



**Non Electric Water Softeners | User Manual**



HIGH-SPEED REGENERATION - full wash in 15 minutes



LOW CONSUMPTION - more efficient regeneration



MIXING VALVE - the residual hardness degree can be regulated



BUILT-IN BY-PASS - the equipment can be isolated from the installation



CALMAG VALVE - ready to work with a single turn from a screwdriver



EASY SALT REFILLING - specifically designed easy to load salt



HYDRAULIC - no electrical power supply, so no settings to set

**I** PLEASE KEEP THIS MANUAL, WHICH INCLUDES THE SERVICE BOOK, IN ORDER TO PROVIDE YOU WITH A BETTER AFTER-SALES SERVICE.



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# USER'S MANUAL

## FOR WATER SOFTENERS

### 1. PRESENTATION


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The water softener equipment you have purchased is a high performance hydraulic countercurrent water softener that will provide you and your family with high quality softened water.

Limescale or water hardness may cause problems in pipes and affect the proper functioning of the equipment using that water, thus increasing its maintenance and reducing its service life. This reality has prompted us to design this domestic water softening product, which has been specially conceived to protect the plumbing installation in your home against the scaling effects.

Your water softener will provide you and your family the benefits and advantages outlined below:


- Energy savings.
- Greater feeling of well-being.
- Increases the life of electrical appliances.
- Cost savings: it reduces the consumption of soap, fabric softeners and chemical products.
- Low maintenance cost.
- Automatic control of the equipment.

 It is very important that you read and keep this manual before the installation and start-up of the system. If

you have any questions regarding the use or maintenance of this system, please contact your installer.

#### 1.1. WATER SOFTENER SAFETY

Your safety and that of others is very important. We have included some safety messages in this manual.

 This is the symbol for a safety alert. This symbol will warn you about possible situations in which you or those around you could be at risk.

All safety messages will have the alert symbol or the word '**DANGER**' or '**WARNING**'.

Scope of this manual:

- **DANGER:** Severe risk if the following instructions are not immediately followed.
- **WARNING:** All safety messages provide information about the possible danger, how to reduce the risk of injury and what might happen if the instructions are not followed.

#### 1.2. WHAT TO DO BEFORE

See '**Section 5**' before installing the water softener. Carefully follow the instructions (Limited Warranty may be considered void, if the installation is faulty). Please read the entire manual before undertaking installation. Then, collect all necessary materials and tools for the installation.

#### **Check the plumbing installation:**

All installations must comply with the law in force in each region or country. Please be careful when handling the water softener. Do not knock it over, let go of it or place it onto sharp objects. Under no circumstance should the softener be installed outdoors, since it must be protected against sunlight freezing and rough environmental conditions.

### 2. INTRODUCTION

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This system comes with a residual hardness regulator as standard, this enables the selection of the appropriate hardness for your home. The simple hydraulic controller enables quick and easy programming within seconds.

**What is hardness?**

Hardness is the quantity of scaling salts present in water, which are mainly composed of low solubility salts of calcium and magnesium. The main salts causing hardness are listed below:

Calcium bicarbonate:	$\text{Ca}(\text{CO}_3\text{H})_2$
Calcium chloride:	$\text{CaCl}_2$
Calcium sulphate:	$\text{CaSO}_4$
Magnesium bicarbonate:	$\text{Mg}(\text{CO}_3\text{H})_2$

Magnesium chloride:	$\text{MgCl}_2$
Magnesium sulphate:	$\text{MgSO}_4$

These salts, due to their chemical properties, have a tendency to precipitate, producing scale on pipes and obstructing them as they accumulate.

In the same way, hardness has a high tendency to scale on the electrical resistors from heaters and to precipitate in heaters when temperature increases. The combination of hard minerals and soap produces a soap curdling, which reduces the cleansing properties of soap.

The precipitation of hard minerals builds a layer on cooking utensils, connections and plumbing fixtures. It may even alter the taste of food.

**Main problems:**

- Precipitation on pipes, fixtures and appliances.
- Increase in energy consumption due to generated isolation.
- Higher soap consumption.
- Reduction of the electrical appliances' service life and increase of the maintenance needed.

All these problems are greatly reduced when using a water softening system.

**UNITS**

	ppm of CaCO
1 ppm of Calcium	2.5
1 ppm of Magnesium	4.13
1 ppm of $\text{CaCO}_3$	1
1° French (°HF)	10
1° German (°d)	17.8
1° English (°e)	14.3
1 mmol/L	100
1 mval/L=meq/L	50

**How does your system work?**

Water softening is carried out by means of an ion exchange process. The system uses resin with the chemical capacity of capturing Calcium (Ca) and Magnesium (Mg) ions to remove them from water.

When Calcium and Magnesium ions are captured by the resin, two Sodium (Na) ions are released which, due to its chemical properties, produce salts with a higher solubility, thus avoiding all hardness-related problems.

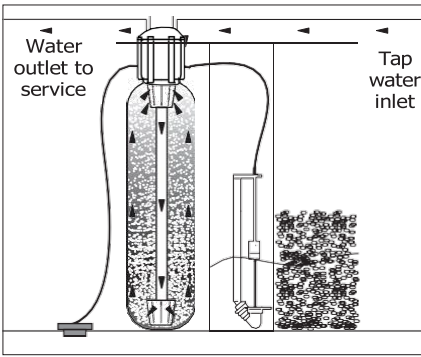
Therefore, when water gets softened, its sodium level increases. Further information on this procedure can be found in 'Section 2.8'.

**Ion exchange resins:**

These are synthetic compounds, usually with a spherical shape, able to capture certain chemical substances present in water, which they then exchange for other substances. Water softening uses strong cation resins, which are composed of styrene copolymers and divinylbenzene with a sulphur base.

The exchange resin charge is inside the column of the water softener and takes up a significant part of the total volume.

During the process, water goes into the valve through the inlet connection, flows towards the bottom of the tank through the distributing pipe and goes upwards through the resin bed. Treated water is collected by the upper nozzle and supplied through the outlet connection. At this point, the equipment has a water meter which counts the volume of treated water.

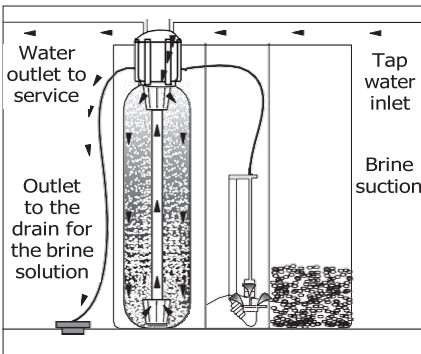


**Regeneration of the system:**

The quantity of calcium and magnesium ions that the resin may retain is limited; therefore, the volume of water that a water softener can treat is limited as well.

The system must periodically carry out a process known as regeneration, which allows the resin to recharge with sodium ions, so it can continue softening water. The regeneration process starts automatically when the programmed water volume is achieved. Regeneration is composed of several stages, which are described below:

**Note: During the regeneration process, the system will allow untreated water to pass through, in order to maintain the water supply.**



**Rinsing with brine/slow rinsing:**

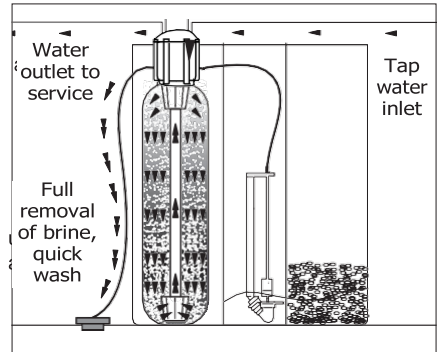
Hard water enters through the inlet, flows towards the compartment of the Venturi tube, which carries the brine (or sodium chloride

solution) from the brine tank. Brine flows downwards towards the resin and then enters the central tube through the lower distributor.

Following this, the brine flows towards the drain tube through the drain valve. The resin beads are replaced by sodium ions from the brine solution during the rinsing with brine and the slow rinsing stages, in order to force the calcium and the magnesium out of the resin beads.

**Subsequent washing:**

Hard water enters through the inlet of the valve, flows downwards to the resin bed and the lower distributor, until the central tube. Then, the water for the subsequent wash flows towards the drain tube through the drain valve.



**Refilling the brine tank:**

Once the subsequent wash is done, the brine tank refills with hard water through the brine valve, in order to prepare the brine solution for the next regeneration. A brine level float controls the water level in the tank. This process is fully automatic, therefore it is not necessary to add any water to the brine tank (except during the start-up, as indicated in 'Section 7').

**Note: The brine line is under pressure when in service. Please check carefully that there are no leaks in the brine line during water treatment.**

**Regeneration degree and capacity:**

The exchange capacity is the quantity of hardness that a certain resin volume can retain before getting exhausted. This

value is usually expressed as litres. The higher the resin volume of the system is, the higher will be the quantity of hardness that can be retained before the resin gets exhausted.

### 21 WORKING FLOW RATES

Please see the minimum and maximum flow rates indicated in the "Technical Specifications" section. If the working ranges are outside the recommended ranges, the proper operation of the system will be affected (excessive loss of charge, hardness leakage, etc.)

### 22 HARDNESS LEAKAGE

The ion exchange process may be affected by different factors, which can reduce its efficiency and cause a certain level of hardness leakage.

**High sodium concentration on water to be treated.** This may interfere in the exchange process.

**Excessive flow rates.** Since there is not enough contact time, some of the hardness may not be retained by the resin.

### 23 RESIDUAL HARDNESS

Depending on the final use of treated water, it may be necessary to obtain fully softened water or, on the contrary, it may be desirable to leave some residual hardness.

This system has been designed to supply fully softened water, but the bypass integrates a residual hardness mixer, which allows the regulation of the desired hardness degree in treated water (see 'Section 7').

**NOTE: For human consumption water, it is recommended in most cases, to have a residual hardness between 50 and 80ppm if pipes are made of copper, and between 80 and 100ppm if they are made of iron.**

### 24 SODIUM INCREASE

Most of the sodium we consume on a daily basis comes from food, salt is an excellent preservative and is used as an additive in prepared products. Sodium consumption through the water we drink is rather low when compared with that obtained from food.

**! WARNING: As mentioned above, water softeners reduce the Calcium and Magnesium concentration in water by replacing it for Sodium. Thus, they increase the sodium level in water.**

The maximum recommended sodium level in water for human consumption is of 200 ppm. Depending on the sodium concentration and the hardness of water to be treated, it is possible that softened water contains a higher concentration of sodium than that recommended.

Should this be the case, or if water is to be consumed by persons who must follow a low-sodium diet, it is recommended to install a household reverse osmosis system for drinking purposes. The table below can be used as a guideline to know the increase on sodium concentration in treated water depending on the entry hardness:

Initial hardness in water (ppm)	Sodium added by softener (mgNa/litre)
100	43
150	65
250	108
300	130
350	152
400	173
450	195
500	217
600	260

### 3. TECHNICAL SPECIFICATIONS

Model:	NE 8	NE 11
Resin Volume:	7.4 litres	10.5 litres
Tank:	203x330	203x432
Working flow:	1.8m <sup>3</sup> /h	2.1m <sup>3</sup> /h
Maximum flow:	2.1m <sup>3</sup> /h	2.1m <sup>3</sup> /h
Exchange capacity:	1760 litres	2370 litres
Salt/regeneration:	0.36 Kg Salt	0.36 Kg Salt
Salt/resin litre:	49.3 g/L	33.7 g/L
Maximum hardness:	600ppm	730ppm
Rinse flow:	3.78 LPM	3.78 LPM
Water consumption/reg:	25	
Regeneration time:	15 min	
Max. iron (ferrous):	<0.5 mg/L	
Max. iron (ferric):	<0.01 mg/L	
Max. free chlorine:	∅1 mg/L	
pH range:	5-10	
Room temperature:	Protect against freezing	
Temperature range:	1.7-35°C	
Pressure range:	2.5 - 5 bar	
Min. flow rate:	0.17m <sup>3</sup> /h	

Pressure rating:	8.6 bar (if above 5 bar a PRV must be installed)	
Electrical connection:	NA	
Rated electrical power:	NA	
Protection class:	NA	
Dimensions (h x d x w):	506 x 293 x 498	608 x 298 x 501

#### Setting of the hardness regulator

NE 8			
		°dH	°TH
A	112	6	11
B	124	7	12
C	138	8	14
D	157	9	16
E	180	10	18
F	213	12	21
----	235	13	23
G	262	15	26
----	293	16	29
H	336	19	34
-	352	20	35
----	390	22	39
-	441	25	44
I	470	26	47
-	502	28	50
----	561	31	56
-	600	34	60

NE 11			
Letter	Hardness		
	ppm	°dH	°TH
A	79	4	8
B	88	5	9
C	98	6	10
D	111	6	11
E	128	7	13
F	152	9	15
----	167	9	17
G	185	10	19
----	209	12	21
H	238	13	24
----	278	16	28
I	334	19	33
-	358	20	36
----	417	23	42
-	501	28	50
J	549	31	55
-	602	34	60
LIMIT	730	41	73

**IMPORTANT:** Please note that not all settings shown on the disc may be found in the chart. Those settings not found in the chart are NOT APPLICABLE.

---- Represents the setting in between two letters

- Represents the setting either 1/4 after or 1/4 before a letter.

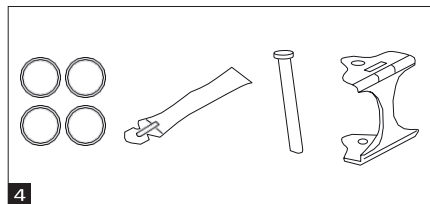
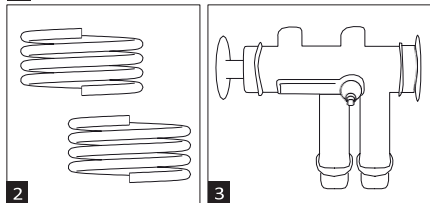


## 4. UNPACKING AND VERIFICATION OF CONTENT

It is important that prior to installing and starting the system you check the parts to ensure that they have not been damaged during transportation.

Any claims for damages during transportation must be presented along with the delivery note or invoice to the merchant, including the name of the carrier, within a period of 24 hours following the receipt of goods. All systems are composed of the elements below:

1. NE 8 and NE 11 water softeners.



2. 2m hose for the drain connection (1/2") and 2m hose for the overflow drain connection (5/8").
3. By-pass valve, mixing valve and installation instructions.
4. Installation kit, including o-rings (for the by-pass valve), clevis pin and inlet/outlet clamping.

The packaging materials can be recycled and must be disposed of in the appropriate recycling bins or a specific centre for the collection of waste material.

The machine that you have acquired has been designed and manufactured with high quality materials and components that can be recycled and reused. This product must not be thrown away into the usual urban rubbish bins. When you wish to dispose of the machine it must be taken to a specific centre for the collection of materials, and you must state that it contains ion exchange resin.

In order to obtain more information about the disposal of your equipment, contact your local Council waste centre or the establishment where you acquired the system.

The proper collection and treatment of the machines that can no longer be used contributes to the preservation of natural resources and also to avoiding potential public health risks.

## 5. PRIOR WARNINGS

**!** The water softener IS NOT A WATER PURIFIER. It removes the hardness from water, leaving softened and treated water which will prevent all problems associated with hard water.

**!** Should the water to be treated not come from a public water supply, that is from an unknown source, a physical-chemical and bacterial analysis of the water shall be necessary, with the aim of ensuring its proper purification by applying the techniques and systems appropriate to each case, PRIOR TO THE INSTALLATION of the system.

Contact your merchant in order to get advice about the most appropriate treatment for you.

## 5.1 CONDITIONS FOR THE CORRECT WORKING OF THE EQUIPMENT

- Do not use hot water in the system ( $T > 35^{\circ}\text{C}$ ).
- The ambient temperature must be between  $4^{\circ}\text{C}$  and  $35^{\circ}\text{C}$ .
- The system should be installed in a dry environment, free of acid vapours. Otherwise, please ensure a proper ventilation.
- Water to be treated must be properly filtered, therefore, it is recommended that a pre-filter is installed to guarantee the removal of suspended particles, which may be swept along by inlet water.



Failure to install an appropriate filter may result in particles obstructing the inner holes or injectors of the system, thus affecting its correct operation. Not required if on mains water.

- A minimum pressure of 2.5 bar must be ensured. Should this minimum pressure not be available, a pressure system/booster must be installed.
- If inlet pressure is higher than 5 bar, a pressure reducing valve must be installed.

## 5.2 INSTALLATION OF THE SYSTEM

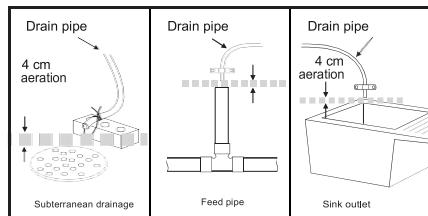
If the water softener must treat the whole water supply, connect it to the general supply pipe before connecting the rest of the pipes, except for pipes supplying the outside. Taps located outside the house must supply hard water. Due to the sodium increase in softened water, it is not recommended to use it for watering, since it can negatively affect the growth of plants and vegetables.

In the event of modifying the home/workplace in order to install the equipment in the planned location, it should be done following national guidelines for interior installations of water and electric supply.

The installation location should have sufficient space for the machine itself, its accessories, connections and room for

servicing and repair. The system should not be installed next to a heat source or where it receives a direct flow of hot air.

The drain connection, where water from regeneration will be driven, must be underneath the installation if possible. The drain connection must always have a free outlet. The diameter of this connection must have a minimum size of 1". The maximum distance between the water softener and the drain intake cannot be higher than 6m.



Raising the drain intake above the water softener level is not recommended, since it can affect the brine suction and, thus, impair the regeneration process.

In the event that this is deemed essential, it can be raised a maximum of 1.5m, provided that the inlet pressure is higher than 4 bar.

If the height is greater or there is not enough pressure, contact your distributor. Under no circumstances should the equipment be installed outdoors. The environment where the equipment is to be installed should adhere to any appropriate hygiene and sanitation conditions.

Avoid any external dripping liquids from pipes, wastewater, etc. onto the equipment.

Should softened water be supplied to a hot water or vapour generator, it will be necessary to install a dependable check valve between the water softener and the generator, in order to prevent hot water from returning to the system and damaging it.

The existing pipelines must not have deposits of either iron or limescale. Replace all pipelines containing a great amount of iron or limescale deposits.

In the event that pipelines are blocked with iron, install a separate iron filter unit before the water softener.

It is recommended valves are installed to take samples for both treated and untreated water, as close as possible to the water softener.

If there are quick-closing valves, it is recommended to install a device to prevent water hammers.

#### **PRECAUTIONS:**

1. Reading and review: Carefully read all procedures, guides and regulations before installing and using the Calmag water softening equipment.
2. Treatment of chemicals: Avoid the presence of flammable products or materials as a safety measure for preventing the risks of explosion and fire. Make sure to use the glue and the cleaning product for PVC in a well-ventilated area.
3. Eye protection: Wear safety goggles during the installation process to prevent any injury in your eyes, caused by the ejection of welding materials or metal and plastic chips.
4. Welding: Use adequate protective equipment to protect the exposed surfaces against the flame of the gun or an excessive temperature increase. Only use welding guns WITHOUT LEAD.
5. Grounding: When installing a plastic pipe between two metallic pipes, a grounding cable must be installed to prevent the interruption of grounding continuity.
6. Easy reach: Use a ladder for working at heights which are out of reach. If you must work at heights for a prolonged period of time, use adequate safety devices.

**Note: We recommend that the installation is carried out by a qualified installer. Failure to install the equipment in accordance with this manual will render the Limited Warranty void.**

If daytime pressure is higher than 5.5 bars, night-time pressure may exceed the maximum. Please use a pressure-reducing valve if necessary (a pressure-reducing valve may reduce the flow).

**Note: The Limited Warranty of the equipment does not cover any damages due to the freezing of the equipment. If you have questions about the Calmag water softener or if you think that it is not working properly, contact your installer or merchant.**

### **5.3 START-UP AND MAINTENANCE**

The system must be periodically sanitised. See 'Section 8' for further information. Maintenance should be carried out by qualified technicians who work under the appropriate hygienic conditions. (For further information contact your installer.)

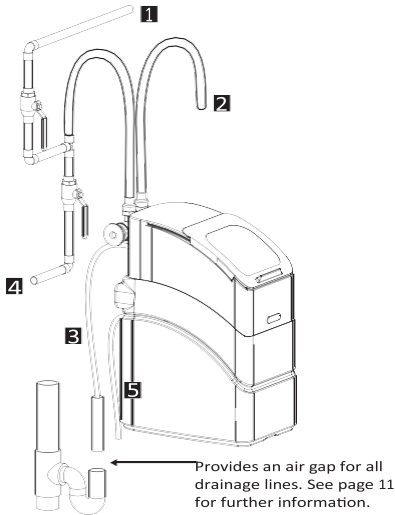
## **6. EQUIPMENT INSTALLATION**

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The installation of the water softener must be carried out by skilled technical personnel. Follow the recommendations in 'Section 5'.

Given that the system that you are going to install improves the quality of the water you consume and is considered a food, all of the tools that you are going to use for the assembly and installation must be clean and, under no circumstances, contaminated or impregnated with grease, oils or rust. Please be extremely careful when handling the materials that are going to be in contact with treated or untreated water.

(For further information, please contact your distributor.)



The installation of the equipment should be carried out in this order:

- A. System configuration.
- B. Pipe connection.
- C. Start-up of the system.

1. Water to be treated.
2. Soft water towards the house.
3. Drain tube.
4. Water to be treated.
5. Overflow line.

**Note:** This configuration is a typical installation for the unit. Your installation may differ. Install a pressure regulating valve and a check valve, when necessary, in the water supply of the softener. The by-pass may be installed with the connections either upwards or downwards, whilst respecting the inlet and outlet connections towards the head, which have embossed marks.

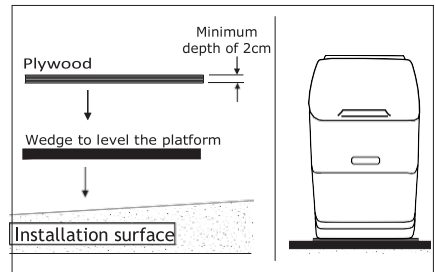
1. The system must always be installed with the supplied by-pass valve. Additionally, a three-valve by-pass can be installed.
2. Close the general water supply valve, which should be next to the main pump or the water-meter.

3. Open all taps in order to empty the pipes from all water.

**Note:** Make sure that the heater is not emptied, in order to prevent any damage.

**!** **'DANGER'**. There is a danger of injury due to an excess of weight. It is necessary that at least two people move and install the system, as well as move and rise the salt bags. There is a danger of back injuries and other body injuries.

4. Move the water softener towards the installation location. Place it on an even surface. If necessary, place it on a plywood platform with a minimum thickness of 2cm. Then, level the platform using a wedge.



**!** **'WARNING'**. Do not place the wedges directly underneath the salt tank. The weight of the tank filled with water and salt may cause the tank to break against the wedge.

5. First make a visual check and clean the inlet and outlet connections of the softener to remove any residues.
6. Assemble the by-pass in the body of the valve by previously lubricating all joints with the lubricant supplied.
7. The tubes and accessories used to connect the main supply pipe to the inlet and outlet of the water softener valve must be loosely measured, cut and assembled. Please keep all fastenings, joints and tubes centred and straight. Check that water flows from the pipe towards the inlet of the water softener.

Once the installation of all pipes is finished and before connecting the by-pass, let water flow through the inlet and outlet pipes to remove all residues and check the tightness of the installation.

**Note: The inlet and outlet are indicated in the valve. Draw the sense of the flow to be sure.**

**!** **'WARNING'** Check that the pipes are fixed, aligned and supported in order to avoid any pressures on the inlet and outlet of the water softener. A wrong pressure coming from a misaligned pipe, or not supported, could damage the valve.

#### WELDED COPPER

1. Clean carefully and apply welding paste on all joints.
2. Carry out all the welding.

**Note: Do not weld to the installation the pipes of the by-pass valve. The heat from the welding could damage the valve.**

#### THREADED PIPE

1. Apply a sealing paste for pipes or Teflon tape on all male threaded pipes.
2. Tighten all threaded connections.

#### CPVC PLASTIC PIPE

1. Clean, prepare and glue all joints according to the manufacturer's instructions.

#### OTHER

Please follow the instructions from the pipes' manufacturer when using other types of pipes and fixtures approved for drinking water.

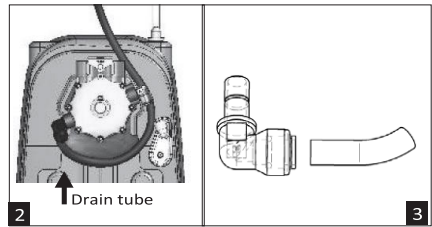
### 6.2 INSTALLATION OF THE DRAIN AND THE OVERFLOW.

Take the drain tubes towards the discharge point. Connect the 1/2" tube to the drain elbow of the valve (2). The drain tube must penetrate into the elbow about 18mm (3).

Take the tube towards the drain of the installation. The section towards the

drain must be as straight as possible to avoid bottlenecks or syphonage. The drain must be evacuated in a sump or drainage outlet with a suitable aeration to prevent waste water from returning to the equipment. In the event that the drain tube must be raised, it can be raised a maximum of 1.5 metres, provided that the minimum inlet pressure is 4 bar.

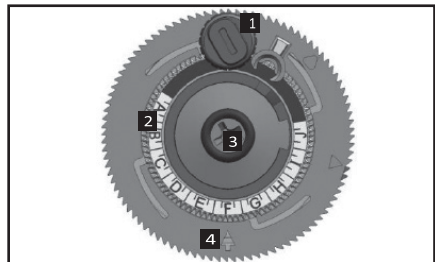
The drain tube must bend around the valve anti-clockwise (see previous figure). Failure to comply with these instructions may result in damages in the drain pipe and your new water softener.



## 7. PROGRAMMER

1. Hardness adjustment knob.
2. Meter dial.
3. Regeneration activator.
4. Viewer for programming.

First, check that the hardness indicator arrow is located in the round viewer (see previous diagram). Otherwise, rotate the inner dial for a full turn (see Manual Regeneration further on).

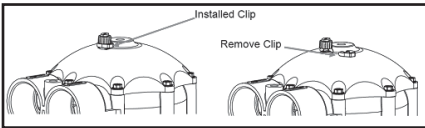


**How to configure hardness:**

To ensure a correct functioning of the water softener, the inlet water hardness must be configured in the equipment.

Using the hardness adjustment knob, turn the hardness dial. The configured value will be that matching the indicator arrow. The hardness configuration tables below indicate the equivalence of the different types of hardness (see 'Tables for the adjustment of the hardness regulator' in page 8). It is recommended to apply a 'safety margin' in the configured hardness so the equipment can adapt to the possible fluctuations that there may be (e.g. if 270ppm are measured, 300ppm must be configured).

**NOTE: The hardness adjustment knob is protected by a blue plastic locking clip to prevent any tampering or misuse. To configure hardness, remove the locking clip. Once hardness has been configured, put the locking clip back on its place.**



**7.1. MANUAL REGENERATION.**

Using a no. 2 Phillips screwdriver, press firmly the regeneration activator of the water softener and turn it slowly clockwise until you hear the four clicks to initiate the regeneration. At this point, the flow of water inside the equipment should be audible. If you cannot hear water moving through the system, maybe the dial has not advanced enough.

**8. HYDRAULIC START-UP**

Before starting the system up, please check that all steps prior to installation, assembly and programming have been properly followed, according to this instructions' manual, as well as the regulations in force. To start the system up, please follow the instructions below:

Do not charge the system with salt until the end of the start-up. In order to

prevent any air pressure on the water softener and the pipes, please follow these instructions in order.

1. Keep the by-pass valve in the "by-pass" position.
2. Fully open two or more cold and treated water taps located near the water softener.
3. Start a manual regeneration as stated in section 'Manual regeneration'.
4. Slowly open the by-pass to allow the entrance of water inside the system. Keep the by-pass partially open. At this point, the inlet flow must be rather low, since in this position water will come in from the bottom of the bottle and move upwards to the drain.
5. When water starts flowing continuously through the drain, fully open the water inlet of the system. At this point, the bottle will be full of water and so a higher flow will not produce any damage. Water going out to the drain may be a bit yellowish or brown. This is completely normal, since it is due to the preservatives of the resin.
6. After a few minutes, you will notice an increase of the water flow towards the drain. This means that the system is in the washing position. Let the equipment finish the process. After a few minutes, cut the flow of water towards the drain and refill the brine tank.
7. Leave the equipment in this position until water stops flowing in. At this point, the water level should be approx. 7-10cm above the bottom of the tank.

**IMPORTANT:** Check the tightness of the brine line, and make sure that there are no leaks and that the refilling process has come to a halt.

**Note:** Since air accumulates inside the equipment, it is possible that at this point the equipment might be blocking the brine level float, which would end the washing without refilling the brine tank. If this occurs, repeat the previous steps.

8. Start another regeneration as indicated in the previous section. Check that the water level in the salt tank goes down during the first minutes of the regeneration. This means that the brine suction process is being carried out properly. Let the regeneration end.

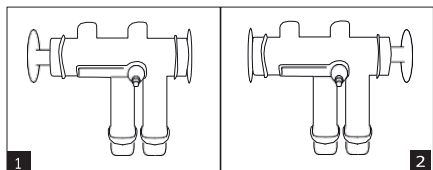
**!** **'WARNING'** It is essential to check that the brine suction is being carried out properly, since an incorrect or insufficient suction will affect the equipment performance and the quality of treated water.

9. Charge the brine tank with salt.

10. The system is ready to operate.

**!** **'WARNING'** There is a danger of injury due to an excess of weight. It is necessary that at least two persons move and rise the salt bags. There is a danger of back injuries and other body injuries.

## 9. BY-PASS AND MIXING

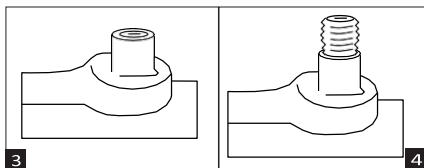


1. Service position: blue.
2. By-pass position: red.
3. Fully closed.
4. Fully open.

As mentioned in "Section 2.7", it is not recommended to supply completely softened water to household supplies.

In order to modify the residual hardness, slightly open the regulating valve, as indicated in the images below.

Then measure the water hardness present on the outlet of the system and check that it fits within the desired values. Otherwise, adjust the regulator and check again.



**!** **'WARNING'** The hardness regulator is supplied in the closed position, therefore, if the system is not adjusted, it will supply fully softened water.

## 10. MAINTENANCE

In order to guarantee the proper operation of the system, the following verifications must be carried out as frequently as indicated:

Verification	Period
Check the salt level in the tank	Monthly
Check entry hardness	Monthly
Check treated water hardness	Monthly
Sanitation	Yearly
Cleaning of the salt tank	Yearly
Technical service verification	Yearly

It is very important to carry out the sanitation and descaling tasks separately, since the chemical products used for this purpose could have a bad reaction when mixed. The sanitation and descaling tasks must be carried out by turns, according to the indicated frequency.

### Salt refilling:

The salt level in the tank must be frequently checked. The minimum salt level must be kept, which corresponds to the half of the tank volume. If salt runs down before filling it up again, the system will produce hard water. After the verification, check that the salt cover is properly closed.

**Note:** For humid areas, it is recommended to keep a lower salt level, filling it up more frequently.

Only use salt manufactured for use in water softeners. The use of block or tablet salt is recommended. **DO NOT USE**

ROCK OR GRANULAR SALT in your system. They contain impurities that can interfere with performance and could invalidate the Limited Warranty.

**How to break a salt bridge:**

Sometimes it is possible that a salt bridge builds up inside the salt tank. This is due to a high level of humidity or to the use of an inappropriate salt. When there is a salt bridge, there is an empty space left between water and salt which prevents it from dissolving. This means that the water softener will not regenerate properly and so, it will supply hard water.

If the tank is full of salt it is difficult to know whether there is a salt bridge, since the salt on the surface may seem loose, even if the lower part is solid. In order to check the existence of a salt bridge, take a long rigid tool (e.g. a broom handle) and keep it next to the water softener to measure the distance from the floor up to the salt edge. Then put the tool in the salt. If there is a hard object, it may be a salt bridge.

Carefully apply some pressure on several places until it breaks.

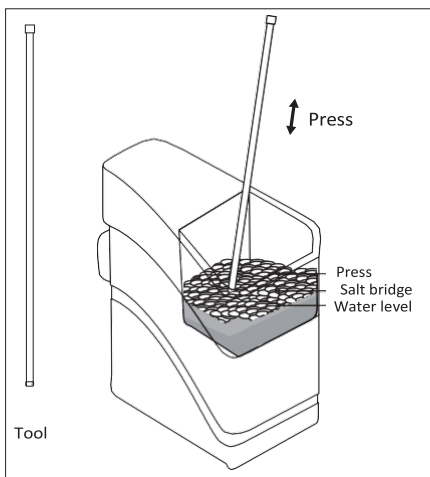
**! 'WARNING'** Do not use sharp or pointed objects, since they could damage the water softener tank.

**Sanitation:** It is recommended to carry out a sanitizing process once per year, as indicated below:

1. Open the cover of the salt tank and pour between 20 to 30 ml (2 or 3 caps) of household, unscented bleach inside the brine chimney. Close it again.
2. Check that the by-pass valve is in service.
3. The disinfection process will be carried out after the regeneration and the disinfecting solution will be sent to the drain.

**Anti-scaling:** A full regeneration must be started if the water softener has been out of service for more than 96h.

If the equipment will not be used for a long time (holidays, second homes, etc.), it is recommended to carry out a full regeneration process before putting it back into service (according to the instructions of this manual).





## 11. FREQUENTLY ASKED QUESTIONS

### **The water pressure at home has dropped. Why has this happened?**

A drop in water pressure may indicate that it is time to change the pre-filter. If your equipment does not have a pre-filter, or if you have replaced the filter, but the problem persists, contact your merchant.

### **It seems that the frequency of regenerations has increased. Is this normal?**

Keep in mind that your equipment is demand-driven, therefore, it automatically adapts to your water consumption. If you believe that your water consumption has not increased due to the presence of more people in the house, additional laundry or any other reason, please contact your installer or merchant.

### **My water does not seem soft to me. How can I be sure that my equipment is regenerating properly?**

Make sure there is no by-pass in the water supply of the water softener. Follow the instructions from page 14 to manually regenerate the tanks of the water softener. If the equipment does not automatically move to the next regeneration, please contact your merchant to receive further assistance.

### **I can hear my equipment running or carrying out the regeneration during daytime. My previous softener only worked at night. Is this normal?**

Unlike traditional water softeners, this equipment is demand-driven in function of water consumption. It has no timers or electronic components. Therefore, your equipment regenerates when necessary, at any time.

### **How will I know when to add salt?**

Lift the cover of the tank to check the salt level. If you can see water, then you need to add salt. You can always add salt if there is enough space to allocate more salt tablets.

### **Can I drink soft water?**

Yes, soft water is suitable for drinking &

cooking. If the water softener carries out the regeneration with sodium chloride (salt), keep in mind that soft water will include a small amount of added sodium. If you are following a low-sodium diet, please take into account the addition of sodium in water in the total amount of mineral intake.

Please refer to the WRAS information and guidance note No 9-07-01 named Information for Installation of Ion Exchange Water softeners for Systems Supplying Water for Domestic Purposes under Section 8 Drinking water tap.

If, at any stage, you think that your equipment is not working correctly, activate the by-pass mode of the equipment and contact your installer.

## 12. SERVICE BOOK: USER

DATE		TYPE OF SERVICE		NAME, SIGNATURE AND STAMP OF AUTHORISED TECHNICIAN		
/	/	<input type="checkbox"/>	INITIAL OPERATION	TECHNICIAN		
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE	STAMP		<input type="checkbox"/> ORDINARY
/	/	<input type="checkbox"/>	REPAIR			<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE	TECHNICIAN		<input type="checkbox"/> ORDINARY
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE			TECHNICIAN
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE			TECHNICIAN
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE			TECHNICIAN
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE			TECHNICIAN
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			
/	/	<input type="checkbox"/>	MAINTENANCE COMPLETE			TECHNICIAN
/	/	<input type="checkbox"/>	REPAIR	STAMP		<input type="checkbox"/> EXTRAORDINARY
/	/	<input type="checkbox"/>	SANITATION			<input type="checkbox"/> WARRANTY
/	/	<input type="checkbox"/>	OTHERS			

DATE	TYPE OF SERVICE	NAME, SIGNATURE AND STAMP OF AUTHORISED TECHNICIAN	
/ /	<input type="checkbox"/> INITIAL OPERATION	TECHNICIAN	
/ /	<input type="checkbox"/> MAINTENANCE COMPLETE	STAMP	
/ /	<input type="checkbox"/> REPAIR		
/ /	<input type="checkbox"/> SANITATION		
/ /	<input type="checkbox"/> OTHERS		
/ /	<input type="checkbox"/> MAINTENANCE COMPLETE		
/ /	<input type="checkbox"/> REPAIR	STAMP	
/ /	<input type="checkbox"/> SANITATION		
/ /	<input type="checkbox"/> OTHERS		
/ /	<input type="checkbox"/> MAINTENANCE COMPLETE		
/ /	<input type="checkbox"/> REPAIR	STAMP	
/ /	<input type="checkbox"/> SANITATION		
/ /	<input type="checkbox"/> OTHERS		
/ /	<input type="checkbox"/> MAINTENANCE COMPLETE		
/ /	<input type="checkbox"/> REPAIR	STAMP	
/ /	<input type="checkbox"/> SANITATION		
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/ /	<input type="checkbox"/> MAINTENANCE COMPLETE		
/ /	<input type="checkbox"/> REPAIR	STAMP	
/ /	<input type="checkbox"/> SANITATION		
/ /	<input type="checkbox"/> OTHERS		
/ /	<input type="checkbox"/> MAINTENANCE COMPLETE		



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