



BWT Perlamat

10,15, 20, 25
water softener

Important notice: Always keep the fitting and operating instructions close at hand to avoid any mistakes and before carrying out any work on the device you should read the fitting and operating instructions carefully and follow them. While our data sheets and brochures should provide advice to the best of our knowledge, the content thereof is not legally binding. In addition to this, our general terms and conditions of trade apply.

Subject to alterations!

This water softener complies with all relevant local and national safety requirements. Please use the product in compliance with relevant national laws and regulations. Improper use will invalidate your manufacturer's warranty and could lead to injury and material damage.

To help avoid the risk of accidents and unnecessary damage to this device, please read these instructions carefully before installation and use and strictly follow the defined steps.

Please keep these instructions in a safe place and ensure that they are passed on to any future user of the device.

The company reserves the right to interpret the instructions.

Please refer to the actual product for product appearance.

In case of product technology or software upgrades, please contact the official local BWT customer service company. No further notice will be given.



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1. Introduction

1.1 General comments

This appliance can be used by children aged from 8 years and above and by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision and instruction in the safe use of the appliance and understand the hazards involved. Children must not play with the appliance or any contents therein at any time.

Extended periods of non-use: If the property is to be left unattended for any length of time, e.g. holidays, the water softener should be bypassed/isolated from the mains water supply by reversing the 3 valve positions shown in the installation instructions of this manual, or by correct operation of BWT multiblock simple install block (depending on use).

After prolonged periods of non-use, we recommend that a manual regeneration of the softener is carried out as described in section 4.2 of this manual.

Protect from extreme temperatures

Do not install the softener where it, or its connections (including drain and overflow lines), could be subject to temperatures below 5 °C or above 40 °C. The ambient temperature should not exceed 40 °C, even before the machine is started. Please avoid direct heat sources, e.g. radiators and exposure to sunlight.

The unit may only be connected to cold water. (max. 38 °C).

1.2 Manufacturer

Company name: BWT Haier Drinking Water Technology Co.,Ltd.

Address: No.159 Malian Road, Huangdao District, Qingdao 266000, PR China

1.3 Safety instructions



Electrical safety

Only use the transformer / plug supplied with this device or battery supply (where applicable) offered as an option for the softener.

Before use ensure that the data specification on the power supply matches the local mains electricity supply.

Depending on where you sourced your device it will be supplied with the applicable plug connection.

The complete power supply unit must be replaced in the event of damage to the mains cable. If in any doubt, consult a qualified electrician. If a power failure occurs during regeneration, wastewater may be flowing. Therefore, the overflow connection should and waste-water drain **MUST** always be installed and connected with parallel pipelines to a suitable domestic waste system to prevent the risk of flooding.



Warning

Do not use any aggressive (strong acids or alkalis) cleaning agents. For cleaning, please wipe clean with a damp cloth. The installation site has to be free of chemicals, paints, solvents and fumes.



Maintenance

The device must be isolated during installation, maintenance and repair work. Your water softener requires regular service in order to maintain performance. Please contact your local BWT Office for details.



Please observe

NEVER operate the device with the housing covers removed

1.4 Intended use

This appliance is intended for domestic use in the softening, and partial softening, of domestic water supplies only. Any use other than this is not supported by the manufacturer and could be dangerous. BWT Haier Drinking Water Technology Co.,Ltd cannot be held liable for any damage or failure resulting from the incorrect or improper use of this appliance.

Changes in the construction of the unit are not permitted for safety reasons. All of the parts used, and the accessories are specifically designed for this unit.

1.5 Scope of application of the instruction / user manual

BWT Perlamat series water softeners are suitable for softening or partially softening household water and are not suitable for other purposes.

1.6 Scope of delivery

- 1 Multi-way control valve with microprocessor controller
- 2 Salt Storage Cabinet cover
- 3 Salt Storage Cabinet
- 4 Softening column with ion exchange resin
- 5 Soft water outlet
- 6 Hard water inlet
- 7 Drain water outlet
- 8 Blending valve
- 9 Overflow connection
- 10 Salt level control



Accessories added to the softener (with standard delivery):

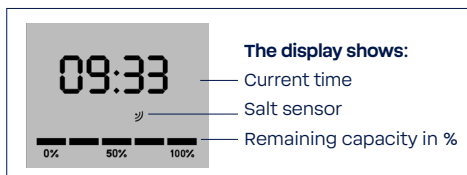
Pictures are shown for illustrative purposes only and are subject to change without prior notice.

- 1 Quick start guide (operating manual via QR code online)
- 2 Hose clamp connection.
- 3 2 m drain water hose
- 4 Mains plug power supply connection (EU)
- 5 Elbow adapter 1"

2. Quick Operation

2.1 Display and control elements

The 4 buttons can be used to adjust entries as shown below.



[up] = modify input



[down] = modify input



[set up] = Confirm input



[regeneration] = manual regeneration

When the water softener is running, the user can press the [SET UP] key to enter time setting, raw water hardness setting, regeneration time setting, regeneration mode selection, and sterilization interval frequency selection.

Ensure you have tested and obtained your local water hardness settings following section 3.6.9 of this manual prior to changing the hardness setting of your softener.

2.2 Standard factory settings

Your softener has been supplied preset with most of the information it needs to perform correctly. For simplicity the softener has been set to operate at an inlet water hardness of 300 parts per million (ppm) of hardness minerals in the supply water and to carry out automatic regeneration of the ion exchange media at 2:00am local time. However, to get the best performance from your softener it is important for you to set the correct local time and actual water hardness of your supply.

This will ensure that the softener calculates the correct metered water capacity of your softener in order to regenerate at the best possible time and most efficient frequency.

On first powering up (or powering up on again after a long power outage) the softener's digits of the display will flash while the valve rotates to service position. The valve can be heard moving and this can take a few minutes. On locating service position the display will prompt the installer to set the time and the water hardness. You will also have the opportunity to adjust the 2:00 am regeneration time if require as well to adjust the regeneration mode and sterilization interval frequency.

Once these settings have been input your softener will calculate the correct softened water capacity for your needs and start metering your water usage in order to only regenerate, and use salt, when absolutely necessary and in the correct amount.

You just need to make sure that you put some salt (BWT tablet salt is recommended) into the salt cabinet at the front of your softener, set the time and supply water hardness and your softener will do all of the work for you to provide likk soft water as needed.

This product series	standard
Display	✓
Pressure range	2-6 bar
Regeneration at night	✓

2.3 Programming procedure

2.3.1 Setting the time of day

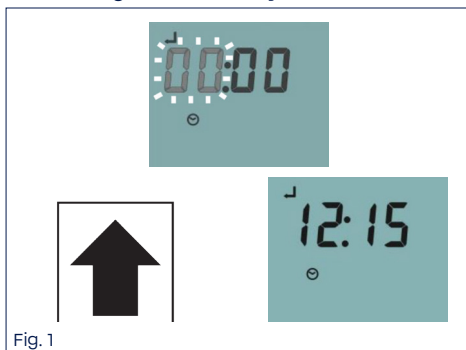


Fig. 1

Once service position has been located the SET and CLOCK symbols will illuminate in the LCD display to prompt setting the current time. The first two digits (12) of the display will flash prompting the installer to set the hour (Fig 1) The value is adjusted by using the [UP], [DOWN] keys. Pressing the [SET] key enters the value. This can then be repeated to set the minute value.

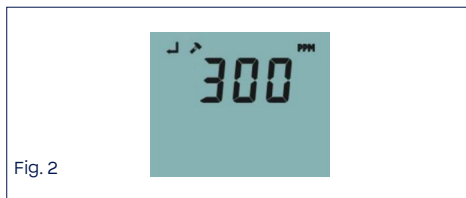




























Fig. 2

Once the minutes are set the display will automatically move on to the set hardness mode.

The SET, HARDNESS and PPM symbols will illuminate on the LCD display. The default water hardness value of 300 will be shown (Fig 2).

Note: For some softener models the hardness may be set in degrees French or degrees German and in these cases the display will show °F or °D symbol accordingly.

2.3.2. Setting the time of day

Time		Per Day	
Set		Brine Draw	
Hardness		Capacity	
Turbine		Linkage with other devices	
Flow		Recharge	
Average		Tonight	
Total		Time factors in regeneration mode	
PPM	PPM	Rinse	
Salt addition reminder		Frequency	
Backwash		Charge	
Service		Infrared salt sensor	
French Degrees	°F	Fill	
German Degrees	°D	Key code	
Multiply by 100	x100	Disinfection (bio-cell)	
Liters	L	Dwell	
Percent	%		
Per Minute			

2.3.3 Setting the water hardness

The factory default for water hardness is 300 ppm (typical hardness level) which indicates a setting suitable for hard water with a value of 300 parts per million of hardness minerals. If the local raw water hardness is higher or lower than this value, use the [UP] [DOWN] keys to adjust the setting to match that of the one you obtained / identified using the water hardness test kit.

Pressing the [SET] key once enters the hardness and moves the display to Set Regeneration Time Mode. The SET, RECHARGE and TONIGHT symbols will illuminate in the LCD display and the time will show the 2:00 am default setting (Fig 3).

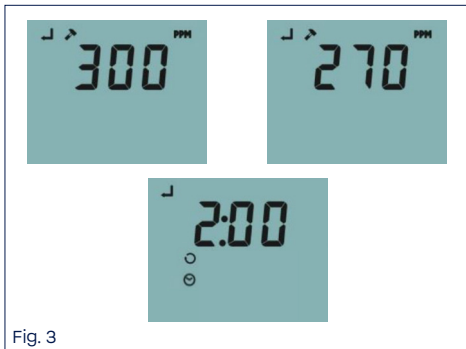


Fig. 3

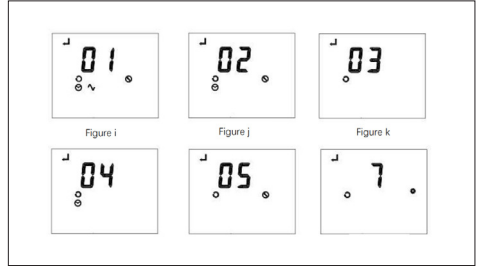
2.3.4 Setting the recharge time

The recharge time can be set in the same way as the current time of day in part 1 above, using the UP, Down and SET keys.

For best performance the recharge time should be set at a time when least water is being used in the property as during a regeneration the softener will not necessarily be producing soft water.

NOTE: For some models an additional salt selection option will appear after setting the recharge time. If this option is present, simply use the UP, DOWN and SET keys to select CC (Care Cubes) for tablet salt as needed. For information regarding salt please call BWT customer services team. This softener cannot work with Block salt.

2.3.5 Regeneration Mode



The display will then show the currently selected **Regeneration Mode** number and will show the 'RECHARGE' and 'SET', icons together with one or more of 'FREQUENCY', 'METER', 'TIME' or 'DELAY' icons depending on the currently active mode. Use the ↑/↓ buttons to select between the available algorithm numbers as required.

Regeneration Modes:

MODE 1 Auto proportional NOTE: This is the standard setting

In this mode the regeneration interval is always set to Auto. Regeneration is performed based on the water consumption accumulated during this cycle and the predicted water consumption. Regeneration prediction $A = (\text{cumulative water consumption} + \text{daily average water consumption in the last 14 days})$.

At the specified **regeneration time of day** the previous day's water usage is used to calculate the new rolling average for that day and is saved to the history. The usage average for the next day is read from the history and used as a prediction for the new day. If the remaining capacity is less than the predicted capacity, then a proportional regeneration cycle is initiated.

At the end of the regeneration the remaining capacity figure is reset, and the process continues.

If the remaining capacity falls below the 'zero' threshold then a full regeneration will be initiated immediately .

MODE 2 Timed with a metered override

In this mode a full regeneration cycle is initiated at a set time every nth day (a number within the range 1-14) or if the remaining capacity falls below the 'zero' threshold.

At the **Set Recharge Time** the softener control counts down by 1 day and regenerates when this count hits zero.

If the remaining capacity falls below the 'zero' threshold then a regeneration tonight request is initiated. At the following Set Recharge Time the regeneration tonight request is executed and a regeneration cycle is initiated. At the end of the regeneration the remaining capacity figure is reset and the process continues.

MODE 3: Pure metered

Immediate regeneration on zero capacity.

If the remaining capacity falls below the 'zero' threshold then a full regeneration cycle is immediately initiated. At the end of the regeneration the remaining capacity figure is reset and the process continues.

MODE 4: Pure Timed

Pure timed, regeneration on timed interval regardless of metered volume.

In this mode a full regeneration is performed at the specified **Set Recharge Time** after a specified number of elapsed days. This algorithm simply initiates a full regeneration cycle at a set time every nth day.

The regeneration interval is in the range 1-14. At the end of the regeneration the remaining capacity figure is reset, the days to regeneration countdown is reset and the process continues.

MODE 5: Delayed metered

Regeneration on zero capacity is delayed until set recharge time.

If the remaining capacity falls below the 'zero' threshold then a regeneration tonight request is initiated. At the following Set Recharge Time the full regeneration is executed. At the end of the regeneration the remaining capacity figure is reset and the process continues

2.3.6 Disinfection on interval frequency selection (bio-cell function)

The default disinfection interval frequency is 1 (see Figure 15), meaning, that the softener will sterilize after each regeneration.

Press the [Up] or [Down] key to change, if you choose 2 (See Figure 16). The water softener will sterilize after 2 regeneration intervals. If you set to 0, the bio-cell (disinfection) function will be turned off.

3. Installation

3.1 Installation requirements

3.1.1 Before you begin

The installation of your new water softener is straightforward. However, we would recommend that either a qualified plumber or a person with relevant plumbing experience carries out the installation. Before embarking on the installation, please ensure you have familiarised yourself with both these instructions and the components required to complete the installation.

When commissioning for the first time, please check the hydraulic and electrical requirements of the installation.

3.1.2 Positioning the water softener

Please measure your water softener to ensure that it will fit into the area you are placing the unit. PLEASE remember to include additional space for connecting pipe work in your calculations along with the regular access that is needed for topping the unit up with salt and future service.

Where possible, the distance of both the incoming water supply and nearest drain should be

kept to a minimum. Two metres is an ideal distance; however, longer distances are permissible, dependent on the incoming water pressure. Please remember the weight of your new water softener will considerably increase once installed and filled with salt. Therefore, please ensure your chosen location is strong enough to support an approximate total weight of 50 kg – 70 kg. Your new water softener has been designed to operate efficiently and effectively with an incoming water pressure of between 1.0 to 6.0 bar. If your water supply is likely to fall outside these limits, then we would recommend that a booster pump or pressure reducing valve should be fitted respectively. (needs to be purchased by the user).

National guidelines and regulations:

Observe all applicable installation regulations, general guidelines, hygiene requirements, and technical specifications. The hard water to be fed into the unit must always meet the specifications of the national Drinking Water Ordinance or EU Directive 98/83/EC. The total dissolved iron and manganese may not exceed 0.1 mg/l. The maximum silicate content of the feed water must not exceed 15mg/l. The hard water to be fed into the unit must always be free of air bubbles.

Ensure good water quality:

Since residual chlorine in tap water could cause certain damage to the ion exchange resin of the water softener, it is recommended that users install an additional chlorine removal device (not standard and needs to be purchased by the user).

Frost protection and ambient temperature:

The installation site must be free of frost and kept free of chemicals, paint, solvents and fumes. The ambient temperature should not exceed 40°C, even before the machine is started. Please avoid direct heat sources, e.g. radiators and exposure to sunlight.

Electrical interference:

The emission of interference (voltage peaks, high frequency electromagnetic fields, interference voltages, voltage fluctuations by the surrounding electrical systems) may not exceed the maximum values specified in EN 61000-6-3.

Data analysis of the hard water in your area:

Continuous operation of the water softener with water containing chlorine or chlorine dioxide is possible if the concentration of free chlorine/chlorine dioxide does not exceed 0.5 mg/l. The

type of pre-treatment must be determined individually.

Principle of intelligent regeneration:

The unit should be sized according to your current water consumption. If water consumption is reduced, e.g. during holidays, a tap should be fully opened for at least 5 minutes and water run to drain before further use.

General safety:

The rated mains power (see technical data) and the requisite inlet water pressure must always be present. No protection against a lack of water is provided. This must be installed on-site if required. Overpressure and fluctuation protection: Attention: Water pressure must never exceed the unit's maximum of 6.0 bar.

If the network water pressure is measured higher than 6.0 bar (to allow for fluctuation) or you are unsure about pressure, a pressure reducer (pressure reducing valve) must be installed upstream of the unit. During pressure fluctuations or surges, the sum of the pressure surge and the standing pressure is not to exceed the rated pressure. When installing the unit, select a location where the unit can easily be connected to the water supply network. A connection to the waste water system (at least DN50), a floor drain and a separate mains socket (see technical data) must be nearby.



Danger: Risk of electric shock! - Prior to working on electrical components, the master switch must be deactivated, and the unit must have zero voltage.

Overflow hose connection:

A suitable overflow hose connection is recommended to remove any overflow waste water. Important: overflow pipe have to go directly to drain, never bind with the drain hose that goes from valve to drain. Always two parallel lines.

Exclusion of warranty:

Non-compliance with the installation conditions and the operator responsibilities voids the warranty.

Guarantee:

In the event of a malfunction of the unit during the guarantee period, please contact your after-sales service department and quote the model type and the serial number (see technical data on the rating plate on unit).

Note: Only your local, BWT authorized aftersales service staff may perform any works under the guarantee. Any work performed by a third party must be directly commissioned by your aftersales service.

3.2 Initial commissioning

3.2.1 Handing over the unit to the operator

If there is a delay between the installation/startup of the unit and transfer to the operator, a manual regeneration must be performed. The operator must be told how the unit works as well as how to operate and inspect it. Ensure that the operator receives the installation and operating manual.

3.2.2 Inlet and outlet connections

Please check connections and pipeline junctions for leaks after the initial installation is completed, do not use it immediately. You must start the regeneration program manually and read this manual carefully to understand the troubleshooting methods of the product. Please open the salt tank cover (2) when troubleshooting, servicing or adding salt and pay attention to whether the water level in the salt tank overflows.

3.3 Installation and operation considerations

Important - Never install the water softener where it, or its connections (including the drain overflow lines), will be subject to temperatures under 0°C or above 40°C. If you are planning to install the water softener above ground level e.g. in the loft, attic, the following instructions should be strictly adhered to:

3.3.1 Attic / Loft installation

The water softener should be installed within a container of not less than 100 litre capacity, to which there should be connected an overflow pipe of not less than 20mm diameter. The overflow should be connected at the bottom of the container and not less than 15mm below the height of any electrical components mounted on the water softener. It is recommended that an anti-vacuum valve be fitted to the inlet pipework supplying the water softener.

Plumbing systems

When installing the water softener, users can purchase the required pipe fittings for the layout and connection of the pipeline system. The specifications of the water inlet and outlet connections of this series of products are 1" external thread with an adapter elbow of 1".

3.3.2 Backflow prevention device

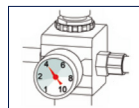
When fitted to the supply feeding a single family-home, a check valve complying with national regulations must be fitted on the cold water feed prior to the installation. All other types of installation require the fitting of a double check valve both at the water inlet and outlet of the water softener).

3.3.3 Drinking water

Your water softener installation must include at least one drinking water tap that is not fed by the water softener. In case of low sodium diet follow the local department of health's advice concerning the use of softened water for drinking.

Note: Water that is used for mixing powdered milk for babies must only be taken from an unsoftened mains tap as some powdered milks and softened water both contain small traces of additional sodium for which young babies have a limited tolerance.

Operating pressure If pressure more than: 6.0 bar install pressure reducing valve. (EU models only)



Do not operate with a pressure less than: 2.0 bar

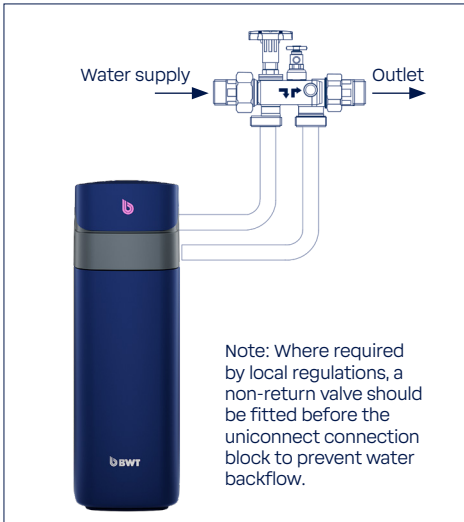
3.4 Installation layout

The diagram on page 13 shows a standard installation layout utilizing individual inlet, outlet, and bypass valves.

You can use for installation the BWT Multiblock simple softener connection device for use in place of the inlet, outlet, and bypass valves.

Standard Installation using BWT Multiblock

The BWT Multiblock enables the efficient installation of your softener and allows the user to easily bypass the softener with a single operation of the BWT Multiblock valve, isolating the softener for routine maintenance work to be carried out, whilst maintaining a water supply (unsoftened) to the property.



Operation

To interrupt the softened water supply and place the softener in bypass, turn the main handwheel on the BWT Multiblock clockwise to the lower stop position (fully closed). In this position, the BWT Multiblock is in bypass and the small sample tap can be used to take a water sample of the mains supply water.

To resume operation, turn the main handwheel on the multiblock anticlockwise to the upper stop position (fully open). In this position, the softener is in operation and the small sample tap can be used to take a sample of the treated water supply.

Battery power options

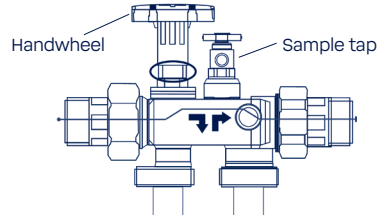
For your convenience your Perlamat Water Softener has been supplied with a power transformer suitable to your local utility supply and for best performance this should be used to power your softener. However, should a mains power supply be unavailable in the installation location the softener can be powered by 2 alternative battery options:

8 C Cell domestic battery box

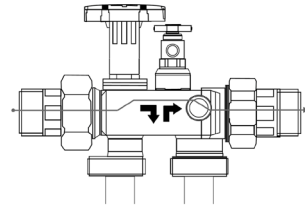
Rechargeable Lithium ION Power Bank

The C Cell battery box may be included with some softener models as an option. If you require either of these battery options please contact your local BWT Customer Services for prices and availability of these optional accessories.

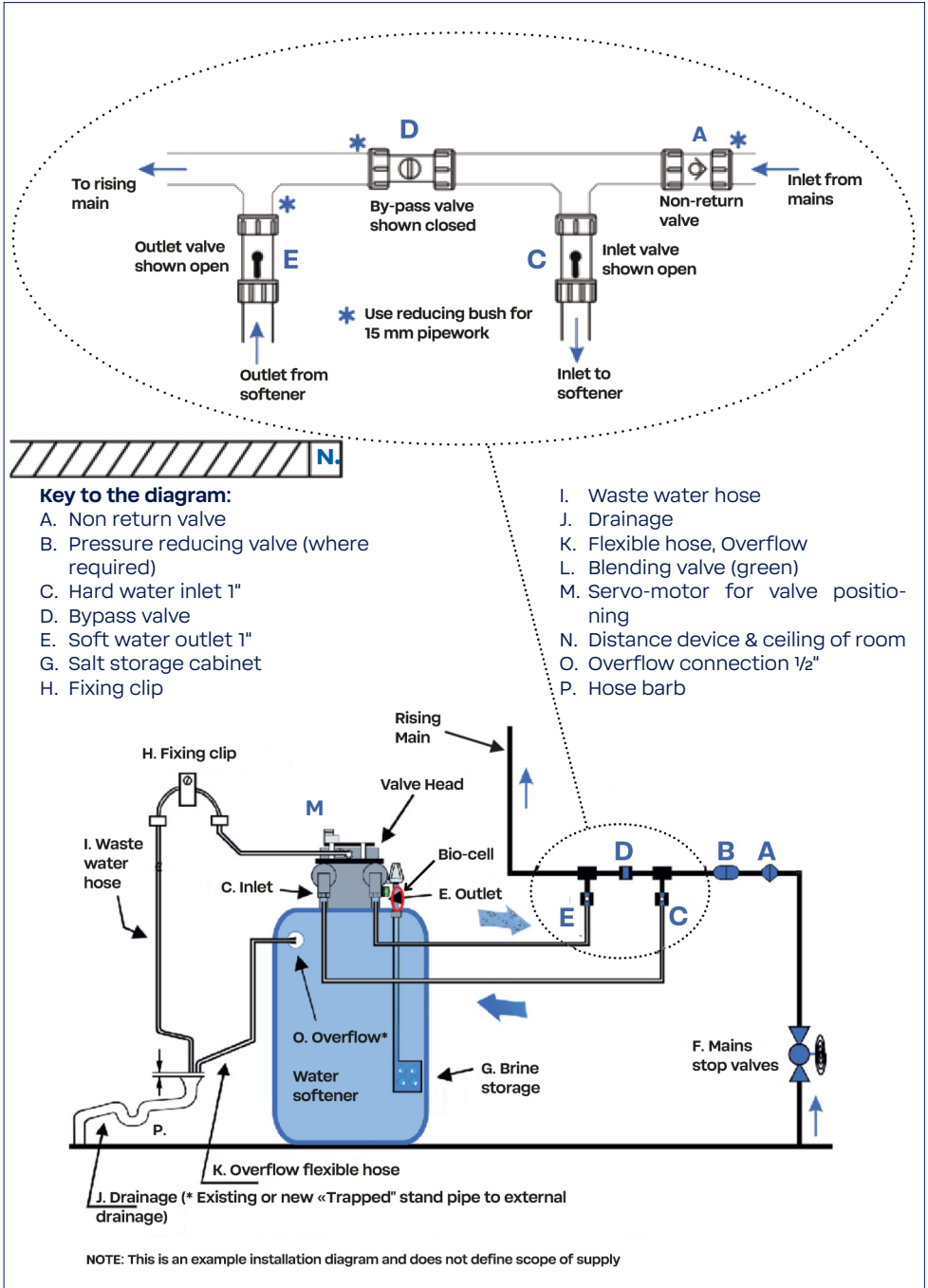
Unconnect placed in service position



Unconnect placed in bypass position

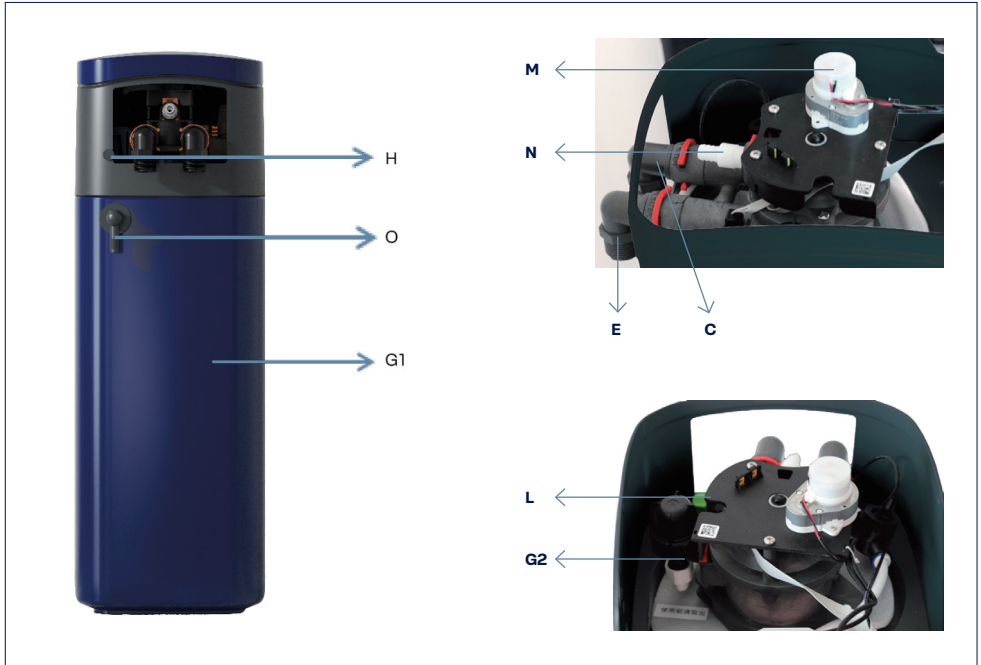


Installation Layout



3.5 Technical overview of device

- C. Inlet connection (feed water), for flexible hose, with thread 1"
- E. Outlet connection (softened water), for flexible hose, with thread 1"
- G1. Brine storage cabinet, salt filling
- G2. Connection to brine, internal connection
- H. Power Connection, power supply from transformer or battery
- O. Overflow connection
- L. Blend Control valve, hardness regulation
- M. Servo motor, for control valve
- N. Waste water connection, external drainage of waste water



⚠ Note: The diameter of the drain pipe (N) is at least DN50. Only the drainage hose in the package can be used. Before initial commissioning, ensure that all pipes are properly sealed and connected.

⚠ Note: In order to achieve good drainage effect, there must be an exhaust space of at least 20 mm between the drain pipe and the wastewater connection port.

⚠ Note: The other end of the hose connected to the overflow port also needs to be connected to the sewage outlet together with the drain pipe but in parallel.

Product Protection: In order to extend the service life of the water softener, please make sure to store it in a clean, dry place with an ambient temperature between 4 ° and 40 °C to avoid damage to the resin or components.

3.6 Installing your softener

This product must be installed properly and correctly by professional plumber / technicians.

3.6.1 Positioning the water softener / location

Beside the size of the product which determine the installation location, please consider the additional space required for installing connecting accessories and spare salt storage and try to shorten the distance between the product and the water inlet and drain outlet.

When the water softener is used after installation, the weight will be greatly increased because the salt tank is filled with salt and the resin tank is filled with water, so this factor should be fully taken into consideration when selecting the installation location.

It is very important to establish the water pressure before installing the water softener. If the water pressure is low then the water softener may not operate effectively. If it is too high, then components inside the unit may be damaged. Water pressure should be tested with a gauge at the kitchen tap or outside tap. It should be noted that water pressure can increase at periods of low water usage e.g. overnight. If therefore, the daytime pressure measured exceeds 6.0 bar or if you are unsure about pressure, then a pressure reducing valve should be fitted. Where the pressure is less than 2.0 bar a booster pump may be required.

The optimal working pressure of the product is between 2 and 6 bar.

The ambient temperature where the water softener is installed must be between 4-40 °C.

If the installation location is higher than the water location, such as loft or attic, please pay attention to the important tips on „Loft / attic Installation" on page 12 of this manual.

3.6.2 Inlet and outlet connections

When installing and connecting the water softener: with the bypass valve open and the inlet/outlet valves closed the unit can be connected to the plumbing system. Please pay attention to the water inlet and outlet arrows when installing. Arrows on the inlet and outlet piping from the valve will confirm the direction of flow. Connections can be made with either conventional copper tube and fittings or flexible hoses, ensure hoses are not kinked as this may restrict flow.

3.6.3 Drain connection

Push the flexible drain hose onto the barbed connector (Drain) as shown on page 16 and secure with the clip provided. Run the drain hose to a stand pipe or to a drain. The air gap needs to be at least 20 mm. Softened water will have no adverse effect on a septic tank. You can extend the drain up to 2 m if you have sufficient pressure (greater than 3 bar). The drain hose must not be kinked or restricted in any way as this will cause an overflow from the brine cabinet.

Raising the drain hose

If you have a water pressure of 3 bar or more, you can raise the drain to a maximum of 2 metres above the valve head.

3.6.4 Frost protection

If the temperature at the installation site is likely to drop below 0 degrees Celsius. the drain hose or connecting pipework of the water softener is likely to be subject to temperatures below 0°C as well. It must be protected to prevent freezing. Failure to observe this precaution could lead to damage of the water softener installation and/or overflowing.

3.6.5 Overflow connections

The overflow pipe (not supplied with the softener) should be connected to the elbow at the rear of the cabinet (see page 14). Run the pipe downhill to the drainage point. Take care that the overflow does not discharge where damage could occur.

If the water softener is fitted in a cellar or basement, the overflow can be run to a pumped storage tank. Do not elevate the overflow hose. Note: Do not use jointing cement on the fitting.

3.6.6 Electrical connections

For added safety, peace of mind and ease of installation, your water softener is powered by low voltage via a plug in transformer. This transformer must be connected to a fused switched socket. Attention: Plug the transformer into the socket with the switch in the OFF-position.

3.6.7 Filling the brine cabinet, salt usage and alarm

Now place the water softener salt in the brine cabinet. Use the care cubes (tablet salt) and fill the front of the cabinet approximately half full. (You can also use block salt, from your local dealer). Notes on salt usage:

Your water softener will only perform effectively if there is salt in the brine cabinet during the regeneration process.

It is therefore essential that the salt level does not fall lower than 15 cm in depth when measured from the base of the brine cabinet. N.B. The softener requires no priming, add no water to the brine tank. During regeneration, salt will not enter your water system as the salt used in the regeneration process is rinsed safely away to drain.

Salt Reminder: your water softener is equipped with a salt sensor. When it detects a salt shortage will sound an audible alarm while displaying the "SALT" symbol on the screen to prompt for adding salt. To reset the salt reminder fill the system with salt as described above.

3.6.8 Blending control

All machines are factory set to produce water that is soft. Note: If you prefer water which is less soft, turn the green blending knob on the left side of the valve anti-clockwise until the water meets your requirements.

NOTE: Do NOT adjust the black retaining nut at any time – this should never be touched and should only ever be hand tight. Adjusting or over-tightening could damage this component and cause the blending valve to fail.



3.6.9 Testing for the water hardness in your area

Water hardness can vary from one location to another. To determine the hardness of the water feeding your water softener (unsoftened supply) use the BWT hardness test kit (not supplied with the softener).

You will need the inlet hardness degree of your inlet water when programming your water softener following section 2 of this manual.

3.6.10 Switching on for the first time

Ensure correct and standardized installation by professional technicians.

Before switching on, check the followings:

- Have you removed all protective packaging pads from the salt tank?
- Is there any protective filtering equipment installed upstream of the water softener?

- Is the water supply and power supply to the water softener continuous and stable?
- Has the pressure reducing valve been opened?
- Are the inlet and outlet hoses or couplings properly connected? (Observe the water inlet and outlet arrows - i.e. inlet-to-inlet, outlet-to-outlet.)
- Are the drainpipe and overflow (salt tank) pipe separately connected to a suitable wastewater system? Is the overflow pipe runs downhill from the softener? (see page 13)
- Are users informed of the need for regular self-checks? (Check the amount of regenerated salt remaining in the salt storage tank within a maximum of two months).
- Are users informed to perform maintenance on the water softener every six months to ensure normal operation of the water softener?

Note: The drain and overflow must not be linked to each other.

Water Pressure check:

Using a suitable pressure gauge check the water supply pressure is within the softener specification parameters.

The bypass arrangement (see page 13) should be in the open position i.e.

- the inlet- and outlet valves closed (E), (C)
- the bypass valve (D) is open
- Check that the mains stop valve (F) open
- Check that the Brine Cabinet (G) contains salt.
- Check that the water softener is connected to the drain (J) and the overflow pipe (O) is connected.

Power connection

This product uses a safe low-voltage interface. Just plug the power adapter into the socket during operation.

After the initial check:

- Gently open the inlet valve (C) so that water flows into the resin vessel.
- Connect the transformer (or battery if applicable) lead to the terminal on the rear of your water softener and turn on the power. You will hear the valve move into the service position. When the positioning process has been completed (which can take up to 5 minutes) you will hear the movement stop, the valve has now reached its service position in preparation for the programming procedure.

- Close the by-pass valve (D).
- Gently open the outlet valve (E).
- Check for leaks and take corrective action to stop leaks if required.

After completing the above installation operations, regeneration salt can be added to the salt tank of the water softener.

Regeneration salt

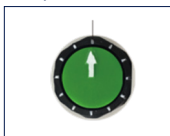
When performing the regeneration program, it is necessary to ensure that there is regeneration salt in the salt tank, so that the water softener can be used normally. Therefore, the amount of regenerated salt in the salt-cabinet must be maintained at a height of more than 15 cm. Note, do not add water to the salt cabinet yourself.

Check that there is not a high water level in the tank (approaching the overflow). If excessive salt usage or no salt usage is suspected refer to the fault diagnosis, troubleshooting and repair section of this manual. If a high water level or overflow conditions are found then please refer to the fault diagnosis, troubleshooting and repair section of this manual.

During the regeneration process, the regeneration salt will not enter the water treatment system, and the regeneration salt will be safely discharged through the drain.

Blending valve (hardness regulator)

All products are factory defaulted to produce soft water. If you need to adjust the softening degree of the water, just turn the hardness adjustment valve counterclockwise (see L on page 13 for details).



Your water softener is now online and you may start the valve programming procedure set out in the next section of this manual.

4. Operation

To operate effectively, your water softener must have the current time, hardness of your supply water and type of salt (where applicable) set.

Follow the Quick Set Guide in Section 2 Pressing the [SET] button will toggle between user settings and Operation mode.

Once set no further adjustment of the water softener is required. Charge Bar During normal operation there is a charge bar running along the bottom of the display. This shows the percentage of water softener capacity remaining. Immediately following a regeneration, the charge bar returns to 100 %.

4.1 Function

The unit operates according to the principle of intelligent regeneration. The average capacity level of each model is preset and updates automatically to the actual consumption within 14 days by gathering data on your actual metered water usage.

It is not necessary to adjust the unit for individual requirements.

Intelligent regeneration (smart metering)

When the unit is started, the available supply of softened water is programmed (depending on the hardness of the water). At a user-defined time (e.g. at night), the unit checks whether the remaining supply of softened water is sufficient for the following day. If this is not the case, the softening column is regenerated by only the exact percentage necessary to fully replenish the supply of softened water to 100 %.

Note: With intelligent regeneration, the remaining supply of softened water is guaranteed and waste-water and salt consumption is minimized. This is only possible because of the precision flowmeter, which is able to adjust the amount of brine required for each partial regeneration.

Automatic regeneration

When the water consumption reaches the set value of the water softener, the water softener automatically starts the regeneration function.

After completing the regeneration program, under normal working conditions, a soft water capacity column will appear at the bottom of the display, showing the remaining capacity since the last regeneration. After regeneration is completed, the soft water capacity column displays 100 %.

To ensure that the water softener works more efficiently, we suggest using BWT branded regeneration salt. Users need to check the water level and regeneration salt amount in the salt tank every week.

NOTE: Table salt is NOT suitable.

4.2 Operating the softener

Power outage / loss

Power loss in the event of a power failure, your softener will enter a low power mode and stop the operation of the backlight and motor. If the power is restored within 15 seconds then the softener will continue to operate normally. For a power loss longer than 15 seconds the softener display will show PF (power fail) on the display. When power is restored the softener will return to the service position and the current time will need to be reset. Individual programming parameters should be unaffected. When the water softener encounters a power outage, the AMECS system will retain the data of the water softener for a period of time. After the power is restored, if the display shows „12:00“, the timer will also start counting from this moment. In this case, the current time needs to be reset.

Flow indicator

During normal operation, a flow indicator will flash on the display at a rate of one litre per pulse when water is passing through the softener.

Cleaning the softener

The water softener needs to be cleaned regularly. You can use a damp cloth and mild detergent. Do not use bleach or alcohol products to avoid damaging the surface of the water softener.

Trigger a manual regeneration

Generally, water softeners operate in automatic regeneration mode and do not require manual regeneration. In special circumstances where manual regeneration is required, follow the steps below:

1. Press any key to turn on the display backlight.
2. Click the [Regeneration] button in the lower right corner of the control panel to regenerate at night **C** will be shown on the display. Regardless of the remaining capacity, the water softener will regenerate on time.
3. If you press the [Regeneration] button again, the night regeneration will disappear from the display and the operation will be cancelled.
4. If you press and hold the [Regeneration] button for 6 seconds, regeneration will start immediately and this operation cannot be canceled.

Add regeneration salt

Refill the salt no later than when the salt symbol is indicated on the display or when the salt level is 150 mm above the base of the softener.

It must be ensured that the regeneration salt in the salt box is not less than 150 mm. Open the salt cabinet cover and add regenerated salt to the salt cabinet.

Avoid dirt entering the salt storage area

Before adding regenerated salt, you need to clean the packaging of regenerated salt to avoid contamination when adding salt. Clean the storage area or brine cavity with clean water if it gets dirty. If the salt alarm initiates open the salt cover and add salt into the salt storage area to approximately half fill the cabinet.

Salt usage

Your water softener is controlled by a microprocessor which constantly monitors water usage. The system will build up a history of your water requirements and calculate the most economical regeneration pattern. This will ensure a constant supply of softened water whilst maintaining high levels of water and salt efficiency. As your water softener uses a proportional brining system, more frequent regenerations do not necessarily mean high water/salt usage.

Increase in number of residents

Sudden and short changes in water usage should not affect your water softener's behaviour. If however, the number of guests staying with you increases, and your water usage patterns alter. This may cause your water softener to regenerate more often than normal. As the water usage returns to its normal level, the number of regenerations will also return to normal. If the family population increases, the water softener records will change, and the water softener's regeneration frequency will be adjusted accordingly to meet the water demand in different modes.

Cabinet Water Level

During normal operation the water level inside the water softener cabinet will rise and fall as required by the regeneration process. If the water softener is used within the specified operational parameters the water level should not reach the overflow connection.

If however, an overflow situation occurs please refer to the troubleshooting section on page 20 to diagnose the problem. Following any overflow situation reduce the water level in the cabinet by manually removing the excess water and initiate a manual regeneration as described on page 20.

NB: Check the water level weekly and following any unplanned event, e.g. power failure.

Setting the hardness of blended water (outlet water)

To test the water hardness, allow the nearest cold water tap to run for a while and check the hardness of the blended water using the AQUA-TEST hardness tester. Adjust with the blending valve L until the desired value is reached.

5. Maintenance

5.1 Maintenance work

The operator must regularly perform the following checks to guarantee that the unit functions properly.

- Check the regeneration salt and refill after use.
- Check the water hardness: The hardness of drinking water and the set blended water hardness must be checked 2x annually and the hardness of the blended water must be corrected when required.
- Check for leaks, visual inspection: Check connection lines and connections for leaks. Check for dirt in the regenerative storage area and brine cavity every two months and clean and flush with clear water if necessary.

Please check regularly or as often as possible to avoid unexpected situations.

The intervals between checks are recommended minimums and must be adjusted according to site conditions.

5.2 Operator responsibilities

All technical equipment requires regular servicing in order to guarantee optimal functionality.

- Keep yourself up to date with regard to the quality and pressure ratio of the water which is to be treated. If the water quality changes, the settings may need to be changed. Consult a specialist if necessary.
- Regular checks by the operator are required for the warranty and proper functioning of the unit. The water softener must be inspected regularly in accordance with the conditions of operation and use.

Operator check intervals:

- After use the salt is used: Refill regeneration salt
- 2x Annually: Check pressure

- 2x Annually: Check water quality
- 1x Annually: Clean brine container
- If you are using a battery power supply:
 - After use/weekly: Check for low battery symbol
 - If illuminated – change battery

5.3 Maintenance & wearing/consumable parts

Water softeners require regular, professional maintenance by local BWT certified service technician to ensure their normal operation. (Once a year).

Wearing / consumable parts must also be replaced within the prescribed maintenance intervals in order to guarantee functionality and fulfil the warranty conditions. The water softener should be serviced once a year.

Contact BWT Customer Service.

Wearing parts may only be replaced by qualified personnel (contact BWT customer service team). The BWT customer service team offer a range of maintenance and service options for your softener.

Cleaning information: Do not use alcohol or alcohol-based cleaning agents, otherwise the plastic surfaces of the device will be damaged.

5.4 Disposal



At the end of product life please contact BWT Customer Services to arrange a new replacement for your softener. Disposal of your softener and any electrical parts should only be carried out at authorised WEEE recycling centres.

5.5 Serial number information

Production date: The 5th, 6th, and 7th characters from the bottom of the product serial number represent the present day, month, and year of the production date respectively.

Day representatives: numbers 1-9, representing days 1-9, letters A-X, representing days 10-31; Representatives of months: numbers 1-9, representing January-September, letters AC, representing October-December.

Year representatives: Numbers 1-9 represent 2001-2009, letters A-Z represent 2010-2033; Note: There are no I and O in the letters, and the order is analogous.

6. Fault finding

6.1 Trouble shooting Guide



Attention:

If your water softener is not performing as it should, please run through the check list below.

Checklist	Solution
Problem: Water still remains hard.	
Is there a minimum of 150 mm of salt in the brine cabinet?	Fill the brine cabinet with salt.
Is the power on? Whether the power supply is not connected?	Switch the power on and check connections. For battery operation, change the battery.
Is the softener online?	Close the by-pass valve and open the inlet and outlet valves or operate BWT Multiblock valve.
Is the hardness setting correct?	Reset the hardness if required.
Problem: Water level in brine cabinet reaches overflow.	
Is the line pressure within the specification of the water softener?	Connect a pressure gauge to a water outlet and check the pressure is between: 2.0 - 6.0 bar for EU.
Pressure falls outside of the water softener specification.	Fit a pressure reducing valve or booster pump as required. (see note below)
Is there flow through the drain line?	Check the drain line is not kinked, blocked or frozen.
Has there been a power interruption?	Check that the power is on and the connections are secure.
Problem: No water.	
Is the mains stop valve open?	Open the mains stop valve.
Are the inlet and outlet valves of the water softener open?	Open the inlet and outlet valves to the water softener or operate uniconnect

Note:



If any overflow situation occurs or if any of the above requires action reduce the water level by half and initiate a regeneration by pressing and holding the **manual regeneration key [RECHARGE]** for more than six seconds.



Attention:

If your water softener is not performing as it should, please run through the check list below.

Checklist	Solution
Problem: Water runs from the drain constantly.	
Is the water softener in the regeneration process?	If yes, this is normal, wait until the recharge is complete.
Is the power on?	Switch the power on and check connections. For battery operation, change the battery
Problem: Excessive salt usage.	
Check the hardness setting.	Reduce the hardness if incorrect.
Problem: Electronic Display.	
The display shows error code: "Err 1", or "Err2", audible alarm sounds, (see note below).	Check all the connections are secure. Turn the power off for 15 seconds until PF is no longer displayed then turn back on, allow the system to reset
OPTIONAL: The display shows error code: "SALT", audible alarm sounds.	The low salt alarm is active. Fill the brine cabinet with salt. Pressing the [SET] key will reset the salt alarm to full capacity of salt.
Is the digital display blank?	Check the power is turned on and all the connections are secure. For battery operation, change the battery.
Problem: Unit regenerates at the wrong time.	
Is the present time correct?	Reset the present time.

Note:

If the home position is not detected within 10 minutes, the main display will show an "Err 1" message to indicate a controller error and an audible alarm will sound. The error condition can only be cleared by removing and re-applying the power.

If the salt sensor is not connected, Err2 will be displayed on the display and accompanied by a warning sound at the same time to check the connection.

**Attention:**

If problem persists, please call your local dealer or after sales service team.

7. Technical data

7.1 BWT Perlamat 10/15/20/25

product name / type		BWT Perlamat 10	BWT Perlamat 15	BWT Perlamat 20	BWT Perlamat 25
Nominal connection (outside thread)		1" (DN 25) (with 1" elbow)			
Nominal flow rate - in accordance with EN 14743	l/h	1200	1200	1680	1680
Nominal capacity (EN 14743) / (CaCO ₃ mmol/l)	mol	3.9	5.7	10.7	13.4
Operating flow range (min./max.)	l/min	5/50			
Maximum flow rate *	l/min	80			
Net weight	kg	15	19	25	29
Operating weight, approx.	kg	40	50	65	70
Water temperature, min.-max.	°C	5 - 38			
Ambient temperature, min.-max.	°C	4 - 40			
Operating pressure (min./max.)	bar	2 - 6			
Rated power	W	3 W			
Electrical connection	V/Hz	230/50			
Product dimensions width*depth*height	mm	276x470x526	276x470x596	276x470x803	276x470x803
Connection height(A)/Overflow height (s)	mm	409 / 295	479/365	686/572	686/572
Applicable water source		Municipal tap water (drinking water)			
Manufacturer		BWT Haier Drinking Water Technology Co., Ltd.			
Address		Company name: BWT Haier Drinking Water Technology Co.,Ltd. Address: No.159 Malian Road, Huangdao District, Qingdao 266000, PR China			

* At very low flow rates the hardness may not be effectively removed from the water. If peak flow rates are achieved for a sustained period (more than 10min) softener capacity may be reduced and hard water breakthrough may occur. Flow rates are rated at the softener only and do not include hoses or pipe work to and from the installation. System pressure drops are dependent upon installation conditions.

** Wherever the day time water supply pressure exceeds 6 bar a pressure reducing device must be fitted in the water supply prior to the softener.

8. CE certificate



EU DECLARATION OF CONFORMITY

According to the EU directives	Machinery	2006/42/EU
	Low voltage	2014/35/EU
	EMC	2014/30/EU
	RoHS	2011/65/EU

Product: Simplex water softening unit

Type: **BWT PERLAMAT**

Series

is developed, designed and produced according to the above-mentioned guidelines at the entire responsibility of

BWT Haier Drinking Water Technology Co., Ltd.

No.159 Malian Road, Huangdao District, Qingdao 266000, PR China

Reference to applicable harmonized standards:

EN 60335-1:2012/A16:2023; EN 60335-2-108:2008; EN 62233:2008; EN IEC 55014-1:2021; EN IEC 55014-2:2021; EN IEC 61000-3-2:2019/A1:2021; EN 61000-3-3:2013/A2:2021

Qingdao, Oct. 16th 2024

Place, date



Signature (Management)

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