



HIGH-EFFICIENCY WATER SOFTENER

HE 1.5"

CE

TECHNICAL DATA SHEET



M007-10 – Rev. 02 - 08/2019

The Culligan HE water softener, designed to satisfy the most varied professional and semi-industrial requirements, is a specific device for removing hardness (Calcium and Magnesium), by means of exchanger resins that are selected and suitable for contact with water and are foodsafe, such as Cullex strong cation exchange resins in a sodium cycle, normally able to be regenerated with sea salt.

The vertical cylindrical-shaped container is made of fiberglass reinforced corrosion-resistant material.

The HE water softener provides savings in costs while being environment friendly. The HE water softener, using Culligan patented technologies, such as countercurrent resin regeneration, optimization of salt consumption and proportional regeneration, enables saving water and electricity by up to 46% compared to a conventional water softener.

Culligan proportional regeneration technology enables the water softener to regenerate only the spent part of the bed of resin, which reduces to a minimum the consumption of salt and the associated water consumption necessary for the regeneration.

The Culligan Dial-a-Softness® control system enables selecting the hardness of the water for the service without an additional external mixing device.

The exclusive Culligan Soft-Minder® monitors the daily use of water by flow meter and offers an advanced diagnostic program. It allows the regeneration program to be started according to:

- volume of treated water
- timed
- volume of treated water with timed regeneration (domestic volume)

The exclusive HE valve, which uses motor pistons, offers more reliability than conventional rotating valves. The design of the valve with several pistons means easier maintenance and longer life.

The brine container made with corrosion-proof components and the

Dubl-Safe system that controls the level and the quality of the brine ensure perfect functionality.

Moreover, the HE valve is fitted with an automatic bypass system to supply untreated water to the service even when the water softener is being regenerated.

The HE valve is already arranged for the following accessories:

Modem function: via telephone line it sends e-mails to up to 2 settable recipients, sending an equipment operation status report

Smart brine tank: it is possible to evaluate the presence of salt in the brine system (brine tank), the % of actual brine, the level of the brine and the correct operation of the suction system (suction time control)

Remote monitor: via radio link it transmits information relevant to water softener operation from the control unit to a remote display

Progressive flow: enables management of several water softener columns operating in parallel in cascade to cover peak water demands without having to oversize the water softener

Communication cable: enables the display of data from control unit to PC or PLC/remote control network

Service water stop: through this device it is possible to stop the water to the service when the water softener is being regenerated

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Culligan reserves the right to change any technical or design specifications

WARNINGS

- Any operation that is not explicitly described or allowed in this document is prohibited. See the technical manual supplied with the systems for all information and warnings.
- **This equipment used to treat drinking water, when installed and maintained as per operating and maintenance manual.**
Culligan will not be liable for the consequences of improper use of water treated with this system.
- Any handling, installation, scheduled and unscheduled maintenance of the systems must be performed only by trained qualified personnel, expert, knowledgeable and authorised, in compliance with the technical manual. Any selection, dosing and handling of chemicals must be guided by the same criteria as well as by the requirements of the relevant safety technical data sheets.
Only normal periodical replacement of CO₂ containers of household or office appliances are exempt from the obligations in this paragraph.
- Any handling, installation, scheduled and unscheduled maintenance of the systems must be performed while properly wearing at least the following CE marked personal protective equipment in compliance with regulation 2016/425/EU: safety shoes with anti-crushing metal tip and antislip and insulating soles, electrically insulating and antistatic gloves (when necessary), goggles to protect from metal shards and irritants, hard hat (when necessary).
In any case, always keep hair up and do not use work clothing with sleeves, flaps or other elements that may get entangled.
For more details, see the technical manual.
- The room where systems, accessory material and consumables are located must meet the safety, operation and storage requirements set out by current regulations.
It must also be fitted with openings to allow proper ventilation, in order to prevent condensation that may damage the system or cause operating issues.
- The system installation environment, consumable storage environment (either new or used), waste and disposal environments must be compliant with the direction in the system manual and safety regulations for work places. Materials (waste and used) must be disposed off in full compliance with all current local environmental protection regulations.
- The system is fitted with guards and safety devices. These devices must not be removed or altered (safety panels, identification labels with symbols, etc.)
- Upon first installation, perform a preliminary inspection of components.
Cleaning is fundamental to prepare for assembly (this includes but is not limited to: wash hands thoroughly before handling filters or components that come into contact with treated water, use single-use latex gloves, etc.).
After installation, a qualified authorised technician must sterilise the system according to the instructions of the technical manual.
- Any system malfunctions must be timely communicated to the Culligan support centre, and use of the system must be stopped immediately.
In order to stop using the system, close the hydraulic supply, disconnect power supply and open the bypass (if present on the system, e.g. softener), following the instructions in the manual, except when the system is a medical device used to keep a patient alive (or having a similar function).
Culligan will not be liable for the consequences of continuous use of a system that has shown malfunctions.
- Before any handling, installation, scheduled or unscheduled maintenance of the systems, close the water supply tap and turn off the On/off switch, if present on the system, disconnect the system power plug, pulling out the plug from the power socket.
Any cleaning and/or maintenance and/or inspection, **without exceptions** must be performed with the system disconnected from the power supply.
Before reconnecting the power supply, always ensure there are no persons in contact with the system.
Operate in the same way on the pneumatic supply, if present.

- This equipment can be used by persons with reduced physical, sensory or mental capacities or without experience or knowledge **only if** supervised by persons authorised to use or if provided with suitable instructions about proper and safe use of the equipment, having understood any potential danger.

Children must not play with this equipment, adult supervision is required to ensure this does not happen.

If the equipment is for professional use, the system cannot be used by people under 18 (eighteen) years of age. Appliances in private homes or in offices, stores, waiting areas, schools, hospitals, etc. can be used by minors only if older than 12 (twelve) years old and only with regards to actuating the button to fill a glass with treated drinking water.

Any other use, particularly refilling and cleaning the system, is prohibited to minors.

- Do not place the system on top of other appliances.
- **This system requires regular periodical maintenance** in order to ensure treated water requirements for treated water and to maintain the improvements to water as declared by the manufacturer.
- The system must be easily accessible for maintenance and space necessary to perform maintenance easily must be ensured.
- Place the equipment away from heat sources (boilers, heating fans, etc), indoors and away from the weather. Do not place it against or on top of other equipment or machines, unless it is a special equipment for professional use that Culligan has explicitly designed and supplied for special applications that are contrary to this general provision; in this case, see the operating manual and contact a professional installer who will have the obligation to properly install this type of system.
- If water is not delivered for more than 72 hours, empty the treated water tank (if present) completely and wait for it to be filled up again. Then dispense a few litres (approx. 5 l) of water, letting it flow out of the drain before using water treated by the system for any purpose.
- Any explicit or implicit warranty by Culligan for the system is null and void in the following cases:
 - improper or unreasonable use of the system;
 - installation performed without following the instructions of this manual;
 - supply faults (electrical discharges, voltage drops, water supply overpressure, low water pressure);
 - unsuitable operating environment temperature;
 - lack of required maintenance;
 - unauthorised modifications or operations;
 - use of non-genuine spare parts or spare parts that are not specific for that model;
 - total or partial failure to follow instructions;
 - repairs performed by unqualified personnel and/or different than the repairs described in this document or in the manual;
 - in the event of damage or faults due to negligence or neglect;
 - in the event of exceptional events involving the system (short circuits, flooding, earthquakes, exceptional heat or cold, lightning, fire, vandalism, humidity or temperature, electromagnetic fields, etc.).

- The warranty always starts from the date of delivery of the system by Culligan authorised dealers and has a maximum duration of 12 (twelve) months for professional items and 24 (twenty four) months for non-professional items supplied and used by private citizens outside professional use.

Any other possible use is to considered professional use.

NOTE: the system (as any other item) is subject to obsolescence and wear, therefore its life is limited. Its use is safe only within the aforementioned warranty period. This period may be extended only by signing further inspection and maintenance agreements with Culligan or with whom Culligan has explicitly authorised in writing.

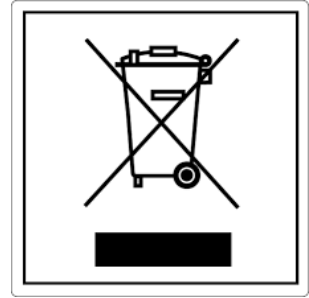
- The operator must adopt common sense for anything else that is not explicitly specified.

Information to manage electric and electronic equipment waste

This symbol appearing on the product, batteries, accumulators or package or documentation indicates that the product and batteries or accumulators must not be collected, recovered or disposed of together with household waste at the end of its life cycle.

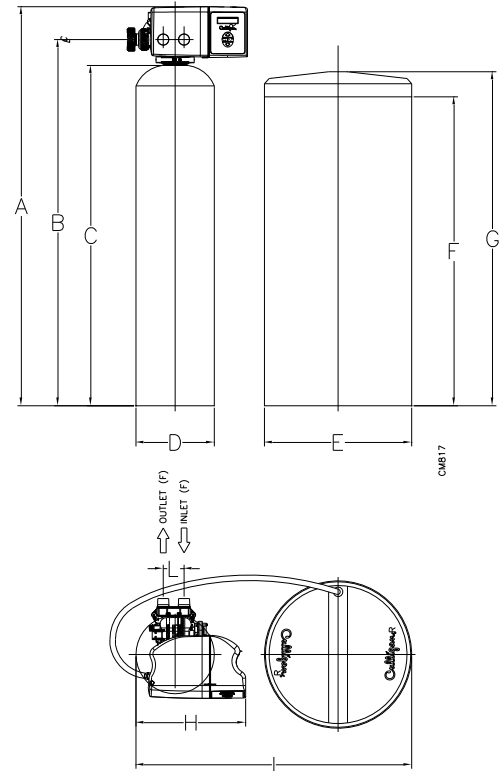
Improper management of electric and electronic waste, batteries or accumulators may cause dangerous substances to be released from the products. In order to prevent any damage to the environment and health, the user must separate this equipment and/or included batteries or accumulators from other types of waste and must send it for treatment to plants authorised to receive waste generated by industrial activity. The manufacturer may be requested to collect it, pursuant to the conditions and methods described by Leg. D. 49/2014 (2012/19/EU).

Separate collection and proper treatment of electric and electronic equipment, batteries and accumulators facilitate protecting natural resources, respecting the environment and ensuring health and safety. For more information on electric and electronic equipment, battery and accumulator waste treatment facilities, see the relevant public authorities releasing the relevant authorisations.



OVERALL DIMENSIONS

Model		HE 60 1.5"	HE 90 1.5"	HE 120 1.5"	HE 150 1.5"	HE 210 1.5"
A	mm	1530	1530	1880	1550	1780
B	mm	1401	1401	1731	1426	1655
C	mm	1321	1321	1651	1346	1575
Ø D	mm	356	406	406	533	533
Ø E	mm	610	610	610	762	762
F	mm	934	934	1190	1190	1190
G	mm	1016	1016	1270	1270	1270
H	mm	415	440	440	506	506
I	mm	970	1020	1020	1300	1300
L	mm	61	61	61	60	61

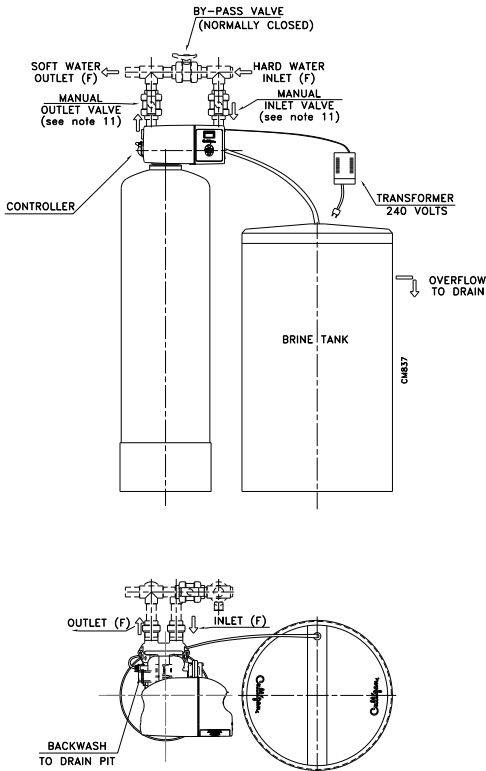


INSTALLATION

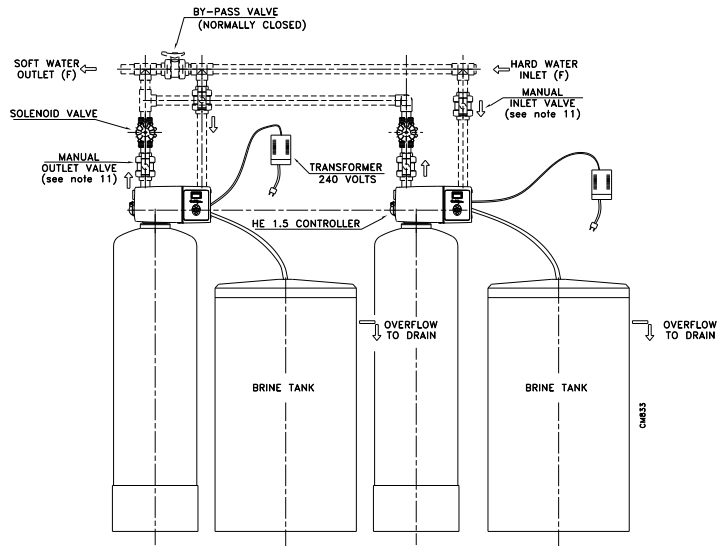
The water softener must be installed by qualified personnel, in compliance with Min. Decree 37/08, the best state of the art and in conformity with the instructions given in the technical manual.

INSTALLATION DIAGRAM

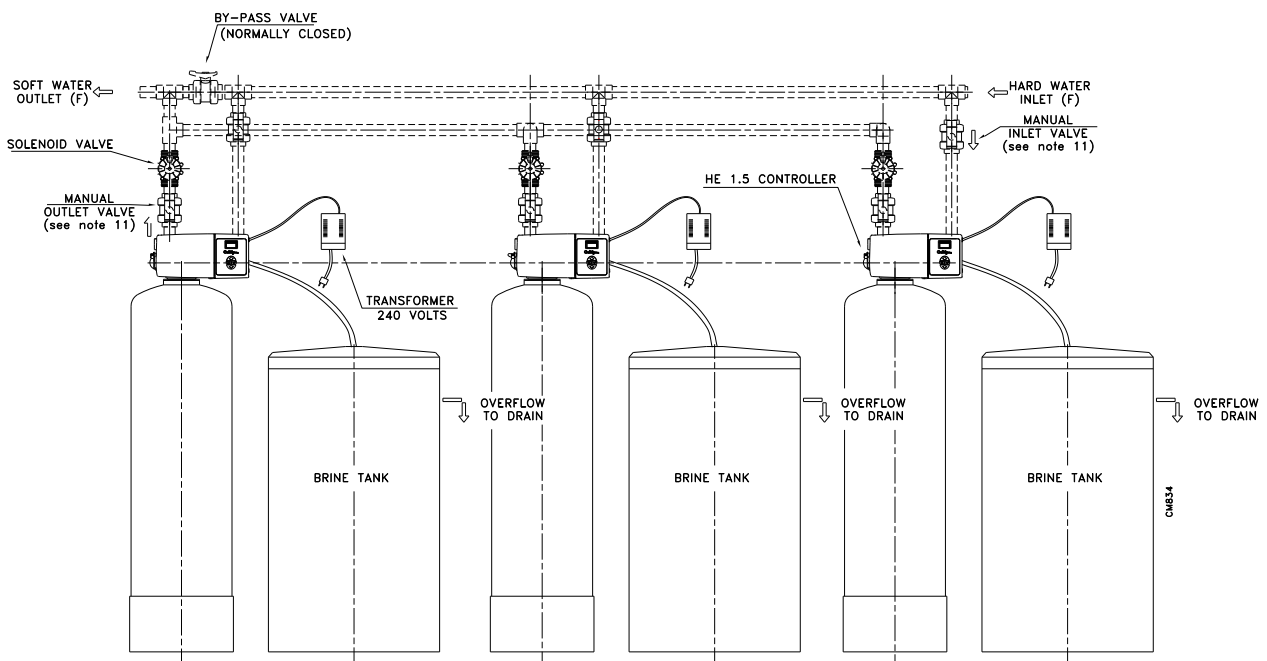
SIMPLEX installation diagram



DUPLEX installation diagram



PROGRESSIVE installation diagram





TECHNICAL SPECIFICATIONS

Model	HE 60 1.5"	HE 90 1.5"	HE 120 1.5"	HE 150 1.5"	HE 210 1.5"
Total dimensions (w x d x h) mm	970 x 610 x 1530	1020 x 610 x 1530	1020 x 610 x 1880	1300 x 770 x 1550	1300 x 770 x 1780
Tank type	FRP fiber-reinforced plastic				
Dim. Resin Tank (Dia x H) mm (Dia x H) inch	356 x 1321 14 x 52	406 x 1321 16 x 52	406 x 1651 16 x 65	533 x 1346 21 x 53	533 x 1575 21 x 62
Dim. salt container (Dia x H) mm (Dia x H) inch	610 x 1016 24 x 40	610 x 1016 24 x 40	610 x 1270 24 x 50	762 x 1270 30 x 50	762 x 1270 30 x 50
Resins, type and quantity	Cullex® 56 l	Cullex® 85 l	Cullex® 113 l	Cullex® 142 l	Cullex® 198 l
Underbed, type and quantity	Cullsan® 14 kg	Cullsan® 18 kg	Cullsan® 18 kg	Cullsan® 32 kg	Cullsan® 36 kg
Exchange capacity – Regeneration salt dosing	214 m ³ x ^{°f} - 3.6 kg 265 m ³ x ^{°f} - 5.4 kg 395 m ³ x ^{°f} - 13.6 kg	343 m ³ x ^{°f} - 5.4 kg 440 m ³ x ^{°f} - 8.2 kg 621 m ³ x ^{°f} - 20.4 kg	505 m ³ x ^{°f} - 7.3 kg 641 m ³ x ^{°f} - 10.9 kg 887 m ³ x ^{°f} - 27.2 kg	602 m ³ x ^{°f} - 9.1 kg 764 m ³ x ^{°f} - 13.6 kg 977 m ³ x ^{°f} - 34.0 kg	744 m ³ x ^{°f} - 12.7 kg 1081 m ³ x ^{°f} - 19.1 kg 1521 m ³ x ^{°f} - 47.6 kg
Salt container capacity	295 kg	295 kg	409 kg	636 kg	636 kg
Service flow rate - pressure loss	5.7 m ³ /h - 1 bar	6.0 m ³ /h - 1 bar	5.3 m ³ /h - 1 bar	6.2 m ³ /h - 1 bar	6.4 m ³ /h - 1 bar
Peak flow rate - pressure loss	8.4 m ³ /h - 1.7 bar	8.6 m ³ /h - 1.7 bar	7.2 m ³ /h - 1.7 bar	8.1 m ³ /h - 1.7 bar	8.5 m ³ /h - 1.7 bar
Operating pressure	Min 1.7 – Max 8.3 bar				
Operating temperature	Min 4.4 – Max 38 °C				
Room temperature	Min 0 – Max 55 °C				
Electrical power supply	230/24V – 50/60 Hz				
Electrical power input	Min 8.4 – Max 21.6 Watts				
Operating weight	525 kg	550 kg	735 kg	1030 kg	1180 kg
Shipping weight	112 kg	135 kg	170 kg	240 kg	295 kg
Inlet/outlet/discharge fittings	1.5"/1.5"/0.5"				
Water flow rate to the discharge, max	1.2 m ³ /h	1.2 m ³ /h	1.2 m ³ /h	1.6 m ³ /h	2.6 m ³ /h
Volume of water to the discharge in Regeneration *	0.39 m ³	0.54 m ³	0.50 m ³	0.58 m ³	0.82 m ³

* Calculated on a backflushing time of 10 minutes. The average time for a complete reg. is about 70 minutes

MAINTENANCE

To keep the water softener in a good operating condition it is necessary to inspect the system periodically. As a rule this should be done at least once a year. More frequent servicing may be necessary according to the operating conditions; for example: raw water with a lot of sediment, chlorine, turbidity or very high hardness levels. If the system is not used for a long time, it is necessary to call the Culligan Support Center that will run a general check before putting the water softener back into operation.

CLEANING THE WATER SOFTENER

To clean the outside of the components of the water softener use only non-abrasive soaps and warm water. Do not use any products containing acids.

USING SALT

Only use CULLIGAN quality salt. Do not use any other salts as a rule: fine or coarse kitchen salts are unfit for this use. It is recommended to use salt in tablet form. Water softeners that use Sodium Chloride (NaCl) for regeneration add Sodium to the water. Persons who are on a low-salt diet must take account of this when calculating their daily Sodium intake; in these cases Potassium Chloride (KCl) can be used as the regenerating agent for the regeneration. Even though Culligan quality salt is used it is in any case necessary to clean the salt container removing any debris that can, over time, accumulate on the bottom of the salt container, so as to ensure the water softener works properly.

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