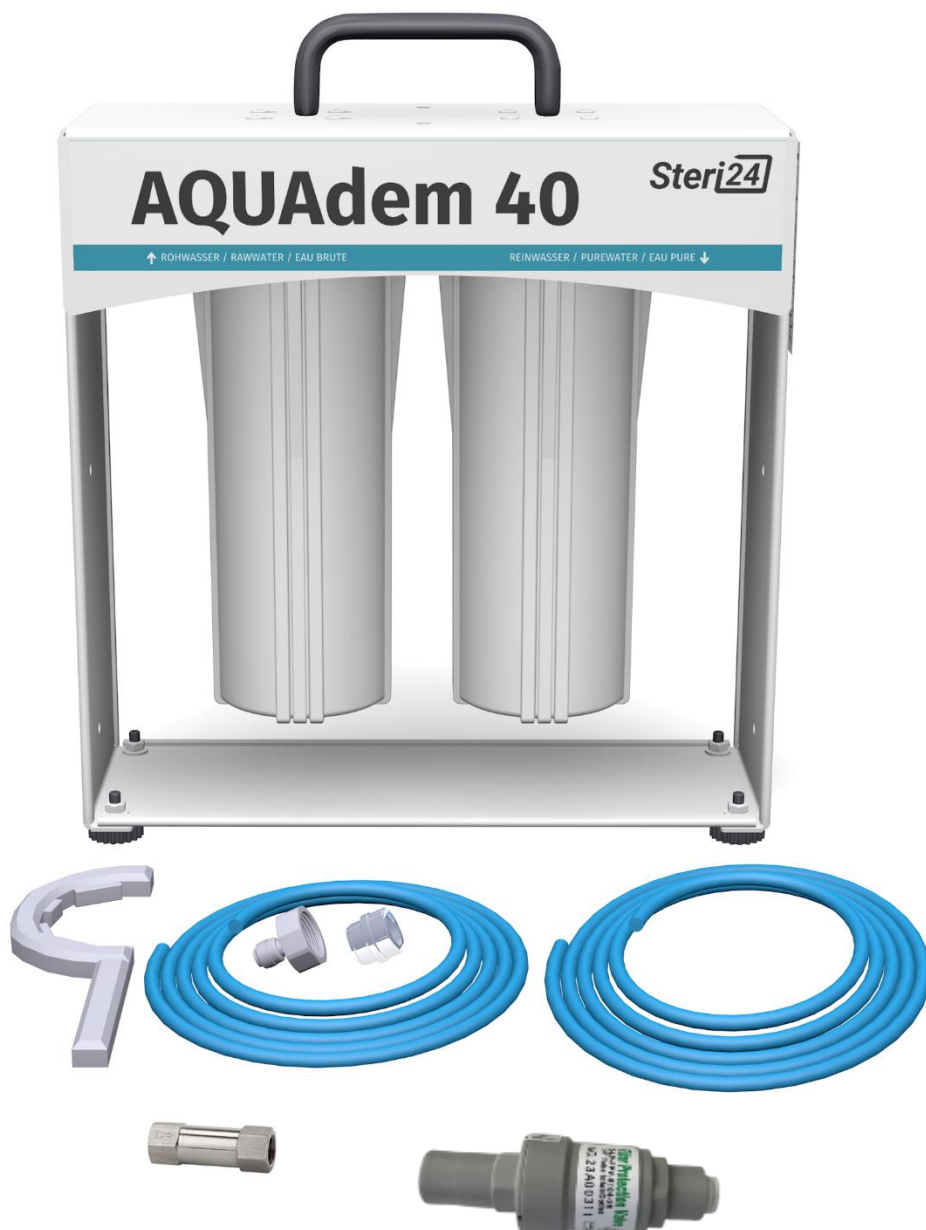


AQUAdem 40

Water treatment plant

Operating instructions



Content

1 Mode of action.....	3
2 Structure of the plant	4
3 Connection	8
3.1 Connection of the AQUAdem 40 directly to the raw water network.....	8
3.2. Mounting the hose:.....	9
3.3. Dismantling the hose:.....	10
3.4. Connection of the AQUAdem 40.....	10
4 Commissioning	14
5 Maintenance instructions	15
5.1 Replacement of the mixed-bed resin cartridges	16
6 Technical data	18
7 Consumables and spare parts.....	19

1 Mode of action

AQUAdem 40 is an ion exchange water treatment plant used for the purpose of full desalination of tap water. The cartridges in the filter housing are filled with mixed-bed resin and are disposable filters. They are completely replaced every time the cartridge is changed. The salt content in the raw water is reduced by approx. 95-99 % depending on the degree of exhaustion of the mixed-bed resin. All operating processes in the plant are controlled by the water pipe pressure.

The AQUAdem 40 can be connected directly to a Steri 24 autoclave for automatic water replenishment, but it can also be used completely independently as a water treatment system. The maximum flow rate is 1.8 l/min.

If the room in which the water treatment plant is installed does not have a floor drain, it is advisable to stop the water in the event of leaks via a humidity sensor on the floor and with the help of a solenoid valve.

ATTENTION! When the water treatment system is not in use, the raw water connection should be closed at the entrance.

2 Structure of the plant

The AQUAdem 40 water treatment system is delivered pre-assembled. A description of the individual components can be seen in *Figure 2*. The direction of flow of the water through the system must **be** strictly observed. *Figure 1* shows an open filter housing with the corresponding mixed-bed resin cartridge (= deionization filter) – The replacement of the filter is described in "5.1 Replacement of the mixed resin cartridge".

Figure 3 shows the inlet and outlet of the raw and pure water of the AQUAdem 40

1 container key

The filter key is used to open the containers of the resin cartridges. It can be hung on the side for storage.

2 mounting screws

With 8 Phillips-head screws, the two cartridge housings are connected to the AQUAdem 40 housing.

3 Enclosures

The sheet metal housing protects the filter unit.

4 Hose connection

Raw water flows into the system and pure water out through the hoses attached to the elbow fittings.

5 Elbow and double screw connections

These 1/2" Teflon-sealed fittings connect the hose to the resin cartridge containers and the resin cartridge containers.

6 filter housings with mixed bed resin cartridges 10"x2.5"

The mixed-bed resin cartridges (= deionization filters) are flushed through by tap water in these two housings.



Figure 1: Representation of an open mixed-bed resin cartridge

7 Base plate with 4 adjustable feet

8 Grab handle

9 Check valve G1/4" with plug-in connection

10 Tap connection

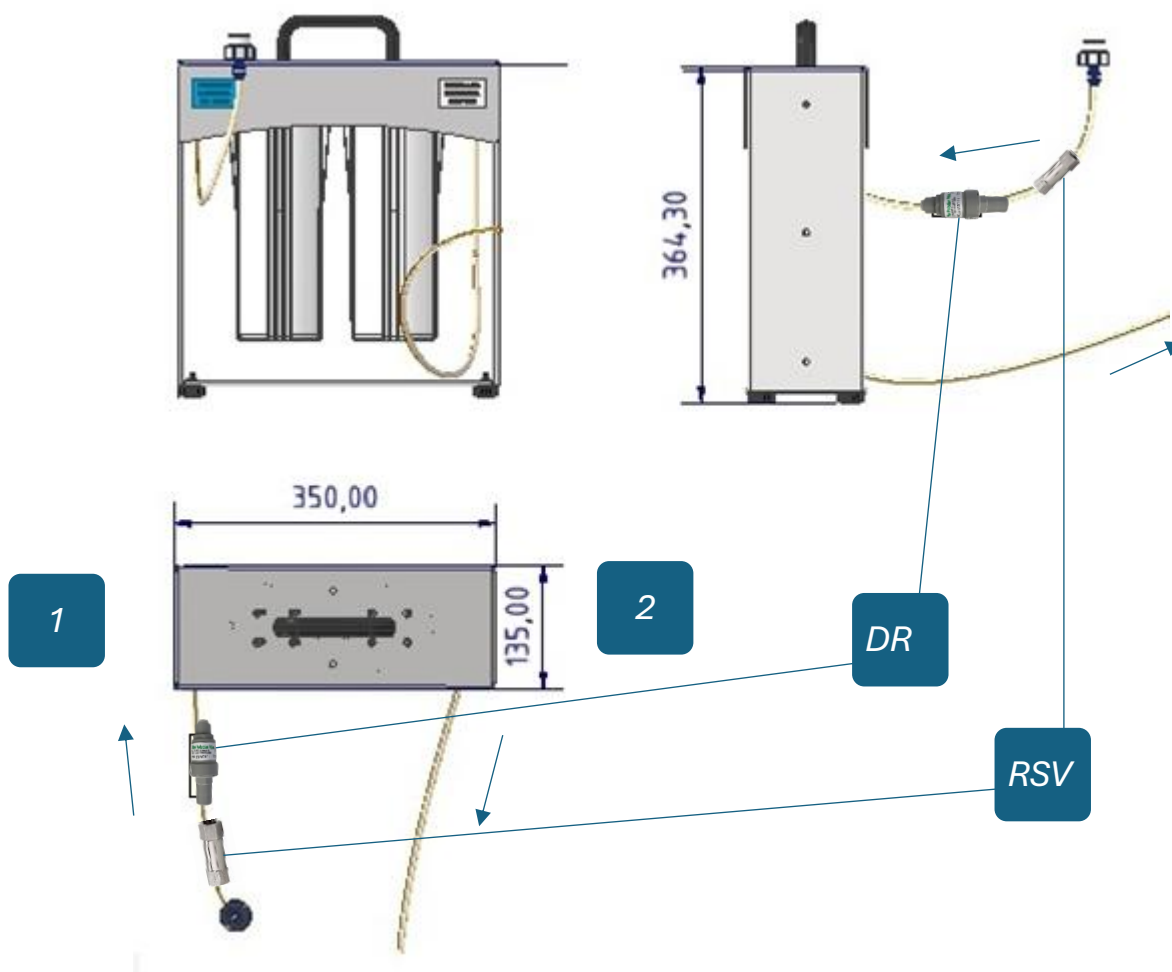
11 Water hose Ø 6x4 mm

12 Aerator Transition M24x1 – G3/4"

13 Pressure reducer with plug-in connection



Figure 2: Construction of the AQUAdem 40



1. Raw water inlet, (inlet side) – check valve (RSV) – pressure reducer (DR – 1.7 bar) between water inlet and filter housing
2. Pure water drain, (output side)

Figure 3: Hose Inlet and Outlet Positions

3 Connection

The AQUAdem 40 is designed as an independent, stand-alone raw water treatment system and can be used with all common autoclaves that support an automatic filling function. Of course, it can also be used for any other application for which pure water must be used.

According to your specifications, the required accessories for the planned connection variant are included. Please check the list in chapter "*7 Consumables and spare parts*" to ensure that the delivery is correct and complete.

The two mixed-bed resin cartridges are delivered packaged in a filter housing and must be freed from the protective film before commissioning and then reinserted into the AQUAdem 40. See chapter "*4 Commissioning*".

Attention! Important note! Please read the operating instructions of the AQUAdem 40 carefully before connecting and be sure to observe the general instructions and warnings given there.

3.1 Connection of the AQUAdem 40 directly to the raw water network

Compliance with EN 1717

The connection of the AQUAdem 40 to the drinking water network must be carried out in accordance with EN 1717 in such a way that protection against contamination of the drinking water network is guaranteed.

According to EN 1717 Part 4, in order to protect the drinking water network when the autoclave is connected, a safety combination consisting of a backflow preventer and a pipe aerator located on the rear wall of the autoclave must be provided. In many cases, this is already present on the building side. For more information, please contact your installer!

On site, a shut-off valve with backflow preventer and 3/4" male thread connection must be available near the installation site. In order to ensure a standard-compliant connection of the AQUAdem 40 with backflow preventer regardless of the building-side installation, a check valve is already included in the accessories, which is installed between the on-site water supply and the AQUAdem 40.

At the factory, the AQUAdem 40 is equipped with 2.5 m long hoses on both the water inlet and outlet sides. If these hose lengths are not sufficient, hose pieces cut to other lengths can also be used and provided (on request).

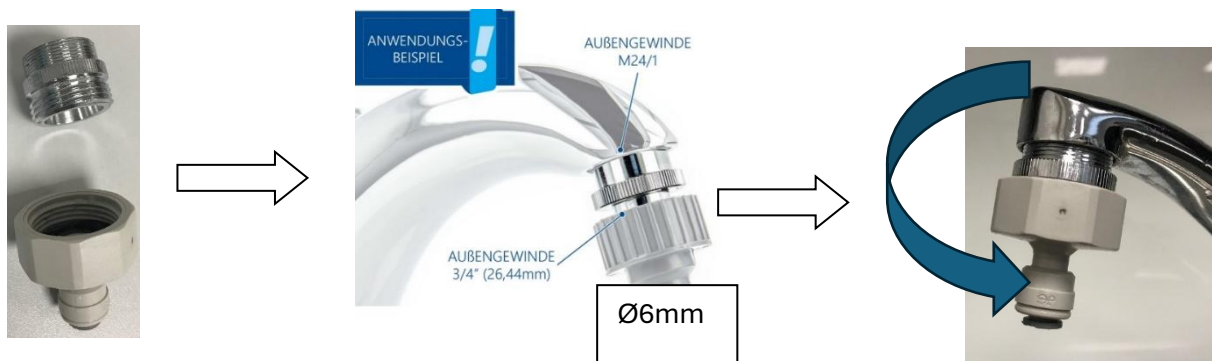
Both the screen connection of a standard water fitting (M24x1 fine thread) and a standard 3/4" ball outlet valve can be used as raw water connections.

For the water faucet variant, first unscrew the strainer from the tap with the appropriate wrench. The aerator transition (M24x1 male to 3/4" male diameter) is now screwed into this position. Now the tap connection (G3/4" F to Ø6mm hose) can be screwed.

3.1.1 RAW WATER CONNECTION VIA SIEVE CONNECTION

The AQUAdem 40 can be connected directly via a standard sink tap. To do this, first disassemble the existing sieve connection/aerator and then install the 3/4" tap connection via the M24x1 double nipple (both are included)

The existing seal of the sieve connection can be reused. If necessary, clean them under running water. The tap connection already has a flat gasket integrated.



3.1.2 RAW WATER CONNECTION VIA BALL OUTLET VALVE 3/4"

For connection via the 3/4" ball outlet valve, the tap connection can be screwed on directly.



3.2. Mounting the hose:

The AQUAdem 40 is delivered pre-assembled, i.e. the hoses are already assembled.

If you use other hose lengths and want to mount or disassemble the hoses, please proceed as follows:

Use a sharp hose cutter to cut the hose at right angles without deformation and without burr.

Make sure that there are no scratches or grooves on the outside of the hose and that the hose is within the allowable tolerances.

Otherwise, leaks could occur.

When plugging in the hose, note that the plug-in fittings have two pressure points through which the hose must be pushed:

1. retaining claw and

2. Gasket. Only when both pressure points have been overcome is the hose correctly inserted.

3.3. Dismantling the hose:

Before disassembling the hose, please make sure that the hose line is depressurized.

Before disassembling, press down the release ring equally firmly on both sides to open the retaining claws evenly. Failure to follow may scratch on the hose which can then lead to leaks when plugged in again!

Then pull the hose vertically out of the plug-in connector

3.4. Connection of the AQUAdem 40

The connection between the components of the system is made by means of the installed hose (outer diameter 6 mm, wall thickness 1 mm).

The plastic hose must not be bent or crushed!

The AQUAdem 40 is connected to the autoclave according to the following illustration.

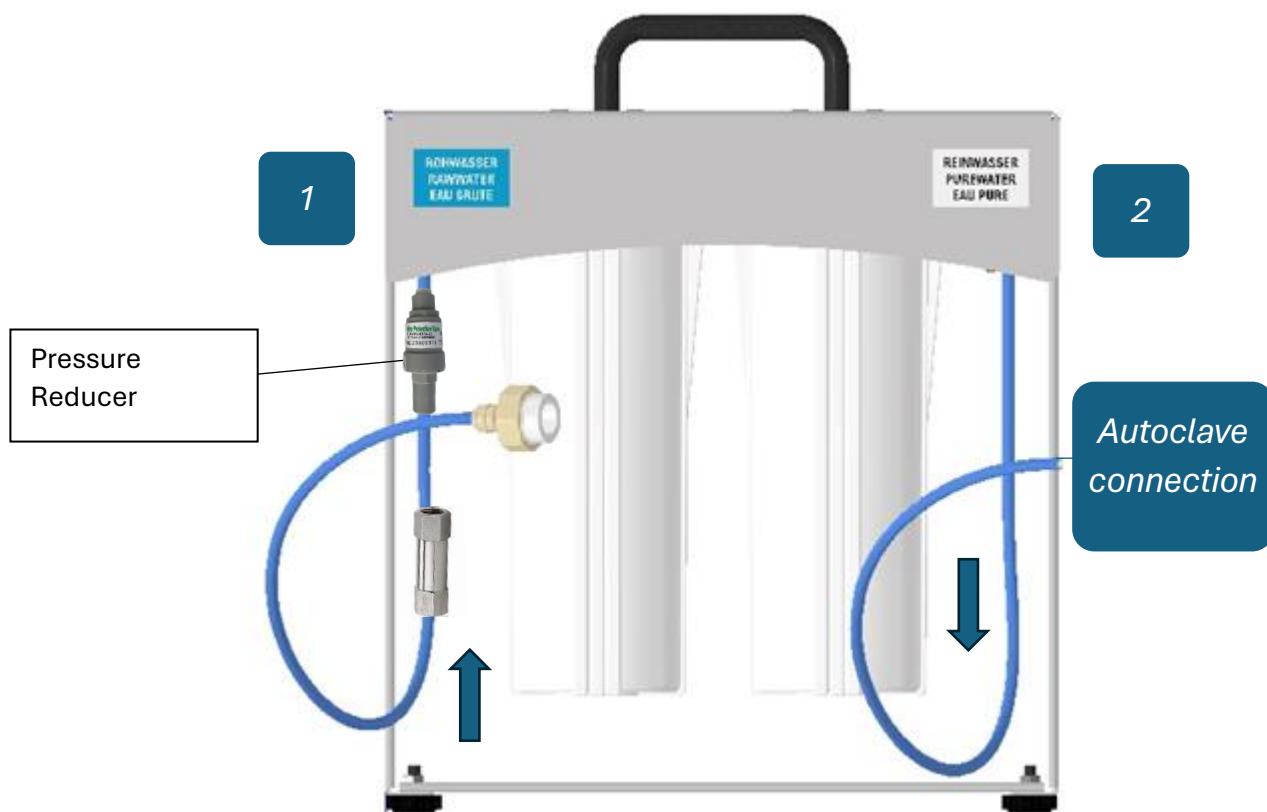


Figure 4: Hose Inlet and Outlet Positions

- Make sure that the mixed-bed resin cartridges are inserted in the AQUAdem 40.
- Close the raw water inlet.
- Now attach the plastic hose lines to the AQUAdem 40. The inlet hose of the raw water comes to the elbow fitting 1. Make sure that the check valve is installed in the direction of the flow and then the pressure reducer is installed between the water supply and the filter.
- The pure water hose is attached to the elbow fitting 2.
- **ATTENTION!**

In the case of drinking water pipes in the local network, the supply pressure is **between 2 and 8 bar**, as the domestic installation systems are only designed up to an operating pressure of a maximum of 10 bar. In distribution networks without house connections, pressures of over 10 bar can also be present.

Therefore, it is essential to pay attention to the maximum permissible water pressure of the fixed water connection of your autoclave or downstream system, otherwise internal leaks can occur.

All Steri24 autoclaves are designed for inlet pressures up to 2 bar!

If the supply pressure is greater than 2 bar, the use of a pressure reducer (1.7 bar) is mandatory.

This is mounted on the input side between the check valve and the filter inlet and is included in the scope of delivery of the AQUAdem 40 or can also be optionally reordered in the Steri24 Shop under item number 1300323.

IMPORTANT: ->Pay attention to the direction of the flow! – max. inlet pressure note 8.6 bar!!



- Now connect the pure water connection to the back of the autoclave (only when used with automatic filling function)
- When connecting the AQUAdem 40 directly to the domestic water network, we recommend the additional installation of a water stop.





Figure 5:

Connection of AQUAdem 40 to autoclave

4 Commissioning

After careful installation of the assemblies (this includes the insertion of the new mixed-bed resin cartridges following a similar process as for the replacement of the cartridges described in chapter 5.1.1 and the connection of the hose fittings, the AQUAdem 40 can be put into operation according to the following points.

- Open the raw water inlet.
- Make sure that all pipes are tight and that there are no leaks.
- The first filling of the AQUAdem 40 takes about 5 minutes, depending on the raw water pressure. Only then can a sufficiently large amount of pure water be taken from it for the autoclave or another consumer.
- Always carry out an empty sterilization with the autoclave (even after changing the mixed-bed resin cartridges).

5 Maintenance instructions

Perform maintenance on the system at the following intervals to ensure the proper functioning of the system:

Maintenance work - interval / timing

Daily:

Control of the demineralized water with a conductivity meter, the control monitor or by an autoclave with a built-in conductance meter.

6 months:

Inspection of hoses and fittings for leaks or crushing, kinks or age-related embrittlement.

as required:

Replacement of the mixed-bed resin cartridges after approx. 200 litres of permeate removed (varies depending on raw water quality).

The following filter capacities were tested under the specified Flow rate and contamination tested. (may differ from the actual filter performance)

Flow rate [L/min]	PPM	Filter capacity [L]
0,9 - 2	10	2000
0,9 - 2	50	400
0,9 - 2	100	200
0,9 - 2	200	50

Steri24 offers the entire mixed-bed resin cartridge including resin filling as a spare part.

When the AQUAdem 40 is connected to an autoclave with a conductance sensor, the information of the required replacement is provided by the display of the autoclave.

5.1 Replacement of the mixed-bed resin cartridges

5.1.1 COMPLETE REPLACEMENT OF THE MIXED-BED RESIN CARTRIDGES

If the mixed-bed resin is exhausted (poor quality of the permeate), the mixed-bed resin cartridges must be replaced:

- Close the raw water inlet. (Faucet closed!)
- Attention!
If the water treatment system is connected to an autoclave, pressure relief must be carried out. When using a Steri24 autoclave, pressure relief can be conveniently carried out via the ADV menu. For more information, please refer to the operating instructions of your autoclave. With a system independent of an autoclave, you can achieve pressure relief through normal water extraction.
- Remove the container key from the AQUAdem 40.
- Insert the container key over the filter housings from below, pull the key all the way up and let it click. Open the containers of the resin cartridges one after the other by turning the key (viewed from above) clockwise. As soon as the containers of the resin cartridges can be rotated smoothly, they perform the last rotations by hand.



Figure 6 - Opening the Filter Housing

- Now pull the containers of the resin cartridges downwards (be careful! The containers of the resin cartridges may be filled to the brim with water.) and remove the used mixed-bed resin cartridges.
If the mixed-bed resin was only used to treat drinking water or heating water without chemicals, the resin can be **disposed of with the residual waste**. The waste code is 190905.
- The containers of the resin cartridges must be rinsed thoroughly under running water.
- Remove the new cartridges from the foil and place them upright in the containers of the resin cartridges.

5.1.2 SECURE, WATERTIGHT CLOSURE

To tighten the two containers of the resin cartridges, please use only the container key supplied with the AQUAdem 40.

The safe and watertight sealing of the containers for the resin cartridges must be carried out as follows:

- First, screw in the filter housings by hand until they are hand-tight
- Now use the container wrench to tighten the filter housings.



Figure 7 - Closing the Filter Housing

- Check that all parts are screwed tightly.
- Open the raw water inlet.
- Check whether the system is leak-proof.
- The AQUAdem 40 is now ready for use again.

6 Technical data

Manufacturer	CertoClav Sterilizer GmbH Peintner Strasse 10 A-4060 Leonding / Austria www.steri24.com support@certoclav.com
Raw water	Tap water
Bacteriological quality	Pure water (TDS = 0)
Flow capacity	at max. 120 litres/h no exceedance of 20 μ S/cm
Water pressure min/max.	1.38 bar to 8.6 bar
Water temperature min/max.	2°C to 38°C
Water PH value min/max.	5.0 to 9.0
Resin cartridge container	Content approx. 2 x 1.1 litres (2.2 litres) 10" x 2.5" with threaded connection G1/2"
Device dimensions	H: 355 mm B: 350 mm T: 135 mm
Total weight of the system with filter	approx. 4.5 kg (filled)

7 Consumables and spare parts

Designation	Article
AQUAdem 40	8500562
Sheet metal bracket	1300601
Tap connection Ø6 mm x G3/4"	1300311
Bow handle	1300312
Adjustable leg M6x16	1300313
Check valve G1/4" PN10	1300314
Straight plug-in connection G1/4" x Ø6 mm	1300315
Elbow fitting G1/2" x Ø6 mm	1300316
Double nipple G1/2"	1300317
Water hose Ø 6x4 mm	1300318
Aerator Transition M24x1 – G3/4"	1300319
Mixed-Bed Resin Cartridge (Deionization Filter)	1300553
Housing	1300554
Drinking rules 1.7 bar	1300323