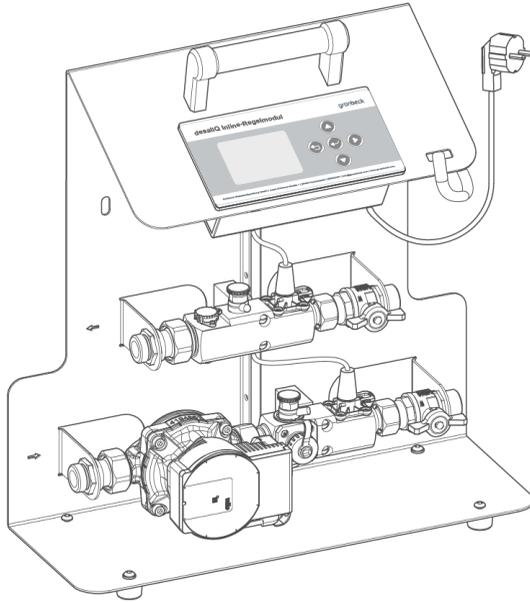


We understand water.



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Heating water treatment system |  
desaliQ inline control module

Operation manual

grünbeck

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**Availability**

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# 1 Introduction

This manual is intended for owners/operating companies, operators/users as well as qualified specialists in the heating sector and ensures the safe and efficient handling of the product. The manual is an integral part of the product.

- ▶ Carefully read this manual and the included manuals on the components before you operate the product.
- ▶ Comply with all specified safety and handling instructions of this manual.
- ▶ Keep this manual and all other applicable documents, so that they are available when needed.

## 1.1 Validity of the manual

This manual applies to the products below:

- desaliQ inline control module
- desaliQ inline control module (country-specific version for Switzerland, Denmark and Uruguay)

## 1.2 Other applicable documents

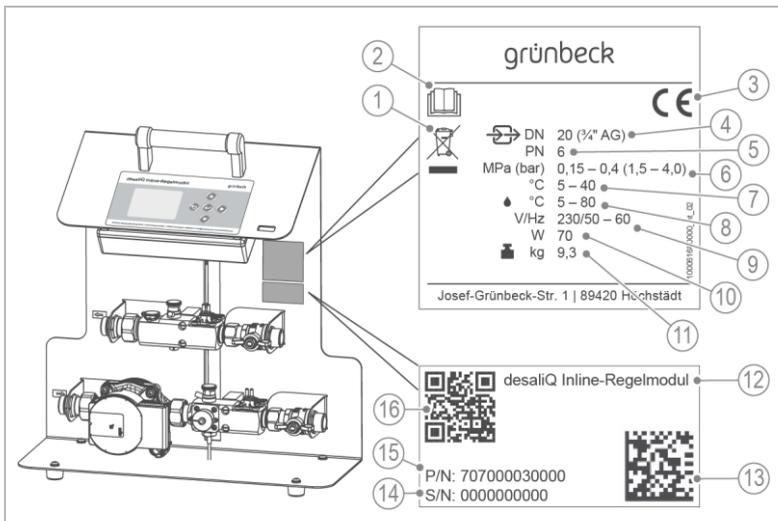
- Operation manual of mixed bed cartridge desaliQ:MB9
- Operation manual of softening cartridges decaliQ
- Operation manual of desaliQ inline filter module

### 1.3 Product identification

You can identify your product based on the product designation and the order no. shown on the type plate.

- ▶ Check whether the products given in chapter 1.1 correspond to your product.

The type plate is located on the device.



Item	Designation	Item	Designation
1	Disposal information	2	Obey the operation manual
3	CE mark	4	Nominal connection diameter of inlet and outlet
5	Nominal pressure	6	Operating pressure (circuit)
7	Ambient temperature	8	Water temperature
9	Power supply	10	Rated power
11	Weight	12	Product designation
13	Data matrix code	14	Serial no.
15	Order no.	16	QR code

## 1.4 Symbols used

Symbol	Meaning
	Danger and risk
	Important information or requirement
	Useful information or tip
	Written documentation required
	Reference to further documents
	Work that must be carried out by qualified specialists only
	Work that must be carried out by qualified electricians only
	Work that must be carried out by technical service personnel only

## 1.5 Depiction of warnings

This manual contains information and instructions that you must obey for your personal safety. The information and instructions are highlighted by a warning symbol and are structured as shown below:



### SIGNAL WORD

Type and source of hazard

- Possible consequences
- ▶ Preventive measures

The following signal words are defined subject to the degree of danger and might be used in the present document:

Warning symbol and signal word		Consequences if the information/instructions are ignored
 <b>DANGER</b>	Personal injuries	Death or serious injuries
 <b>WARNING</b>		Possible death or serious injuries
 <b>CAUTION</b>		Possible moderate or minor injuries
<b>NOTE</b>	Damage to property	Possible damage to components, the product and/or its function or damage to an object in its vicinity

## 1.6 Demands on personnel

During the individual life cycle phases of the product, different people carry out activities on the product. The respective tasks require different skills.

## 1.6.1 Qualification of personnel

Personnel	Requirements
Operator/user	<ul style="list-style-type: none"> <li>• No special expertise required</li> <li>• Knowledge of the tasks assigned</li> <li>• Knowledge of possible dangers in case of incorrect behaviour</li> <li>• Knowledge of necessary protective equipment and protective measures</li> <li>• Knowledge of residual risks</li> </ul>
Owner/operating company	<ul style="list-style-type: none"> <li>• Product-specific expertise</li> <li>• Knowledge of statutory regulations on work safety and accident prevention</li> </ul>
Qualified specialist <ul style="list-style-type: none"> <li>• Electrical engineering</li> <li>• Sanitary engineering (HVAC and plumbing)</li> <li>• Transport</li> </ul>	<ul style="list-style-type: none"> <li>• Professional training</li> <li>• Knowledge of relevant standards and regulations</li> <li>• Knowledge of detection and prevention of potential hazards</li> <li>• Knowledge of statutory regulations on accident prevention</li> </ul>
Technical service (Grünbeck's technical service/ authorised service company)	<ul style="list-style-type: none"> <li>• Extended product-specific expertise</li> <li>• Trained by Grünbeck</li> </ul>

## 1.6.2 Authorisations of personnel

The table below specifies which tasks may be carried out by whom.

	Operator/user	Owner/operating company	Qualified specialist	Technical service
Transport and storage		X	X	X
Installation and mounting			X	X
Start-up			X	X
Operation and handling	X		X	X
Cleaning	X		X	X
Inspection	X		X	X
Maintenance		X	X	X
Troubleshooting		X	X	X
Repair				X
Decommissioning and restart/ recommissioning		X	X	X
Dismantling and disposal		X	X	X

### 1.6.3 Personal protective equipment

- ▶ As an owner/operating company, make sure that the required personal protective equipment is available.

The components below fall under the heading of personal protective equipment (PPE):



Protective gloves



Protective footwear



Protective overall



Protective goggles

## 2 Safety

### 2.1 Safety measures

- Only use genuine spare parts for maintenance or repair.
- Risk of burns due to hot surfaces on lines and components as well as due to escaping heating water. Let the product cool down to at least 30 °C before carrying out any repair and maintenance work. Risk of scalding due to escaping hot heating water.
- Do not make any changes, alterations, extensions or program changes on your product.
- Risk of slipping due to escaping heating water.
- Risk of tripping due to hoses on the floor as well as the connection line. Lay the hoses and the connection line away from traffic routes.
- Keep the premises locked against unauthorised access to protect imperilled or untrained persons from residual risks.
- Protect the product from frost. Fully drain the device after every use.

#### 2.1.1 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- Make sure that the product is set up or fastened in a way that it cannot tip or fall over, and that the stability of the product is guaranteed at all times.
- Potential risk of pinching and cuts on threaded connections. Use protective gloves when connecting the device.

## 2.1.2 Pressure-related hazards

- Components can be under pressure. There is a risk of injuries and damage to property due to escaping water and unexpected movement of components.
- Before starting repair and maintenance work, make sure that all affected components are depressurised.

## 2.1.3 Electrical hazards

There is an immediate danger of fatal injury from electric shock when touching live parts. Damage to the insulation or individual components can be life-threatening.

- Check the mains cable for damage before each use.
- Only have qualified electricians carry out electrical work on the device. If the device is used commercially, have it subjected to an electrical safety inspection every year.
- In case of damage to live components, switch off the voltage supply immediately and arrange for repair.
- Switch off the supply voltage before working on electrical system parts. Discharge residual voltage.
- Never bridge electrical fuses. Do not disable fuses. Use the correct current ratings when replacing fuses.
- Keep moisture away from live parts. Moisture can cause short-circuits.
- Make sure that the socket has a protective earth conductor. Otherwise, retrofit the socket with an adapter with a protective earth contact.

## 2.1.4 Groups of persons requiring protection

- This product is not designed to be used by persons (including children) with reduced capabilities, lack of experience or lack of knowledge.
- Children should be supervised to make sure that they do not play with the product.
- Cleaning and maintenance must not be carried out by children.

## 2.2 Product-specific safety instructions



### WARNING

Contaminated drinking water due to missing system separation according to DIN EN 1717

- Infectious diseases due to bacterial growth in the drinking water
  - ▶ Make sure that the connection is secured by a system separator during filling and make-up water feed of the heating circuit with drinking water.

### NOTE

Breakage of components in case of fixed installation

- If installed with mechanical stress, e.g. in case of fixed piping, connections may break.
  - ▶ Connect the device with flexible connection hoses only (refer to chapter 3.4).
  - ▶ Before start-up, check that the device is connected without any mechanical stress.



Before the treatment, check the heating water for quality and possible substances contained such as inhibitors.

**NOTE**

Inhibitors contained in the heating circuit

- If inhibitors were added to the heating water, these will be removed by the resin of the softening or mixed bed cartridge.
- ▶ Carry out the filter operation only.
- ▶ Check the concentration of the inhibitor during softening and demineralisation operation.
- ▶ Re-establish the required inhibitor concentration, if necessary.

**Labels on the product**



Hot surfaces/media



Protect from frost



The affixed information and pictograms must be clearly legible. They must not be removed, soiled or painted over.

- ▶ Obey all warnings and safety instructions.
- ▶ Immediately replace illegible or damaged symbols and pictograms.

## 2.3 Conduct in emergencies

### 2.3.1 In case of escaping water

1. De-energise the device – pull the mains plug.
2. Close the shut-off valves at the inlet and outlet of the device.
3. Locate the leak.
4. Eliminate the cause of the water leak.

## 3 Product description

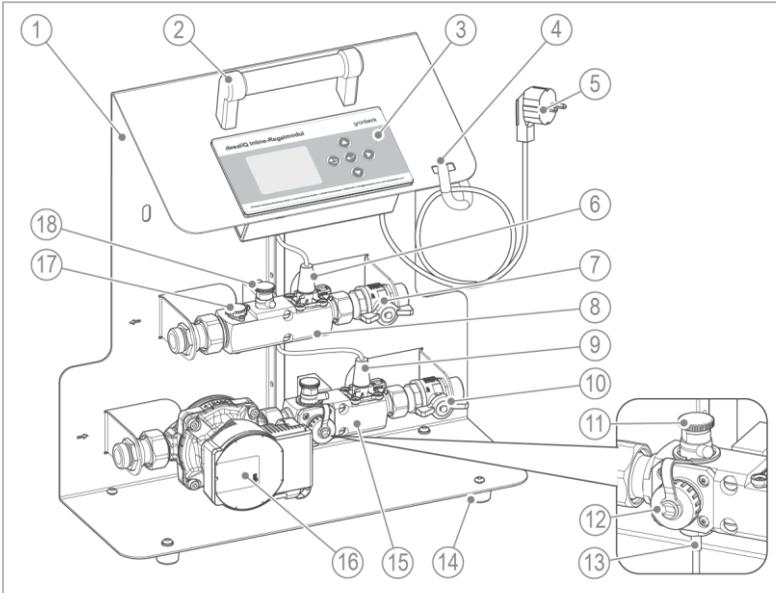
### 3.1 Intended use

- The desaliQ inline control module is designed for mobile as well as temporary stationary use in heating circuits.
- The desaliQ inline control module is intended for the treatment and filling of heating water during ongoing operation.
- For the duration of the treatment, the desaliQ inline control module is integrated into the heating circuit in a bypass.
- The desaliQ inline control module is used in combination with the following products:
  - mixed bed cartridge desaliQ:MB9 equipped with desaliQ Inline filter module and desaliQ resin bag (alternatively with 2x desaliQ resin bags).
  - mixed bed cartridge desaliQ:MB5 or desaliQ:MB9 with desaliQ Inline filter module installed upstream

#### 3.1.1 Foreseeable misuse

- The desaliQ inline control module must not be used for the treatment of raw water that is to be used as drinking water.

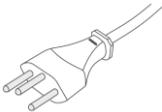
## 3.2 Product components



Item	Designation	Item	Designation
1	Console	2	Carrying handle
3	Key-operated control panel	4	Cable holder
5	Mains cable with Schuko plug	6	Conductivity sensor (pure water)
7	Inlet shut-off valve (pure water)	8	Combined block of sensor section
9	Conductivity sensor (heating water)	10	Outlet shut-off valve (heating water to mixed bed cartridge)
11	Valve for venting/sampling (heating water)	12	Connection for make-up water
13	Temperature sensor	14	Rubber feet
15	Combined block of pump section	16	Circulation pump (built-in non-return valve)
17	Turbine water meter (TWZ)	18	Valve for venting/sampling (pure water)

### 3.2.1 Version for Switzerland

Instead of the Schuko mains plug, a country-specific mains plug is supplied.

Illustration	Product
	Mains plug for Switzerland

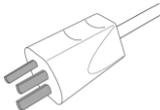
### 3.2.2 Version for Denmark

Instead of the Schuko mains plug, a country-specific mains plug is supplied.

Illustration	Product
	Mains plug for Denmark

### 3.2.3 Version for Uruguay

Instead of the Schuko mains plug, a country-specific mains plug is supplied.

Illustration	Product
	Mains plug for Uruguay

### 3.3 Functional description

The function of the desaliQ inline control module is based on the well-proven processes of filtration and softening or demineralisation.

The desaliQ inline control module is integrated into the filled heating or cooling circuit in the partial flow. Part of the circulation water permanently flows through the desaliQ inline control module. Prior draining or flushing of the heating circuit is not required.

The desaliQ inline control module measures the conductivity (LF), the temperature and the flow rate. The remaining capacity of the cartridge is calculated during softening.

The control unit integrated in the desaliQ inline control module controls the water quality based on the parameters set and monitors the treatment process.

The desaliQ inline control module works with the following automatically monitored operating modes:

- Treatment
  - Filtration
  - Demineralisation
  - Softening
- Filling
  - Demineralisation
  - Softening

## **Filtration**

In combination with the desaliQ inline filter module, undissolved impurities such as rust and dirt particles are filtered from the heating water.

## **Demineralisation**

In combination with the desaliQ resin bags, the heating water is fully demineralised.

## **Softening**

In combination with the softening cartridge decaliQ, the heating water is softened according to the ion exchange principle.

## **Filling and make-up water feed of the heating circuit with drinking water**

When filling new systems, the circuit can be filled with drinking water. The treatment of the circulation water by means of the desaliQ inline control module only takes place shortly before the start-up of the heating circuit. Thus, optimum water quality is achieved.

Make-up feed with drinking water when treating the heating water is required due to a possible loss of water.

## **Monitoring mode**

Upon reaching the programmed target values, the desaliQ inline control module automatically switches to the monitoring mode. Here, the desaliQ inline control module checks at regular intervals whether the set target value for the conductivity in the system is still maintained or whether it has changed.

### 3.4 Accessories

Your product can be retrofitted with accessories. Please contact your local Grünbeck representative or Grünbeck’s headquarters in Hoechststedt/Germany for details.



Note that the availability of the accessories can vary from country to country

Illustration	Product	Order no.
	<b>Hose kit DN 20, straight/straight</b>	<b>707 840</b>
Consisting of: 2 hoses of 1.5 m in length with straight connections, 2 double nipples, including seals		
	<b>Hose kit DN 20, straight/90°</b>	<b>707 845</b>
Consisting of: 2 hoses of 1.5 in length with straight connection on one side and connection with 90° angle on the other side, 2 double nipples, including seals		

## 4 Transport and storage

### 4.1 Transport

- ▶ Transport the product in its original packaging only.
- ▶ Do not discard the packaging. Use the packaging for transport between uses.

**NOTE** Residual water in the device after use.

- In the event of frost, the remaining, freezing residual water in the device can damage the components beyond repair.
- ▶ Only transport and store the device in a frost-free environment.
- ▶ Drain and flush the device with clear water after each use.

### 4.2 Storage

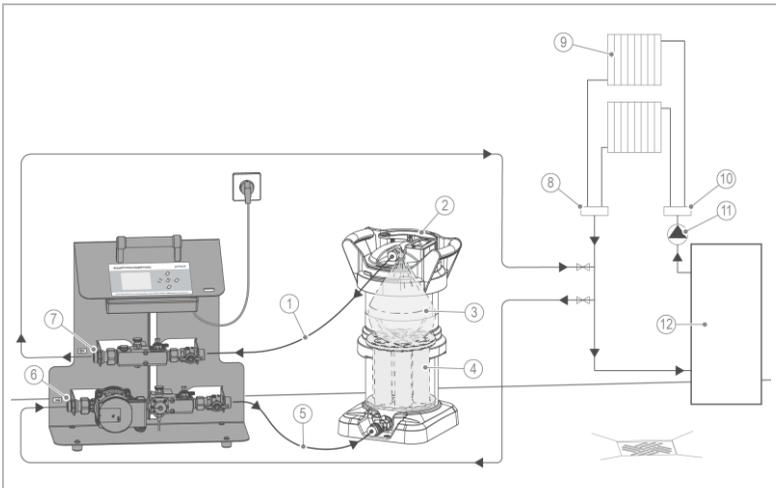
- ▶ Protect the product from the impacts below when storing it:
  - Dampness, moisture
  - Environmental impacts such as wind, rain, snow, etc.
  - Frost, direct sunlight, severe heat exposure
  - Chemicals, dyes, solvents and their vapours

# 5 Installation



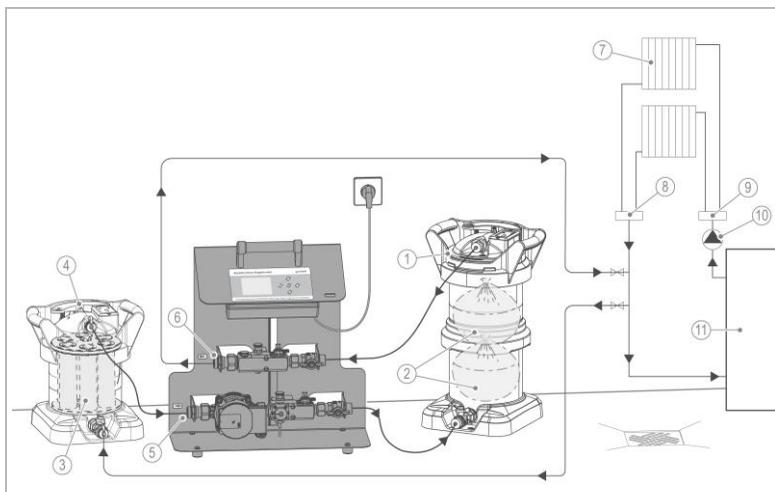
The work below must be carried out by qualified specialists only.

## Installation example I



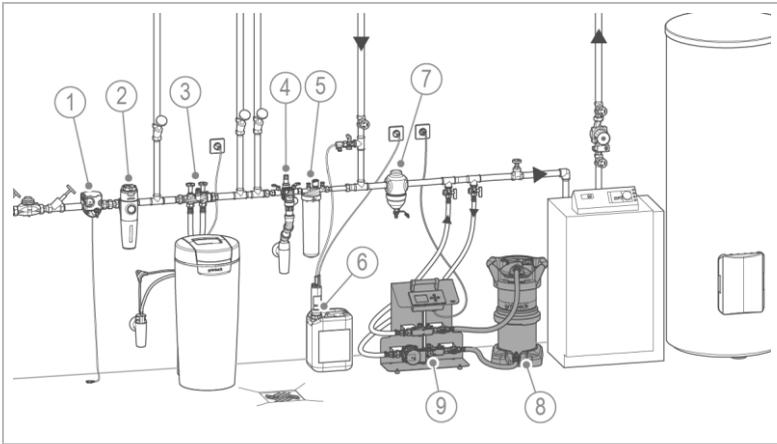
Item	Designation	Item	Designation
1	Mixed bed cartridge desaliQ:MB9	2	desaliQ resin bags
3	desaliQ inline filter module	4	Connection from heating circuit (pump section)
5	Connection to heating circuit (sensor section)	6	Consumer
7	Return of heating circuit	8	Supply of heating circuit
9	Circulation pump	10	Heating system

## Installation example II



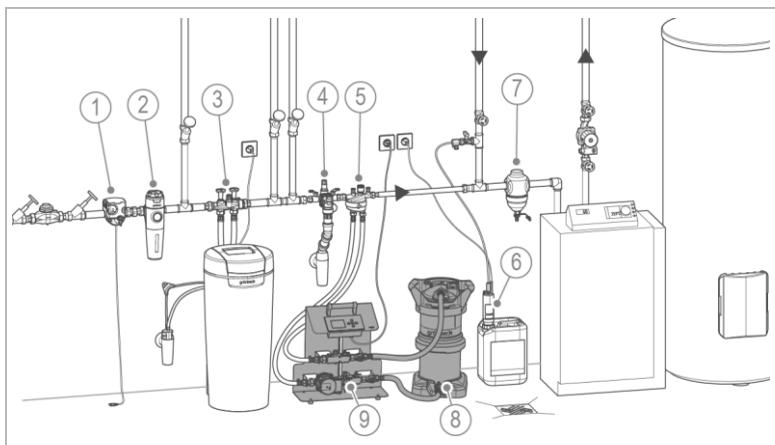
Pos.	Bezeichnung	Pos.	Bezeichnung
1	Mixed bed cartridge desaliQ:MB9	2	desaliQ resin bag (2x)
3	desaliQ Inline filter module	4	Mixed bed cartridge desaliQ:MB5
5	Connection from heating circuit (pump section) and upstream desaliQ:MB5	6	Connection to heating circuit (sensor section)
7	Consumer	8	Return of heating circuit
9	Supply of heating circuit	10	Circulation pump
11	Heating system		

## Installation example (treatment in partial flow filtration)



Item	Designation	Item	Designation
1	Safety device protectliQ	2	Drinking water filter pureliQ
3	Water softener softliQ	4	System separator BA (filling group thermalQ:SB13)
5	Treatment group thermailQ:HB2	6	thermailQ filling pump for dosing solution for heating protection
7	GENO-therm sludge separator	8	Mixed bed cartridge desaliQ:MB9
9	desaliQ inline control module		

### Installation example (filling)



Item	Designation	Item	Designation
1	Safety device protectliQ	2	Drinking water filter pureliQ
3	Water softener softliQ	4	System separator BA (filling group thermaliQ:SB13)
5	Treatment group thermaliQ:HB2 with connection adapter	6	thermaliQ filling pump for dosing solution for heating protection
7	GENO-therm sludge separator	8	Mixed bed cartridge desaliQ:MB9
9	desaliQ inline control module		



The desaliQ inline control module is integrated in the return of the heating circuit. In order to ensure the proper operation of the desaliQ inline control module, respect the points below:

- In order to be able to treat the entire content of the circuit, it must be completely circulated. The following must be fulfilled:
  - All circulation pumps in the heating circuit must be in operation.
  - All shut-off valves must be open.
- The pumps in the heating circuit should be affected as little as possible hydraulically by the desaliQ inline control module.
- Supply and return of the heating circuit must not be connected to each other by the desaliQ inline control module.
- The valves of the heating circuit must not be bypassed by the desaliQ inline control module.

## 5.1 Requirements for the installation site

Obey the local installation directives, general guidelines and technical specifications.

- The installation site must be frost-proof and protect the product from direct sunlight, chemicals, dyes, solvents and their vapours.
- The installation room must have a floor drain. If no floor drain is available, an appropriate safety device must be installed.
- The installation site must be adequately illuminated and ventilated.
- In case of optional wall mounting, the wall must be load-bearing according to the weight of the system.
- For installation and operation of the system, a clearance of approx. 800 mm must be available in front and on the sides of the system.
- For make-up water feed and filling, a drinking water filter and a system separator must be installed up-stream of the system.
- A Schuko socket (type F, CEE 7/3) is required for electrical installation.
- For versions for Switzerland, Denmark and Uruguay, a country-specific socket is required.



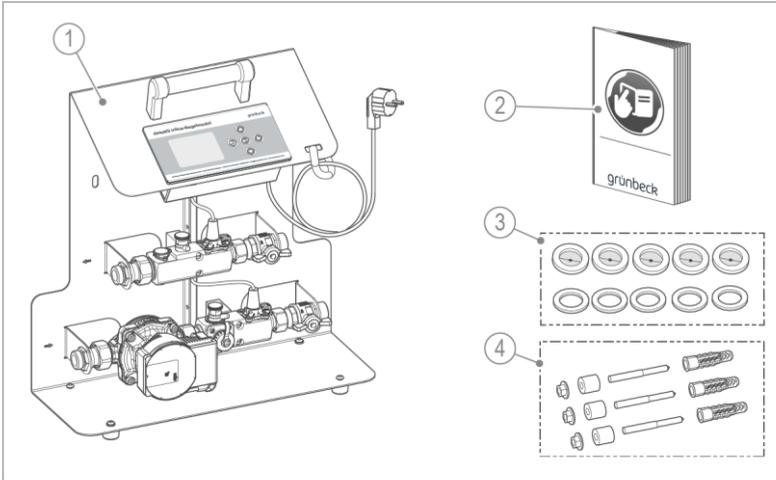
Do not couple the socket with a light switch, heating emergency switch or the like.

## 5.2 Checking the scope of supply



The product is packed in a cardboard box.

The cardboard box simultaneously is intended for safe transport and proper storage between uses (refer to chapter 4)



Item	Designation	Item	Designation
1	desaliQ inline control module	2	Operation manual
3	Seal kit (5x flat seal, 5x sieve seal)	4	Fastening material for wall mounting

- Check the scope of supply for completeness and damage.

## 5.3 Water installation



Obey the operation manuals below:

- Mixed bed cartridge desaliQ:MB9/MB5
- desaliQ inline filter module
- Softening cartridge decaliQ

### NOTE

The temperature range is subject to the maximum admissible operating temperature of the cartridge.

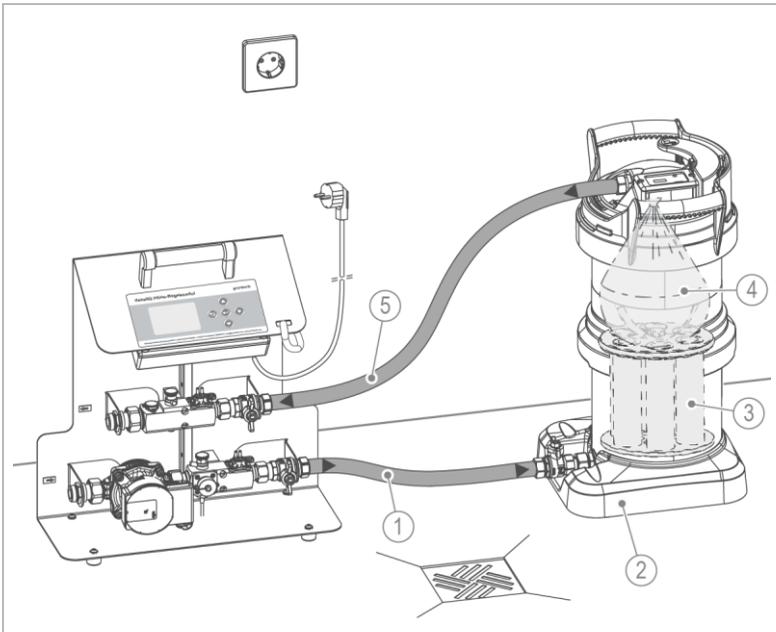
- Risk of damaging the cartridge if the max. admissible operating temperature is exceeded.
- ▶ Comply with the information on the maximum admissible operating temperature shown on the type plate and in the operation manual of the respective cartridge.

### NOTE

Breakage of components in case of fixed installation

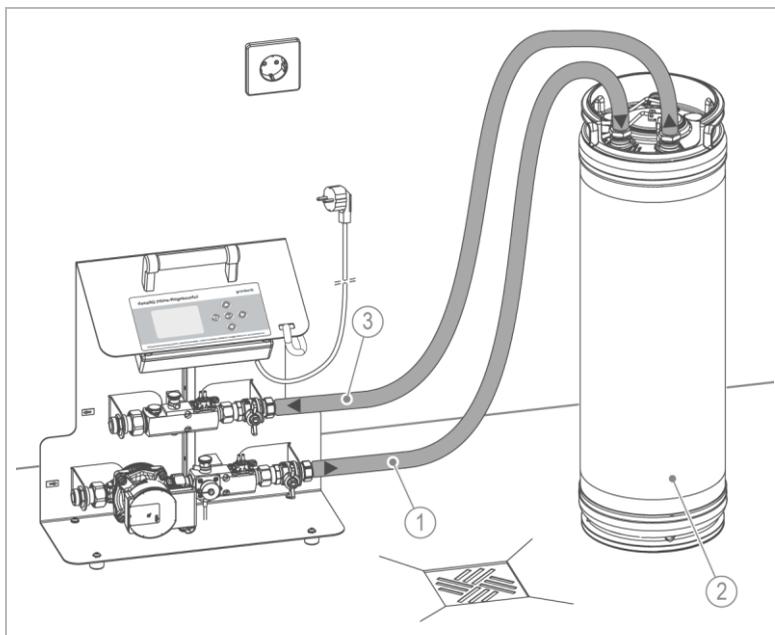
- If installed with mechanical stress, e.g. in case of fixed piping, connections may break.
- ▶ Connect the device with flexible connection hoses only (refer to chapter 3.4).
- ▶ Before start-up, check that the device is connected without any mechanical stress.
- ▶ Depending on the application (filtration, demineralisation or softening), proceed as follows to connect the respective cartridge:

## Mixed bed cartridge desaliQ:MB9



Item	Designation	Item	Designation
1	Hose connection Inlet (heating water)	2	Mixed bed cartridge de- saliQ:MB9
3	desaliQ inline filter module	4	desaliQ resin bags
5	Hose connection Outlet (pure water)		

## Softening cartridge decaliQ:BA12/BA16 VARIO mini



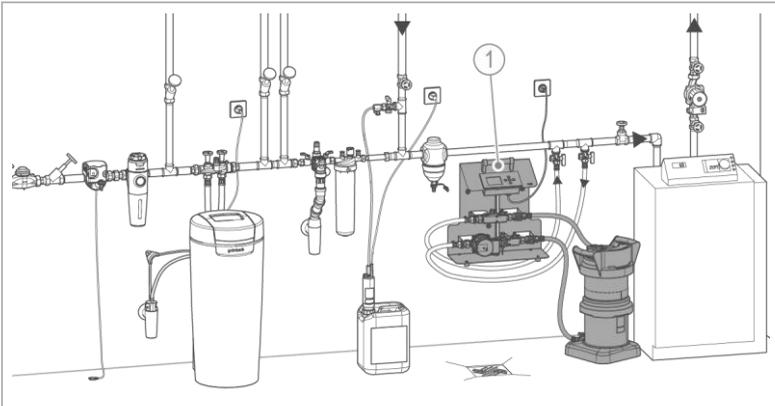
Item	Designation	Item	Designation
1	Hose connection Inlet (heating water)	2	Softening cartridge decaliQ (decaliQ:BA12 or decaliQ:BA16)
3	Hose connection Outlet (softened heating water)		



In order to increase the demineralisation or softening capacity, several cartridges can be connected in series.

### 5.3.1 Mounting the console on the wall (optional)

#### Installation example (stationary application)



Item	Designation
1	desaliQ inline control module mounted on the wall in a stationary position



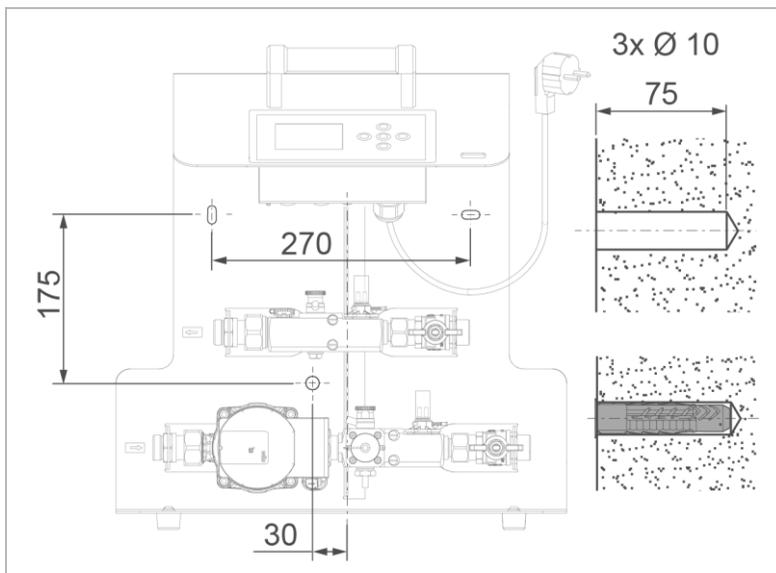
You can mount the console of the desaliQ inline control module on the wall using the fastening material supplied with the system.



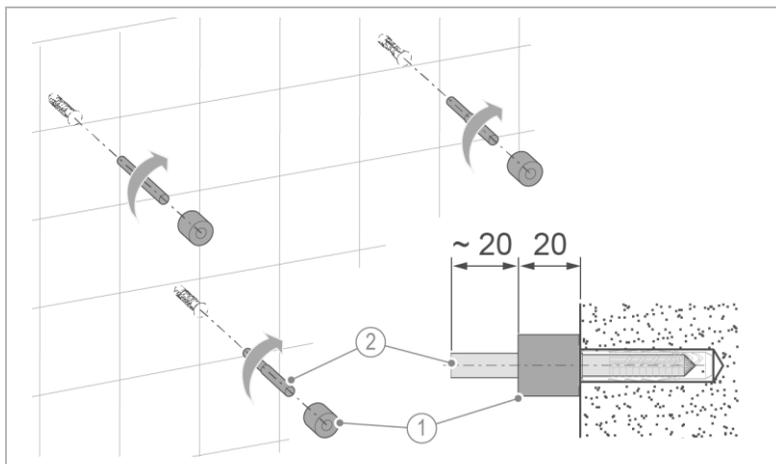
The fastening material supplied with the system is suitable for concrete and solid bricks. The console of the desaliQ inline control module must only be mounted horizontally.

- ▶ Check the static condition of the masonry.
- ▶ Adapt the fastening material to the masonry, if necessary.
- ▶ Determine the position. Take the accessibility of the product into account.

► Mark the drill holes according to the drilling diagram below:

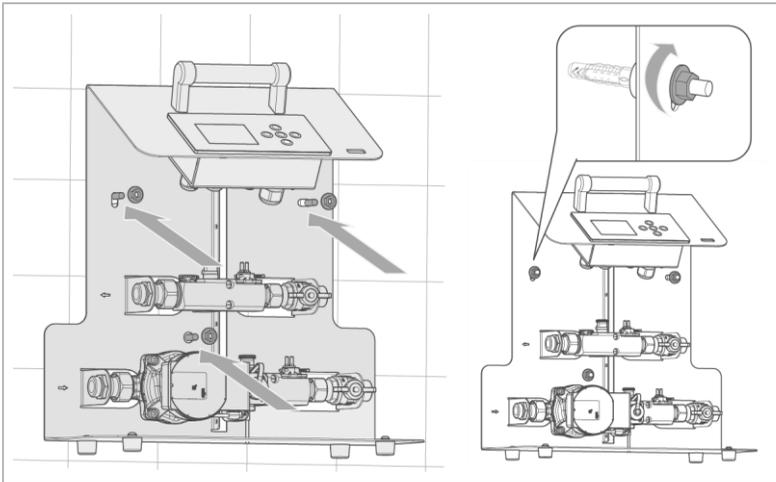


1. Drill the holes and insert the dowels.



Item	Designation	Item	Designation
1	Spacers	2	Hanger bolts M8x80

2. Screw in the hanger bolts.
3. Slide the spacers onto the hanger bolts.



4. Hang the console on the hanger bolts.
5. Level the console with the help of a spirit level and fix it with the nuts.
6. Check the console for a secure hold.

## 5.3.2 Installing the connection hoses



The connection hoses must be selected and laid according to the respective situation on site (refer to chapter 3.4). All connection hoses must be secured against water leaks by means of a seal.



### CAUTION

Sharp thread and pinching points on connections

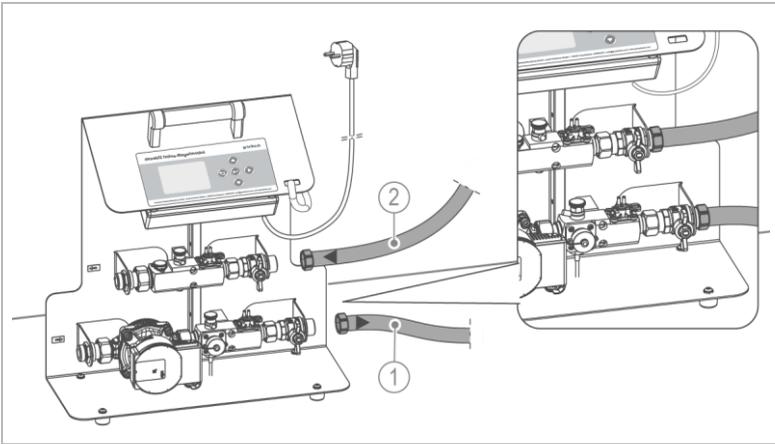
- Cuts and pinching of fingers.
- ▶ Use protective gloves when connecting the connection hoses.

### NOTE

Incorrect installation and routing of the connection hoses

- Risk of damage due to twisting, contortion, kinking and laying under tensile stress.
- ▶ Make sure that the connection hoses are not squeezed, kinked or twisted when connecting them.
- ▶ Firmly hold the connection hoses when tightening the union nuts.
- ▶ Make sure that the bending radius of the connection hoses is not too small (at least 10x hose Ø).
- ▶ Lay the connection hoses without tensile stress.
- ▶ In the heating room, place the device in a way that the connection hoses do not pose an immediate risk of tripping.
- ▶ Route the connection hoses away from traffic routes.

### 5.3.2.1 Connecting the mixed bed cartridge/softening cartridge



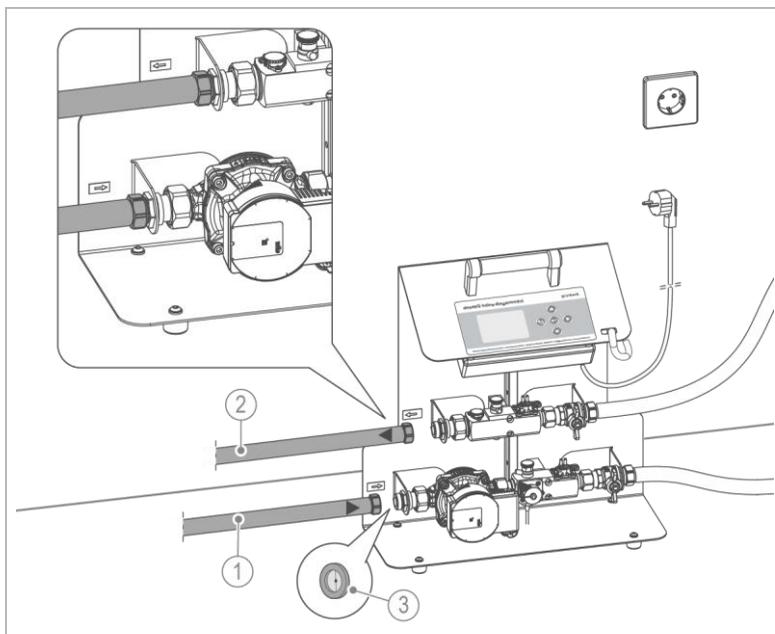
Item	Designation	Item	Designation
1	Connection hose 3/4" to the cartridge	2	Connection hose 3/4" from the cartridge

1. Mount the connection hoses on the connections:  
Inlet to cartridge and outlet from cartridge
2. Mount the connection hoses on the cartridge



Obey the respective operation manual of the mixed bed cartridge or the softening cartridge.

### 5.3.2.2 Connecting the heating circuit



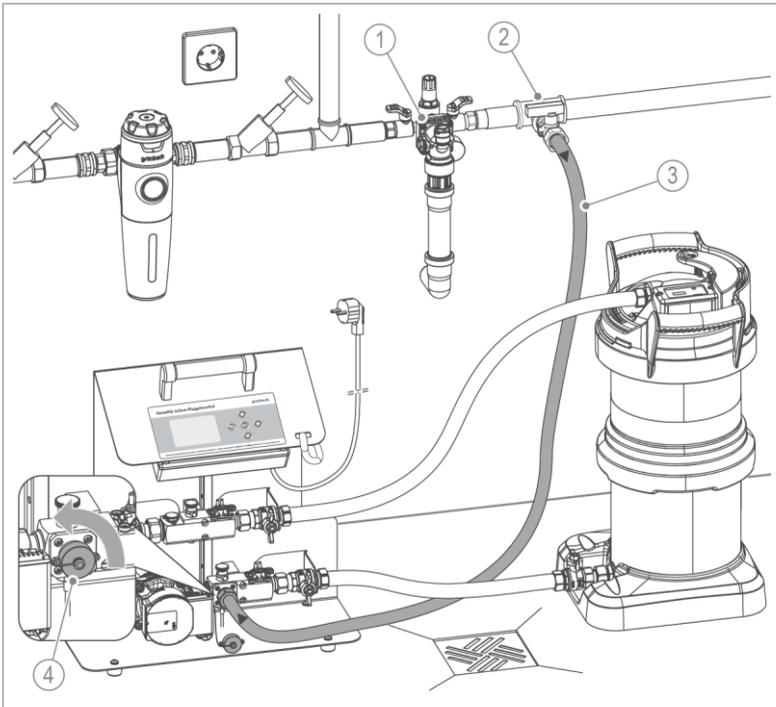
Item	Designation	Item	Designation
1	Connection hose 3/4" Inlet from the heating circuit (pump section)	2	Connection hose 3/4" Outlet to the heating circuit (sensor section)
3	Sieve seal 3/4" (included in the seal kit)		

3. Mount the connection hose on the inlet connection of the heating circuit.
  - a Insert the sieve seal.
4. Mount the connection hose on the outlet connection to the heating circuit.
5. Connect the connection hoses as a bypass in the return of the heating circuit.

### 5.3.2.3 Connecting the make-up water connection



Via the make-up water connection, you can feed water into the heating system during circulation water treatment. System separation according to DIN EN 1717 is required.



Item	Designation	Item	Designation
1	Filling group thermalIQ:SB13 or Euro system separator GENO-DK-2 Mini	2	Connection of the drinking water supply line
3	Connection hose for make-up water	4	Screw cap $\frac{3}{4}$ " (make-up water connection)

1. Unscrew the protective cap on the make-up water connection.
2. Connect the connection hose from the connection of the drinking water supply line to the connection for make-up water.

## 6 Start-up



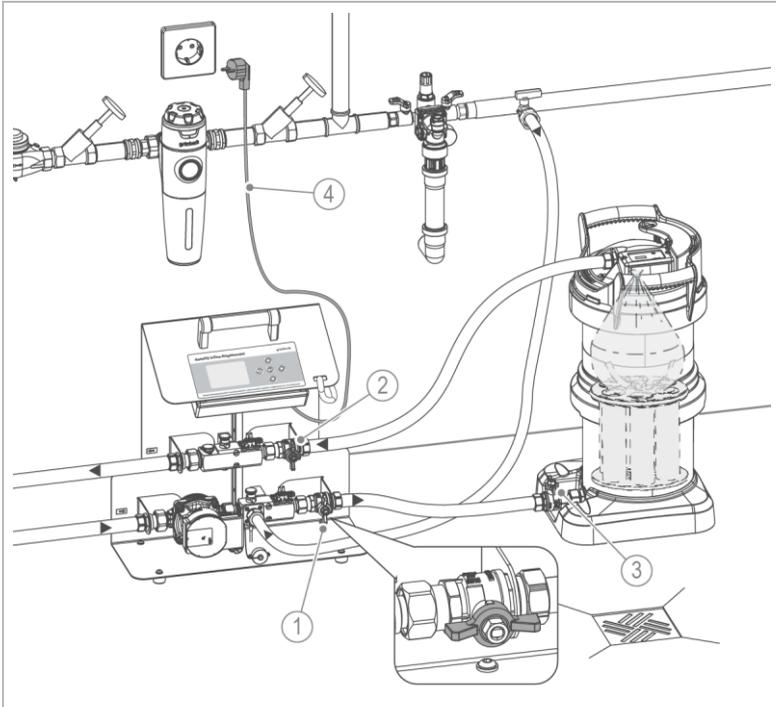
### WARNING

Escaping hot circulation water in case of heating systems that are already in operation

- Scalding
- ▶ Do not vent the desaliQ inline control module under any circumstances by opening a screw connection.
- ▶ Use protective gloves.

### 6.1.1 Preliminary activities

1. Check that the length of the mains cable to the socket is sufficient.
2. Proceed as follows to establish the heating water supply from the return of the heating circuit in the bypass.



Item	Designation	Item	Designation
1	Outlet shut-off valve (heating water)	2	Inlet shut-off valve (pure water)
3	Shut-off valve at the mixed bed cartridge	4	Mains cable, 3 m in length

1. Open the on-site shut-off valve of the heating water inlet to the desaliQ inline control module.
2. Open the outlet shut-off valve (heating water).
3. Open the shut-off valve on the mixed bed cartridge.
4. Open the inlet shut-off valve (pure water).
5. Open the on-site shut-off valve to the heating water circuit.

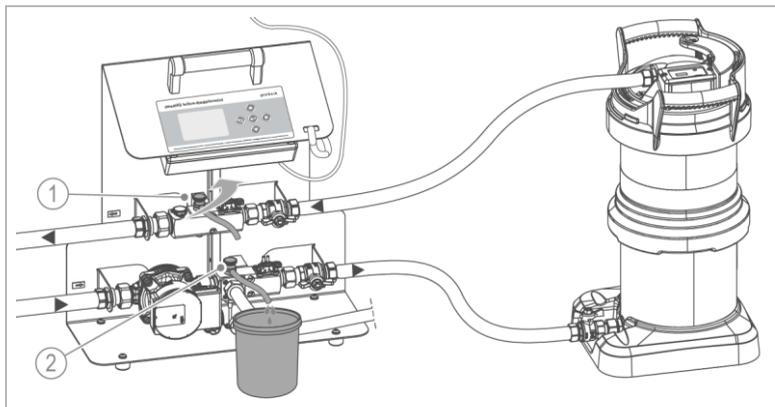
## 6.1.2 Venting



Only a system that has been fully vented works without major noise emission.

**NOTE** Escaping leakage or heating water.

- The circulation pump can be damaged.
- ▶ When venting, use a container to collect the escaping liquid.
- ▶ Dry off the surfaces of the circulation pump in case liquid has escaped.



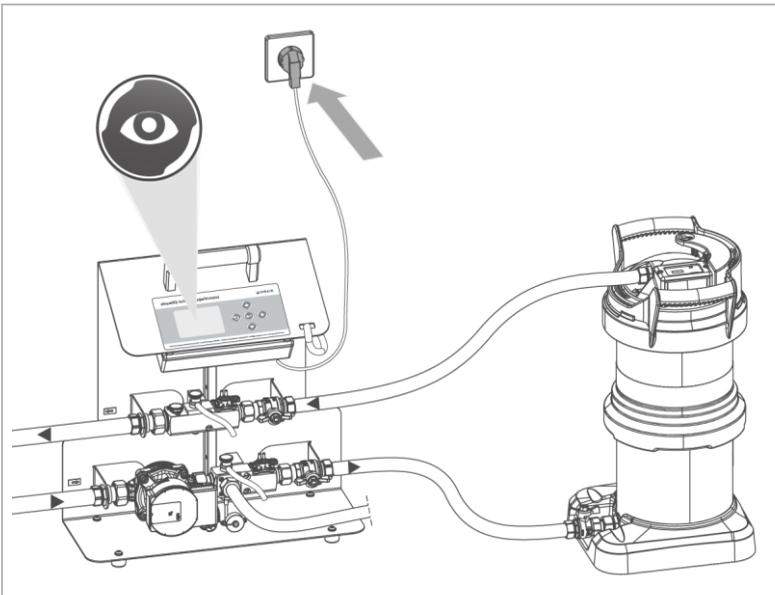
Item	Designation	Item	Designation
1	Valve for venting/sampling (pure water)	2	Valve for venting/sampling (heating water)

1. Slowly open both valves until no more air escapes.
2. Vent the mixed bed cartridge or the softening cartridge.

### 6.1.3 Checking for leaks

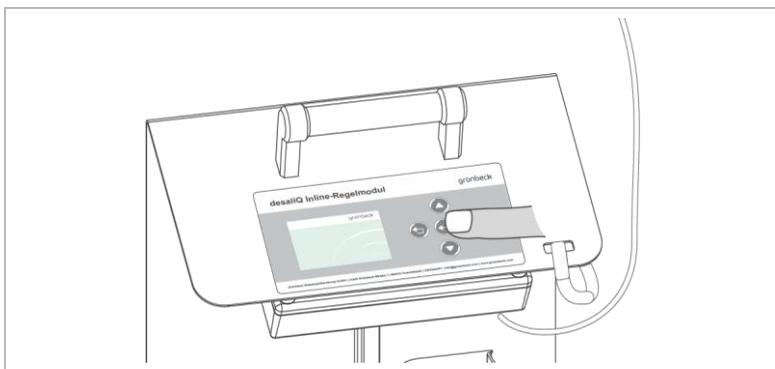
1. Visually check all connections on the device and on the entire system for leaks.
  - » No leakage water must escape.

### 6.1.4 Starting up the product



1. Loosen the cable holder and unwind the mains cable.
2. Plug the mains plug into a socket.
  - » After a couple of seconds, the control unit switches on.
  - » The circulation pump does not start.

## Setting the control unit



1. During the initial start-up, set the language and hardness unit in the control unit (refer to chapter 7.1).
2. Obey the instructions given in the control unit.

# 7 Operation/handling



## **WARNING** Hot heating water



- Burns due to hot surfaces on lines and components at temperatures of more than 55 °C.
- Scalding due to escaping hot heating water, e.g. when taking samples.
  - ▶ Use suitable protective gloves when working on the device.



Permanent monitoring of the device during operation is not required.

The control unit outputs information such as a warning or fault message (refer to chapter 9).

## 7.1 Operation of the control unit

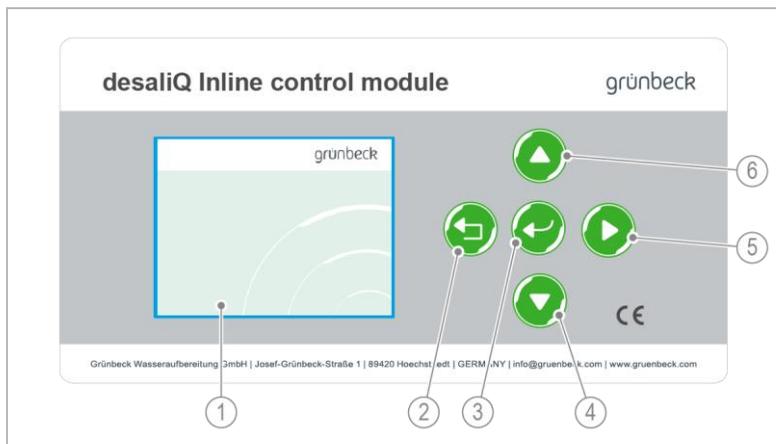
The control unit controls the operation during treatment and filling and indicates when interventions are necessary.

An acoustic buzzer is activated in the event of a success or fault signal. The respective signal is repeated three times at intervals.

The signal intervals can be deactivated by confirming the signal.

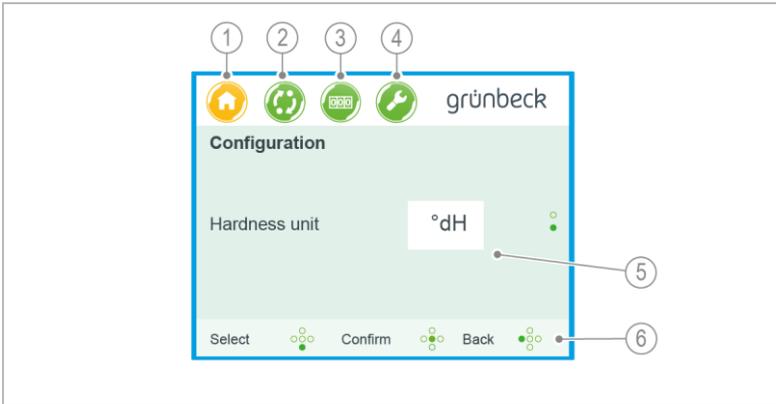
- ▶ Obey the instructions in the display of the desaliQ inline control module.

## 7.1.1 Control panel



Designation	Meaning/Function
1 Display	<ul style="list-style-type: none"> <li>To read off the current values</li> </ul>
2 Operating key 	<ul style="list-style-type: none"> <li>Going back</li> <li>Quitting the menu</li> </ul>
3 Operating key 	<ul style="list-style-type: none"> <li>Saving a parameter</li> <li>Aborting or confirming/starting a program step</li> </ul>
4 Operating key 	<ul style="list-style-type: none"> <li>Setting values</li> <li>Decreasing the numerical value of a parameter</li> <li>Selecting a program step</li> </ul>
5 Operating key 	<ul style="list-style-type: none"> <li>Selecting a menu</li> <li>Changing a program step</li> </ul>
6 Operating key 	<ul style="list-style-type: none"> <li>Setting values</li> <li>Increasing the numerical value of a parameter</li> <li>Selecting a program step</li> </ul>

## 7.1.2 Display



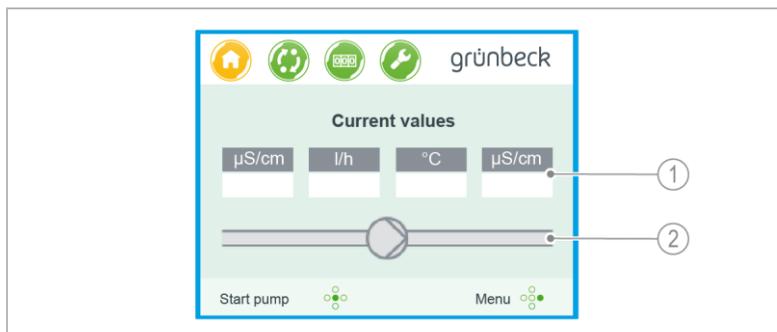
Designation	Meaning/Function
1 Menu display 	Home <ul style="list-style-type: none"> <li>• Basic display for current values</li> <li>• Green = selectable, inactive level</li> <li>• Orange = active level</li> </ul>
2 Menu display 	Program selection
3 Menu display 	Water meter <ul style="list-style-type: none"> <li>• Current value</li> <li>• Resetting the meter</li> </ul>
4 Menu display 	Technical service <ul style="list-style-type: none"> <li>• Code-protected area for settings</li> </ul>
5 Main display	Values and work mode <ul style="list-style-type: none"> <li>Grey = passive (selection or setting mode)</li> <li>Coloured = active (device in work mode)                             <ul style="list-style-type: none"> <li>• Parameters</li> <li>• Indication of current values</li> </ul> </li> </ul>
6 Navigation bar	Information on possible operation with operating keys <ul style="list-style-type: none"> <li>• Select, Confirm</li> <li>• Start, Stop</li> <li>• Continue, Back</li> </ul>

### 7.1.3 Signals

Illustration	Meaning/Function
	Information (green) <ul style="list-style-type: none"> <li>• Program completed successfully</li> </ul>
	Information with exclamation mark (orange) <ul style="list-style-type: none"> <li>• Program completed; goal not reached, however</li> <li>• Aborting program</li> </ul>
	Warning signal (red) <ul style="list-style-type: none"> <li>• Program interrupted</li> </ul>
	Fault signal (red) <ul style="list-style-type: none"> <li>• Program aborted</li> </ul>

### 7.1.4 Basic display Home

In the basic display Home, current values are displayed



Item	Designation	Item	Designation
1	Current sensor values	2	Pump status



By pressing the enter key  in this display, the pump can be operated outside of a program.

## 7.2 Program selection and sequence

- ▶ Select the required operating mode in the  menu:
  - Treatment (refer to chapter 7.2.1).
    - Filtration, demineralisation, softening
  - Filling (refer to chapter 7.2.3).
    - Demineralisation, softening
- ▶ Follow the instructions in the control unit.

The duration of the operation depends on the degree of impurities, the volume and the hydraulic conditions in the heating circuit.

The treatment time can variably be set up to 999 h. Additionally, continuous operation can be set.

- 999 – ∞ – 1 – 2 – 3 – ...
- ∞ = Continuous operation

After the set target values have been reached and the time has not yet elapsed, the control unit goes into monitoring mode.

It is not possible to accurately indicate the duration of the respective program.

- ▶ Confirm a successfully completed program.



You can manually abort a started program by pressing the enter key

In the event of a warning signal , you can continue or abort the program after the malfunction has been rectified.

In case of a fault signal , you can interrupt or abort the program.

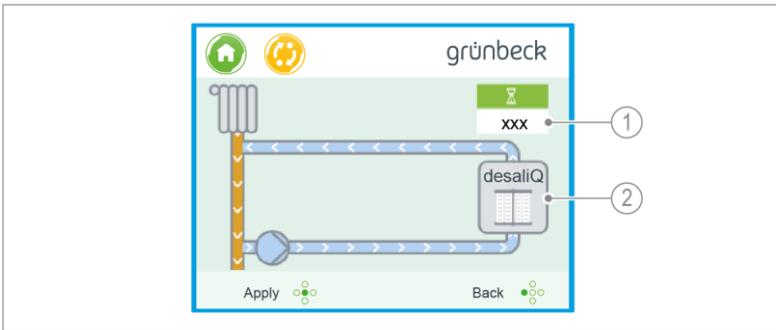
You can change the set parameters in the program selection menu while a program is running.

## 7.2.1 Treatment operating modes

### 7.2.1.1 Filtration

In case of systems whose chemical water parameters are good but which have a high degree of impurities, filter-only operation can be the sensible option.

The duration of the filter operation depends on the degree of impurities, the volume and the hydraulic conditions in the heating circuit.



Item	Designation	Item	Designation
1	Treatment time	2	desaliQ inline filter module

1. Set the **Treatment time**.
2. Start the filter operation.
3. Take samples from the heating circuit at regular intervals in order to check whether the filter operation can be terminated.
  - » After the treatment time has elapsed, the program stops automatically.

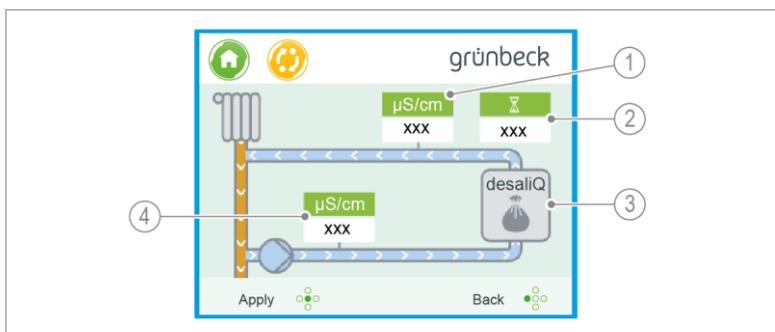
## 7.2.1.2 Demineralisation



Any inhibitors possibly present in the heating circuit can be removed by the resin of the cartridge.

- ▶ After the demineralisation operation, re-establish the required inhibitor concentration.

The duration of the demineralisation operation depends on the existing conductivity, the target conductivity, the volume and the hydraulic conditions in the heating circuit and in general takes a few hours up to several days.



Item	Designation	Item	Designation
1	Conductivity limit value	2	Treatment time
3	Program symbol Demineralisation	4	Setpoint of heating water conductivity

1. Set the **Treatment time**, the **Setpoint of heating water conductivity** and the **Conductivity limit value at the cartridge outlet**.
2. Start the demineralisation operation.
3. Take the first sample after 1 – 2 hours to roughly estimate the duration of the demineralisation operation.
  - » After the treatment time has elapsed or the setpoint of the heating water conductivity has been reached, the program is terminated.

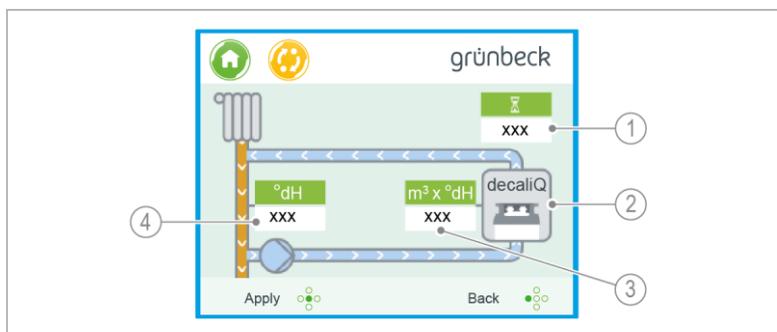
### 7.2.1.3 Softening



Any inhibitors possibly present in the heating circuit can be removed by the resin of the cartridge.

- ▶ After the softening operation, re-establish the required inhibitor concentration.

The duration of the softening operation depends on the existing hardness, the target hardness, the volume and the hydraulic conditions in the heating circuit and in general takes a few hours up to several days.



Item	Designation	Item	Designation
1	Treatment time	2	Program symbol Softening
3	Capacity figure of cartridge	4	Measured heating water hardness

1. Set the **Treatment time**, the **Measured heating water hardness** and the **Capacity figure of cartridge**.
2. Start the softening operation.
3. Take the first sample after 1 – 2 hours to roughly estimate the duration of the softening operation.
  - » After the treatment time has elapsed, the program is terminated.

## 7.2.2 Taking samples

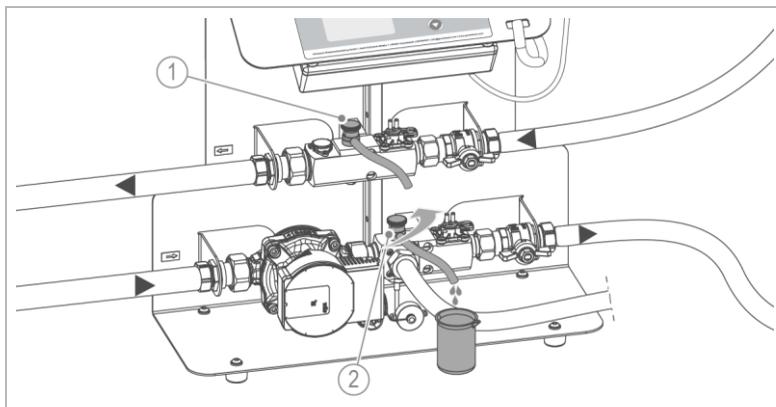
As the desaliQ inline control module is connected in the partial flow, sampling must take place at regular intervals in order to check the progress of the treatment.



During sampling, the entire system volume of the heating circuit must be in motion.



In order to determine the hardness, pH value and conductivity of the heating water, you can use the GENO-therm analysis case (order no. 707 190).



Item	Designation	Item	Designation
1	Valve for sampling (pure water)	2	Valve for sampling (heating water)

1. Fill the sampling container slowly to prevent the introduction of oxygen into the water sample.
2. Take the water sample at the heating water valve upstream of the cartridge.
3. Either measure the pH value and the hardness of the heating water or the pH value and the conductivity.
4. Enter the measured values in the control unit.

5. Take the water sample at the pure water valve downstream of the cartridge.
  6. Either measure the pH value and the hardness of the heating water or the pH value and the conductivity.
- ▶ Compare the measured values with the requirements of VDI 2035 and the specifications of the manufacturers of the circuit components.

### 7.2.3 Filling operating modes



- ▶ Before carrying out the work, you need to decide whether you want to fill in softened or demineralised water.
- Grünbeck's recommendation: Use fully demineralised water in combination with thermalIQ safe.

Before carrying out the work, the proper cartridge must be installed and prepared.

#### NOTE

The heating circuit is filled by means of the water pressure of the drinking water system.

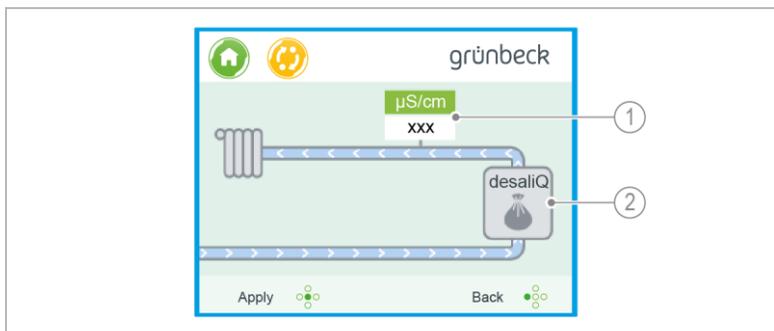
- Damage to the heating circuit due to excessive pressure.
- ▶ Check the admissible pressure of the heating circuit to be filled.
- ▶ Set the admissible pressure at the pressure reducer of the drinking water system.



The water meter in the display tells you whether water is flowing through the system.

- ▶ Make sure that the heating circuit is vented at a suitable location.

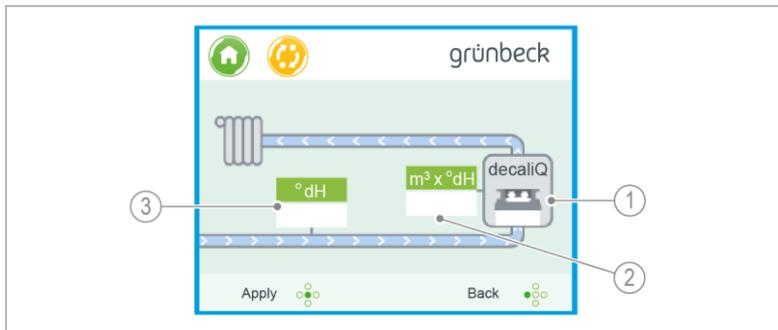
### 7.2.3.1 Demineralisation



Item	Designation	Item	Designation
1	Conductivity limit value at the cartridge outlet	2	Program symbol Demineralisation

1. Close the shut-off valve for the heating circuit on the desaliQ inline control module.
2. Reset the **Water meter**.
3. Set the **Conductivity limit value at the cartridge outlet**.
4. Open the shut-off valves for drinking water and heating circuit.
5. Start the demineralisation operation.
  - » The heating circuit is being filled.
6. Close the shut-off valves for drinking water and heating circuit if the flow has come to a stop or the desired system pressure has been reached.
7. Document the water volume you needed for the filling process in the system log of the heating system.
8. Measure the water parameters and document them in the system log of the heating system.

### 7.2.3.2 Softening



Item	Designation	Item	Designation
1	Program symbol Softening	2	Capacity figure of cartridge
3	Raw water hardness		

1. Close the shut-off valve for the heating circuit on the decaliQ inline control module.
2. Reset the **Water meter**.
3. Set the **Raw water hardness**.
4. Set the **Capacity figure of cartridge**.
5. Open the shut-off valves for drinking water and heating circuit.
6. Start the softening operation.
  - » The heating circuit is being filled.
7. Close the shut-off valves for drinking water and heating circuit if the flow has come to a stop or the desired system pressure has been reached.
8. Document the water volume you needed for the filling process in the system log of the heating system.
9. Measure the water parameters and document them in the system log of the heating system.

## 7.3 Resetting the water meter

You can reset the water meter at any time, e.g. after the program has been completed.

1. Select the water meter menu .
  - » The current value is displayed.
2. Reset the meter with **Yes**.

## 7.4 Changing the basic settings

In the code-protected area, you can change the basic settings.

1. Select the technical service menu .
2. Enter the respective Code `xxx`.

### 7.4.1 Code 005

- Set the values below:
- Desired hardness unit (factory setting °dH)
  - Operating language
  - Display function in the monitoring mode
  - Limit value of the maximum temperature

## 7.4.2 Code 245

- ▶ Read the system information:
  - Total water volume
  - Temperature of circuit board

## 7.5 Calibrating the conductivity sensors



The work below must be carried out by a qualified specialist only.

In Code 121, you can recalibrate the temperature sensor, the conductivity sensor 1 and the conductivity sensor 2.

### 7.5.1 Code 121

The calibration of the conductivity sensors and the temperature sensor must be carried out annually during maintenance, or as needed if the values deviate.

All recalibration procedures must be carried out with acclimatised devices and calibration solutions.



- ▶ Leave the device and the calibration solution in the same room for approx. 3 hours.
- » The device and the calibration solution must have the same temperature.

**NOTE**

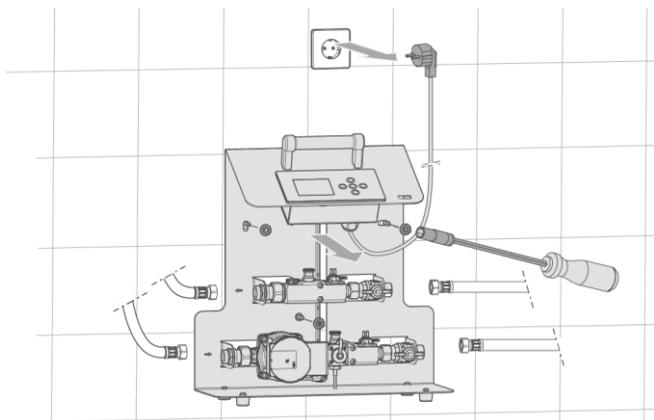
Do not crush the cable

- When tilting the device, the cable may be crushed under the device and damaged.
- ▶ When tipping the device over, take care to guide the cable – do not place it under the console.
- ▶ Carefully tilt the device on the respective side – use the carrying handle to do so.

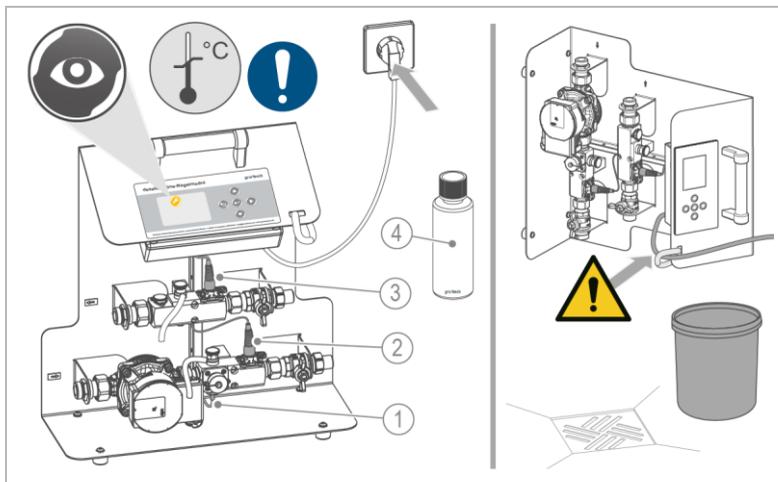
When calibrating the conductivity sensor, you either need a floor drain for discharge or a vessel to receive the calibration solution.

**Preliminary work**

In case of wall mounting:



1. Pull the plug from the socket.
2. Loosen the nuts and remove the system.



Item	Designation	Item	Designation
1	Temperature sensor	2	Conductivity sensor 1 (inlet)
3	Conductivity sensor 2 (outlet)	4	Calibration solution Conductivity LF 1413 $\mu\text{S}/\text{cm}$ (order no. 203 624)

- ▶ Drain the device completely.
- ▶ Clean the conductivity sensor, if required (refer to chapter 8.4.1).
- ▶ Connect the device to the power supply.
- ▶ Enter the Code 121 in the technical service menu .

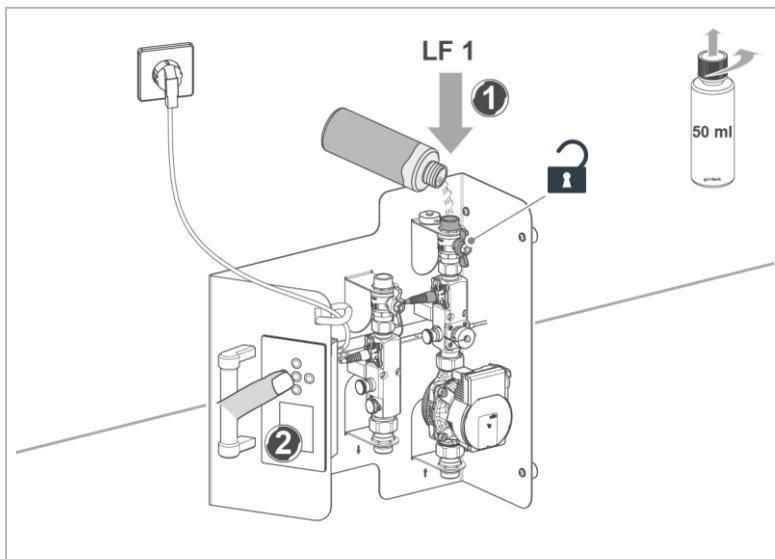
### 7.5.1.1 Calibrating the temperature sensor

1. Measure the room temperature using a reference thermometer.
2. Enter the measured value in the program and confirm the entry.

### 7.5.1.2 Calibrating the conductivity sensors

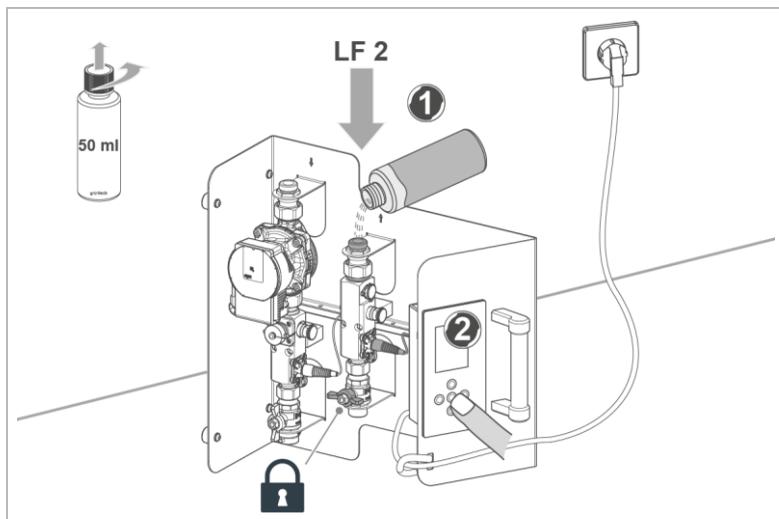
You need two bottles of calibration solution (order no.: 203 624).  
The conductivity sensors 1 and 2 are calibrated in sequence.

#### Conductivity sensor 1 (inlet)



- ▶ Tilt the device to the left.
- 1. Fill 1 bottle of calibration solution (50 ml) into the opening of the pump section – the ball valve must be open.
  - » The calibration solution must be visible in the ball valve.
- ▶ Make sure that there are no air pockets.
  - » The non-return valve at the pump outlet prevents the calibration solution from escaping.
- 2. Carry out the calibration of the conductivity sensor 1 by following the menu prompts in the control unit.
- 3. Pour the calibration solution out of the device after successful calibration. Discard the calibration solution.

## Conductivity sensor 2 (outlet)



- ▶ Tilt the device to the right.
  - ▶ Close the ball valve of the sensor section.
1. Fill 1 bottle of calibration solution (50 ml) into the connection flap opening of the sensor section.
    - » The calibration solution must be visible in the connection flap.
  - ▶ Make sure that there are no air pockets.
    - » The closed ball valve at the inlet of the sensor section prevents the calibration solution from escaping.
  2. Carry out the calibration of the conductivity sensor by following the menu prompts in the control unit.
  3. Pour the calibration solution out of the device after successful calibration. Discard the calibration solution.

## Final work

1. Completely rinse the pump section and the sensor section with water.
  - a Make sure the device is vented.
2. Check the conductivity value – it must match the flushing water.
  - » The device is recalibrated.

In case of wall mounting:

1. Hang the console on the hanger bolts.
2. Fix the console with the nuts.
3. Check the console for a secure hold.

## 8 Maintenance and repair

Maintenance and repair includes cleaning, inspection and maintenance of the product.



The responsibility for inspection and maintenance is subject to local and national requirements. The owner/operating company is responsible for compliance with the prescribed maintenance and repair work.

- ▶ Only use genuine spare and wearing parts from Grünbeck.

### 8.1 Cleaning



Have the cleaning work only carried out by persons who have been instructed on the risks and dangers that can arise from the device.

#### **NOTE:**

Do not clean the product with cleaning agents containing alcohol/solvents

- These substances damage the plastic components.
- Varnished surfaces are affected.
  - ▶ Use a mild/pH-neutral soap solution.
- ▶ Only clean the outside of the product.
- ▶ Do not use any strong or abrasive cleaning agents.

- ▶ Wipe the surfaces with a damp cloth.
- ▶ Flush the device with clear water after every use (refer to chapter 10).

## 8.2 Intervals



By way of regular inspections and maintenance, malfunctions can be detected in time and product failures might be prevented.

The interval table below shows the minimum intervals for the tasks to be carried out.

Task	Interval	Execution
Cleaning	After every use	<ul style="list-style-type: none"><li>• Clean the outside of the device</li><li>• Drain the device</li><li>• Flush the device</li></ul>
Inspection	6 months	<ul style="list-style-type: none"><li>• Check for function and leaks</li><li>• Visual inspection for damage and corrosion</li><li>• Check shut-off valves and draining valves</li><li>• Check mains cable</li></ul>
Maintenance	12 months	<ul style="list-style-type: none"><li>• Clean and adjust conductivity sensors and check them for tight fit</li><li>• Check the circulation pump</li></ul>
Repair	5 years	<ul style="list-style-type: none"><li>• Recommendation: Replace wearing parts</li></ul>

## 8.3 Inspection

You as owner/operating company can do the regular inspections yourself.

- ▶ Carry out an inspection at least every 6 months and proceed as follows to do so:
  1. Check all water-carrying parts for leaks.
  2. Check the control unit for function.
  3. Check all components for damage and corrosion.
  4. Check that the shut-off valves and draining valves are easy to operate.
  5. Check the mains cable with Schuko plug and the cable holder for damage.

## 8.4 Maintenance

In order to ensure the proper functioning of the product in the long term, certain tasks have to be performed at regular intervals.



### WARNING

Life-threatening voltage on electrical components

- Severe burns, cardiovascular failure, fatal electric shock.
- When touching live components, there is an immediate danger to life.
- ▶ Switch off the supply voltage before working on electrical components.
- ▶ Secure the device against restart.



### WARNING

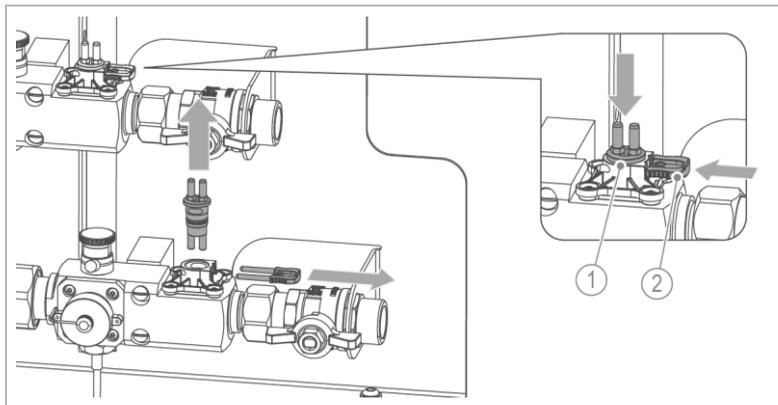
Danger due to strong magnetic field

- Magnets can cause cardiovascular problems.
  - Danger to health in case of metallic implants or pace-makers.
  - ▶ Do not remove the motor of the circulation pump.
  - ▶ Have the circulation pump repaired by qualified personnel who do not have any implants in their bodies.
- 
- ▶ In addition to the inspection, carry out the activities below every 12 months:



## 8.4.1 Cleaning the conductivity sensors

- Proceed as follows to clean both of the conductivity sensors:



Item	Designation	Item	Designation
1	Conductivity sensor	2	Retaining clip

1. Pull out the retaining clip.
2. Pull out the conductivity sensor.
3. Clean the conductivity sensor with drinking water.
  - a Dry the conductivity sensor.
  - b In case of severe impurities, use a cloth or a soft brush.
4. Reinsert the conductivity sensor.
5. Firmly insert the retaining clip.
6. Calibrate the conductivity sensors (refer to chapter 7.5).

## 8.4.2 Checking the circulation pump

1. Clean the circulation pump with a dry cloth.
  2. Check the circulation pump for function.
  3. Check the plug for tight fit.
- ▶ Check all electric lines for damage.
  - ▶ Replace damaged components.

## 8.5 Spare parts

For an overview of the spare parts, refer to our spare parts catalogue at [www.gruenbeck.com](http://www.gruenbeck.com). You can obtain the spare parts from your local Grünbeck representative.

## 8.6 Wearing parts



The replacement of wearing parts must be carried out by technical service personnel only.

Wearing parts are listed below:

- Seals
- Circulation pump
- Turbine water meter
- Non-return valve
- Conductivity sensor

# 9 Troubleshooting

## 9.1 Messages

1. Eliminate the fault (refer to fault table).
2. Acknowledge the fault.
3. Monitor the display of the control unit.
4. If the malfunction reoccurs, compare the display message with the fault table below.

Display	Explanation	Remedy
 Flow rate low Program interrupted	Inlet and return line to the cartridge mixed up	▶ Swap the inlet and return lines to the cartridge
	One or several shut-off valves closed	▶ Check shut-off valves
	Hose line kinked	▶ Check hose lines
	Air in circuit	▶ Vent circuit
	Sieve element in mixed bed cartridge clogged	▶ Drain mixed bed cartridge and clean sieve element
 Cartridge exhausted Program interrupted Pump is off	Insufficient exchanger capacity of cartridge	▶ Replace cartridge or resin
	Insufficient venting	▶ Repeat venting
	Target hardness is not reached because resin is exhausted	▶ Replace cartridge or resin
	Conductivity limit value exceeded	▶ Replace cartridge or resin
 Maximum temperature exceeded Program aborted or terminated	Temperature of heating circuit too high	▶ Check temperature of heating circuit ▶ Lower the temperature

## 9.2 Other observations

Observation	Explanation	Remedy
Circulation pump does not run with power on	Electrical fuse defective	<ul style="list-style-type: none"> <li>▶ Check fuses</li> <li>▶ Contact technical service</li> </ul>
	No voltage applied	<ul style="list-style-type: none"> <li>▶ Eliminate voltage interruption</li> </ul>
Circulation pump makes noises	Cavitation due to insufficient supply pressure	<ul style="list-style-type: none"> <li>▶ Increase system pressure within the admissible range</li> </ul>



If a malfunction cannot be eliminated, the technical service personnel or a qualified specialist trained by Grünbeck can take further measures.

- ▶ Contact technical service.

# 10 Decommissioning

Between uses, the desaliQ inline control module must be taken out of operation and stored temporarily.

- ▶ Proceed as follows to take the desaliQ inline control module out of operation:

1. Flush the device with clear water.



In order to avoid damage from frost the device must be fully drained after each use.

2. Drain the device.
3. Remove the connection hoses.
4. In case of wall mounting:
  - a Loosen nuts and remove the device.
  - b Remove the fastening material.
5. Clean the outside of the device.
6. Wind up the mains cable and secure it at the console using the cable holder.
7. Put the device into the packaging.
8. Transport the device in its packaging.

## 10.1 Restart

- ▶ Put the device into operation again (refer to chapter 6.1.4).

# 11 Disposal

- ▶ Obey the applicable national regulations.

## Packaging

- ▶ Dispose of the packaging in an environmentally sound manner.

## Product

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If this symbol (crossed-out wheeie bin) is on the product the product or its electrical and electronic components must not be disposed of as household waste.

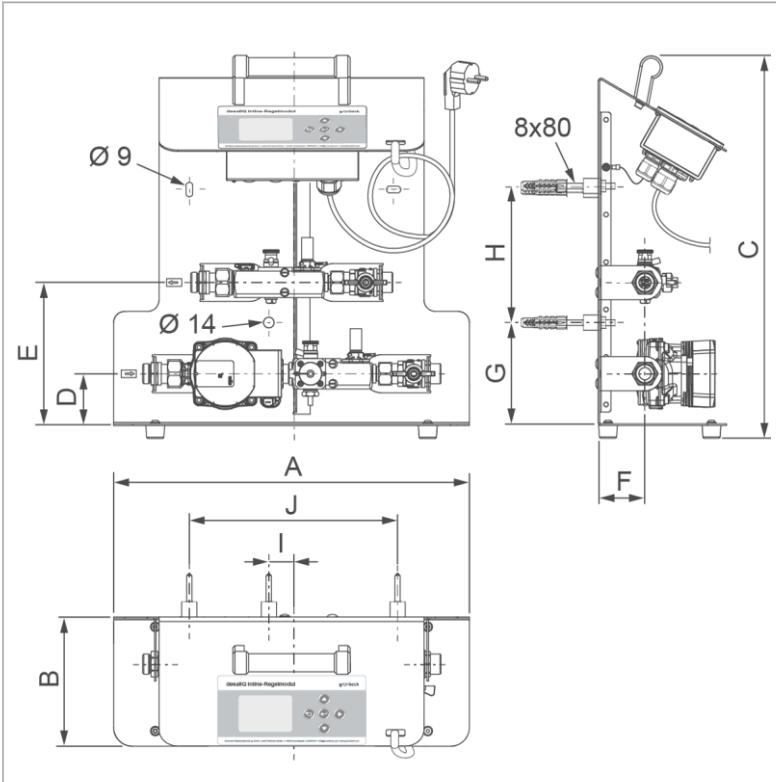
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- ▶ Find out about the local regulations on the separate collection of electrical and electronic products.
- ▶ Make use of the collection points available to you for the disposal of your product.
- ▶ If your product contains batteries or rechargeable batteries, dispose of them separately from your product.



For more information on take-back and disposal, go to [www.gruenbeck.com](http://www.gruenbeck.com).

# 12 Technical specifications



## Dimensions and weights

A	Height	mm	470
B	Depth	mm	170
C	Width	mm	490
D	Connection height of pump section	mm	85
E	Connection height of sensor section	mm	205
F	Connection depth of pump and sensor section	mm	62
	Weight	kg	~ 9.3

<b>Dimensions and weights</b>		
<b>Bores for wall mounting (optional)</b>		
G	Height of hole Ø14	mm 135
H	Height of slotted holes 9x10	mm 175
I	Distance of hole Ø14	mm 30
J	Distance of slotted holes 9x10	mm 270
<b>Connection data</b>		
Nominal connection diameter of inlet and outlet		DN 20 (¾" m. thread)
Power supply	V/Hz	230/50 - 60
Rated power (operation)	W	70
<b>Performance data</b>		
Nominal pressure	PN	6
Operating pressure (circuit)	bar	1.5 – 4
Flow at $\Delta p$ 1 bar (in combination with desaliQ:MB9)	l/h	720
Nominal flow (in combination with desaliQ:MB9)	m <sup>3</sup> /h	0.9
<b>General data</b>		
Water temperature	°C	5 – 80
Ambient temperature	°C	5 – 40
<b>Order no.</b>	<b>707000030000</b>	
<b>Order no. Version for Switzerland (CH)</b>	<b>707000036700</b>	
<b>Order no. Version for Denmark (DK)</b>	<b>707000036800</b>	
<b>Order no. Version for Uruguay (UY)</b>	<b>707000038200</b>	

# 13 Operation log



- ▶ Document the initial start-up/commissioning and all maintenance activities.

## desaliQ inline control module

Serial no.: \_\_\_\_\_

### 13.1 Start-up/Commissioning log

Customer	
Name: _____	
Address: _____	
Installation/Accessories	
_____	_____
_____	_____
_____	_____
Remarks	
_____	
_____	
_____	
Start-up	
Installer/Owner/Operating company:	_____
Company:	_____
Work time certificate (no.):	_____
Date/signature:	_____

## 13.2 Maintenance

Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair

Description	
<hr/> <hr/> <hr/>	

Execution confirmed	
Company:	
Name:	
Date:	Signature:

Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair

Description	
<hr/> <hr/> <hr/>	

Execution confirmed	
Company:	
Name:	
Date:	Signature:

**Work performed**

Inspection     Maintenance     Repair

**Description**

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---



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**Execution confirmed**

Company:

Name:

Date:

Signature:

**Work performed**

Inspection     Maintenance     Repair

**Description**

---



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---

**Execution confirmed**

Company:

Name:

Date:

Signature:

# EU Declaration of Conformity

In accordance with Low Voltage Directive 2014/35/EU



This is to certify that the system designated below meets the safety and health protection requirements of the applicable EU guidelines in terms of its design, construction and execution.

This certificate becomes void if the system is modified in any way not approved by us.

**Heating water treatment system  
desaliQ inline control module**

**Serial no.: Refer to type plate**

The aforementioned system also complies with the directives and provisions below:

- EMC 2014/30/EU
- RoHS 2011/65/EU

The following harmonised standards have been applied:

- EN 61000-3-2:2014
- DIN EN ISO 12100:2011-03
- EN 61000-3-3:2013
- EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 (partly) + A15:2021
- EN 62233:2008

The following national standards and regulations have been applied:

- EN IEC 55014-1:2021
- EN IEC 55014-2:2021

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Hoechststadt, 02.05.2023

Tobias Vogl  
Head of Research & Development

## **Publisher's information**

### **Technical documentation**

Should you have any questions or suggestions regarding this operation manual, please contact Grünbeck Wasseraufbereitung GmbH's Department for Technical Documentation directly.

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