

Heating protection



Revolutionising heating protection

Preserving property, increasing efficiency

grünbeck



Grünbeck's 2-component system:
desaliQ:MB + thermalIQ safe.
Heat up with clarity and reliability.

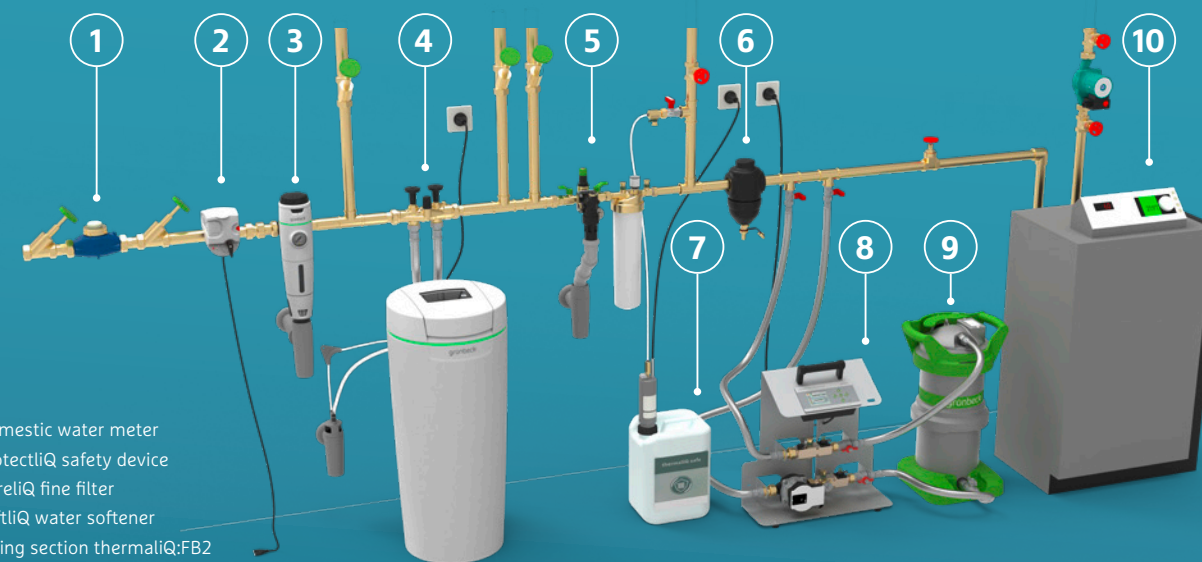


Water demineralised, values protected, customers inspired.

How reliable heating protection increases quality of life and success

Water is of crucial importance to people's quality of life – when it bubbles from the shower head, serves as food or spreads comforting warmth throughout the house in the heating water circuit. We at Grünbeck take responsibility for these values. And as water experts provide you with our best technology. Especially with the 2-component system developed by Grünbeck, heating protection is easier and more efficient than ever before.

Filling, make-up water feed or circulation water treatment of the heating system with fully demineralised and filtered water by means of the mixed bed cartridge **desaliQ:MB** in combination with the reliable corrosion protection **thermalIQ safe** also meets the criteria for „low-salt operation“ in accordance with VDI 2035. Grünbeck's 2-component system for carefree heating protection – without any follow-up check after 8 – 12 weeks.



- ① Domestic water meter
- ② protectliQ safety device
- ③ pureliQ fine filter
- ④ softliQ water softener
- ⑤ Filling section thermalIQ:FB2
- ⑥ GENO-therm sludge separator
- ⑦ Dosing solution thermalIQ safe for heating protection and thermalIQ filling pump
- ⑧ desaliQ inline control module
- ⑨ Mixed bed cartridge desaliQ:MB9
- ⑩ Boiler

Why is the proper treatment of heating water and its protection so important?

- ✓ **System protection:** Prevention of malfunctions in the heating system due to silting and corrosion
- ✓ **Saving smart:** Heating costs decrease and the life cycle of the system is prolonged
- ✓ **Ecologically sound:** Sustainable use of energy
- ✓ **Recommended by experts:** Water parameters as per VDI 2035

Grünbeck's product series for heating protection makes it easy for you to do the right thing

Grünbeck's portfolio is diverse and covers every type of application. Regardless of whether a new system is filled for the first time or an existing system is to be rehabilitated, the thermalIQ and desaliQ product series complement each other and meet all your needs. With Grünbeck's products for heating protection, you not only have excellent technology at your disposal but you also show your appreciation for the property of your customers. For our products – in addition to all technical and legal requirements – also meet a central need of

all people: the desire for reliable consistency. Grünbeck recommends using fully demineralised water (= demi water) for the initial filling and make-up water feed of the heating circuit. The desaliQ mixed bed cartridges are designed for this purpose and by way of demi water provide the optimum basis for a long service life of your heating system. The dosing solutions for heating protection of the thermalIQ product group are the ideal products for the efficient cleaning and optimum protection of the heating circuit. The positive side effect: The dosing solutions are biodegradable and free of heavy metals. In line with this, Grünbeck has also added the thermalIQ filling group, treatment group and filling section to their portfolio. These products make up a comprehensive package for the protection of your drinking water and the full demineralisation of the water for your heating circuit.

Grünbeck also offers specialist installers ideally customised tools for filling or rehabilitating heating systems – such as the desaliQ inline control module. With these products of the desaliQ series, the heating water can be filtered as well as demineralised in the partial flow. Furthermore, a mobile reverse osmosis system featuring Grünbeck's patented AVRO process can be used for filling large heating systems with fully demineralised water.

Two strong groups unite an overall system

- ✓ **Flexible:** System separator unit with rotary flange for installation in any installation situation
- ✓ **Hands-on:** Pre-assembled assembly groups for easy installation
- ✓ **Quick:** Rotary flange of system separator cartridge for easy and quick installation in any position



Filling group thermalIQ:SB13

Treatment group thermalIQ:HB2

Filling group thermalIQ:SB13

The filling group thermalIQ:SB13 is designed to secure the drinking water as per DIN EN 1717. The directly installed system separator BA ensures this safety. It prevents the possibly polluted water from the heating system from flowing back. A pressure reducer with integrated pressure gauge allows for the variable adjustment of the filling pressure. Shut-off valves on the inlet and outlet side ensure safety on all sides. Thanks to the already installed system separator unit, which can be rotated by 360°, handling is easier than ever before. The filling group can be mounted in any installation situation – both horizontal as well as vertical. Furthermore, the filling group comes completely pre-assembled. This also saves you a lot of time during installation. A dirt strainer on the inlet side completes the thermalIQ:SB13.

Treatment group thermalIQ:HB2

The treatment group thermalIQ:HB2 is designed for the full demineralisation of water of drinking water quality for the easy and quick initial filling or make-up water feed of heating circuits. The filling cartridge desaliQ:HB2 is already included in the scope of supply and safely enclosed in the white plastic cylinder. The integrated conductivity measuring cell reliably monitors the water quality. In case of a conductivity of less than 10 µS/cm, the green LED flashes, between 10 – 50 µS/cm the yellow LED flashes and from 50 µS/cm, the red LED signals that the full demineralisation unit needs to be replaced. The treatment group is complemented by a shut-off valve as well as vent valves. The treatment group is compatible with all of Grünbeck's other mixed bed cartridges. These can be connected by means of the desaliQ connection adapter. Furthermore, the treatment group represents a retrofitting option for existing filling groups.

| Technical specifications | Filling group thermalIQ:SB13 | Treatment group thermalIQ:HB2 |
|---|------------------------------|-------------------------------|
| Nominal connection diameter [DN] | 15 | 15 |
| Nominal flow at 1.5 bar [m³/h] | 1.3 | – |
| Nominal flow (with cartridge) [m³/h] | – | 0.2 |
| Nominal flow (with adapter) [m³/h] ¹ | – | 2.5 |
| Installation length with screw connections [mm] | 210 | 265 |
| without screw connections [mm] | 150 | 160 |
| Weight [kg] | 1.3 | 3.0 |
| Order no. | 707 750 | 707 755 |

¹ Depending on the filling or mixed bed cartridge used

Concentrated heating power in a row



- ① Shut-off valve
- ② Pressure reducer
- ③ Vent and sampling valve
- ④ thermalIQ conductivity measuring cell
- ⑤ Dirt strainer
- ⑥ System separator unit
- ⑦ Pressure gauge
- ⑧ Filling cartridge desaliQ:HB2
- ⑨ White plastic cylinder (transparent in this illustration)

Combined functions for easier handling

The filling section thermalIQ:FB2 is a complete unit for conveniently filling the heating system or for the make-up water feed of closed heating systems. The thermalIQ filling section represents the basis for an initial filling with optimally treated demi water. For you, filling the heating system is more convenient than ever as the filling section actually combines three elements that stand for the generation of perfect demi water: Filling group thermalIQ:SB13 and treatment group thermalIQ:HB2 which already includes the filling cartridge desaliQ:HB2.

Filling section thermalIQ:FB13i

Grünbeck has also seen to the commercial sector. The thermalIQ:FB13i is designed for larger cartridges and can be used in combination with the conductivity meter GENO-Multi-LF. In addition, this version features an integrated water meter and softening cartridges can be connected as well.

| Technical specifications | Filling section thermalIQ:FB2 | Filling section thermalIQ:FB13i |
|---|-------------------------------|---------------------------------|
| Nominal connection diameter [DN] | 15 | 15 |
| Nominal flow (with cartridge) [m³/h] | 0.2 | – |
| Nominal flow (with adapter) [m³/h] ¹ | 1,3 | 1.3 |
| Installation length with screw connections [mm] | 375 | 510 |
| without screw connections [mm] | 315 | 454 |
| Weight [kg] | 4.6 | 5.0 |
| Order no. | 707 760 | 707 770 |

¹ Depending on the filling or mixed bed cartridge used



Filling section thermalIQ:FB2, consisting of filling group and treatment group



In order to document the amount of water flowing through, we recommend installing an additional water meter (order no.: 702 845)

Demand-based filling with desaliQ:HB

Two variants for all heating circuits



Filling cartridge desaliQ:HB2

Your advantage:
The desaliQ:HB2 is already included in the scope of supply of the treatment group and the filling section!



Filling cartridge desaliQ:HB4

Fully demineralised water you can rely on

Proven mixed bed cartridge desaliQ:BA for full demineralisation according to your needs



Mixed bed cartridge desaliQ:BA6

- ✓ **Pure:** Full demineralisation of raw water of drinking water quality
- ✓ **Flexible:** Residual demineralisation of partially demineralised permeate originating from reverse osmosis systems
- ✓ **Suitable:** Thanks to a wide range of sizes suitable for any application
- ✓ **Sturdy:** High-quality stainless steel for a long service life and a temperature resistance up to of up to 80 °C

Make-up water feed according to your needs

The desaliQ:HB filling cartridges are easy-to-handle full demineralisation cartridges based on mixed bed resin – for demi water in the blink of an eye. The filling cartridges are designed for the initial filling and make-up water feed of your heating system with fully demineralised water. Depending on the size of your heating system, you have two options.

The desaliQ:HB2 is especially designed for small to medium-sized heating systems. The filling cartridge can conveniently and directly be connected to the treatment group thermalIQ:HB2. The treatment group's white plastic cylinder safely and reliably encloses the cartridge.

We at Grünbeck also think along with you. This is why the filling cartridge desaliQ:HB2 is included in the scope of supply of both the treatment group thermalIQ:HB2 as well as the filling section thermalIQ:FB2. Prior to commissioning, it only needs to be fastened in the plastic cylinder. For make-up water feed, you can also order the filling cartridge separately, however.

| Filling cartridge desaliQ:HB | 2 | 4 (with bottle adapter) | 4 (without bottle adapter) |
|---|---------|-------------------------|----------------------------|
| Capacity < 10 [$\mu\text{S}/\text{cm} \times \text{m}^3$] | 25 | 80 | 80 |
| Capacity < 50 [$\mu\text{S}/\text{cm} \times \text{m}^3$] | 40 | 110 | 110 |
| Nominal flow [m^3/h] | 0.2 | 0.4 | 0.4 |
| Order no. | 707 745 | 707 150 | 707 155 |

The desaliQ:HB4 is designed for larger heating systems. By way of the desaliQ bottle adapter available in the scope of supply, the desaliQ:HB4 is directly connected to the filling section thermalIQ:FB2. In order to support you in your work as best as we can, we naturally also ensure compatibility with our other products. For connection to the treatment group thermalIQ:HB2, only the desaliQ connection adapter is required in addition. The desaliQ:HB4 does not need the additional protection provided by the plastic cylinder of the treatment group. It is itself made of plastic and thus can withstand high pressure (up to 6 bar) on its own.



Sample calculation

- Raw water conductivity: 500 $\mu\text{S}/\text{cm}$
- Filling cartridge used: desaliQ:HB4
- $110/500 = 0.22 \text{ m}^3$ (corresponds to 220 litres at 50 $\mu\text{S}/\text{cm}$) \rightarrow 220 litres of fully demineralised water at the switch-off point of 50 $\mu\text{S}/\text{cm}$

Sturdy cartridge for pure water

The mixed bed cartridge desaliQ:BA is designed for the generation of fully demineralised water and comes with mixed bed resin. The desaliQ:BA is operated in an upright position only and can quickly be connected to the make-up water fitting by means of the desaliQ hose kit. Thanks to five different sizes and a water temperature resistance of up to 80 °C, you are perfectly equipped for any application possible. The included mixed bed resin can be regenerated. Either Grünbeck's technical service/authorised service company or an authorised specialist company will take care of that. Thanks to the opening system installed, the cartridge can easily be drained.



Sample calculation

- Raw water conductivity: 500 $\mu\text{S}/\text{cm}$
- Mixed bed cartridge used: desaliQ:BA6
- $340/500 = 0.68 \text{ m}^3$ (corresponds to 680 litres at 50 $\mu\text{S}/\text{cm}$) \rightarrow 680 litres of fully demineralised water at the switch-off point of 50 $\mu\text{S}/\text{cm}$

A cartridge with various application options

If required, the desaliQ:BA can be used for the secondary treatment of permeate as well. It is also particularly suited in case of special requirements associated with the environment. Thanks to its material composition of high-quality stainless steel, the mixed bed cartridge is not only very sturdy, but is also particularly recommended for use in hygiene-sensitive areas. Combining it with the other Grünbeck products is possible without any problem. So you can find the right system for every need.

In order to connect the desaliQ mixed bed cartridges – both desaliQ:MB as well as desaliQ:BA – to the filling section, the desaliQ hose kit (order no.: 707 850) is required.

| Mixed bed cartridge desaliQ:BA | 6 | 12 | 13 | 16 | 20 |
|---|---------|---------|---------|---------|---------|
| Nominal connection diameter | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" |
| Capacity at a desired residual conductivity of < 10 [$\mu\text{S}/\text{cm} \times \text{m}^3$] | 215 | 460 | 1,040 | 1,560 | 2,080 |
| Capacity at a desired residual conductivity of < 50 [$\mu\text{S}/\text{cm} \times \text{m}^3$] | 340 | 800 | 1,650 | 2,475 | 3,300 |
| Nominal flow [m^3/h] | 0.6 | 1.2 | 1.3 | 1.6 | 2.0 |
| Weight [kg] | 12 | 23 | 48 | 68 | 89 |
| Max. water temperature [°C] | 80 | 80 | 80 | 80 | 80 |
| Order no. | 707 450 | 707 460 | 707 470 | 707 480 | 707 490 |

Compact heating water treatment in two versions

Initial filling, make-up water feed and rehabilitation of the heating system with the desaliQ product series



Mixed bed cartridge
desaliQ:MB5

Mixed bed cartridge
desaliQ:MB9

Accessories: desaliQ resin bags, 2 bags of 6 litres each (order no.: 707 435)
desaliQ inline filter module (order no.: 707000010000)

- ✓ **Versatile:** The desaliQ:MB5 demineralises or filters the heating water during ongoing operation, while both functions run simultaneously with the MB9
- ✓ **Convenient:** The particularly light and compact design of the desaliQ:MB enables ergonomic working and is sturdy at the same time
- ✓ **Easy:** Pre-proportioned resin and cliQ-lock for tool-free replacement of resin or filter
- ✓ **Intelligent:** The integrated conductivity meter checks the residual capacity of the resin
- ✓ **Efficient:** Flow-optimised for high filling capacity and optimum demi water capacity

The easy and efficient way to pure heating water

As standard, the mixed bed cartridges desaliQ:MB are filled with one or two desaliQ resin bags. An intelligent, interior distribution system makes sure that the water steadily flows through the desaliQ resin bag from bottom to top. The fully demineralised water then flows to the tank outlet via the collecting element on the tank lid and into the heating circuit.

Intuitive handling – easy and convenient to use

The conductivity meter integrated in the cliQ lock of the system reliably monitors the remaining capacity of the special mixed bed resin. The sturdy plastic body and its low dead weight makes filling the heating system even easier.

An unbeatable combination

The desaliQ inline filter module is inserted into the mixed bed cartridge desaliQ:MB9 together with the desaliQ resin bag, thus enabling simultaneous filtration and full demineralisation of the circulation water. Thanks to the large filter surface, impurities are reliably removed and the module can be used for a long time. In addition, the built-in high performance magnet retains metal particles. With the mixed bed cartridge desaliQ:MB5, you decide for yourself on a case-by-case basis whether you want to demineralise or filter.



Sample calculation

- Raw water conductivity: 500 µS/cm
- Mixed bed cartridge used: desaliQ:MB9
- $320/500 = 0,64 \text{ m}^3$ (corresponds to 640 litres at 10 µS/cm)
- $510/500 = 1,02 \text{ m}^3$ (corresponds to 1,020 litres at 50 µS/cm)
→ 1,020 litres of fully demineralised water at the switch-off point of 50 µS/cm

TIP

Save time! For larger heating systems, several cartridges can be connected in series!

| Technical specifications | desaliQ:MB5 | desaliQ:MB9 |
|--|---------------------|---------------------|
| Nominal connection diameter | ¾" | ¾" |
| Resin bag of 6 litres each | 1 | 2 |
| Capacity at a desired residual conductivity of < 10 [µS/cm x m³] | 135 | 320 |
| Capacity at a desired residual conductivity of < 50 [µS/cm x m³] | 242 | 510 |
| Nominal flow [m³/h] | 0.5 | 0.9 |
| Weight including resin bag(s) [kg] | 10.3 | 16.6 |
| Max. water temperature [°C] | 65 | 65 |
| Order no. | 707000060000 | 707455000000 |

New benchmarks in circulation water treatment

With the desaliQ inline control module: Circulation water treatment now is more intelligent and reliable than ever before!



desaliQ inline control module

- ✓ **Sophisticated:** Intelligent control unit and clear user interface for intuitive operation
- ✓ **Powerful:** Circulation capacity of up to 900 l/h for effective heating water treatment
- ✓ **Flexible:** Versatile use for any type of application thanks to a water temperature resistance of up to 80 °C

Circulation water treatment made easy

If the heating water quality is poor or an older system is being rehabilitated, circulation water treatment is essential. In order to generate an optimum water quality in an existing heating system, Grünbeck provides the installer with a perfect tool: With the desaliQ inline control module, the circulation water is treated effectively and reliably.

Low weight and maximum performance

The ergonomic carrying handle and the low total weight of less than 10 kg ensure convenient transport of the desaliQ inline control module to the site. Despite the minimum weight, Grünbeck focuses on maximum capacity: With the desaliQ inline control module, systems with a water temperature of up to 80 °C can be treated during ongoing operation.

| Technical specifications | desaliQ inline control module |
|-----------------------------|-------------------------------|
| Nominal connection diameter | ¾" |
| Power supply [V] | 230 |
| Nominal pressure [PN] | 6 |
| Nominal flow [m³/h] | 0.9 |
| Weight [kg] | 9.3 |
| Max. water temperature [°C] | 80 |
| Order no. | 707000030000 |

The high circulation capacity also ensures that the treatment time is reduced to a minimum.

Intelligent control unit and sensor technology for intuitive application

The two conductivity meters make your system doubly safe: They permanently monitor the quality of the pure water as well as the conductivity of the heating water. In combination with the integrated water meter, you as user are thus in the position to check the progress of the treatment at any time.

The intelligent control unit is the core of the desaliQ inline control module. The clear user interface enables the installer to intuitively and easily select the desired treatment type in the different operating modes. All important parameters and current measured values are clearly displayed on a large colour display. With its sturdy control buttons, the device meets all requirements for reliable use on the construction site.

The smart way to fill in heating water for the first time – automatically



desaliQ basic filling module

- ✓ **Long-life:** Protection of the individual components and longevity of the device thanks to the sturdy housing made of rust-proof stainless steel
- ✓ **Intelligent:** Intuitive control unit and clear user interface for ease of use
- ✓ **Variable:** Suitable for any place of use thanks to its low weight and practical carrying handle

The desaliQ basic filling module ensures safety

In order to ensure that optimum water is flowing in the heating circuit at all times, Grünbeck recommends using fully demineralised water when filling the system for the first time. The tried and tested mixed bed cartridges desaliQ:MB are ideal for initial filling. Thanks to the new desaliQ basic filling module, this is more convenient than ever before! The desaliQ basic filling module not only optimises monitoring and control of the filling process for consistently excellent heating water quality, but it also thinks for itself. The intelligent control unit automatically switches off the filling process at the end of the cartridge's capacity.

All that's important right at a glance

User-friendliness takes centre stage with the control unit of the desaliQ basic filling module. The large colour display shows all important measured values clearly and concisely. Thanks to the clearly arranged operating buttons, handling is completely intuitive.

One tool, but many uses

The desaliQ basic filling module is predestined for filling systems with fully demineralised water. But that's not all! It is also suitable for filling systems with softened water. Thanks to its intelligent control unit, the capacity of the cartridge is also monitored. Grünbeck values longevity and quality. The high-quality components of the desaliQ inline control module ensure reliable operation and a long service life of the product.

| Technical specifications | desaliQ basic filling module |
|-----------------------------|------------------------------|
| Nominal connection diameter | ¾" |
| Power supply [V] | 230 |
| Nominal pressure [PN] | 6 |
| Nominal flow [m³/h] | 1.3 |
| Weight [kg] | 5.4 |
| Max. water temperature [°C] | 35 |
| Order no. | 707000050000 |

Dynamic: Mobile reverse osmosis system AVRO-flex 400

Makes heating systems reliable – everywhere

AVRO – Alternative pretreatment reverse osmosis:

- ✓ Antiscalant patented by Grünbeck
- ✓ Without the addition of auxiliary substances
- ✓ Protection against the formation of scale
- ✓ The AVRO technology saves you the pretreatment of the water



Mobile reverse osmosis system AVRO-flex 400

Ready for your immediate use

The mobile reverse osmosis system AVRO-flex 400 supports you in directly filling heating systems, district heating networks and other systems with demi water. Thanks to the patented AVRO process, a pretreatment by means of a water softener or antiscalant dosing can be omitted. Its innovative operation ensures that the membranes used work effectively and economically for a long time.

One device, two advantageous modes of operation

Use the mobile reverse osmosis system AVRO-flex 400 in the filling mode and it switches off automatically as soon as a certain counter-pressure has been reached. If the system is used in the workshop mode, regular

flushing saves you the need for time-consuming preservation work that otherwise would be required during downtimes.

| Mobile reverse osmosis system AVRO-flex 400 | |
|--|----------------------|
| Nominal connection diameter | ¾" and GEKA coupling |
| Permeate capacity at 10/15 °C [l/h] | 340/400 |
| Max. total salt concentration (NaCl) in feed water [ppm] | 1,000 |
| Salt rejection [%] | 95 – 99 |
| Min. inlet flow pressure of feed water [bar] | 2.5 |
| Feed water temperature [°C] | 10 – 30 |
| Bestell-Nr. | 752 250 |

Top feats of AVRO-flex 400:

- Compact:** Small basic dimensions: 700 x 600 mm
- Autonomous:** Immediate start without pretreatment – thanks to the innovative AVRO module
- Convenient:** Easy connection by way of only two GEKA couplings each or by a ¾" screw connection
- Long-life:** 5 µm fine filter including pressure reducer in water inlet
- Efficient:** High permeate pressure – into the heating system (3.5 bar)
- Flexible:** Location-independent demineralisation thanks to fitted wheels and sturdy housing
- Superior:** One device, two modes of operation – filling mode and convenient workshop mode

The perfect combination for efficient cleaning and optimum protection of heating systems

The dosing solutions for heating protection *thermaliQ clean* and *safe* ensure clarity in the system



- ✓ **Ecological:** Biodegradable and free of heavy metals
- ✓ **Accurate:** Division into the basic functions: cleaning (clean) and system protection (safe)
- ✓ **Safe:** Protection of the heating system during cleaning (clean) and subsequent corrosion protection (safe)

i WATER KNOWLEDGE

Proper application provided, **thermaliQ safe** can stabilise the pH value of the heating water. This applies in general – irrespective of the materials and boilers installed. The prerequisites for such a stabilisation of the pH value are, however, compliance with the generally acknowledged rules of technology for the installation of the heating system and a practice-oriented approach based on VDI 2035.

The 2-component system.
Heat up with clarity and reliability.

1. **Filling the heating system with demi water** generated by the mixed bed cartridge **desaliQ:MB**
2. **Dosing thermaliQ safe** to protect the system against corrosion and to reliably adjust and stabilise the pH value
3. **Checking once a year and documenting the results**



The practice-orientated 2-component system for optimum heating protection.
We understand water.

Providing clarity and maintaining values – with the perfect combination for heating protection

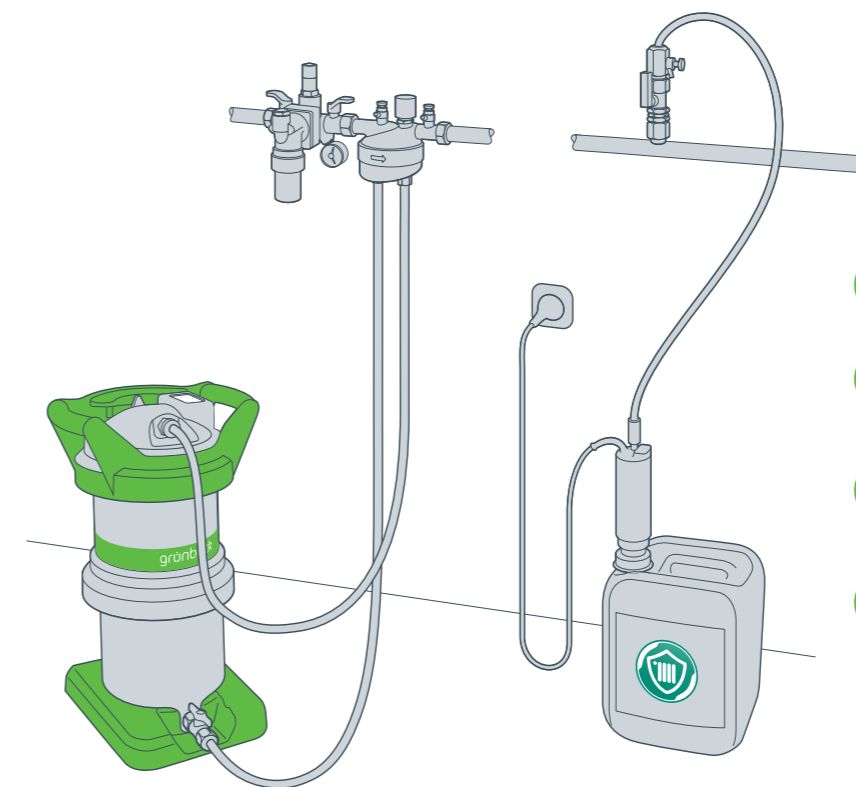
Detaching and dissolving deposits in a clever way? *thermaliQ clean* mobilises dirt particles as well as deposits and reliably dissolves silting. Depending on the degree of impurities, Grünbeck's experts recommend a cleaning period of 3 – 6 weeks. Afterwards, the system can be drained and flushed. Circulation filtration is also an option for cleaning the entire system. The best possible corrosion protection is then achieved by dosing *thermaliQ safe*. *thermaliQ safe* is your perfect partner when it comes to the conditioning of new or cleaned heating circuits. It is applied to prevent corrosion and to stabilise the pH value. When used with demi water, it meets the criteria for "low-salt operation" as per VDI 2035.

- Mobilisation and dispersion of deposits
- Compatibility with all materials
- Inhibitor component to protect the system during cleaning
- Compatible with *thermaliQ safe* and GENO-safe A
- Corrosion protection for all materials
- Stabilisation of pH value
- Non-dispersant → clear heating water
- Low increase of conductivity (approx. 60 – 80 µS/cm)
- ➔ **No follow-up check required after 8 – 12 weeks. Yearly measurement and check is sufficient.**

| Technical specifications | thermaliQ clean | | | thermaliQ safe | | |
|----------------------------------|-----------------|----------------|----------------|----------------|----------------|----------------|
| Dosing [percent by volume] | 0.2 – 0.4 | | | 0.5 | | |
| pH value | approx. 8.5 | | | | | |
| Optimum working temperature [°C] | 10 – 100 | | | | | |
| Unit [l] | 1 | 5 | 10 | 1 | 5 | 10 |
| Order no. | 170 057 | 170 058 | 170 059 | 170 076 | 170 077 | 170 078 |

| Accessories | Order no. |
|-------------------------|----------------|
| thermaliQ filling pump | 150 110 |
| thermaliQ safe test kit | 170 504 |

Perfectly harmonised heating protection – the „all-round carefree package“ for the stabilisation of the pH value and corrosion protection



- ✓ **Clarity:** Pure heating water
- ✓ **Suitable:** Especially for use with demi water
- ✓ **Carefree:** No follow-up check required after 8 – 12 weeks
- ✓ **Combined:** The matching **thermaliQ filling pump** and the **thermaliQ safe test kit** are also included in Grünbeck's product portfolio

Perfectly equipped for any application

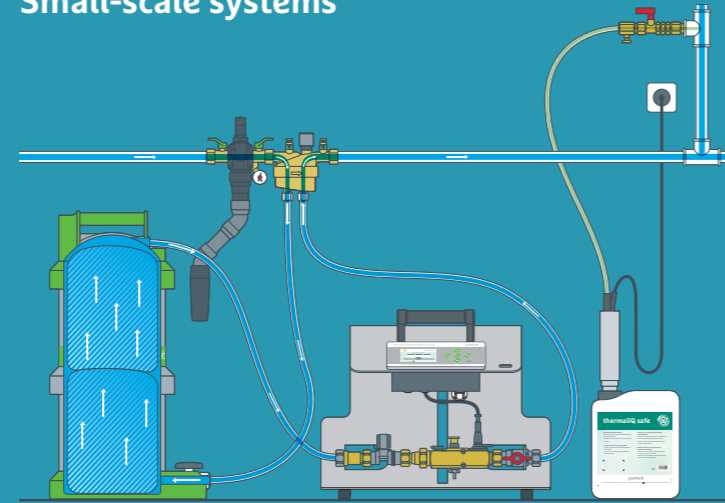
Extra-easy and safe thanks to Grünbeck's product portfolio

1. Initial filling

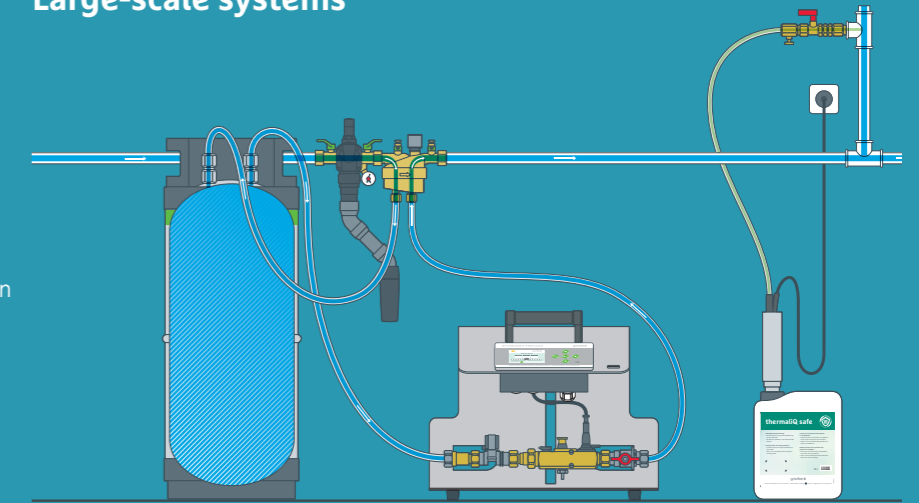
The matching Grünbeck products:

- Filling section thermalIQ:FB2
- desaliQ connection adapter
- Mixed bed cartridge desaliQ:MB9 filled with 2 resin bags
- desaliQ basic filling module
- Dosing solution for heating protection thermalIQ safe

Small-scale systems



Large-scale systems



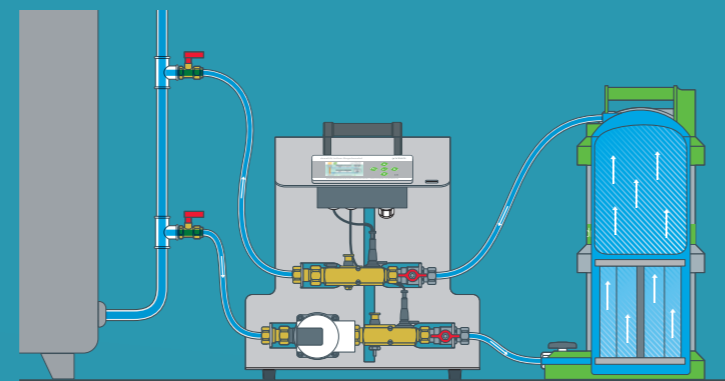
The matching Grünbeck products:

- Filling section thermalIQ:FB2
- desaliQ connection adapter
- Mixed bed cartridge desaliQ:BA20
- desaliQ basic filling module
- Dosing solution for heating protection thermalIQ safe

2. Circulation water treatment after replacement of boiler or rehabilitation

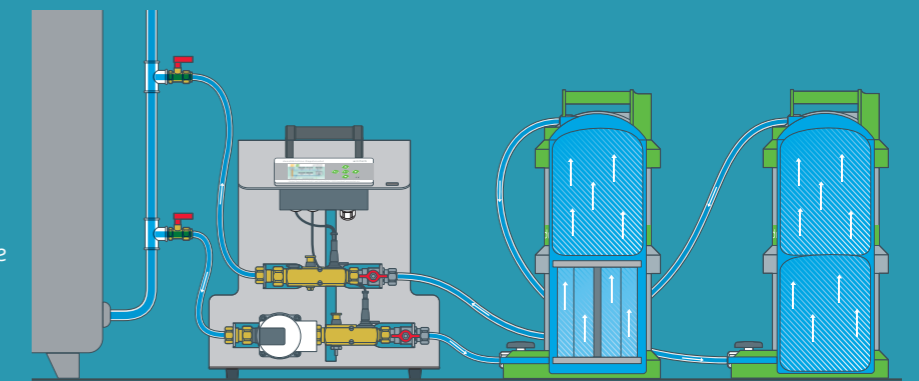
The matching Grünbeck products:

- desaliQ inline control module
- Mixed bed cartridge desaliQ:MB9 filled with desaliQ inline filter module and desaliQ resin bag



The matching Grünbeck products:

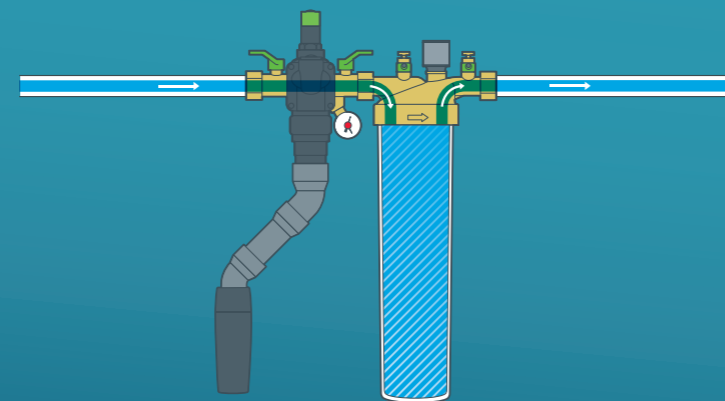
- desaliQ inline control module
- 2 x Mixed bed cartridge desaliQ:MB9 filled with desaliQ inline filter module and desaliQ resin bags



3. Make-up water feed

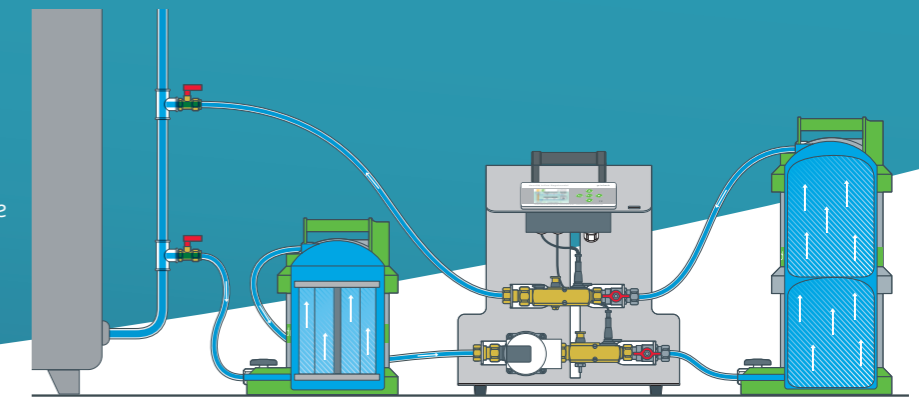
The matching Grünbeck products:

- Filling section thermalIQ:FB2
- Filling cartridge desaliQ:HB2



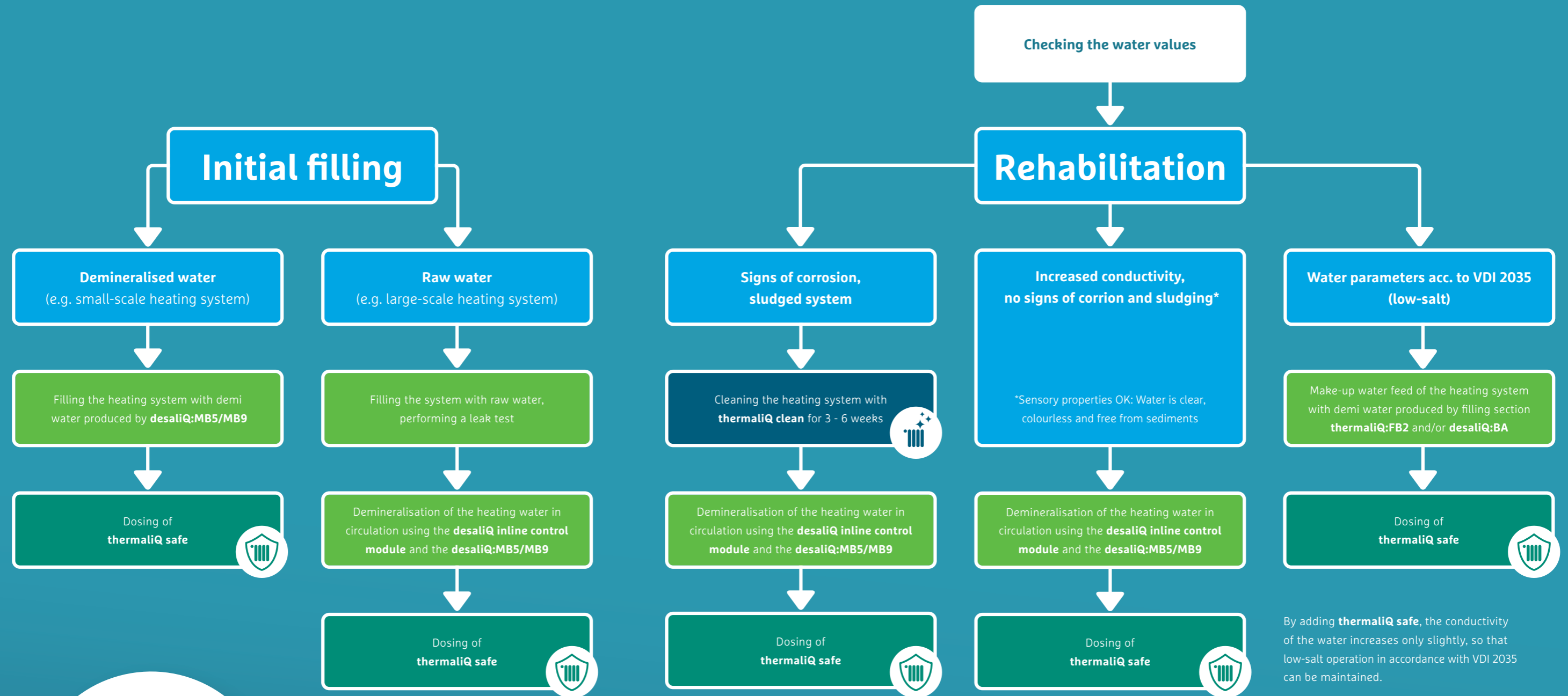
The matching Grünbeck products:

- Mixed bed cartridge desaliQ:MB5 filled with desaliQ inline filter module
- desaliQ inline control module
- Mixed bed cartridge desaliQ:MB9



We bring clarity to the process

According to VDI 2035



By adding **thermalIQ safe**, the conductivity of the water increases only slightly, so that low-salt operation in accordance with VDI 2035 can be maintained.

You are very welcome to send us a water sample to have it checked by Grünbeck's lab. Please contact us.



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