

Operating instructions

Water Softening Unit SOFT-HB1B 63922, 63923



Illustration similar, may vary depending on model

Read and follow the operating instructions and safety information prior to initial operation.

Technical changes reserved!

Illustrations, functional steps, and technical data may deviate insignificantly due to continuous further developments.

Updating the documentation

If you have suggestions for improvement or have found any irregularities, please contact us.



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Introduction

Thank you for choosing to purchase this quality product. To minimise the risk of injury, we ask you to always take some basic safety precautions when using this product. Please read this operating manual carefully and make sure that you understand it. Keep these operation instructions in a safe place.

Use and warning notices

 Prohibition symbol	Any use described with this symbol is prohibited, as otherwise the product could be damaged, the safety of users could be jeopardised, or material damage could be caused.
 Warning symbol	Any use described with this symbol must be carried out in strict compliance with the regulations, otherwise the product could be damaged or the safety of the user could be jeopardised.
 Instruction symbol	All instructions marked with this symbol must be observed by the user, otherwise the product may be damaged or other damage may occur due to improper operation.

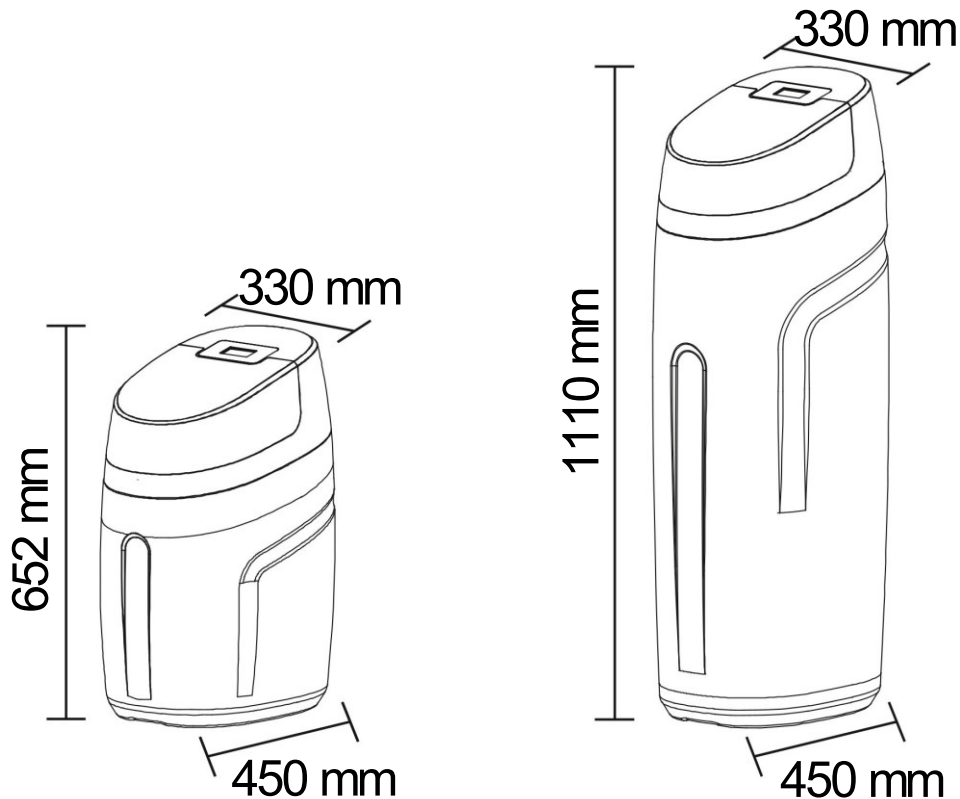
- Installation, commissioning, or maintenance of this water softener must be carried out by qualified personnel.
- Liability for consequences caused by improper installation is excluded.

Safety instructions

- The water softener can only be supplied with 12 V and 1500 mA. Observe all safety precautions in connection with the operation of electrical appliances during operation and maintenance.
- If the mains cable of the water softener is damaged, it must be repaired by a qualified electrician.
- The water softener is only suitable for filtering pre-treated tap water. It cannot be used to filter water with an unknown level of contamination or an unknown proportion of harmful organisms.
- The water softening liquid cannot be drunk directly. Do not drink it directly.
- Do not block the overflow pipe and the drain pipe of the water softener.
- Do not place any objects on the water softener.
- Do not immerse the water softener in water.
- Do not use the water softener outdoors or in direct sunlight.
- The temperature of the water entering the treatment device must not exceed 38°C.
- After the water softener has been out of operation for a certain period of time, manual treatment must be carried out before reuse to ensure the quality of the water produced.
- The power supply must not be interrupted while the water softener is in use in order to avoid timing errors of the water softener, which would affect the originally set regeneration start time of the water softener. Otherwise, users could misuse water that has not yet been softened.
- If the water consumption increases significantly (compared to normal consumption) or the hardness of the raw water increases, the regeneration cycle must be shortened accordingly or the hardness of the raw water must be adjusted so that the regeneration times are extended.
- As hot water can severely damage the internal treatment system, it should be ensured that there is a connecting pipe of at least 3 m in length between the outlet of the softener and the inlet of the hot water boiler. If the 3-m connection line cannot be assured, it is recommended to install a non-return valve between the water softener and the hot water boiler.

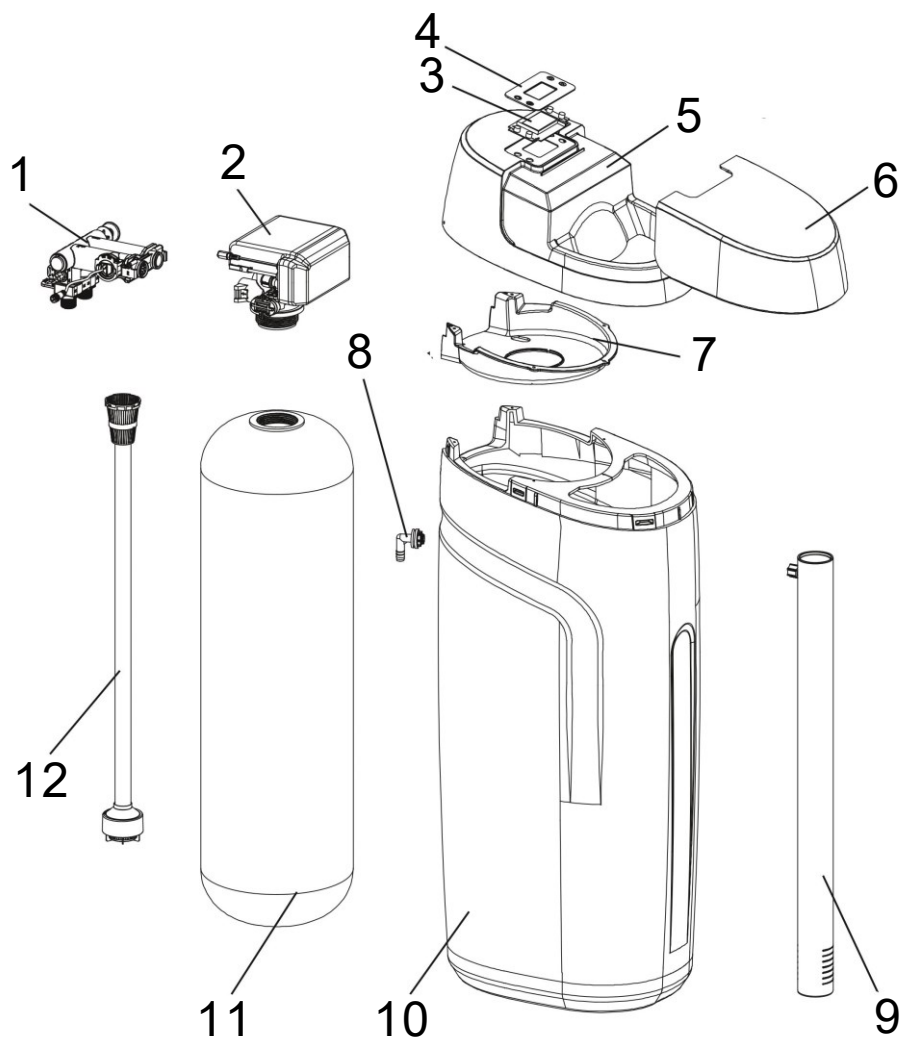
- The permissible ambient temperature of the system is 5–40°C. The ion exchange resin in the housing can easily freeze and break. If in doubt, take suitable frost protection measures so that the resin is not affected.
- During operation of the water softener, shocks to the water must be avoided, e.g., by quickly opening or closing the valve and switching off the water pump in emergencies.
- Do not apply force to the machine and avoid direct sunlight and exposure to heat from other sources.

Technical specifications



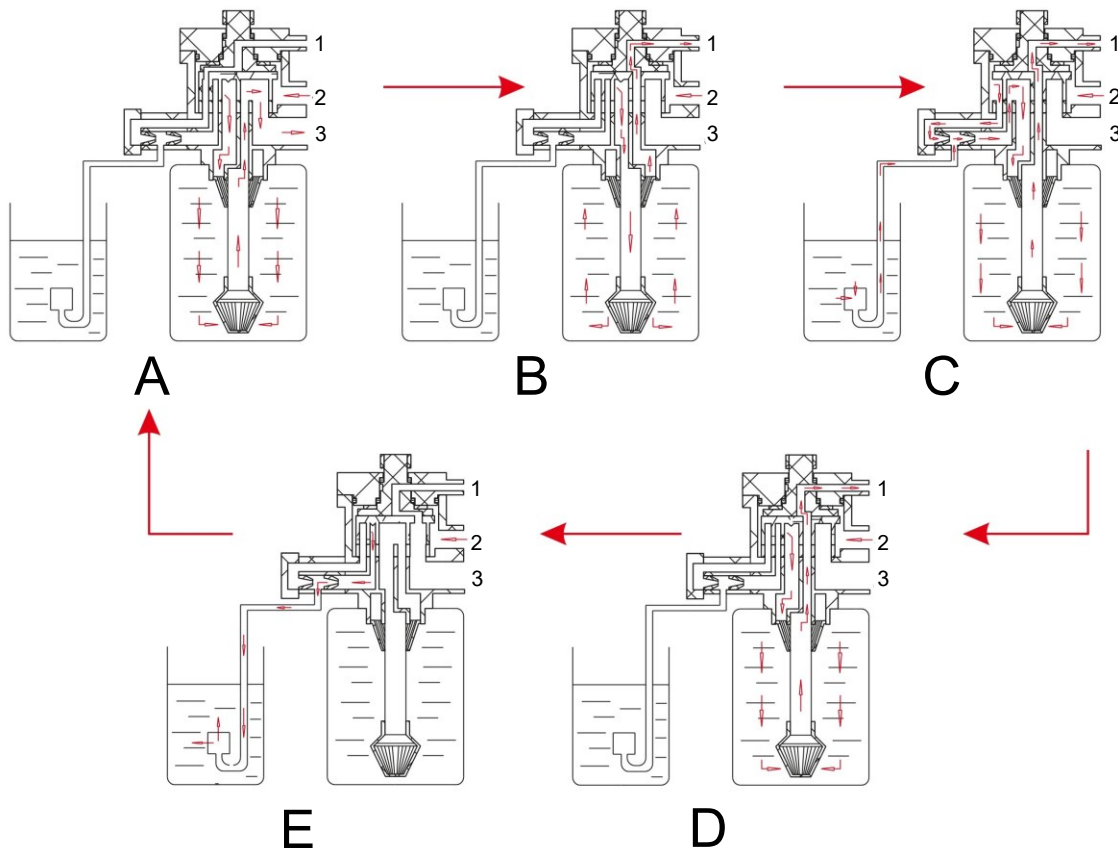
Model name	SOFT-V1	SOFT-V2
Power supply	230 V/50 Hz	
Power consumption (W)	18	
Pressure (bar)	1.5–4.5	
Flow rate (l/h)	1500	3000
Max. temperature (°C)	40	
Min. temperature (°C)	5	

Overview



Nº	Name	Nº	Name
1	Inlet/outlet	7	Belt
2	Relief valve	8	Overflow fitting
3	LCD display	9	Brine tank and valve
4	Control panel	10	Housing
5	Top cover	11	FRP tank
6	Cover	12	Central pipe

Functionality



Nº	Name	Letter	Name
1	Drain	A	Water supply
2	Intake	B	Backwashing
3	Outlet	C	Brine and slow washing (down flow)
		D	Quick re-fill
		E	Re-fill

Functions and features

Automatic operation

- The built-in time control has a 24-hour time control and can automatically calculate and regenerate the amount of renewable water according to the set resin capacity, raw water hardness, and regeneration coefficient. This happens when the remaining amount of water produced drops to zero and the regeneration trigger time has been reached (the factory-set time is 2 a.m.). Regeneration can also be initiated after the set regeneration interval days have elapsed if the remaining water production is not zero and the set regeneration trigger time is reached (factory-set to 2 a.m.).
- The control system can calculate and design an economical and effective soft-water treatment scheme according to the actual water supply and water consumption of the users.

Programme cycle functions

- **Function:** After the raw water has flowed through the water softener at a certain pressure and flow rate, the Na⁺ units in the active groups contained in the ion exchange resin are exchanged for cations contained in the water, such as Ca²⁺ and Mg²⁺, so that the concentration of Ca²⁺ and Mg²⁺ in the water is reduced and the water is softened.
- **Backwashing:** After the ion exchange resin has been saturated, it should be backwashed before regeneration. This is done to wash out the suspended particles from the water that have settled and clumped together on the surface of the resin, as well as broken resin splinters. Secondly, a loosely compacted resin layer favours full contact of the resin components with the regeneration liquid during regeneration, which creates good conditions for the regeneration of the ion exchange resin.
- **Brine and slow brine:** Brine at a specific concentration and flow rate flows through the entire ion exchange layer to regenerate the saturated resin and restore its exchange capacity.
- **Re-fill:** Water is poured into the brine tank to dissolve the regenerating salt, produce saturated resin, and restore the softening exchange capacity.
- **Fast brine:** Remove any remaining brine in the resin layer and clean the resin layer until the outflow is perfect. The resin layer is compressed to achieve the best softening effect.

Creating a saturated salt solution with a uniform concentration

The water in the brine tank is topped up from the bottom and the salt water settles from the top to the bottom, so that the salt water is mixed evenly by natural circulation and the saturated state can be achieved more easily.

Reminder feature for low-salt alarm (optional)

If a lack of salt is detected, a low salt alarm is automatically displayed and the user is reminded to top up the salt in good time. When the user has topped up the salt, he or she can press any button on the water supply station to stop the low salt alarm (after topping up salt, it takes about 6 hours to clear).



Installation and maintenance

Installation notes

To avoid installation errors, please read the following instructions carefully.

- As the control components are controlled by electronic circuits, a three-day power failure (72 hours) or an intermittent power supply may cause the time shown on the control valve display panel to result in an incorrect regeneration time for the water softener (check the time shown on the control valve panel and the actual time after continuous operation of approximately 3 months). After restoring the power supply, check whether the time displayed on the control panel is correct. If this is not the case, refer to the instructions for the control valve to find out how to set the water softener clock.
- If the water pressure of the water softener is lower than the specified operating pressure, install a booster pump, which should be installed at the front of the water inlet of the water softener. At the same time, the outlet pressure of the booster pump must not exceed 4.5 bar, otherwise a pressure-reducing valve must be installed between the booster pump and the water softener.

WilTec GmbH is not responsible for detrimental effects and damage caused by an excessively high outlet pressure of the booster pump on the water softener.

- If the main water supply is interrupted, the main valve of the supply line should be closed immediately or the bypass valve of the water softener should be switched to the bypass station to prevent the water softener from being damaged by the negative pressure in the pipework caused by the municipal water supply.
- When the main water supply is restored, a large number of pollutants in the water pipe contaminate the treatment device. Therefore, first switch the bypass valve of the treatment device to the bypass station, open the tap in the house, and drain the water from the dirty water supply station.
- The water softener must not be tilted or laid on its side during transport, installation or use.
- The floor on which the water treatment device is installed should be level and have a load-bearing capacity of more than 300 kg/m. In addition, an AC power supply, a water inlet and outlet interface, a waste water pipe, and a floor drain should be available.
- Installation area:
 - SOFT-V1: 380 × 550 × 690 mm (L×W×H)
 - SOFT-V2: 380 × 550 × 1150 mm (L×W×H)
- Do not install the softener near acidic and alkaline substances or near gases to avoid corrosion on the softener.
- The water softener must be installed indoors. Measures must be taken to insulate the housing and pipework, in particular to protect against frost and solar radiation and for sealing.
- It is forbidden to install the softener on a water pipe with a water pressure of more than 4.5 bar. If the water inlet pressure exceeds 4.5 bar, a pressure-reducing valve must be installed (to be purchased separately), otherwise the company accepts no responsibility for consequences such as impairment or damage to the water softener due to excessive water inlet pressure and any resulting damage.
- The water softener should be installed and used in a room with a floor drain and smooth drainage. If the drain pipe or floor drain is blocked and the drain pump cannot drain normally due to a power failure or other malfunction, please close the building's main water inlet valve immediately. At the installation site, it must be ensured that objects in the neighbouring area or in the part of the building below are not damaged or flooded if water escapes from the water softener or the connection pipe.
- As shown in the illustration below, the drain pipe and the overflow pipe must be secured with ring clamps to prevent leakage during water drainage.

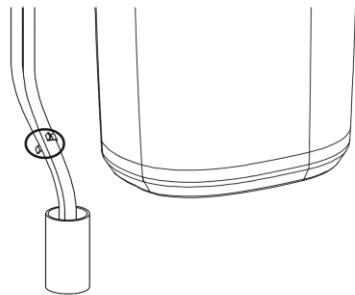


Fig. 1

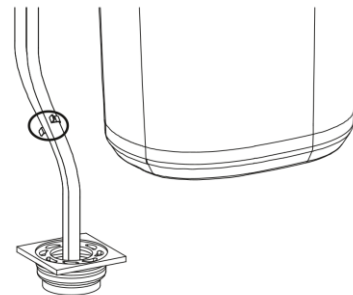


Fig. 2

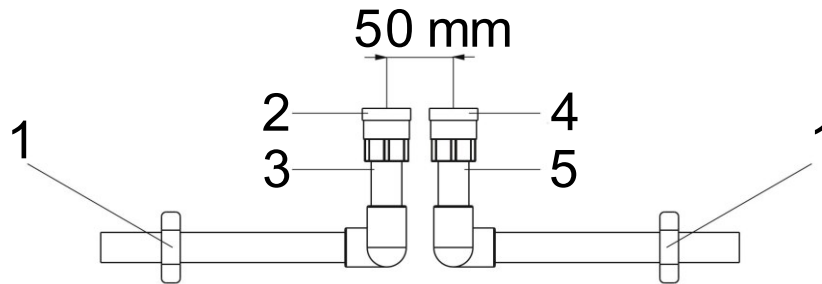
- Before connecting the water supply pipe, remove any dirt and dust remaining in the pipe. Then close the main valve before connecting the system.
- The overflow and drain pipe must be provided with a free pipe guide. The length of the pipe may not be increased and the pipe diameter may not be reduced without authorisation.
- For the pipe connection, the pipe should be as close to the wall as possible, the pipe should run straight, and the angles should be free. After installation, the pipe should be fixed to the wall with a ring clamp. Pay attention to the height and placement angle of the pipe when it is connected. There should be no obvious stresses after connecting the pipe to avoid water pipe bursts and water leakage from the treatment device or pipework due to stresses in the pipework during long-term use.
- It is forbidden to combine the overflow and drain pipes in one pipe and insert it into the wastewater outlet.

- If the waste-water pipe or floor drain is blocked, the water softener must not be used.
- After installation, check whether water is leaking from the connection nozzles, the connection between the control valve, and the GRP tank (glass fibre plastic) and the bypass connection, and whether the water level in the brine tank is rising.
- Seals are usually installed when connecting threaded parts. It is therefore not advisable to apply too much force, as this can easily lead to the thread slipping and cracking.
- The waste-water pipe must be level and there must be an air gap between the waste-water pipe (overflow pipe) and the waste-water outlet.
- The waste-water pipe (overflow pipe) must not be connected to the sewage system in a sealed manner, as otherwise the machine can no longer work normally or the waste water can no longer flow back to the machine due to the negative pressure.

Installation

The water softener must be installed, tested, and put into operation for the first time by a specialist. The following installation steps are only intended as a guide (using a PPR pipe as an example).

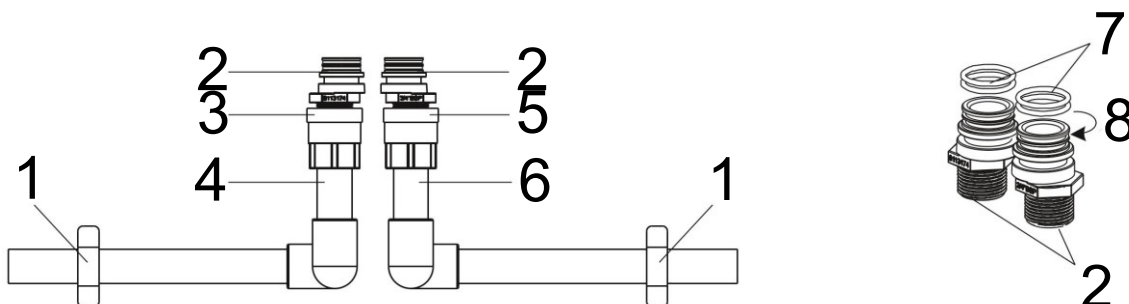
1. Install the water-inlet and -outlet pipes on the wall according to the actual height of the product above the floor (sold separately).



Nº	Name	Nº	Name
1	Clamp (fixed water pipe)	4	Intake
2	Outlet	5	Inlet pipe
3	Outlet pipe		

Note! Please note the actual height and installation environment of the selected product.

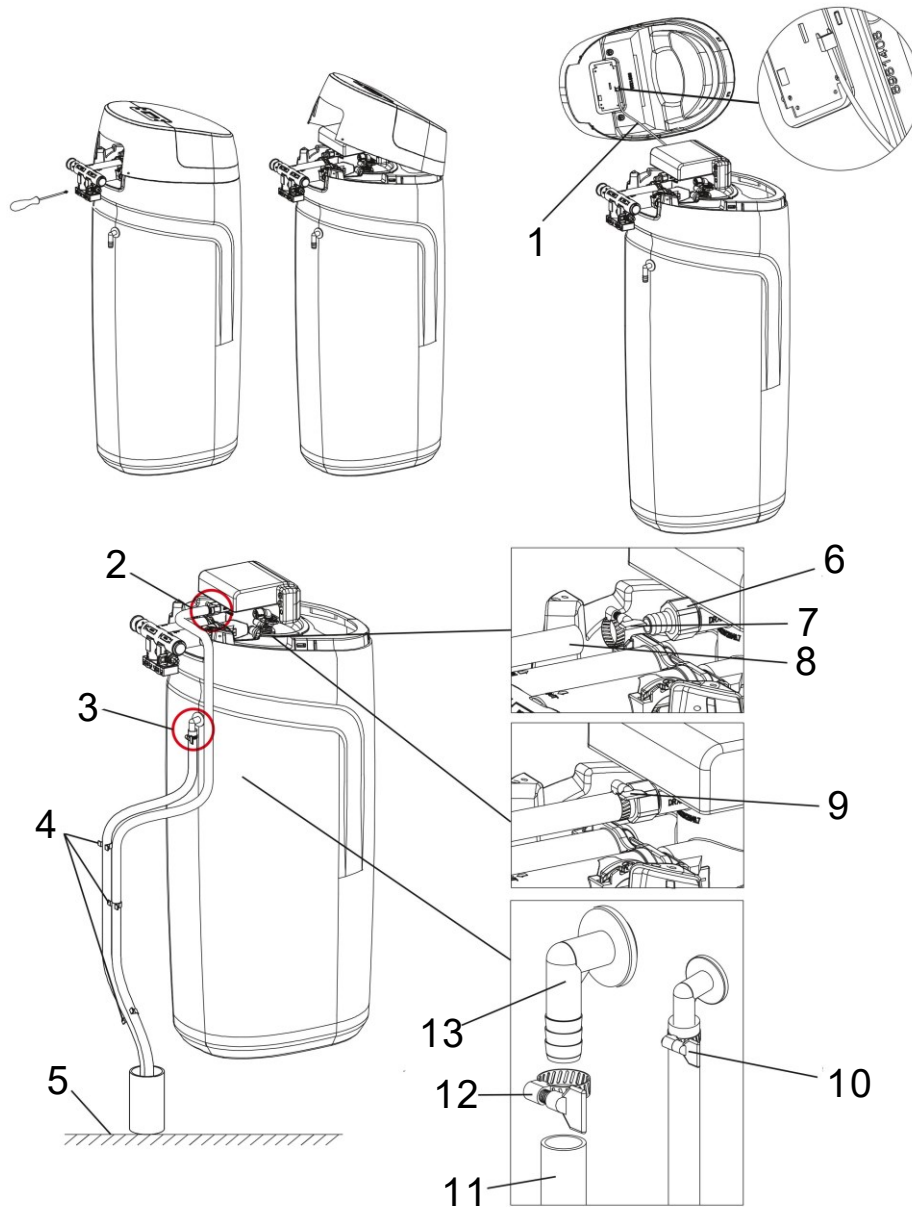
2. Connect the bypass pipe connection to the water inlet and outlet.



Nº	Name	Nº	Name
1	Clamp (fixed water pipe)	5	Inlet pipe
2	Connection point	6	Inlet pipe
3	Outlet	7	O-ring
4	Outlet pipe	8	2 points

Note! Make sure that the O-ring has been fitted.

- Open the top cover, pull out the connecting cable to the control panel a little, cut a drain pipe and an overflow pipe as required and lay them accordingly (secure the hoses with clamps), arrange the drain pipe and overflow pipe, and connect them to the floor drain.

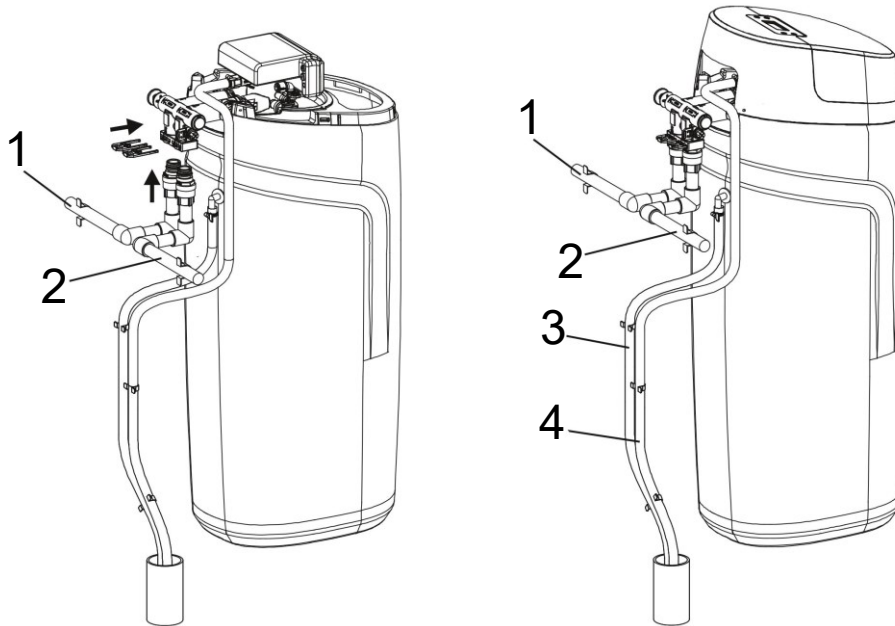


Nº	Name	Nº	Name
1	Connecting table of control panel	8	Drain pipe
2	Drain pipe	9	Clamp (loosen, install, re-tighten)
3	Overflow pipe	10	Clamp (loosen, install, re-tighten)
4	Clamp	11	Overflow pipe
5	Ground	12	Clamp (loosen and fit)
6	Drain opening	13	Overflow opening
7	Clamp (loosen and fit)		

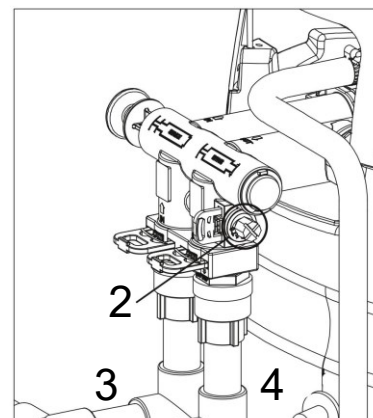
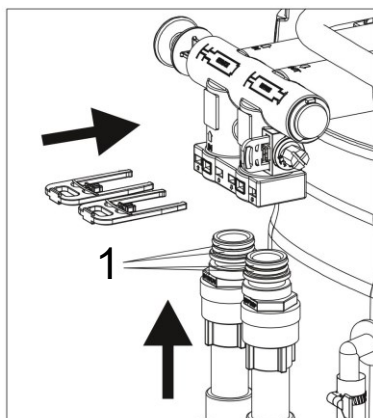
Note! Secure the waste pipe and the overflow pipe to the wall with a ring clamp to prevent the hose from jumping out of the waste pipe.

- Return to the second step. Place the product in the corresponding position of the installed connection. Connect the water inlet and outlet of the bypass valve to the connection in the corresponding water inlet and outlet direction. Then insert the large insert from the accessory kit into the slot of the bypass valve and the water pipe connection. Then connect the display connection cable of the control panel and cover the top cover assembly.

Installation diagram of the inlet and outlet opening



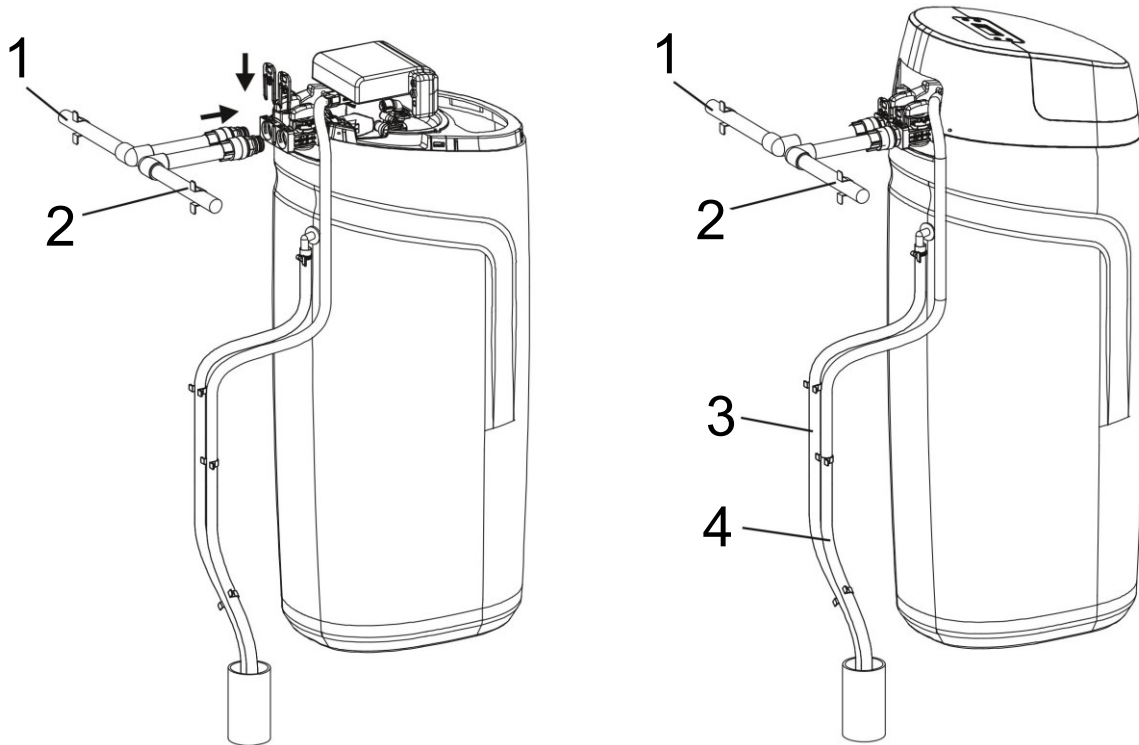
Nº	Name	Nº	Name
1	Inlet pipe	3	Overflow pipe
2	Outlet pipe	4	Drain pipe



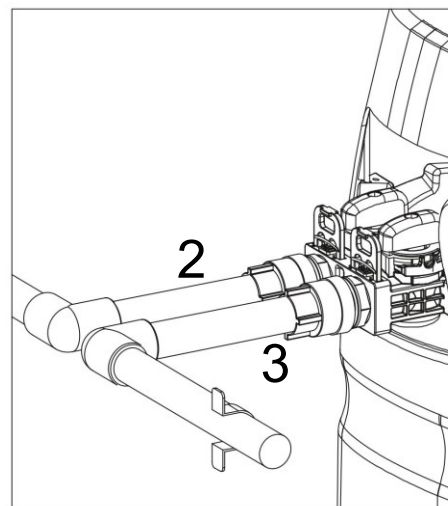
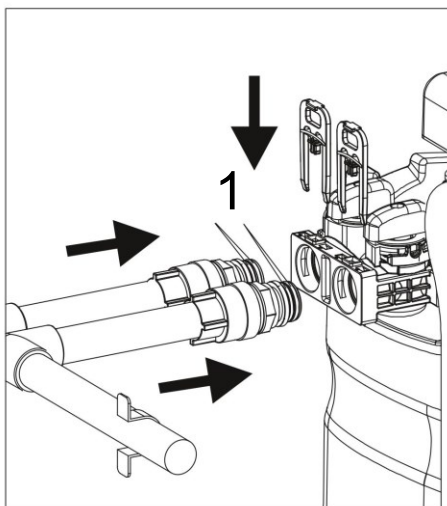
Nº	Name	Nº	Name
1	O-ring	3	Intake
2	Mixing knob	4	Outlet

Note! Please check whether the large insert on the bypass valve is inserted all the way to the bottom. Check that the sealing rings on the two bypass pipe connections are correctly installed.

Installation diagram bypass valve water pipe



Nº	Name	Nº	Name
1	Inlet pipe	3	Overflow
2	Outlet pipe	4	Drain pipe

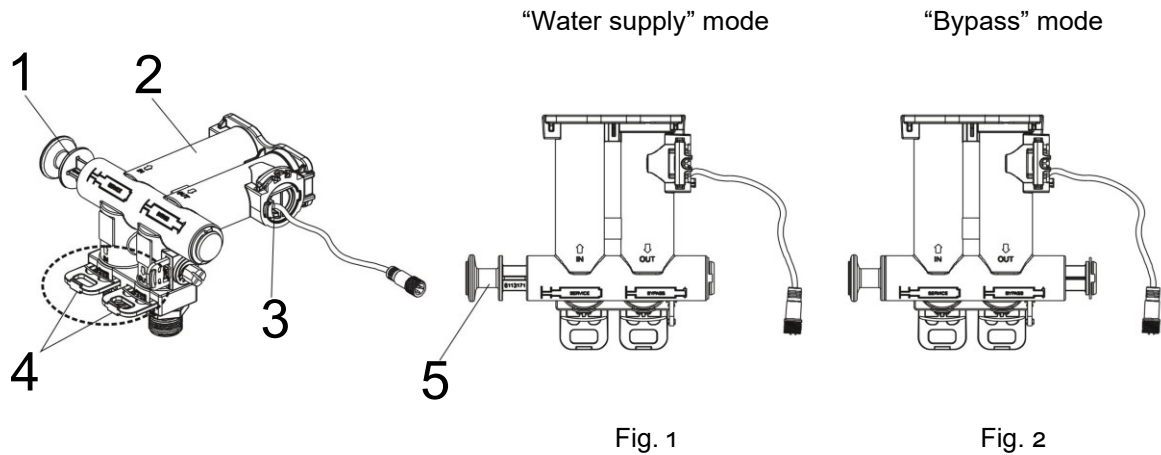


Nº	Name	Nº	Name
1	O-ring	3	Outlet
2	Intake		

Note! Make sure that the large clip on the bypass valve is inserted all the way to the end. Ensure that the seals on the two bypass pipe connections are properly installed.

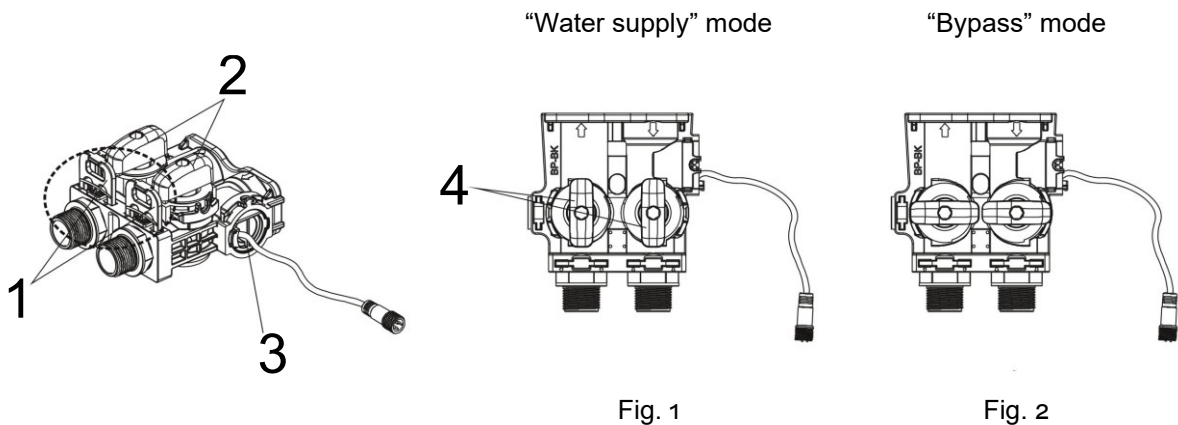
- After completing the installation steps in step 4, check whether the bypass is in “water supply” (service) mode (Fig. 1). If the bypass is in bypass mode (Fig. 2), pull the push rod into the “water supply” position (Fig. 1).

Diagrams of the “water supply” mode



No	Name/description	No	Name
1	Bar	4	Clamp
2	Bypass	5	Press push rod, set “Water supply” position
3	Flow meter		

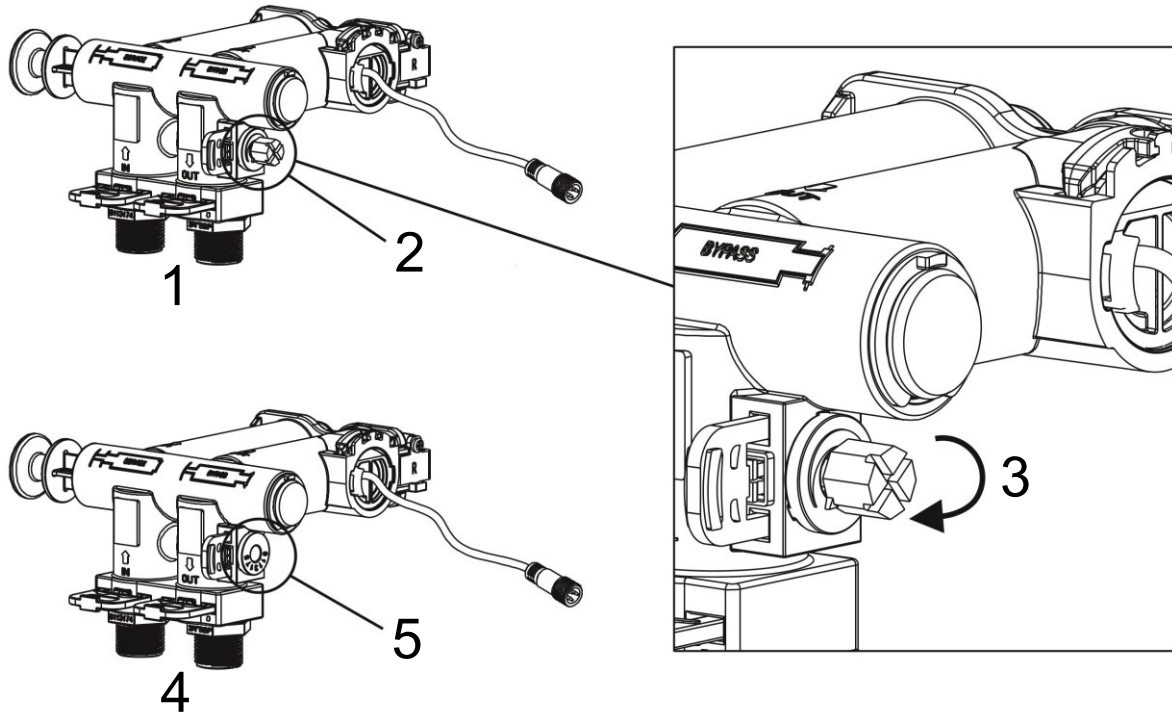
- After completing the installation steps in step 4, check whether the bypass is in “water supply” (service) mode (Fig. 3). If the bypass is in bypass mode (Fig. 4), pull the push rod into the “water supply” position (Fig. 3).



No	Name/description	No	Name
1	Bar	3	Flow meter
2	Knob handle	4	Press push rod, set “Water supply” position

- Treatment of bypass valves in special cases: In the event of a failure of the device or other special circumstances, the bypass valve of the machine can be set to the bypass state (push the pull rod to the operating position as shown in Fig. 3). You can temporarily use the municipal water supply directly. Once the fault or problem has been rectified, set the bypass valve to the operating position (push the pull rod to the position shown in Fig. 2) to restore the soft water supply.

8. Bypass valve with water mixing function (depending on model) – The further the water mixing regulator is turned clockwise, the greater the proportion of mixed water and the higher the degree of hardness of the outgoing water. If the water mixing function is not required, the water mixing plug can be installed.



No	Name	No	Name
1	With water-mixing feature	4	Without mixing feature
2	Water-mixing regulator	5	Water-mixing plug
3	Clockwise rotation		

9. The general installation scheme is divided into two installation methods (as shown in the figures below).

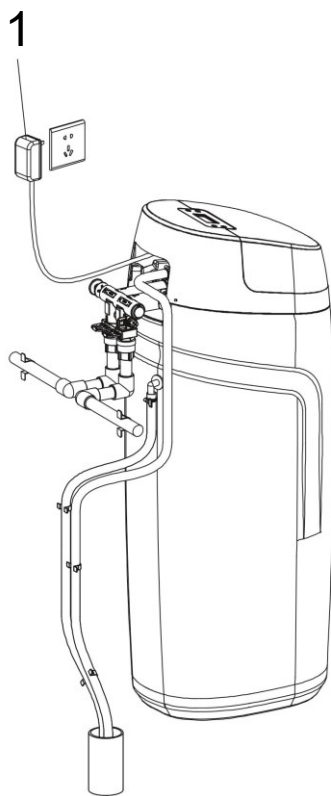


Fig. 5

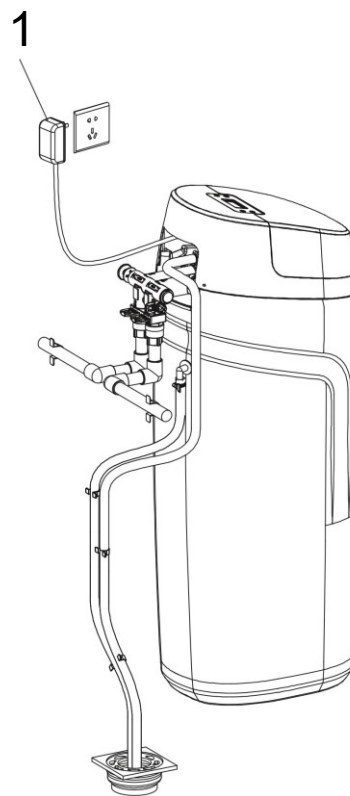


Fig. 6

No	Name
1	Transformer

If an operating room is available, it is recommended to use the installation method shown in Figure 5. Otherwise, only the drain pipe and the overflow pipe can be inserted into the floor drain. As shown in Figure 6, make sure that the two pipes are fixed to the wall to prevent the pipe from being flushed out of the floor drain when emptying. This can have detrimental effects and lead to damage.

Install connections

- The connection and laying of the pipe system is carried out in accordance with the provisions of the construction standards for water supply and drainage pipes. The inlet and outlet interfaces of the water softener and the water pipe interfaces are connected by a $\frac{3}{4}$ " PPR inner pipe or a corrugated pipe and must be installed on the same axis (see installation plan). The inlet and outlet points must not be installed in reverse.
- Connect the water inlet and outlet pipes, the drain pipes, and the overflow pipes in sequence to ensure that all connections are tight and that there are no leaks. It is recommended to use flexible pipes to connect the water softener inlets and outlets, the drain, and the overflow (note: 304 stainless steel, alloy forged steel, high-strength engineering plastics, and other materials are to be used for the connection of pipe fittings and valves; valves and pipe fittings made of iron are strictly prohibited).

Installing the drain and overflow pipes


- First loosen the clamp and insert it into the prepared pipe, then insert the pipe into the drain and overflow connection to the floor, and finally turn the clamp onto the connection of the pipe, drain, and overflow connection and tighten it firmly. The drain and overflow pipe must be secured with a clamp. (**Note!** This procedure is intended to ensure that the hose is not pushed away or pushed out of the sewer if the flat is connected to the sewer or the water pressure of the floor drain is high).




- The position of the control valve must be higher than the floor drain and the length of the drain and overflow pipe must not exceed 2 m. The installation of shut-off devices in the drain pipe is strictly prohibited. The sealing of the pipe fittings may only be made of PTFE.

Instructions for first use

1. Initial settings of the operating system



When the softener is switched on for the first time, the system indicates that water is being added. Press the button  to access the operating system and set the current time, the regeneration time, and the raw water hardness.

2. First water supply for water softeners

Before the first water supply, close the water inlet valve of your building, switch the bypass valve to the operating position and to the unlocked state, press the button  to start regeneration; "system is back washing" is shown on the display panel. When the power is switched off, the water softener remains in backwash mode. Open the water inlet valve slowly to $\frac{1}{4}$ (opening it quickly can damage the appliance and lead to resin loss). At the beginning, the sound of slowly escaping air should be heard in the blow-off pipe. After the air in the GFK tank has escaped (i.e., when the water in the blow-off pipe flows out evenly), the water inlet valve should be fully opened.

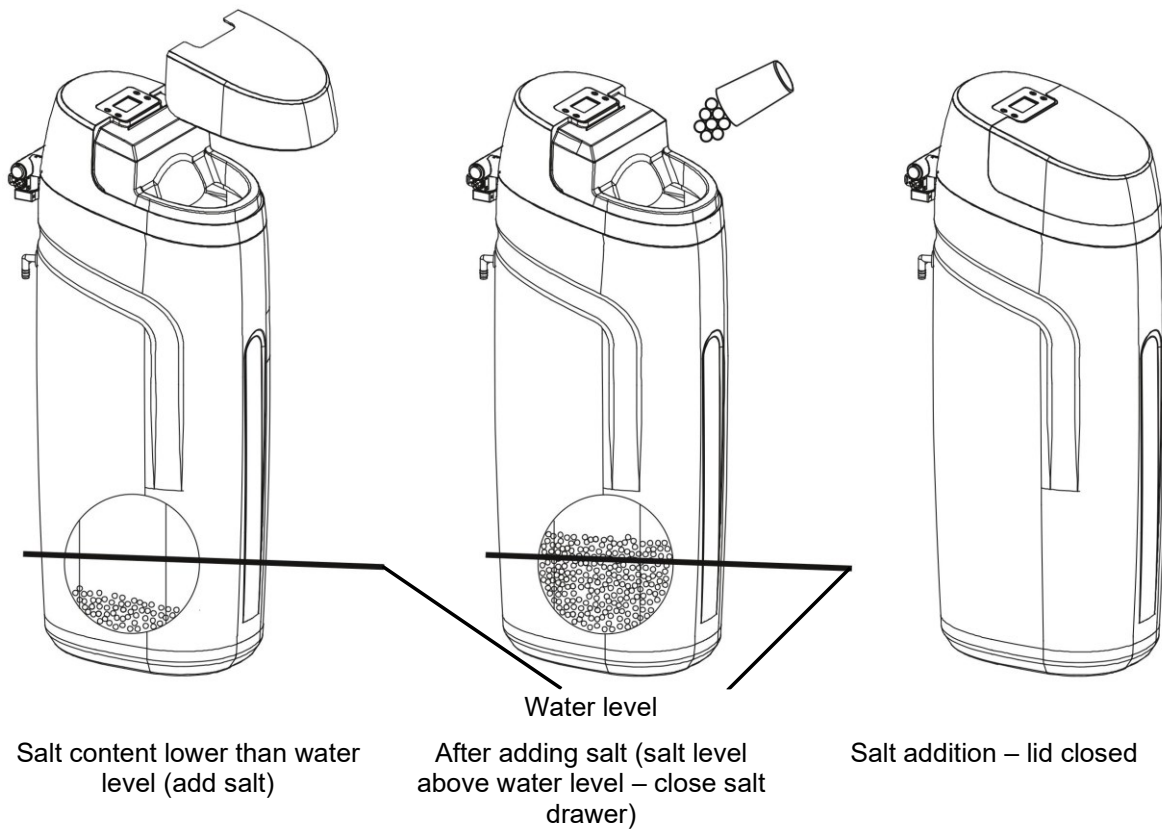
Attention! If the water inlet valve is fully opened directly, the water will flow into the softener too quickly, causing the softener resin in the tank to be stirred up, which will easily cause the upper collection tank to break and damage the softener. It is therefore necessary to open the water inlet valve slowly $\frac{1}{4}$ to allow the water to flow slowly into the tank, release the air in the tank and fill the tank with tap water. During backwashing, the outlet of the blow-off pipe must be checked several times until it is really clean. The backwash time should not be less than 5 min.

3. First filling of the brine tank with water


After completing the above steps, switch on the system. Press  to call up the brine and slow rinse option, then press  once to call up the refill option. In the refill option, a certain amount of water is added to the brine tank so that the appliance has ready-to-use brine available for the next regeneration. Once refilling is complete, the system switches to the quick-rinse option, in which it takes around 5 min for the discharge to be recognised. Once the hardness has been determined, proceed to the next step and return to the operating option to produce softened water.

4. Salt addition to the brine tank and salt addition process

Open the lid and pour a sufficient amount of soaked salt into the brine container. The salt in the brine tank must be above the water level. As a rule, the salt should exceed the level of the water in the brine tank and salt particles should always be visible.



5. *First complete regeneration*

Once the above steps have been completed, the water softener must stand for 6 hours so that the salt particles filled into the brine tank can dissolve sufficiently and a sufficiently concentrated brine is produced. In the unlocked state, press  to start regeneration so that the system runs automatically and performs a complete regeneration. During this process, the water and electricity must not be switched off and no buttons must be pressed.

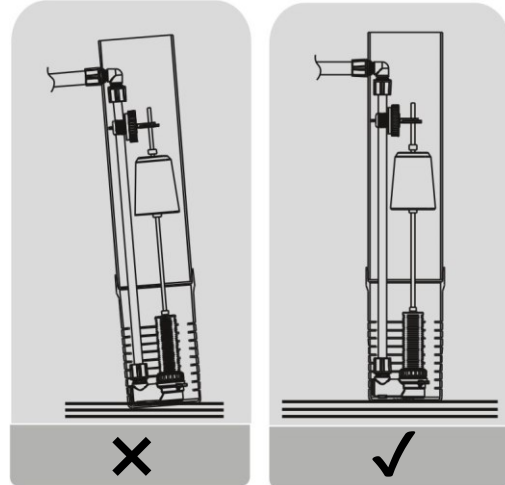
6. *First use*

After 5 min of drawing water from the tap, the softened water can be used normally.

Maintenance

Please check the water softener regularly and see

- if there is a water leak in the water softener pipe or if water is seeping through – if this is the case, contact a specialist;
- if the overflow pipe is blocked – if this is the case, remove the blockage in good time;
- if the salt container is vertical – align it correctly in good time (as shown).

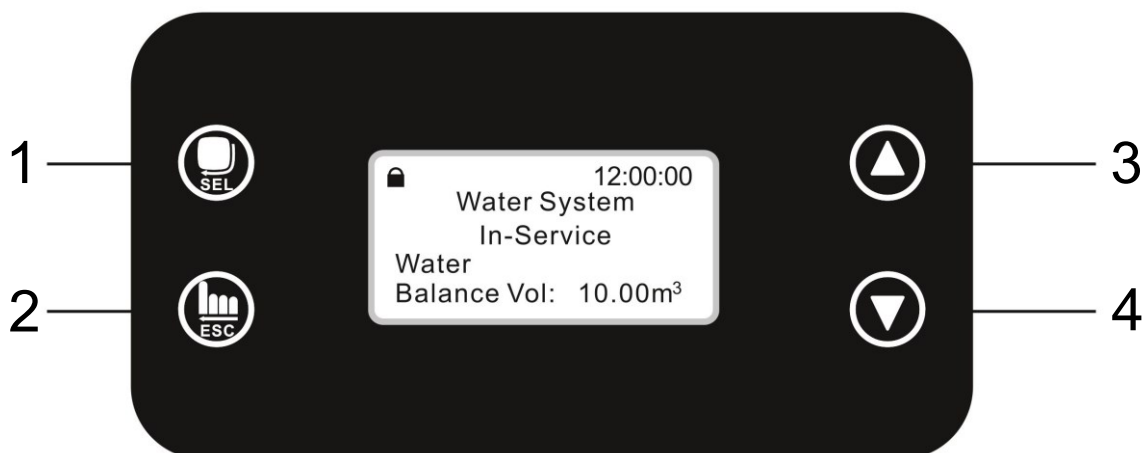


The recommended service life of the ion exchange resin is 5–10 years. It should be replaced regularly according to the local water quality and actual water consumption. As the product is updated regularly, the actual product may differ from the instructions.

Note! As the pressure in the water pipe fluctuates (the water pressure is generally higher at night than during the day), it is advisable to check the individual connections for leaks two days before installing and commissioning the appliance.

Function and meaning of the control panel


The functions and parameters of the water treatment device are set both in the foreground and in the background. The foreground mode is intended for users. Only the current time, the regeneration time, the raw water hardness, and other parameters can be set. The background mode is set by the manufacturer at the factory, e.g., backwash, brine and slow rinse, refill, quick rinse, wash time, etc.





No	Name	No	Name
1	Menu/confirm	3	Up button
2	Manual/cancel	4	Down button








Symbol

- If the symbol  appears on the display panel, this means that the control panel is locked. At this point, pressing any button will not work. If no button is pressed within one minute, the control panel is locked.
- Unlocking: Press and hold the up and down buttons simultaneously for about 5 s.

Button

- In the “water supply” mode, press  to call up the main menu for the user settings; you can query or set the parameter values there.
- Call up the settings menus one after the other. After setting, press  and you will hear a buzzing sound. The setting is successful and you return to the menu interface.

Button

- In the service mode, press  to control the rotation of the valve to end the current operating status prematurely and move on to the next operating position. If, for example, the hardness of the outlet water is unsuitable, press the button  after unlocking to stop the water supply for the next immediate regeneration. If you want to end a certain step prematurely during a regeneration or rinse, press the button  to initiate the next step.
- Press  in the user or system settings menu to return to the water supply status.
- Press  in a parameter setting menu to return to the main menu; the value set at this point is invalid and will not be saved by the system.

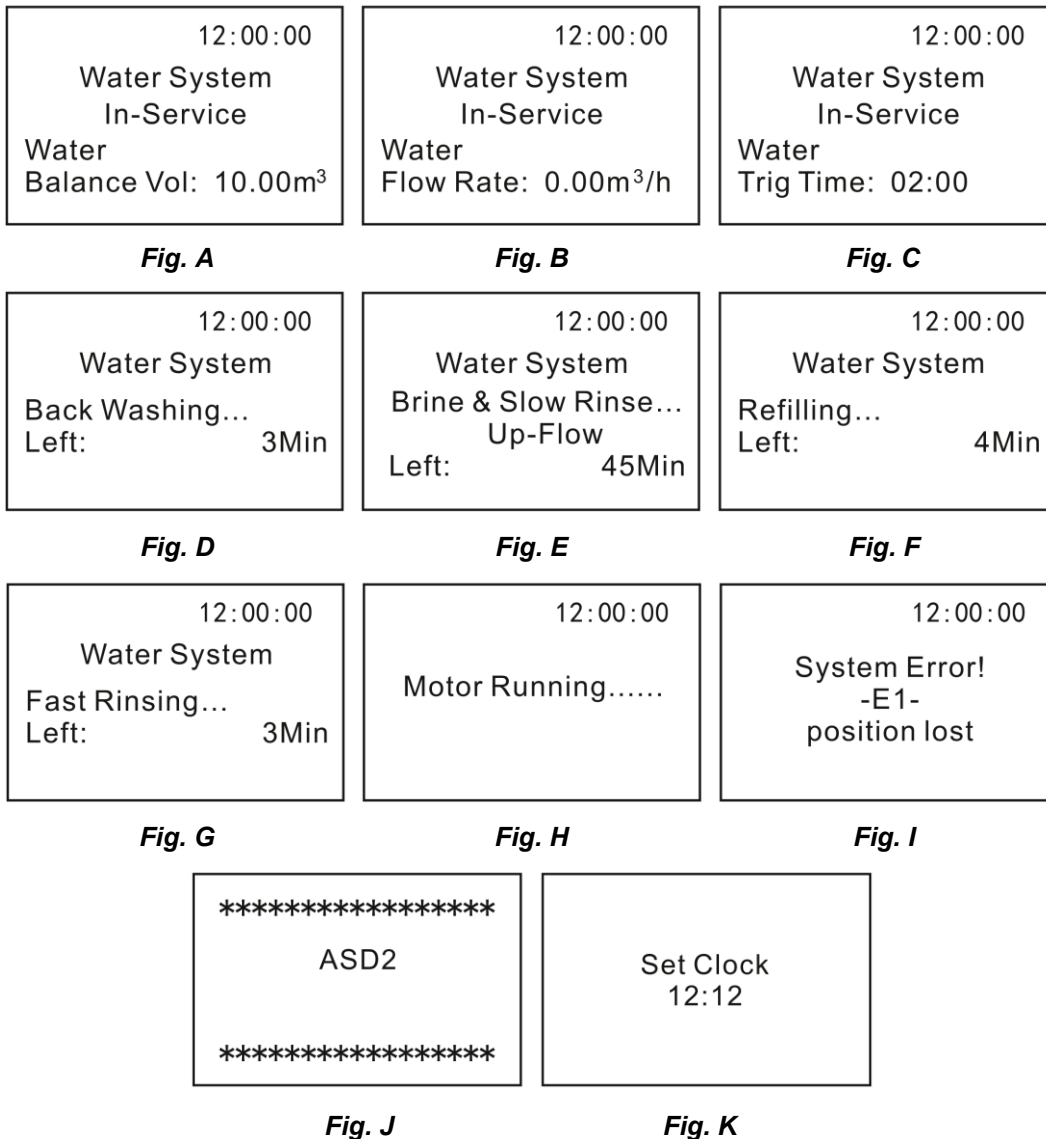
Up and down button

- In the user or system settings menu, display the individual menu lines by pressing and holding or by moving up and down.
- In the parameter settings menu, press and hold or move up or down to change the individual parameter values.
- Press the Up and Down buttons simultaneously for 5 s to cancel the button lock.

Description of the parameters

Parameter	Model	Factory setting	Parameter setting range	Description
Mode of operation	All	Volume	Volume	Regeneration on upward flow, intelligent counter delay
Current time	All		00:00–23:59	
Unit of water	All	m ³		Cannot be changed.
Regeneration time	All	2:00	00:00–23:59	
Maximum regeneration days	All	30	0–99	If the set time has elapsed and the remaining water production has not reached the set value, the regeneration process is initiated
Backwash time	SOFT-V1	3	0–99	Minutes
	SOFT-V2	8		
Brine and slow rinse time	SOFT-V1	45	0–99	Minutes
	SOFT-V2	65		
Brine refill time	SOFT-V1	4	0–99	Minutes
	SOFT-V2	8		
Quick-rinse time	SOFT-V1	3	0–99	Minutes
	SOFT-V2	4		
Resin volume	SOFT-V1	12.5	5–75	Litres
	SOFT-V2	25		
Water hardness	All	350	50–800	Mg/l

Sequence of displayed screens







Explanation


- During “water supply” mode, the menus are displayed continuously as shown in Figg. A, B, and C.
- When backwashing, the menu is displayed as shown in Fig. D.
- With “Brine and slow rinse”, the menu is displayed as shown in Fig. E.
- When refilling, the menu is displayed as shown in Fig. F.
- During a quick rinse, the menu is displayed as shown in Fig. G.
- When the valve rotates from one operating position to another, the menu is displayed as shown in Fig. H.
- If there is an error in the system, the display appears as shown in Fig. I. There are four types of system errors: E1, E2, E3, and E4.
- When the device is switched on, the menu is displayed as shown in Fig. J.
- If a possible power failure lasts more than 3 days, the menu shown in Fig. K is displayed. It serves as a reminder to adjust the time.
- Operation process: water supply → backwash → brine and slow rinse → fast rinse → add brine → water supply

Setting the parameters

1. Description of the setting buttons

- : confirming the current change made on the screen to access the next changeable parameter – after confirming the last change, returning to the higher-level menu
- : cancelling the current change and returning to the higher-level menu
- : scrolling up in the menu or increasing a displayed number by 1
- : scrolling down in the menu or decreasing a displayed number by 1

2. Menu list of the user settings

In the operating mode, press  to call up the menu for querying and setting the user parameters. The menu displayed refers to the operating mode of the control valve. This means that different operating modes have different setting menus. The description of the setting lines of the unlabelled operating modes is displayed in all operating modes.

Set Clock
Set Regen Time
Set Water Hardness

Set Clock
12:00

Set Regen Time
02:00

Set Water Hardness
350mg/L

Operation and troubleshooting

Once the system has been set up and you have carefully read the parameter settings and instructions, switch on the power supply. The display panel lights up, and “12:12” flashes. Set the current time according to the setting method in the table below. Once you have set the current time, go to the settings menu where you can set the “Regeneration time setting” (the default setting is 2:00 am and does not normally need to be changed) and the “Raw water hardness setting” (to determine the raw water hardness, see the “Water hardness and testing” section).

Set Clock
Set Regen Time
Set Water Hardness

Set Clock
12:00

Set Regen Time
02:00

Set Water Hardness
350mg/L

Once the water softener has been installed, the three parameters shown above must be set.

Water hardness and testing

Total water hardness














The total water hardness results from the total content of calcium and magnesium ions in the water, including the carbonate hardness (i.e., the calcium and magnesium ions that can be excreted as carbonate by heating, therefore also referred to as temporary hardness) and the non-carbonate hardness (i.e., the proportion of calcium and magnesium ions that can no longer be excreted after heating, therefore also referred to as permanent hardness).


Testing the raw water hardness

Immerse the reaction zone of the hardness-test paper in the liquid to be tested for 2 s. Remove and wipe off the excess water droplets. After 15 s, compare the colour with the colour chart. The colour is close to the concentration value. Make a note of the measured value for later use.

The hardness expressed by the CaCO_3 content can be roughly divided into

Degree of hardness	Description
0–75	Very soft water
75–150	Soft water
150–300	Middle-hard water
300–450	Hard water
450–700	Very hard water
700–1000	Super-hard water
> 1000	Extra-hard water

Adjustable parameters	Parameter setting method	Display
Time	<p>If "12:12" flashes continuously, the current time must be reset.</p> <ol style="list-style-type: none"> In the position "water supply," press the button  to call up the user interface shown in Fig. A1. The default setting "Set clock" is selected. Press the button  again to call up the menu for setting the current time, as shown in Fig. A2. The hour "12" flashes. Press the up or down button to set the hour. Press the button  again, the minutes "12" flash. Press the up or down button to set the minutes. Press the button  again to permanently change the current time. Press  to return to the initial display. 	<div data-bbox="1043 344 1362 510" style="border: 1px solid black; padding: 5px; text-align: center;"> Set Clock Set Regen Time Set Water Hardness </div> <p style="text-align: center;">Fig. A1</p> <div data-bbox="1050 582 1369 725" style="border: 1px solid black; padding: 5px; text-align: center;"> Set Clock 12:12 </div> <p style="text-align: center;">Fig. A2</p>
Regeneration time	<ol style="list-style-type: none"> In the "water supply" position, press the button  to call up the user interface shown in Fig. A3. Press the down button, select "Set Regen Time," and press the set button to call up the menu as shown in Fig. A3. The hour "02" flashes. Press the up or down button to set the number of hours. Press the button  again, the minutes "00" flash. Press the up or down button to set the number of minutes. Press  again to save the modification of the regeneration start time, then press  to return. 	<div data-bbox="1043 860 1362 1003" style="border: 1px solid black; padding: 5px; text-align: center;"> Set Regen Time 02:00 </div> <p style="text-align: center;">Fig. A3</p>
Water hardness	<ol style="list-style-type: none"> In the operating position, press  to call up the user interface shown in Fig. A4. Press the down button, select "Set Water Hardness," then press  to call up the "Set Water Hardness" menu as shown in Fig. A4. The number "350" flashes. Press the up or down button to set the raw-water hardness. Press  again to save the modification of the row-water hardness, then press  to return. 	<div data-bbox="1043 1352 1362 1496" style="border: 1px solid black; padding: 5px; text-align: center;"> Set Water Hardness 350 mg/L </div> <p style="text-align: center;">Fig. A4</p>

After setting the parameters, switch on the water inlet switch and observe the operation of the water softener. In the water-supply position, press the button  so that the machine automatically switches to service mode to rinse the resin. At the same time, check that no water is leaking from the individual components and that no resin is leaking. During normal use, the user does not need to carry out any further work on the softener, but simply needs to add a certain amount of salt to the brine tank at regular intervals.

Troubleshooting table

If the water softener does not work, please check if there is a problem with the water supply or the power supply (see table). — If the water softener is leaking, please close the tap water valve connected to the water inlet of the water softener.

Problem	Possible cause	Proposed solution
Control valve does not work	1. Transformer not plugged in	1. Plug in transformer.
	2. Defective mains cable	2. Repair or replace socket.
	3. Power cut off	3. Re-establish power.
	4. Defective transformer	4. Replace transformer.
	5. Defective control valve	5. Replace control valve.
Regeneration time incorrect	Power failure, loose contact of the mains plug	Set the time according to the instructions for the control valve.
Leakage	Loose connection	Tighten or reattach connection.
Noises	Air in system	Backwash system for venting.
Bubbles in water	Air in system	Turn on tap to release air.
Hardness of the softened water too high	1. Poor raw-water quality	1. Contact a specialist.
	2. Too long a regeneration time	2. Re-initialise regeneration time.
	3. Leakage of the water-mixing valve or excessive opening of water-mixing valve	3. Close or reset water-mixing valve.
	4. Sealing ring of centre tube damaged	4. Replace sealing ring.
	5. Bypass valve leaking	5. Replace bypass valve seal.
Softener does not absorb brine	1. Water pressure too low	1. Inlet pressure must be at least 1.5 bar.
	2. Brine pipe blocked	2. Ensure a clean brine line.
	3. Injector mesh clogged	3. Clean or replace the injector mesh.
	4. Air leakage from brine pipe	4. Check the parts of the brine pipe and eliminate leak.
	5. Drain pipe blocked	5. Check whether foreign objects are blocking the drain pipe and the drain-flow limiter.
Overflow of brine tank	1. Error in refill time	1. Set refilling time according to instructions.
	2. Fault in brine valve	2. Contact a specialist.
Hardness of softened water too high after regeneration	1. Automatic regeneration not possible	1. Check power connection of controller.
	2. Brine tank does not have enough salt	2. Ensure that brine tank is sufficiently filled with salt.
	3. Obstruction of injector	3. Remove and clean injector.



Backwash flow rate too high or too low	1. Incorrect control valve used	1. Replace with correct control valve.
	2. Foreign objects influence control valve	2. Clean control valve.

Note! The above solutions are for reference only. If the machine breaks down, please call in professional technicians to solve the problem.

Regulations for waste disposal

The Waste Electrical and Electronic Equipment Directive (WEEE Directive, 2012/19/EU) of the EU was implemented in the German law related to electrical and electronic equipment and appliances.

All WilTec electric devices that fall under the WEEE directive are labelled with the symbol of a crossed-out wheeled rubbish bin. This symbol indicates that this electric device must not be disposed of with the domestic waste.

WilTec Technik GmbH is registered with the German registration authority EAR (Stiftung Elektro-Altgeräte Register) under the WEEE-registration number DE45283704.

Disposal of used electrical and electronic devices (intended for use in the countries of the European Union and other European countries with a separate waste collection system for these devices).

The symbol on the packaging or the product itself indicates that this product must not be treated as normal domestic waste but must be disposed of at a recycling collection station for electrical and electronic waste.

By disposing of this product correctly, you contribute to the protection of the environment and the health of your fellow people. Inappropriate disposal threatens the environment and health.



Material recycling helps to reduce the consumption of raw materials.

Additional information about the recycling of this product can be provided by your local commune, the municipal waste disposal facilities, or the store where you purchased the product.

Address:
 WilTec Wildanger Technik GmbH
 Königsbenden 12 / 28
 52249 Eschweiler Germany

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