

OPERATING MANUAL

Water softening device

GAHOtech soft MC-N 16

109850

As of: January 2010

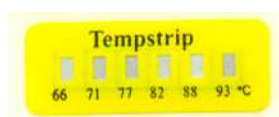
Location of installation	

Please read the operating manual before startup! The manufacturer is not responsible for malfunctions caused by faulty operation and failure to comply with the provisions of this documentation.

Store for later use! This operating manual is an integral part of the device.

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In order to maintain warranty place the Tempstrip on the device to document that the device was not used with too hot water.

If the Tempstrip was not placed by the manufacturer:

There is the possibility of acquiring a Tempstrip for a particular device from the manufacturer free of charge.

General instructions

1. The relevant installation and operation instructions contained in this manual must be read prior to the installation and operation of this device.
2. The manufacturer will not bear responsibility in case of improper use and incorrect operation of the device.
3. The system is used only for removing unwanted mineral substances, which accumulate as scale. It is a part of the system protection.
4. No changes in the system may be conducted without consultation with the manufacturer. The manufacturer will not bear responsibility in case of any damage caused by this type of modification.
5. The temperature in the device operating room must be at least **7°C**.
6. Before commencing installation, check the statics of walls, ceilings and floors. They must enable certain static load.
7. The general regulations and provisions as well as **provisions concerning accident prevention** must be observed at the installation location of the device.
8. The installation location of the device must be secured from any damage caused by water (e.g. by the existing **floor drain**). The manufacturer is not responsible for any damage caused by water.
9. The proper name and serial number of the device must be provided with any enquiries and ordering of spare parts. Only then an effective and quick reply or order implementation is ensured.

Transportation and packaging

Prior to shipment our systems are carefully packed and controlled.

Damage during transportation cannot be excluded **in case of shipment by a shipping company**. It is necessary therefore to check the package **at receipt** of the product.

- Check the completeness of the delivery based on the delivery receipt.
- In case of **damaged packaging**: perform a **visual inspection** of the goods and **record** conclusions in the **shipping documentation** provided by the shipping company. In the shipping documentation place an annotation of possible claiming of **hidden damages**, which may be revealed after start-up. **Immediately contact the shipping company** because otherwise the shipping insurance will not be available. Save the package for the purpose of any later inspections by the shipping or insurance company.
- In case of **returning the package**, it must be packed in a way to protected against any mechanical impact.
- **Drain water from the system** prior to the shipment. This will help reduce shipping costs. It will also prevent the packaging from damage due to potential water leakage.

Water treatment

Faster washing and saving costs

Scale in the devices, spots on dishes or cutlery and smudges on glass are usually due to improper water quality. Salt leaves smudges or causes scale formation.

Apart from an increased amount of time it will also increase the costs of:

- equipment repair
- device maintenance
- staff
- additional consumption

Our device for water treatment makes descaling unnecessary; it also uses less washing liquid and rinse. The system protection ensures the durability of the device, fewer failures and repairs.

Scale formation protection

Scale deposition	Calcium and magnesium salts deposit in devices or on surfaces primarily in heated water. Formed scale formation hinders performance of a device or instrumentation and leaves undesirable residue.
Increased consumption reduced	The consequences of scale deposition are: increased consumption of washing detergents or energy as well as the use of chemicals and the related negative consequences for the environment. That is why water treatment in households is recommended, in particular where a large amount of hot water is used for cleaning.
Water softening	Softened water protects and reduces machine breakdowns, ensures longer maintenance cycles and saves the costs of servicing, material, repair and washing detergent. This solution becomes a part of the system protection. The device does not allow achieving an optimal effect of washing dishes without spots and smudges on glass. For this reason apply the product GAHOtech clean.
System protection	

Standards, provisions and statutory regulations

- Water supplying the device must comply with the requirements of the utility water use regulation.
- Parts that are in contact with treated water must be made of material resistant to treated water, such as PE, PP or V₂A / V₄A.
- The purchaser is responsible for compliance with the directives and recommendations of the German Technical and Scientific Association for Gas and Water (DVGW). According to the German Standard Committee of 1988, a water treatment device must be equipped with a manifold. In the room for the water treatment floor drainage must be installed. The purchaser is responsible to ensure the drainage.

1. Description of the system

1.1 System structure

Water softening device

GAHotech soft MC-N 16

Suitable for dishwashers with soft water 0 °dH (total hardness) or to the desired hardness level

System structure:

- manifold (optional)
- connections set (optional)
- water softening device

1.2 Device operation

The optional **manifold** is a protection system, which when the inlet pressure is reduced prevents backflow in accordance with the provisions of DVGW. It is connected to the water network before the device.

The optional **connections set** is composed of a bypass system and two flexible safety hoses. The bypass system allows maintenance of the water softening device without the necessity of removal from the pipeline. During maintenance the user has direct access to water.

The **water softening device** is to be connected to utility water. The water flows through re-generated softening pellet (cation resin) and it is purified in this manner. The required water quality can be obtained depending on the scope applied. The softening pellet is regenerated by an automated control system.

1.3 Control function

Control head

In order to programme the control head, just set the time of day and the regeneration frequency. The simple construction that is easy-to-maintain incorporates a single engine, which drives the valve and timer without switches or springs for activation of the regeneration.

Control system (optional)

If the soft water is set to a specified hardness level, higher than 1 °dH, the adjusting screw must be properly opened (see figure on page 9).

By turning a screwdriver counter clockwise increase the amount of tap water in the soft water. Check the water hardness in the regulated soft water.

1.4 Technical description

Water softening device GAHotech soft MC-N 16

Automated, time controlled device, the pressure tank made of plastic reinforced with fibre-glass, salt tank (brine tank) made of plastic (PE) with a valve for the brine.

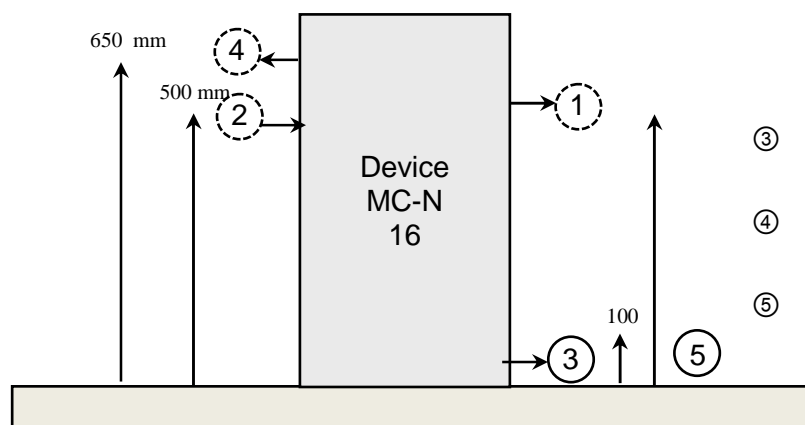
Capacity at 1 °dH (total hardness):	16,000 litres
Flow:	400 litres / h
Salt usage / Regeneration:	1.6 kg
Power usage:	40 Watts
Operating voltage:	24 V / 50 Hz using the AC adapter
Pressure resistance:	6 bar
Operating temperature:	35°C

2. Installation preparation plan

2.1 Installation preparation plan

Installation preparation plan for the purchaser

Project:



On the purchaser's side:

- ① Utility water **supply pipe** (cold) 3/4" with a cut-off valve at a height of 500 mm.
- ② Soft water **branch** to the user in DN 20, 3/4" with a cut-off valve at a height of 500 mm. (pipe line made of material resistant to treated water such as PE, PP and V₂A).
- ③ **Drainage** (sewer) at a max. height of 100 mm, connection DN 50.
- ④ **Electric socket** 230 V / 50 Hz, 16 A at a height of 650 mm (from the top of the floor, centre).
- ⑤ **Floor drainage** must be in the room.

The set includes:

manifold (optional)
connections set (optional)
water softening device
(dimensions: width = 310 mm, depth = 520 mm,
height = 655 mm)

2.2 Dismantling and utilization

The device is dismantled after its lifetime has expired (for final destruction or scrap). The reversed assembly steps are to be commenced.

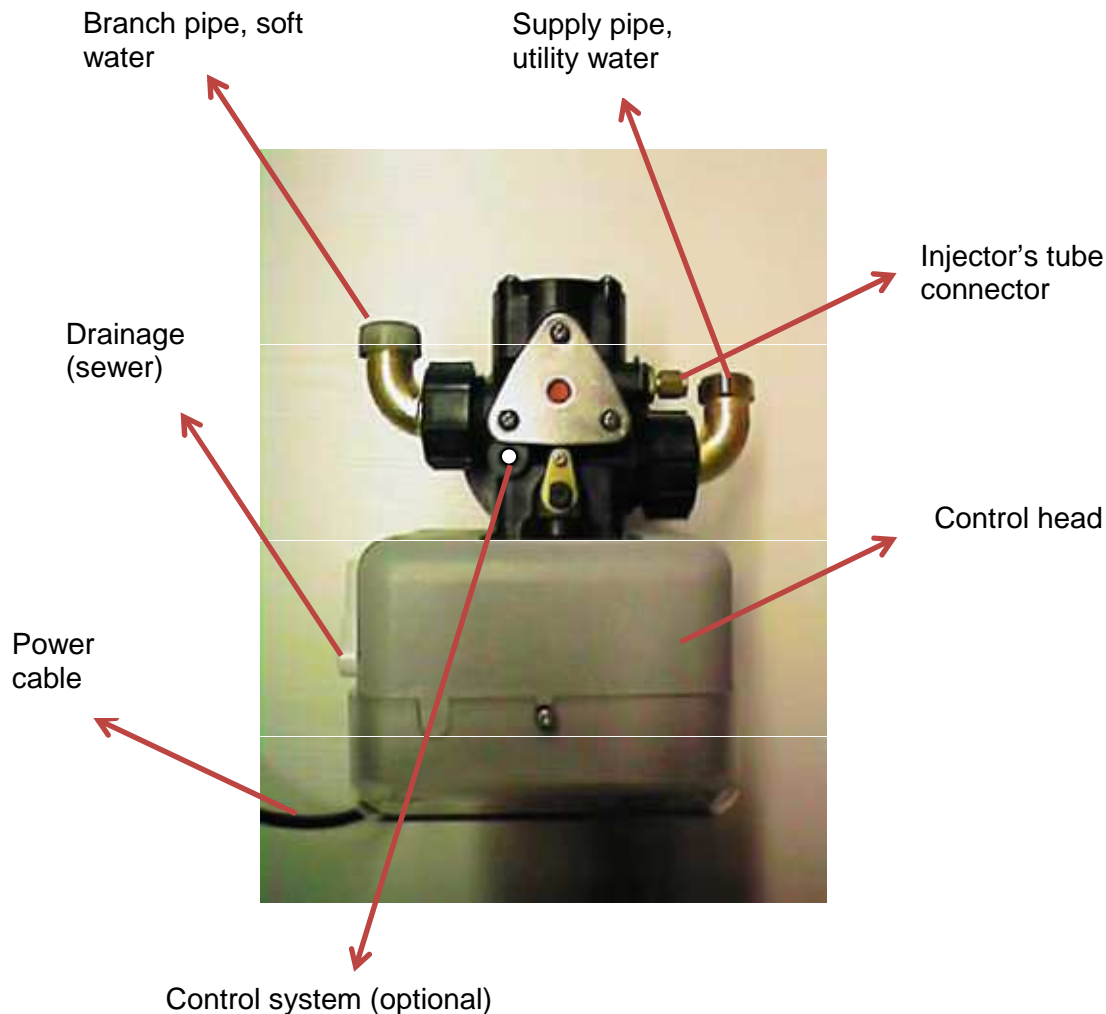
Note!

First clean the system thoroughly with fresh water and drain the tanks and pipes completely!
Comply with workplace safety instructions in this respect!

- Different parts of the device must be utilized in accordance with binding regulations of utilization and waste management!

3. Installation

- After preparation for mounting, the device is to be placed in the designated room in accordance with the system structure.
- All inlets and outlets are connected on the water's side. The device connections are shown in the following figure.
- The brine tank of the water softening device is filled with salt tablets (max. filling 100 mm from the upper edge of the brine tank). Next add 10 litres of water using buckets.
- Check and tighten all fittings connecting the device.
- Connect to electric power.

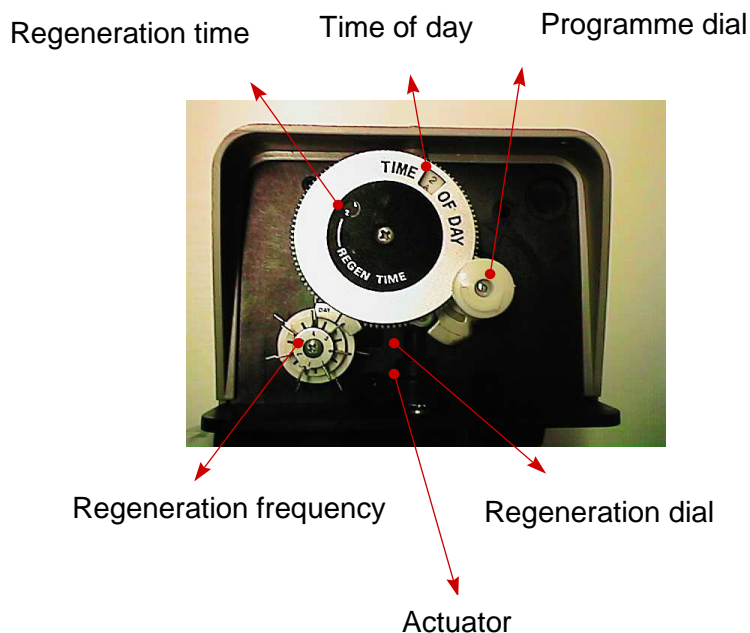


4. Start-up

By the technical support personnel

- The device is factory adjusted. The fine tuning is done by technical support personnel on site.
- The utility water valve to the device can be removed after installation. The water pressure must be at least 2 bars and a maximum of 6 bars.
- Once all connections are made the system can be connected to the electric power.
- The device will start and produce the first soft water.

By the user on site



- The device is factory adjusted. The **fine tuning** is done by the user on site.
- Insert the **main plug**.
- Open the **water supply** to the water softening device.
- The **water pressure** must be at least 2 bars and a maximum of 6 bars.
- For the first **3 minutes** drain the water to the sewer.
- Loose the screw of the controller's cover and remove the front cap.
- Slowly turn the **programme dial** counter clockwise until the backwash section on the **regeneration dial** is pushed in and the **actuator** is started in order to open the **drain valve**; the regeneration cycles must perform the specific number of revolutions depending on the amount pressed; the valve will be shifted to the salt release position / slow washing.
- Check the **brine inlet** by listening or touching it.
- Slowly turn the programme dial counter clockwise until the actuator is released and the drain valve is closed; the valve is now back in the service position.
- Set the **time of day**. In order to do this, slowly turn the **programme dial** counter clockwise (in the direction of the arrow) until the current time of day is reached. (A = 0-11, P = 12-23).
- Determine the **daily demand** (for example: 500 litres).
- Determine the local **total hardness** (example: 16 °dH).
- Determine the **regeneration frequency** as follows: Divide the efficiency of the total hardness (e.g.: 16,000 litres of hard water divided by 16 °dH equals 1,000 litres of actual output). Then divide the actual capacity by the daily demand (example: 1,000 of actual output divided by 500 litres of daily demand equals 2 regeneration cycles).
- Transfer the number of regeneration cycles to the regeneration dial. Each pressed metal element corresponds to one day of regeneration (example: all 7 metal elements pulled out. If the regeneration cycle is 2 days, the every second metal element is pushed in).

5. Maintenance and service instructions

- The brine tank of the water softening device must always be filled with salt tablets. Therefore it is necessary to ensure a supply of tablets.
- Manual regeneration of the water softening device must be conducted periodically in order to verify control techniques.
- Problems occur if a filter candle is closed.
- The membrane should be flushed from time to time. This operation can be performed only by the manufacture's authorized and qualified personnel. For this reason we recommend signing a maintenance contract.
- Once to twice a year rinse the accumulator with a moist cloth.
- The attached product card should also be regularly filled in. Only then adequate maintenance is provided.

6. Troubleshooting

Malfunction	Cause	Solution
The device is not responding.	a) Interrupted power supply to the device.	a) Provide a constant power supply (check the fuse, plug, driving chain or switch).
	b) Fault of the programmer.	b) Replace the programmer.
	c) Power supply malfunction.	c) Reset the time of day.
The device is providing hard water.	a) The bypass valve is open.	a) Close the bypass valve.
	b) No salt in the brine tank.	b) Add salt to the brine tank and maintain the salt level above the water level.
	c) Blocked injector or filter.	c) Replace injector and filter.
	d) Insufficient water flow to the brine tank.	d) Check the time of filling the brine tank and if required clean the blocked supply pipe of the brine tank.

Malfunction	Cause	Solution
The device is providing hard water.	a) Leakage in the manifold.	a) Inspect the manifold for possible crack. Control the O-ring and the pipe.
	b) Inner leakage in the valve.	b) Replace seals and spacing components and/or piston.
The device is using too much salt.	a) Improper salt setting.	a) Check salt usage and salt settings.
	b) Too much salt in the brine tank.	b) Clean the outlet valve.
Water pressure drop.	a) Iron deposition in the supply pipe of the water softening device.	a) Clean the supply pipe of the water softening device.
	b) Iron deposition in the water softening device.	b) Clean the valve and add clarifier to the resin layer. Regenerate more frequently.
	c) Valve inlet blocked by foreign bodies that dissolved in the pipes during previous works performed relating to the installation of the system.	c) Remove the piston and clean the valve.
Iron in the softened water.	a) Faulty resin layer.	a) Check backwash, brine suction and brine tank filling. Increase the frequency of regeneration.
Too much water in the brine tank.	a) Outlet valve blocked.	a) Clean the outlet valve.

Additional instructions are available on the helpline.

7. Spare parts

No.	Options
1	Manifold 70°C
2	Control system 90°C
3	Connections set
	Expendable parts
	Salt tablets (25 kg - bag)
	GAHOtech soft MC-N 16 set
4	Control head (z)
5	Plastic tank + base
6	Cation resin
7	Brine tank and brine valve

8. Product card

Product card			
Client's address:		Number of hard water litres	16000
		Total hardness	
		Efficiency	
		Hardness	

[illegible]