

GUIDE FOR USING AND HANDLING

Industrial Water Softener Equipment

Semi-Automatic, One column
BS-40/HM
BS-60/HM
BS-40/FLM
BS-60/FLM

**Before using the device, please read
the whole guide for use and handling carefully!**

TABLE OF CONTENTS

1. Definition and function of the device.
2. Technical parameters of the device.
3. Main parts of the device.
4. The way the device works.
5. Installation and setting up of the device.
6. Instruction about handling.
7. Process of measuring water hardness.
8. Warranty.

Data sheet for setting up

Warranty document

Quality certificate

1. DEFINITION AND FUNCTION OF THE DEVICE

The equipment is a water softener with a strongly acidic character, regenerated in the form of Na, filled with cation exchange synthetic resin, with automatic operation and regeneration.

Water is in circulation in nature. Falling rainwater with a neutral pH binds part of the CO² content in the air, making it slightly acidic. After that, the ground and surface waters dissolve some of the elements that make up the soil to a certain extent. Calcium, magnesium and, to a lesser extent, iron, manganese and many other elements are present in the largest proportion of these dissolved salts. Descaling is the process during which the salts dissolved in the water separate out and thus onto the internal wall surfaces of the heat-dissipating and heat-generating equipment, causing clogging and an extremely large deterioration of the stone transmission factor, a decrease in efficiency, and often permanent failure. The process takes place more and more intensively when the water temperature rises, so the following equipment is particularly exposed to scale formation: boilers, boilers, fittings and lines of central heating and hot water supply systems, washing machines and dishwashers, steam irons, etc.

THE WATER SOFTENING EQUIPMENT PREVENTS SCALE

The basis of the ion exchange water softening process is that the equipment exchanges the calcium and magnesium ions of the salts dissolved in the water with sodium ions. Sodium salts do not cause calcification even when exposed to heat.

2. TECHNICAL PARAMETERS OF THE DEVICE

Part number	Resin (liter)	Valve / Connection (")	Softened water volume	Size H x W x L (mm)
BS-40/HM	10	3/4"	2 – 3 m ³ / regeneration	540 x 270 x 270
BS-60/HM	15	3/4"	3 – 4 m ³ / regeneration	1000 x 270 x 270
BS-40/FLM	10	3/4"	2 – 3 m ³ / regeneration	620 x 500 x 270
BS-60/FLM	15	3/4"	3 – 4 m ³ / regeneration	1080 x 420 x 230

Min. pressure during operation	: 2,5	bar
Max. pressure during operation	: 6	bar
Min. temperature during operation	: 4	C°
Max. temperature during operation	: 25	C°
Water hardness	: below 1	dH°
Electrical connection	: 230 V, 50 Hz	

Water quality requirements:

The quality of the water to be treated should be approximately drinking water quality.

Iron and manganese content max. : 0.1 mg/L
Potassium permanganate consumption max. : 10 mg/L
Suspended material content max. : 2 mg/L

3. THE MAIN PARTS OF THE DEVICE

The filter equipment mainly consists of the following parts:

3.1. Pressure tank

Task: Storage of filter media. The columns are PE pressure tanks developed especially for treating water with polyethylene padding. Outside they have epoxy resin coating rolled by fiber.

Task: Storage of filter media.

Features: Long service life, little weight, corrosion and chemical resistance

3.2. Ion exchange resin

Task: Implementation of ion exchange processes on the resin bed, which form the basis of the chemical operation of the equipment.

3.3. Overflow valve (HM equipments)

Task: Ensuring the mechanical operating processes of the equipment.

3.4. Blocked semi-automatic regeneration valve (FLM equipments)

Task: Ensuring the programmed, controlled way of the mechanical operating processes of the equipment.

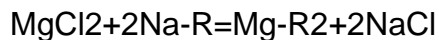
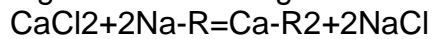
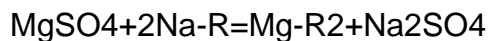
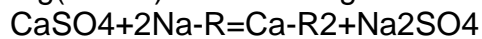
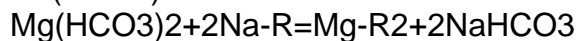
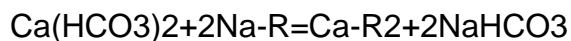
3.5. Brine tank

Task: Producing the salt solution needed for regeneration and storing the regeneration salt.

4. OPERATION OF THE DEVICE

4.1. CHEMICAL OPERATION OF THE DEVICE

The basis of the chemical operation of the equipment is the ion exchange properties of the charged ion exchange resin. This property of the resin is due to the active groups with free valence embedded in the neutral polystyrene carrier. This compound has a relatively low affinity for sodium and a high affinity for calcium and magnesium. During operation, the ion exchange resin filled with sodium continuously exchanges calcium and magnesium ions in the water for sodium ions. This process is the actual water softening, which continues as long as there is sodium on the active groups of the resin.



If the ion exchange resin becomes saturated with calcium and magnesium ions during operation, the resin is considered discharged.

The drained resin must be regenerated. During regeneration, calcium and magnesium ions are removed from the active groups of the resin, and sodium ions are planted in their place. Due to the different affinity, this process only occurs with a significant excess of sodium. In practice, during regeneration, a 10% NaCl solution is flowed through the ion exchange resin. The sodium from the solution is connected to the active groups of the resin, the calcium and magnesium that have been pushed down are connected to the chloride ion and are sent into the channel with the regenerate.

In addition to calcium and magnesium, water also contains many other elements. If the iron or manganese content is especially high among them, the ion exchange resin may suffer partially reversible and partially irreversible damage. Some of the harmful substances deposited on the resin can be removed by acidification, but for the sake of safe operation, the equipment must only be operated with drinking water quality. Where the water quality is worse, pre-filtration or other water technology solutions must be used.

4.2. MECHANICAL OPERATION OF THE DEVICE

During the operation of the equipment, the mechanical operation of the block valve ensures the execution of the water production and regeneration processes.

In the case of the FLM type, press the button to start the regeneration process. After starting regeneration manually, the blocky control head automatically performs the regeneration processes. (semi-automatic).

4.2.1. WATER PRODUCTION

During water production, the water enters the resin column through the upper filter and flows through the ion exchange resin from top to bottom, while the ion exchange takes place. The softened water leaves the device through the lower filter.

4.2.2. PRE-WASHING

During pre-washing, the path of the water is the same as that of water production, but the water leaves the equipment via the waste water outlet.

4.2.3. BACKWASH

During backwashing, the water enters the resin column through the bottom filter and flows through the ion exchange resin from the bottom up, while the resin charge is loosened. The backwashing water leaves the waste water outlet a into the channel.

4.2.4. SALT ABSORPTION (regeneration)

The water passing through the water jet pump built into the block valve (injector) absorbs saturated salt solution from the salt solution tank and approx. Dilute it to 10%. This solution is the top one it enters the resin column through a filter and flows through the resin charge from top to bottom. During the flow through, the resin charge is regenerated. The waste water from the regeneration is discharged into the sewer through the bottom filter, through the waste water outlet.

4.2.5. SLOW RINSE

Slow washing is a process in the same direction as absorbing brine. The slow wash starts when the salt solution in the salt solution tank runs out. Then the salt valve installed in the desalting tank closes and prevents the still existing suction effect from drawing air into the resin column. During the slow wash, the salt solution is squeezed off the resin filling.

4.2.6. QUICK FLUSH

During the quick wash, the water enters the resin column through the bottom filter and flows through the resin filling from the bottom up. Through the upper filter, the waste water exits into the sewer. During the quick wash, traces of the regenerating chemical are removed and the appropriate water quality is adjusted.

4.3. DOWNFLOW WASHING

During the downflow washing the water gets into the upper filter into the column to store charge and it flows through the charge from up to down. It goes into the channel through the drain. During the downflow washing the recompression of the filtrating charge that has been stirred up is done.

4.4. COMPREHENSIVE DESCRIPTION OF CONTROL OPERATION

The automatic block valve performs all operational (operation, regeneration) processes with the electric synchronous motor, after manual start. This structure also operates the mechanics of the valves. (semi-automatic, FLM)

Construction and adjustment of the block valve according to the attachment. Regeneration of flow-through (HM) equipment is done manually, the steps of which are as follows:

- After the resin has drained, the threaded through-flow head is unrolled from the column.
- Fill in a high-purity regenerating salt tablet (resin liter x 0.24 kg).
- Screw the flow-through head back onto the column.
- Leave the salt tablet on the filling for approx. for 4 hours.
- Wash the remaining salt from the column and then use the water softener to soften the water again.

5. INSTALLATION AND SETTING-UP OF THE DEVICE

5.1. CONDITIONS OF INSTALLATION:

A room with flat, horizontal and hard flooring is needed for the installation of the device. The flooring and the direct surroundings of the device must resist to the corrosive effect of the brine. The device must be installed in a room the temperature of which is between +5°C to +40°C. The temperature of the raw water to be treated must not exceed +20°C. The device must not be installed in a strongly damp or dusty room. It must be protected from frost, radiant heat and ultraviolet radiance.

Near the device, sewage connection and 230 V 50 Hz grounded, electric socket must be provided. In order to diminish risks, we advise to install the device into a room provided with floor drainage.

Below water pressure of 2,5 bars, proper regeneration is not guaranteed, so in this case we advise to build in a device to increase pressure. In case the water pressure from the water system exceeds 6 bars, a device to decrease pressure has to be fixed in front of the device.

Fluctuation of pressure higher than $\pm 0,5$ bar is not allowed! Mechanical protective filter must be built in front of the device. It is important that the mechanical protective filter filtrates contamination bigger than 100 microns.

The device does not have any extra protection against water or electricity shortage. If needed, it must be provided while installing.

5.2. CONNECTING THE DEVICE (it is the *customer's/owner's* job)

It is the customer's task to have the device connected to the water, sewage and electricity systems. The operator of the device and the specialist to complete the installation should both check if the device has been installed as described in the guide for use and handling and if the conditions to diminish risks of damage are given. The setting up of the device can be completed by the partner of the Euro-Clear Ltd's service that has a partnership contract. Setting up the device only means the setting up of the automatical control valve fulfilling the local conditions.

When fitting, the valid local regulations, general instructions and hygiene regulations must be followed and the technical parameters given above must be respected.

WARRANTY DOCUMENT

In case the device is properly used, the producer undertakes a warranty of **12 months** starting from the setting up, but maximum **18 months** starting from the date of issuing the quality certificate.

DATE OF SETTING UP:

.....

.....

signature, stamp

The warranty and guarantee are only valid in case the setting up has been completed by Euro-Clear Ltd. or its agent. You can order the setting up of the device at the details mentioned below.

Please send us back the warranty document, setting up data sheet completely filled. In other case the warranty is not valid.

Please keep the warranty document, setting up data sheet and quality certificate for administration purposes in the future.

In case of a breakdown or fault, please inform us in written at the e-mail address contact@euro-clear.eu about the problem that has occurred.

DATA SHEET FOR SETTING UP

Name of the specialist completing the setting up:

Contact details of the specialist completing the setting up:

- Mailing address:
- Telephone number:
- E-mail address:

Name of the seller company (*that you have bought the device from*):

Contact details of the seller company (that you have bought the device from):

- Mailing address:
- Telephone number:
- E-mail address:

Name of the operator of the device:

Contact details of the operator of the device:

- Mailing address:
- Telephone number:
- E-mail address:

Type of the device that has been set up: BlueSoft

Date of setting up:

.....
signature, stamp

Warranty is only valid in case the setting up has been completed by Euro-Clear Ltd. or its agent. You can order the setting up of the device at the details mentioned in the previous page or in the header of this document.

Aid sheet for setting up

- Yes
1. Check the mechanical and electricity connections as follows:
 - 1.1. Is a mechanical protection filter built in front of the device?
 - 1.2. Is the pressure of the raw water convenient? (2,5 – 6 bars)
 - 1.3. Are the directions of water flow convenient? (on the montage block, on the device)
 - 1.4. Is the rinsing water outlet of the device connected into the channel?
 - 1.5. Is the electricity input right? (230V, 50HZ)

 2. Program the control head of the filtrating device
 - 2.1. Have the exact date and time been set?
 - 2.2. Setting the time for regeneration
 - 2.2.1. In case the device is time controlled, has the time between the two washings been set up?

If yes, it isdays
 - 2.3. Setting washing times (advanced settings)
 - 2.3.1. Backwash (Backwash) Has the time been set up?
 - 2.3.2. Rinse (Rinse) Has the time been set up?

 3. Starting manual wash, checking operation cycles:
 - 3.1. Backwash (water comes intensively into the channel).
Is everything all right with the operation cycle?
After washing, is the water that comes out into the channel clean?
 - 3.2. Post washing (bigger volume water into the channel)
After washing, is the water that comes out into the channel clean?
 - 3.3. Repeat points 3.1. and 3.2. several times in a row as long as the outcoming water into the channel gets clear.
Has the charge got clean?

How often did you have to repeat points 3.1. and 3.2. ?

 - In case the iron content of the water gets checked in laboratory, attach the copy of the measurement report.

 4. Training of the staff that handles the device.

 5. Filling in the warranty document

 6. Sending back the data sheet of setting up filled in and signed (terms of warranty) to the address below.

QUALITY CERTIFICATE

1. Issuer of the quality certificate: Euro-Clear Ltd.		2. Producer: Euro-Clear Ltd.	
3. Punctual name of product (its function): Semi-automatic water softeners. Type: BlueSoft.....			
4. Quantity 1	5. Weight and (or) size:	6. Date of production:	
7. Product identification a./ Control valve number: _____ b./ ITJ-number: 36-10 d./ Other identifying details: _____			
8. Delivery and storage regulations: It can be stored and delivered only in standing position. Keep away from heat and frost!		9. Wrapping: Wooden pallet, cardboard box, stretch film	
10. Important features of the product (with punctual technical data, results of measurement): Flow of volume:m ³ /h Quantity of filter media:litres Quality and classifying: Convenient!			
11. Other details: Serial number:		12. Signature of the person issuing the quality certificate: Date: Gönyü, 20..... signature, stamp	