TOREN WATER SOFTENER

INSTRUCTION MANUAL

WATER SOFTENERS

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INSTRUCTION MANUAL
FOR WATER SOFTENERS

0. MAIN SPECIFICATIONS

SUPER FAST REGENERATION
WASH COMPLETED
IN 10 AND 15 MIN.

LOW CONSUMPTION
75% SAVINGS IN SALT
25% SAVINS EIN WATER

MIXER VALVE
REGULA EL GRADO DE
DUREZA RESIDUAL

INTEGRATED BY-PASS
ISOLATES THE SYSTEM
FROM INSTALLATION

HIGH VALVE
READY TO WORK
WITH A TURN OF SCREW

EASY SALT FILLING
SPECIAL FOR
WATER SOFTENERS

HYDRAULICS

NO POWER SUPPLY
AND PROGRAMMING

Save this manual, which includes the service and warranty booklets, so that we can provide you with a better after-sales service.

1. PRESENTATION

The water treatment equipment Toren that you have acquired is a high performance hydraulic countercurrent water softener that will supply you and your family with highly quality water.

Lime or hardness in water may cause problems in the pipes and affect the proper functioning of the devices that use this water, increasing their maintenance costs and reducing their life-span.

This reality has pushed us to design this range of water softening equipments for home use, specifically conceived to protect the equipments in your home from the effects of limescape deposits.

Your Toren water softener will provide you and your family the following benefits and advantages:

· Energy saving.
· Increased sense of well-being.
· Increased lifespan of appliances and boilers.
· Economic savings: Decreases the use of soap, softeners and chemical products.
· Low maintenance costs.
· Automatic control of the equipment.

It is important that you ready carefuly and save this manual before its installation and start up. If you have any doubts before the installation, use or maintenance of the equipment, contact the technical assistance service.

1.1. SECURITY OF WATER SOFTENER

Your security and that of third parties are very important. We have included several warnings in this manual.

This symbol represents a security warning. This symbol warns of possible circumstances that may harm your safety or that of others.

All security messages will feature this symbol and / or the phrase **"DANGER"** OR **"ATTENTION"**.

Application in this manual:

~ DANGER: Serious or fatal risk if the following instructions are not followed immediately.

~ ATTENTION: All safety messages will inform you of the possible danger, how to reduce the risk of injury, and what can happen if you do not follow the instructions.

1.2. BEFORE GETTING STARTED

See "Section 5" before installing the water softener. Follow the installation instructions carefully. (The warranty shall not apply in case of defective installation).

Before beginning the installation, read this manual in full. Afterwards, gather all the materials and tools needed for the installation.

Check all the plumbing facilities.

All the installations should be done following applicable laws of every community or country.

Be careful when handling the water softener. Do not tip it towards, drop it or place it on sharp objects.

Do not install outdoors, always protect it from sunlight and adverse environmental conditions.

2. INTRODUCTION

The equipment include a series of systems that regulate residual hardness which allows you to select the ideal hardness for your home.
Your simple hydraulic controller will allow you to program it quickly and easily in only a few seconds.

2.1. WHAT IS HARDNESS?

By hardness we mean the quantity of incrustating salts present in water, mainly formed through salts composed of low-solubility calcium and magnesium. The salts that usually cause hardness are:

Calcium Bicarbonate:	$Ca(CO3H)^2$
Calcium Chloride:	CaCl2
Calcium Sulphate:	CaSO4
Magnesium bicarbonate:	$Mg(CO3H)^2$
Magnesium chloride:	MgCl2
Magnesium sulphate:	MgSO4

These salts, because of ther chemical characteristics, tend to precipitate, embedding themselves in pipes and creating obstructions as they accumulate.

In the same way, hardness has a high tendency to embed in the electrical resistors of boilers and to precipitate inside the boilers due to the rise in temperature.

The combination of hard minerals and soap produces soap curdles. These curdles reduce the cleaning power of soap.

Hard mineral precipitations create a coating around kitchen utensils, connections and plumbing fixtures. They can even affect the flavour of food.

Main problems:

· Precipitations in plumbing, accessories and equipment.
· Increased energy consumption due to the insulation caused.
· Higher consumption of soap.
· Decrease in the life-span of appliances and increased need for maintenance repairs.

All these problems can by solved by using a decalcification system.

In most of Europe, hardness is expressed in French hydrotimeters, but there are also other units depending

on the area where you are located.

Below, you can find the most frequent equivalences:

UNITS	*ppm of CaCO³*	*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 DOES THE SYSTEM WORKS

The softening of water is done through a process of ionic exchange. For this, rasin is employed that has the chemical capacity of capturing mainly Calcium (Ca) and Magnesium (Mg) ions, essentially eliminating them from the water.

At the exact moment when the Calcium and Magnesium ions are captured by the resin, two Sodium (Na) ions are released that, because of their chemical characteristics, create salts that are much more soluble, thus avoiding the issues associated with hardness.

Therefore, when we decalcify water, we increase the level of salt in it.

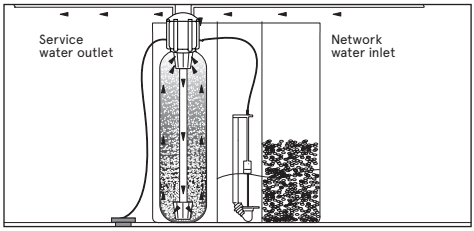
You can read a more extensive explication of this aspect in "Section 2.8".

Ionic exchange resins:
These are synthetic compounds, normally spherical, that have the ability of capturing specific chemicals that are present in the water and exchanging them with others. For water decalcification, strong catatonic resins are used, made of copolymers of styrene and divinylbenzene in a sulfonated base.

The exchange resin load is located inside the container column of the water softener, occupying the entire column.

During treatment, water enters in the Toren valve through the inlet connection, flows up to the end of the tank through the dispensing tube and descends through the bed of resin, leading at this moment to the decalcification of water.

The water treated is collected by the upper basket and supplied to the installation through the outlet collection.



At this point the equipment incorporates a water meter that counts the treated water.

2.3. REGENERATION OF THE SYSTEM

The quantity of calcium and magnesiums ions that may be retained by the resin is limited, and therefore the volume of water that may be treated by the water softener is as well.

With a certain frequency, the equipment must go through a regeneration process, which allows the resin to be recharged with sodium ions so that it can continue to performed the decalcification process.

In Toren equipment, the regeneration process begins automatically when the programmed volume of water is reached.

The regeneration is made up of various steps, each one is defined as follows.

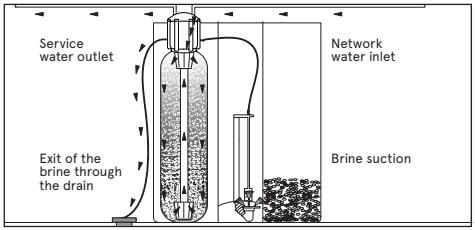
Note: During the regeneration process, the equipment allow the passage of the water without treating it, to allow for continued water availability for consumption.

Rinse with brine/slow rinse:
The hard water is introduced to the unit through the inlet valve and moves until it gets to the department that hosts the venturi tube that transports the brine (or sodium chloride solution) to the brine deposit.

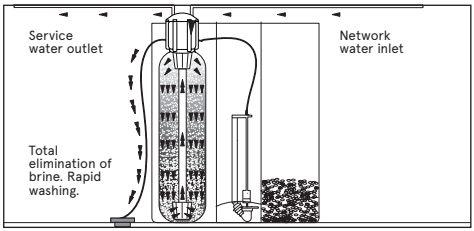
The brine moves in a descending direction through the resine and is continually introduced to the central tube-through the lower distributor.

Afterwards, the brine moves through the drain valve until it gets to the drainpipe.

The resin spheres are replenished with the ions of sodium coming from te brine solution during the rinsing with brine and slow rinsing phase to force the exit of calicum and magnesium from the resin spheres.



Subsequent washing:
The hard water is introduced to the unit through the entry of the valve, moves in a descending motion through the bed of the resin and, as it continues, through the lower distributor to the central pipe. Subsequently, the water from the backwash travels through the drain valve until it reaches the drain pipe.



Filling the deposit with brine:
Once the washing has been carried through, the deposit of brine is filled with hard water through the brine valve in order to prepare the brine solution for the next generation.
The level of water in the deposit is controlled by the brine buoy. This process is completely automatic, since it is not necessary to add water to the brine deposit (except during the start up process, as indicated in "Section 7").

ATTENTION: The brine line is pressurized while in operation, pay close attention that there are no leaks in the brine line during the water treatment.

2.4. REGENERATION AND CAPACITY DEGREE

It's defined as exchange capacity, the quatity of hardness that a determined volume of resin is able to hold before it's depelted. This value is usually expressed in ºHFxm3.

The higher the quantity of resine that is incoporated in the equipment, the higher the amount of hardness that it will be able to retain before being depelted.

2.5. WORK FLOW

Water softeners thta work through ionic exchange must be respect the appropriate period of contant between the water to be treated and the resine in order to ensure the proper performance of the decalcification process.

This equipment must respect the minimum and maximum flows indicated in the technical characteristics sections.

If the work flows are outside the ranges recommended, this may affect the proper functioning of the system (excessive loss of charge, hardness leakage, etc.)

2.6. HARDNESS LEAKAGE

The ionic exchange process on which the decalcifaction of water is based may be affected by various parameters that may affect its efficiency, leading to a certain level of hardness leakage.

High concentration of sodium in the water to be treated.

May interfer in the process of exchange.

Excessive work flow:
If not enough contact time is available, part of the hardness may not be retained by the resine.

2.7. RESIDUAL HARDNESS

Depending on the application for which the treated water will be used, it may be necessary that it be completely decalcified, or on the contrary, it may be preferable that it feature some residual hardness.

The equpiment are designed to supply water that is completely decalcified, even then, the bypass includes a switch for residual hardness that allows you to regulate the hardness of the treated water (see "Section 7).

ATTENTION: For water for human consumption, we recommend a residual hardness between 5 and 8ºHF when plumbing is made of copper, and between 8 y 10ºHF when they are made of iron (in the latter case, we recommend that you install a posterior filter of silicopolyphosphates).

2.8. SODIUM INCREASE

The majority of the salt that we consume every day, we get from food in general and processed food in particular, since salt is an excellent conservant, and it is used as an additive in pre-prepared products.

The consumption of sodium through the water that we drink is relatively low in relation to that consumed through food.

ATTENTION: as has been indicated above, water softeners decrease the concentration of Calcium and Magnesium in the water, replacing it with Sodium. Increasing, thus, the level of sodium in the water.

The recommeded limit for soidum in water meant for human consumption is of 200 ppm. Depending on the concentration of sodium and harndess in the water to be treated, it may be that the decalcified water presents concentrations of sodium that are higher than those recommended.

If this happens, or for people that must follow low sodium diets, a domestic inverse osmosis equipment should be installed for the consumption of potable water.

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

ORIGINAL HARDNESS OF THE WATER (ºHF)	*SOIDUM ADDED BY THE DECALCIFIER (MGNA/LITRE)*
10	43
15	65
25	108
30	130
35	152
40	173
45	195
50	217
60	260

3. TECHNICAL SPECIFICATIONS

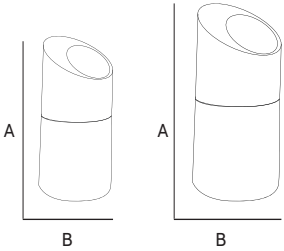
Model:	TOREN 8	TOREN 11
Volume of resin:	7,4 litres	10,5 litres
Tank:	203x330	203x432
Workflow:	1,8m³/h	2,1m³/h
Maximum workflow:	2,1m³/h	2,1m³/h
Exchange capacity:	17,6°HFxm³	23,7°HFxm³
Salt/regeneration:	0,36 Kg Sal	0,36 Kg Sal
Salt/litres of resine:	48,6 g/L	34,3 g/L
Maximum hardness:	60 °HF	73 °HF
Rinsing volume:	3,78 LPM	3,78 LPM
Water consumption/reg.	25	25

Duration of regeneration:	15 min
Maximum iron (ferrous):	<0,5 mg/L
Maximum iron (ferric):	<0,01 mg/L
Maximum free chlorine:	≤1 mg/L
Range of pH:	5-10
Room temperature:	Protection against congelation
Temperature range:	1,7-35°C
Pressure range:	1,7-8bar
Minimum workflow:	0,17m³/h

Pressure classification	8,6 bar
Power connection	NA
Nominal electrical power:	NA
Protection class:	NA

Dimensions

Height A	566 mm	678 mm
Diameter B	351 mm	357 mm



Hardness adjustor

TOREN 8			TOREN 11		
Letter	Hardness	Vol /Regen (L)	Letter	Hardness	Vol /Regen (L)
A	11	1240	A	8	2385
B	12	1122	B	9	2157
C	14	1004	C	10	1930
D	16	886	D	11	1703
E	18	768	E	13	1476
F	21	650	F	15	1249
----	23	590	----	17	1136
G	26	531	G	19	1022
----	29	472	----	21	908
H	34	413	H	24	795
-	35	394	----	28	681
----	39	354	I	33	568
-	44	315	-	36	530
I	47	295	----	42	454
-	50	276	-	50	379
----	56	236	J	55	341
-	60	197	-	60	303
			limit	73	227

4. UNPACKING AND CONTENTS

It is important that before you install and start up the equipment, you revise the materials received in order to guarantee that they have not been damaged during transportation.

ATTENTION: any claim for damages suffered during transporation must be preseted together with the delivery note or invoice to your distributor, noting the name of the carrier, within 24 hours from receiving the merchandise.

The equipment are made up of the following components:

· Water Softener TOREN 8 or 11.

· 1,5 metres of hose to connect the drain (1/2") and 1,5 metres of rope to connect the spillaway (5/8").

· Bypass valve, mixer and installation instructions.

· Equipment installation kit, including O-rings (for the bypasse valve), clevis pins, input/output clamp, and user manual.

The materials used for the assembly are recycleable and must be disposes of in the appropriate selected bins or in the specific locations for the recuperation of such materials.

The equipment that you have acquired has been designed and produced with high quality materials and components that may be recycled and reused. This product cannot be thrown away with other urban waste. When you wish to get rid of the equipment, you must deliver it to the appropriate center for the recuperation of such materials, indicating that it includes resine for ionic exchange.

To obtain more information over how to remove it, ge in touch with the authorized waste manager of with the establishment where you acquired the equipment.

The correct collection and treatment of unusable devices, It helps to preserve natural resources and also to avoid potential risks to public health.

5. PRIOR WARNINGS

TOREN series water treatment equipment ARE NOT POTABILIZERS of water. Its purpose is to eliminate the hardness of the water, leaving a treated decalcified water that will avoid the problems associated with hard water.

In the case that the water to be treated does not come from a public supply network or is of unknown origin, a physical-chemical and bacteriological analysis of the water will be necessary, in order to ensure its correct purification by applying the techniques and equipment adapted to each need, PRIOR TO THE INSTALLATION of the equipment.

Get in touch with your distributor so that they may advise you on the appropriate treatment for your case.

5.1 CONDITIONS FOR THE PROPER OPERATION OF THE EQUIPMENT

· It should not be fed with water that is too hot (T<35ºC).

· The temperature of the room must bet between 4ºC and 35ºC.

· The equipment must be installed, where possible, in a dry environment that is free of acid vapors. Otherwise, its correct ventlation must be ensured.

· The water to be treated must be suitably filtered, so it is recommended that you install a pre-filter that guarantees the removal of suspended particles that were carried by the inlet water.

ATTENTION: If a suitable filter is not placed, these particles could obstruct the internal capacity or injectors of the equipment, affecting the correct functioning of the equipment.

· A minimum pressure of 2.5 bar must be ensured, in case this minimum pressure is not available a pressure system must be installed.

· If the inlet pressure is greater than 5.5 bar, a pressure regulator must be placed.

5.2 INSTALLALATION OF THE EQUIPMENT

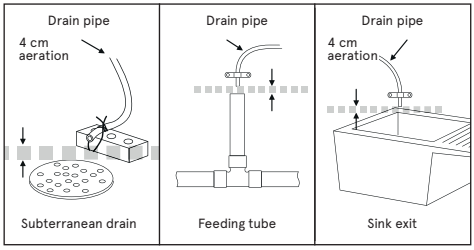
· To treat the entire supply of the house, connect the water softener with the general supply pipe, before connecting with the rest of the plumbing, except for exits to the outside. The taps located outside the house must offer hard water. Due to the increase in sodium in decalcified water, its use for irrigation is not recommended, as it can negatively affect the development of plants and vegetables.

· If you need to adapt the facilities of your residence or business in order to be able to install the equipment in the designated space, any adaptation should be done following all applicable national regulations concerning the internal installation of water and power supplies.

· The spot designated for its installation must be large enough to host the device, its accessories, connections and to allow for maintenance to be carried out comfortably.

· The equipment must not be installed next to a heat source or should not receive any direct hot air over them.

· A drain connection is required, for the discharge of regeneration water and should be placed be on foot of installation. The drain connection must be with free outlet. The diameter of this connection must be at least 1". The maximum distance between the water softener and the drain inlet cannot exceed 6 meters.



level of the water softener, as it may affect the suction of the brine, causing incorrect regenerations.

· If it is absolutely necessary, it can be elevated to a maximum of 1,5 m, as long as the inlet pressure is 4 bar.

· In case of higher heights and/or insufficent pressure, get in touch with your distributor.

· The equipment should never be installed outdoors.

· The place and environment where the equipment is installed must meet adequate hygienic and sanitary conditions

· External drips must be avoided on the equipment from pipes, drains, etc.

· In case the decalcified water supplies a hot water or steam generator, it will be necessary to install an effective non-return valve, between the water softener and the generator, in order to avoid hot water returns that could damage the equipment.

· Existing pipes should not have iron or lime deposits. You must replace pipes that have large amounts of iron and lime deposits. If the pipes are clogged with iron, install a separate iron filter unit in front of the water softener.

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

·If there are quick-closing valves in the installation, we recommended the installation of an anti-ram device.

Precautions:

1. Reading and review: Read all procedures, guides and standards carefully before installing and using the TOREN descaling system.

2. Treatment of chemical substances: avoid the presence of flammable products or materials to prevent fires or explosions. Be sure to use the glue or PVC cleaner in a well ventilated spot.

3. Eye protection: Wear protective goggles during the installation process to avoid possible eye damage that could cause the projection of welding materials or metal or plastic shavings.

4. Welding: Use a suitable protector to protect surfaces that are exposed to the flame of the gun or excessive temperature rise. Use only welders that DO NOT CONTAIN LEAD.

5. Grounding: When installing a plastic pipe between two metal pipes, a ground wire must be installed to prevent the grounding from being interrupted.

6. Easy reach: Use a ladder to work at heights that are out of reach. If you must perform work at height for a prolonged period. Use appropriate safety devices.

ATTENTION: we recommend that the installation be carried out by a qualified installer. If the system is not installed as indicated, the warranty could be invalidated.

· If the daytime pressure exceeds 5.5 bars, the night pressure may exceed the maximum. Turn to a pressure reducing valve if you need it. (A pressure reducing valve can reduce the flow rate).

· We recommend that you install a silicopolyphosphate filter at the exit of the equipment, thus protecting the installation from the corrosive tendency of decalcified water.

ATTENTION: the equipment warranty does not cover damage caused by freezing of the system. If you have any questions about the TOREN water system or if you believe that it is not working properly, contact your dealer.

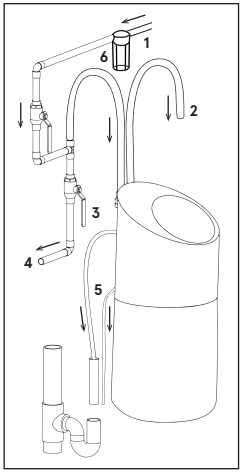
5.3 START UP AND MAINTENANCE

· The equipment must be sanitized periodically. See "Section 8" for more information.

· The maintenance of the equipment must be carried out by qualified technical personnel, with the adequate skills and hygienic conditions. (For more information contact the technical service of your distributor).

6. INSTALLATION OF THE EQUIPMENT

The installation of the water 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 to be consumed and this latter is considered food, all the tools that are going to be used for assembly and installation must be clean and in no case can they be contaminated nor impregnated with fats, oils and oxides, and you must take all necessary precautions in everything related to materials that will be in contact with the water to be treated or consumed. (For more information, contact your distributor).



The installation of the equipment must follow the order below (1):

A. Configuration of the system.
B. Connection of pipes.
C. Start up of the system.

1. Inlet / hard water
2. Outlet / soft water
3. Baypass valve
4. Untreated water / hard water
5. Drain / overflow connection
6. Filter

ATTENTION: this is a typical TOREN installation configuration. Your installation may vary. Install a pressure regulating valve and a non-return valve, if necessary, in the water supply of the water softener.

The bypass can be installed with both the connections above and below, always respecting the input and output connections to the head, marked in relief.

1. The equipment must always be installed with the bypass valve supplied. Additionally, a bypass consisting of three valves can be installed.

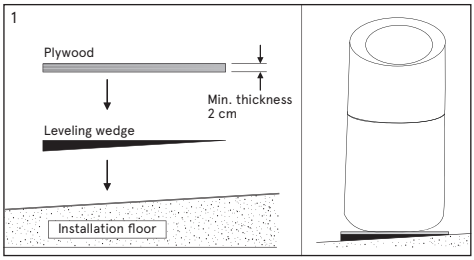
2. Close the general water supply valve, near the main pump or the meter.

3. Open all the taps to empty all the pipes of the water tanks.

ATTENTION: be careful not to empty the heater, to avoid damaging it.

DANGER: there is a risk of injury as you will be managing to excess weight. At least two people are required to move and install the equipment and two people to move and raise the salt bags. There is a risk of back injuries and other bodily harm.

4. Move the water softener to the installation position. Place it on a level surface. If necessary, leave it on a plywood platform of at least 2 cm. thick. Then, level the platform with a wedge (1).



ATTENTION: no not place wedges directly under the salt container. The weight of the tank loaded with water and salt can cause the tank to split against the wedge.

5. Make a visual check and clean out the outlet and inlet connections to the water softener.

6. Proceed to install the bypass on the body of the valve, previously greasing the seals with the lubricant supplied.

7. You should measure, cut and comfortably fit the pipe and fittings from the main water supply line to the inlet and outlet of the water softener valve. Try to keep the fasteners all together, and the pipes framed and straight. Check that water flows from the pipe to the inlet of the water softener.

Once the installation of all the pipes has been completed and before connecting the bypass, discharge water through the inlet and outlet pipes to remove any type of residue and check the tightness of the installation.

ATTENTION: the inlet and outlet are indicated on the valve. Draw the direction of flow to be sure.

ATTENTION: check that the pipes are fixed, aligned and supported to avoid pressures on the inlet and outlet of the water softener. Improper pressure from a poorly aligned or insufficiently supported pipe can damage the valve.

WELDED COPPER

1. Clean carefully and apply welding paste on all joints.

2. Complete all welds.

Note: Do not weld the pipes attached to the bypass valve to the installation. Welding heat would damage the valve.

THREADED PIPE

1. Apply pipe joint paste or Teflon tape over all male threaded pipes.

2. Secure all threaded connections.

CPVC PLASTIC PIPING

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

OTHERS

Follow the piping manufacturer's instructions when using another type of plumbing appro ved for drinking water.

6.2. INSTALLATION OF THE DRAIN AND OVERFLOW

Bring the drain pipes to the discharge point.

Connect the 1/2" tube to the valve drain elbow (2). The drain pipe should penetrate about 18mm into the elbow (3).

Take the pipe to the installation drain.

The conduction to the drain must be as direct as possible, avoiding strangulation or siphoning.

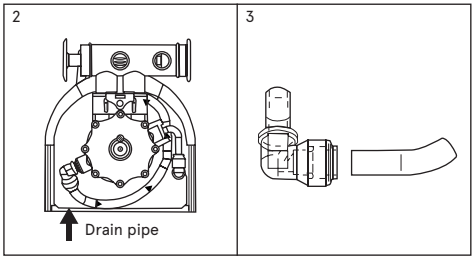
Drain drainage must be carried out in a properly ventilated drawer or outlet to prevent returns to the equipment.

If the drain hose must be lifted, a maximum of 1.5 meters can be lifted provided a minimum inlet pressure of 4 bar is available.

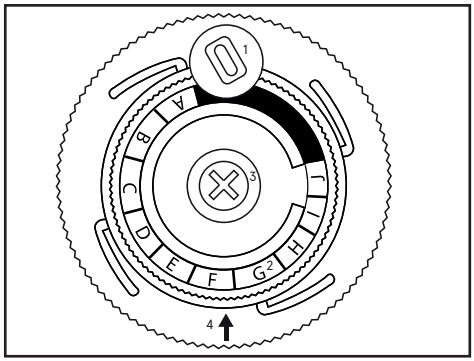
The drain pipe must rotate around the TOREN valve counterclockwise (see illustration above).

Failure to comply with these instructions may result in

damage to the drain pipe or your new TOREN water softener.



7. TOREN PROGRAMMER



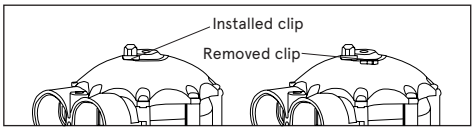
1. Hardness adjustment knob.
2. Disk meter.
3. Regeneration activator.
4. Programming viewer.

First of all, check that the hardness indicator arrow is positioned in the circular viewfinder (see previous diagram). If you are not in this position, you must proceed to complete the inner disk (see manual regeneration below).

Hardness Programming:
To ensure proper operation of the water softener equipment, the hardness of water entering the equipment must be programmed.

The hardness disk is rotated using the hardness adjustment knob. The programmed value will be the one corresponding to the indicator arrow. The hardness equivalence is indicated in the hardness setting tables (see "Hardness regulator setting tables" page 9). We recommend that you apply a certain safety margin on the programmed hardness to adapt to the possible fluctuations that might occur (eg: If 27ºFH is measured, consider 30ºFH).

ATTENTION: the hardness adjustment knob is protected by a blue plastic locking clip to avoid accidental manipulation or damage, therefore to be able to program the hardness it will be necessary to remove the locking clip. Once the programming is done, the locking clip must be returned to its position.



7.1. MANUAL REGENERATION

Using a #2 philips screwdriver, press the water softener regeneration trigger firmly and turn slowly clockwise until you hear the four clicks to start the regeneration.

At this point, you should hear how water circulates through the system. If you do not hear the water moving through the system, it may be because the disc has not advanced enough.

8. HYDRAULIC START-UP

Before starting up, check that all previous steps of installation, assembly and programming have been carried out correctly and in accordance with this instruction manual, as well as in compliance with the applicable regulations. To start up, follow the steps below:

Do not load the equipment with salt until the end of commissioning. To prevent air pressures on the water softener and the plumbing system, follow the steps below in order.

1. Keep the bypass valve in the "bypass" position.

2. Open up to two or more taps of treated cold water near the water softener for a few minutes. In this way we will eliminate the trapped air inside the equipment. Take the opportunity to verify the absence of leaks in the installation.

3. Add about 10 centimeters of water inside the salt tank.

4. Open the bypass partially. Open slowly. The equipment will start the regeneration and the water level in the salt tank will start to drop slowly.

As soon as a continuous flow of water begins to flow through the drain, the bypass can be opened completely. At this point the column will already be completely filled with water and a higher flow rate will not affect you negatively.

5. The equipment must be allowed to perform the complete regeneration itself. For 6-8 minutes the equipment will continue in the aspiration position. After that time the equipment will go to the counterwash position, increase the flow of water sent to the drain and start filling the brine tank. At the end of the regeneration, it must be verified that the sending of water to the drain stops and that the filling to the tank stops completely, showing that the buoy closes completely. At this time the team will already be underway.

ATTENTION: if the equipment is not positioned in regeneration, it must be started manually as in-

dicated in "Section 7.1.".

During the washing process the water sent to the drain can show a certain yellowing, coming from the resin. This is totally normal. If at the end of the regeneration some color is still detected, a second regeneration must be initiated.

6. Once the commissioning is finished, proceed to:

a) Verify the hardness of the treated water (must be close to 0).
b) Increase the residual hardness using the mixer (point 9) if necessary (point 2.7).
c) Add salt to the brine tank.

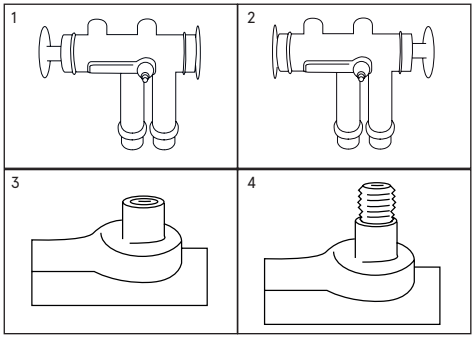
7. The equipment is now ready to operate.

ATTENTION: the tightness of the brine line must be checked, making sure that there are no leaks and that the filling has stopped completely.

ATTENTION: it's essential to verify that the aspiration is carried out properly, since an incorrect or insufficient aspiration will affect the performance of the equipment and the quality of the treated water.

ATTENTION: there is a risk of injury due to excess weight management. At least two people are required to move and raise the salt bags. There is a risk of back injuries and other bodily harm.

9. BYPASS AND MIXING



1. Service position: Visible blue.
2. Bypass position: Visible red.
3. Completely closed.
4. Fully open.

As indicated in "Section 2.7.", it is recommended not to supply totally decalcified water to domestic installations.

To change the residual hardness, the regulating valve must be opened gently, as indicated in the following illustrations.

Next, the hardness of the system's outlet water must be measured and check that it conforms to the desired values. If not, vary the regulator and recheck.

ATTENTION: the hardness regulator is supplied completely closed, therefore, if the equipment is not regulated, it will supply totally decalcified water.

10. MAINTENANCE AND SANITIZATION

To ensure proper operation of the system, it is sufficient to perform the following checks with the periodicity indicated below:

CHECKING	*PERIOD*
Check salt level in the tank	Monthly
Check input hardness	Monthly
Check treated water hardness	Monthly
Sanitation	Yearly
Scaling	Yearly
Salt tank cleaning	Yearly
Technical Service Review	Yearly

It is important not to match sanitation and descaling, since the chemicals used can react violently.

Sanitation and descaling of
alternately, according to the indicated frequency.

Filling salt:
Take care to check the salt level in the tank frequently. A minimum salt level equivalent to half of the deposit must be maintained. If the salt runs out before it is refilled, the equipment will produce hard water. At the end of the review check that the salt lid is properly closed.

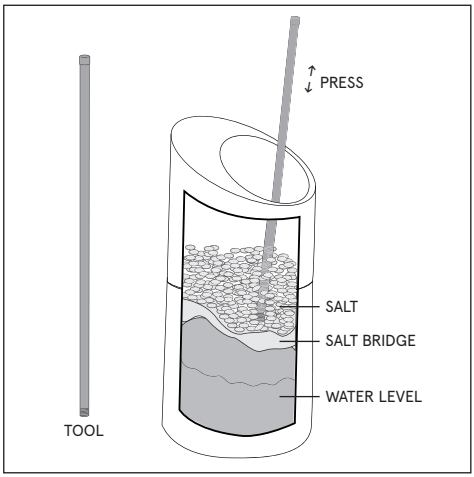
ATTENTION: in humid areas, it is best to maintain a lower salt level than normal, and fill more often.

In balls. According to the UNE EN-973 standard.
Not recommended salts: Salt in stone, with impurities, in block, granulated, in tablets or kitchen.

Break a salt bridge:
In certain cases a salt bridge can be formed in salt deposit. This is usually due to a high degree of humidity or the use of a salt of inadequate quality. When a salt bridge is formed, there is an empty space between the water and the salt, thus preventing dissolution in it, so the water softener will not regenerate properly and produce hard water.

If the tank is full of salt, it is difficult to know if a salt bridge has been produced, since the salt on the surface may appear loose, even if it was compacted at the bottom. To check if there is a salt bridge, take an elongated rigid tool (for example a broomstick) and keep it next to the watermaker measuring the distance from the ground to the edge of the salt. Then insert the tool in the salt. If you find a hard object to touch, it will probably be a salt bridge.

Proceed with great care, to press the scab through several places to break it.



ATTENTION: do not use sharp or pointed objects as this could damage the body of the tank.

Sanitation:
Once a year it is advisable to perform a sanitation as indicated below:

1. Open the salt tank lids and pour 20 to 30 ml (2 or 3 caps) of Backwater into the brine fireplace. Close again

2. Check that the bypass valves are in service.

3. The disinfection process will be completed when the regeneration is finished and the disinfectant solution has been expelled from the water softener into the drain.

Scaling:
Once a year it is advisable to clean with clean softener, a product specifically designed for cleaning and descaling of all your descaling equipment. This product, by its special formulation, cleans the resin, eliminating challenges of iron and other metals that could contaminate it while eliminating possible incrustations in the inner passages of the valve.

ATTENTION: carefully follow the instructions for use of the product indicated on the product labels.

Prolonged equipment shutdowns:
A complete regeneration should be initiated if the water softener has been out of service for periods of time exceeding 96 hours.

In the event that the team is going to stand for long periods (vacations, second homes ...)

it is recommended to perform a complete sanitization of the system before putting the equipment back into service (as indicated in this manual).

11. FAQ

The water pressure in my house has fallen. What could have caused it?
A reduction in the water pressure of your home can indicate that the time has come to change the pre-filter. If your system does not have a prefilter or if the replacement of the filter is effective, contact your authorized representative.

It seems that my system regenerates more frequently. It is normal?
Remember that your system works on demand, automatically adjusting to water consumption. If you do not believe that water consumption has increased due to the presence of more people in the house, additional laundry or any other reason, contact your representative.

My water does not seem soft. How can I be sure that my system is performing the regeneration properly?
Make sure there is no bypass in the water supply that goes to the water softener. Follow the instructions on page 14 to manually regenerate the water softener tanks. If the unit does not start moving on to the next regeneration automatically, contact your representative for additional assistance.

I can hear how my system runs or performs regeneration during the day. The previous water softener only used to work at night. It is normal?
Unlike traditional water softeners, systems work on demand based on water consumption, without timers or electronic components. So your system regenerates when necessary at any time of the day.

How will I know when it is necessary to add salt?
Lift the tank lid to check the salt level. If you can see water, it's time to add salt. You can add salt as long as there is enough space for more blocks or salt tablets to fit.

Can you drink soft water?
Yes, soft water is suitable for drinking and cooking.
If the water softener performs regeneration with sodium chloride (salt), remember that soft water will include a small amount of sodium added. Those with a low sodium diet should consider adding sodium to water in the total amount of mineral intake.

If at any time you think your TOREN system is not working properly, activate the system bypass mode and contact the technical service.

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	TECHNICIAN	
	◯ PREPARATION	STAMP	ORDINARY
	◯ HYGIENISATION		EXTRAORDINARY
	◯ OTHER		WARRANTY
	◯ FULL MAINTENANCE	TECHNICIAN	
	◯ PREPARATION	STAMP	ORDINARY
	◯ HYGIENISATION		EXTRAORDINARY
	◯ OTHER		WARRANTY
	◯ FULL MAINTENANCE	TECHNICIAN	
	◯ PREPARATION	STAMP	ORDINARY
	◯ HYGIENISATION		EXTRAORDINARY
	◯ OTHER		WARRANTY
	◯ FULL MAINTENANCE	TECHNICIAN	
	◯ PREPARATION	STAMP	ORDINARY
	◯ HYGIENISATION		EXTRAORDINARY
	◯ OTHER		WARRANTY
	◯ FULL MAINTENANCE	TECHNICIAN	
	◯ PREPARATION	STAMP	ORDINARY
	◯ HYGIENISATION		EXTRAORDINARY
	◯ OTHER		WARRANTY

15. NOTES

15. NOTES

MU/TOREN/2019