CERTIFIED
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EQUIPMENT

full house

WATER SOFTENER 42

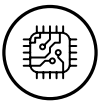
USER GUIDE

SYSTEMS
FOR WATER SOFTENING

INDEX		P

USER GUIDE
FOR SOFTENERS

0. MAIN CHARACTERISTICS



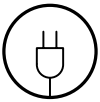
ELECTRONIC PROGRAMMERSMART EFFICIENT CONTROL

VOLUMETRIC

INTELLIGENT REGENERATIONS

MIXING VALVE REGULATES THE RESIDUAL HARDNESS

BY-PASS INTEGRATED ISOLATED SYSTEM



ELECTRONIC ADAPTER MORE SAFETY AND EFFICIENCY

BRINE TANK EASY ACCESS SPECIAL FOR SOFTENERS

MULTILINGUAL PROGRAMMER LANGUAGES AVAILABILITY

ALT ALARM ALT LEVEL SENSOR

Keep this manual, which includes the chapters of the maintenance booklet and the warranty, in order to offer you better after-sales service.

1. PRESENTATION

The softener you have purchased is a state-of-the-art softener with one of the most advanced control heads on the market..

Fullhouse 42 softeners have quickly positioned themselves as an international benchmark in domestic softening systems, both for their proven quality and for their elegant design and simple and intuitive use.

Equipment that combines the virtues and advantages of classic softener with the addition of much more efficient water and salt consumption.

The limestone in the water can cause problems in the pipes and affect the proper functioning of the machines in contact with this water, increasing their maintenance and reducing their longevity.

This reality prompted us to design this range of softeners, specially designed to protect the installations of your home from the effects of incrustation on them.

Your Fullhouse 42 softener will provide you and your loved ones with the following benefits and advantages:

- Energy saving.
- Greater sense of well-being.
- Increases the life of household appliances.
- Savings on detergents and cosmetics.
- Low maintenance cost.
- System automatic control.

It is important that you carefully read and save this manual before installing and starting up the equipment. If you have any questions about the installation, use, or maintenance of this equipment, contact your distributor's technical assistance department.

1.1. SOFTENER SAFETY

Your safety is very important. We have included safety messages in this manual.
This is the safety alert symbol:

This symbol warns of possible circumstances that could endanger your safety.

All safety messages will carry the alert symbol and the word "DANGER" or "CAUTION".

Application of this manual:

~ DANGER: Serious or fatal risk if the following instructions are not followed immediately.
~ CAUTION: All safety messages will indicate potential danger, how to reduce the risk of injury and what can happen if you do not follow instructions.

1.2. BEFORE STARTING

See Section 5 before installing the softener. Follow the installation instructions carefully. (Warranty will not be applicable in case of faulty installation).

Before you start the installation, please read the manual completely. Next, gather all the materials and tools needed for the installation.

Check plumbing and electrical connectors.
The installations must be made according to the regulations in force in each country.

Caution, do not overturn the softener, drop it or place it on sharp objects.
Do not install outdoors, always protect it from bad weather

2. INTRODUCTION

The equipment includes a residual hardness regulation system as standard, which allows you to select the ideal hardness for your home..

Its simple electronic programmer allows quick and easy commissioning of the equipment.
cilla.

2.1 WHAT IS HARDNESS?

Hardness is understood as the amount of scaling salts present in the water, formed mainly by salts of low solubility of calcium and magnesium. The salts that cause hardness are mainly:

Calcium bicarbonate:	Ca(CO3H)2
Calcium chloride:	CaCl2
Calcium sulphate:	CaSO4
Magnesium bicarbonate:	Mg(CO3H)2
Magnesium chloride:	MgCl2
Magnesium sulphate:	MgSO4

These salts, due to their chemical characteristics, tend to precipitate, become embedded in the pipes and clog them by accumulating..

Likewise, hardness has a strong tendency to embed itself in the electric resistances of the heaters and to precipitate inside the boilers, due to the fact that its temperature increases.

The combination of hard minerals and soap produces a soap curd or cut soap. This cut soap reduces the cleaning action of the soap.

Hard mineral precipitation forms a coating on kitchen utensils, fittings and sanitary ware.

Main problems:

· Scaling in pipes.
· Increased energy consumption due to insulation caused.
· Increased consumption of soap.
· Reduced lifespan of devices and increased need for maintenance.

All these problems are solved by using a softener.

In most of Europe, hardness is expressed in French hydrometric degrees; there are other units of measurement depending on the country.

The most common equivalents are listed below.:

UNITS	*ppm of $CaCO^3$*	*º French*
1 ppm of Calcium	2,5	0,25
1 ppm of Magnesium	4,13	0,413
1 ppm of CaCO3	1	0,1
1º French (ºHF)	10	1
1º German (ºd)	17,8	1,78
1º English (ºe)	14,3	1,43
1 mmol/L	100	10
1 mval/L=meq/L	50	5

2.2 HOW YOUR SYSTEM WORKS

Water softening is done through an ion exchange process. For this, resin is used which has the chemical capacity to capture mainly Calcium (Ca) and Magnesium (Mg) ions, effectively capturing them from the water.

When the Calcium and Magnesium ions are captured by the resin, 2 Sodium (Na) ions are released which, due to their chemical characteristics, form salts with much higher solubility, avoiding problems related to hardness.

Thus, when we soften water, we increase its sodium level.

A more detailed explanation of this aspect can be found in section 2.8.

Ion exchange resins:
They are synthetic compounds, normally spherical in shape, which can capture certain chemical species present in the water, exchanging them for others. In the case of softening, strong cationic resins are used, consisting of copolymers of styrene and divinylbenzene on a sulfonated base.

The exchange resin charge is located inside the containing column of the softener, occupying a large part of its total volume (between 60 and 75% depending on the model). It is essential that a part of the column remains free to allow a correct regeneration of the resin bed.

During the curing process, water enters the multi-way valve through the inlet fitting, flows up the bottle through the upper nozzle, passing through the resin bed downwards, thus producing an exchange of ions.

The treated water is collected by the bottom nozzle and led through the inner tube through the bottle to the multi-way valve. The treated water is sent through the outlet connection to the consumer. At this point, the equipment incorporates a treated water meter to count it.

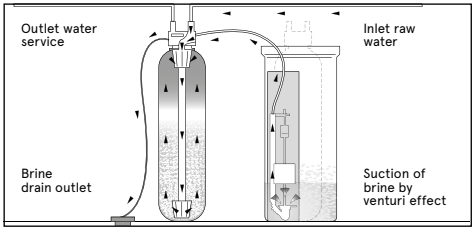
2.3 SYSTEM REGENERATION
The amount of calcium and magnesium ions the resin can hold is limited, and therefore the volume of water a softener can treat is also limited.

The system must perform with some frequency a process called regeneration, which allows the resin to be recharged with sodium ions so that the softening process can be carried out again.

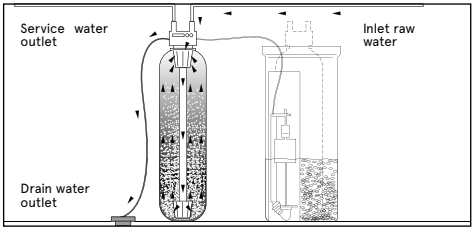
The regeneration process starts automatically when the programmed volume of water reaches its end. The programmer allows you to configure the start of regeneration in several modes, see section 6.3 for more information on how the programmer works.

The regeneration of a softener consists of different steps, each of which is defined below.

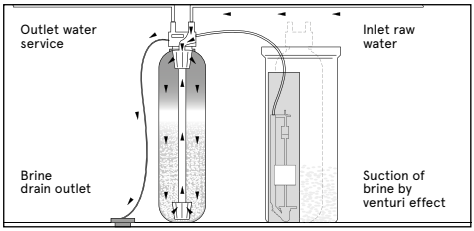
Brine suction:
Thanks to a suction process with venturi effect, the equipment sucks the brine, previously prepared in the salt pan. This brine is introduced downwards into the softening column, in contact with the ion exchange resin and proceed to its regeneration.



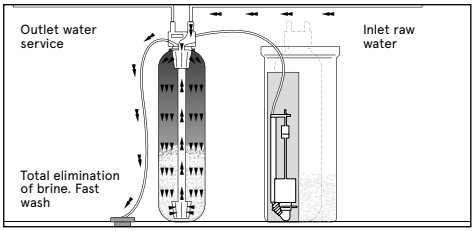
Backwash:
Water is introduced into the column by the lower collector, carrying out washing of the suspended matter and swelling of the resin bed, thus promoting the subsequent regeneration process.



Slow washing:
This is a movement through the resin bed, of the previously aspirated brine solution. In this way, the contact of the brine with the resin is maximized, optimizing its regeneration.



Fast washing:
Wash water is directed down through the resin bed, settling it and ensuring complete removal of any brine that may remain inside the column.



Filling the tank:
The volume of water required for brining consumed during the next regeneration is sent to the salt tank. This process is fully automatic, so there is no need to add water to the brine tank (except during the start-up process, as stated in section 7).

CAUTION: during regeneration, the system allows the passage of untreated water to ensure the availability of drinking water

2. REGENERATION DEGREE AND CAPACITY

Exchange capacity is defined as the amount of hardness that a given volume of resin can hold before it is exhausted. This value is usually expressed in ºHFxm3.

Depending on the amount of sodium chloride used to regenerate each liter of resin, the exchange capacity of the resin may vary.

The Fullhouse 42 softener has three different degrees of regeneration depending on the conditions in which the equipment will operate, as shown below:

In case of higher hardness on the installation, contact after-sales service to properly adjust the equipment. Likewise, the maximum hardnesses indicated in chapter 3 must be taken into account.

2.5 SERVICE FLOW RATES

Ion-exchange softeners must respect adequate contact times between the water to be treated and the resin to ensure that the softening takes place correctly. In Fullhouse 42 units, the flow rates indicated in the technical characteristics (chapter 3) must be respected.

If the working flow rates are outside the recommended ranges, this may affect the proper functioning of the system (excessive pressure drop, hardness leak, etc.).

2.6 HARDNESS LEAKAGE

The ion exchange process on which water softening is based can be affected by different parameters, which can reduce its effectiveness, causing some hardness leakage.

CAUTION: a high concentration of sodium in the water to be treated impairs the process.

EXCESSIVE FLOW
As the contact time is insufficient, some of the hardness may not be retained in the resin.

REGENERATION DEGREE
Higher regeneration levels reduce the risk of hardness leakage.

2.7 RESIDUAL HARDNESS

Depending on the application for which the treated water is going to be used, it may be necessary to soften it completely, or on the contrary, it may be preferable to have some residual hardness.

The systems are designed to provide fully softened water; the control valve incorporates a residual hardness mixer to adjust the degree of hardness of the softened water (see section 7).

CAUTION: for water intended for human consumption, a residual hardness between 5 and 8ºHF is recommended when the pipes are made of copper and between 8 and 10ºHF when they are made of iron (in the latter case it is also recommended to install a posterior silicopolyphosphate filter).

2.8 SODIUM INCREASE

Most of the sodium we consume daily is ingested through food in general and processed foods in particular, salt being an excellent preservative, it is used as an additive in processed products.

Sodium intake from the water we drink is relatively low compared to that ingested through food.

CAUTION : as indicated above, softeners reduce the concentration of Calcium and Magnesium in the water, replacing them with Sodium. Therefore, the level increased sodium in water.

The recommended sodium limit for drinking water is 150 ppm. Depending on the sodium concentration and hardness of the water to be treated, softened water may have higher sodium concentrations than recommended.

In cases where this occurs or in the case of people who must follow a low sodium diet, a reverse osmosis system should be installed for drinking water consumption.

The following table serves as an orientation on the increase of the sodium concentration in the treated water depending on the inlet hardness:

RAW WATER HARDNESS (ºHF)	*SODIUM ADDED BY THE SOFTENER(mgNa/liter)*
10	43
15	65
25	108
30	130
35	152
40	173
45	195
50	217
60	260

DISTRIBUTED BY:
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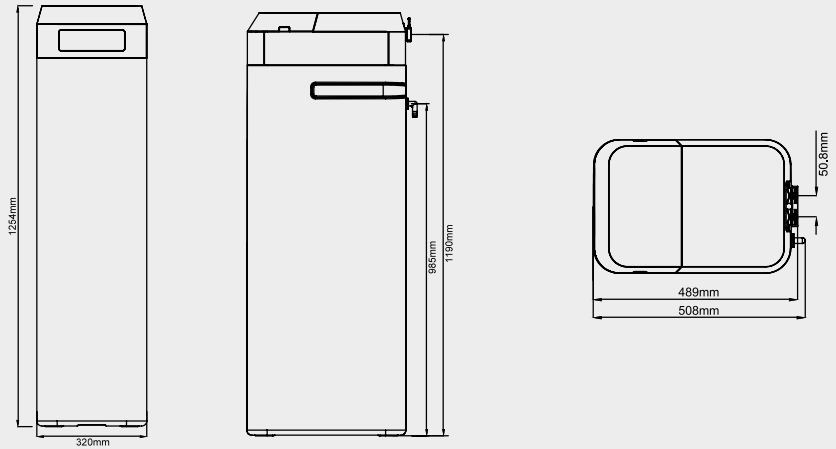
08480, L'Ametlla del Vallès
Barcelona - Spain

3. TECHNICAL CHARACTERISTICS

Product:	FULLHOUSE 42
Code:	960614
Control System:	BNT-850HE Pro Control Valve
Regeneration Type: **Regeneration Mode:**	UP FLOW Days, Meter immediately, Meter Delay, MI Days Override, MD days override
Hardness removal: **48 g/L salt dosage:** **96 g/L salt dosage:** **192 g/L salt dosage:**	Capacity exchange ppm/m^3 1008 2175 3384
Tank size: **Sand quantity (Kg):** **Resin quantity (L):** **Salt storage capacity (Kg):**	10 x 44 / 42 75
Rated service flow (m^3/H): **Back wash flow rate (L/M):** **Water used per regeneration (L) 96g/L salt dosage:**	2.2 9.0 138
Product dimension (DxWxH mm):	489 x 320 x 1254
Plumbing connections:	3/4" or 1" fitting avalaible
Electrical requirements: INPUT **Electrical requirements: OUTPU** **Electrical requirements: BATTERY**	100V 240V AC 50/60Hz 12V DC 1.0 A 9V DC (6LR61)
Water supply: **Water temperature:**	Municipal 4~43
Operating Pressure (MPa):	0.21~0.86



4. UNPACKING AND CONTENTS

It is important that before the installation and commissioning of the equipment, to check the material received, in order to ensure that it has not been damaged during transport.

CAUTION: Claims for damage during transport must be presented with the delivery note or invoice to your distributor, attaching the name of the carrier, within a maximum of 24 hours after receipt of the goods.

Units are supplied fully assembled and consist of the following components:

· Volumetric WATERMARK valve: Fully automatic built in Noryl. Equipped with an isolation by-pass and a residual hardness mixing valve.

· Column containing the resin, constructed of fiberglass-reinforced polyethylene.
· Special load of strong cation type ion exchange resin for softening, provided inside the column.
· Compact cabinet VDB, made of plastic material, with salt capacity for several regenerations.
· Packaging and protections, including a pressurized balloon to prevent the resin column from moving.

Before starting the installation of the equipment, this manual should be read carefully.

CAUTION: the air bag must be removed before installing the equipment

The materials used in the packaging are recyclable and must be disposed of in the appropriate selective collection containers or in the specific place for the recovery of materials.

The purchased device has been designed and manufactured with high quality recyclable and reusable materials and components. This product cannot be disposed of with normal municipal waste. When renewing the device, you must hand it in to the specific local center for the recovery of materials, indicating that it contains circuits, electrical and electronic components, as well as ion exchange resin.

For more information on the disposal of electrical or electronic equipment, once it has reached its useful life, contact a licensed waste handler or the facility where your dealer.

Collecting and processing unused devices helps preserve the environment and avoid potential risks to public health.

5. PRELIMINARY WARNINGS

The VDB series water treatment equipment is NOT a water purifier. Its purpose is to remove hardness from the water, leaving treated, softened water that will prevent hard water problems.

If the water to be treated does not come from the municipal public network or is of unknown origin, it will be necessary to carry out a physico-chemical and bacteriological analysis of the water, in order to ensure that it is properly potabilized by applying the techniques and equipment adapted to each need, BEFORE INSTALLING your system.

Contact your dealer for advice on the most appropriate treatment for you.

5.1 CONDITIONS FOR THE CORRECT OPERATION OF THE DEVICE

· Do not supply your system with hot water (T<36ºC).
· Ambient temperature must be between 4ºC and 45ºC.
· The equipment should be installed, if possible, in a dry environment free from acid fumes. If not, adequate ventilation must be ensured.
· A minimum pressure of 2.5 bar must be ensured, if this minimum pressure is not available, a pressure relief system must be installed.

· If the inlet pressure is higher than 5.5 bar, a pressure regulator must be installed.
· The water to be treated must be suitably filtered, which is why the installation of a filter beforehand is recommended to guarantee the elimination of suspended particles entrained by the inlet water. It is recommended to use the self-cleaning filters of the FILTERMAX series, which incorporate all the necessary components.

If an adequate filter is not placed, these particles could clog the gauges or the internal injectors of the equipment, affecting the correct operation of the equipment.

5.2 SYSTEM INSTALLATION

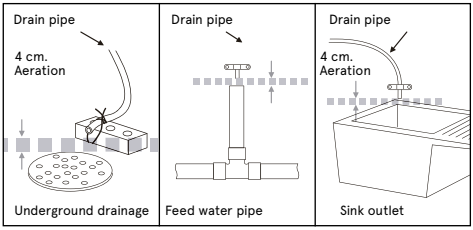
· To treat the whole house supply, connect the softener to the general supply pipe, before connecting it to the rest of the plumbing, except for the outlets to the outside. Faucets located outside the house should provide hard water. Due to the increase in sodium in softened water, its use for irrigation is not recommended, as it can negatively affect the development of plants and vegetables.

· If it is necessary to condition the installation in order to be able to install the equipment in the intended place, this must be done in accordance with the national regulations in force for electrical and hydraulic installations.

· The place provided for its installation must have sufficient space for the device itself, its accessories, its connections and for correct maintenance.

· The equipment must not be installed next to a heat source or directly receiving a flow of hot air on it.

· A drain connection is necessary for the evacuation of the regeneration water. The drain connection must be with a free outlet. The diameter of this connection must be at least 1". The maximum distance between the softener and the drain outlet less than 6 meters.



· Do not raise the drain outlet above the level of the softener, as this may affect brine draw, resulting in improper regeneration.

· If necessary, the drain outlet can be raised by a maximum of 1.5 m. as long as the inlet pressure is above 4 bar.

· In case of higher heights and/or insufficient pressures, contact your dealer.
· Under no circumstances will the equipment be installed outdoors.
· The place where the equipment and faucet are installed must meet adequate hygiene and sanitation conditions.

· Avoid external drops on equipment from pipes, drains and so on.

· If the softened water supplies a hot water or steam generator, it will be necessary to install a non-return valve between the softener and the generator to prevent hot water returns which could damage your softener..

· It is recommended to provide for the installation of water sampling valves to be treated and treated, as close as possible to the softener.

· If there are quick-closing valves in the installation, install an anti-water hammer device.
· The softener only works with a power of 12 volts at 50 hertz, powered by the transformer included in the equipment. Be sure to use the transformer and plug it into a 220–240 V, 50Hz outlet. Similarly, it must be ensured that the installation of the dwelling is duly protected by a circuit breaker or fuse.
· If the daytime pressure exceeds 5.5 bar, the nighttime pressure may exceed the maximum. Use a pressure reducer if necessary. (A regulator can reduce the flow).

· It is recommended to install a silicopolyphosphate filter at the outlet of the equipment, to protect the installation from the corrosive tendency of softened water.

5.3 COMMISSIONING AND MAINTENANCE

The equipment must be disinfected periodically. To see Section 8 for more information.
· Maintenance of the equipment must be carried out by qualified technical personnel with an adequate attitude and hygienic conditions. (For more information, contact your after-sales service).

6. SYSTEM INSTALLATION

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

Since the device to be installed improves the quality of the water that will be consumed and that it is considered as food, all the tools that will be used for assembly and installation must be clean and in no case can they be contaminated or impregnated with fats, oils and oxides; take extreme precautions in everything related to the materials that will be in contact with the water to be consumed. (For more information, contact your reseller).

6.1 TOOLS AND PARTS NEEDED
Before you start the installation, gather the necessary tools. Follow the instructions in section 6.2.

If you use a copper tube stirred
Pipe cutter
Blowtorch Pliers
Tin-Silver.
Sandpaper or steel wool

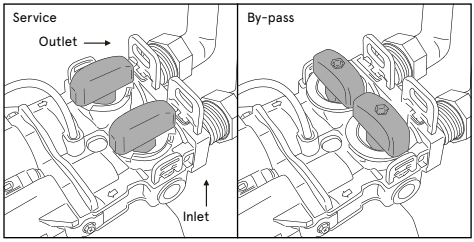
If you are using threaded tubing
Pipe cutter or steel saw
Threading machine
Pipe sealant
Pliers

If you use PVC plastic
Pipe cutter
Steel saw
Adjustable wrench
PVC glue
Pliers

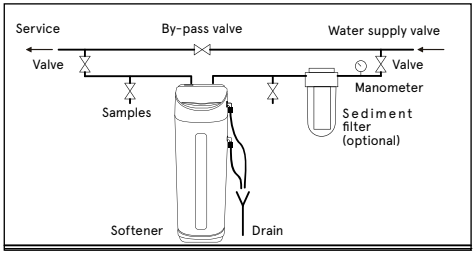
If you use other materials
Other suitable pipes and supports for drinking water supply, according to manufacturer's requirements and local regulations

6.2 INSTALLATION STEP BY STEP

1. The equipment must always be installed with the supplied bypass valve. In addition, a bypass consisting of three valves can be installed. This is provided for several positions.



Recommended installation



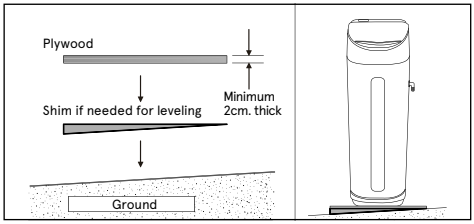
2. Close the general water inlet valve, near the main pump or meter.

3. Open all the faucets to empty all the pipes in the house of water.

CAUTION: try not to empty the heater to avoid damaging it.

DANGER: There is a risk associated with handling excessive weight. Two people are needed to move and install the equipment and two people to move and lift the bags of salt. Risk of back injury and other bodily harm.

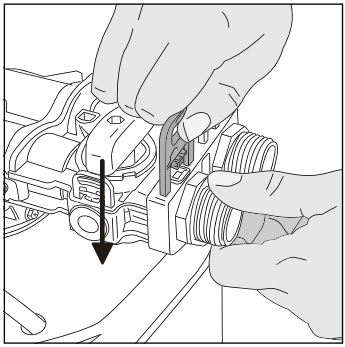
4. Move the softener to the installation position. Place it on a flat surface. If necessary, leave it on a plywood platform of at least 2 cm. thick. Then level the deck with a wedge.



CAUTION: Do not place shims directly under the salt reservoir. The weight of the tank loaded with water and salt can cause the tank to burst against the hold.

5. Visually check and clean the debris softener outlet and inlet fittings.

6. The equipment is delivered with a set of Noryl inlet and outlet fittings. Make sure that the retaining clips of the connecting fittings are well anchored.



7. You must measure, cut and loosely fit the pipes and fittings from the main water supply line to the inlet and outlet of the softener valve. Take care to keep the clamps all together, and the pipes square and straight. Check that water is flowing from the hose to the softener inlet.

CAUTION : inlet and outlet are marked on the valve. Draw the direction of the flow for more safety.

CAUTION : check that the pipes are fixed, aligned and supported to avoid any pressure entering and leaving the softener. Incorrect pressure from misaligned or insufficiently supported piping can damage the valve.

Welded copper

1. Clean thoroughly and apply solder paste to all joints.
2. Complete all welds.

CAUTION: do not weld the pipes attached to the bypass valve. The heat from welding will damage the valve

Threaded pipe

1. Apply pipe joint compound or Teflon tape to all male threaded lines.
2. Secure all threaded connections.

PVC plastic pipe

1. **Clean, prepare and glue all seams following manufacturer's instructions.**

Follow the plumbing manufacturer's instructions when using other types of plumbing approved for potable water.

Drain Installation

Measure, cut to length and connect the ½" drain line to the softener drain connection fitting. Secure the pipe with a clamp.

CAUTION : hook up the drain pipe with the underground drain. Attach the drain hose. This will prevent whiplash during returns.

Brine tank overflow elbow installationl

Connect the overflow elbow installed on the equipment to a nearby drain. This outlet must be at a height lower than the overflow.

CAUTION : The overflow pipe must be installed in such a way as to avoid backflow of water from the drain pipe of the appliance.

6.3 PROGRAMMER SMART SOFT

Description of the programmer

This equipment incorporates an easy-to-use electronic programmer that allows full control of the operation of the equipment.

SMART SOFT programmers provide important information on the operation of the equipment while allowing simple and fast programming of the same, controlling all its operating parameters.

They also include premium operating options that increase the softener's safety and efficiency, making it one of the most advanced units on the market

Most notable features

· Easy handling and intuitive programming
· Multilingual digital display
· Programming the hardness in ppm
· Timed volumetric operation with safety regeneration by time. Immediate feedback available.
· Fast regeneration: in case of total resin depletion during the day, it allows a fast wash to partially recharge the resin.
· Raw water monitoring: provides information on the amount of raw water supplied by the equipment.

Display LCD

Displays equipment status information. Depending on the position it is in, it will display different messages:

Service : the message displayed on the screen alternates between the following information (only for consultation, not modifiable). See Section 6.5.
· Regeneration: Indicates the regeneration stage the equipment is in and the time remaining for it to complete. By pressing any key you can go to the next step.
· Programming: displays the internal operating parameters and allows their modification.

Keyboard

"MENU" key: allows access to user programming by pressing it, as well as browsing the various parameters to be programmed.
· "CONFIRM" key: used to validate the edited values. In user programming, it returns to the home screen.
· "UP" and "DOWN" keys: used to navigate between the parameters displayed in the service position. In user programming, it is used to modify the parameters.

When no key is pressed for a period of time, the programmer locks for security, displaying a message if a key remains pressed.

ATTENTION : The SMART SOFT programmer has different levels of internal programming reserved for the technical sense.

6.4. SYSTEM PROGRAMMING

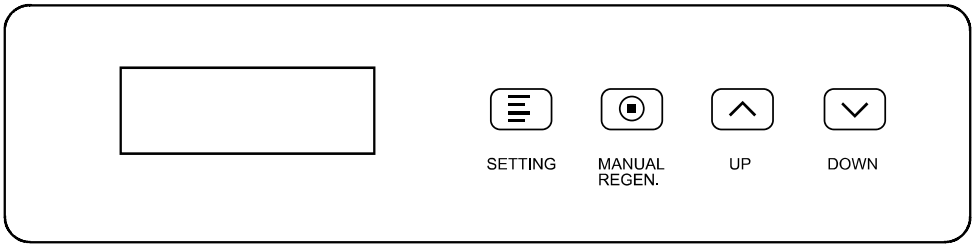
The softener is supplied pre-configured from the factory to be installed for domestic application and after a quick and easy set-up it is ready to operate properly. This includes the following presets:

· Regenerations by volume, delayed at 02:00.
· Safety regenerations every 7 days.
· Fast regeneration enabled.
· Default language: Spanish.
· Hardness units: ºHF.

It is indicated, step by step, how to program the start-up of a softener equipped with a SMART SOFT programmer:

User Programming:

1. If the programmer is locked, press the "MENU" key for 3 seconds to unlock it.
2. Press the "MENU" button for 5 seconds to access programming.
3. By means of the "UP" and "DOWN" keys the displayed values can be modified and by means



This function enters the basics set up information required at the time of installation.

This function is to accept the values if chaged and advance to the next page in the menu.

These buttons are used to increase or decrease the value of the settings while in the programming.

Settings

Press **SETTINGS** key
(3 SECONDS / BEEP)

TIME OF DAY
17:23

Press **SETTINGS** key

YEAR
2020

Press **SETTINGS** key

MONTH
Oct.

Press **SETTINGS** key

DAY
10

Press **SETTINGS** key

SET HARDNESS
340 mg/L

Press **SETTINGS** key

SET PEOPLE
4

Press **SETTINGS** key

SALT SETTING
HIGH EFFICIENCY
STANDARD
IRON & MN

Press **SETTINGS** key

WATER SOURCE
MUNICPAL
WELL / OTHER

Press **SETTINGS** key

REGEN TIME
02:00

Press **SETTINGS** key

LOAD DEFAULT
NO

Press **SETTINGS** key

PROGRAMMING
COMPLETE

8. ADVANCED OPTIONS SETTINGS MENU

PARAMETER	DESCRIPTION
TIME OF DAY	Current time setting.
YEAR	Current year setting.
MONTH	Current month setting.
DAY	Current date setting.
SET HARDNESS	This value is the maximum compensated water hardness in grains per gallon of the raw water supply. It is used to calculate the system capacity. If Ferrous Iron is present add 4 gpd for every 1 ppm of Ferrous Iron.
SET PEOPLE	This value is the number of people living in the home. It is used to calculate the amount of water needed for daily use and the reserve capacity of the system.
SALT SETTING	Choose HIGH EFFICIENCY to minimize salt usage. Your system will regenerate a little more often but your salt usage can be reduced by 20% compared to the STANDARD setting. Choose STANDARD when you need to maximize your capacity but still operate the system with good efficiency. Choose IRON & MN if you have problem water containing these materials. The high salt setting will be needed since these minerals are more difficult to clean out of the resin bed.
WATER SOURCE	If you are on clean city water choose the MUNICIPAL option so that the unit does not waste water performing a back wash every regeneration. If you are on well water or other choose WELL / OTHER to perform a back wash every regeneration.
REGEN. TIME	This setting determines the time of day to perform a scheduled regeneration.
LANGUAGE	System language used on the valve display.
UNITS	Unit of measure the system used, METRIC (litre) and US (gallon) options are avalaible now.
EFFICIENCY & CAPACITY SETTINGS	There are 3 settings to choose in SETTINGS. High efficiency, Standard capacity, and Iron & Manganese. The values of these settings are set in the FACTORY OPTIONS and are used to calculate the system capacity and refill time.
REFILL FLOW RATE	This value should match the BLFC flow washer. It is used to calculate to the refill time.
DAILY RESERVE	This value is used to calculate the reserve capacity. Reserve Capacity = No. People x DAILY RESERVE.
DAY OVERRIDE	This settings can be used to add number of days to over ride the meter. As an exemple if the settings is 5, the system will regenerate afeter 5 days even if there is still gallons capacity remaining. OFF will cancel this feature.
RINSE OVERRIDE	This setting can be used to skip the rinse cycle. As an example if the settings is 10, the system will skip 10 rinse cycles.
BW OVERRIDE	This setting can be used to skip the back wash cycle. As an example if the settings is 10, the system will skip 10 back wash cycles.
FORCED REGEN.	When set on ON, the system will start a forced regeneration when the remaining capcity reaches 3%. The regeneration consists of 8 minutes of Brine and 12 minutes of Rinse. The 20 minutes regeneration will restore up to 33% of the system capacity. At the next regenration time (2:00 AM), the system will automatically perform a standard regeration to restore capacity to 100%
SMART CLEAN	When set to ON, the system will eprform a 10 minute back wash and 10 minute rinse if there is no water flow detected after 7 days. The regeneration will occur at the scheduled REGEN TIME.
RESIN VOL.	This setting is the amount of ion exchange media used in the system. The value is used to calculate system capacity and refill time.
BACKWASH	Control the backwash duration during regeneration cycle.
BRINE	Control the brine duration during regeneration cycle.
RINSE	Control the rinse during regeneration ccycle.
LOCK VALUE	When set ON, the value of unit size, salt setting, back wash and rinse duration will be locked.

9. COMMISSIONING

9.1.HYDRAULIC START-UP

Before proceeding, check that all the previous assembly and programming steps have been carried out correctly and in accordance with this instruction manual, as well as respecting the regulations in force. To perform the boot, follow the steps below:

Do not load the equipment with salt until the start is complete. To avoid air pressure on the softener and plumbing system, follow the steps below.
1. Place the bypass valve in By-pass position.
2. Open a maximum of two treated cold water taps near the softener. Keep them open for a few minutes to make sure any air trapped in the hose is removed. Also check that there are no water leaks in the installation.

3. Connect the programmer to the power supply via the transformer provided for this purpose.
4. The programmer must be in the service position, if not, review section 6.3.
5. Regeneration menu, select "immediate".
6. Open the water inlet valve slowly, allowing water to enter. The inlet flow at this point should be relatively low, as in this position water will enter from the bottom of the column, flowing upwards until it is directed to the drain.

7. When a steady stream of water begins to come out of the drain, the water inlet to the equipment may be fully open. At this point, the column will be completely filled with water and higher flow will not affect it adversely. Water sent to the sewer may have some yellowish or brownish coloring. This is completely normal since it comes from the resin preservatives.

8. Let the water run down the drain until the stain disappears.
9. Shut off the water supply to the system for five minutes. This way the resin will settle to the bottom of the column and any air that might have been trapped will flow to the top of the column.

10. Open the system inlet valve and wait a few minutes to ensure all traces of air have been purged.

11. Cancel the current regeneration step and proceed to the tank filling step. At this time, the brine tank will begin to fill with water automatically. Let this step end naturally. At the end of this step, the equipment will complete the regeneration started in section 6.

12. Start another regeneration according to the point 6, wait for its to return to backwash. Pressing any key will take you to the brine draw step.

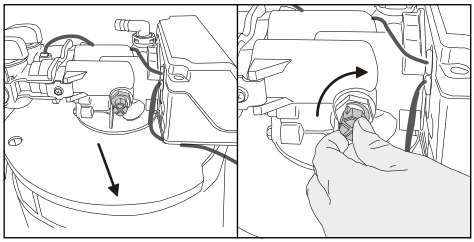
13. The equipment must draw water from the brine tank. Let the suction continue for a few minutes.
14. Undo remaining regeneration steps.
15. Put the by-pass in the service position and check that the treated water is correctly softened.
16. Proceed to load the brine tank with salt.
17. The equipment is now ready to operate.

CAUTION : risk of injury due to heavy weight. At least two people are needed to move and lift the salt bags. There is a risk of back injury and other bodily harm.

9.2 RESIDUAL HARDNESS SETTING

As stated in section 2.7, it is recommended that fully softened water not be supplied to domestic installations.

To change the residual hardness, slowly open the regulating valve as shown in the following illustrations



It is then necessary to measure the hardness of the water leaving the installation and check that it adjusts to the desired values. If not, modify the regulator and check again.

CAUTION: the hardness regulator is supplied totally closed, if the equipment is not regulated it will supply totally softened water.

10. MAINTENANCE AND DISINFECTION

For correct operation of the system, carry out the following checks:

Checking	*Period*
Salt level in the tank	Monthly
Hardness of the water supply	Monthly
Hardness of the treated water	Monthly
Disinfection	Yearly
Descaling	Yearly
Brine tank cleaning	Yearly
After-sales service review	Yearly

CAUTION: It is important not to overlap disinfection and descaling tasks, as the chemicals used can react violently. Cleaning and descaling should be done alternately, according to the frequency indicated.

Salt refill:

Frequently check the salt level in the tank. A minimum salt level equivalent to one-third of the tank must be maintained. If the salt runs out before refilling, the equipment will produce hard water. At the end of the examination, check that the salt lid is properly closed.

CAUTION: In humid areas, it is better to maintain a lower salt level than normal and to refill more often.

Recommended salt: Coarse salt in pellets or balls with less than 1% impurities.
Salts not recommended: Stone salt, with impurities, in block, granulated, in pellets, or cooking.

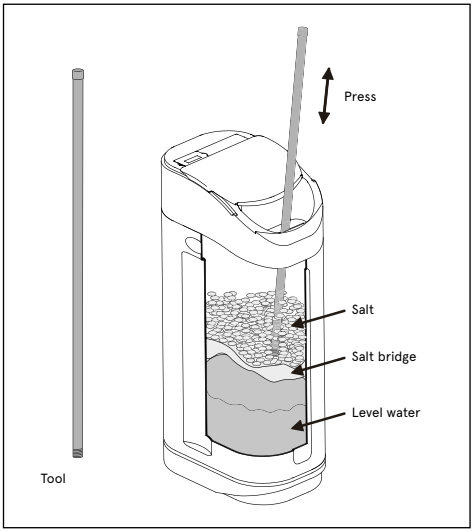
Breaking a salt bridge:

In some cases, a salt bridge can form in the salt deposit. This is usually due to high humidity or the use of low quality salt. When a salt bridge forms, there is an empty space between the water and the salt, thus preventing its dissolution, therefore the softener equipment will not regenerate properly and produce hard water.

If the tank is filled with salt, it is difficult to tell if a salt bridge has formed, as the salt on the surface may feel loose, even though it is compacted at the bottom.

To check for salt bridge, take a long stiff tool (e.g. a broomstick) and hold it next to the softener measuring the distance between the ground and the edge of the salt. Then insert the tool into the salt. If you find an object hard to the touch, it is a salt bridge.

Proceed very gently to press the crust in several places to break it.



CAUTION: do not use sharp or pointed objects.

Disinfection:

Once a year, it is recommended to carry out disinfection as indicated below:

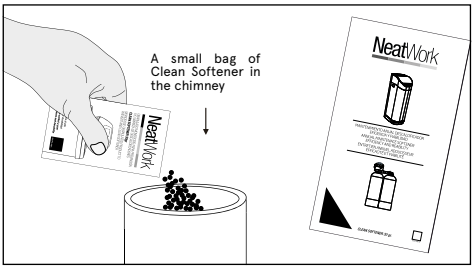
1. Open the brine tank caps and pour 20 to 30 ml (2 or 3 caps) of Bacwater (652100.) into the brine funnel. Close it again.

2. Verify that the bypass valves are in service.

3. The sanitizing process will be complete when regeneration is complete and the sanitizing solution has been expelled from the softener to the drain.

Descaling:

Once a year, clean with Clean Softener (611000), a product specially designed for cleaning and descaling all your softener equipment. This product, thanks to its special formulation, cleans the resin eliminating traces of iron and other metals that could contaminate it while eliminating possible encrustations in the internal passages of of the valve.



CAUTION: Follow the instructions for use of the product carefully.

Extended equipment shutdowns:

A complete regeneration must be initiated if the softener has been out of service for periods exceeding 96 hours.

If the equipment is going to be unused for long periods (holidays, second homes ...), it is recommended to carry out a complete disinfection of the system before putting the equipment back into service (according to the indications of this manual).

11. TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	ACTION
1. The programmer does not work	1. Transformer disconnected. 2. Defective power cord. 3. Lack of power supply. 4. Defective transformer.	1. Plug the transformer into an electrical socket. 2. Replace the cable. 3. Check the installation 4. Replace the transformer.
2. System does not regenerate on time.	Power outages cause jet lag.	Following the manual, set the softener clock.
3. Water leaks	Loose fittings.	Tighten the connections.
4. Disturbing noises / Whitish water	Air inside the system.	Perform an additional backwash to drain the air.
5. Very high water hardness	1. Increased hardness water inlet. 2. Inadequate regeneration. 3. Lack of salt in the brine tank/bridge. 4. Resin damaged.	1. Analyze inlet hardness and reprogram. 2. Review the calendar. 3. Replace resin. Refill salt in the system and break the salt bridge. 4. Replace resin.
6. No brine suction	1. Insufficient pressure supply. 2. Brining line clogged. 3. Clogged injectors. 4. Internal water leakage.	1. The inlet pressure must be at least 2.5 bar. 2. Clean the brine pipe. 3. Clean or replace injector + filter. 4. Check piston, seals and separators.
7. The brine tank is overflowing	1. Transfer rate too high. 2. Incorrect suction. 3. Incorrect transfer time.	1. Check transfer capability. 2. Check suction. 3. Contact your reseller.
8. Water hardness is not removed	1. Unable to start regeneration. 2. Insufficient brine concentration. 3. Incorrect suction.	1. Check equipment power supply 2. Keep the brine tank full of salt. 3. Check suction.
9. Backwash flow weak or too strong	1. Backwash regulator incorrect. 2. Clogged backwash regulator.	1. Place an appropriate regulator. 2. Backwash regulator.
10. Untreated water leaks during service	1. Incorrect regeneration. 2. Leaks on bypass valve. 3. Strainer tube O-ring damaged. 4. Regeneration cycle incorrect	1. Perform a regeneration ensuring the salt setting is correct. 2. Check the bypass valve. 3. Replace the O-ring. 4. Restart the regeneration cycle.
11. Resin leaking from the system	1. Damaged inner diffusers. 2. Resin damaged.	1. Replace damaged diffusers. 2. Replace resin and check installation.
12. Water comes out of the drain during operation	1. Damaged seals and spacers. 2. Damaged piston. 3. Incorrectly positioned piston.	1. Replace seals and spacers. 2. Replace piston. 3. Restart the system, repeat the process and if not corrected, contact your dealer. contact your distributor.

12. WARRANTY

· The distributor guarantees the equipment for a period of two years for issues with conformity that is detected during this period, pursuant to RD 1/2007 of 16 November (Consolidated text of the General Law for the Defense of Consumers and Users). The warranty includes the reparation and substitution of defective pieces by authorised personal by the Distributor or the Official Technical Assistance Service (SAT), where it was installed or in a workshop. The warranty includes all labor and transportation costs that may arise.
· The distributor is excluded from this warranty if the parts are damaged due to natural wear and tear, lack of maintenance, blows or other lacks of conformity that are the result of the inappropropiate use of the equipment or inappropriate according to the conditions and operational limits indicated by the manufacturer of the product. Also, the warranty is no longer valid if the equipment has been poorly handled or used, or if they have been repaired or modified by personnel that does not work for the distributor or official.
· The distributor will respond for any non-compliance in the equipment if it relates to the origin, identity or suitability of the products, in accordance with their nature and purpose. Taking into account the characteristics of the equipment, if the warranty is to cover any lack of conformity, compliance with the technical installation and operation conditions of this warranty sheet is essential; as is a copy of the invoice or purchase ticket. If these conditions are not fulfilled, it may lead to the invalidation of the warranty, taking into account the equipment's purpose and the conditions and operating limits in which it must operate.
· The distributor guarantees that the equipment installed is suitable in particular for the improvement of the quality of the water to be treated, based on the characteristics of the equipment and all applicable laws.
· The installer and/or distributor guarantees the correct installation and implementation of the equipment as indicated by the manufacturer and applicable law and will also respond for any lack of conformity that may result from the incorrect application, instalment or implementation of the equipment.

The system has been installed and works correctly for the client:

* Previous treatment to the system:

* Inlet system hardness (ºF):

* Inlet water hardness (ºF):

* Residual harness(ºF):

* Inlet system pressure (bar):

***Results of Installation and start-up:**

Correct:

Other:

The owner of the equipment has been informed adequately and clearly of the use, manipulation and maintenance that the equipment requires to guarantee its correct operation and the quality of the water produced. For this, we offer you a maintenance contract.

***Maintenance contract reference:**

ACCEPTS the maintenance contract

DOES NOT ACCEPT the maintenance contract

If you need information, or if you need to communicate any damages, maintenance requests or request the intervention of a technician, first read the operational, detection and problem shooting sections of this manual and get in touch with the distributor or the company that sold your equipment.

COMPANY OR AUTHORIZED INSTALLER:

COMPANY OR AUTHORIZED INSTALLER, DATA, SIGNATURE:

NOTE FOR THE COMPANY AND/OR THE AUTHORISED TECHNICIAN/INSTALLER:The data marked with * must be filled by the installing technician and transcribed in the COMMISSIONING AND INSTALLATION REGISTRATION SHEET.

13. INSTALLATION REGISTRATION SHEET

NOTES FOR THE TECHNICIAN/INSTALLER: Read this Manual carefully. If you have any doubts, get in touch with the Technical Assistance Service (T.A.S) of your distributor. The data market with * must be filled by the installing technical and transcribed in the WARRANTY SHEET. This sheet must be preserved by the installer/distributor and may be required by the distributor for the purpose of improving after-sale and customer service. The technician that performs the installation and set-up of the equipment must be in possession of the appropriate skills.

DATA OVER THE APPLICATION OF THE SYSTEM:

Source of water to be treated:

- PUBLIC SUPPLY NETWORK
- OTHER

* Previous treatment to the system:

* Inlet system hardness (ºF):

* Inlet water hardness (ºF):

* Residual harness(ºF):

* Inlet system pressure (bar):

INSTALLATION CHECK-LIST:

Pre-filter installation:		Fittings installation:	
Isolation bypass installation:		Pressurized system tightening:	
Overflow system installation:		Inlet hardness measurement:	
Proper drain istallation:		System programming:	
Start-up according to protocol:		Outlet hardness measurement:	
Brine intaje / tank filling confirmation:		Residual hardness adjustment:	

COMENTARIOS

* Results of installation and set-up:

- CORRECT (system installed and working correctly. Water produced can be used).
- OTHER:

INDENTIFICATION OF THE AUTHORIZED TECHNICIAN:

COMPANY OR AUTHORIZED INSTALLER, DATA, SIGNATURE:

CONFIRMATION:

I have been clearly informed of the use, manipulation and maintenance that the installed equipment requires and I have been offered a maintenance contract and informed of how to contact Customer Service if I need information, if I need to notify any damages or malfunctioning, request a maintenance service or request the intervention of a technician.

Comments:

***Maintenance contract reference:**

- ACCEPTS the maintenance contract
- DOES NOT ACCEPT the maintenance contract

Model/Ref.:

Owner:

Adress:

Phone:

Location:

City: ZIP:

SYSTEM WARRANTY FOR THE DISTRIBUTOR:

Will bear the responsability only and exclusively the substitution of the parts in case of non-conformity. The reparation of the equipment and the expenses that this will entail (labor, transportation costs, displacements, etc), will be the responsability of the distributor, in accordance with what is outlined in the general conditions of sale, which will not be transferable to the manufacturer.

14. MAINTENANCE SERVICE

DATE	SERVICE TYPE	NAME, SIGNATURE AND TECHNICIAN STAMP	
	◯ START-UP		
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY

14. MAINTENANCE SERVICE

DATE	SERVICE TYPE	NAME, SIGNATURE AND TECHNICIAN STAMP	
	◯ START-UP		
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY
	◯ FULL MAINTENANCE ◯ PREPARATION ◯ HYGIENISATION ◯ OTHER	TECHNICIAN STAMP	ORDINARY EXTRAORDINARY WARRANTY

15. NOTES

14. NOTES