Installation and operations manual
Water softening station

VIESMANN

AQUAHOME 11-N
AQUAHOME 17-N

ENG

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Tip!
Before installing the device, please read carefully this manual and comply with all safety rules related to commissioning and operation of the device. In case of any questions, please inquire with the service team of your of the device.

Basic data

Prior to connecting, commissioning and operation of the device, please fill in the following information:

MOD. NO*	**SER. NO***

*Information on model number and serial number can be found on the label, accessible after lifting of the brine tank cover.

Commissioning date		-
Water hardness		dH (German water hardness scale)
Water pressure		bar

Section I

1. Hydraulic assembly

A. Safety information

- Before installing and commissioning of the water softener, please read carefuly this manual. Compliance with the guidelines provided in the manual will ensure safe and full use of the purchase device. Failure to comply with this manual may result in material and health damage.
- Water softener removes from water calcium and magnesium cations responsible for water hardness and it can also remove divalent (bivalent) iron compounds dissolved in water at the acceptable concentration up to 0.5 mg Fe per litre. The device is not capable of removing iron in any other form (such as organic form) neither is it capable of improving the taste and smell of water.
- Ambient temperature, suitable for water softener operation, must not be lower than 4^{o}C and higher than 40^{o}C.
- Maximum temperature of water that can be softened by the device must not be higher than 49 ^{o}C.
- The device can be supplied together with a mechanical filter (optional), which should be installed on the water pipe supplying water to the softener, in accordance with the schematic diagram shown in figure 2.
- Operating voltage of the device is 28 V. Please use the transformer that is supplied together with the device. To avoid defects resulting from power outage, it is recommended to install a back-up power supply.
- In case of damage of the power cable the transformer must be immediately disconnected. Prior to reconnecting the transformer, damaged power cable must be replaced or repaired.
- Prior to removing the outer valve cover, power supply of the device must be unconditionally disconnected.
- Water softener must not be used for softening of water with abnormal physical and chemical as well as bacteriological parameters.

B. Unpacking of water softener

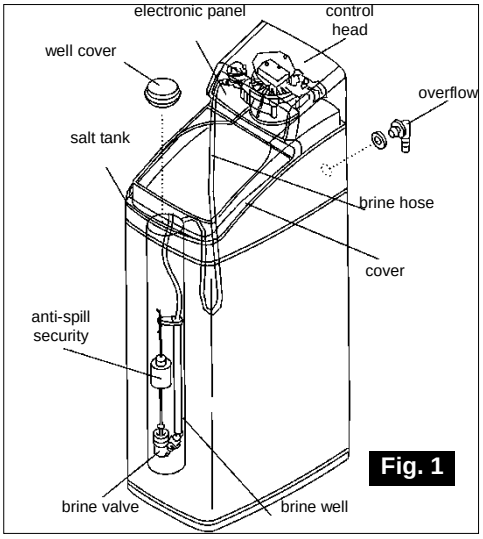


Fig. 1

The first step is to remove all components of the device from the cardboard box, remove protection styrofoam and adhesive tapes. The device should be checked for possible damages occurring during transport. In case of any damage to the device supplier must be notified immediately. The device must be removed from the packaging with outmost care. The device is delivered as assembled, ready for use unit and therefore is rather heavy. When moved the device should be supported “at the bottom” and must not be dragged across the floor. Do not turn the device upside down, drop the device or put it on edgy or sharp surfaces.

C. Checking hydraulic fittings at installation site

- Tap water pressure

In order for the water softener to function properly the pressure in the water supply network must not be lower than 1.4 bar and higher than 8.0 bars. If water pressure is below the minimum, pressure raising pressure tank must be used; if water pressure exceeds the maximum value, pressure regulator (pressure reducing valve) must be installed.

→ ***Important notice!***
If during daytime water pressure is high, it is very likely that during night time it will exceed the maximum value of 8.0 bars. *In this case, we recommend to install a pressure regulator. It is recommended to fit pressure gauges on the installation, in accordance with the schematic diagram (figure 2), in order to control operating water pressure in the installation.*

- Water flow rate

In order for the water softener to function properly the minimum water flow rate at the water inlet should be 11.0 litres per minute.

D. Selecting installation site for the device

- The water softener should be located as close as possible to hydrophore (in case of supplying water from private well [intake]) or water meter measuring the whole water in the household (in case of supplying the household with tap water). The device should be located in the immediate vicinity of the outlet drain.

- When installing the device upstream from the water heater (or boiler unit), make sure that the temperature of water at the connection point does not exceed 49^0C. It is recommended that a check valve is fitted between the water softener and the water heater (or boiler unit) in order to prevent hot water backflow to the water softener. Excessively hot water may cause damage of control valve elements as well as the ion exchange resin.

- Make sure that the valve for water used outside of the house (such as water used for garden watering) is installed upstream from the water softener. Softening of water used outside of the house is not cost effective (unless necessary).

- Installation site of the water softener must not be exposed to freezing. If frozen, the water softener will be damaged. Any damage resulting from freezing is not covered by the warranty.

- The water softener is powered with 28 V. The transformer and power cable are provided along with the device. Earthed power socket for the water softener should be located within the immediate vicinity of the device and should be protected against rain and sub-zero temperatures. The water must be always connected to the power supply source; the power socket must not be fitted with a controller that could be incidentally switched off.

E. Materials

Before commencing installation of the device, it is important to check relevant connection of inflow and outflow of water to and from the water softener. The water “inflow” connection is located on the right side of the device and water “outflow” connection on its left side, when facing the device (fig. 3).

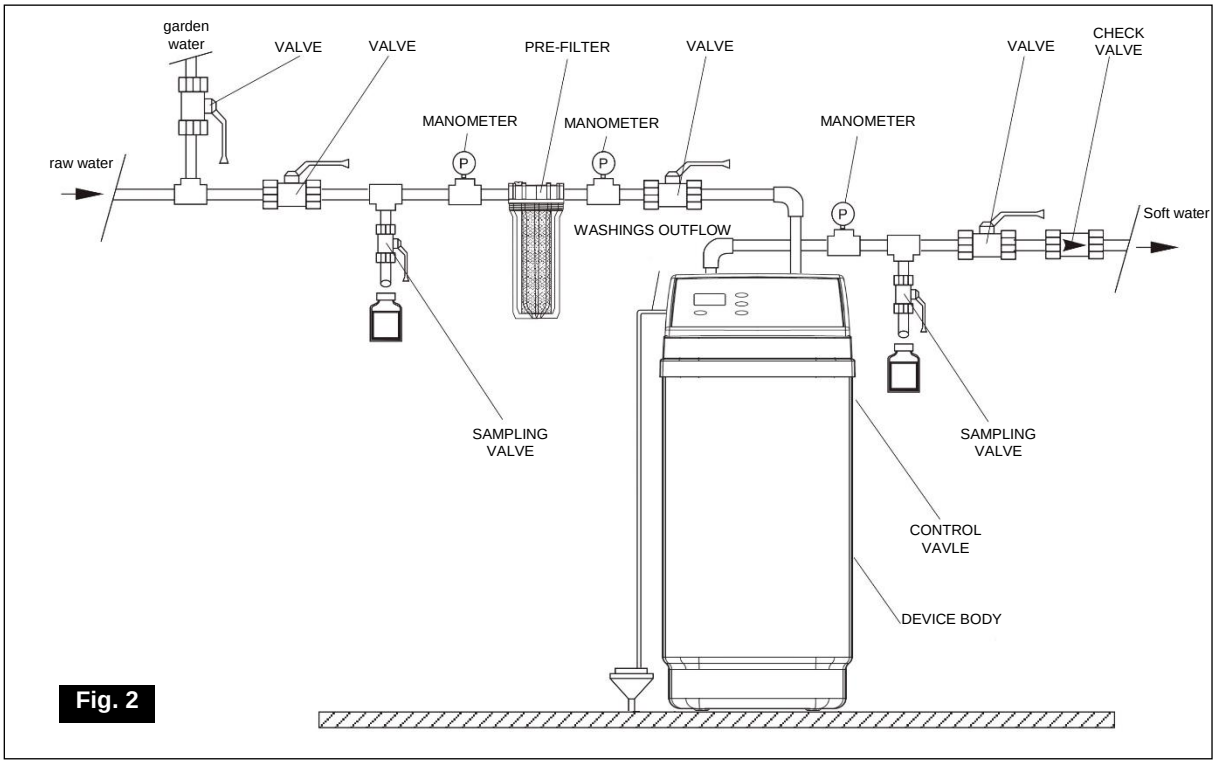


Fig. 2

Hydraulic connection of the water softener should be implemented in accordance with a specimen connection diagram shown in fig. 2. The water softener is fitted with a by-pass valve with fitting elements as well as a washings discharge hose. Hydraulic installation accessories such as valves, pressure gauges, water sampling valve etc. are not, as standard, supplied with the device and should be provided by the person implementing the installation.

F. Regeneration washings discharge connection

1. Regeneration washings discharge connection.

- Use the hose supplied together with the device to connect the installation of washings discharge from the water softener. Place one end of the hose on the washings discharge stub pipe, located at the rear part of the control head, and place the other end of the hose in the outlet drain (fig. 3). Make sure to provide at least 4 cm air gap between the end of the hose and the outlet drain. This gap is needed to prevent backflow of sewer water into the water softener.
- Install the hose in a manner preventing its movement during intense flow of washings. The hose must be not be bent, twisted or punctured.
- The hose must be located below the outflow stub pipe from the control valve.

2. Connection of flow elbow pipe of the brine tank.

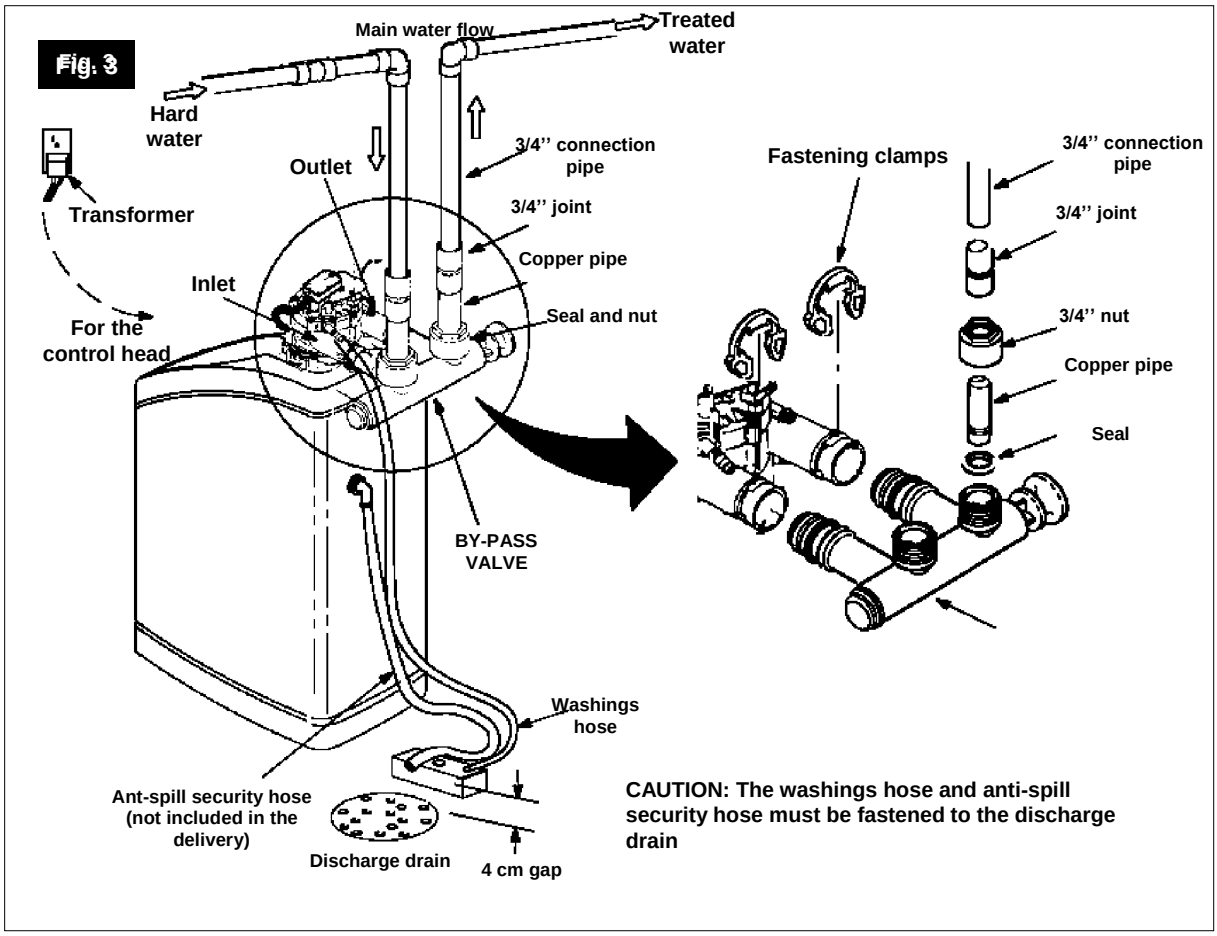
- place the rubber connecting piece in the hole of brine tank (from the bottom) in such way that part of the connecting piece is located inside and part outside of the brine tank

- insert thick end of the elbow pipe to the connection piece from the outer side of the brine tank

- the discharge hose - connection point diameter 3/8", outer thread (not supplied with the device) - can be connected in the way identical to the one referred in point 1.

→ ***Important notice:***

- *overflow hose of the brine tank serves only as additional safety feature in case the filling of the brine tank with water is not ended in accordance to the program.*
- *no part on the overflow hose can be placed above the outflow level (fig. 3)*
- *the overflow hose of the brine tank must not be connected to the outflow stub pipe of the control valve (see point 1 above).*



2. Basic operations

A. Programming the control panel

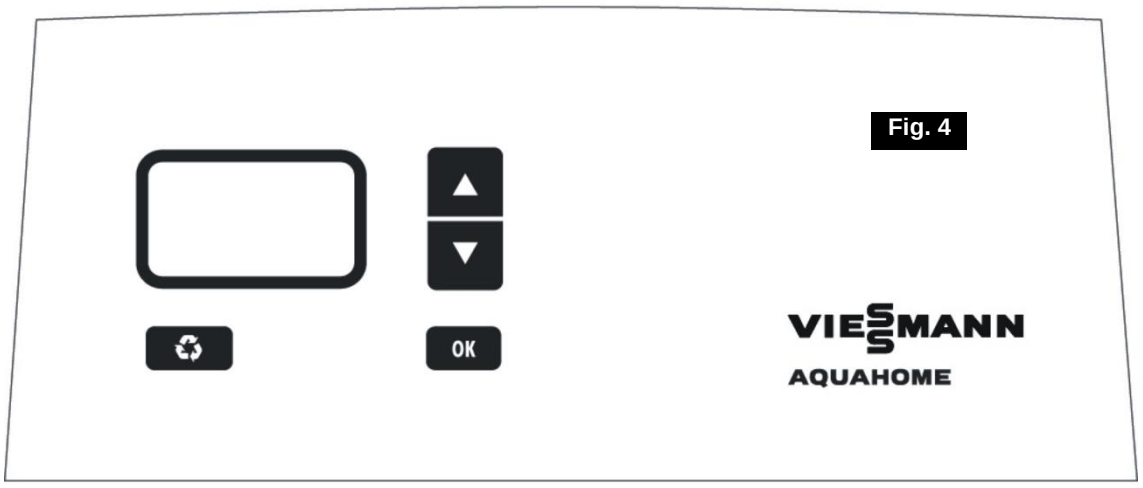


Fig. 4

- After connecting the transformer to the power socket, the display screen will show the code of the given device model and test number (J2.0 or similar) for 3 seconds.
- AQUAHOME 11-N should feature the **11L** code, while AQUAHOME 17-N should feature the **17L** code
- Then, the display screen will show the *PRESENT TIME* caption and the time 12:00 will start flashing in the bottom left corner.
- It is necessary to deactivate and activate the power supply to confirm the correctness of the code. If the code displayed on the screen is different than expected, please contact the supplier's service team.
- Audio signaller **(BIP)**: the signaller will activate each time the button is pressed. A single audio signal indicates one change on the display screen. Series of audio signals indicate wrong button being pushed and the need to push a different button.

Setting Time

If the *PRESENT TIME* information was not displayed, it is necessary to press the "OK" button (fig. 4) until the information is displayed. In order to set the time, press ▲ to move forward or ▼ to go backwards.
If a twelve-hour clock is set, the "ante mridiem (AM) caption will appear for the time between 0^{00} and 11^{59} and the "post meridiem" (PM) will appear for the time between 12^{00} and 23^{59}.
With each pressing of the ▲ or ▼ buttongs, the time will increase or decrease in one minute increments. If any of the buttons remains pressed, the time will change at a faster rate.

Programming water hardness

Single press of the "OK" button (in the Time mode) will cause the transition to the HARDNESS mode; the value flashing on the display screen should be 25 (default value). Then, it is necessary to code the hardness of used water in grains per American gallon - gpg (water hardness expressed in, for example, the German ^{o}n should be multiplied by 1.036). The water hardness can be expressed in different units. Below is the table showing water hardness units most commonly used in our country:

Hardness unit	mg $CaCO_3$/l	French degree (^{o}f)	German degree (^{o}n)	gpg
1 mg $CaCO_3$/l	1	0.1	0.056	0.058
1French degree (^{o}f)	10	1	0.56	0.58
1German degree (^{o}n)	17.8	1.78	1	1.036
1 gpg	17.2	1.72	0.96	1

- In case when the results of the physical and chemical analysis are not available, water hardness information should be obtained from local water supply company or from relevant regional office of the State Sanitary Inspectorate or it should be self determined with the use of a test which can be ordered from the vendor. Please enter the results obtained on page 4 of this manual as well as on a separate label, which should be placed under the brine tank cover with the use of adhesive tape.

- If raw water contains iron in concentration exceeding 0.2 mg/l, please use adjusted water hardness instead of water hardness. It is calculated in the following manner:

Adjusted hardness [^{o}dH] = hardness [^{o}dH] + 4.8 $\times$ iron quantity in mg Fe/l

- Enter the water hardness number or adjusted water hardness number (expressed in gpg) to the water softener software as operational water hardness. In order to enter the water hardness number press and hold ▲ or ▼ until the relevant number appears on the display screen. Pressing ▼ will reduce the displayed water hardness value to 1. Pressing ▲ will increase the displayed water hardness value to the maximum value for the given device. Between water hardness values of 1 and 25, each pressing of ▲ or ▼ will respectively increase or reduce the water hardness value in one unit increments. The value increases or decreases by 5 units in the range between 25 and the maximum value. If the button remains pressed, the value will change twice in one second.

Programming regeneration hour

- Single press of the "OK" button (in Hardness mode) will cause the transition to the RECHARGE TIME mode; the value flashing on the display screen should be 02:00 (2 a.m.) as default value.

- If this setting is confirmed (by pressing the "OK" button), the water softener will activate the regeneration process at 2 a.m. Due to water consumption reduced to minimum at night, 2:00 a.m. is the optimum regeneration hour.

- In order to change the regeneration hour settings, press

▲ or ▼ to set the new start time for the regeneration process. If a twelve-hour clock is set, please take note that the “ante mridiem (AM) caption indicates the time between 00^{00} and 11^{59} and the “post meridiem” (PM) indicates the time between 12^{00} and 23^{59}.

Pressing the “OK” button confirms the changes introduced.

- With each pressing of one of the ▲ or ▼ buttons, the time will increase or decrease in one unit increment. If the button remains pressed, the time will change by two units within one second.

Other functions of the control panel are described in section II.

B. Filling the brine tank with salt

Regeneration of the ion exchange resin is done with the use of brine or in other words - aqueous salt solution. The process utilises special regenerative salt in tablets. The brine tank is filled with salt tablets after lifting the brine tank cover. For wet (humid) premises, it is recommended to only half fill the brine tank and refill it more often. The above recommendation results from the possibility of formation of so called salt bridges (fig. 6). For premises with standard humidity, the brine tank can be filled to full, i.e. up to the level of the brine valve well height. During normal operation of the device the control valve allows certain volume of water into the brine tank in order to generate aqueous salt solution that is later used for regeneration of the medium.

Due to specific requirements concerning the quality of the regeneration agent, only regeneration salt approved by the water softener manufacturer should be used (regeneration salt). Use of edible salt is not recommended.

Prior to filling the brine tank with salt, make sure that the cover of brine valve cover is tightly closed. No salt tablet should be allowed to this part of the device.

The brine tank capacity is provided in section IV - “Dimensions and technical specifications”.

Upon filling the brine tank with salt, the regeneration process should be activated manually. Activities to be performed for the manual activation of the regeneration process are described in section II. The device is ready for use once the regeneration process is complete.

C. Setting the desired water hardness number of the by-pass valve

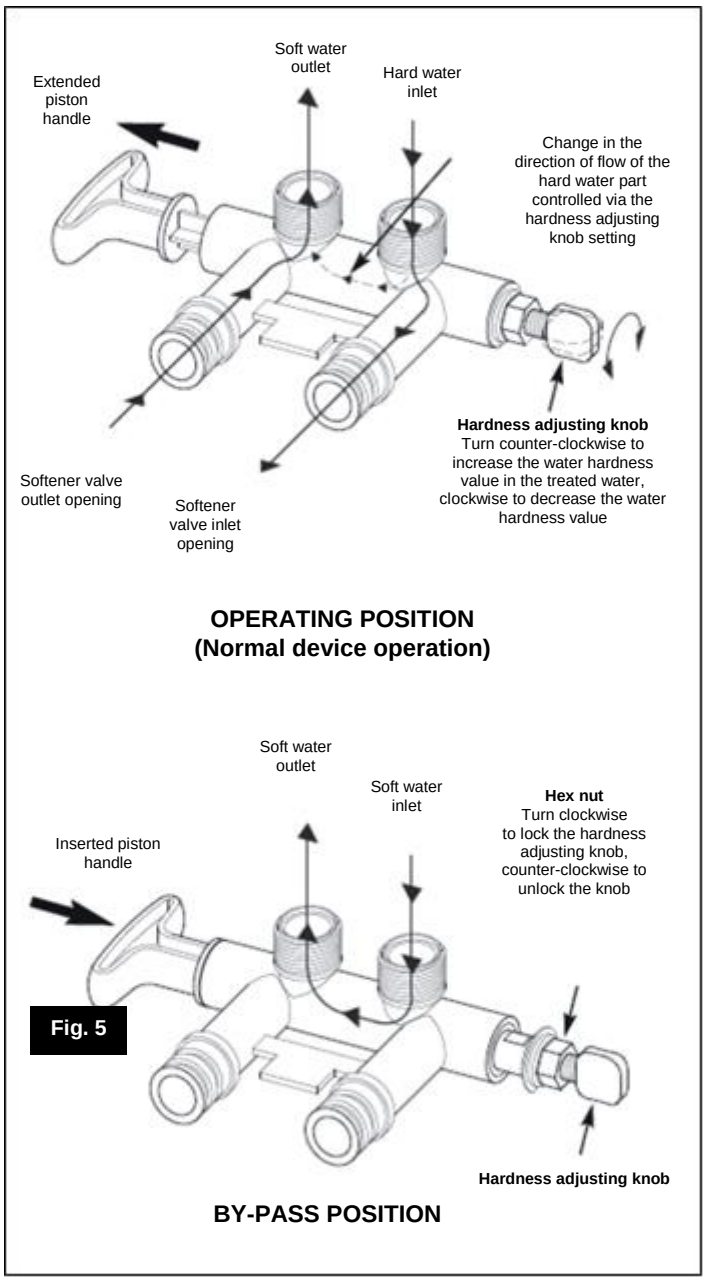


Fig. 5

The standard by-pass valve, fitted on the water softener, features a water hardness adjusting knob (fig. 5). The water hardness adjusting knob is used to adjust the hardness of softened water. For households it is recommended to use water with hardness in the range between 3 and 6 degrees (according to the German water hardness scale). Prior to any adjustment, loosen the hex nut of the water hardness adjusting knob (turning it counter-clockwise) in order to unlock it and set it in motion. In order to increase the water hardness value in the softened water, turn the water hardness adjusting knob counter-clockwise while holding the by-pass valve handle. From fully closed position of the water hardness adjusting knob, the water hardness value can be increased with the maximum of six full turns. Exceeding the maximum of 6 counter-clock turns may result in the depressurization and water leak from the by-pass valve. It is necessary to check the hardness of the output water. If the hardness value is too high in relation to the desired value, it is necessary to turn the knob in the opposite direction while holding the piston handle. Once the desired hardness is set, the water hardness adjusting knob may be locked in place by tightening the hex nut (turning it clockwise) until stop. Make sure that each time the by-pass valve is set in the by-pass position (i.e. with piston handle fully pushed in), the water hardness adjusting knob must be fully closed (turn it clockwise until stop).

Section II

1. Control panel functions

A. Manual activation of regeneration process

During operation of the water softener, it might be necessary to commence additional manual regeneration. Such additional regeneration process is required when:

- actual water usage exceeds the planned water usage (e.g. due to a visit of guests). Such situation poses a threat that the resin's ion exchange capacity will be exhausted before the device activates the regeneration process automatically,
- the brine tank is short on salt (the brine tank was not refilled with salt) - the brine tank must be immediately topped up with salt,
- it is the first operation of the device (commissioning of the device).

Immediate regeneration

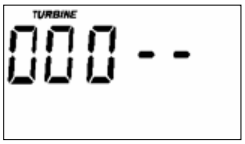
Press the ♻ button (fig. 4) and hold it until the display screen shows a flashing caption reading *RECHARGE NOW.* The first phase of the regeneration process will begin - filling the brine tank with water. Subsequent phases will be activated automatically. Upon completion of the regeneration process, the device's water softening capacity will be restored.

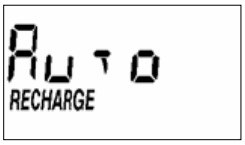
Regenerate tonight

Press the ♻ button (fig. 4). The *RECHARGE TONIGHT* caption will begin flashing. The regeneration process will begin on the preset hour (2.00 AM as default). In order to cancel the regeneration process, it is once more necessary to press (but not to hold) the ♻ button. The *RECHARGE TONIGHT* caption will disappear from the display screen.

→ ***Important notice!***
The device does not generate softened water during the course of the regeneration process.

B. Additional functions





Programming the maximum period between regenerations in days during water uptake idle period
Automatic regeneration during water uptake idle period helps maintaining microbiological cleanliness of the medium (during water uptake idle period the medium may become inhabited by microorganisms and bacteria). Press and hold the “OK” button until the display shows the “000 - - ” caption. Then, press (not hold) the “OK” button again until the display shows the flashing AUTO caption.With factory settings the (AUTO) function will be inactive, which means that the device will not regenerate during the water uptake idle period. To activate it, press ▲ or ▼ until obtaining the required value. The available range of settings is between 1 and 15 days (DAY).Press the “OK” button. The display screen will show the RECHARGE caption, while the 97% and OFF captions will flash alternately.

Automatic activation of regeneration process when the resin’s ion exchange capacity of the resin has been used in 97%

The settings of the aforementioned function may only be adjusted by the manufacturer’s or supplier’s service team.

With factory settings, the automatic activation of regeneration after the usage of the resin’s ion exchange capacity in 97% is deactivated (OFF).
When activated (the display screen will show the RECHARGE caption and, while the 97% and ON captions will flash alternately), the device will commence regeneration when the resin’s ion exchange capacity is used in 97%, regardless of the time of day. Press the “OK” button. The display screen will show the TIME caption as well as the flashing 24 HR or 12 HR caption.

Setting the time mode (12-hour clock or 24-hour clock)
In order to change the 24-hour clock to 12-hour clock or vice versa, press ▲ or ▼ to obtain the desired value.
Press the “OK” button.

Setting the backwash and fast rinse duration time
The display screen will show the TIME caption as well as, for example, the flashing bA or 3 caption. This means that the backwash duration time will amount to 3 minutes. When the “OK” button is pressed again, the display screen will show the TIME caption as well as, for example, the flashing FR and 1 captions. This means that the fast rinse duration time will amount to 1 minute. Press the “OK” button to return to the main screen.

The settings of the duration of the aforementioned regeneration cycles may only be adjusted by the manufacturer’s or supplier’s service team.

C. Basic diagnostic data

Treated water flow indicator
The indicator enables diagnostics of the device’s treated water flow counter. It also enables reading the flow rate of the flowing treated water.
Press and hold the “OK” button until the display shows the “000 - - ” caption. If the water flows through the device, the display screen will show altering values in the range between 000 and 199. The value of 199 appearing on the display screen will indicate that the device generated 1 gallon (3.78 litres) of treated water. Upon exceeding the number of 199, the counter will resume measuring of subsequent gallon of treated water (range between 000 and 199).
Press the “OK” button multiple times until the display screen shows the current time to return to the main screen.

Activation date memory
Press and hold the “OK” button until the display shows the “000 - - ” caption. Press and hold ▲ until the display screen shows a digit and the bottom of the screen shows the TIME

caption. The digit will indicate the number of days since the commissioning of the water softener. When the ▲ button is released, the display screen will once again show the “000 - - ” caption. Press the “OK” button multiple times until the display screen shows the current time to return to the main screen.

Regeneration counter
Press and hold the “OK” button until the display shows the “000 - - ” caption. When the ▼ button is pressed, the display screen shows a digit and the bottom of the screen shows the RECHARGE caption. The digit will indicate the number of regenerations carried out by the water softener since the device’s commissioning.
When the ▲ button is released, the display screen will once again show the “000 - - ” caption. Press the “OK” button multiple times until the display screen shows the current time to return to the main screen.

D. Power outage

If electrical power to the water softener is lost, the display screen will turn off, but the microprocessor will keep all settings for several hours. When electrical power is restored, verify and reset the time if it is flashing or is incorrect. The programmed values of the water hardness and the hour of the regeneration process’s activation should never be reset unless a change is desired. Even if the time caption displayed after a long period of power interruption is incorrect, the device still functions properly and treats water. The incorrect time will result in the regeneration process being activated at a wrong hour until the time caption is reset to the correct one.

E. Error codes

An error code may appear on the display screen whenever any of the electronic components of the device malfunctions. If the display screen shows an error code instead of the current time, seek assistance of an authorised service provider.

Section III

1. Service activities

The operation of the water softener is entirely automatic.
The basic maintenance activities for which the user of the water softener is responsible, include:

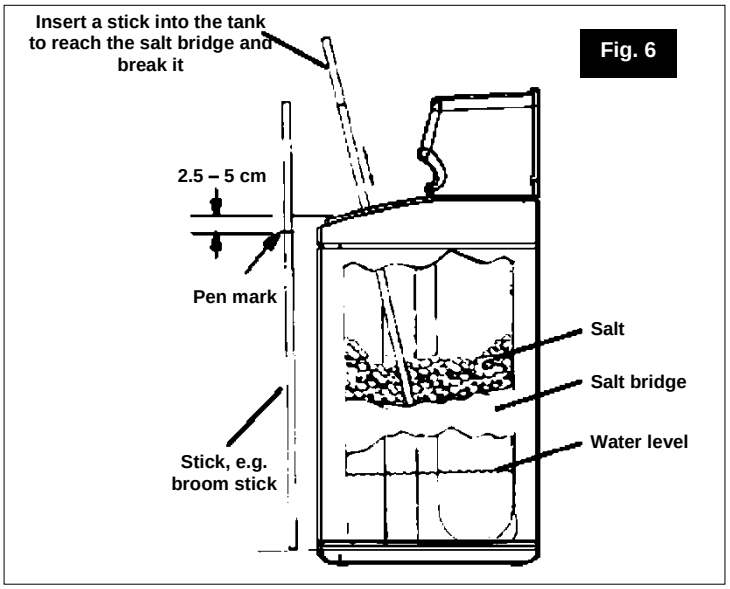
- control of the level of salt in the brine tank - once every week,
- periodical refill of regeneration salt if it requires being topped up,
- control of the hardness of water treated by the water softener - once every week
- control of the water pressure in the installation (control of installed pressure gauges) - once every two weeks,
- control of the pre-filter's cartridge cleanliness, periodical replacement of the cartridge and/or control of the pressure upstream and downstream of the pre-filter - once a week or two weeks,
- control of the clock indications in terms of the current hour and possible resetting of clock indications (resetting time - see above).

→ ***Important notice!***
Due to specific requirements concerning the quality of the regeneration agent, only regeneration salt approved by the water softener manufacturer should be used (regeneration salt in tablets).

A. Refilling salt in brine tank

The control of the level of salt in the tank is a basic maintenance activity during the use of the softener. The activity should be carried out once a week. If the tank is only 1/3 full, it is necessary to refill the salt up to the brine valve well height. In case of lack of salt in the tank, the ion exchange resin will not regenerate and the device will not treat the water.
If possible, refill the regeneration salt in packages (25 kg). When refilling regeneration salt, make sure to prevent any contaminants from penetrating into the brine tank. In case the brine tank is contaminated, rinse the tank with clean water. Also make sure that there are no regeneration salt tablets in the brine valve well. For this purpose, refill the brine tank with tablets only when the brine valve well is covered (with a special cover).

B. Salt bridges



This phenomenon occurs when the softener is installed in premises with high levels of humidity. It can also be caused by the use of regeneration salt with wrong parameters. A salt bridge forms on the water surface and creates an empty space between water and salt and prevents their contact, which is why the salt does not dissolve in the water and no brine is created. This prevents the regeneration of resin. If the brine tank is full of salt, it is difficult to verify the presence of a salt bridge. The surface may feature a normal layer of salt, but an empty space may be present half way. In order to determine whether or not a salt bridge was created, proceed as follows: use a stick (such as broom handle) and place it near the device (see figure no. 6). Mark a reference point on the broom stick, 2.5-5 cm below the edge of the brine tank. Then push the broom insert the broom stick into the brine tank to its bottom. If stronger resistance can be felt on the broom stick before it strikes the tank bottom, it will be most likely a salt bridge. Push the broom stick into the salt bridge in a number of spots, this way breaking the bridge. Never break the salt bridge by pounding on the walls of the brine tank. It may damage the tank.
If the use of wrong kind of salt resulted in the salt bridge, remove it from the brine tank, then carefully rinse the tank and refill it with salt of appropriate quality.

C. Control of hardness of treated water

More frequent control of hardness of treated water (once per two days) is required in the initial period of operation of the water softener (during the initial 10 days). The water hardness value depends on the setting of the mixing valve. For households the water hardness value should be set in the range between 3 and 6, according to the German water hardness scale.
Following that initial period, the water hardness parameter should be checked once every two weeks. Enter the results of the water hardness measurement to the operation log book (see page 26). The instructions

concerning the carrying out of the water hardness measurement are included in relevant water hardness tests (available at the water softener's supplier or manufacturer).

D. Control of water pressure in the installation

Pay attention to the value of feed water pressure during operation of the water softener. If the pressure of feed water drops below 1.4 bar, determine the cause of the drop and remove it. If the pressure of feed water exceeds 8.0 bars, install a relevant pressure reducer in the water feed system.

Please bear in mind that the control program (including the conditions of the automatic REGENERATION process) was adopted for the pressure value of 1.4 to 8.0 bars. Avoid water pressure hammers during the device operation.

E. Mechanical filter operation

In order to secure the proper operation of the water softener, the mechanical filter, supplied together with the device, must be installed on the raw water pipework (fig. 2). The mechanical filter is designed to protect the control head as well as the medium against mechanical contamination. Observation of the filter cartridge's (water cleaning medium) contamination is carried out by visual inspection. An additional element enabling control of the filter condition is monitoring of water pressure upstream and downstream of the filter. In case of using a filter with a replaceable cartridge, provided that the cartridge is worn (contaminated), unscrew the filter sump holding the cartridge, replace it with a new filter cartridge and tighten the sump with the new filter cartridge in the filter assembly. Please bear in mind to cut off water upstream of the filter before carrying out the filter cartridge replacement.

→ ***Important notice!***
The filter cartridge must not be rinsed, cleaned or regenerated in any manner.

In case of using a filter with a backwash feature, follow the user manual provided together with the filter.

Operating a filter with an overused filter cartridge may undermine the water quality and may cause damage to the water softener.

F. Control of current hour clock indications

Control of the time indications shown on the display screen of the water softener should be carried out at least once every two weeks. It will prevent any movements in time of commencing the regeneration process. To eliminate any possible difference between current time and the time displayed by the device, follow the guidelines provided on page 9(Programming of the control panel).

2. Operational recommendations

Make sure to protect the device during operation against:

- excessive dusting of the water softener installation site,
- too low and too high ambient temperature in the vicinity of the device - the temperature must not drop below 4 ^{o}C and must not exceed 40 ^{o}C,
- incidental possibility of a sudden heat source occurrence,
- incidental possibility of hot water backflow (with temperature exceeding 49 ^{o}C) - in case when such situation may not be entirely avoided, install a check valve.

3. Operation logbook

An operation log book should be maintained during the operation of the water softener, in accordance with a sample log book provided below:

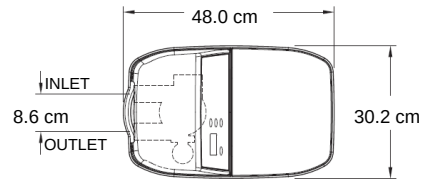
No.	**Date**	**Time**	**Inflow water hardness [^{o}dH]**	**Remarks**
1	2	3	4	5

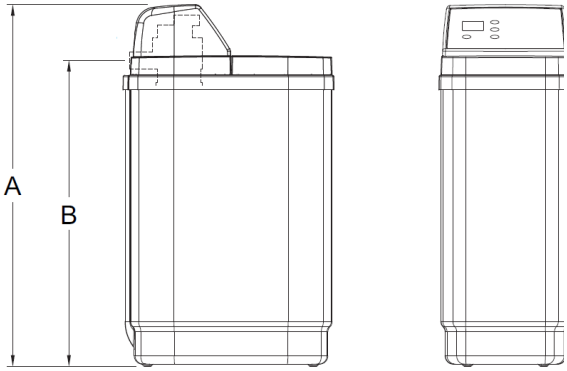
4. Troubleshooting table

Problem	**Cause**	**Method of removal**
Water softener supplies water that is too hard or entirely unsoftened	No salt in the tank	Refill the salt Activate manual regeneration
	Power outage	Restore power supply Check the displayed time Activate manual regeneration
	Occluded outflow of sewage from the valve	Restore patency of the washings discharge hose
Water softener supplies water; salt level remains unchanged	Salt bridge has been formed in the brine tank	Remove the salt bridge
	The by-pass valve is in the by-pass position	Set the by-pass valve in the service position
Water is periodically hard	Incorrectly set time	Set the correct time
	Too low raw water hardness value has been programmed	Determine the water hardness and program the correct value
	Incorrect code for the given model of water softener	Contact the supplier’s service team
	Soft water is fed during the regeneration process	Such situation must be avoided. Check the control panel settings
	Uncontrolled water leakage. Excessive water consumption	Check all water intake points Remove all water leakage

Section IV

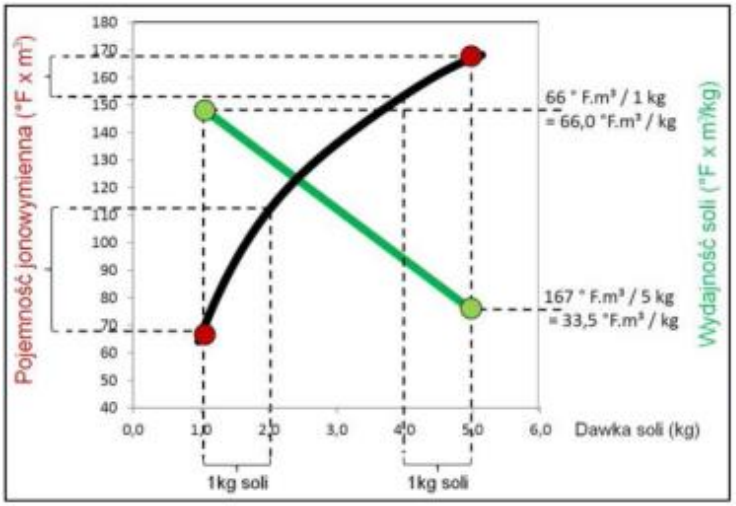
1. Technical specifications and dimensions





	Dimensions	AQUAHOME 11-N	AQUAHOME 17-N
A	Total height	65.0 cm	82.2 cm
B	Height of water connections	52.3 cm	69.5 cm
-	Depth Width	48.0 cm 30.0 cm	48.0 cm 30.2 cm
-	Inlet / outlet spacing	8.6 cm	8.6 cm

Water softener parameters	AQUAHOME 11-N	AQUAHOME 17-N
Maximum water flow rate (m^3/h)	1.1	1.9
Operating pressure range (bar)	1.4 - 8.0	1.4 - 8.0
Water temperature range (°C)	4 - 49	4 - 49
Maximum water hardness (°dH)	48.0	48.0
Resin quantity (l)	11	17
Maximum ion exchange capacity (m^3 x °dH)	34	62
Max. water output between regenerations at 18°dH (l)	1,900	3,400
Estimated salt consumption per regeneration (kg)	1.0	2.0
Estimated water consumption per regeneration (l)	57	60
Connection diameter (inch)	1	1
Regenerative salt		
Recommended salt types	regenerative salt in tablets	



Presented chart illustrates the relationship between the ion exchange capacity of the deposit depending on the amount of salt used in the process of regeneration, and productivity of salt in different areas of recovery capacity. The unit sets the regeneration frequency on the basis of chart data - it minimizes the consumption of salt during resin regeneration

Section V

1. Control activities prior to contacting a service provider

→ ***Important notice!***
Always keep this manual in the vicinity of the water softener.

Maintenance inspection should always be carried out in accordance with the following points:

1. Check whether the display screen shows the current time

- in case the display screen shows no information, check the power connection

- if the hour on the display screen is flashing or is incorrect, this indicates a power supply interruption of a couple of hours. The device treats the water, but the regeneration process may take place at times other than assumed.

2. Check whether the by-pass valve is set in the “Service” position.

3. Check whether the water inlet and outlet hoses are properly connected to the inlet and outlet openings respectively.

4. Check whether the transformer is properly connected to an earthed socket and whether the connection cable is properly fitted.

5. Check whether the washings discharge hose is twisted or bent or whether it is arranged at the height below 2.40 metres over ground along its entire length.

6. Checked whether the brine tank is filled with salt.

7. Check whether the brine suction hose is properly connected.

8. Make sure that the float in the brine well is set properly.

9. Check whether the programmed water hardness corresponds to the actual water hardness. Determine the water hardness value in order to perform this check.

If the above activities failed to enable determinining the cause of the defect, contact the supplier’s service team.

2. Warranty card

Authorised service provider: **User:**

....

....

This warranty card has been issued for the following device:

Device name	**Type**	**Serial number:**
Water softener	AQUAHOME ……..	Ser. No: ……..

Warranty conditions:

1. The supplier grants the warranty of reliable operation of the delivered equipment, when used as intended and in accordance with the guidelines provided in this documentation.

2. Individual elements of the water softener are embraced by the warranty from the date of commissioning based on the following conditions:
   - external casing of the water softener - period of 5 years
   - resin tank – period of 5 years
   - control head – period of 3 years
   - electronic subassemblies – period of 2 years

3. As a condition, warranty will apply only if the hydraulic assembly and commissioning of the device is carried out in accordance with the guidelines included herein.

4. The User shall agree to carry out one warranty inspection during a year. Warranty review costs will include labour costs and costs of an employee delegation and travel. The supplier shall perform such warranty inspection in return for remuneration upon notification by the User on warranty inspection deadline. The notification should be submitted in writing (via fax, email or regular mail) or should be performed via telephone not later than 7 days prior to the deadline of the warranty inspection.

5. The supplier shall remove all defects and malfunctions in operation of the devices embraced by the warranty within 7 business days of the notification date. Confirmation of the notification's receipt will be performed by stating the name and surname of the person accepting the notification.

6. **The warranty does not cover:**

   6.1. inspection services,
   6.2. change of the device's program settings equipment
   6.3. consumables used during normal operation, such as filter cartridges, regeneration salt
   6.4. damage resulting from: theft, fire, impact of external factors or weather conditions, use of inappropriate consumables, assembly of additional parts and subassemblies without an approval of

the Supplier,
6.5. damage resulting from incorrect operation,
6.6. damage resulting from improper storage of the device and consumables,
6.7. consequences resulting from withdrawing from the device's commissioning.

7. The Purchaser shall lose the warranty rights in case of:

7.1. failure to adhere to the guidelines specified herein,
7.2. carrying out assembly and commissioning of the device contrary to the guidelines,
7.3. failure to timely carry out warranty inspections,
7.4. self-performance by the Purchaser or third parties of repairs, alterations and modifications contrary to the warranty conditions off the Supplier.

Date of commissioning: .....

Date ..... Signature and seal.....

Certification of carried out inspections:

1. warranty inspection: date:..... seal and signature:.....
2. warranty inspection: date:..... seal and signature:.....
3. warranty inspection: date:..... seal and signature:.....
4. warranty inspection: date:..... seal and signature:.....
5. warranty inspection: date:..... seal and signature:.....
6. warranty inspection: date:..... seal and signature:.....
7. warranty inspection: date:..... seal and signature:.....
8. warranty inspection: date:..... seal and signature:.....

3. Device commissioning protocol (original copy) - for the User

Please contact the service team of the supplier or manufacturer in order to obtain more information on commissioning of the device.

Place	
Date	
User	Address: Tel. / fax:
User Representative	
Details of the party carrying out the commissioning	Full company name: Address: Tel. E-mail:
Device commissioned *Information on model number and serial number can be found on the label, accessible after lifting of the brine tank cover.	Mod. No: Ser. No:
Raw water quality	Hardness: Iron*: Manganese*:
Treated water quality	Hardness: Iron*: Manganese*:
Remarks	
Supplementation	
Signature of the User	
Signature of the party carrying out the commissioning	

*not required in case of tap water

4. Device commissioning protocol (copy no. 1) - for the Party commissioning the device

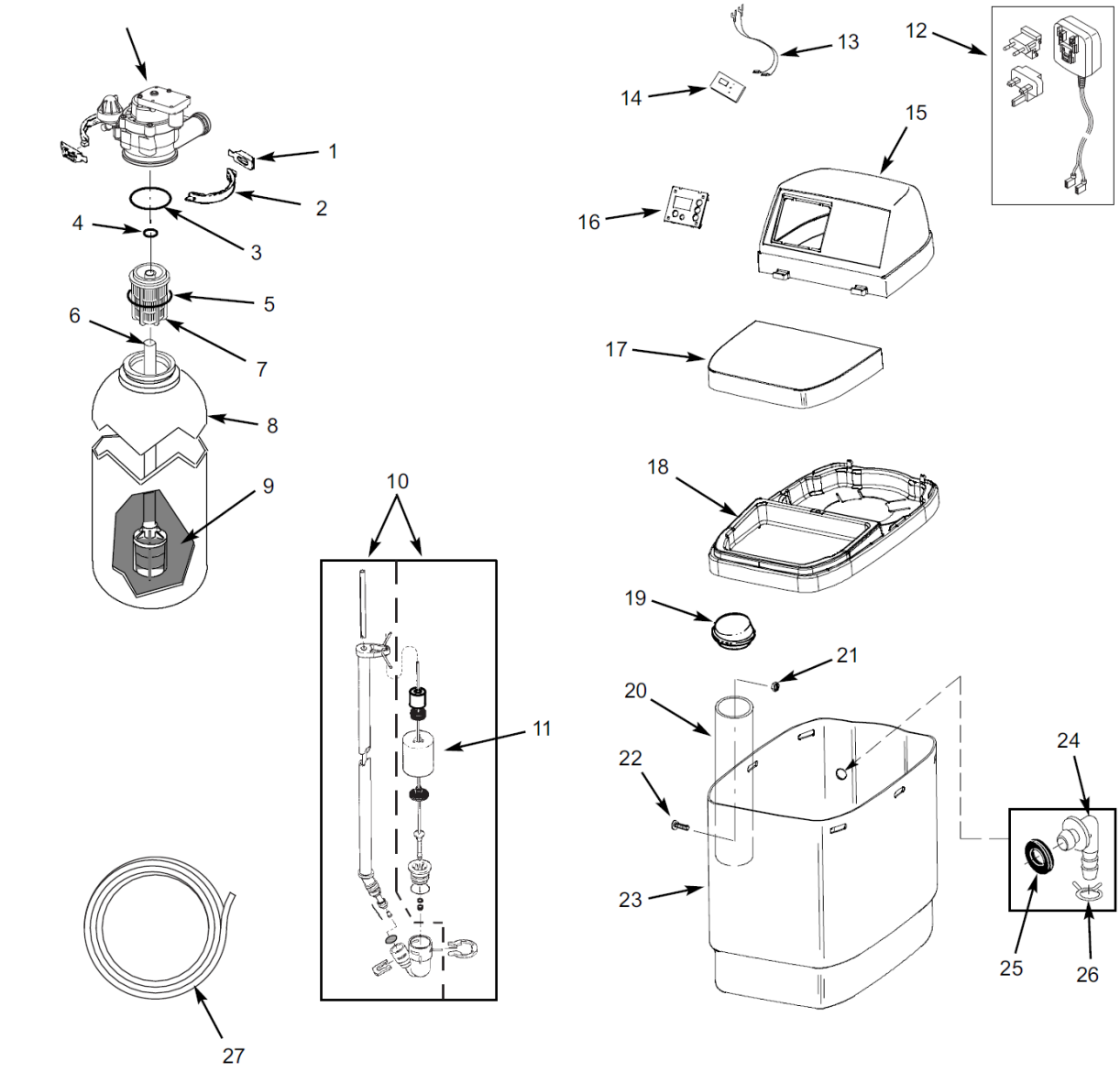
Place	
Date	
User	Address: Tel. / fax:
User Representative	
Details of the party carrying out the commissioning	Full company name: Address: Tel. E-mail:
Device commissioned *Information on model number and serial number can be found on the label, accessible after lifting of the brine tank cover.	Mod. No: Ser. No:
Raw water quality	Hardness: Iron*: Manganese*:
Treated water quality	Hardness: Iron*: Manganese*:
Remarks	
Supplementation	
Signature of the User	
Signature of the party carrying out the commissioning	

*not required in case of tap water

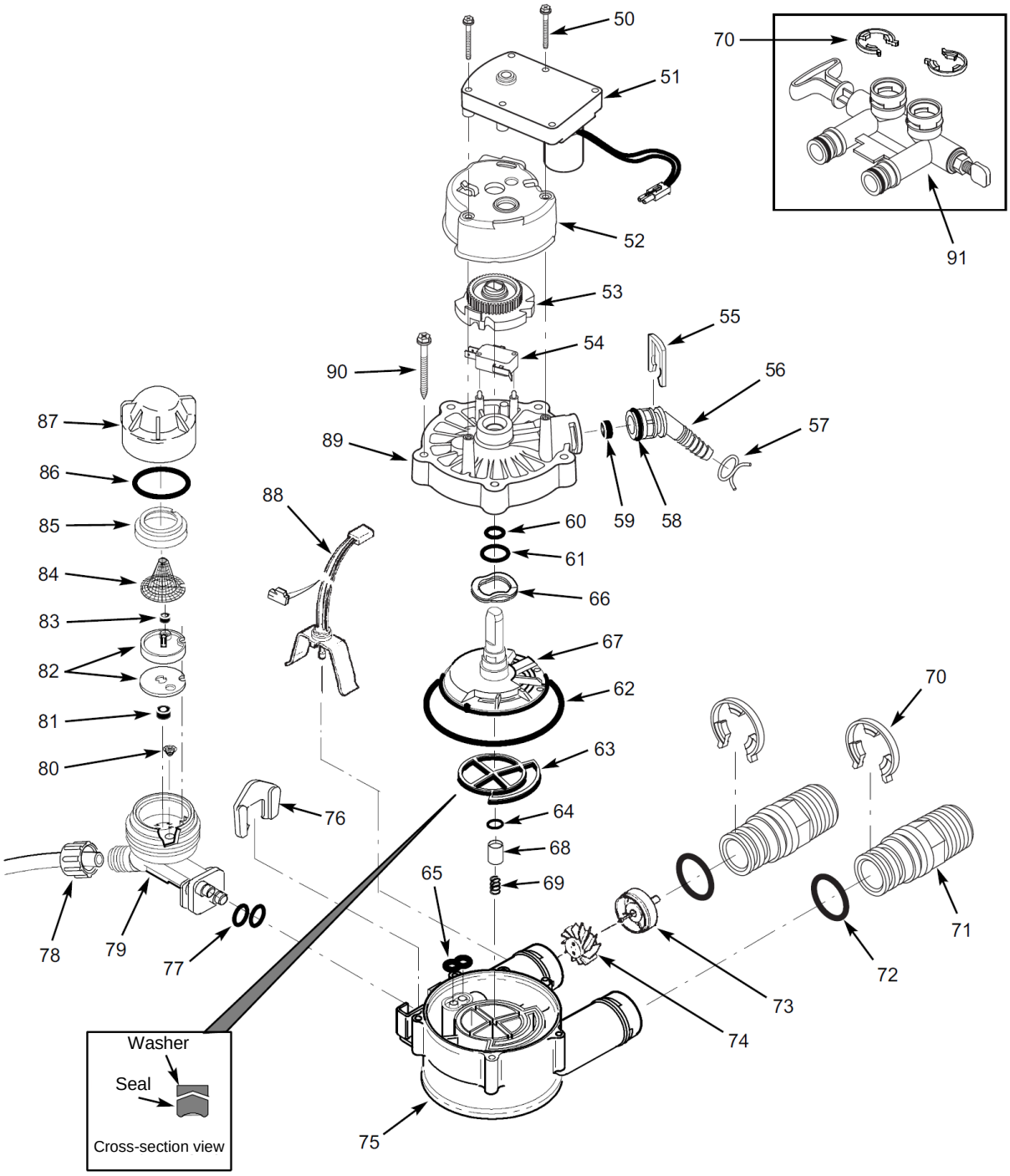
Section VI

1. Component drawings

Head parts on a separate page



No.	Part no.	Description
–	7331177	Head-cylinder connection set (includes item 1 and 2)
1	↑	Flange (required 2)
2	↑	Clamp (required 2)
–	7112963	Head-cylinder connection o-ring set (includes items 3-5)
3	↑	O-Ring, 73.0 x 82.6mm
4	↑	O-Ring, 20.6 x 27.0 mm
5	↑	O-Ring, 69.9 x 76.2 mm
6	7105047	Top distributor
7	7077870	Bottom distributor with distribution pipe
8	7256377	Cylinder, 20.3 x 63.5 cm, Aquahome 11-N
	7264037	Cylinder, 20.3 cm x 63.5 cm, Aquahome 17-N
9	-	Iox exchange resin
10	7310139	Brine valve, Aquahome 11-N
	7310163	Zawór solankowy, Aquahome 17-N
11	7269508	Float and anti-spill lock set Aquahome 11-N
	7293395	Float and anti-spill lock set Aquahome 17-N
12	7337490	Transformer, 28V DC
13	7250826	Power feeder extension
14	7340265	Controller with display (PWA)
15	7294838	Top cover (without a decal)
-	-	Decal
16	7266754	Control panel
17	7294846	Brine tank flap
18	7295054	Rim
19	7155115	Brine well cover
20	7106962	Brine well, Aquahome 11-N
	7263099	Brine well, Aquahome 17-N
–	7331672	Well assembly set (includes item 21 and 22)
21	↑	Wing nut, 1/4-20
22	↑	Bolt, 1/4-20 x 1.6cm
23	7339573	Brine tank, Aquahome 11-N
	7302259	Brine tank, Aquahome 17-N
–	7331258	Anti-spill flange set (includes items 24-26)
24	↑	Anti-spill flange
25	↑	Seal
26	↑	Hose clamp
27	7139999	Washings hose 6m
28	7328051	Complete head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Washer
Seal
Cross-section view

Part No.	Part no.	Description
50	7338111	Bolt, #6-199 x 3.3.5 cm (required 2)
51	7281291	Motor
52	7337474	Camshaft cover
53	7284964	Camshaft
54	7030713	Micro-switch
–	7331185	Washings outflow connection set (includes items 55-59)
55	↑	Washings nozzle clamp
56	↑	Washings nozzle
57	↑	Hose clamp
58	↑	O-Ring, 15.9 x 20.6 mm
59	↑	Orifice plate, 7.6 lpm
–	7129716	Seal set (items 60-65)
60	↑	O-Ring, 11.1 x 15.9 mm
61	↑	O-Ring, 19.1 x 23.8 mm
62	↑	O-Ring, 85.7 x 92.1 mm
63	↑	Spider seal
64	↑	O-Ring, 9.5 x 14.3 mm
65	↑	Seal "8"
66	7082087	Pressure spring
67	7199232	Disk
–	7342665	Washings seal set (includes items 64, 68 and 69)
68	↑	Trunnion
69	↑	Spring
70	7116713	Clamp 3/4”
71	2207800	Connection nozzle 3/4”,
72	7170288	O-Ring, 23.8 x 30.2 mm
–	7113040	Turbine with a washer (includes 2x no. 722 and 1x 733 & 74)
73	↑	Turbine washer
74	↑	Turbine
75	7082053	Head body
76	7081201	Injector clamp
77	7342649	O-Ring, 6.4 x 9.5 mm, (2
78	1202600	Nut
–	7187065	Complete injector (includes items 79-87)
79	7081104	Injector enclosure
80	7095030	Protective sieve
81	1148800	Orifice plate, 1.1 lpm
82	7187772	Venturi reduction with a seal
	7204362	Reducation seal
83	0521829	Orifice plate, .38 lpm
84	7146043	Protective sieve
85	7167659	Sieve clamp
86	7170262	O-Ring, 28.6 x 34.9 mm
87	7199729	Injector cover
88	7309803	Flow sensor with cabling
89	7337466	Head cover
90	7342657	Bolt, #10-144 x 5cm, 5 pcs.
91	7327631	Bypass, 3/4”,
–	7290957	Injector repair set (includes items 76, 80, 82, 86)

Impact of washings from water softener regeneration on municipal sewage systems and home sewage treatment plants.

The regeneration process of the AQUAHOME ion exchange water softeners generates washings in the volume equivalent to 5% of the total volume of treated water, that are discharged to the sewage network. Regeneration washings are tap water containing elevated levels of chlorides in the range between 100 and 155 mgCl/dm^3.

Discharge of washings containing the above referred amount of chlorides to municipal sewage systems is in full compliance with regulations (the norm is set at 1000 mgCl/dm^3).

Discharge of regeneration washings to sewage chambers, cesspools or small biological home sewage treatment plants should be executed with certain precautions.

In case of home sewage treatment plants, biological sludge is a breeding ground for bacteria which decompose the sediments into the liquid state. Naturally, but also due to the content of chlorines in regeneration washings, the amount of bacteria may be insufficient. This may adversely impact the efficiency of the sewage treatment process. In order to prevent biodegradation processes, it is recommended to use agents that contain a wide range of bacteria. Such agents are an effective way to aid the sewage treatment process.

Conditions of Technical Inspection for the operation of pressure devices, fitted the AQUAHOME ion exchange water softener.

Pursuant to the Technical Inspection Act of 21 December 2000 (Polish Journal of Laws no. 122, item 1321) as well as the Regulation of the Minister of Economy, Labour and Social Policy of 9 July 2003 (Polish Journal of Laws no. 135, item 1269) with amendments, Article 15 paragraph 45 (1) of the Act of 20 April 2004 on the amendment and repeal of certain laws due to obtaining membership in the European Union by the Republic of Poland (Polish Journal of Laws no. 96, item 959), it is authoritatively stated hereby that pressure devices fitted in the **AQUAHOME** ion exchange water softener are subject to SIMPLIFIED TECHNICAL INSPECTION [Item 36 (TD [Technical Inspection ≤ +100°C i V ≤ 500 dm^3)], AND THEREFORE **SHALL NOT REQUIRE THE DECISION OF THE OFFICE OF TECHNICAL INSPECTION OF RELEASING THOSE DEVICES FOR OPERATION**.
It is also declared hereby that pressure devices of the ion exchange water softeners, referred to above, fully conform with the technical requirements of the DIRECTIVES OF THE EUROPEAN COUNCIL: 97/23 EC and 89/336/EEC.
It is also confirmed that ECOWATER SYSTEMS, a member of the Water Quality Association and manufacturer of the water softeners referred to above, possess the ISO 9001 standard certificate as well as valid hygienic certification authorising the use of water softeners for drinking water (issued by the NSF and PZH [National Institute of Hygiene] - CERTIFICATE OF HYGIENE HK/W/0526/01/2010).

The Aquahome device assembly in the household sewage treatment system must be compliant with the treatment system's manufacturer.
The manufacturer is not responsible for damage of the household sewage treatment system resulting from the use of the Aquahome device.