insert the wetted end of the tube into the plastic sleeve until it stops about 15 mm deep and house the clip.

Make sure that the tube is properly fixed, it must be secured, it should hold applied force of 80–100 N.

Disconnection of tubes

Pull the retaining clip out from under the plastic sleeve, then press the end of the plastic sleeve and pull out the tube.



Step 2. Preparation of the water purifier for operation

- Remove the shrink film from the K3 / K1 cartridge and remove the transport plug (if any).
- Moisten the O-rings on the plugs of the cartridges under running water.

For convenience, the manifolds have different numbers. Make sure that the service plug (Fig. 7) of the membrane cartridge is installed in the socket of the manifold with num. 2 (Fig. 9). If not, install it. Then install the K3 / K1 filter module in the manifold socket with num. 1 (Table 1).

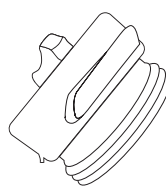


Figure 7

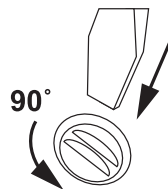


Figure 8

You can retain the component parts (service plug, crevice insert, plastic key) under the top lid. To open the lid, please turn the three plastic latch screws on the cover 90 degrees counterclockwise (Fig. 8).

Flushing of the pre-treatment unit

- Set the input tap to the Open.
- Open the tap for fresh water and wait for water to flow from it. First, air will escape from the system, which may be accompanied by noise.
- Pass water through the water purifier for 10 minutes.
- Close the fresh water faucet and allow the water cleaner to sit for 10 minutes.
- Close the input faucet

Table 1. The position of the cartridges in the RO-70S for the preparation for operation

Position number	The type of cartridge
1	K3 / K1
2	Service plug

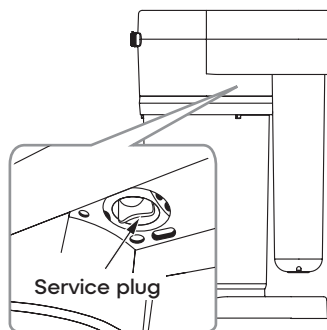
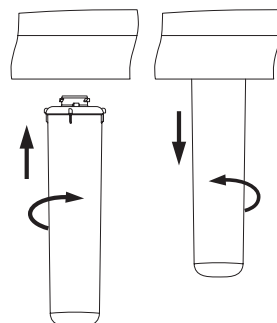


Figure 9

- Flow water again through the water purifier for 30–50 minutes

Step 3. Install the RO-50S or RO-100S membrane cartridge

- Remove service plug from the membrane cartridge slot, then in accordance with Table 2, insert each cartridge into the corresponding manifold until it stops and turn it clockwise until it clicks (Fig. 10a).
- Connect the drain pipe bracket to the replacement membrane cartridge (for this, insert the pre-wetted end of the square into the drainage sleeve bushing to the stop, see Fig. 10b). Install the locking clip.



a
Figure 10

Table 2. Position of cartridges in RO-70S

Position number	The type of cartridge
1	K3 / K1
2	Membrane cartridge

Step 4. Flushing the RO-70S

Flushing of reverse osmosis membrane unit

- Set the input tap on the connection node to the **Open** position.
- Open the faucet for fresh water. Wait for water to flow from it.
- Run water through the RO-70S for 1 hour.*
- Close the fresh water faucet.

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

Flushing the storage tank

- After filling the storage tank (when the water stops coming out of the drain pipe), open the fresh water faucet and wait until all the water has drained out of the storage tank.
- Refill and drain the storage tank.

Note: the procedure for filling the tank twice takes no more than 3 hours.

- Ensure that the RO-70S is sealed.
- After filling the tank, the RO-70S is ready for operation.

ATTENTION! The water obtained during rinsing is not intended for drinking!

Check the RO-70S for leaks during the first week of operation.

In the first week of operation of the RO-70S, when the automatic valve is switched, noise may be observed associated with the release of air from the internal cavities of the RO-70S. After a while, this process will stop. This is not a malfunction.

Depending on the conditions of storage, transportation and operation, the complete rinsing of the membrane cartridge can take no more than 24 hours.

7. REPLACING CARTRIDGES

The service life of the replacement membrane cartridge directly depends on the operability of the pre-treatment unit. Therefore, it is very important to replace the filter cartridge on time.

Replacing the cartridge K3 or K1:

- Set the inlet valve on the connection node to the **Closed** position and open the fresh water faucet to relieve pressure.
- Rotate the used cartridge counterclockwise to remove it.
- Remove the plastic film from the new cartridge.
- Rinse the cartridge's O-rings under running water.
- Insert the new cartridge into the housing to a stop and, pressing it slightly, rotate the cartridge clockwise to a click.

ATTENTION! Under-twisting the cartridge to the final position (accompanied by a click) can cause leaks.

- Replace the membrane cartridge with the service plug (Fig. 9).
- Set the input tap on the connection node to the **Open** position and make sure that the RO-70S is sealed.
- Perform the procedure "Flushing of the pre-treatment unit".
- Replace the membrane cartridge.
- Set the input valve on the connection node to the **Open** position and make sure that the RO-70S is sealed.

Replacing the membrane cartridge:

- Set the input tap to the **Closed** position and open the faucet for fresh water to release the pressure.
- Rotate the used membrane cartridge counterclockwise and remove it.
- Insert the new cartridge into the housing to a stop and, pressing it slightly, rotate the cartridge clockwise to a click.

ATTENTION! Under-twisting the cartridge to the final position (accompanied by a click) can cause leaks.

- Set the input tap to the **Open** position and make sure that the RO-70S is sealed.
- Perform the procedure “Flushing the reverse osmosis membrane unit”.

9. SAFETY

RO-70S is designed for post-treatment and water softening, corresponding to national standards.

When installing RO-70S outside the central drinking water supply system, it is recommended that the source water be analyzed for compliance with national standards

- If the source water does not meet the requirements of national standards, the service life of the prefiltration unit and the reverse osmosis membrane decreases sharply.
- If the source water is significantly different from the requirements of national standards, it is recommended to install additional water treatment systems (iron remover, softener, disinfectant, mechanical filters, etc).

Although the reverse osmosis system can inhibit bacteria and viruses that may be present in the source water, it is recommended to use the system only with water that is microbiologically safe. Do not use a system with water of unknown quality that has not undergone additional disinfection.

Purified water is not subject to long-term storage. We recommend using fresh filtered water.

Use RO-70S only to clean the water from the cold water system.

If you do not plan to use the water purifier for more than 2 days, turn off the water supply to the water purifier (to do this, set the tap on the connection unit to the **Closed** position).

When resuming use:

If you did not use the water purifier for more than 2 days, completely drain the water from the tank before use.

If you have not used the water purifier for more than 2 weeks, completely drain before use. Then, empty the tank three times to completely rinse it. After that, you can use the water purifier.

If you have not used RO-70S for more than 4 weeks, perform the full wash cycle according to the instructions in section 6 “Starting the RO-70S” in this manual.

ATTENTION! Do not drink water that was obtained during rinsing.

Note! It is not recommended to connect the RO-70S to the water supply network on its own. This work should be carried out by a specialist authorized to carry out this type of work. The manufacturer is not responsible for the inadequate quality of the connection of the RO-70S to the water supply network, as well as for the result of this work. Responsibility for the shortcomings of this work, as well as for causing harm to the health or property of the consumer or other persons due to these shortcomings, is the performer of this work.

It is allowed to use only the faucet and tubes supplied.

When transporting, storing and using the RO-70S, ensure that it is not dropped and that it is free from water. Dispose according to environmental, sanitary and sanitary requirements, established by national and local standards in the field of environmental protection and ensuring the sanitary and epidemiological welfare of the population.

10. 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 the manual were not carried out.
- The lifetime of the RO components is:
 - RO case — 5 years* starting from the manufacturing date;
 - Connecting pipes — 3 years* starting from the manufacturing date;
 - Clean water faucet — 3 years* starting from the manufacturing date.
- The lifetime (capacity) of the replacement filter cartridges is:

Aquaphor Water Filters products are backed by some of the most comprehensive warranties in the industry. Aquaphor warrants that the Aquaphor water filtration system shall be free from material defects and workmanship under normal use and service.

Aquaphor RO — Two Years Warranty.

100% coverage of all parts and labor for the entire product for the first year from original date of purchase.

This does not apply, however, to replacement cartridges.

Exclusions and Limitations

Aquaphor warrants its products to be free from manufacturing defects under normal use and service. This warranty is extended only to the ORIGINAL PURCHASER.

Aquaphor obligations under this warranty are limited to repairs or replacement, at Aquaphor's option, of products or parts found to be defective, provided that such products were properly installed and used in accordance with instructions. Aquaphor reserves the right to make such inspections as may be necessary in order to determine the cause of the defect. Aquaphor will not charge for labor or parts in connection with warranty repairs for the first full year from date of purchase on all products except those that may be subject to commercial use limitations, when applicable.

Aquaphor is not responsible for the cost of removal, return (shipping) and/or reinstallation of products.

This warranty does NOT apply to:

- Damage or loss which occurs during shipment.
- Damage or loss sustained through any natural or man-made causes beyond the control of Aquaphor, including but not limited to fire, earthquake, floods, etc.
- Damage or loss resulting from sediment or foreign matter contained in a water system.

* Depending on the amount of impurities in the water, the service life (resource) of the water treatment cartridges may vary (may be shorter or longer than the standard service life).

The replacement cartridge	Lifetime (capacity) of the replacement cartridge
K1	6 months*
K3	3 months*
Membrane cartridge RO-50S / RO-100S	not more than 1.5–2 years**
* The capacity of the replacement cartridge may vary depending on the quality of the source water (for example, capacity will be less if municipal water contains a high amount of impurities or is very hard).	
** Service life of membrane element is directly dependent on the operation of pre-treatment cartridges. Please replace filter cartridges timely.	

- Damage or loss resulting from negligent or improper installation including installation of a unit in a harsh or hazardous environment.
- Damage or loss resulting from removal, improper repair, modification of the product, or improper maintenance including damage caused by chlorine or chlorine related products.
- Damage or loss resulting from acts which are not the fault of Aquaphor or which the Product is not specified to tolerate.

This warranty gives you specific legal rights. You may have other rights which vary from state to state.

THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY AQUAPHOR. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO THE PURCHASER.

AQUAPHOR SHALL NOT BE RESPONSIBLE FOR LOSS OF USE OF THE PRODUCT OR FOR OTHER INCIDENTAL, SPECIAL, FOR CONSEQUENTIAL DAMAGES OR EXPENSES INCURRED BY THE PURCHASER OR FOR LABOR OR OTHER COSTS DUE TO INSTALLATION OR REMOVAL OR COSTS OF REPAIRS BY OTHERS, OR FOR ANY OTHER EXPENSE NOT SPECIFICALLY STATED ABOVE. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTIES, INCLUDING THAT OF MERCHANTABILITY, ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS, SO THE ABOVE LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.

How to Obtain Service

To obtain repair service under this warranty, you must contact an authorized Aquaphor Service Center to obtain an RMA (Return Merchandise Authorization) number. Proof of purchase in the form of a copy of the original receipt must accompany the returned unit for the warranty to be valid. Take or ship the unit pre-paid to the closest Aquaphor authorized service center along with the RMA number and proof of purchase.

TROUBLESHOOTING TABLE

Malfunction	The cause (wherefore)	Method of elimination
There is no clean water or it is not enough	The cartridge of the preliminary water treatment unit K3 / K1	Replace the cartridge of the preliminary water preparation unit K3 / K1.
	The membrane cartridge RO-50S or RO-100S is blocked	Previously installed under a stream of cold water Replace the RO-50S or RO-100S membrane cartridge
	Defective input valve	Please contact Aquaphor or local distributor
	Closed connection cock	Open the connection node tap
	Low inlet pressure	Install a booster pump for the whole home or specifically for the RO-70S
Water constantly flows to the drain	Foreign object in one of the supply tubes	Please contact Aquaphor or local distributor
	Automatic valve is defective	Please contact Aquaphor or local distributor



**Reverse osmosis system Aquaphor RO-70S,
Reverse osmosis system Aquaphor RO-70S EU.**

Manufacturer: Aquaphor International OÜ, L. Tolstoi 2A, Sillamäe, Estonia, 40231,
sales@aquaphor.com.

www.aquaphor.com

The manufacturer reserves the right to make improvements to the design of the RO-70S without being mentioned in this Manual.

The date of manufacture and quality control is indicated on the product serial number label.

The serial number of your system is indicated on the sticker below.

AQUAPHOR RO models:

1 Reverse osmosis system
Aquaphor RO-70S

2 Reverse osmosis system
Aquaphor RO-70S EU