

DuoMatik 3



Operating instructions for the Winterhalter DuoMatik 3 softener

1 Safety notes



For safe use of the softener, please read the safety notes listed here carefully.

1.1 Explanation of symbols used

The following symbols are used in these instructions:

| | |
|------------------|--|
| | Warns of potential defects or destruction of the product when the provided safety measures are not observed. |
| IMPORTANT | An important tip is given here. |
| INFO | A useful tip is given here. |
| | These arrows indicate procedural instructions. |
| | This symbol indicates the results of your actions. |
| – | This symbol indicates lists |

1.2 Intended use

- The DuoMatik 3 softener is a device for water softening of fresh water for use in commercial warewashers and may only be used for this purpose. The softener is installed between the fresh water pipe and the warewasher. The fresh water must be of drinking water quality from a microbiological point of view.
- The softener is a technical piece of equipment for commercial use and is not intended for private use.
- Any alterations to the design or to use of the device performed without the written approval of Winterhalter Gastronom GmbH will lead to the guarantee and product liability becoming void.
- Winterhalter Gastronom GmbH will not accept liability for any damage caused by failure to use the device in accordance with the intended use.

1.3 Safety notes for maintenance and repairs

- Maintenance and repairs may only be performed by authorised Winterhalter service technicians. Unprofessional maintenance or repairs may lead to considerable dangers for the user for which Winterhalter cannot be held liable.
- Only original spare parts by Winterhalter may be used for maintenance or repairs. Use of spare parts that are not original spare parts invalidates the warranty.

1.4 General safety notes

- Read the safety and operational notes included in these operating instructions carefully. Keep these operating instructions in a safe place for later reference. Failure to observe the safety notes and operating instructions voids all liability and warranty claims against Winterhalter Gastronom GmbH.
- Only work with the softener after reading and understanding the operating instructions. Winterhalter Customer Service will be glad to provide you with information on how to operate the device and how it functions. The softener may only be operated as described in these operating instructions.

2 Product description

The softener consists of a mobile plastic container and a removable cover. The regeneration salt is placed into the container. Two cartridges are integrated into the container. The cartridges are filled with exchange resin and are connected together.

Water softening is based on the principle of ion exchange. The exchange resin in the cartridges binds with the hardening ions from the raw water flowing through the device and releases other non-hardening ions into the water. The softened water has a total hardness of 0 °dH.

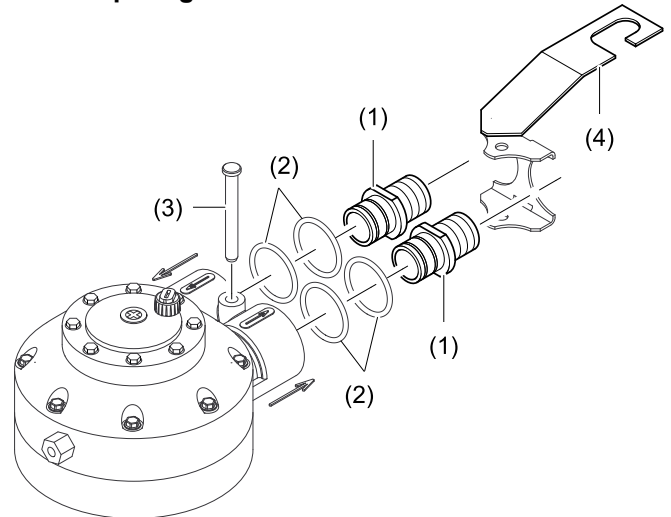
The capacity of the exchange resin is limited. It depends on the total hardness of the raw water. The exchange resin must be regenerated when it has been used up. The control head on the cartridges controls regeneration depending on the water hardness set. When a cartridge is depleted the unit switches to the second cartridge, and the depleted cartridge is regenerated, ensuring that softened water is continuously available.

3 Installation and connection

3.1 Installation site requirements

- The room must be frost-free.
- A water drain must be located near the softener. The water drain must not be higher than the safety overflow on the rear of the softener.
- Ideally the room has a floor drain.
- The installation location must be horizontal and even. Slight inclinations such as are usual in kitchens do not impair functioning, however the softener should be secured against rolling.
- The softener should preferably be installed on the floor. If the softener is placed on a base, the castors should be removed.
- There should be sufficient space above to ensure that the cover can be removed easily during the refilling of regeneration salt.
- See connection diagram for connections for water inlet and water drain (page 10).

3.2 Preparing control head



- Remove the cover of the container.
- Take the hoses and assembly kit out of the container.
- Equip the adapters (1) with the O-rings (2) and grease with silicone grease.
- Plug the adapters (1) onto the "in" and "out" connections.
- Secure with handle (4) and pin (3).

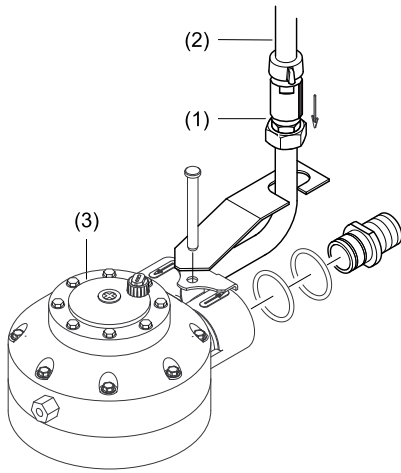
3.3 Connecting



Caution

Connection of the softener to the drinking water network and to the waste water must be performed according to the country-specific, local conditions by an approved water fitter. National installation and operating regulations as well as details on the connection diagram on page 10 must be observed.

3.4 Connecting the water safety device

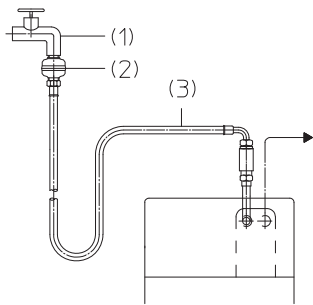


A water safety device (1) must be used in order for the softener to be operated in accordance with DIN requirements. A kit is available from Winterhalter for this purpose. The kit contains a backflow preventer type HD in accordance with DIN EN 1717.

Installation of the water safety device is shown in the drawing.

Should national guidelines not require a check valve or anti-vacuum device, the water supply hose (2) is connected directly at the control head (3).

3.5 Installing dirt trap

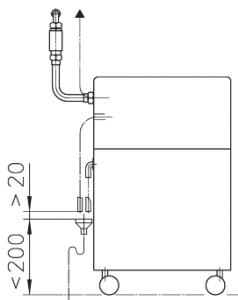


- After the water stop cock (1), install a dirt trap (2) with a mesh width of 150 µm.

INFO The dirt trap enclosed with Winterhalter warewashers is suitable for this purpose.

- Connect supply hose (3).

3.6 Connecting the waste water hose and overflow hose



- Attach waste water hose to the hose nipple and secure with a hose clamp.
- Guide the waste water hose to the on-site water drain.
- Attach a hose to the safety overflow on the rear of the softener and guide this to the on-site water drain.
- Attach both hoses to the water drain at a distance of 20 mm (see drawing).

4 Commissioning

After the machine has been correctly connected to the water supply and waste water drain, contact your Winterhalter branch or your dealer in order to request them to perform commissioning. You can use this opportunity for you and your operating personnel to learn how to operate the softener.

5 Operation

The softener works automatically following commissioning. Only the regeneration salt must be refilled from time to time.



Caution

Possibility of damage due to incorrect salt.

Only use undenaturated evaporated salt (approx. 15 mm granularity or in tablet form) marked as regeneration salt for softeners. Do not use any other types of salt e.g. table salt, rock salt or de-icing salt. These may contain components that are not soluble in water.



- Refill the regeneration salt as soon as the water in the container is above the level of the salt.

6 Maintenance



Caution

Possibility of damage due to chemicals.

Do not clean the inside of the container with cleaning agents or other chemicals. Only ever clean the container with water.

- Clean the outside of the softener using conventional plastic kitchen hygiene products.

7 Maintenance by service technicians

Have the softener examined at least once per year by an authorised Winterhalter service technician.

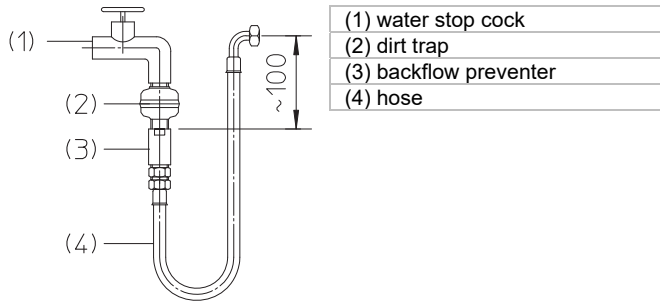
7.1 Cleaning the inside of the container

- Turn off the water supply.
- Drain the container completely (scoop out salt and water).
- Remove filters.
- Remove any sludge or dirt particles using a cloth or brush.
- Insert filters.
- Open the water supply.
- Refill new regeneration salt (approx. 20 kg).

7.2 Check backflow preventer type HD

- Is the backflow preventer installed according to the connection diagram (page 10)?
- Is the backflow preventer clean?
- No visible leakage, corrosion or other damage?

7.3 Check backflow preventer type HD



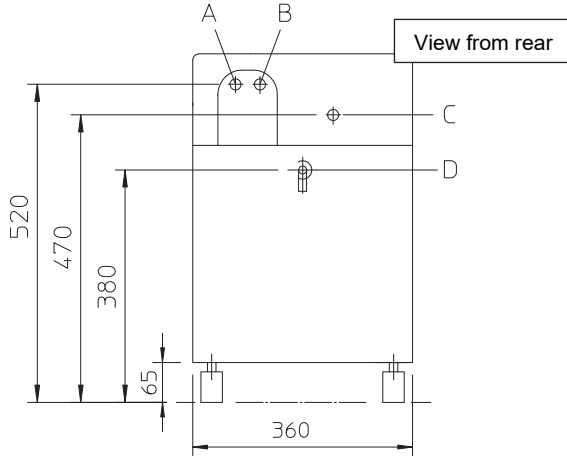
- Close the water stop cock (1).
- Install the backflow preventer (3) according to the drawing.
- Keep the hose (4) above the level of the backflow preventer (3).
- Slightly open the water stop cock (1) and close it again as soon as water flows out of the hose (4).
- Point the hose (4) down into a bucket.
- Check the following points:
 - Does water flow out of the hose (4)?
 - Does the backflow preventer (3) audibly suck in air while water is flowing out of the hose (4)?
- Replace the backflow preventer (3) if it does not pass the test.
- Reinstall the backflow preventer (3) according to the connection diagram (page 10) and test according to section 7.2.

8 Technical data

| | |
|---|---|
| Water inlet temperature | max. 60 °C |
| Minimum flow pressure | 250 kPa (2.5 bar) |
| Maximum inlet pressure | 600 kPa (6 bar) |
| Pressure loss | 100 kPa (1 bar) |
| Max. total hardness of raw water | 45 °dH (56 °e / 82 °TH / 8.1 mmol/l) |
| Flow rate (at 2.5 bar inlet pressure) | continuously: 22 l/min max. 30 l/min |
| Salt consumption per regeneration (for the brine valve standard setting) | approx. 0.3 kg |
| Water consumption per regeneration | 19 l |
| Weight (empty) | 21 kg |

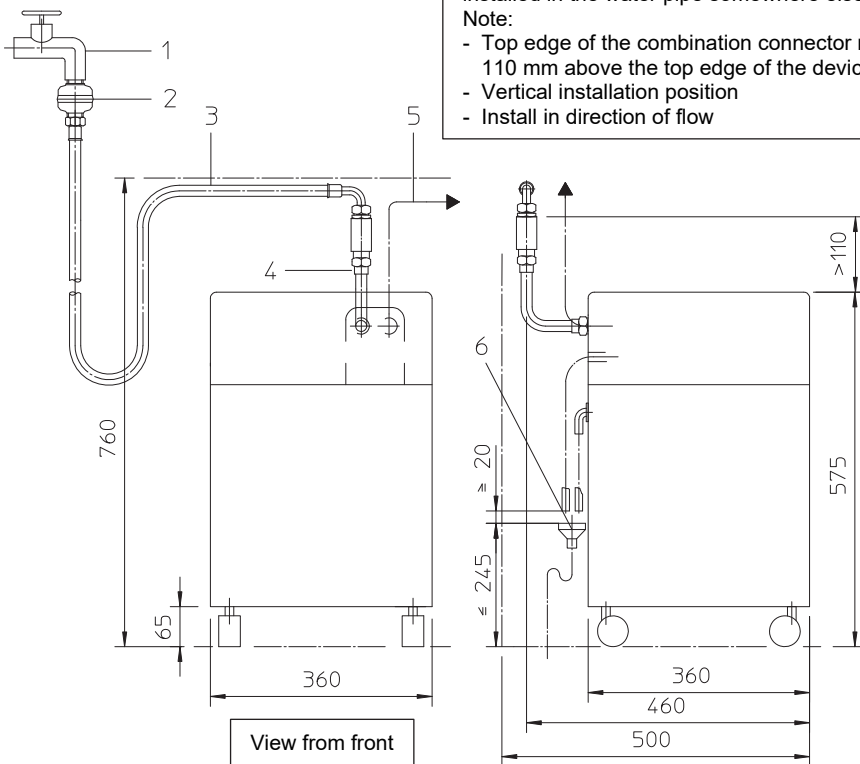
Connection diagram

Position of the connections



| | |
|----------|--|
| A | Water out (softened water); G 3/4" external thread |
| B | Water supply (raw water) G 3/4" external thread; min. 2.5 bar; max. 6 bar; max. 60 °C; max. 45°dH total hardness |
| C | Regeneration water 1/2" hose; 2000 mm long |
| D | Safety overflow 1/2" connection |

Connection diagram



If space is limited, the water safety device (pos. 4) can also be installed in the water pipe somewhere else.

Note:

- Top edge of the combination connector must be at least 110 mm above the top edge of the device
- Vertical installation position
- Install in direction of flow

INFO Pos. 1 to 4 and pos. 6 are not included in the scope of supply

A water safety device (pos. 4) must be used in order for the softener to be operated in accordance with DIN requirements. A kit is available from Winterhalter for this purpose.

The kit contains a backflow preventer type HD in accordance with DIN EN 1717.

National installation and operating regulations must also be complied with.

The system can also be mounted in mirror image.

Provide on-site connections next to the device.

| | |
|---|---|
| 6 | Waste water funnel with trap |
| 5 | Hose to warewasher |
| 4 | Water safety device |
| 3 | Supply hose; 2 x G 3/4" union nut |
| 2 | Dirt trap; 1 x G 3/4" union nut; 1 x G 3/4" external thread |
| 1 | Water stop cock on-site, G 3/4" external thread |

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Connection diagram
DuoMatik 3 softener

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Commissioning instructions for the Winterhalter DuoMatik 3 softener

These regulations are intended for correct commissioning of the softener by an authorised Winterhalter service technician.

1 Testing installation

- Test the following points:
 - Is it installed according to the operating instructions and the connection diagram?
 - Is the water inlet temperature in accordance with the connection diagram?
 - Are the water pressures in accordance with the connection diagram?

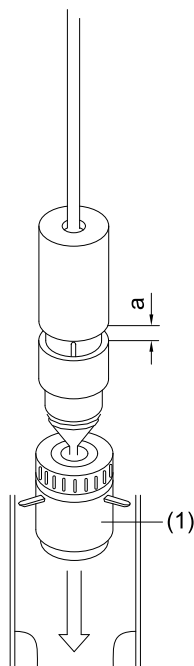
2 Converting total hardness

Water hardness is specified in the German degree of hardness (°dH) in these instructions. Other units of measurement are used in other countries.

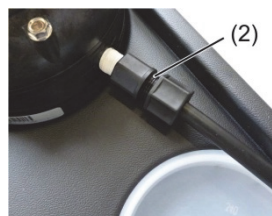
- Measure the total hardness and convert into the German degree of hardness (°dH) using the following table:

| | | °dH | °e | °TH | mmol/l |
|------------------|----------|-------|-------|-------|--------|
| German hardness | 1°dH= | 1.0 | 1.253 | 1.78 | 0.179 |
| English hardness | 1°e= | 0.798 | 1.0 | 1.43 | 0.142 |
| French hardness | 1°TH= | 0.560 | 0.702 | 1.0 | 0.1 |
| mmol/l | 1mmol/l= | 5.6 | 7.02 | 10.00 | 1.0 |

3 Adjusting and installing the brine valve



- Determine the total hardness of the raw water:
 - Total hardness ≤ 40 °dH:
 - Use standard setting (5 mm).
 - Total hardness > 40 °dH:
 - Change distance (a) to 17 mm.
- INFO** The salt consumption per regeneration increases from 0.3 kg to 0.5 kg.
- Ensure that the valve base (1) is sitting in the recess of the container base and that it is possible to move the float cup vertically approx. 6 mm.



- Fasten riser pipe of the brine valve onto the control head using the enclosed screw connections (2).

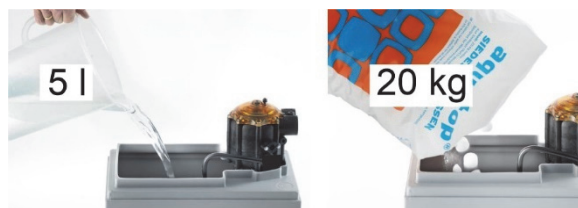
4 Adding regeneration salt



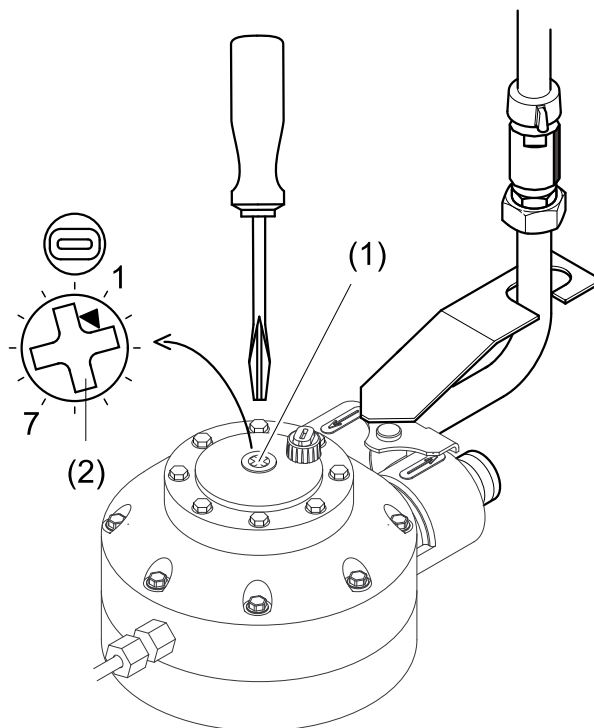
Caution

Possibility of damage due to incorrect salt.

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5 Venting / manually triggering regeneration

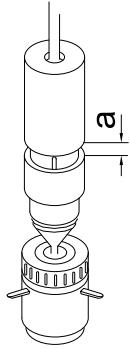


- Switch off the warewasher connected to the softener.
- Slowly open the water inlet to the softener.
- Turn the screw (1) slowly in a clockwise direction until the regeneration begins (approx. 1 o'clock / 7 o'clock position).
 - ⇒ Air and water must be emitted from the hose with regeneration waste water.
 - ⇒ After approx. 10 minutes no more water may be emitted from the hose.
- Turn screw (1) further clockwise into the 7 o'clock (or 1 o'clock) position and vent the second cartridge in the same way.

6 Adjusting total hardness

IMPORTANT Before adjusting the total hardness, the manually triggered venting must have been done (► chapter 5).
During the setting the device must not be in regeneration mode.

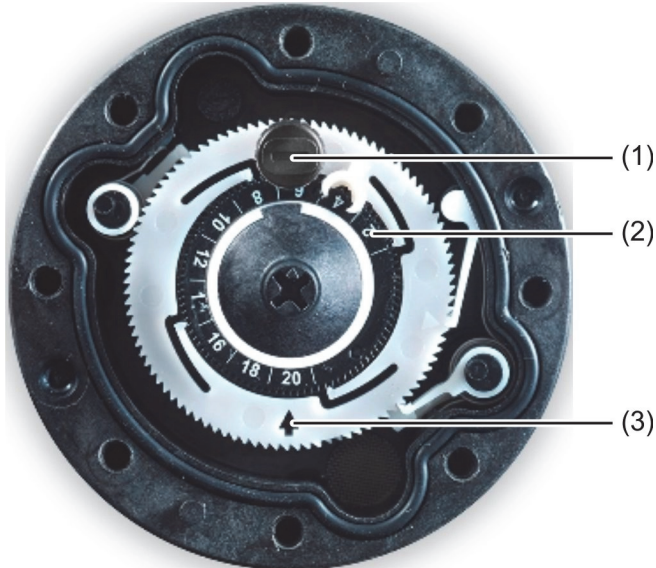
- Determine the total hardness of the raw water.
- See the table for the relevant setting value.



| | | | | | | | | |
|--|-------|----------|----------|----------|----------|-----------|-----------|-----------|
| Total hardness | [°dH] | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Setting value | | 1 | 3 | 6 | 8 | 10 | 11 | 13 |
| a | [mm] | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Softened water between 2 regenerations | [l] | 1512 | 1369 | 1165 | 1022 | 879 | 797 | 654 |

| | | | | | | | | | |
|--|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total hardness | [°dH] | 11-12 | 13-14 | 15 | 16-19 | 20-23 | 24-31 | 32-40 | 41-45 |
| Setting value | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 20 |
| a | [mm] | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 17 |
| Softened water between 2 regenerations | [l] | 593 | 511 | 450 | 368 | 307 | 225 | 164 | 164 |

INFO The setting values in the dark columns are directly applied to the setting disc (2).



- Press down the setting button (1).
- Turn the setting button (1) until the arrow points centrally to the required setting value in the viewing window.

IMPORTANT The arrow must not point to the black area.

INFO Each tooth deviation means 20 litres of softened water more or less up until the next regeneration.

- Switch on the warewasher connected to the softener.
- Fill up the warewasher.
- Check that the hose connections do not leak.

7 Instructing personnel

- Instruct personnel in the following points:
 - Salt refilling
 - Maintenance and care

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