MembraSAL — Villa & All-in-One

User guide · installation, operation and maintenance

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1. Welcome

Thank you for choosing the MembraSAL Villa & All-in-One. It purifies the water for your whole home. Everything is neatly housed in a double cabinet: the filters, the membranes, the remineralisation, the storage tank, the pump and the UV lamp. In this guide you will read how it is installed, how to operate it and how to maintain it properly. The guide is made to be read on screen; there is no need to print it.

A qualified installer installs your system. They know your situation and the regulations that apply where you are. Installation is not included in the price.

2. Your Villa & All-in-One

Your system works fully automatically, in five steps:

1. **Pre-filters.** First the water passes through a fine filter and a carbon filter. The fine filter stops sand and other particles. The carbon filter largely removes chlorine, off-tastes and odours.
2. **Antiscalant.** A small dosing pump adds an agent that prevents scaling on the membranes.
3. **Reverse osmosis.** A pump forces the water through two membranes. These remove up to 95% of dissolved salts, including limescale. PFAS and other micro-pollutants are also significantly reduced. The residual water with the substances held back goes to the drain.
4. **Remineralisation.** The water then passes a remineralisation cartridge, which adds minerals back.
5. **Storage and delivery.** The purified water goes to a 300-litre storage tank in the cabinet. A pump delivers it with enough pressure to the taps in the house. On the way, the water passes a UV lamp.

When the storage tank is full, the system goes to rest. Even at rest, it briefly flushes the membranes now and then. As soon as you use water and the level in the tank drops, it starts again.

Component	Specifications
Dimensions (w × d × h)	120 × 80 × 170 cm
Weight	341 kg
Capacity	500 litres per hour at 20 °C water temperature; 350 litres per hour at 10 °C
Reduction of dissolved salts	90 to 95%
Storage tank	300 litres, in the cabinet
Connections	supply 3/4"; purified water 1"; drain (residual water) 1/2"
Power	230 V, 50 Hz, 10 A, European plug (1/N/PE); power 1.2 kW
Operation	control cabinet with display, three buttons, selector switch, reset button and emergency stop; your system also comes with a phone app, which you will receive on delivery

Cold water gives fewer litres per hour. That is normal with reverse osmosis.

3. Before you start

The right location

- Indoors, dry and frost-free: between 5 and 40 °C. Out of the sun, wind and rain.
- A solid, flat floor. The cabinet weighs 341 kg, without water.
- Well lit (at least 150 lux) and well ventilated.
- A drain and a power socket nearby.
- Space around the cabinet, so the installer and you can easily reach it later.
- Always transport and store the cabinet upright. Never tilt it or lay it on its side.

Water

Component	Requirement
Supply water pressure	3 to 5 bar is ideal; fluctuations at most 1 bar. If the pressure is below 2 bar, an extra supply pump is needed.
Supply	about 1,000 litres per hour
Supply water temperature	5 to 30 °C
Hardness	0 to 15 °dH. If your water is harder, install a ZeNO water softener before it.
Dissolved salts	less than 2,000 ppm
Acidity (pH)	6.5 to 9 in normal use
Turbidity	less than 1 NTU; silt density index (SDI) less than 3
Iron and manganese	each less than 0.1 mg/l
Oil and odour	no oil; odourless
Free chlorine	0 mg/l in the supply water, before the pre-filters. Dutch mains water normally meets this. If there is free chlorine in your water after all, an extra activated carbon cartridge must be fitted before the system.
Supply pipes	copper or plastic, no iron or steel

You can find your water hardness by entering your postcode on your water company's website. If you have your own well or borehole, have a water analysis done first. If you don't know whether your water falls within these values, ask your installer.

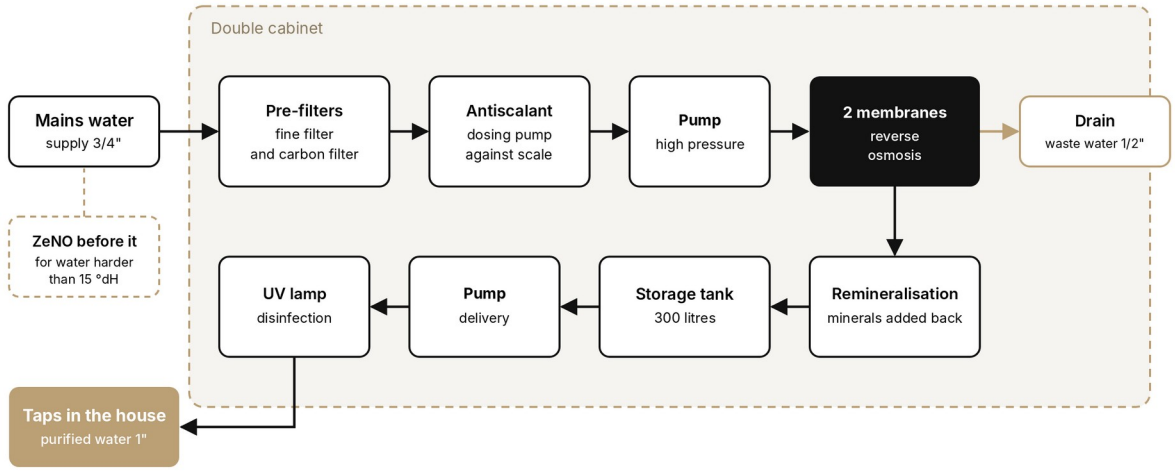
Drain and power

Component	Requirement
Residual water drain	open drain, without narrowing. The hose hangs 10 to 15 cm above the drain, so drain water can never flow back.
Power	230 V, 50 Hz, earthed connection (1/N/PE), 10 A
Regulations	follow the water, drainage and electrical regulations that apply where you are

4. Installation

This part is for the installer. Wear gloves and safety glasses when unpacking.

Set-up Villa & All-in-One



1. **Position.** Unpack the cabinet and place it in its permanent location.
2. **Check.** Check that the membranes and filter cartridges are in place. Check that no couplings have come loose during transport.
3. **Drain.** Connect a hose to the outlet for the residual water. Let it hang 10 to 15 cm above the drain.
4. **Purified water, temporarily.** Also connect the purified water outlet temporarily to the drain first. New membranes must be flushed first.
5. **Supply.** Connect the water pipe to the supply (3/4").
6. **Power.** Plug into the socket.
7. **Antiscalant.** Put the suction hose of the dosing pump into the antiscalant tank. Bleed the dosing pump (see chapter 7). You order the antiscalant from H2Ot (Antiscalant 25 kg); it is not included with the system as standard.
8. **Flush.** Set the selector switch to AUTO. Let the system run for 30 to 60 minutes and let the purified water run to the drain.
9. **Connect to the home.** Set the switch to OFF. Connect the purified water outlet (1") to the pipe to the home. Set the switch back to AUTO. Your system is ready for use.
10. **Counter.** Leave the filter cartridge counter at the factory start value.
11. **Leak check.** For the first 24 hours, check that everything stays dry.

For a whole-house system we recommend leak protection (water stop).

5. Operation

The control cabinet

Component	What does it do?
RUN light	The system is working normally
ALARM light	There is a fault (see chapter 8)
RESET button	Returns the system to the start screen (SYSTEM OFF)
Selector switch	**OFF**: off, at rest. **AUTO**: normal use. **CIP**: maintenance position, installer only
Emergency stop	Switches everything off immediately in case of danger
Three buttons below the display	**square button** (OK, select and confirm), **up arrow** and **down arrow** (scroll)

The display

Use the up and down arrows to scroll through four screens:

Screen	What do you see?
General	Conductivity of the purified water (µS), how much water is being produced now (litres per minute) and any messages
Flow	Purified water, residual water and supply in litres per minute, and the recovery in percent
Conductivity	Conductivity and temperature of the purified water and of your mains water
Filter cartridges	How many cubic metres the filter cartridges still have left, and the pressure difference across the filters

The conductivity (µS) shows how many dissolved substances are still in the water. The lower, the purer. Press the square button for 2 seconds for an overview of the usage data, such as the number of operating hours.

Settings (installer only)

The installer sets up the system via the buttons or the app. This is only possible with the switch on OFF. Do not change anything in the settings yourself; incorrect values can damage the membranes.

Setting	Manufacturer's advice
Flush at start	20 seconds
Flush at stop	20 seconds
Flush at rest	every 3 hours
Purified water conductivity alarm	400 µS
Delay at low supply pressure	10 seconds
Minimum amount of purified water	2.0 litres per minute

6. Daily use

- **Leave the switch on AUTO.** The system purifies, flushes and fills the storage tank by itself.
- **Is RUN lit?** Then everything is fine. If ALARM lights up, see chapter 8.
- **Check the display now and then** for the conductivity. If it slowly rises, the membranes are getting dirty.
- **Keep an eye on the antiscalant.** If the tank is almost empty, top it up. With an empty tank the system stops.
- **Check now and then** that the hoses and couplings are dry.
- **Going away for longer?** Leave the system switched on. If it is off for more than 48 hours, the membranes must be preserved (see chapter 7).

7. Maintenance and replacement

When	What	Who
Regularly	Top up antiscalant; then bleed the dosing	You or your

When	What	Who
	pump	installer
Every 6 months, or sooner if the display asks for it	Replace the filter cartridges in the pre-filters; then reset the counter (hold RESET for 5 seconds)	You or your installer
When the conductivity rises or less water comes through	Clean the membranes (CIP)	Installer
About every 2 years	Replace the membranes (two per system)	Installer
After cleaning the sensors	Calibrate the conductivity meters	Installer
At least once a year, or sooner depending on the number of operating hours	Replace the UV lamp	Installer
Every year	Service check. What your installer checks every year is described in the service manual supplied on delivery.	Installer
When idle for more than 48 hours	Preserve the membranes	Installer

Replacing the filter cartridges

The pre-filters are on a pull-out tray in the cabinet, so you can reach them easily.

1. Set the switch to OFF. Close the water supply to the pre-filters and release the pressure.
2. Disconnect the quick couplings by loosening the union nuts. Take the filter out of the holder and let the water drain out.
3. Loosen the wing nut, remove the clamp band and take off the head. Pull the old cartridge off the central coupling.
4. Rinse the inside of the head, the bowl and the rubber ring with water.
5. Fit the new cartridge. Reassemble the head and bowl with the clamp band and tighten the wing nut until it stops.
6. Put the filter back in the holder. Note the arrow on the head: it points in the flow direction.
7. Open the water and check that everything stays dry. Press the button on top of the filter to let the air out.
8. Hold RESET for 5 seconds to reset the counter. Set the switch back to AUTO.

Bleeding the dosing pump (after topping up antiscalant)

1. Make sure the system is switched on.
2. Open the bleed valve on the pump about half a turn.
3. Set the pump's rotary knob to 100%. Wait until liquid without air bubbles comes out of the small bleed hose.
4. Set the rotary knob back to its previous position (0.1 to 1%, depending on your water). Close the bleed valve again.

Only use original parts from H2Ot:

- **Pre-filter cartridge 20 inch — carbon and microfibre**
- **Fine filter cartridge 20 inch**
- **Replacement membrane — MembraSAL 500 l/h, Large household, Villa and Complete station** (two per system)

- **Antiscalant 25 kg**
- **UV lamp**

Cleaning, preserving and replacing the membranes

This is done by the installer. Over time membranes get dirty, for example from limescale or a biofilm. The conductivity then rises or less water comes through. Cleaning (CIP) makes them clean again. If the system is idle for more than 48 hours, the installer preserves the membranes. After restarting, the first 500 litres of purified water go to the drain.

8. Troubleshooting

In the event of a fault, the ALARM light comes on and a message appears on the display. Solve the cause and press RESET.

Message	Possible cause	Solution
Antiscalant empty	Antiscalant tank empty, or the level sensor is not working	Top up antiscalant and bleed the dosing pump. If that doesn't help, call the installer.
Supply pressure too low	Tap closed, too little pressure on the pipe or pre-filters blocked	Check that the tap is open. Replace the filter cartridges if necessary.
Filter cartridges used up («End of resource»)	The counter is at zero	Replace the filter cartridges and hold RESET for 5 seconds
Pressure difference too high («High Pressure Drop»)	Filter cartridges full	Replace the filter cartridges and hold RESET for 5 seconds
Pressure too high at the membranes	Membranes dirty	The installer cleans or replaces the membranes
Pump overloaded	The pump protection has tripped	Contact your installer
Purified water conductivity too high	Membranes dirty or meter needs calibrating	The installer calibrates, cleans or replaces the membranes
Too little purified water	Membranes dirty or flow meter defective	The installer checks and cleans
Too little residual water	Drain valve or meter not working properly	Contact your installer
Storage tank empty	No water is entering the tank	Check the supply; if it persists, call the installer
Mains water conductivity too high	Mains water with a lot of dissolved salts, or meter defective	Have the values of your mains water checked (chapter 3)
Message about a pressure sensor	Sensor or cable defective	Contact your installer

Not working? First contact your installer. If something is broken within the warranty, email info@h2ot.nl with your order number and a photo. You will hear from us within 4 working days.

9. Safety

- Leave installation and electrical work to a qualified installer. Do not open the control cabinet yourself.
- Set the switch to OFF and make sure the water and pipes are depressurised before disconnecting anything.
- Never let the pumps run dry. This damages them and voids the warranty.
- Wear gloves and safety glasses when working with antiscalant or cleaning agent. Follow the instructions on the packaging and keep it out of the reach of children.
- In case of danger, use the emergency stop.
- After every maintenance, check that all couplings stay dry.
- Transport and store the system upright, dry and frost-free.
- Follow the water, electrical and drainage regulations that apply where you are.

10. Warranty and disclaimer

Warranty. Your Villa & All-in-One comes with a **2-year warranty** on the main components. Filter cartridges, membranes, antiscalant and the UV lamp are consumables and are not covered. If the product does not work when connected and you report this within 24 hours of installation, we will replace it free of charge, provided it was installed within 3 months of delivery. The installer's costs are your own. Is something broken within the warranty? Email info@h2ot.nl with your order number and a photo; you will hear from us within 4 working days.

Sealed. Membranes and cartridges are supplied factory-sealed. Once the seal is broken, we cannot take them back for hygiene reasons.

No medical advice. This guide is a user manual and not medical advice. Our products are not medicines or medical devices and are not intended to diagnose, treat, cure or prevent any disease. If you have questions about your health, please contact your doctor.

What a filter does. How much a system reduces depends on the composition of your water, the flow rate and timely replacement. The substances mentioned are reduced, not always completely removed.

Liability. To the extent permitted by law, H2Ot is not liable for damage caused by incorrect installation, use that deviates from this guide, or failure to replace consumables in time. Your statutory consumer rights always apply. Please also read our general terms and conditions at h2ot.nl.

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