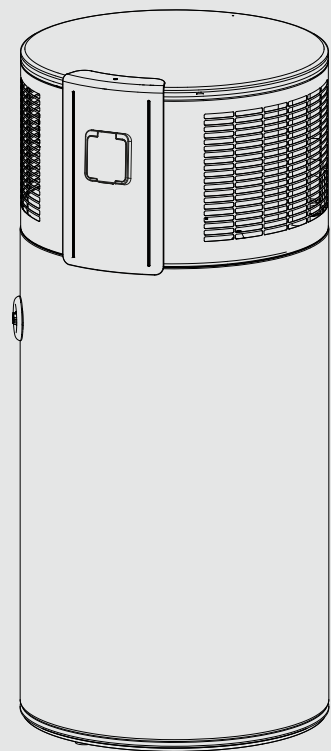


OPERATION AND INSTALLATION

操作和安装

DHW heat pump | 生活热水热泵

- » WWK 223 electronic
- » WWK 303 electronic



STIEBEL ELTRON

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GUARANTEE

ENVIRONMENT AND RECYCLING

SPECIAL INFORMATION

- The appliance may be used by children over 8 years of age and persons with reduced physical, sensory or mental capabilities or a lack of experience and expertise, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.
- Observe all applicable national and regional regulations and instructions during installation.
- Observe the minimum clearances (see chapter "Installation / Preparations / Siting the appliance").
- Observe the requirements concerning the installation room (see chapter "Specification / Data table").
- The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation. This requirement can be met by contactors, isolators, fuses, etc.
- Observe the safety measures to prevent contact with dangerous 'live' currents.
- Observe the fuse protection required for the appliance (see chapter "Specification / Data table").
- The power cable must only be replaced (for example if damaged) by a qualified contractor authorised by the manufacturer (connection type X).
- The appliance is pressurised. During the heat-up process, expansion water will drip from the safety valve.
- Regularly activate the safety valve to prevent it from becoming blocked, e.g. by limescale deposits.
- Drain the appliance as described in chapter "Installation / Maintenance and cleaning / Draining the cylinder".
- Install a type-tested T&P valve using the corresponding connection on the appliance.
- Install a type-tested safety valve in the cold water inlet line.
- The maximum pressure in the cold water supply line must be at least 20 % below the response pressure of the safety valve. If the maximum pressure in the cold water supply line is higher, install a pressure reducing valve.
- Fit the drain pipe of the safety valve with a constant fall and ensure that it is free from the risk of frost.
- Size the drain pipe so that water can drain off unimpeded when the safety valve is fully opened.
- The safety valve drain aperture must remain open to atmosphere.

OPERATION

1. General information

The chapters "Special information" and "Operation" are intended for both users and qualified contractors.

The chapter "Installation" is intended for qualified contractors.



Note

Read these instructions carefully before using the appliance and retain them for future reference. Pass on the instructions to a new user if required.

1.1 Safety instructions

1.1.1 Structure of safety instructions



KEYWORD Type of risk

Here, possible consequences are listed that may result from failure to observe the safety instructions.

► Steps to prevent the risk are listed.

1.1.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution
	Burns (burns, scalding)

1.1.3 Keywords

KEYWORD	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.2 Other symbols in this documentation



Note

General information is identified by the adjacent symbol. ► Read these texts carefully.

Symbol	Meaning
	Material losses (appliance damage, consequential losses and environmental pollution)

Symbol	Meaning
	Appliance disposal

► This symbol indicates that you have to do something. The action you need to take is described step by step.

1.3 Units of measurement



Note

All measurements are given in mm unless stated otherwise.

1.4 Standardised output data

Information on determining and interpreting the specified standardised output data

Standard: EN 16147

The output data specifically mentioned in text, diagrams and technical datasheets has been determined in line with the test conditions described in the standard shown in the heading of this chapter.

Generally, these standardised test conditions will not fully meet the conditions found at the installation site of the system user. Depending on the chosen test method and the extent to which the selected method deviates from the conditions described in the standard shown in the heading of this chapter, any deviations can have a considerable impact. Additional factors that have an influence on the test values are the measuring equipment, the system configuration, the age of the system and the flow rates.

A confirmation of the specified output data can only be obtained if the conditions applicable to the relevant test match those of the standard shown in the heading of this chapter.

2. Safety

2.1 Intended use

The purpose of this appliance is to heat domestic hot water within the application limits stated in the chapter "Specification / data table".

The appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in non-domestic environments, e.g. in small businesses, as long as it is used in the same way.

Any other use beyond that described shall be deemed inappropriate. Observation of these instructions and of the instructions for any accessories used is also part of the correct use of this appliance.

2.2 General safety instructions

The appliance should only be operated once it is fully installed and all safety equipment has been fitted.



WARNING Injury

The appliance may be used by children over 8 years of age and persons with reduced physical, sensory or mental capabilities or a lack of experience and expertise, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.



WARNING Electrocutation

Contact with live components presents a threat to life. Damage to the insulation or to individual components may result in a threat to life.

► If there is damage to the insulation, switch off the power supply and arrange a repair.

All work on the electrical installation must be carried out by a qualified contractor.



WARNING Burns

The water in the DHW cylinder can be heated to temperatures in excess of 60 °C. There is a risk of scalding at outlet temperatures in excess of 43 °C.

► Ensure you do not come into contact with the water when discharged.



WARNING Burns

Touching hot components can lead to burns.

When working on hot components, always wear protective working clothing and safety gloves.

The pipework connected to the DHW outlet of the appliance can reach temperatures in excess of 60 °C.



WARNING Burns

The appliance is filled with refrigerant at the factory. In the event of refrigerant escaping due to a leak, avoid coming into contact with the refrigerant or inhaling the released vapours. Ventilate the rooms affected.



WARNING Electrocutation

Never operate the appliance when the casing is open or without a cover.



CAUTION Injury

Never place any objects on top of the appliance. If objects are left on the appliance, noise emissions may increase due to resulting vibrations, and the objects could fall and cause injury.



Material losses

If you disconnect the appliance from the power supply, it is no longer protected against frost or corrosion.

► Never interrupt the power supply to the appliance.

If voltage is supplied to the impressed current anode and the PCB separately, the appliance remains protected against corrosion.



Material losses

Never cover the appliance. Covering the air intake or air discharge leads to a reduced air supply. If the air supply is restricted, the operational reliability of the appliance cannot be guaranteed.



Material losses

Only operate the appliance when the DHW cylinder has been filled. If the DHW cylinder is empty, safety equipment switches off the appliance.



Material losses

Heating liquids other than potable water is not permitted.



Material losses

Keep the appliance installation site free from air contaminated with oil or salt (chloride) and corrosive or explosive substances. Avoid heavy contamination of the installation site with dust, hairspray or substances containing chlorine or ammonia.



Material losses

Ensure that the appliance, the water pipes and the safety valve are free from any risk of frost.



Material losses

Operating the appliance outside the application limits (see "Specification / Data table") is not permitted. The appliance may be damaged if operated continuously outside the application limits.



Note

The appliance is pressurised. During the heat-up process, expansion water will drip from the safety valve.

► If water continues to drip when heating is completed, please inform your qualified contractor.

2.3 Test symbols

See type plate on the appliance.

3. Appliance description

This appliance enables DHW to be supplied efficiently to several draw-off points using renewable energy. The appliance extracts heat from the ambient air. This heat is used to heat up the water in the DHW cylinder with added electric power. The amount of electrical energy and time required to heat up the DHW depend on the temperature of the air drawn in. When the air intake temperature drops, the heat pump's heating output is reduced and the heat-up time is extended.

In the case of indoor installation, the air inside the installation room can be cooled by 1 °C to 3 °C due to heat extraction. The appliance also extracts moisture from the air, which turns into condensate. The condensate is removed from the appliance via the condensate drain.

External signal transmitters can be integrated via the built-in contact input, e.g. a photovoltaic system to make use of solar power generated on site.

Appliance description

When a hot water draw-off point is opened, the hot DHW is pushed out of the appliance by the inflow of cold water.

The heat pump drive unit is located in the upper section of the appliance. The DHW cylinder is located in the lower section of the appliance. To protect against corrosion, the DHW cylinder is coated internally with special enamel and is additionally equipped with an impressed current anode.

The electronic control unit makes energy saving adjustments easier. Subject to the power supply and user draw-off behaviour, the water is heated automatically to the selected set temperature.

Max. available amount of DHW

The appliance's nominal maximum available amount of DHW is designed for the recommended number of users with average user behaviour.

If the amount of DHW is insufficient despite compliance with the recommended number of users, this may be due to the following:

- The individual DHW demand is above average.
- The DHW circulation line installed as an additional option is inadequately insulated.
- The DHW circulation pump is not controlled according to temperature or time.

3.1 Heat pump operating principle

A closed circuit within the appliance contains refrigerant (see "Specification / Data table"). This refrigerant evaporates at low temperatures.

In the evaporator, which extracts heat from the air drawn in, the refrigerant changes from a liquid into a gaseous state. A compressor draws in the gaseous refrigerant and compresses it. This increase in pressure raises the refrigerant temperature. This requires electrical energy. The energy (motor heat) is not lost, but reaches the downstream condenser together with the compressed refrigerant. There, the refrigerant indirectly transfers heat to the DHW cylinder. An expansion valve then reduces the still prevalent pressure and the cycle starts again.



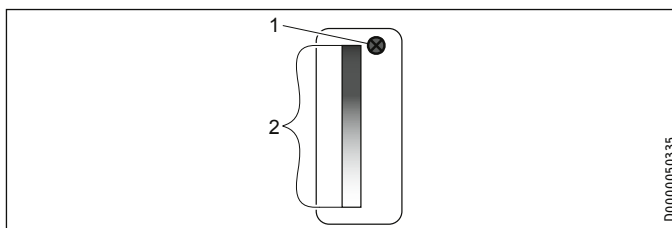
Note

Following an interruption of the power supply, the compressor operation remains blocked for at least one minute. The PCB delays electronic starting by a minute, during which the appliance goes through its initialising process.

If the compressor subsequently fails to start, it may be blocked by additional safety devices (motor overload relay and high pressure switch). This block should lift after 1 to 10 minutes.

After the power supply has been re-established, the appliance continues to operate with the parameters that were selected before the power supply was interrupted.

3.2 DHW heating



- 1 Cylinder top sensor
- 2 Integral sensor

The appliance is equipped with two temperature sensors.

- The cylinder top sensor captures the water temperature in the upper section of the cylinder.
- The integral sensor is a temperature sensor affixed over the entire cylinder height. The integral sensor determines the average cylinder temperature.

The appliance display indicates the temperature in the upper section of the cylinder, which is captured by the cylinder top sensor. The appliance control unit uses the average cylinder temperature captured by the integral sensor.

DHW heating is started when the available mixed water volume decreases to the percentage of maximum mixed water volume set in the "Charge level" parameter.

The temperature determined by the cylinder top sensor may still correspond to the set temperature.

For information on the heat-up time, see chapter "Specification". The calculation of the available amount of mixed water is based on the average cylinder temperature. The amount of mixed water is only calculated if the water temperature in the upper section of the cylinder is higher than 40 °C.

DHW is normally heated by the heat pump of the appliance within the application limits (see chapter "Specification / Data table").

Electric emergency/booster heater

When the temperature in the upper section of the DHW cylinder drops 10 K below the selected set temperature, the appliance automatically switches on the electric emergency/booster heater. When the temperature in the upper section of the DHW cylinder rises 2 K above the selected set temperature, the appliance switches off the electric emergency/booster heater.

In the event of an appliance fault, you can activate the electric emergency/booster heater manually using the emergency mode. See chapter "Operation / Rapid heating key / Emergency heating mode".

In the event of an increase in hot water demand on a single occasion, you can use the rapid heating key to activate the emergency/booster heater manually for one-off heating in addition to the heat pump. See chapter "Operation / Rapid heating key / Rapid/comfort heating".

3.3 Appliance operation outside the application limits

- ▶ To guarantee fault-free operation of the appliance, make sure you operate the appliance within its application limits (see chapter "Specification / Data table").

3.3.1 Ambient temperatures below the application limit

Low ambient temperatures may result in the formation of hoar frost on the evaporator depending on the air humidity and water temperature.

Active defrost feature

The frost monitor switches the fan off if the evaporator is covered in hoar frost. The compressor continues to run. A solenoid valve routes the hot gas directly to the evaporator. While this is happening, the condenser is disabled by another solenoid valve. When the temperature at the frost monitor rises above the defrost end temperature (see chapter "Specification"), the fan starts again and DHW heating continues.

The evaporator is defrosted as required.

- ▶ To guarantee fault-free operation of the appliance, make sure you operate the appliance within its application limits (see chapter "Specification / Data table").



Note

Heat-up times are longer while the evaporator is defrosting.

3.3.2 Ambient temperatures above the application limit

The safety equipment can switch off the appliance if the ambient temperature is above the application limit. If a pressure fault occurs repeatedly within the duration of the pressure fault evaluation, the lockout will have to be cleared by a qualified contractor. See chapter "Specification / Appliance parameters".

3.4 Frost protection

The appliance activates a frost protection function if the temperature captured by the integral sensor is below a certain limit. See chapter "Specification / Appliance parameters". The appliance then heats the water by means of the heat pump and the electric emergency/booster heater. The heat pump and electric emergency/booster heater switch off when the temperature captured by the integral sensor reaches 18 °C.

3.5 Minimum runtime and minimum pause time



Material losses

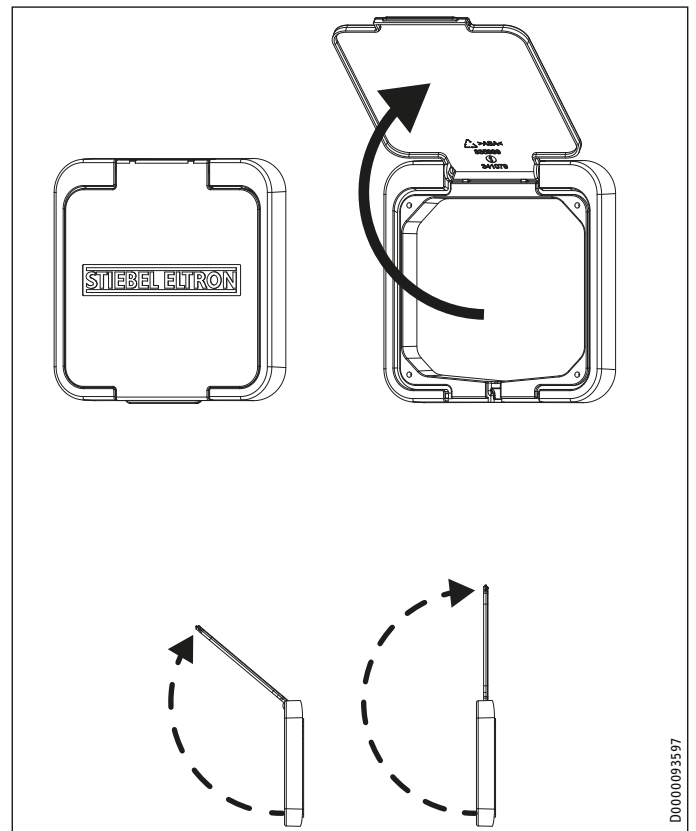
When operating with external switching devices that can interrupt the power supply to the appliance, such as time switches, energy management systems or home automation systems, must adhere to the following conditions:

- The minimum ON time is 60 minutes.
- The minimum pause time following a shutdown is 20 minutes.
- The appliance should not be switched on/off more than 10 times per day.
- The breaking capacity of the switching actuator must meet the fuse protection requirements (see chapter "Specification / Data table").

4. Settings

4.1 Weatherproof cover

A weatherproof cover protects the programming unit from the elements.



- ▶ Carefully flip up the lid of the weatherproof cover.

Two detents are provided so that you do not have to keep hold of the lid.

To close, carefully press the lid onto the appliance until the locking tabs at the sides lock in place.

OPERATION

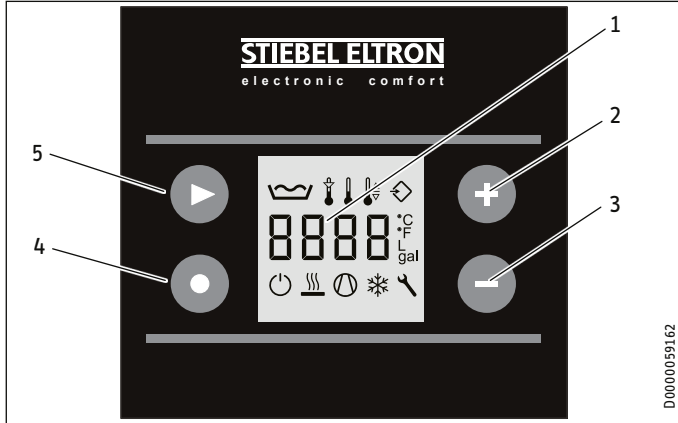
Settings

4.2 Display and controls



Note

15 seconds after every operation, the appliance automatically reverts to the default display (amount of mixed water) and saves the set value.



- 1 Display
- 2 "Plus" key
- 3 "Minus" key
- 4 "Quick heat-up" key
- 5 "Menu" button

4.2.1 Symbols

Symbol	Description
	Mixed water volume: The currently available amount of mixed water at 40 °C and at 15 °C cold water temperature is shown.
	Set temperature adjustment: Subject to intake temperature and hot gas temperature, the appliance may temporarily reduce the set temperature to the actual value captured by the integral sensor. The appliance displays the "set temperature adjustment" symbol and blocks DHW heating until the actual temperature captured by the integral sensor is below the temporary set value by a value equal to the reduced start hysteresis. DHW heating is then re-enabled and the originally selected set temperature is again applied.
	Actual temperature: The current actual temperature is shown. The actual temperature indicates the temperature in the upper section of the DHW cylinder and largely corresponds to the outlet temperature.
	Set temperature
	External signal transmitter: Set temperature 2 is the DHW temperature to which the appliance regulates if an external signal transmitter is connected and active.
	Standby: The symbol flashes, if the appliance PCB and load (compressor) are separately supplied with voltage. This connection option is required, if the appliance is to be operated via switchable sockets in an energy management system (see "Electrical connection" chapter) for example.
	Electric emergency/booster heater: This symbol indicates the presence of a demand on this component. This symbol being displayed does not necessarily mean that the electric emergency/booster heater is in operation.
	Heat pump: This symbol indicates the presence of a demand on this component. This symbol being displayed does not necessarily mean that the compressor is running.
	Defrost active

Symbol	Description
	Service/fault: Notify your qualified contractor if the "Service/fault" symbol appears on the display. Continuous illumination of the symbol indicates that the fault is not preventing appliance operation. A flashing "Service/fault" symbol indicates that water is not being heated and that it is essential you notify your qualified contractor. Switching the appliance to emergency mode is a special case. The electric emergency/booster heater will then heat the water despite the flashing "Service/fault" symbol.

The symbols for electric emergency/booster heater and heat pump are displayed when there is a demand for these appliance components. These symbols being displayed does not necessarily mean that the electric emergency/booster heater and the heat pump are running.

Example: The appliance is in rapid/comfort heat-up mode. The electric emergency/booster heater switches off when the temperature in the upper cylinder section has reached 65 °C. The heat pump has not yet heated the lower section to 65 °C and the rapid/comfort heat-up function has therefore not been terminated yet. The electric emergency/booster heater symbol is displayed until the rapid/comfort heat-up function has terminated.


OPERATION

Settings

4.3 Settings

■ Menu

In default display mode, the display shows the amount of mixed water.


 The "Menu" key allows you to call up all information and adjustment options in sequence. The relevant symbol appears.

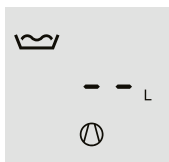
■ Menu

- "Mixed water volume" display
- "Actual temperature" display
- Set temperature 1
- Set temperature 2
- Fan speed
- "Air intake temperature" display
- Enabling the "runtime-dependent rapid heat-up" function
- Time set for the "runtime-dependent rapid heat-up" function
- Changing units
- Charge level
- Fault code
- E fault code

■ "Mixed water volume" display



 The currently available amount of mixed water at 40 °C and at 15 °C cold water temperature is shown.

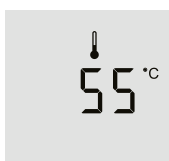



"-- L" is shown if less than 10 l mixed water is available.

DHW demand for	Mixed water volume at 40 °C
Bath	120-150
Showers	30-50
Washing hands	2-5

The amount of mixed water that can be achieved depends on the cylinder capacity and the set temperature selected.

■ "Actual temperature" display



 In the "Mixed water volume" menu, press "Menu" once to access the "Actual temperature" menu.

The "Actual temperature" symbol appears.

The current actual temperature is shown. The actual temperature indicates the temperature in the upper section of the DHW cylinder and largely corresponds to the outlet temperature.

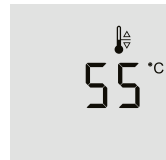
■ Set temperature 1



Note

For hygiene reasons, never set the DHW temperature below 50 °C.

Set temperature 1 is the DHW temperature to which the appliance regulates if no external signal transmitter is connected and active.



In the "Actual temperature" menu, press "Menu" once to access the "Set temperature 1" menu.

"Set temperature 1" symbol appears.

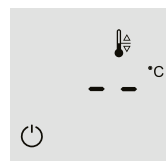
You can change the value using the "Plus" and "Minus" keys. Setting range: 20 - 65 °C



Note

Another way to adjust set temperature 1 is to press the "Plus" or "Minus" keys from within the default display (mixed water volume).

Frost protection



Only frost protection remains active if you set the set temperature to below 20 °C using the "Minus" key. The display shows "-- °C".

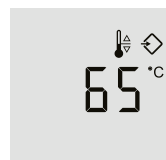
■ Set temperature 2



Note

For hygiene reasons, never set the DHW temperature below 50 °C.

Set temperature 2 is the DHW temperature to which the appliance regulates if an external signal transmitter is connected and active.



In the "Set temperature 1" menu, press "Menu" once to access the "Set temperature 2" menu.

The "External signal transmitter" symbol appears.

You can change the value using the "Plus" and "Minus" keys. Setting range: 20 - 65 °C



OPERATION

Settings

Operation with external signal transmitter



Material losses

See "Permissible voltage range for external signal transmitters" in the "Specification/data table" chapter.

As standard, the appliances feature the ability to assign a specific, individual set DHW temperature ("set temperature 2") to a connected external signal transmitter, such as a PV system or a low tariff transmitter.

This set temperature 2 is activated if the terminal connected to the external signal transmitter receives a signal (see "Electrical connection/external signal transmitter connection option" chapter). While activated, set temperature 2 replaces the standard set DHW temperature (set temperature 1).

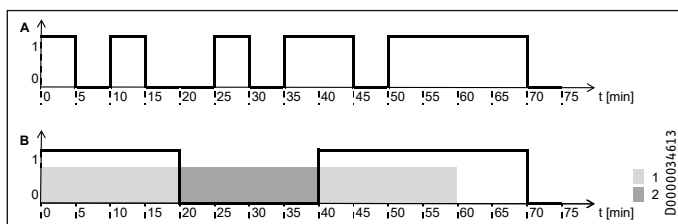
If set temperature 2 is activated by the external signal transmitter, this set temperature will then be active for at least 20 minutes. If the external signal remains active after the 20 minutes have passed, the compressor will run until the external signal drops out or set temperature 2 is reached. Afterwards, the selected set temperature 1 is activated again.

When the relevant DHW set temperature has been reached, the compressor switches off and remains off for a minimum idle time of 20 minutes.

The following diagram illustrates the connections by means of a sample signal sequence from an external signal transmitter.

Example:

Water temperature	°C	55
Set temperature 1	°C	50
Set temperature 2	°C	65



A External signal

B Compressor

1 20 min. minimum runtime, set temperature 2

2 20 min. minimum compressor idle time



Note

An external signal must be present for at least 60 seconds before the control unit responds to it. This will for example prevent a brief burst of sunshine from triggering a heat-up process, which due to a lack of further insolation can then not be supplied with PV power generated on site.

Fan speed



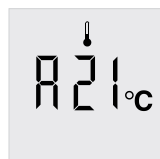
The current set fan output appears, identified by a preceding F.



Note

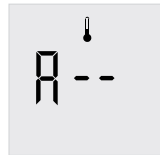
This parameter cannot be changed on this appliance.

"Air intake temperature" display



An "A" appears as the intake temperature symbol.

The current air intake temperature is displayed.



The air intake temperature is only displayed while the appliance fan is running. If it is not possible to establish an air intake temperature, two dashes are shown.

Enabling the "runtime-dependent rapid heat-up" function



Note

Only use runtime-dependent rapid heat-up if necessary and only at low intake temperatures. Avoid using runtime-dependent rapid heat-up at intake temperatures for which heating without the electric emergency/booster heater normally covers the prevailing demand. In such cases, selecting too short a runtime leads to unnecessary electricity bills.

To prevent excessive power consumption, disable the function in summer and in spring/autumn if at all possible.

For improved comfort, the appliance offers runtime-dependent rapid heat-up. If the selected set temperature is not reached by the heat pump after a user-defined period, the appliance switches on the electric emergency/booster heater in parallel to back up the heat pump (subject to this function being enabled). Once the set value has been reached, the electric emergency/booster heater remains inactive until the set time has elapsed again following a heat demand. As a factory default, this function is disabled.

In the case of outdoor installation, we recommend activating the "runtime-dependent rapid heat-up" function during the winter months and as required in spring/autumn when outside temperatures are low. This prevents any loss of comfort if, for example, the heat pump heating output falls as a result of the outside temperature dropping, and the heat-up time is therefore longer.

The period after which the electric emergency/booster heater provides automatic back-up needs to be selected individually by the user based on local conditions. DHW consumption and the expected intake temperatures need to be considered.

OPERATION

Settings

This function is set in two stages. First enable the function and set the runtime in the second parameter.



▶ The tHE0 setting disables the "runtime-dependent rapid heat-up" function. This function is enabled via setting tHE1. The function is disabled at the factory.

- Switch between the tHE0 and tHE1 settings using the "Plus" and "Minus" keys. The tHE1 setting allows the electric emergency/booster heater to cut in if the set temperature is not reached after expiry of the runtime selected below.

+

■ Time set for the "runtime-dependent rapid heat-up" function

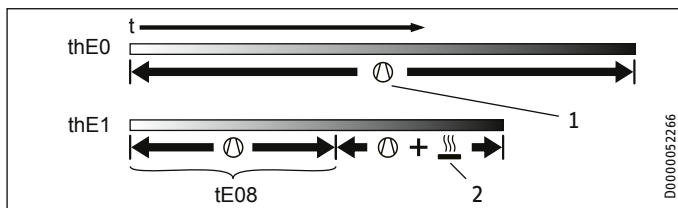
To avoid increased power consumption, only reduce the factory-set time for runtime-dependent rapid heat-up if necessary. See chapter "Specification / Appliance parameters".



▶

- Set the runtime using the "Plus" and "Minus" keys. After the set number of hours, the appliance checks whether the set temperature has been reached. If this is not the case, the appliance switches on the electric emergency/booster heater.

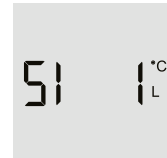
+



- 1 Heat pump symbol
- 2 Electric emergency/booster heater symbol
- tHE0 Runtime-dependent rapid heat-up disabled
- tHE1 Runtime-dependent rapid heat-up enabled
- tE08 Adjustable number of hours (e.g. 8 in this case) during which heating is only provided by the heat pump

■ Changing units

You can select whether the temperatures and the volume details are displayed in SI units or US units. If you select 1, the values are displayed in degrees Celsius and litres. If you select 0, the values are displayed in degrees Fahrenheit and gallons.



▶ Press the "Menu" key until "SI" appears in the display.

- Using the "Plus" and "Minus" keys, set whether the display should use SI units (1) or US units (0).

+

■ Charge level

If the minimum available mixed water volume at the selected set temperature is insufficient, you can reduce the reheating hysteresis by increasing the charge level. This increases the minimum DHW volume available. The effect equates to a virtual downward shifting of the temperature sensor. This results in greater DHW convenience. The efficiency of the appliance is slightly impaired.

DHW heating is started when the available mixed water volume decreases to the percentage of maximum mixed water volume set in the "Charge level" parameter.

		WWK 223 electronic	WWK 303 electronic
Charge level (Factory setting)	%	56	64

The displayed mixed water volume is based on a mixed water temperature of 40 °C. At water temperatures below 40 °C (±1 K), the mixed water volume is not calculated or displayed.

A further start condition, which overlaps the heat-up level start conditions, is the reduction of the temperature captured by the sensor at the cylinder top to 6 K below the active set temperature.



▶ Press the "Menu" key, until an "L" followed by a number appears in the display.

- You can change the value using the "Plus" and "Minus" keys. Setting range: 30 - 100 %

+

■ Fault code



▶ If the "Service/fault" symbol illuminates or flashes, you can query the fault code using the "Menu" key. This menu remains disabled if no fault has arisen.

See chapter "Troubleshooting / Fault codes".

■ E fault code

A fault code preceded by E appears if the fault relates to the refrigerant circuit. Notify a qualified contractor.

OPERATION

Settings

4.4 "Quick heat-up" key



Note

To start rapid/comfort heating with the "Rapid heat-up" key, the start screen must be displayed.



Press the "Rapid heat-up" key for two seconds.

The "heat pump" and "electric emergency/booster heater" symbols appear.

4.4.1 Quick/comfort heat-up

Normally, the "Rapid heat-up" key is used to enable rapid/comfort heating, which lets you cover an unexpectedly high DHW demand without changing any of the appliance's standard settings.

If quick/comfort heat-up is activated manually by pressing the relevant key, the heat pump and the electric emergency/booster heater will start in parallel, irrespective of the selected set temperature, and will remain active until the DHW temperature in the cylinder has reached 65 °C.

If the water temperature in the upper cylinder section rises by a hysteresis value above the set temperature on the cylinder top sensor, the electric emergency/booster heater is switched off. The electric emergency/booster heater remains in standby mode until the set temperature has been reached throughout the DHW cylinder. A flashing "electric emergency/booster heater" symbol indicates that the electric emergency/booster heater is in standby mode.

The rapid/comfort heating function remains active until a temperature of 65 °C has been achieved throughout the DHW cylinder (comfort heating). The appliance then automatically switches back to the previously set parameters.



Note

The "electric emergency/booster heater" and "heat pump" symbols are displayed until the rapid/comfort heating terminates.



Note

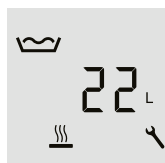
To end rapid/comfort heating, press the "Rapid heat-up" key for two seconds.

4.4.2 Emergency mode

If the appliance is faulty, you can use the emergency mode to activate the electric emergency/booster heater.

Following a DHW demand, the appliance checks the temperature increase every 15 minutes. If the temperature increase is <0.25 °C during each measurement interval until the end of the maximum temperature increase time (see "Specification" chapter), the appliance switches off the compressor.

The "service/fault" symbol flashes on the display and a fault code indicates that the appliance is not heating.



Press the "Rapid heat-up" key for two seconds.

The "electrical emergency/booster heater" symbol appears. Service/fault symbol flashes.

After the "Quick heat-up" key has been pressed, the indicated fault code increments by a value of 256, as the fault codes are added together (see fault code table in the "Troubleshooting" chapter). "Service/fault" symbol continues flashing. The electric emergency/booster heater is activated.

The current set temperature (set temperature 1 or set temperature 2) is ignored. In emergency heating mode, the appliance operates with a fixed set temperature. In the upper cylinder section, the DHW is heated up to 65 °C by the electric emergency/booster heater.

Following one-time enabling of this function by means of the "Quick heat-up" key, this function remains enabled for 7 days.

Following 7 days of emergency operation the electric emergency/booster heater is disabled. The fault code shown on the display decrements by 256.

If you press the "Rapid heat-up" key again for two seconds within the 7 days of emergency heating mode, the 7-day runtime for emergency heating mode will restart.

If the 7-day runtime for emergency heating mode has expired, you can restart emergency heating mode for a further 7 days by pressing "Rapid heat-up".

Pressing the "Rapid heat-up" button only enables emergency heating mode if a fault with fault code 8 had previously occurred. In standard mode pressing the "Quick heat-up" key only triggers one-time heat-up of the DHW cylinder.

Emergency mode is disabled by an interruption of the power supply. The appliance tries again to heat with the heat pump. You can avoid having to wait until the temperature increase time has elapsed (see "Specification" chapter) by starting manual emergency heating mode.

Manual emergency heating mode

If a fault has occurred and no fault code is displayed, you can activate emergency heating mode.



Keep the “Plus” and “Minus” buttons pressed. In addition, press the “Menu” button and keep all three buttons pressed for 5 seconds.

The “electrical emergency/booster heater” symbol appears. Service/fault symbol flashes.

4.5 Emergency shutdown

In the event of an emergency, carry out the following steps:

- ▶ Disconnect the power supply at the fuse/MCB in the domestic distribution board.
- ▶ Shut off the cold water supply.
- ▶ Immediately notify a qualified contractor, as the appliance is not protected against corrosion while the power supply is interrupted.

5. Maintenance and care



WARNING Electrocutation
 Only clean the exterior of the appliance.
 Never open the appliance.
 Do not insert objects through the grille into the interior of the appliance.
 Never spray the appliance with water.
 Never spray water into the appliance.



WARNING Injury
 Maintenance work, such as checking electrical safety, must only be carried out by a qualified contractor.

Appliance components	Care and maintenance tips
Casing	Use a damp cloth to clean the casing sections. Never use abrasive or corrosive cleaning agents.
Air intake grille / air discharge grille	Clean the air intake grille and air discharge grille every six months. Cobwebs or other kinds of contamination can restrict the air supply to the appliance.
DHW cylinders	The DHW cylinder is equipped with a maintenance-free impressed current anode to safeguard it against corrosion. The power supply must not be interrupted while the appliance is filled with water to enable the impressed current anode to provide protection. Otherwise there is a risk of corrosion.
Electric emergency/booster heater	Have the electric emergency/booster heater descaled from time to time. This will extend the service life of the electric emergency/booster heater.
appliance	Have the safety assembly and the evaporator checked regularly by a qualified contractor.
Condensate drain	Undo the condensate drain. Check that the condensate drain is clear and remove any dirt from the condensate drain connection of the appliance.

6. Troubleshooting

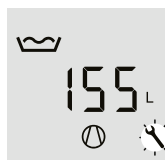
Problem	Cause	Remedy
The compressor is operational, but the fan is off.	If the appliance is in defrost mode, the fan may not switch on again until the maximum defrost time has been exceeded. The defrosting process is shown on the display.	No action required. A maximum defrost time is set in the appliance. If, despite the defrost, the defrost end temperature is not reached within the maximum defrost time, a fault code appears. Please consult a qualified contractor.
No hot water is available.	No power at the appliance. A fuse/MCB in the fuse box has blown/tripped.	Check that the appliance is connected to the power supply. Check whether the fuses/MCBs in your fuse box have blown/tripped. If required, disconnect the appliance from the power supply and replace the fuses/reset the MCBs. Contact your qualified contractor if the fuse/MCB blows/trips again after the appliance is re-connected to the power supply.
	The intake air temperature is outside the application limits (see "Specification / Data table" chapter). The compressor was switched off/locked automatically.	No action required. The appliance heats the water using the electric emergency/booster heater. As soon as the temperature is back within the application limits, the heating process is continued with the compressor.
	The appliance output data are calculated according to standard, using the intake temperature specified in the data table. Below this temperature the appliance efficiency and output decrease. The heat-up time is extended.	No action required. Activate runtime-dependent rapid heat-up if required. Increased energy expenditure should be expected.
	If the heat pump runtime is very long, this may be due to an excessively low intake temperature.	No action required. Activate runtime-dependent rapid heat-up if required.
The set temperature is not achieved.	Subject to intake temperature and hot gas temperature, the appliance may temporarily reduce the set temperature to the actual value captured by the integral sensor.	No action required. The appliance displays the "set temperature adjustment" symbol and blocks DHW heating until the actual temperature captured by the integral sensor is below the temporary set value by a value equal to the reduced start hysteresis. DHW heating is then re-enabled and the originally selected set temperature is again applied.
The safety valve of the DHW cylinder is dripping.	The appliance cylinder is at mains water pressure. During the heat-up process, expansion water will drip from the safety valve.	If water continues to drip when heating is completed, please inform your qualified contractor.
The condensate drain drips.	The surface temperature of the evaporator is lower than the dew point temperature of the ambient air. Condensate forms.	The amount of condensate depends on the humidity level of the ambient air.

Problem	Cause	Remedy
For indoor installation: The room temperature drops.	operation of the appliance can cause the room temperature to fall by 1 to 3 °C, as the appliance extracts energy from the air.	If the room temperature falls by more than 5 °C, check the room size (see the "Specification / Data table" chapter). Supplying energy by opening a door to another room will remedy this.
High power consumption	The lower the intake temperature, the lower the heat pump efficiency.	Where possible, avoid high set temperatures and the use of rapid heat-up.
	Runtime-dependent rapid heat-up is activated.	Only activate this function if really necessary or increase the runtime during which the heat pump operates alone and the electric emergency/booster heater is blocked via your selected parameters.
Service/fault symbol is permanently on.	See the "Fault codes" chapter.	Notify a qualified contractor. A permanently lit "service/fault" symbol indicates that a fault has occurred, but the heat pump is heating nevertheless.
Service/fault symbol flashes and the water does not heat up.	See the "Fault codes" chapter.	It is imperative that you notify a qualified contractor quickly. A flashing "service/fault" symbol indicates that a fault has occurred and the heat pump is no longer heating.
Defrost symbol is shown.	The appliance is in defrost mode.	No action required.
The heat pump symbol is flashing.	There is a heat demand, but the compressor is locked out.	No action required. The compressor restarts automatically after the compressor lockout time has elapsed. The symbol stops flashing automatically.
	The intake air temperature is outside the application limits (see "Specification / Data table" chapter). The compressor was switched off/locked automatically.	No action required. The appliance heats the water using the electric emergency/booster heater. As soon as the temperature is back within the application limits, the heating process is continued with the compressor.
The electric emergency/booster heater symbol is flashing.	A temperature controller has switched off the electric emergency/booster heater during rapid heat-up.	No action required. The appliance continues the quick heat-up process using the heat pump. The symbol stops flashing when the controller re-enables the electric emergency/booster heater. The symbol goes out when the temperature throughout the DHW cylinder reaches the set rapid heat-up temperature.
The electric emergency/booster heater symbol is illuminated but the electric emergency/booster heater is not operational.	The electric emergency/booster heater lights up when there is a demand. The internal controller of the electric emergency/booster heater may have ended electric heating. A possible cause may be a fault in the electric emergency/booster heater. A possible cause may be that the high limit safety cut-out has responded.	Have a qualified contractor check whether the controller of the electric emergency/booster heater is set correctly. The controller must be turned fully anti-clockwise. Have a qualified contractor check the high limit safety cut-out.


Problem	Cause	Remedy
The "electric emergency/booster heater" symbol illuminates even though the appliance is within the application limits and "rapid heat-up" has not been pressed.	The "runtime-dependent rapid heat-up" function is enabled and currently in use.	No action required.
	Automatic mode of the electric emergency/booster heater has been enabled. This occurs when DHW demand is detected via the cylinder top sensor.	No action required.

Fault code

If the service/fault symbol is flashing or continuously illuminated on the display, you can call up a fault code.




 Keep pressing "Menu" until the fault code appears.

	Fault description	Remedy
2	Steadily on The sensor at the cylinder top is faulty. The actual temperature display switches from the cylinder top sensor to the integral sensor. The appliance continues to heat without any loss of comfort. The mixed water volume cannot be calculated and is displayed as "--".	Notify a qualified contractor.
4	Steadily on The integral sensor is faulty. In the event of a faulty integral sensor, the integral sensor is set to the value of the sensor at the cylinder top, and amount of mixed water is calculated using this value. The appliance continues to heat with a reduced start hysteresis. A mixed water volume is still calculated, based on the assumption that the cylinder top temperature is reached throughout the DHW cylinder.	Notify a qualified contractor.
6	flashing The sensor at the cylinder top and the integral sensor are faulty. The appliance no longer delivers heat.	Notify a qualified contractor.
8	flashing The appliance has ascertained that the DHW cylinder has not been heated within the maximum temperature increase time, despite there being a demand.	You can temporarily continue to use the appliance by pressing the "Rapid heat-up" key to activate emergency heating mode. See chapter "Appliance description / Emergency mode".

OPERATION

Troubleshooting

		Fault description	Remedy
16	Steadily on	A short circuit of the impressed current anode has occurred or the protective anode is faulty.	Immediately notify a qualified contractor, as the appliance is not protected against corrosion if the impressed current anode is faulty.
32	flashing	The appliance is being operated with a partially filled DHW cylinder. The appliance does not heat up. The anode current is interrupted. The appliance does not heat up.	Fill the appliance's DHW cylinder. The fault code disappears and the appliance starts. Notify a qualified contractor.
64	Steadily on	The defrost temperature has not yet been reached after the maximum defrost time has lapsed. The compressor is faulty.	The fault is reset automatically once the evaporator temperature has risen to the defrost end temperature. Notify a qualified contractor.
128	Steadily on	There is no communication between the controller and the programming unit. The most recently selected set values are active. The appliance continues to deliver heat.	Notify a qualified contractor.
256	flashing	Manually activated emergency mode (only electric emergency/booster heater enabled)	See chapter "Appliance description / Emergency mode".
512	flashing	A fault has occurred in the refrigerant circuit.	Notify a qualified contractor.
E 1	flashing	The temperature sensor on the air inlet is faulty.	Notify a qualified contractor.
E 2	flashing	The temperature sensor on the evaporator is faulty.	Notify a qualified contractor.
E 4	Steadily on	The hot gas temperature sensor is faulty. The appliance continues to deliver heat. To protect the appliance, the (possibly higher) set temperature is reduced to the set value for setback.	Notify a qualified contractor.
E 16	Steadily on	The high pressure limiter has responded. Compressor heating mode is temporarily blocked. Compressor heating mode will continue as soon as the pressure has normalised.	Wait until the pressure has normalised.
E 32	Steadily on	An electrical fault has occurred.	Notify a qualified contractor.
E 64	flashing	Evaporator temperature < minimum evaporator temperature	Notify a qualified contractor.
E 128	flashing	A permanent pressure switch fault has occurred. A pressure fault occurred multiple times within a defined pressure fault evaluation time.	Notify a qualified contractor.

If several faults occur, the fault codes are added up.

Example: If both the cylinder top sensor and the integral sensor are faulty, the display shows fault code 6 (= 2+4).



Note
A fault code preceded by E appears if the fault relates to the refrigerant circuit. Notify a qualified contractor.

Application scenarios for emergency mode

If the appliance shows fault code 8, you can manually activate emergency mode. If a different fault occurred previously, but did not cause the appliance to shut down, the display may show a fault code that is the result of several faults added together.

Listed below are the fault codes which will allow you to enable emergency mode.

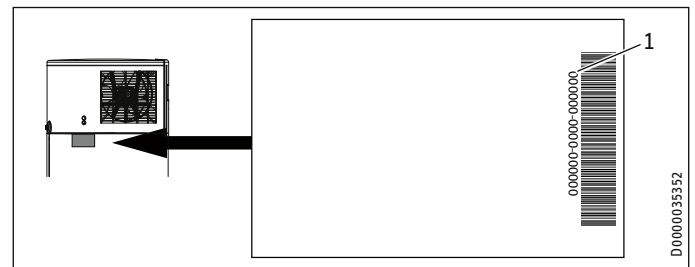
Fault code displayed	
8	8
10	Fault code 8 + fault code 2
12	8+4
24	8+16
26	8+2+16
28	8+4+16
138	8+2+128
140	8+4+128
152	8+16+128
154	8+2+16+128
156	8+4+16+128

When the appliance is operating in emergency mode, the fault code shown is incremented by 256.

Notifying a qualified contractor

If you cannot remedy the fault, notify your qualified contractor. To facilitate and speed up your request, provide the number from the type plate (000000-0000-00000). The type plate can be found on the left, above the DHW outlet connection.

Sample type plate



1 Number on the type plate

INSTALLATION

7. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

7.1 General safety instructions

We guarantee trouble-free function and operational reliability only if original accessories and spare parts intended for the appliance are used.

7.2 Instructions, standards and regulations



Note

Observe all applicable national and regional regulations and instructions.

Take note of the appliance type plate and chapter "Specification".

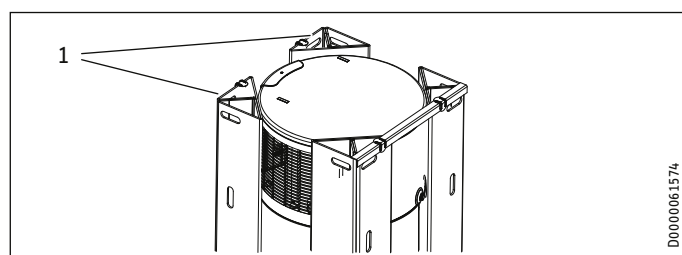
8. Appliance description

8.1 Standard delivery



Note

Accessories are located in the corners of the packaging. Remove the accessories before disposing of the packaging.



1 Corners of the packaging

The following are delivered with the appliance:

- Condensate drain bend
- For the "Cold water inlet" and "DHW outlet" connections: 2 insulated screw fittings comprising a flanged pipe, a gasket, a union nut and an insulating sleeve

8.2 Required accessories

Various safety assemblies are available that are selected according to supply pressure. These type-tested safety assemblies protect the appliance against unacceptable excess pressure.

8.3 Additional accessories

- Condensate pump (if the condensate cannot be drained off with a naturally occurring fall)

9. Preparation

9.1 Transport



CAUTION Injury

- ▶ Observe the weight of the appliance.
- ▶ Use suitable transport aids (e.g. sack truck) and enough personnel for transportation.



Material losses

- The appliance has a high centre of gravity and low overturning moment.
- ▶ Safeguard the appliance against falling over.
 - ▶ Only set the appliance down on an even base.



Material losses

- The appliance casing is not designed to withstand strong forces. Incorrect handling can lead to material losses of considerable extent.
- ▶ Observe the information on the packaging.
- Only remove the packaging shortly before the installation.

Where possible, do not unpack the appliance until it has arrived in the installation room. For transport and handling leave the appliance in its packaging and on the pallet. This enables brief horizontal transport and provides places to hold on to during transport.

If the appliance has to be unpacked before transportation, we recommend using a sack truck. Pad the contact surfaces to avoid damaging the appliance. Secure the appliance to the sack truck using a strap. Pad between the strap and the appliance and avoid overtightening the strap. Where stair wells are narrow, you can carry the appliance by the handles on the sack truck and the foot of the appliance.

Vehicular transport



Material losses

- The appliance must generally be stored and transported vertically.

The appliance may be transported horizontally for brief periods, over a maximum distance of 160 km and on made-up roads. Strong shocks are not permissible.



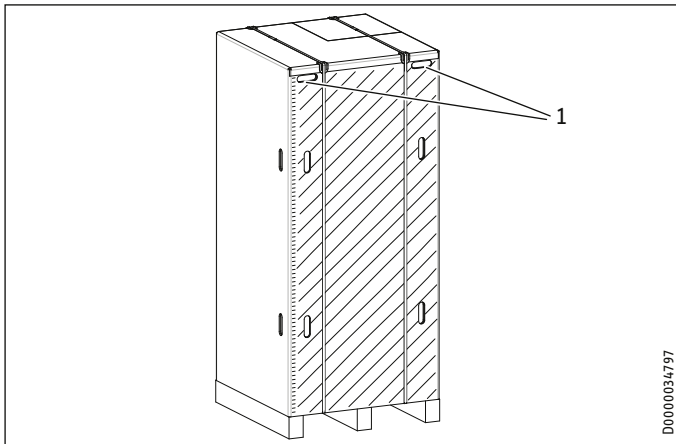
Material losses

- If transported horizontally, the appliance must always be laid on the shaded side of the box.
- The appliance must not remain in a horizontal position for more than 24 hours.
- If the appliance was transported horizontally, leave it to rest in a vertical position for at least one hour before commissioning.

- ▶ Observe the information on the packaging.

INSTALLATION

Preparation



1 Recessed grips

Transport from vehicle to installation room

The cardboard box has reinforced recessed grips along the top. You can use these recessed grips, as well as the pallet at the lower end, to carry the appliance into the installation room. Take note of the weight of the appliance and ensure a sufficient number of personnel is available for handling the appliance.

9.2 Storage

If it is necessary to store the appliance for a prolonged period before installation, observe the following information:

- Only store the appliance in a vertical position. Never store the appliance horizontally.
- Store the appliance in a location that is dry and largely dust-free.
- Protect the appliance from coming into contact with corrosive substances.
- Ensure the appliance is not subjected to shocks or vibrations.

9.3 Installation site



Material losses

Observe the following list of requirements regarding the installation site.

- As long as the appliance is not exposed to rain, snow or direct insolation, it may be installed outdoors, e.g. under a car port.
- Site the appliance where it will be well ventilated. Unhindered air intake and air discharge should be possible. Protect the appliance from the elements and strong wind.
- The installation site must be free from flammable, highly combustible gases and substances, as well as high levels of dust.
- The intake temperature of the appliance must be within the permissible application limits (see chapter "Specification / Data table").
- The floor of the installation room must be level and have sufficient load bearing capacity. Take note of the weight of the appliance with a full DHW cylinder (see "Specification / Data table"). A floor with insufficient load bearing capacity is in danger of collapse. If the appliance is not evenly balanced, there may be a risk of appliance damage.

- The size of the installation room must correspond to the appliance application limits (see "Specification / Data table" chapter).
- Observe the safety clearances and protection zones.
- Always leave sufficient space to provide access for installation, maintenance and cleaning. Observe the minimum clearances (see chapter "Installation / Preparations / Siting the appliance").
- Observe the requirements concerning the installation room (see chapter "Specification / Data table").
- The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation. This requirement can be met by contactors, isolators, fuses, etc.
- Observe the safety measures to prevent contact with dangerous 'live' currents.
- Observe the fuse protection required for the appliance (see chapter "Specification / Data table").
- The power cable must only be replaced (for example if damaged) by a qualified contractor authorised by the manufacturer (connection type X).
- The appliance is pressurised. During the heat-up process, expansion water will drip from the safety valve.
- Regularly activate the safety valve to prevent it from becoming blocked, e.g. by limescale deposits.
- Drain the appliance as described in chapter "Installation / Maintenance and cleaning / Draining the cylinder".
- Install a type-tested T&P valve using the corresponding connection on the appliance.
- Install a type-tested safety valve in the cold water inlet line.
- The maximum pressure in the cold water supply line must be at least 20 % below the response pressure of the safety valve. If the maximum pressure in the cold water supply line is higher, install a pressure reducing valve.
- Fit the drain pipe of the safety valve with a constant fall and ensure that it is free from the risk of frost.
- Size the drain pipe so that water can drain off unimpeded when the safety valve is fully opened.
- Ensure the operation of other equipment in the installation room is not impaired.
- To keep the duct lengths as short as possible, we recommend installing the appliance close to the kitchen or bathroom.
- To prevent adverse effects from operating noise, never install the appliance close to bedrooms.

INSTALLATION

Preparation

Examples of unacceptable installations	
Atmospheres containing ammonia	Sewage works, pigsties
Substances which block the evaporator	Air containing oil or fat, dust (cement, flour, etc.). Note: If the air contains hair-spray (e.g. in hairdressing salons), the appliance should be operated at shorter maintenance intervals.
Saline environments	Coastal installations (< 200 m from the coast) can reduce component service life.
Atmospheres containing chlorine or chloride	Swimming pools, salt works
Atmospheres containing thermal water	
Formaldehyde in the atmosphere	Certain wood-based materials (e.g. OSB boards) Certain insulating materials (e.g. foams based on urea-formaldehyde (UF in-situ foams))
Carboxylic acid in the atmosphere	Extract air from kitchens Components of floor cleaners (e.g. vinegar cleaner)
Areas in proximity to high frequency machines	Inverters for large motors, radar, etc.

Air polluted with these substances can cause corrosion of copper materials in the refrigerant circuit, especially the evaporator. This corrosion can lead to failure of the appliance. Any damage to the appliance caused in this way is not covered by the guarantee conditions.



Note

The output data given for this appliance has been determined in accordance with the relevant standard at an intake temperature of 15 °C. Below this temperature the appliance efficiency and output decrease.



Note

You can improve the efficiency of the appliance by utilising the waste heat from other appliances to heat the DHW cylinder, e.g. boilers, tumble dryers or freezers. If, for example, a tumble dryer releases dust at the installation site, the evaporator must be cleaned more frequently.

Sound emissions

The sound emissions are louder on the air intake and air discharge sides of the appliance than on the closed sides.

- ▶ Never direct the air intake or air discharge towards noise-sensitive rooms of the house, e.g. bedrooms.

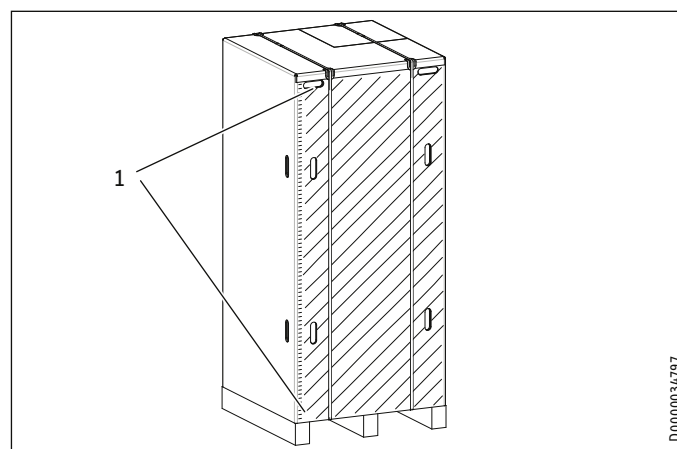


Note

For details on sounds emissions, see chapter "Specification / Data table".

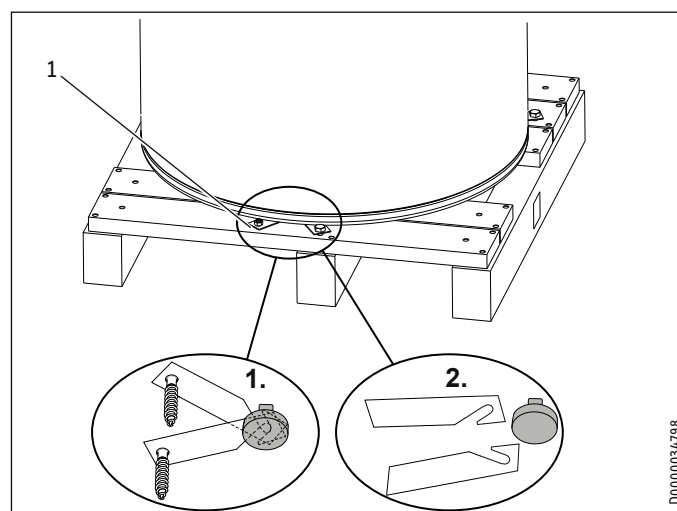
9.4 Siting the appliance

- ▶ Carefully undo the cardboard packaging at the clips.



1 Cardboard packaging clips

The appliance is secured to the pallet with metal brackets and screws. The metal brackets are hooked on to the feet underneath the floor plate of the appliance.



1 Metal bracket fixing screw

- ▶ Remove the fixing screws of the metal brackets from the pallet.
- ▶ Push the metal brackets a little towards the cylinder centre to unhook them from the appliance feet.
- ▶ Pull the metal brackets out from underneath the appliance.

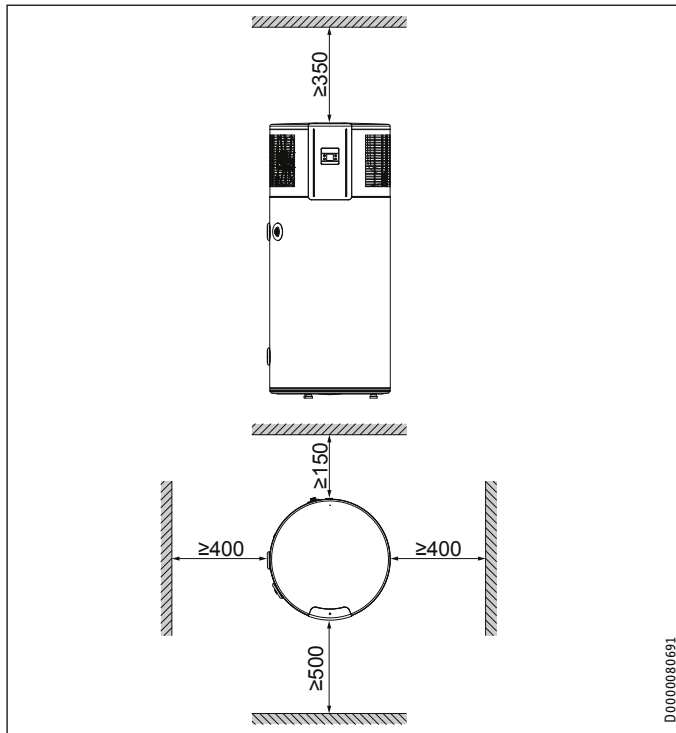


Material losses

Take note of the appliance's weight and centre of gravity.

- ▶ Slightly tip the appliance and carefully roll the appliance off the pallet.
- ▶ Position the appliance in the final installation site.

Minimum clearances



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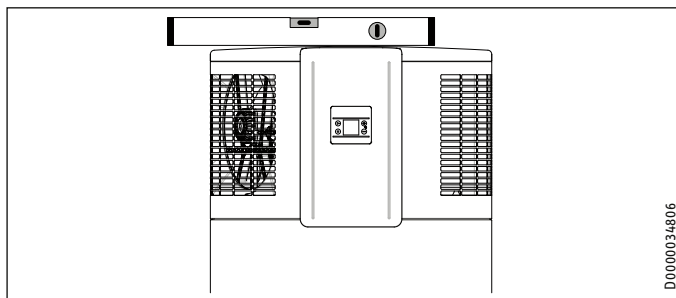
- ▶ Maintain the minimum clearances.



Material losses

The appliance must be positioned vertically to avoid damage.

- ▶ Level the appliance horizontally using the height-adjustable feet.



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10. Installation



WARNING Injury

Incorrect installation can lead to serious injury or material losses.

Before any work, ensure sufficient clearances for the installation.

Handle sharp-edged components carefully.

10.1 Water connection



Material losses

Carry out all water connection and installation work in accordance with regulations.



Material losses

The corrosion protection provided by the anode can only be guaranteed when the electrical conductivity of the domestic hot water is within the limits stated in the chapter "Specification / Data table".

Cold water line

Galvanised steel, stainless steel, copper and plastic are approved materials.

A safety valve is required.

DHW line

Stainless steel, copper and plastic pipework are approved.



Material losses

When using plastic pipework, observe the manufacturer's data and the chapter "Specification / Fault conditions".

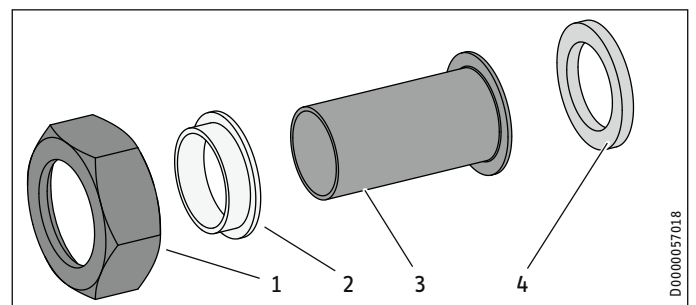
- ▶ Thoroughly flush the pipework before connecting the appliance. Foreign bodies, such as welding pearls, rust, sand or sealant can impair the operational reliability of the appliance.



Material losses

To protect the connections against corrosion the water connection must be made with flat gaskets. The use of hemp on connections is not permissible.

The insulated screw fittings included in the standard delivery serve to prevent and insulate against cathodic scaling due to highly conductive water.



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- 1 Union nut
- 2 Insulating sleeve
- 3 Flanged pipe
- 4 Gasket

- ▶ Using the gaskets, insulating sleeves and union nuts provided, connect the flanged pipes included in the standard delivery to the "Cold water inlet" and "DHW outlet" connections.
- ▶ Check the insulated screw fitting for tightness.

INSTALLATION

Installation

T&P valve

- ▶ If specified, install a type-tested T&P valve using the corresponding connection on the appliance.

The response pressure of the valve must be below or equal to the permissible operating pressure of the DHW cylinder. The valve protects the appliance against unacceptable pressure or temperature rises. The diameter of the cold water supply line must be no greater than the diameter of the valve.

- ▶ Ensure that the expansion water escaping from the valve can drip into a drain, e.g. a tank or funnel.

Ensure the drain cannot be shut off.

- ▶ Size the drain pipe so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ The safety valve drain aperture must remain open to atmosphere.
- ▶ Fit the drain pipe of the safety valve with a constant fall and ensure that it is free from the risk of frost.

Safety valve

The appliance is a sealed unvented DHW cylinder. Provide the appliance with a pressure relief valve.

- ▶ Install a type-tested safety valve in the cold water inlet line. The response pressure of the safety valve must be below or equal to the permissible operating pressure of the DHW cylinder.

The safety valve protects the appliance against unacceptable excess pressure. The diameter of the cold water supply line must be no greater than the diameter of the safety valve.

- ▶ Ensure that the expansion water escaping from the safety valve can drip into a drain, e.g. a tank or funnel.

Ensure the drain cannot be shut off.

- ▶ Size the drain pipe so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ The safety valve drain aperture must remain open to atmosphere.
- ▶ Fit the drain pipe of the safety valve with a constant fall and ensure that it is free from the risk of frost.

Pressure reducing valve

The maximum pressure in the cold water supply line must be at least 20 % below the response pressure of the safety valve. If the maximum pressure in the cold water supply line is higher, install a pressure reducing valve.

Drain valve

- ▶ Install a suitable drain valve at the lowest point in the cold water inlet line.

Thermal insulation

- ▶ Insulate the DHW line against heat loss in accordance with locally applicable regulations.
- ▶ Insulate the cold water supply line to prevent condensate forming.

DHW outlet



WARNING Burns

The water in the DHW cylinder can be heated to temperatures in excess of 60 °C. There is a risk of scalding at outlet temperatures in excess of 43 °C. Check whether you are required to install a tempering device.

10.2 Condensate drain

Install a condensate drain hose in order to remove the condensate which forms.

- ▶ Connect the condensate drain bend included in the standard delivery to the condensate drain connection.
- ▶ Connect a condensate drain hose to the condensate drain bend.

A siphon must be installed to prevent aggressive gases from the sewer entering the appliance. The condensate drain must be installed with an outlet that opens freely above the siphon.



Material losses

Ensure condensate cannot back up.

- ▶ Use a condensate drain hose with a diameter greater than the diameter of the condensate drain bend.
- ▶ Ensure the condensate drain hose is not kinked.
- ▶ Route the condensate drain hose with a continuous fall.
- ▶ Use a suitable condensate pump if there is insufficient fall. Take the building characteristics into account.

The condensate drain must be open to atmosphere.

Condensate pan heater



Material losses

If the temperature at the installation site could continuously fall below freezing (1 - 2 days) you should install a condensate pan heater. The condensate pan heater is not part of the standard delivery.

When the compressor is running, install a load-dependent relay to switch on the condensate pan heater after a delay.

The condensate pan heater must have an external power supply.

10.3 Electrical connection



WARNING Electrocutation
Carry out all electrical connection and installation work in accordance with national and regional regulations.



WARNING Electrocutation
The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation. This requirement can be met by contactors, isolators, fuses, etc.



WARNING Electrocutation
Observe the safety measures to prevent contact with dangerous 'live' currents.



WARNING Electrocutation
Coming into contact with 'live' components presents a threat to life. Disconnect the appliance from the power supply before carrying out work on the control panel. Prevent the power supply from being switched on while you are working on the system.



WARNING Electrocutation
Insufficient earthing can lead to electrocution. Ensure the appliance is earthed according to locally applicable requirements.



WARNING Electrocutation
The power cable must only be replaced (for example if damaged) by a qualified contractor authorised by the manufacturer (connection type X).



Material losses
Install a residual current device (RCD).



Material losses
The specified voltage must match the mains voltage. Observe the type plate.

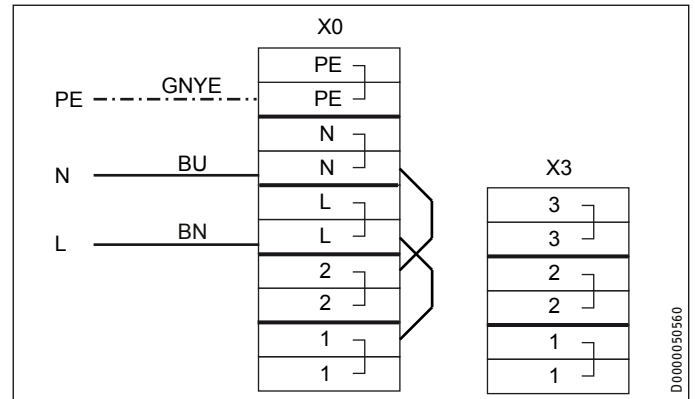


Material losses
Never connect the appliance to the power supply before the DHW cylinder is filled.

The appliance is supplied with a flexible power cable without plug.

- ▶ If the power cable is not long enough, unclamp it from the appliance. Use a suitable installation cable.
- ▶ Route the new power cable through the cable entry.
- ▶ Connect the connecting cable properly inside the appliance.

10.3.1 Standard connection without external signal transmitter



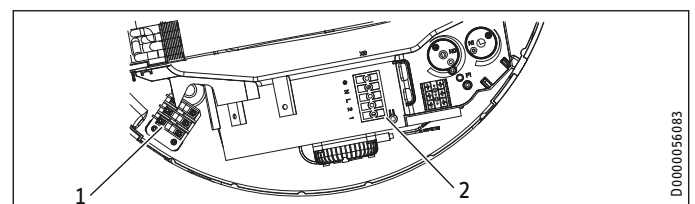
BN Brown
BU Blue
GNYE Green/yellow

10.3.2 Connection options: Operation with external switching device that interrupts appliance power supply

To ensure cylinder corrosion protection, appliances are equipped with a maintenance-free impressed current anode as standard. A maintenance-free impressed current anode, when compared to a sacrificial anode, offers the greatest protection and saves on costs for maintenance that would otherwise be required. To ensure cylinder corrosion protection however, the impressed current anode must be supplied with power permanently.

If the device is to be used with external switching devices (e.g. external time switch, switched socket, energy management system, power-interrupting signal from the power supply utility) that interrupt the appliance power supply, the impressed current anode must not be subject to the effects of such devices, but supplied independently. For such cases, the appliance allows separate power supplies for load (compressor) and electronic (including impressed current anode) circuits.

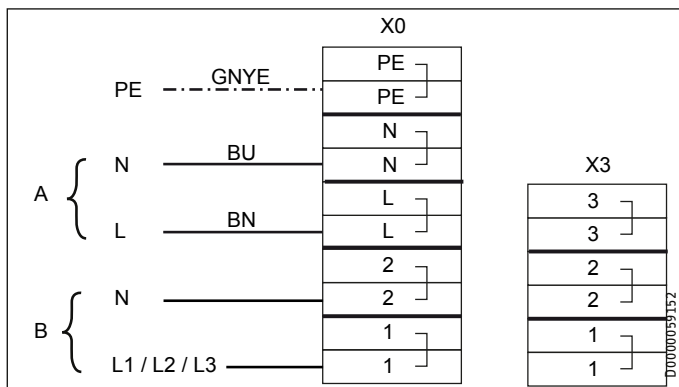
- ▶ Remove the appliance cover (see chapter "Cleaning and maintenance / Removing the appliance cover").



- 1 Strain relief
 - 2 Terminal X0
- ▶ Prepare the electric cables in such a way that they terminate with wire ferrules.
 - ▶ Push the cables through one of the cable entries in the appliance casing.
 - ▶ Route leads through the strain relief.
 - ▶ Remove the jumper which leads from X0/N to X0/2 in the delivered condition.
 - ▶ Remove the jumper which leads from X0/L to X0/1 in the delivered condition.

INSTALLATION

Installation



- A Power supply provided by power supply utility or energy management system for switching the load (compressor)
 B Power supply to impressed current anode and PCB
 BN Brown
 BU Blue
 GNYE Green/yellow
- ▶ Connect the electric cables for the separate impressed current anode power supply to X0/1 and X0/2.

Material losses
 The power supply to the impressed current anode must be continuously ensured.

Material losses
 With regard to the external switching device, the minimum runtime and minimum pause times must be observed (see chapter "Appliance description/Minimum runtime and minimum pause time").

10.3.3 Connection options: Operation with external signal transmitter

Material losses
 See "Permissible voltage range for external signal transmitters" in the "Specification/data table" chapter.

Note
 The appliance has a second, higher set temperature which is selected at the factory. This is activated in the event of an external switching signal. Set temperature 2 is higher ranking than the standard set temperature while there is an external switching signal.

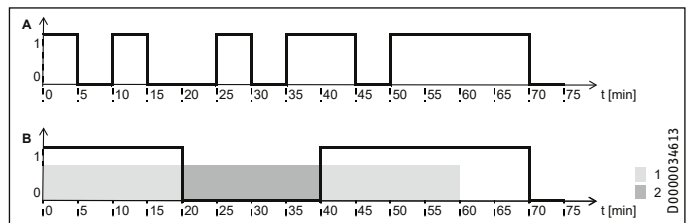
An external signal transmitter for switching a separate set DHW temperature (set temperature 2) can be connected to terminal X3/1-2. In the delivered condition, terminal X3/1-2 is not assigned. If this terminal is connected at the voltage stated in the specification (see "Permissible voltage range, external signal transmitter") (L to X3/1, N to X3/2), the appliance enables set temperature 2.

Following one-off activation (signal present for at least 1 minute), set temperature 2 applies for at least 20 minutes. When the relevant DHW set temperature has been reached, the compressor switches off and remains off for a minimum idle time of 20 minutes.

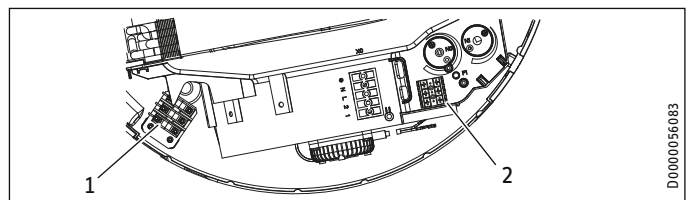
The following diagram illustrates the connections by means of a sample signal sequence from an external signal transmitter.

Example:

Water temperature	°C	55
Set temperature 1	°C	50
Set temperature 2	°C	65

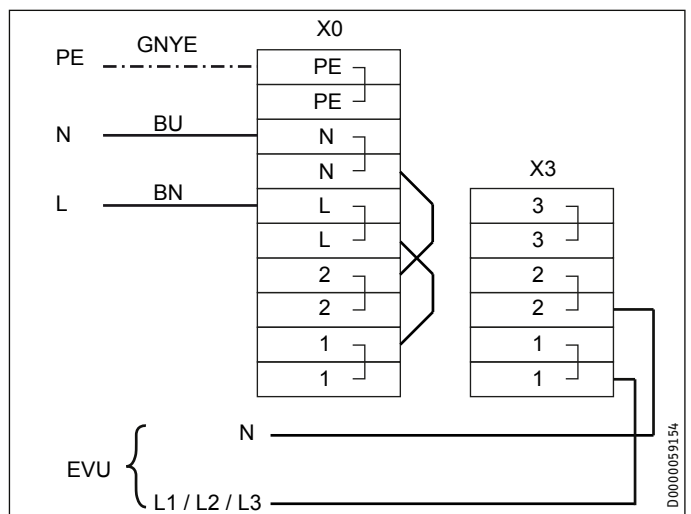


- A External signal
 B Compressor
- 20 min. minimum runtime, set temperature 2
 - 20 min. minimum compressor idle time
- ▶ Remove the appliance cover (see chapter "Cleaning and maintenance / Removing the appliance cover").



- Strain relief
 - Terminal X3
- ▶ Prepare the electric cables in such a way that they terminate with wire ferrules.
 - ▶ Push the cables through one of the cable entries in the appliance casing.
 - ▶ Route leads through the strain relief.
 - ▶ Connect the cables to X3.

Example 1: Power-OFF signal with own 230 V phase



- EVU Power supply utility
 BN Brown
 BU Blue
 GNYE Green/yellow

INSTALLATION

Commissioning

Example 2: Photovoltaic signal via on-site relay and phase routed outside the appliance

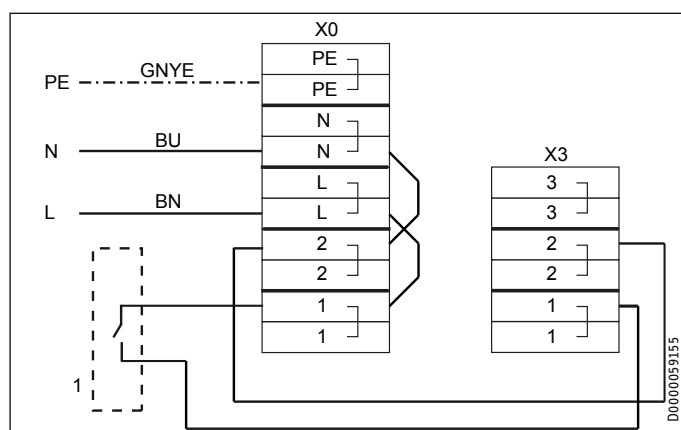


Note

The relay in the inverter must meet the following requirements:

- Potential-free relay (240 V AC / 24 V DC, 1 A) with N/O contact
- Adherence to safety regulations and standards for safety extra low voltage
- The switching output must be programmed so that the relay closes or opens if certain limits are exceeded or undershot (inverter output level).

If necessary, check with the inverter manufacturer whether the product meets the stated criteria.



- 1 Inverter (floating contact)
- BN Brown
- BU Blue
- GNYE Green/yellow

The inverter power feed is usually located at a central distribution point (e.g. in the main fuse box).

10.4 Assembling the appliance



Note

Refit the appliance cover after completing your work. See chapter "Maintenance and cleaning / Fitting the appliance cover".

11. Commissioning

11.1 Initial start-up



Note

Fill the DHW cylinder before switching on the power supply to the appliance. In case the appliance is operated with an empty DHW cylinder, it is equipped with boil-dry protection.



Note

Following an interruption of the power supply, the compressor operation remains blocked for at least one minute. The PCB delays electronic starting by a minute, during which the appliance goes through its initialising process.

If the compressor subsequently fails to start, it may be blocked by additional safety devices (motor overload relay and high pressure switch). This block should lift after 1 to 10 minutes.

11.1.1 Filling the DHW cylinder

Fill the DHW cylinder and vent the pipework by following the procedure below:

- ▶ Close the drain valve.
- ▶ Open all DHW draw-off points and the shut-off valve in the cold water supply.
- ▶ Close the DHW draw-off points as soon as water starts to emerge from them.
- ▶ Check the safety valve by leaving it open until water runs out.

11.1.2 Settings / function check

- ▶ Switch the power supply ON.
- ▶ Check the appliance function.
- ▶ Check the function of the safety assembly.

Following function check completion, reduce the set DHW temperature for more energy-conscious appliance operation.

- ▶ Establish the customer's comfort requirements and adjust the set DHW temperature accordingly. For hygiene reasons, never set the DHW temperature below 50 °C.
- ▶ Check whether the "runtime-dependent rapid heat-up" function should be enabled on the basis of the anticipated air intake temperatures and the expected DHW consumption (see chapter "Settings / Settings / Runtime-dependent rapid heat-up").

When the air intake temperature drops, the heat pump's heating output is reduced and the heat-up time is extended. In the case of outdoor installation, we recommend activating the "runtime-dependent rapid heat-up" function during the winter months and as required in spring/autumn when outside temperatures are low. Note that DHW heating with the electric emergency/booster heater uses more power than just using the heat pump.

To prevent excessive power consumption, disable the function in summer and in spring/autumn if at all possible. To avoid increased power consumption, only reduce the factory-set time for runtime-dependent rapid heat-up if necessary.

INSTALLATION

Settings

11.1.3 Appliance handover

- ▶ Explain the appliance function to users and familiarise them with its operation.
- ▶ Make the user aware of potential dangers, especially the risk of scalding.
- ▶ Make users aware of critical environmental factors and requirements concerning the installation site.
- ▶ Inform the user that enabling the "runtime-dependent rapid heat-up" function results in higher power consumption. The function should be deactivated during the summer and in spring/autumn if at all possible to prevent excessive power consumption. To avoid increased power consumption, only reduce the factory-set time for runtime-dependent rapid heat-up if necessary.
- ▶ Inform users that water may drip from the safety valve during the heat-up process.
- ▶ Please note that the appliance is not protected against frost and corrosion when it is disconnected from the power supply. If voltage is supplied to the impressed current anode and the PCB separately, the appliance remains protected against corrosion.
- ▶ Hand over these operating and installation instructions to users for safekeeping.

11.2 Recommissioning

If the appliance is switched off due to an interruption to the power supply, no specific measures for restarting are required once the power supply has been restored. The appliance has saved the parameters most recently set and continues operating with these.

If the rapid/comfort heating function was active before interruption of the power supply, this is reactivated with a set temperature of 65 °C once the power supply has been restored.

Emergency mode is not reactivated after an interruption of the power supply.



Note

Following an interruption of the power supply, the compressor operation remains blocked for at least one minute. The PCB delays electronic starting by a minute, during which the appliance goes through its initialising process.

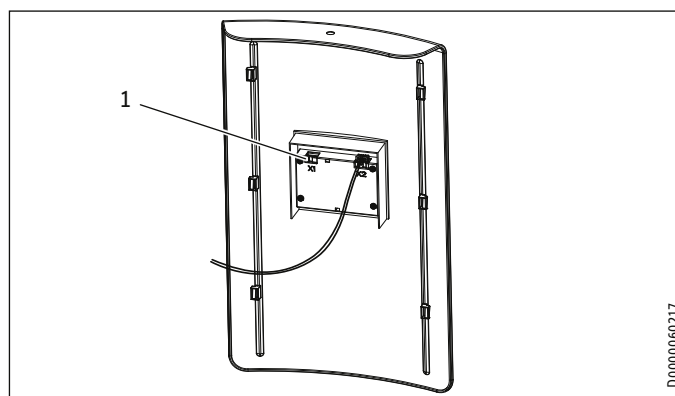
If the compressor subsequently fails to start, it may be blocked by additional safety devices (motor overload relay and high pressure switch). This block should lift after 1 to 10 minutes.

12. Settings

■ Service menu

To unlock the service menu, you need to connect a service plug or enter a code.

Accessing the service menu with a service plug



1 Slot X1

- ▶ Plug the service plug into slot X1 on the back of the programming unit.

Accessing service menu via code entry



Press the "Menu" key for longer than 3 s. The software version number of the controller PCB appears.

Example:

Display	Version number
301	3.1.00



To display the software version number of the programming unit PCB, press the "Plus" key.

Example:

Display	Version number
-103	1.3.00



To go to code entry, press the "Minus" key.

To go from the software version number of the controller PCB directly to code entry, press the "Minus" key.



To go to code digit scanning, press the "Rapid heat-up" key. The currently active digit flashes.



Set the first digit using the "Plus" and "Minus" keys.





To set the next digit, press the "Rapid heat-up" key.

To confirm the code after entering all digits, press the "Rapid heat-up" key.

■ Service menu	
<input type="checkbox"/>	■ Integral sensor offset
<input type="checkbox"/>	■ Adjust cylinder volume
<input type="checkbox"/>	■ Compressor lockout due to evaporator fault
<input type="checkbox"/>	■ Clear high pressure lockout
<input type="checkbox"/>	■ Clear low pressure lockout
<input type="checkbox"/>	■ Temperature of evaporator fins
<input type="checkbox"/>	■ Number of times hot gas temperature sensor was triggered
<input type="checkbox"/>	■ Number of defrost faults
<input type="checkbox"/>	■ Number of low pressure triggers
<input type="checkbox"/>	■ Number of high pressure triggers
<input type="checkbox"/>	■ Hot gas temperature switching value
<input type="checkbox"/>	■ Fan lead time
<input type="checkbox"/>	■ Integral sensor replacement
<input type="checkbox"/>	■ Set value limit

The parameters in this menu are reserved for qualified contractors.

13. Appliance shutdown



Material losses

If you disconnect the appliance from the power supply, it is no longer protected against frost or corrosion.

- ▶ Only disconnect the appliance from the power supply for longer periods if you are also draining the DHW cylinder. See chapter "Maintenance / Draining the appliance".

The appliance can only be switched off by interrupting the power supply.

- ▶ Disconnect the power supply at the fuse/MCB in the domestic distribution board.

14. Troubleshooting



WARNING Electrocution

Prior to all work on the appliance, isolate it from the power supply.



Material losses

If you disconnect the appliance from the power supply, it is no longer protected against frost or corrosion.

- ▶ Only disconnect the appliance from the power supply for longer periods if you are also draining the DHW cylinder.

- ▶ For work inside the appliance, remove the appliance cover (see chapter "Cleaning and maintenance / Removing the appliance cover").
- ▶ If necessary, remove the upper section of the casing jacket (see chapter "Maintenance and cleaning / Removing the casing ring").



Note

Refit the casing ring after completing the work. See chapter "Maintenance and cleaning / Fitting the casing ring").





Note


Refit the appliance cover after completing your work. See chapter "Maintenance and cleaning / Fitting the appliance cover").

INSTALLATION

Troubleshooting

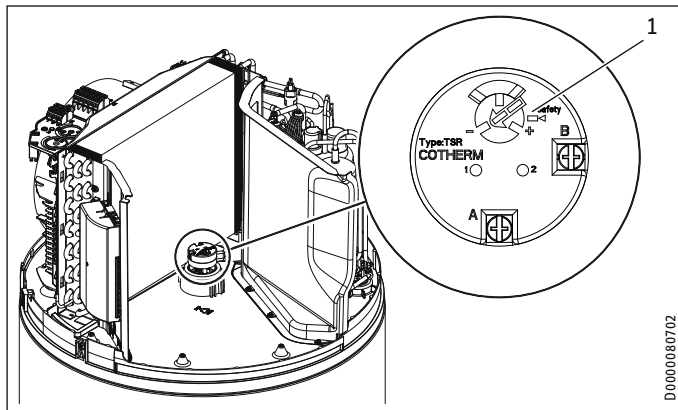
14.1 Fault codes

		Fault description	Remedy
2	Steadily on	The sensor at the cylinder top is faulty. The actual temperature display switches from the cylinder top sensor to the integral sensor. The appliance continues to heat without any loss of comfort. The mixed water volume cannot be calculated and is displayed as "- -".	<p>Check that the plug is seated correctly.</p> <hr/> <p>Measure the resistance of the sensor and compare it with the resistance table.</p> <p>Install the replacement sensor.</p>
4	Steadily on	The integral sensor is faulty. In the event of a faulty integral sensor, the integral sensor is set to the value of the sensor at the cylinder top, and amount of mixed water is calculated using this value. The appliance continues to heat with a reduced start hysteresis. A mixed water volume is still calculated, based on the assumption that the cylinder top temperature is reached throughout the DHW cylinder.	<p>Check that the plug is seated correctly.</p> <hr/> <p>Measure the resistance of the sensor and compare it with the resistance table.</p> <p>Install the replacement sensor.</p> <p>In the service menu, use parameter "IE" to switch to standby mode.</p>
6	flashing	The sensor at the cylinder top and the integral sensor are faulty. The appliance no longer delivers heat.	<p>Check that the plug is seated correctly.</p> <hr/> <p>Measure the resistances of the sensor and compare them with the resistance table.</p> <p>Install the replacement sensor.</p> <p>In the service menu, use parameter "IE" to switch to standby mode.</p>
8	flashing	The appliance has ascertained that the DHW cylinder has not been heated within the maximum temperature increase time, despite there being a demand.	<p>Check the refrigerant circuit for leaks.</p>
16	Steadily on	A short circuit of the impressed current anode has occurred or the protective anode is faulty.	<p>Check the cables and relevant plug-in connections of the impressed current anode according to the connection diagram and replace faulty cables.</p> <p>Check the impressed current anode in the heating element/anode assembly and replace if required.</p>
32	flashing	The appliance is being operated with a partially filled DHW cylinder. The appliance does not heat up. The anode current is interrupted. The appliance does not heat up.	<p>Fill the appliance's DHW cylinder. The fault code disappears and the appliance starts.</p> <hr/> <p>Check the contacts of the impressed current anode.</p>
64	 Steadily on	The defrost temperature has not yet been reached after the maximum defrost time has lapsed. The compressor is faulty.	<p>Check the position of the evaporator sensor in the evaporator.</p> <hr/> <p>Check the response of the solenoid diverter valves when the appliance voltage is connected. If required, replace the coil body.</p> <p>Replace the solenoid valve body.</p>
128	Steadily on	There is no communication between the controller and the programming unit. The most recently selected set values are active. The appliance continues to deliver heat.	<p>Check that the plug is seated correctly, and if required, replace the connecting cable.</p> <hr/> <p>Replace the programming unit PCB.</p>
256	flashing	Manually activated emergency mode (only electric emergency/booster heater enabled)	<p>See chapter "Appliance description / Emergency mode".</p>
512	flashing	A fault has occurred in the refrigerant circuit.	<p>Check the refrigerant circuit for leaks.</p> <p>Check the function and setting of the expansion valve.</p>
E 1	flashing	The temperature sensor on the air inlet is faulty.	<p>Check that the plug is seated correctly.</p> <p>Measure the resistance of the sensor and compare it with the resistance table.</p> <p>Replace the sensor.</p>
E 2	flashing	The temperature sensor on the evaporator is faulty.	<p>Check that the plug is seated correctly.</p> <p>Measure the resistance of the sensor and compare it with the resistance table.</p> <p>Replace the sensor.</p>
E 4	Steadily on	The hot gas temperature sensor is faulty. The appliance continues to deliver heat. To protect the appliance, the (possibly higher) set temperature is reduced to the set value for setback.	<p>Check that the plug is seated correctly.</p> <hr/> <p>Measure the resistance of the sensor and compare it with the resistance table.</p> <p>Replace the sensor.</p>
E 16	Steadily on	The high pressure limiter has responded. Compressor heating mode is temporarily blocked. Compressor heating mode will continue as soon as the pressure has normalised.	<p>No action required.</p> <hr/> <p>After consultation with the customer, reduce the set temperature if required. Increase the charge level with the programming unit.</p> <p>Check the offset of the integral sensor to the cylinder top sensor and adjust if required.</p> <p>Check the high pressure switching point and replace the high pressure switch if required.</p>
E 32	Steadily on	An electrical fault has occurred.	<p>A1/X2: Check whether the power supply has been interrupted. Then reset the fault with the corresponding menu option.</p>

		Fault description	Remedy
E 64	flashing	Evaporator temperature < minimum evaporator temperature	<p>Check whether the evaporator is clogged with deposits. If required, clean the evaporator with clear water without cleaning agents or other additives.</p> <p>Check whether the air can flow freely through the appliance.</p> <p>Check whether the fan is blocked or faulty. Replace the fan if required.</p> <p>Check the function and setting of the expansion valve.</p>
E 128	flashing	A permanent pressure switch fault has occurred. A pressure fault occurred multiple times within a defined pressure fault evaluation time.	<p>Check the relevant fault counter and find the corresponding fault code remedy: E 16 (high pressure), E 32 (electrical wiring fault). Once the cause of the fault has been eliminated, reset the fault code under menu option "Hd 1" by pressing the "Rapid heat-up" key.</p>

14.2 Resetting the high limit safety cut-out

If the DHW cylinder is overheated, the high limit safety cut-out switches off the electric emergency/booster heater to protect the appliance.



1 Reset button for high limit safety cut-out

- ▶ Once the cause of the fault has been removed, press the reset button of the high limit safety cut-out on the rod thermostat. To do so, remove the appliance cover.

14.3 Motor overload relay

In the event of excessive thermal load on the compressor, the motor overload relay switches the compressor off.

- ▶ Remove the cause.

After a short cooling period, the motor overload relay will restart the compressor automatically.

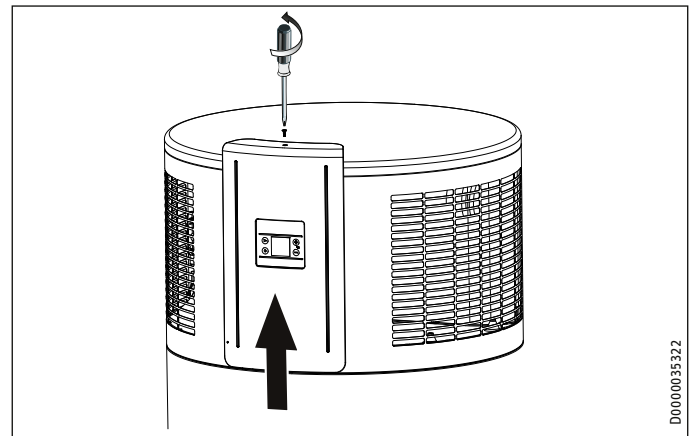
15. Maintenance and cleaning



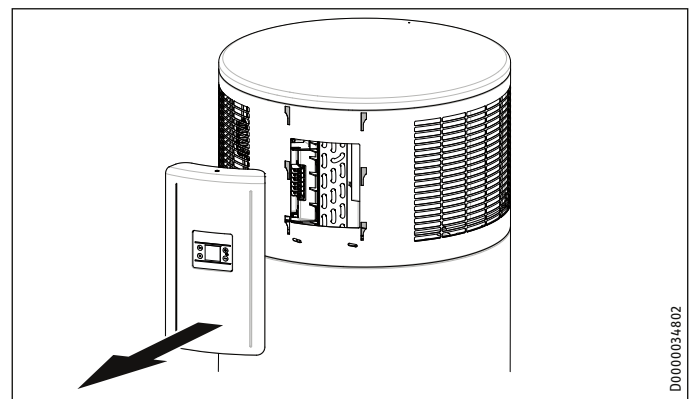
WARNING Electrocution

Prior to all work on the appliance, isolate it from the power supply.

15.1 Removing the appliance cover



- ▶ Undo the screw (Torx) that secures the control fascia to the appliance.
- ▶ Push the control fascia upwards.



- ▶ Remove the control fascia.
- ▶ A lead connects the operating controls to the appliance PCB. If necessary, pull the plug from the back of the control fascia to fully remove the control fascia.
- ▶ Carefully lift away the appliance cover and undo the earth cable that runs from the appliance control panel to the cover.



Note

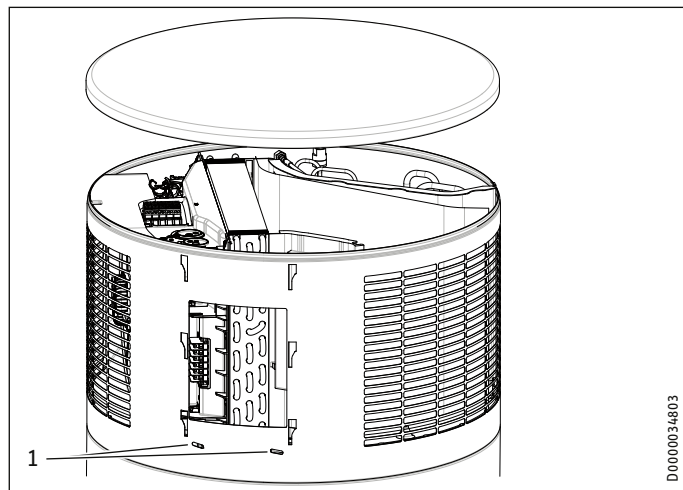
Refit the appliance cover after completing your work. See chapter "Maintenance and cleaning / Fitting the appliance cover".

15.2 Removing the casing ring



Note

If you require more space to work inside the appliance, you can remove the casing ring on the upper section of the appliance.



D0000034803

1 Fixing screws on casing ring

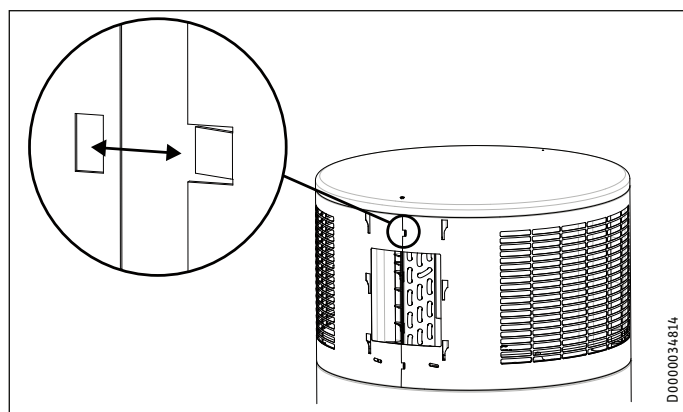
The casing ring is fastened with screws.

- ▶ Undo the fixing screws on the casing ring.
- ▶ Remove the condensate drain bend and pipe collar of the drain. Turn anti-clockwise to undo them.



Material losses

An earth cable is connected to the inside of the casing ring. The casing ring can only be removed after the earth cable has been detached.



D0000034814

The casing ring overlaps along the joint. A tab on one end clips into the recess at the other end of the casing ring.

- ▶ Ease the casing ring apart, until it can be removed or slid downwards.



Note

Refit the casing ring after completing the work. See chapter "Maintenance and cleaning / Fitting the casing ring".

15.3 Clean the evaporator.



WARNING Injury

The evaporator consists of numerous sharp-edged fins. Be careful when cleaning the evaporator and wear protective clothing, especially safety gloves.

To maintain a consistently high appliance output, check the evaporator of the appliance regularly for contamination, and clean as necessary.

- ▶ Carefully clean the evaporator fins. Only use water and a soft brush for this. Never use acidic or alkaline cleaning agents.

15.4 Drain cylinder



WARNING Burns

Hot water may escape when draining the DHW cylinder.

To drain the DHW cylinder, e.g. when shutting the appliance down, proceed as follows.

- ▶ Isolate the appliance from the power supply.
- ▶ Close the shut-off valve in the cold water inlet line.

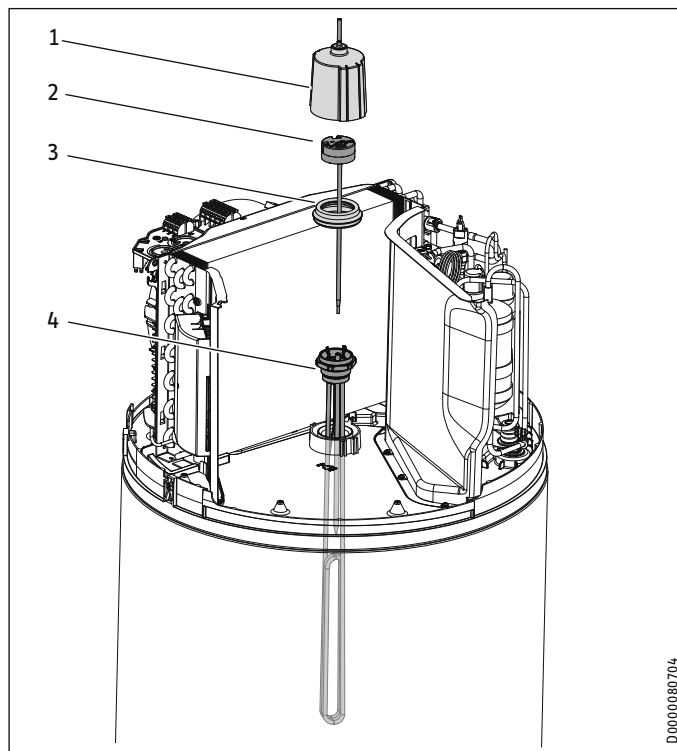
The DHW cylinder is drained via the cold water supply line.

- ▶ Open the drain valve installed in the cold water supply line (see chapter "Water connection"). If no drain valve has been installed, undo the cold water supply line at the "Cold water inlet" connection.
- ▶ To vent the system, undo the DHW line connected to the "DHW outlet" connection.

Some residual water will remain in the lower section of the DHW cylinder.

15.5 Descaling the electric emergency/booster heater

Only descale the flange of the electric emergency/booster heater after removing it, and never treat the interior of the DHW cylinder and the impressed current anode with descaling agents. The electric emergency/booster heater is screwed into the DHW cylinder of the appliance at a central point at the top.



- 1 Cap
- 2 Temperature controller of the electric emergency/booster heater
- 3 Rubber grommet
- 4 Electric emergency/booster heater with protective anode

15.6 Protective anode

The flange of the electric emergency/booster heater is equipped with a protective anode that protects the appliance from corrosion while it is connected to the power supply. The protective anode is a maintenance-free impressed current anode.

If a fault code in the display indicates that the protective anode is faulty, proceed as follows:

- ▶ Remove the controller of the electric emergency/booster heater.
- ▶ Check the protective anode and its wiring.
- ▶ Refit the controller of the electric emergency/booster heater.

15.7 Valves

Regularly check the valves in the system (safety valve, pressure reducing valve, drain valve) to ensure the operational reliability of the appliance. The amount of limescale deposits depends on the local water quality.

- ▶ Check all valves in the system and remove limescale deposits.
- ▶ Replace the valves if necessary.
- ▶ Check the function of the valves.

15.8 Condensate drain

- ▶ Check whether the condensate drain is clear of obstructions. Remove contaminants.

15.9 Replacing the power cable

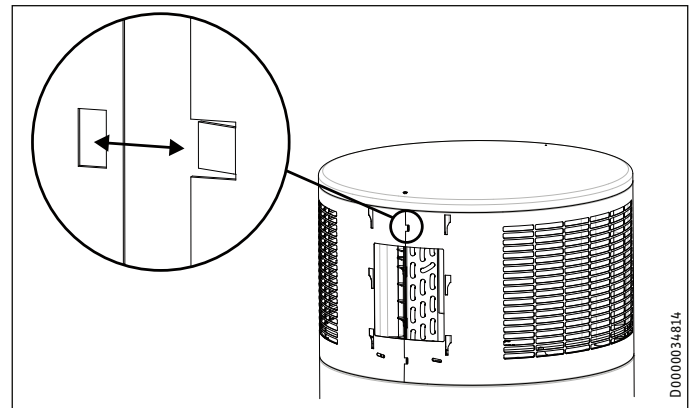


WARNING Electrocutation
If the power cable is faulty, replace it with a new one. The power cable should only be replaced by a qualified contractor (connection type X).

15.10 Fitting the casing ring



WARNING Electrocutation
▶ Reconnect the earth cable to the casing ring.



- ▶ Fit the upper casing ring. The casing ring overlaps along the joint. A tab on one end clips into the recess at the other end of the casing ring.
- ▶ Secure the casing ring with screws.
- ▶ Fit the pipe collar of the condensate drain and the condensate drain bend.

15.11 Fitting the appliance cover



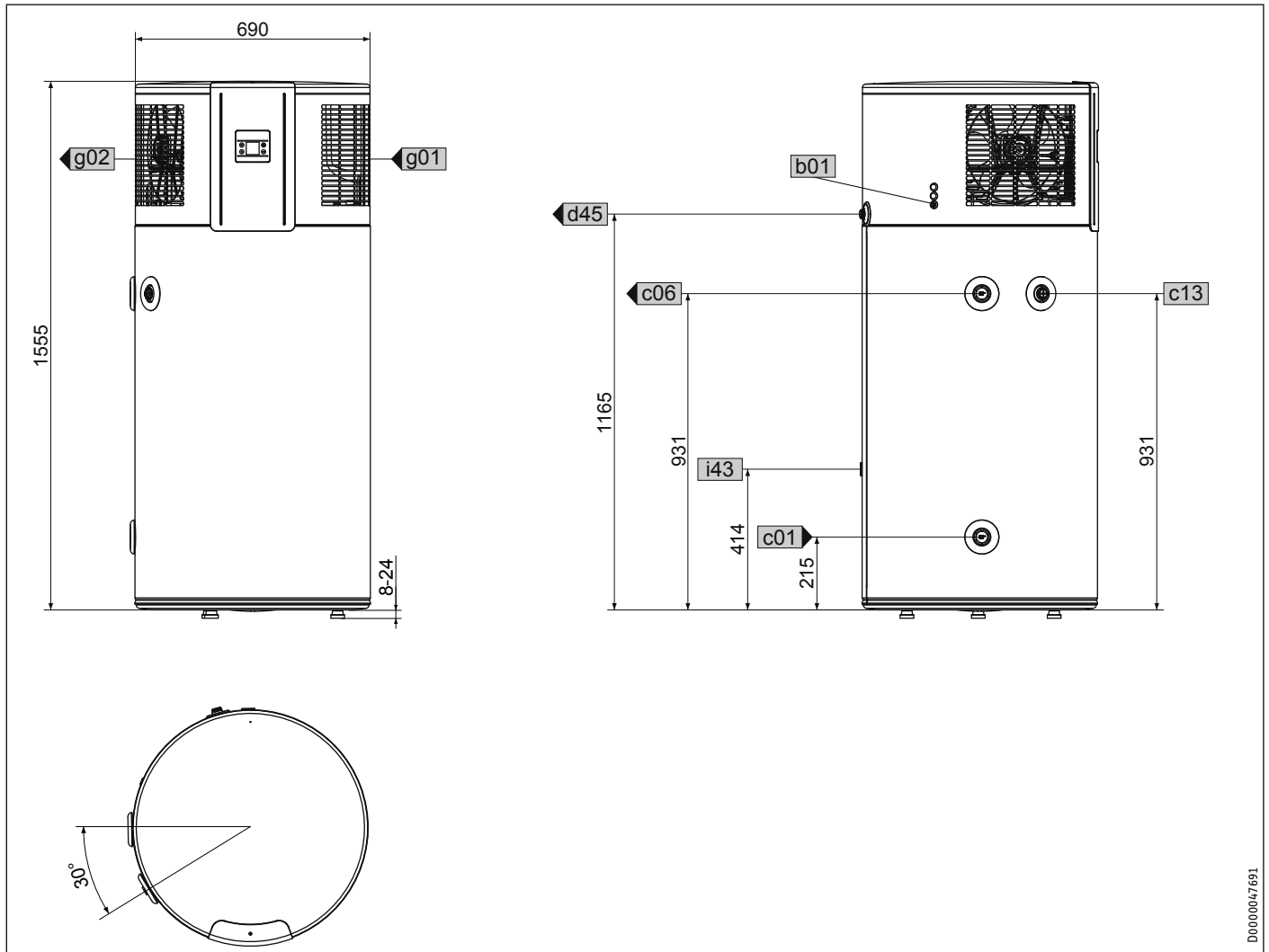
WARNING Electrocutation
▶ Reconnect the earth cable to the appliance cover.

- ▶ Place the cover back on the appliance.
- ▶ Press the cover into the bead around the casing ring.
- ▶ The cable linking the controls to the PCB inside the appliance should be connected at the back of the fascia.
- ▶ Insert the control fascia.
- ▶ Secure the control fascia by winding in the screw at the top of the control fascia.

16. Specification

16.1 Dimensions and connections

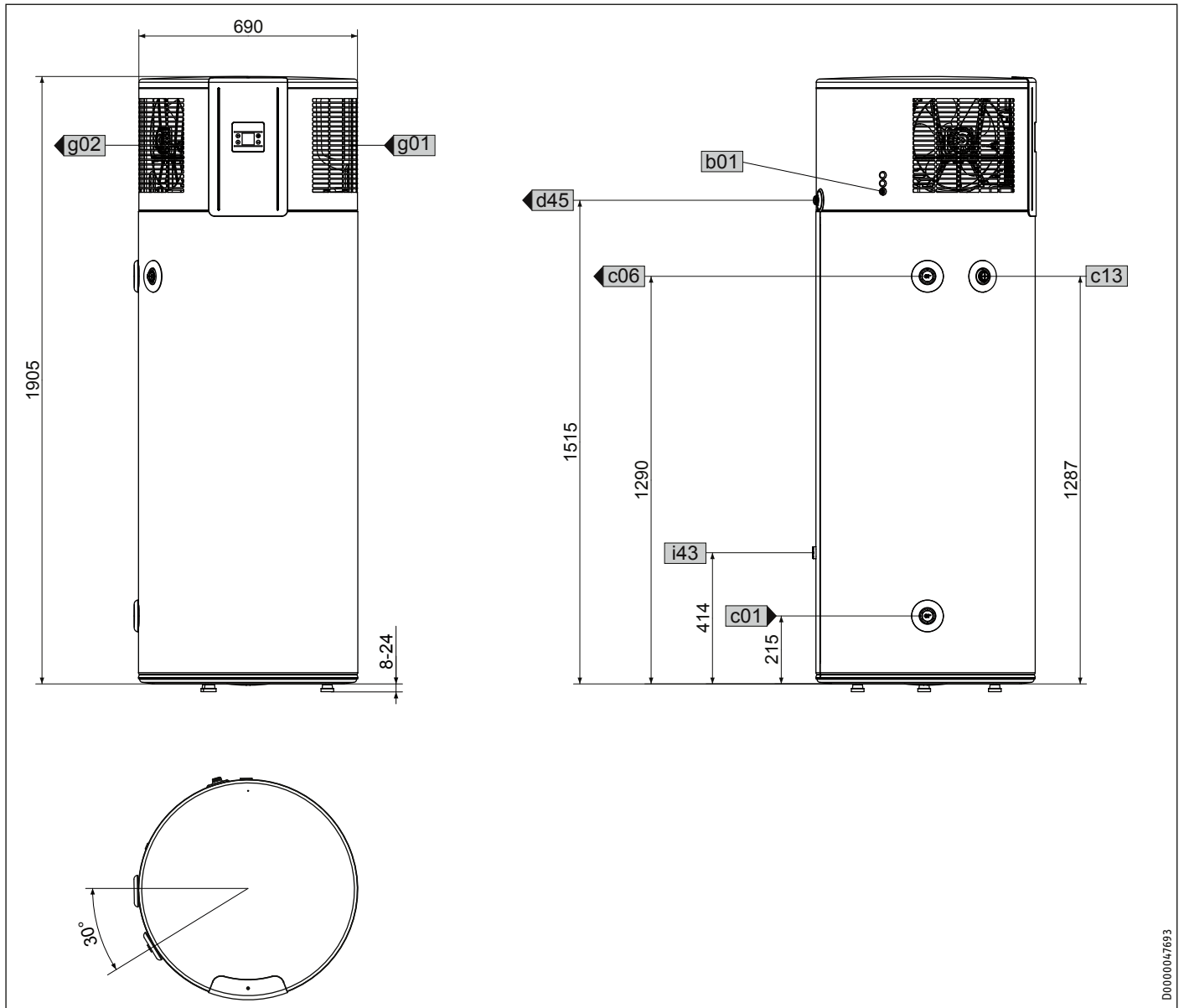
16.1.1 WWK 223 electronic



WWK 223 electronic			
b01	Entry electrical cables		
c01	Cold water inlet	Male thread	G 1
c06	DHW outlet	Male thread	G 1
c13	T&P valve	Female thread	G 3/4
d45	Condensate drain	Male thread	G 3/4
g01	Air intake		
g02	Air discharge		
i43	Cover for manufacturing aperture		

INSTALLATION Specification

16.1.2 WWK 303 electronic

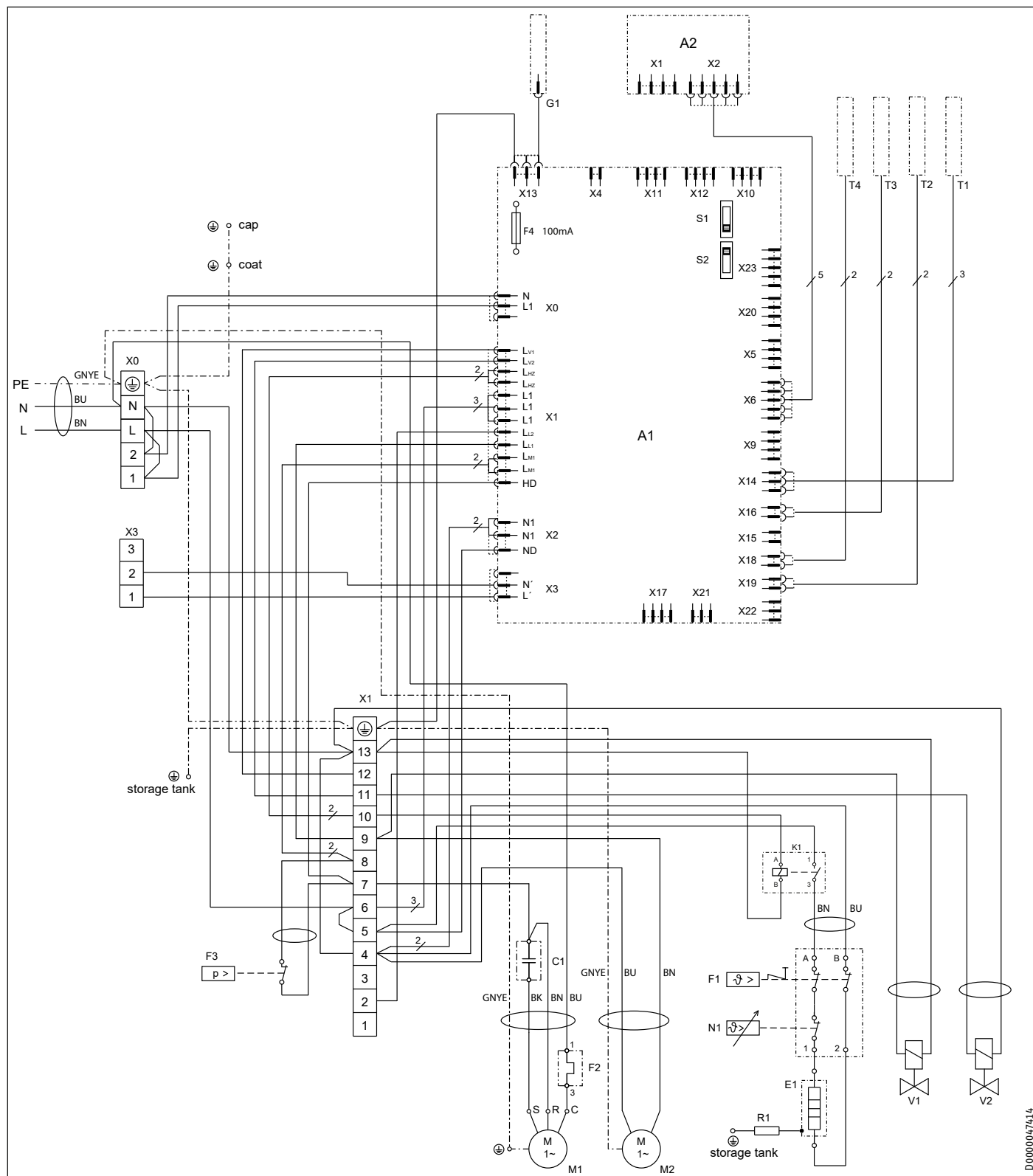


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WWK 303 electronic			
b01	Entry electrical cables		
c01	Cold water inlet	Male thread	G 1
c06	DHW outlet	Male thread	G 1
c13	T&P valve	Female thread	G 3/4
d45	Condensate drain	Male thread	G 3/4
g01	Air intake		
g02	Air discharge		
i43	Cover for manufacturing aperture		

INSTALLATION Specification

16.2 Wiring diagram



DC000047414

INSTALLATION

Specification

A1	Electronic assembly (control unit)	S1	DIP switch
A2	Electronic assembly (programming unit)	S2	DIP switch
C1	Capacitor	T1	Cylinder top/integral temperature sensors
E1	Heating element	T2	Temperature sensor, hot gas
F1	High limit safety cut-out TSR	T3	Temperature sensor, air intake
F2	Motor overload relay M1	T4	Temperature sensor, evaporator
F3	High pressure switch	V1	Solenoid valve ('live' in heating mode)
F4	Fuse	V2	Solenoid valve ('live' in defrost mode)
G1	Impressed current anode	X0	Mains terminal
K1	Relay (heating element)	X1	Terminal
M1	Compressor	X3	Terminal (External signal)
M2	Fan	Behälter	Cylinder
N1	Thermostat TSR	Kappe	Cap
R1	Resistance	Mantel	Jacket

16.3 Fault conditions



WARNING Burns

In the case of a fault, temperatures up to the high limit safety cut-out limit can occur (see "Specification / Data table" chapter).

INSTALLATION Specification

16.4 Data table

		WWK 223 electronic	WWK 303 electronic
		234406	234405
Hydraulic data			
Nominal capacity	l	220	302
Application limits			
Max. DHW temperature with heat pump	°C	65	65
Max. DHW temperature with emergency/booster heater	°C	65	65
High limit safety cut-out	°C	92	92
Min./max. application limits of heat source for heat pump operation	°C	-5/+42	-5/+42
Min./max. application limits for cylinder ambient temperature	°C	-5/+55	-5/+55
Max. permissible operating pressure, cold water/DHW	MPa	0,85	0,85
Min./max. conductivity, potable water	µS/cm	100-1500	100-1500
Output data			
CEL (China Energy Label)		2	3
Energy data			
DHW heating energy efficiency class (load profile), indoor air		A+ (L)	A+ (XL)
Output data to EN 16147			
Nominal DHW temperature (EN 16147)	°C	55	55
Nominal load profile (EN 16147)		L	XL
Heating output			
Average heating output (A15 / W10-55)	kW	1.6	1.6
Power consumption			
Average power consumption of heat pump (A15 / W10-55)	kW	0.5	0.5
Max. heat pump power consumption (excl. start-up)	kW	0.68	0.68
Power consumption, emergency/booster heater	kW	3.15	3.15
Max. power consumption, heat pump + emergency/booster heater	kW	3.65	3.65
Electrical data			
Rated voltage	V	220 230	220 230
Power supply		1/N/PE 220V 50/60hz	1/N/PE 220V 50/60hz
Permissible voltage range, external signal transmitter		~ 220V 50Hz	~ 220V 50Hz
Max. operating current	A	17,51	17,51
Max. starting current	A	29,37	29,37
Fuse protection	A	C20	C20
Sound emissions			
Sound power level (EN 12102)	dB(A)	60	60
Average sound pressure level at 1 m distance, free field	dB(A)	45	45
Versions			
IP rating		IP 24	IP 24
Refrigerant		R134a	R134a
Refrigerant charge	kg	0.85	0.85
Global warming potential of the refrigerant (GWP100)		1430	1430
CO ₂ equivalent (CO ₂ e)	t	1.216	1.216
Power cable length approx.	mm	2000	2000
Dimensions			
Height	mm	1501	1905
Diameter	mm	690	690
Height when tilted	mm	1652	2026
Height when tilted incl. packaging	mm	1895	2230
Packing unit dimensions height/width/depth	mm	1740/740/740	2100/740/740
Weights			
Weight, empty	kg	120	135
Connections			
Condensate connection		G 3/4 A	G 3/4 A
Safety valve connection		G 3/4	G 3/4
Water connection		G 1 A	G 1 A
Values			
Type of anode		Impressed current anode	Impressed current anode
Air flow rate	m ³ /h	550	550
Recommended number of users		≤ 4	≤ 6

The output data refers to new appliances with clean heat exchangers.

Nominal data to EN 16147 – heat pump for recirculated air.

INSTALLATION

Specification

Further details

		WWK 223 electronic	WWK 303 electronic
		234406	234405
Maximum altitude for installation	m	2000	2000

16.5 Appliance parameters

		WWK 223 electronic	WWK 303 electronic
Reduced start hysteresis	K	6	6
Maximum temperature increase time	h	13	13
Maximum defrost time	min	180	180
Defrost end temperature	°C	5	5
Set setback value	°C	52	52
minimum evaporator temperature	°C	-20	-20
Recurring pressure fault	-	5	5
Pressure fault evaluation time	h	5	5
Compressor lockout time	min	20	20
Set rapid heating temperature	°C	65	65
Start temperature for the frost protection function	°C	8	8
Set temperature 1 (Factory setting)	°C	62	62
Time set for the "runtime-dependent rapid heat-up" function (Factory setting)	°C	10	10

Guarantee

The guarantee conditions of our German companies do not apply to appliances acquired outside of Germany. In countries where our subsidiaries sell our products a guarantee can only be issued by those subsidiaries. Such guarantee is only granted if the subsidiary has issued its own terms of guarantee. No other guarantee will be granted.

We shall not provide any guarantee for appliances acquired in countries where we have no subsidiary to sell our products. This will not affect warranties issued by any importers.

Environment and recycling

We would ask you to help protect the environment. After use, dispose of the various materials in accordance with national regulations.

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特殊提示

- 允许年满 8 周岁的儿童以及身体、感知及精神能力较低或缺乏经验知识的人, 在受到监督或经过安全使用设备方面的指导, 并理解由此产生的危险的前提下, 使用该设备。禁止儿童玩耍该设备。禁止儿童在没有监护的情况下进行清洁和用户保养。
- 在安装时请注意所有国家和地区规范及规定。
- 请保持最小距离 (参见章节"安装/准备/设备安装")。
- 注意安装室的条件 (参见章节"技术数据/数据表")。
- 电源接口只允许为固定式接口。其连接的固定布线必须按布线规则配有触点开距至少 3 mm 的全极断开装置。通过接触器、线路保护开关、保险丝等满足这一要求。
- 请注意采取保护措施, 防止高压触电。
- 注意设备所需的保险丝 (参见章节"技术数据 / 数据表")。
- 在电气连接导线损坏或需要更换时, 只允许经生产商授权的专业人员执行更换工作 (连接方式 X)。
- 设备承压运行。在加热时, 膨胀水会从安全阀中滴出。
- 请定期操作安全阀, 以防止诸如因钙沉淀而卡住。
- 请按章节"安装/保养和清洁/清空水箱"一章所述清空设备。
- 请将取得工装样件检测的温度压力安全阀安装在设备上专设的"T&P 阀门"接口上。
- 在冷水输入管路中安装一个经过工装样件检测的安全阀。
- 冷水输入管路中的最高压力必须至少低于安全阀反应压力 20 %。在冷水输入管路中出现更高的最高压力时, 必须安装一个减压阀。
- 以持续向下倾斜的坡度安装安全阀的排水管线。
- 确定排水管的尺寸时, 请确保在完全打开安全阀时, 水可以无阻碍地流出。
- 安全阀的排泄孔必须始终朝空旷环境方向打开。

操作

1. 一般信息

"特殊提示"和"操作"章节是为设备用户和专业人员准备的。

"安装"章节是为专业人员准备的。



提示
在使用前请认真通读本说明书并将它妥善保存好。
必要时请将说明书转交给下一位用户。

1.1 安全提示

1.1.1 安全提示的结构



信号词, 危险类型
这里列出了不遵守安全提示时可能出现的后果。
▶ 以下是排除危险的措施。

1.1.2 标志, 危险类型

标志	危险类型
	受伤
	电击
	烧伤 (烧伤, 烫伤)

1.1.3 信号词

信号词	含义
危险	在不遵守时会导致重伤或死亡后果的提示。
警告	在不遵守时可能导致重伤或死亡后果的提示。
小心	在不遵守时可能导致中等程度伤害或轻伤的提示。

1.2 本文档中的其他标记



提示
通过旁边的标志标识一般信息。
▶ 请认真通读提示文本。

标志	含义
	财产损失 (设备、间接以及环境损害)
	设备的废弃处理

▶ 该标志向您展示您必须做什么。将逐步说明所需的操作。

1.3 尺寸单位



提示
如无其他说明, 所有尺寸的单位为毫米。

1.4 依据标准的功率参数

所提供功率参数相关确定和解释依据标准的说明

标准: EN 16147

文本、图表和技术数据表中特别给出的功率参数, 是根据本章标题中所述的测量条件确定的。

通常情况下, 标准测量条件与设备用户的现有条件不完全相同。根据所选的测量方法以及选定的方法与本章标题中所述标准条件的偏差程度, 可能存在较大幅度的偏差。影响测量值的其他因素包括量具、设备状态、设备服役时间和流量。

只有在本章标题中所述的标准条件下测量, 才能确定所给出的功率参数。

2. 安全

2.1 按规定使用


此设备用于加热生活热水, 且不超过"技术数据/数据表"一章中所述的使用极限。


设备是为在家庭环境中使用而设计的。可以由未经过指导的人员安全地操作它。在非家庭环境, 例如在小企业中, 如果以相同方式使用, 同样可以使用该设备。


其他或者超出此范围的使用被视为不符合规定。正确使用也包括遵守本说明书以及所使用附件的说明书。


2.2 一般安全提示


只有在设备完整安装并配有全部安全装置的情况下，才可将本设备投入运行。

 **警告, 受伤**
允许年满 8 周岁的儿童以及身体、感知及精神能力较低或缺乏经验知识的人, 在受到监督或经过安全使用设备方面的指导, 并理解由此产生的危险的前提下, 使用该设备。禁止儿童玩耍该设备。禁止儿童在没有监护的情况下进行清洁和用户保养。


 **警告, 电击**
触碰通电部件存在致命危险。绝缘部件或各个部件损坏存在致命危险。
▶ 绝缘部件损坏后, 须关闭电源并安排维修。所有电气类安装作业必须由专业人员执行。


 **警告, 烧伤**
生活热水水箱内的水不允许加热超过 60 °C。在出口温度高于 43 °C 时, 存在烫伤危险。
▶ 确保不要触碰流出的水。


 **警告, 烧伤**
触碰高温部件可造成烫伤。在高温部件附近执行任何作业时, 均须穿戴劳保服和防护手套。连接在设备热水出口上的管路, 其温度可能超过 60 °C。


 **警告, 烧伤**
设备出厂时已加注了制冷剂。如果制冷剂发生泄漏, 请勿触碰制冷剂并且防止吸入逸出的蒸汽。请确保该空间有足够的通风。


 **警告, 电击**
不允许在壳体敞开或不盖上盖子的情况下运行设备。


 **小心受伤**
不要在设备上放置物品。设备上放置的物品可能由于壳体产生更大的振动而掉落伤人。

 **财产损失**
如果设备与设备断开, 则其无法防冻和防腐蚀。
▶ 请不要切断设备的电源。如果电源通过外加电流阳极和电子装置单独供电, 那么设备处于防蚀保护之下。


 **财产损失**
不能遮盖设备。盖住进气口和出气口将导致进气流下降。进气流下降不能保证设备的操作安全性。


 **财产损失**
运行设备时, 生活热水水箱须注水。生活热水水箱没有水后, 设备的安全装置将会切断。

 **财产损失**
不允许加热生活热水以外的其他液体。

 **财产损失**
确保设备的安装地点没有含油和含盐(含氯)的空气、腐蚀性或爆炸性材料。避免安装地点出现浓重的灰尘、喷雾发胶或含氯含氨的物质。

 **财产损失**
使设备以及水管路和安全阀无霜冻。

 **财产损失**
设备运行时不允许超过使用极限(参见“技术数据/数据表”章节)。连续在超出使用极限的状态下运行, 可能损坏设备。

 **提示**
设备承压运行。在加热时, 膨胀水会从安全阀中滴出。
▶ 如果在加热结束之后仍有水滴出, 请通知专业人员。

2.3 检测标志

参见设备上的铭牌。

3. 设备说明

本设备使用可再生能源为多个取水点高效供应生活热水。本设备吸收环境空气的热量。这些热量在通电的情况下被用作加热生活热水水箱中的水。电量需求以及生活热水制备的加热时间取决于吸入空气的温度。吸入的空气温度低, 热泵的热功率降低, 加热时间变长。

室内安装时, 通过吸收空气热量可使安装室降低 1 °C 到 3 °C 的温度。本设备也能抽取空气中凝结的水分。凝结水通过冷凝水出口排出设备。

内置的触点输入端上可连接一个外部信号发生器, 例如光伏设备, 可以使用太阳能发电。

打开一个热水取水点后, 热的生活热水被进入的低温生活热水压出设备。

设备顶部装有热泵机组。设备底部装有生活热水水箱。生活热水水箱内部装备有防蚀保护的搪瓷并附加了一个非耗材外部电流防蚀阳极。

电子调节装置有利于节能调整。根据电源及其取水状态自动加热至设定温度。

可用的生活热水量

设备最高可使用的额定生活热水量为具有平均用户状态的推荐的用户数量设计的。

如果尽管达到推荐的用户数量但生活热水量不足, 原因可能包括:

- 个性化的生活热水需求量超过平均水平。
- 选装的循环管道隔热不足。
- 循环泵不受热量或时间控制。

3.1 热泵的功能原理

设备内部的闭合回路含有制冷剂 (参阅"技术数据/数据表")。制冷剂的特性是低温时便会蒸发。

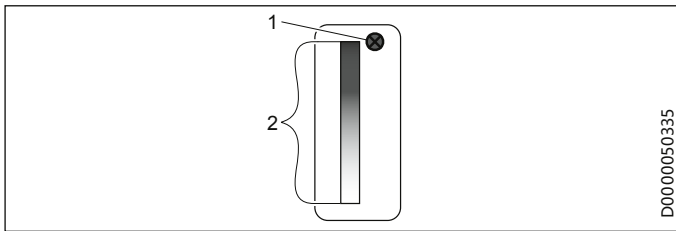
吸取空气热量的蒸发器将制冷剂从液体状态转化为气体状态。压缩机吸入气体制冷剂并进行压缩。制冷剂温度由于压力增加而升高。此处则需要使用电能。能量 (电机热量) 不会消失, 而是随着被压缩的制冷剂进入后置的冷凝器。在这里, 制冷剂将热量释放到生活热水水箱。之后膨胀阀卸去尚存的压力并开始另一轮循环。



提示

电源中断后, 压缩机运行至少锁闭一分钟。电子装置延迟通电一分钟, 设备在此期间初始化。如果之后压缩机不需要运转, 它可以通过额外的保险元件 (电机保护开关和高压开关) 锁闭。1 到 10 分钟后应取消锁闭状态。恢复供电后, 设备以断电前设定的参数工作。

3.2 加热生活热水



- 1 主体传感器
- 2 集成式传感器

设备装有两个温度传感器。

- 主体传感器会测量上部水箱区的水温。
- 集成式传感器是一种沿整个水箱高度粘贴的温度探测器。集成式传感器感测水箱平均温度。

在设备显示屏内显示主体传感器感测到的水箱顶部区域的温度。设备调节装置根据集成式传感器感测到的水箱平均温度工作。

如果可用的混合水量降到参数"负载级别"中设定的混合水量最大百分比, 则启动生活热水加热。

可能出现主体传感器测到的温度始终等于设定温度的情况。

有关加热时间的信息, 请参见章节"技术数据"。基于水箱平均温度计算可用的混合水量。只有当水箱顶部区域的水温超过 40 °C 以后, 才能计算混合水量。

通常情况下, 生活热水在使用极限内通过设备的热泵来加热 (参见"技术数据/数据表"一章的内容)。

电气紧急加热/辅助加热装置

如果生活热水水箱顶部区域的温度低于设定温度 10 K, 则设备自动启用电气紧急加热/辅助加热装置。如果生活热水水箱顶部区域的温度超过设定温度 2 K, 设备关闭电气紧急加热/辅助加热装置。

如果设备损坏, 您可以手动开启电气紧急加热/辅助加热装置。请参阅章节"操作/快速加热按钮/应急电加热"。

如果一次性需要更高的生产热水, 可按下按钮"快速加热"手动激活电气紧急加热/辅助加热装置来替代热泵进行一

次性加热。请参阅章节"操作/快速加热按钮/快速/便捷加热"。

3.3 设备超出使用极限运行

▶ 为确保设备能够无故障运行, 请在使用极限内运行设备 (参阅章节"参见"技术数据/数据表"章节)。

3.3.1 低于使用极限的环境温度

环境温度低可能会导致蒸发器结霜, 程度取决于空气湿度和气温。

主动除霜装置

蒸发器结霜后, 霜冻监测器会关闭风扇。压缩机继续运行。电磁阀将热气直接导入蒸发器。在此期间, 冷凝器被另一个电磁阀锁闭。当霜冻监测器上的温度升高到除霜温度以上时 (参阅章节"技术数据"), 风扇再次接通并继续加热生活热水。

压缩机根据需求进行除霜。

▶ 为确保设备能够无故障运行, 请在使用极限内运行设备 (参阅章节"参见"技术数据/数据表"章节)。



提示

压缩机除霜导致加热过程变长。

3.3.2 超出使用极限的环境温度

环境温度超出使用极限可导致设备安全装置关闭。如果在压力故障的评估期间出现多次压力故障, 则必须由技术人员来解锁。参见章节"技术数据/设备参数"。

3.4 防冻保护

如果集成式传感器感测到的温度低于极限值, 设备将启用一个防冻功能。参见章节"技术数据/设备参数"。设备通过热泵和电气紧急加热/辅助加热装置来为水加热。当集成式传感器感测到的温度达到 18 °C 时, 则热泵和电气紧急加热/辅助加热装置关闭。

3.5 最短运行时间和最短暂停时间



财产损失

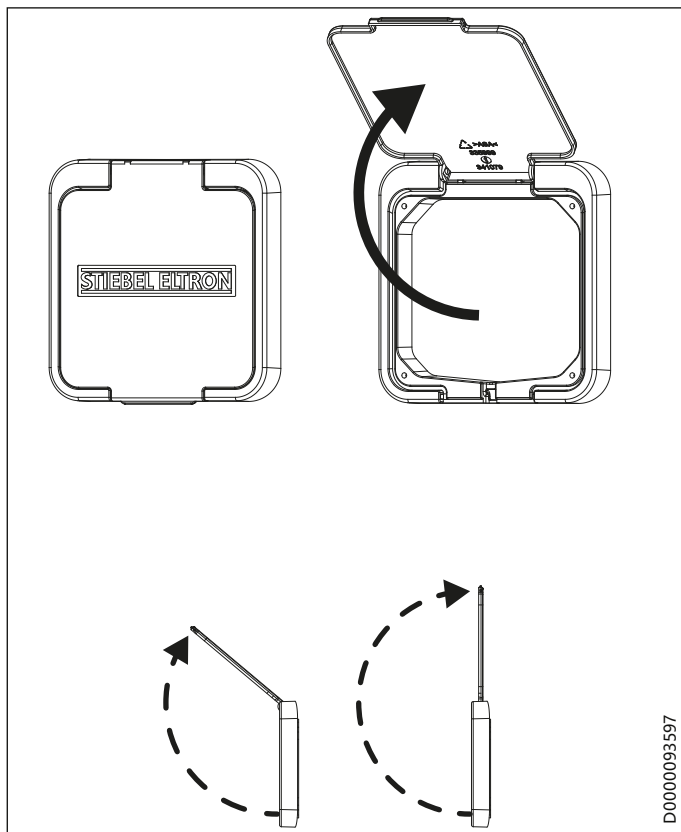
使用切换设备电源的外部开关装置操作时, 例如定时器、能源管理系统或在住宅自动化系统, 必须满足以下条件:

- 最短接通时间为 60 分钟。
- 关机后的最短接通时间为 20 分钟。
- 开关过程的次数不应该超出每天 10 次。
- 开关执行器的触点负荷必须满足保险丝的要求 (参见"技术数据/数据表"章节)。

4. 设置

4.1 防雨罩

防雨罩防止控制面板受到天气因素的影响。



▶ 请将防雨罩的盖板小心地向上翻。

有两个卡紧位置，这样您不必固定盖板。

在关闭时，将盖板小心地压到设备上，直至侧面的止动销卡入。

4.2 显示器和操作元件



提示

每次操作 15 秒后，设备自动切换至标准显示（混合水量）并保存设置的数值。



- 1 显示器
- 2 "加号"键
- 3 "减号"键
- 4 "快速加热"键
- 5 "菜单"键

4.2.1 标志

标志	说明
	混合水量：显示当冷水温度为 15 °C 时，目前的混合水量为 40 °C。
	调整设定温度：根据吸气温度和热气温度，设备可能暂时将设定温度降至集成式传感器的当前测量值。设备显示“调整设定温度”标志并锁闭生活热水加热功能，直至集成式传感器的测量值低于临时设定值减去接通延迟。然后重新启用生活热水加热功能并参考原始设定温度。
	实际温度：显示当前的实际温度。实际温度显示生活热水水箱顶部区域的温度，尽量符合出口温度。
	设定温度
	外部信号发生器：设定温度 2 是指在连接并激活了外部信号发生器的情况下，设备调节的热水温度。
	待机：此标志闪烁代表为电子装置和设备（压缩机）负荷单独供电。例如通过能源管理系统的开关插座操作设备时，需要采用这种连接类型（参与章节“电气连接”）。
	电气紧急加热/辅助加热装置：向这个设备组件发出请求后会显示此标志。显示电气紧急加热/辅助加热装置标志时不一定强制运行。
	热泵：向这个设备组件发出请求后会显示此标志。显示压缩机标志时不一定强制运行。
	除霜激活
	检修/故障：显示“检修/故障”标志时，请通知贵方的专业人员。如果该标志常亮，代表故障不会妨碍设备运行。如果“检修/故障”标志闪烁，表示水不加热，需要通知专业人员。设备切换至应急加热模式时属于特殊情况。尽管“检修/故障”标志闪烁，电气紧急加热/辅助加热装置依然可以加热水。


当向设备组件存在请求时，则显示“电气紧急加热/辅助加热装置”和“热泵”标志。显示电气紧急加热/辅助加热装置和热泵的标志时不一定强制运行。

示例：设备启用“快速/便捷加热”功能。水箱顶部区域达到 65 °C 时，电气紧急加热/辅助加热装置功能关闭。热泵未将底部区域加热到 65 °C 时，快速/便捷加热便不会退出。快速/便捷加热退出前，电气紧急加热/辅助加热装置的标志会一直显示。

4.3 设置

■ 菜单

在标准界面中，显示屏显示混合水量。


 按下“菜单”按钮，依次调出所有信息和设置选项。显示相应的标志。

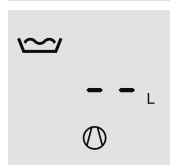
■ 菜单

- 显示“混合水量”
- 显示“实际温度”
- 设定温度 1
- 设定温度 2
- 风扇转速
- 显示“吸气温度”
- 激活“运行时间关联的快速加热”功能
- “运行时间关联的快速加热”功能的时间设定
- 转换单位
- 负载级别
- 故障代码
- E 故障代码

□ 显示“混合水量”



 显示当冷水温度为 15 °C 时，目前的混合水量为 40 °C。

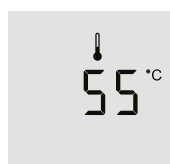



如果当前可用的混合水少于 10 升，则显示“-- L”。

热水需求目标	混合水量为 40 °C
盆浴	120-150
沐浴	30-50
洗手	2-5

可达到的混合水量与水箱大小和设置的设定温度有关。

□ 显示“实际温度”



 在菜单“混合水量”中按下“菜单”按钮，进入“实际温度”菜单。

出现“实际温度”标志。

显示当前的实际温度。实际温度显示生活热水水箱顶部区域的温度，尽量符合出口温度。

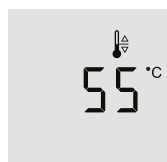
□ 设定温度 1



提示

出于卫生原因，设置的生活热水水温不要低于 50 °C。

设定温度 1 是指在没有任何连接和激活任何外部信号发生器的情况下，设备调节的热水温度。



在菜单“实际温度”中按下“菜单”按钮，进入“设定温度 1”菜单。

出现“设定温度 1”标志。

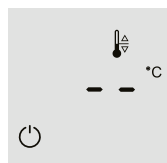
可通过“加号”键和“减号”键来更改值。设置范围：20 - 65 °C



提示

如需设置设定温度 1，也可以通过在标准界面（混合水量）中按“加号”键或“减号”键来实现。

防冻保护



如果使用“减号”键将设定温度设置低于 20 °C，则只启用了防冻保护。显示屏中显示“-- °C”。

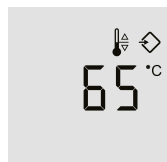
□ 设定温度 2



提示

出于卫生原因，设置的生活热水水温不要低于 50 °C。

设定温度 2 是指在连接并激活了外部信号发生器的情况下，设备调节的热水温度。



在菜单“设定温度 1”中按下“菜单”按钮，进入“设定温度 2”菜单。

出现“外部信号发生器”标志。

可通过“加号”键和“减号”键来更改值。设置范围：20 - 65 °C



使用外部信号发生器运行



财产损失

参阅“技术数据/时间表”一章的“外部信号发生器许用电压范围”。

这些设备的标准设计是，它可以为连接的外部信号发生器（如 PV 设备或低费率信号发生器）分配一个自行监测热水温度的单独设定值（“设定温度 2”）。

当规定连接外部信号发生器的端子上出现一个信号时，启用设定温度 2（参阅章节“电气连接/外部信号发生器的连接类型”）。设定温度 2 在启用期间替代了热水温度的标准设定值（“设定温度 1”）。

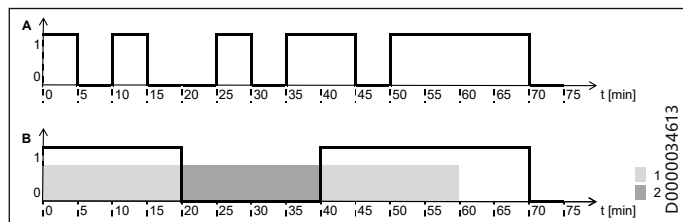
如果设定温度 2 被外部信号发生器激活，这个设定温度将在后续的 20 分钟最短运行时间内激活。20 分钟结束后，如果外部信号仍然存在，则压缩机运行直至外部信号消失或达到设定温度 2。然后再次启用设定温度 1。

如果达到了相应的水设定温度，压缩机关闭，并在 20 分钟的最短暂停时间内保持关闭。

下图以一条外部信号发生器的信号曲线为例，阐明了相互关系。

示例：

水温	°C	55
设定温度 1	°C	50
设定温度 2	°C	65



A 外部信号

B 压缩机

1 设定温度 2 的 20 分钟最短激活时间

2 压缩机的 20 分钟最短暂停时间



提示

一个外部信号必须存在至少 60 秒钟，才能被调节装置发现。比如，这可以防止由于几秒钟持续出现的阳光而导致加热过程的启动，由于缺乏持续的阳光而不能通过光伏自发电运行。

■ 风扇转速



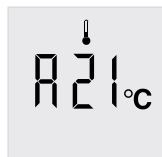
显示当前设定的风扇功率，前缀标有 F。



提示

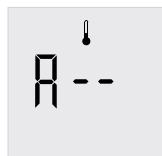
本设备的这个参数无法更改。

■ 显示“吸气温度”



显示的标志“A”为吸气温度。

显示吸入空气的当前温度。



吸气温度只有在设备的风扇运转时显示。如果未测定吸气温度，则通过两条横杠表示。

■ 激活“运行时间关联的快速加热”功能



提示

只有在必要时和吸气温度很低时才能使用与运行时间关联的快速加热。吸气温度通常不使用电气紧急加热/辅助加热装置来加热，因此避免使用运行时间关联的快速加热来满足要求。在这种情况下，选择了过短的运行时间会消耗不必要的电能。为避免电耗增加，请尽可能在夏季以及根据情况在换季时期禁用此功能。

本设备提供了与运行时间关联的快速加热功能，提升了便利性。如果在经过自定义的时间后未通过热泵达到设定温度，设备（激活此项功能的情况下）进入并行模式，以支持电气紧急加热/辅助加热装置。达到设定温度后，电气紧急加热/辅助加热装置保持非激活状态，直至再次出现热需求后，设定时间结束。这项功能在出厂时设为禁用状态。

室外安装时，我们建议在冬季中和以及在换季时期室外出现低温时，根据情况激活“与运行时间关联的快速加热”功能。这样可以防止降低舒适性，比如，在室外降温时热泵的热功率降低，从而导致加热时间变长。

支持电气紧急加热/辅助加热装置的自定义时间必须根据本地条件来具体选择。它们必须要考虑到热水耗用量和预期的吸气温度。

这项功能的设置分两步进行。激活这项功能并在两个参数中设置运行时间。



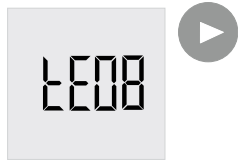
设置 tHE0 将会禁用“运行时间关联的快速加热”。设置 tHE1 将激活这项功能。这项功能在出厂时设为禁用状态。



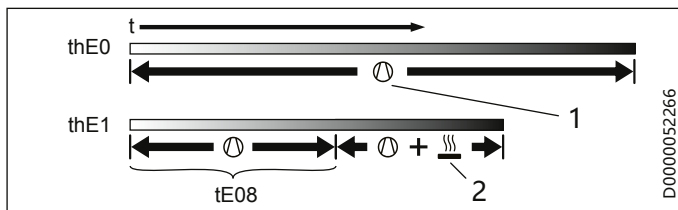
使用“加号”键和“减号”键在 tHE0 和 tHE1 间切换。tHE1 设置的作用是，在经过后续设定的运行时间后并未达到设定温度时，那么电气紧急加热/辅助加热装置便会自行接通。

□■ "运行时间关联的快速加热"功能的时间设定

为避免电耗增加,只有在必要的情况下,才能降低出厂时设定的"运行时间关联的快速加热"时间。参见章节"技术数据/设备参数"。



- ➡ 请使用"加号"键和"减号"键调整运行时间。输入小时数后,请检查设备是否达到了设定温度。如果未达到,请接通设备的电气紧急加热/辅助加热装置。



- 1 "热泵"标志
- 2 "电气紧急加热/辅助加热装置"标志
- tHE0 禁用"运行时间关联的快速加热"
- tHE1启用"运行时间关联的快速加热"
- tE08设置只通过热泵加热的小时数(此处以8小时为例)

□■ 转换单位

可选择温度和流量数据以国际单位显示或是以美制单位显示。如果设定为1,则显示以摄氏度和升为单位的值。如果设定为0,则显示以华氏度和加仑为单位的值。



- ➡ 按下"菜单"键,直至屏幕中显示"国际单位"。
- ➡ 使用"加号"键和"减号"键设置屏幕中应显示国际单位(1)或是美制单位(0)。

□■ 负载级别

如果设定温度下可用的最小混合水量不足,可增加负载级别来降低补热延迟。为此请提高制备的最小热水量。效果等同于温度传感器向下的虚拟移位。以此来提升热水舒适性。设备的效率会因此稍受影响。

如果可用的混合水量降到参数"负载级别"中设定的混合水量最大百分比,则启动生活热水加热。

	WWK 223 electronic	WWK 303 electronic
负载级别(出厂设置)	% 56	64

显示的混合水量为 40 °C 的混合水温。水温低于 40 °C (±1 K) 时不计算也不显示混合水量。

另一个接通条件,叠加了负载级别的接通条件,是降低主体传感器测得的温度,比有效设定温度低 6 K。



- ➡ 按下"菜单"键,直至屏幕上显示一个"L",后接一个数字。
- ➡ 可通过"加号"键和"减号"键来更改值。设置范围: 30 - 100 %

□■ 故障代码



- ➡ 如果"检修/故障"标志亮起或闪烁,可按下"菜单"键查看故障代码。如果没有故障,菜单不会激活。

参阅章节"问题排除/故障代码"。

□■ E 故障代码

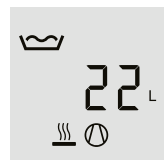
制冷回路出现故障会显示一个以"E"开头的故障代码。请通知专业人员。

4.4 "快速加热"键



提示

如需按"快速加热"键启动快速/便捷加热,显示屏必须位于开始界面中。



- ➡ 按下"快速加热"键两秒钟。
- ➡ 显示"热泵"和"电气紧急加热/辅助加热装置"标志。


4.4.1 快速/便捷加热


正常情况下,您可以按下"快速加热"键激活快速/便捷加热,该功能可满足计划外出现的热热水需求,而无需更改设备的基本设置。

如果通过按钮手动激活快速/便捷加热,热泵和电气紧急加热/辅助加热装置会无视设定温度,一次性并行运行,直至水箱中的热水温度达到 65 °C 为止。

如果水箱顶部区域的水温上升至超过主体传感器设定水温一个滞后值,则电气紧急加热/辅助加热装置关闭。电气紧急加热/辅助加热装置保持处于就绪状态,直至整个生活热水水箱达到设定温度为止。"电气紧急加热/辅助加热装置"标志闪烁,表示电气紧急加热/辅助加热装置处于就绪状态。

快速/便捷加热保持激活状态,直至整个生活热水水箱达到 65 °C 为止(便捷加热)。之后设备自动返回到之前设定的参数。

 **提示**
快速/便捷加热退出前，“电气紧急加热/辅助加热装置”和“热泵”的标志会一直显示。

 **提示**
如果希望结束快速/便捷加热，请按住“快速加热”键两秒钟。


4.4.2 紧急加热模式

如果设备损坏，可通过应急加热模式开启电气紧急加热/辅助加热装置。

出现热水请求后，设备每隔 15 分钟检测一遍温度升高。在最长升温时间结束前（参阅章节“技术数据”），如果每个测量周期内的升温小于都 0.25 °C，则设备关闭压缩机。

显示屏中的“检修/故障”标志闪烁，并通过故障代码显示设备不加热。



 按下“快速加热”键两秒钟。
出现“电气紧急加热/辅助加热装置”图标。“维修/故障”标志闪烁。

按下“快速加热”键后，显示的故障代码升至数值 256，因为故障代码叠加（参阅“问题排除”一章中的故障代码表）。“检修/故障”标志继续闪烁。电气紧急加热/辅助加热装置激活。

当前设定温度（设定温度 1 或设定温度 2）被忽略。应急加热模式下，设备采用固设的设定温度工作。水箱顶部区域中的生活热水通过电气紧急加热/辅助加热装置加热至 65 °C。

一次性激活该功能后，按“快速加热”键可启用此功能 7 天。

在应急加热运行 7 天后，禁用电气紧急加热/辅助加热装置。屏幕中显示的故障代码减小至数值 256。

在应急加热模式下不超过 7 天的时间里再次按下“快速加热”键两秒钟，运行时间为 7 天的应急加热模式将重新开始计算时间点。

如果应急加热模式运行超过了 7 天的时间，可通过按下“快速加热”键再次在 7 天的运行时间内启动应急加热模式。



只有当之前出现过故障代码为 8 的故障时，按下“快速加热”键才能对应急加热模式发生作用。正常运行时，按下“快速加热”键仅会一次性加热生活热水水箱。

断电后，应急加热模式不再激活。设备重新尝试使用热泵加热。为避免必须等到升温时间结束（参见“技术数据”一章），可以手动启动应急加热模式。

手动应急加热模式

如果存在一个故障而未显示故障代码，可激活应急加热模式。



 请按住“加号”和“减号”按钮不放。另外按下“菜单”按钮并按住所有这些按钮 5 秒钟不放。
 出现“电气紧急加热/辅助加热装置”图标。“维修/故障”标志闪烁。

4.5 紧急关断

出现紧急状况时，请执行以下操作步骤：

- ▶ 通过家用设备中的保险装置中断电源供应。
- ▶ 关闭冷水入口。
- ▶ 立即通知专业人员，因为设备断电后不受防蚀保护。

5. 保养和维护



警告，电击
请清洁设备表面。
请不要打开设备。
不要将任何物体穿过栅栏塞入设备内部。
不得向设备喷水。
不得将水喷入设备内部。



警告，受伤
仅允许专业人员执行维护作业，例如：检查电气安全性。

设备组件	维护提示
外壳	维护壳体部件时，只需使用一块湿布。请不要使用磨蚀性或腐蚀性的清洁剂。
进气格/出气格	请每隔半年清洁进气格/出气格一次。蜘蛛网或其他污垢会影响设备的进气效果。
生活热水水箱	生活热水水箱带有免维护防蚀外部电流阳极。为使外部电流阳极能够有效保护设备，注有水的情况下不允许断开设备电源。否则存在腐蚀危险。
电气紧急加热/辅助加热装置	请时不时地为电气紧急加热/辅助加热装置除垢。这有助于延长电气紧急加热/辅助加热装置的使用寿命。
设备 冷凝水出口	请专业人员定期检查设备的安全组件和蒸发器。拧下冷凝水排水弯管。检查冷凝水出口的通畅性，清除设备冷凝水出口接头上的污垢。

6. 问题排除

问题	原因	排除方法
压缩机工作, 但风扇关闭。	如果设备处于除霜模式, 在风扇再次开启前, 可能会导致超过最长除霜持续时间。屏幕中显示除霜过程。	无需采取任何措施。设备中设置了一个最长除霜持续时间。如果除霜在最大除霜持续时间内仍未达到除霜终点温度, 则会显示一个故障代码。请联系专业人员。
无法制备热水。	设备不带电。	检查设备是否连接了电源。
	触发了家用设备中的保险丝。	请检查是否触发了家用设备中的保险丝。必要时断开设备电源, 重新接通保险丝。如果设备连接电源后再次触发了保险丝, 请联系专业人员。
	吸气温度超出使用极限 (参阅章节“技术数据/数据表”)。压缩机自动关闭/锁闭。	无需采取任何措施。设备使用电气紧急加热/辅助加热装置将水加热。如果温度重新回到使用极限, 将继续使用压缩机完成加热过程。
	设备的性能参数是根据标准以及数据表中规定的吸气温度得出的。低于这个温度时, 设备的效率和性能就会降低。加热时间变长。	无需采取任何措施。
未达到设定温度。	如果热泵的运行时间太长, 可能是因为吸气温度过低导致的。	必要时请激活“运行时间关联的快速加热”。这意味着会增加能耗。
	根据吸气温度和热气温度, 设备可能暂时将设定温度降至集成式传感器的当前测量值。	无需采取任何措施。设备显示“调整设定温度”标志并锁闭生活热水加热功能, 直至集成式传感器的测量值低于临时设定值减去接通延迟。然后重新启用生活热水加热功能并参考原始设定温度。
生活热水水箱的安全阀滴水。	设备容器处于水管压力下。在加热时, 膨胀水会从安全阀中滴出。	如果在加热结束之后仍有水滴出, 请通知专业人员。
冷凝水出口滴水。	蒸发器的表面温度低于环境空气的露点温度。这会产生冷凝水。	冷凝水量取决于空气的含湿量。
室内安装时: 室温降低。	由于设备从空气中吸取能量, 因此设备运行时, 室温会下降 1 到 3 °C。	如果室温下降超过 5 °C, 请检查房间大小 (参阅章节“技术数据/数据表”)。解决方法是打开通向另一个房间的房门来获取供能。
耗电量高	吸气温度越低, 热泵效率越低。	尽量避免设定温度过高和使用快速加热。
	“运行时间关联的快速加热”已激活。	仅在必要时激活这个功能或通过参数来选择延长运行时间 (仅热泵激活, 电气紧急加热/辅助加热装置锁闭)。
“检修/故障”标志常亮。	参阅章节“故障代码”。	请通知专业人员。“检修/故障”标志常亮表示出现一个热泵仍在加热的故障。
“检修/故障”标志闪烁, 代表水不热。	参阅章节“故障代码”。	须立即告知专业人员。“检修/故障”标志闪烁表示出现一个热泵不再加热的故障。
出现“除霜”标志。	设备处于除霜模式。	无需采取任何措施。

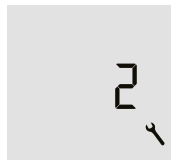
问题	原因	排除方法
“热泵”标志闪烁。	出现了一个加热请求, 但是压缩机被锁闭。	无需采取任何措施。压缩机锁闭时间结束后, 压缩机自行接通。标志自动退出闪烁。
	吸气温度超出使用极限 (参阅章节“技术数据/数据表”)。压缩机自动关闭/锁闭。	无需采取任何措施。设备使用电气紧急加热/辅助加热装置将水加热。如果温度重新回到使用极限, 将继续使用压缩机完成加热过程。
“电气紧急加热/辅助加热装置”标志闪烁。	快速加热期间, 一个温度调节器关闭了电气紧急加热/辅助加热装置。	无需采取任何措施。设备使用热泵继续执行快速加热。调节器启用电气紧急加热/辅助加热装置后, 标志结束闪烁。当整个生活热水水箱达到了快速加热的设定温度后, 标志熄灭。
	“电气紧急加热/辅助加热装置”标志亮起, 但是电气紧急加热/辅助加热装置未激活。	出现请求后, “电气紧急加热/辅助加热装置”标志亮起。电气紧急加热/辅助加热装置的内部调节器可能结束了电加热。一个可能的原因是电气紧急加热/辅助加热装置出现故障。一个可能的原因是触发了安全温度限制器。
尽管设备处于使用极限内, “快速加热”键也没有按下, 但“电气紧急加热/辅助加热装置”标志仍然亮起。	“运行时间关联的快速加热”功能已启用, 当前正在运行。	请安排专业人员检查电气紧急加热/辅助加热装置的调节器设置是否正确。必须将调节器逆时针旋转到底。请安排专业人员检查安全温度限制器。
	“电气紧急加热/辅助加热装置”的自动模式已激活。出现热水请求时, 主体传感器将其开启。	无需采取任何措施。

故障代码

显示屏中的“检修/故障”标志常亮或闪烁时，可调出故障代码。



多次按下“菜单”键，直至故障代码出现为止。



故障代码	故障说明	排除方法
2 静态接通	主体传感器损坏。从主体传感器切换至集成式传感器时会显示实际温度。设备加热，而不会影响舒适性。无法计算混合水量，仅显示“-”。	请通知专业人员。
4 静态接通	集成式传感器损坏。集成式传感器损坏时，集成式传感器将设为主体传感器的值，并使用该值计算混合水量。设备使用很低的接通延迟继续加热。此外，还会假定主体温度存在于整个生活热水水箱中，并以此计算混合水量。	请通知专业人员。
6 闪烁	主体传感器和集成式传感器均已损坏。设备不再加热。	请通知专业人员。
8 闪烁	设备发现，尽管在最大升温持续时间内已发出了请求，但生活热水水箱仍未加热。	按下“快速加热”键激活紧急模式后，您可暂时继续使用设备。参阅章节“设备说明/应急加热模式”。
16 静态接通	外部电流阳极发生短路或防蚀阳极损坏。	立即通知专业人员，因为设备在外部电流阳极损坏后失去了防蚀保护。
32 闪烁	设备在生活热水水箱没有完全注满水的情况下运行。设备不加热。 阳极电流中断。设备不加热。	请将生活热水水箱注满水。故障代码消失，设备投入运行。 请通知专业人员。
64 静态接通	最长除霜时间结束后，仍未达到除霜温度。压缩机未工作。	当蒸发器温度升到除霜温度时，故障自动复位。 请通知专业人员。
128 静态接通	调节器和控制面板之间无通讯。上一次设定的值有效。设备继续加热。	请通知专业人员。
256 闪烁	手动触发紧急模式（仅电气紧急加热/辅助加热装置激活）	参阅章节“设备说明/应急加热模式”。
512 闪烁	制冷回路中出现一个故障。	请通知专业人员。
E 1 闪烁	进气口的温度传感器损坏。	请通知专业人员。
E 2 闪烁	蒸发器的温度传感器损坏。	请通知专业人员。
E 4 静态接通	热气温度传感器损坏。设备继续加热。为保护设备，必要时将设定较高的设定温度降至节能设定值。	请通知专业人员。
E 1 静态接通	触发了高压监控器。压缩机加热模式被暂时锁闭。一旦压力恢复正常，压缩机加热模式就会继续。	请等待压力恢复正常。
E 32 静态接通	出现一个电气故障。	请通知专业人员。
E 64 闪烁	蒸发器温度 < 最低蒸发器温度	请通知专业人员。
E 128 闪烁	压力监测器存在一个长期故障。在定义的压力故障评估期间出现多次压力故障。	请通知专业人员。

故障代码在出现多个故障时会发生叠加。

示例：当主体传感器和集成式传感器损坏时，显示屏中显示故障代码 6 (=2+4)。



提示

制冷回路出现故障会显示一个以“E”开头的故障代码。请通知专业人员。

应急加热模式的应用情况

当显示故障代码 8 时，可手动激活应急加热模式。如果之前存在另一个故障，但并没有导致设备关闭，显示屏上可能会显示一个由多个故障叠加而成的故障代码。

下面列出了在出现时可以开启应急加热模式的故障代码。

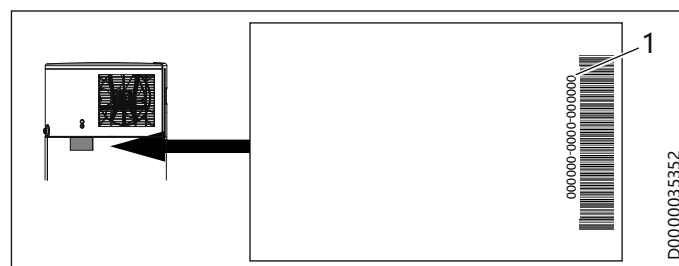
显示的故障代码	故障代码
8	8
10	故障代码 8 + 故障代码 2
12	8+4
24	8+16
26	8+2+16
28	8+4+16
138	8+2+128
140	8+4+128
152	8+16+128
154	8+2+16+128
156	8+4+16+128

应急加热模式期间，显示的故障代码数值提高了 256。

请联系专业人员

如果无法排除原因，请致电专业人员。为了更快、更好地为您提供帮助，请向其告知铭牌上的编号 (000000-0000-00000)。型号铭牌位于左侧“热水出口”连接的上方。

铭牌示例



1 铭牌上的编号

安装

7. 安全

仅允许专业人员安装、启动以及保养和维修设备。

7.1 一般安全提示

只有使用指定用于设备的原装附件和原装备件时，我们才能保证完美的功能和操作安全。

7.2 规范、标准和规定



提示
请注意各个国家和地区规范及规定。

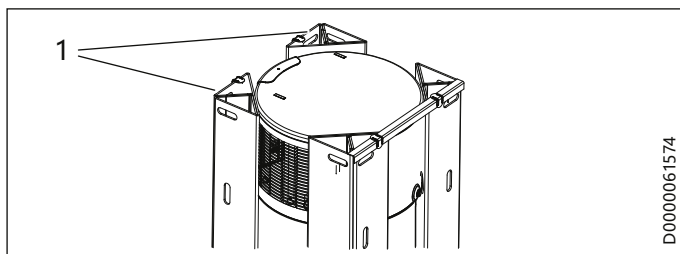
请注意设备型号铭牌和“技术数据”一章的内容。

8. 设备说明

8.1 供货范围



提示
配件放在纸板角条内。在废弃处理包装前，请取出配件。



1 纸板角条

随设备一起提供：

- 冷凝水排水管
- “冷水入口”和“热水出口”接口：2 个绝缘螺纹接头，包括一根弯边管、一个密封件、一个锁紧螺母和一根绝缘套管

8.2 必要的配件

根据不同的气源压力，可以选购不同的安全组件。这些经过结构型式检测的安全组件可以防止设备出现不允许的超压。

8.3 其他附件

- 冷凝泵（当冷凝水无法通过自然落差排出时）

9. 准备

9.1 运输



小心受伤
▶ 请注意设备的重量。
▶ 运输设备时请采用适合的辅助工具（如手推车）和足够的人手。



财产损失
该设备具有较高的重心和较低的倾覆力矩。
▶ 固定设备，防止出现事故。
▶ 仅把设备放置在平整的地面上。



财产损失
设备壳体不是为承受较大的力而设计的。不符合规范的运输可导致严重的财产损失。
▶ 请注意包装上的说明。
仅在即将安装前拆除包装。

设备未运到安装室内，尽量不要拆开设备包装。设备在运输期间须放置在包装内以及托盘上。设备允许短时间的平放搬运，以便于搬运设备时抓取。

如果设备在运输前必须拆除包装，我们建议使用手推车。在放置面上铺上泡沫，避免设备损坏。用皮带将设备固定在手推车上。在皮带和设备之间垫上泡沫，不要拉拽皮带太紧。遇到狭窄的楼梯出口时，可以抬起手推车的手柄及设备的底脚。

使用车辆运输时



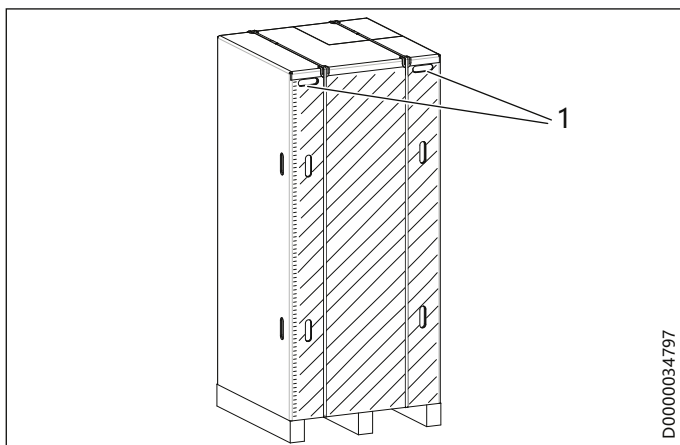
财产损失
通常情况下，设备必须竖直放置和运输。

设备在平放的情况下，可以在沥青路面上运输最远 160 km。不允许出现强烈的晃动。



财产损失
平放运输时，只能将设备放在划有阴影线一侧的纸板上。
设备平放不允许超过 24 小时。
如果设备采用了平放运输，使用前必须将设备竖立静置至少一个小时。

- ▶ 请注意包装上的说明。



1 把手槽

使用车辆运输至安装室

设备顶部的包装纸板箱设有加强的抓取位置(把手槽)。在搬入安装室期间,可抓取设备的把手槽和托盘下方。请注意设备的重量,提供足够的搬运人手。

9.2 存放

如有必要,需要在安装前将设备放置较长一段时间,请注意以下提示:

- 设备只能竖直放置。设备不允许平放。
- 将设备放置在干燥且尽可能无尘的环境中。
- 防止设备接触有腐蚀性的物质。
- 防止设备晃动和振动。

9.3 安装地点



财产损失

注意下列对安装地点的要求。

- 如果设备不会暴露在下雨天气、下雪天气或直射阳光下,则可将设备放置在室外,比如车棚中。
- 设备需要有充足的通风。进气口和出气口必须畅通无阻。保护设备不受暴风雨和强风的影响。
- 安装地点切勿存在可燃、易燃气体或物质以及浓重的粉尘。
- 设备的吸气温度必须处于允许的使用极限内(参见"技术数据/数据表"章节)。
- 安装室必须具备水平且有承载能力的地面。生活热水水箱注满水后,请注意设备的重量(参阅"技术数据/数据表")。如果地面没有承载能力,存在塌陷危险。如果设备未水平放置,存在设备损坏危险。
- 安装室的大小必须符合设备的使用极限(参见"技术数据/数据表"章节)。
- 必须遵守安全距离和防护区域。
- 必须为安装、保养和清洁作业留有足够的活动空间。请保持最小距离(参见章节"安装/准备/设备安装")。
- 注意安装室的条件(参见章节"技术数据/数据表")。
- 电源接口只允许为固定式接口。其连接的固定布线必须按布线规则配有触点开距至少 3 mm 的全极断开装置。通过接触器、线路保护开关、保险丝等满足这一要求。
- 请注意采取保护措施,防止高压触电。

- 注意设备所需的保险丝(参见章节"技术数据/数据表")。
- 在电气连接导线损坏或需要更换时,只允许经生产商授权的专业人员执行更换工作(连接方式 X)。
- 设备承压运行。在加热时,膨胀水会从安全阀中滴出。
- 请定期操作安全阀,以防止诸如因钙沉淀而卡住。
- 请按章节"安装/保养和清洁/清空水箱"一章所述清空设备。
- 请将取得工装样件检测的温度压力安全阀安装在设备上专设的"T&P 阀门"接口上。
- 在冷水输入管路中安装一个经过工装样件检测的安全阀。
- 冷水输入管路中的最高压力必须至少低于安全阀反应压力 20 %。在冷水输入管路中出现更高的最高压力时,必须安装一个减压阀。
- 以持续向下倾斜的坡度安装安全阀的排水管线。
- 确定排水管的尺寸时,请确保在完全打开安全阀时,水可以无阻碍地流出。
- 不允许影响安装室内其他设备的运行。
- 为了缩短管路长度,建议靠近厨房或浴室安装设备。
- 为避免受到运行噪声带来的影响,安装设备时应远离卧室。

不符合规定的安装示例	
含氨的气体环境	污水净化设施、养猪场
造成蒸发器堵塞的物质	含油或脂的物质(比如水泥、面粉等)。说明:如果空气中含有发胶(比如在发廊里),设备应以缩短的保养周期运行。
含盐的气体环境	安装在沿海区域(距海岸小于 200 米)可缩短组件的使用寿命。
含氯或含氯化物的气体环境	游泳池、盐场
含热水的气体环境	特定木材(比如欧松板)
环境中含甲醛	特定的隔热材料(比如脲醛基泡沫(UF 原位泡沫))
环境中含羧酸	厨房中有烟气
有高频机的环境	地面清洁剂的成份(比如醋清洁剂)
	大型电机、雷达等的逆变器

受到这些物质污染的空气可能造成制冷回路中的铜材料受到腐蚀,尤其是造成蒸发器受到腐蚀。

这类腐蚀可能导致设备失灵。

保修条件不涵盖由此造成的设备损坏。



提示

设备的指定性能数据是根据标准在 15 °C 的吸气温度下确定的。低于这个温度时,设备的效率和性能就会降低。



提示

通过将其他设备的余热引入到生活热水水箱的进行加热的方式来提高设备的效率,例如锅炉、干衣机或冰柜。如果安装地点例如有一个干衣机释放灰尘,那么必须缩短蒸发器的清洁周期。

声音释放

设备进气口和出气口处的噪声排放要高于封闭面。

- ▶ 进气口和出气口不要对准对噪声敏感的房间, 例如卧室。

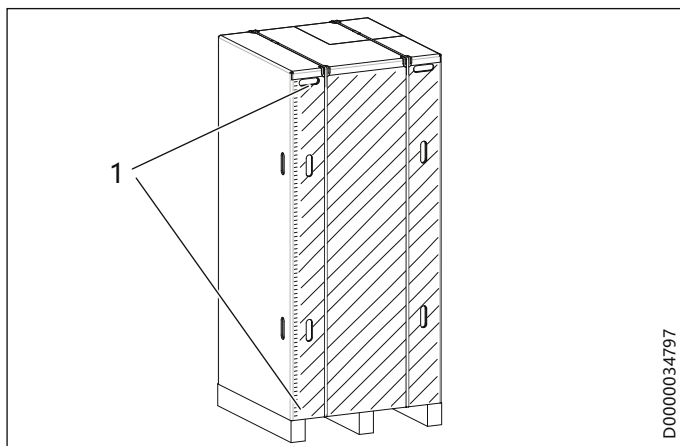


提示

有关声功率输出的信息参见章节“技术数据/数据表”。

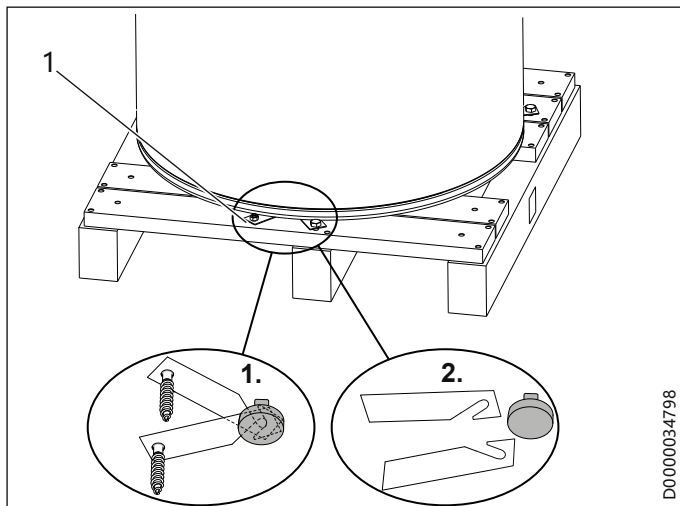
9.4 安装设备

- ▶ 小心分开纸板箱夹层区域中的包装。



1 纸板箱夹子

通过带螺栓的金属条将设备固定在托盘上。金属条挂在设备底板下方的设备支脚上。



1 金属条的紧固螺栓

- ▶ 将金属条的紧固螺栓从托盘上拧下。
- ▶ 将金属条朝水箱中间稍微移动, 以便将其从设备支脚上摘下。
- ▶ 将金属条从设备下方抽出。

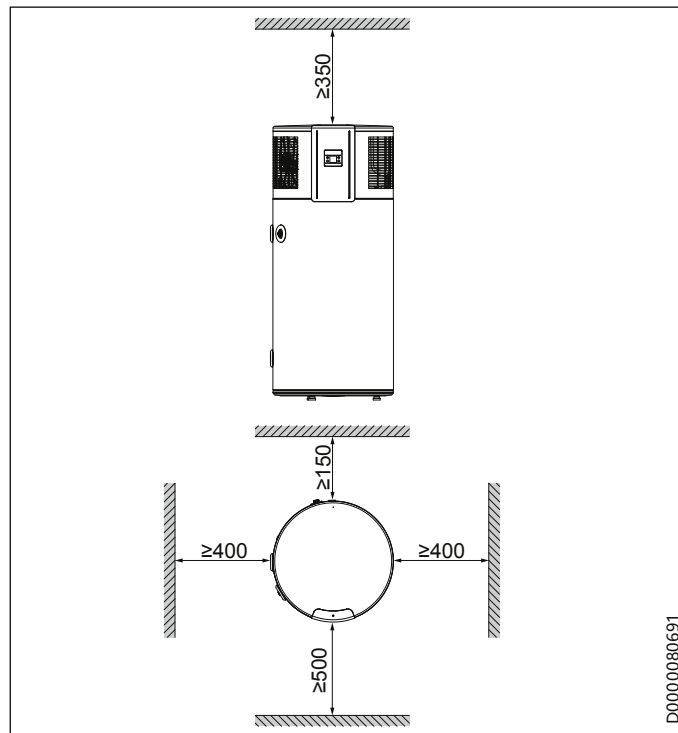


财产损失

请注意设备的重心和重量。

- ▶ 稍微倾斜设备, 然后小心地将设备从托盘上滚下来。
- ▶ 将设备安放在安装地点。

最小距离



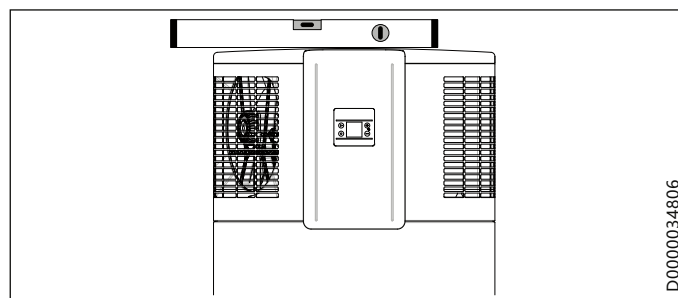
- ▶ 遵守规定的最小距离。



财产损失

设备必须竖直放置, 避免损伤设备。

- ▶ 通过可调节设备支脚将设备调整水平。



10. 装配

警告, 受伤
不符合规范的安装方式可导致人员重伤或财产损失。
作业前确保有足够的安装活动空间。
处理边缘锋利的部件时须小心行事。

10.1 水接口

财产损失
请按规定执行所有水接口和安装作业。

财产损失
为确保阴极防蚀保护, 生活热水的导电率不能超过“技术数据/数据表”一章中所述的极限值。

冷水管

批准的材料为热镀锌钢、不锈钢、铜和塑料。

需要一个安全阀。

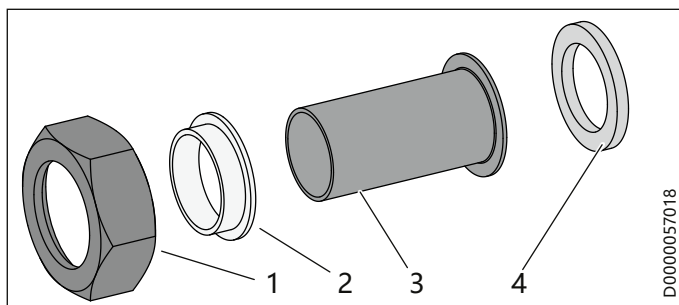
热水管

允许使用的材料为不锈钢、铜和塑料管道系统。

财产损失
采用塑料管道系统时请注意制造商说明和“技术数据/数据表”一章的内容。

▶ 在连接设备之前, 彻底冲洗管道系统。异物(例如: 焊珠、锈、砂子或密封材料)会影响设备的操作安全性。

财产损失
水接口必须采用平面密封, 以防止接头腐蚀。接口不允许采用麻刀。
供货范围内含有绝缘螺纹接头, 用于隔离和预防阴极在强导电水中结垢。



- 1 锁紧螺母
- 2 绝缘套管
- 3 卷边管
- 4 密封

▶ 将供货范围内含有的卷边管连同随附的密封件、绝缘套管和管接螺母连接到“冷水入口”和“热水出口”接口处。
▶ 请检查绝缘螺纹接头的密封性。

T&P 阀门

▶ 如有规定, 请将经工装样件检测的温度压力安全阀安装在设备上专设的“T&P 阀门”接口上。

阀门的开启压力必须小于或等于生活热水水箱允许的运行超压。阀门防止设备出现不允许的过压或过温状态。冷水输入管路的直径不允许大于阀门的直径。

▶ 请确保从阀门溢出的膨胀水可滴入一个排出口中, 比如水槽或漏斗中。

排出口不允许锁闭。

▶ 确定排水管的尺寸时, 请确保在完全打开安全阀时, 水可以无阻碍地流出。

▶ 安全阀的排泄孔必须始终朝空旷环境方向打开。

▶ 以持续向下倾斜的坡度安装安全阀的排水管线。

安全阀

设备是一种封闭式生活热水加热装置。设备必须设置有卸压装置。

▶ 在冷水输入管路中安装一个经过工装样件检测的安全阀。安全阀的开启压力必须小于或等于生活热水水箱允许的运行超压。

安全阀可以防止设备出现不允许的超压。冷水输入管路的直径不允许大于安全阀的直径。

▶ 请确保从安全阀溢出的膨胀水可滴入一个排出口中, 比如水槽或漏斗中。

排出口不允许锁闭。

▶ 确定排水管的尺寸时, 请确保在完全打开安全阀时, 水可以无阻碍地流出。

▶ 安全阀的排泄孔必须始终朝空旷环境方向打开。

▶ 以持续向下倾斜的坡度安装安全阀的排水管线。

减压阀

冷水输入管路中的最高压力必须至少低于安全阀反应压力 20%。在冷水输入管路中出现更高的最高压力时, 必须安装一个减压阀。

排水阀

▶ 将一个适合的排水阀安装在冷水输入管路的最深处。

隔热

▶ 根据安装地点现行有效的规定对热水管道做隔热处理, 防止出现热损失。

▶ 对冷水输入管路做隔热处理, 防止形成冷凝水。

生活热水输出

警告, 烧伤
生活热水水箱内的水不允许加热超过 60 °C。在出口温度高于 43 °C 时, 存在烫伤危险。
检查是否有规定安装一个温度限制器。

10.2 冷凝水出口

必须安装一根冷凝水排放软管, 相应地排放冷凝水。

▶ 将供货范围内含有的冷凝水排水弯管连接到“冷凝水出口”接口处。

▶ 将冷凝水排放软管与冷凝水排水弯管连接。

为避免腐蚀性气体从污水管道进入设备中, 必须安装一根虹吸管。冷凝水出口必须安装有可通过虹吸管自由注入的出口。



财产损失

冷凝水不允许回流。

- ▶ 请使用直径大于冷凝水排水弯管直径的冷凝水排放软管。
 - ▶ 请注意, 冷凝水排出软管不能弯曲。
 - ▶ 请确保铺设的冷凝水排放软管有连续落差。
 - ▶ 在落差不足时, 请使用恰当的冷凝水泵。请注意建筑实际情况。
- 冷凝水出口必须通向大气环境。

冷凝水槽加热器



财产损失

如果安装地点的温度可能会持续 (1 到 2 天) 低于冰点, 请安装一个冷凝水槽加热器。冷凝水槽加热器非属于供货范围。

例如压缩机正在运行时, 安装一个可延时接通冷凝水槽加热器的负载继电器。

冷凝水槽加热器的电源必须从外部连接。

10.3 电气接口



警告, 电击

请根据国家和地区规定执行所有电气连接和安装作业。



警告, 电击

电源接口只允许为固定式接口。其连接的固定布线必须按布线规则配有触点开距至少 3 mm 的全极断开装置。通过接触器、线路保护开关、保险丝等满足这一要求。



警告, 电击

请注意采取保护措施, 防止高压触电。



警告, 电击

触碰通电部件, 存在致命危险。在控制柜上作业之前, 请关闭设备的电压。确保在您作业期间, 没有其他人会接通电源。



警告, 电击

接地不充分会导致电击。确保根据安装地点的有效要求来为设备接地。



警告, 电击

在电气连接导线损坏或需要更换时, 只允许经生产商授权的专业人员执行更换工作 (连接方式 X)。



财产损失

请安装一个故障电流保护装置 (RCD)。



财产损失

铭牌电压必须与电源电压一致。请注意铭牌。



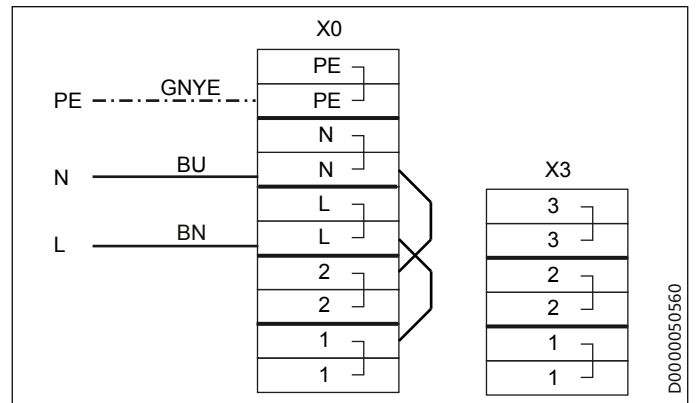
财产损失

在为生活热水水箱注水前, 不允许将设备连接电源。

交付的设备带有一条没有插头的柔性电气连接导线。

- ▶ 如果电缆长度不足, 请将这条电气连接导线从设备中拆卸下来。使用一条适合的安装电缆。
- ▶ 将这条电气连接导线穿过穿线管。
- ▶ 将这条电气连接导线正确连接到设备内的端子上。

10.3.1 标准接口没有外部信号发生器



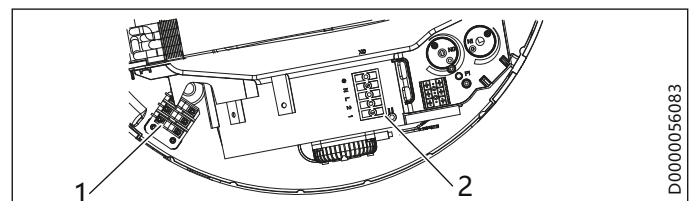
BN 棕色
BU 蓝色
GNYE 黄绿色

10.3.2 接口类型: 使用外部开关装置运行时, 请断开设备电源

为确保水箱具备防蚀保护, 设备默认装配一个无需保养的外部电流阳极。无需保养的外部电流阳极相较于牺牲性阳极提供了极高的安全性, 并省去了保养费用。但是, 为确保水箱具备防蚀保护, 外部电流阳极必须连续通电。

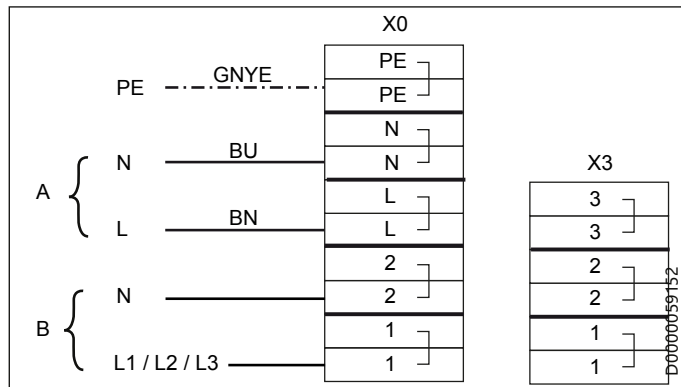
设备如需通过可断开设备电源的外部开关设备 (例如外部定时器、开关插座、能源管理系统、断电 EUV 信号) 运行, 外部电流阳极不需要被开关设备感测到, 而是单独供电。在这种情况下, 设备可单独为负载 (压缩机) 和电子装置 (含外部电流阳极) 供电。

- ▶ 取下设备盖板 (参见章节“保养和清洁/取下设备盖板”)。



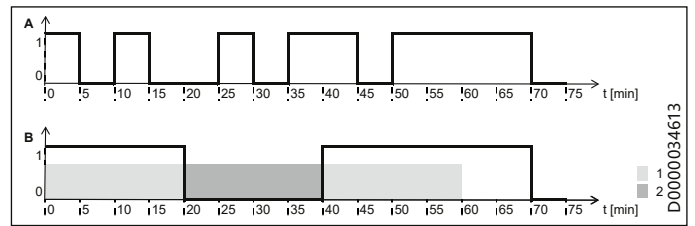
1 电缆接线柱
2 端子 X0

- ▶ 请准备末端套有线芯套管的电气连接导线。
- ▶ 将电气连接导线穿过设备护壳中的穿线管。
- ▶ 请将电线穿过应力解除构件。
- ▶ 请拆除交付状态下从 X0/N 连接到 X0/2 的线桥。
- ▶ 请拆除交付状态下从 X0/L 连接到 X0/1 的线桥。

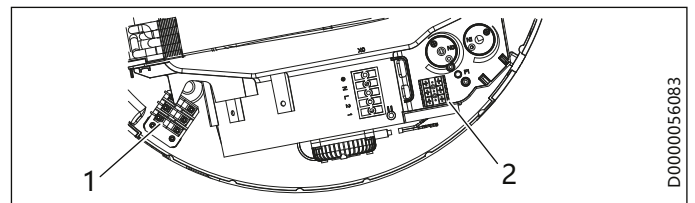


- A 电力公司或能源管理系统提供的电源用于切换负载 (压缩机)
- B 外部电流阳极和电子装置的电源
- BN 棕色
- BU 蓝色
- GNYE 黄绿色

▶ 将为外部电流阳极单独供电的电气连接导线连接到 X0/1 和 X0/2 上。

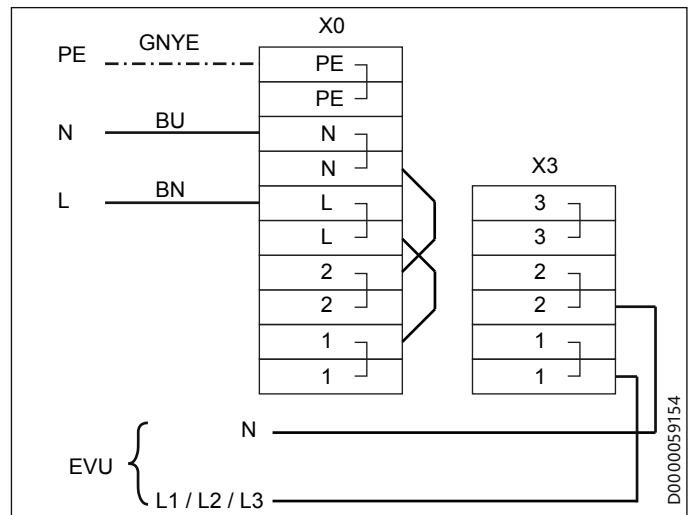


- A 外部信号
 - B 压缩机
 - 1 设定温度 2 的 20 分钟最短激活时间
 - 2 压缩机的 20 分钟最短暂停时间
- ▶ 取下设备盖板 (参见章节“保养和清洁/取下设备盖板”)。



- 1 电缆接线柱
 - 2 端子 X3
- ▶ 请准备末端套有线芯套管的电气连接导线。
▶ 将电气连接导线穿过设备护壳中的穿线管。
▶ 请将电线穿过应力解除构件。
▶ 将电气连接导线与端子 X3 相连。

示例 1: EVU 信号与自身的 230 V 相位



- EVU 电力公司
- BN 棕色
- BU 蓝色
- GNYE 黄绿色

! **财产损失**
必须确保外部电流阳极连续供电。

! **财产损失**
鉴于安装了外部开关装置, 请务必注意最短运行时间和最短暂停时间 (参见章节“设备说明/最短运行时间和最短暂停时间”)。

10.3.3 接口类型: 使用外部信号发生器运行

! **财产损失**
参阅“技术数据/时间表”一章的“外部信号发生器许用电压范围”。

i **提示**
设备出厂时预设了第二个和更高的设定温度值。在安装了外部开关设备的情况下, 这个值被启用。只要安装了外部开关装置, 设定温度 2 就被视为默认设定温度。

端子 X3/1-2 上可以连接一个外部信号发生器, 用于开关单独的热度设定温度 (设定温度 2)。交付状态中, 端子 X3/1-2 未被占用。如果这个端子连接了技术数据中规定的电压 (参阅“外部信号发生器许用电压范围”) (L 连接 X3/1, N 连接 X3/2), 则设备激活设定温度 2。

设定温度 2 在一次性启用 (信号至少存在 1 分钟) 后生效至少 20 分钟。如果达到了相应的热水设定温度, 压缩机关闭, 并在 20 分钟的最短暂停时间内保持关闭。

下图以一条外部信号发生器的信号曲线为例, 阐明了相互关系。

示例:

水温	°C	55
设定温度 1	°C	50
设定温度 2	°C	65

示例 2: 经过现场继电器和设备引出的相位发出的光伏信号

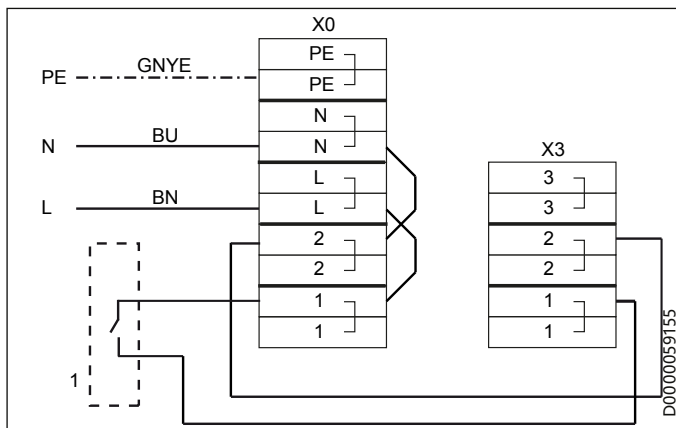


提示

逆变器中的继电器必须满足以下要求:

- 等电位继电器 (240 V AC / 24 V DC, 1 A) 连接常开触点
- 请遵守安全特低电压的安全规定和标准
- 开关输出必须能够编程, 使继电器在超过或低于某些极限值 (逆变器的功率输出) 时能够吸合和断开。

如有必要, 请咨询逆变器制造商, 此产品是否满足上述标准。



1 逆变器 (无电势触点)

BN 棕色

BU 蓝色

GNYE 黄绿色

通常通过中间转接点 (例如在主保险盒内) 为逆变器供电。

10.4 组装设备



提示

完成作业后, 请装回设备盖板。 参见章节“保养和清洁/安装设备盖板”。

11. 启动

11.1 首次启动



提示

接通设备的电源前, 请为生活热水水箱加满水。 如果设备需要使用空的生活热水水箱运行, 则设备必须装配一个干转保护装置。



提示

电源中断后, 压缩机运行至少锁闭一分钟。 电子装置延迟通电一分钟, 设备在此期间初始化。 如果之后压缩机不需要运转, 它可以通过额外的保险元件 (电机保护开关和高压开关) 锁闭。 1 到 10 分钟后应取消锁闭状态。

11.1.1 为生活热水水箱注水

请为生活热水水箱注水, 并排出管道系统内的空气, 请按如下步骤操作:

- ▶ 关闭排水阀。
- ▶ 打开所有热水取水点和冷水入口的截止阀。
- ▶ 一旦水从热水取水点处流出, 请将其关闭。
- ▶ 请检查安全阀, 将其打开并等到有水流出。

11.1.2 设置/功能检测

- ▶ 请接通电源。
- ▶ 请检查设备的工作方式。
- ▶ 请检查安全组件的功能。

功能检测完成后, 降低热水设定温度有助于在设备运行时节约能源。

- ▶ 请向客户了解舒适性要求, 并相应地调整热水设定温度。 出于卫生原因, 设置的生活热水水温不要低于 50 °C。
- ▶ 请检查是否应根据预期的吸气温度和热水消耗量启用“运行时间关联的快速加热”功能 (请参见章节“设置/设置/运行时间关联的快速加热”)。

吸入的空气温度低, 热泵的热功率降低, 加热时间变长。 室外安装时, 我们建议在冬季中和以及在换季时期室外出现低温时, 根据情况激活“与运行时间关联的快速加热”功能。 请注意, 与仅使用热泵模式相比, 使用电气紧急加热/辅助加热装置来加热生活热水会更加耗电。

为避免电耗增加, 请尽可能在夏季以及根据情况在换季时期禁用此功能。 为避免电耗增加, 只有在必要的情况下, 才能降低出厂时设定的“运行时间关联的快速加热”时间。

11.1.3 转交设备

- ▶ 请向用户解释设备的功能, 使其熟悉设备的使用方法。
- ▶ 提醒用户可能发生的危险, 尤其是烫伤危险。
- ▶ 请告知用户安装地点的关键环境要素和条件。
- ▶ 请告知用户, 启用“运行时间关联的快速加热”功能会增加电耗。 在夏季以及尽可能在换季时期禁用这个功能, 以避免电耗增加。 为避免电耗增加, 只有在必要的情况下, 才能降低出厂时设定的“运行时间关联的快速加热”时间。
- ▶ 请告知用户, 在加热过程中, 安全阀可能会滴水。
- ▶ 请告知用户, 设备断电会失去防冻和防蚀保护。 如果电源通过外加电流阳极和电子装置单独供电, 那么设备处于防蚀保护之下。
- ▶ 请将本操作和安装说明书转交给用户妥善保管。

11.2 重新启动

如果设备由于断电而关闭，电源重接后不需要采取任何措施来重新调试。设备保存了上一次设定的参数并继续以此运行。

如果断电前启用了“运行时间关联的快速加热”功能，那么它在电源重接后以 65 °C 的温度重新开启。

应急加热模式断电后不会重新启用。



提示

电源中断后，压缩机运行至少锁闭一分钟。电子装置延迟通电一分钟，设备在此期间初始化。

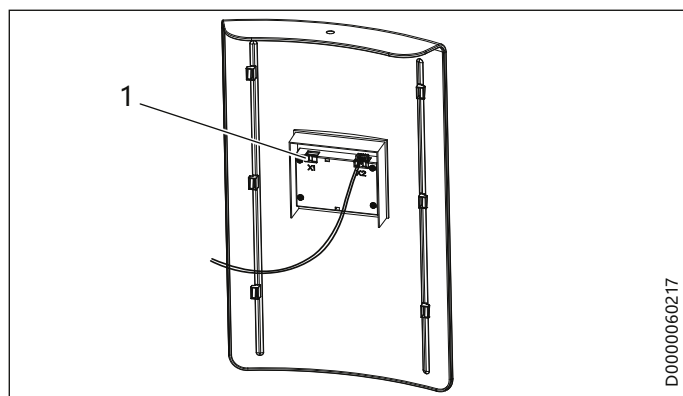
如果之后压缩机不需要运转，它可以通过额外的保险元件（电机保护开关和高压开关）锁闭。1 到 10 分钟后应取消锁闭状态。

12. 设置

■ 维护菜单

如需解锁维护菜单，需要连接维护插头或输入密码。

通过维护插头访问维护菜单



1 插槽 X1

▶ 将维护插头插入到控制面板背面的插槽 X1 中。

通过输入密码访问维护菜单

长按“菜单”键 3 秒以上。此时出现电子调节器的软件版本号。

示例：

显示器	版本号
301	3.1.00

如需查看操作面板电子装置的软件版本号，请按下“加号”键。

示例：

显示器	版本号
-103	1.3.00

请按下“减号”键，进入密码输入。

如需从软件版本号直接进入密码输入，请按下“减号”键。



如需查询密码数字，请按下“快速加热”键。激活的相应数字将会闪烁。

请使用“加号”键和“减号”键设置数字。



如需设置下一个数字，请按下“快速加热”键。

输入所有数字后，请按下“快速加热”键确认密码。

■ 维护菜单

- 集成传感器偏移量
- 设置容器体积
- 由于蒸发器故障导致压缩机锁闭
- 解除高压锁闭
- 解除低压锁闭
- 蒸发器散热片温度
- 热气温度传感器的触发次数
- 除霜故障次数
- 低压触发次数
- 高压触发次数
- 热气温度切换值
- 风扇预运行时间
- 集成传感器更换备件
- 设定极限值

这个菜单中的参数仅供专业人员使用。

13. 停止运行



财产损失

如果设备与设备断开，则其无法防冻和防腐蚀。
▶ 如需长时间断开设备的电源，也请排空生活热水水箱的水。参见章节“保养/排空设备”。

只能通过断开电源关闭设备。

▶ 通过家用设备中的保险装置中断电源供应。

14. 故障排除



警告, 电击
完成所有设备上的工作后, 请切断设备电源。



财产损失
如果设备与设备断开, 则其无法防冻和防腐蚀。
▶ 如需长时间断开设备的电源, 也请排空生活热水水箱的水。

- ▶ 如需执行设备内部的作业, 请取下设备盖板 (参见章节“保养和清洁/取下设备盖板”)。
- ▶ 必要时请拆下顶部的护壳 (参见章节“保养和清洁/取下壳体盖圈”)。



提示
完成作业后, 请装回壳体盖圈。 参见章节“保养和清洁/安装壳体盖圈”)。



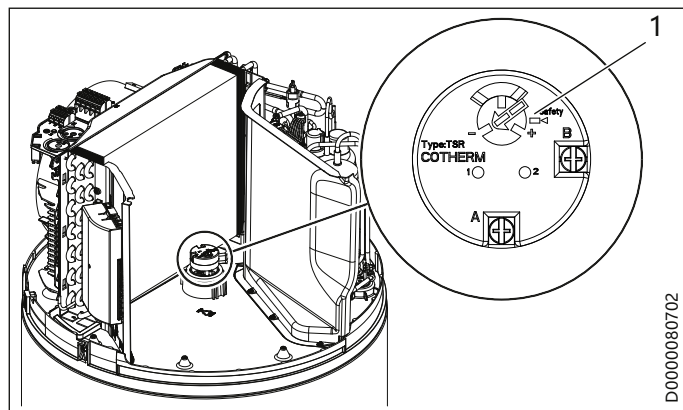
提示
完成作业后, 请装回设备盖板。 参见章节“保养和清洁/安装设备盖板”。

14.1 故障代码

故障代码	故障说明	排除方法
2	静态接通 主体传感器损坏。从主体传感器切换至集成式传感器时会显示实际温度。设备加热, 而不会影响舒适性。无法计算混合水量, 仅显示“- -”。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 装入备用传感器。
4	静态接通 集成式传感器损坏。集成式传感器损坏时, 集成式传感器将设为主体传感器的值, 并使用该值计算混合水量。设备使用很低的接通延迟继续加热。 此外, 还会假定主体温度存在于整个生活热水水箱中, 并以此计算混合水量。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 装入备用传感器。将维护菜单的“IE”参数换成备用模式。
6	闪烁 主体传感器和集成式传感器均已损坏。设备不再加热。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 装入备用传感器, 并将维护菜单的“IE”参数切换成备用模式。
8	闪烁 设备发现, 尽管在最大升温持续时间内已发出了请求, 但生活热水水箱仍未加热。	请检查制冷回路是否存在泄漏。
16	静态接通 外部电流阳极发生短路或防蚀阳极损坏。	根据接线图检查外部电流阳极的电缆和相应的插接情况, 更换损坏的电缆。 检查散热器/阳极组件的外部电流阳极, 必要时更换。
32	闪烁 设备在生活热水水箱没有完全注满水的情况下运行。设备不加热。 阳极电流中断。设备不加热。	请将生活热水水箱注满水。故障代码消失, 设备投入运行。 请检查外部电流阳极的接触情况。
64	静态接通 最长除霜时间结束后, 仍未达到除霜温度。压缩机未工作。	请检查蒸发器内蒸发传感器的位置。 设备通电后, 请检查电磁换向阀的响应情况。必要时更换线圈。 请更换电磁阀体。
128	静态接通 调节器和控制面板之间无通讯。上一次设定的值无效。设备继续加热。	检查插头是否插好, 必要时更换连线缆。 更换控制面板电子装置。
256	闪烁 手动触发紧急模式 (仅电气紧急加热/辅助加热装置激活)	参阅章节“设备说明/应急加热模式”。
512	闪烁 制冷回路中出现一个故障。	请检查制冷回路是否存在泄漏。 请检查膨胀阀的功能和设置。
E 1	闪烁 进气口的温度传感器损坏。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 请更换传感器。
E 2	闪烁 蒸发器的温度传感器损坏。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 请更换传感器。
E 4	静态接通 热气温度传感器损坏。设备继续加热。为保护设备, 必要时将设定较高的设定温度降至节能设定值。	检查插头是否插好。 测量传感器的电阻并与电阻对照表比对。 请更换传感器。
E 16	静态接通 触发了高压监控器。压缩机加热模式被暂时锁闭。一旦压力恢复正常, 压缩机加热模式就会继续。	无需采取任何措施。 如有必要, 请与客户协商后降低设定温度。通过控制面板提升负载级别。 检查集成式传感器与主体传感器的偏移量, 必要时调整。 请检查高压开关点, 必要时更换高压开关。
E 32	静态接通 出现一个电气故障。	A1/X2: 检查电源是否中断。随后通过相应的菜单项复位故障。
E 64	闪烁 蒸发器温度 < 最低蒸发器温度	检查蒸发器是否被沉积物堵塞。如有必要, 使用清水清洗蒸发器, 不要加入清洁剂或添加剂。 请检查空气是否能够畅通无阻地在设备中流通。 检查风扇是否阻塞或损坏。必要时更换风扇。 请检查膨胀阀的功能和设置。
E 128	闪烁 压力监测器存在一个长期故障。在定义的压力故障评估期间出现多次压力故障。	检查相应的故障计数器, 并查看相应的故障代码加以解决: E 16 (高压), E 32 (电气布线故障)。排除故障原因后, 按下菜单项“Hd 1”中的“快速加热”键复位故障。

14.2 复位安全温度限制器

生活热水水箱加热过度时,安全温度限制器关闭电气紧急加热/辅助加热装置来保护设备。



1 安全温度限制器的复位键

▶ 当排除故障源后按下棒式温控器安全温度限制器的复位键。为此须取下设备盖板。

14.3 电机保护开关

压缩机的热负荷过高时,电机保护开关关闭压缩机。

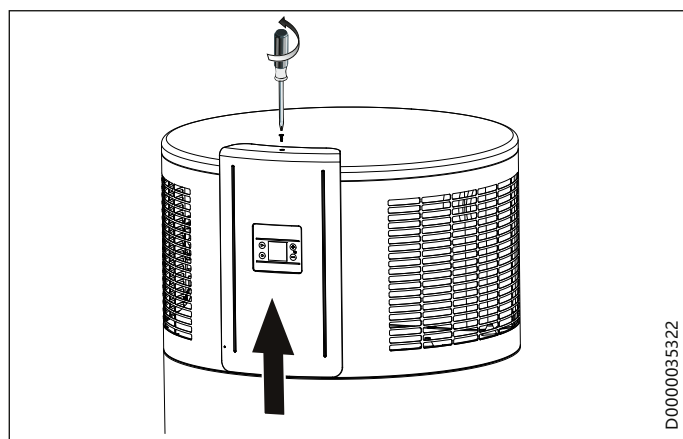
▶ 请排除故障原因。

电机保护开关在完成短暂的冷却过程后重新接通压缩机。

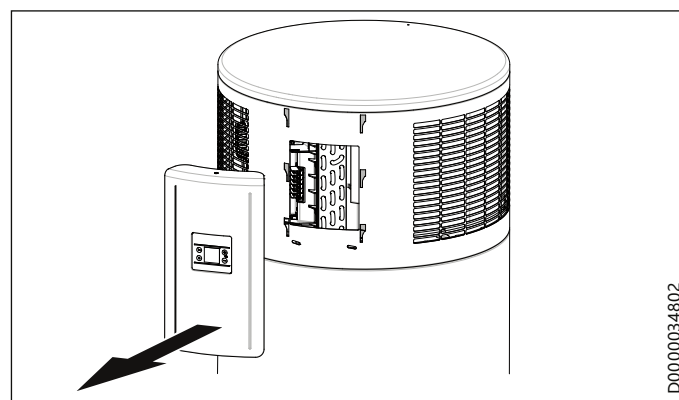
15. 保养和清洁

 **警告, 电击**
完成所有设备上的工作后, 请切断设备电源。


15.1 取下设备盖板




▶ 松开 (梅花) 螺栓, 将控制面板固定在设备上。
▶ 将控制面板向上推。

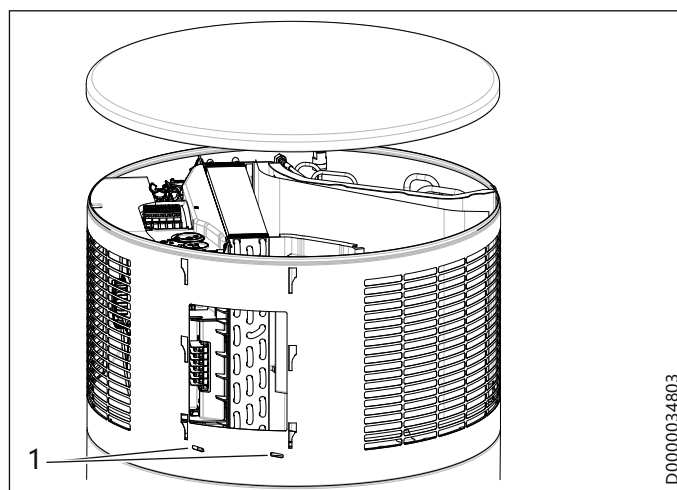


▶ 请取下控制面板。
▶ 操作元件通过一条电缆与设备的电子装置相连。如有必要可拔下控制面板背面的插头, 将控制面板完整取下。
▶ 请小心取下设备盖板并松开从设备接线盒连至设备盖板的接地线。

 **提示**
完成作业后, 请装回设备盖板。参见章节“保养和清洁/安装设备盖板”。

15.2 取下壳体盖圈


 **提示**
如果设备内的作业活动空间不足, 可取下设备顶部的壳体盖圈。

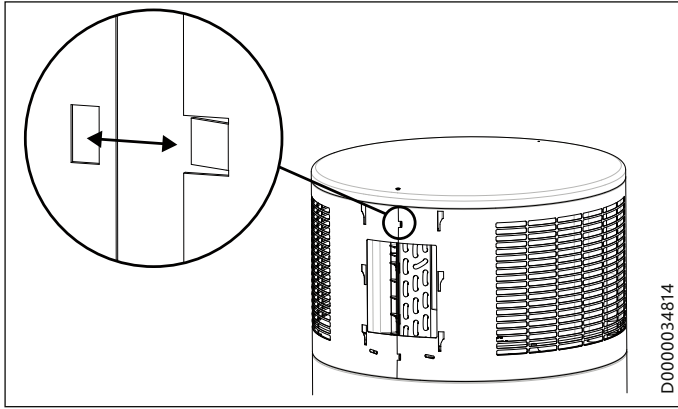


1 壳体盖圈的紧固螺栓

壳体盖圈通过螺栓固定。

▶ 松开壳体盖圈的紧固螺栓。
▶ 拆下冷凝水排水弯管和冷凝水排放口的饰圈。按逆时针将其拧下。

 **财产损失**
壳体盖圈在设备内部一侧连有接地线, 必须将其松开才能取下壳体盖圈。



壳体盖圈在接缝处叠盖。一个舌板插在壳体盖圈另一端的槽口里。

- ▶ 将壳体盖圈分开, 以便能取下壳体盖圈或向下推。



提示

完成作业后, 请装回壳体盖圈。参见章节“保养和清洁/安装壳体盖圈”。

15.3 清洁蒸发器



警告, 受伤

蒸发器由许多边缘锋利的散热片构成。清洁蒸发器时须小心行事, 请穿戴防护服, 尤其是防护手套。

为确保始终能够保持高水平的设备性能, 必须定期检查设备的蒸发器是否受到污染, 必要时进行清洁。

- ▶ 请小心清洁蒸发器散热片。只能使用水和软刷。请不要使用酸性或碱性的清洁剂。

15.4 排空水箱的水



警告, 烧伤

在排空生活热水水箱的水时, 可能会溢出热水。

如因停止运行设备而需要排空生活热水水箱的水时, 必须采取以下措施。

- ▶ 关闭设备与电源的连接。
- ▶ 关闭冷水输入管路中的截止阀。

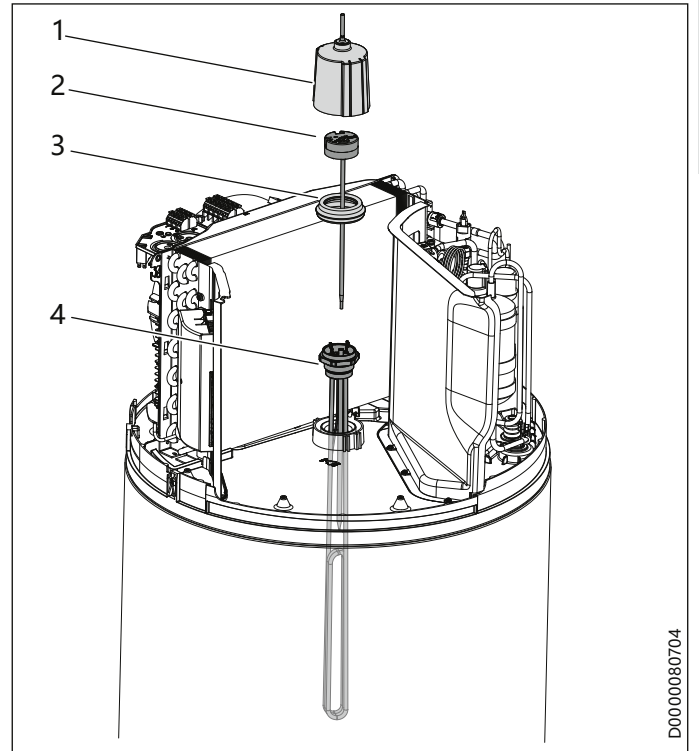
生活热水水箱的水通过冷水输入管路排出。

- ▶ 打开装在冷水输入管路内的排水阀(参见章节“水接口”)。如果没有安装排水阀, 则必须松开冷水输入管路的“冷水入口”接口。
- ▶ 松开连接在“热水出口”接口上的热水管路, 通入空气。

生活热水水箱底部残留有少量余水。

15.5 为电气紧急加热/辅助加热装置除垢

只有拆下电气紧急加热/辅助加热装置的法兰后才能除垢, 处理生活热水水箱和外部电流阳极时请不要使用除垢剂。电气紧急加热/辅助加热装置从上方安装在设备生活热水水箱的中心。



- 1 盖帽
- 2 电气紧急加热/辅助加热装置的温度调节器
- 3 橡胶垫圈
- 4 带防蚀阳极的电气紧急加热/辅助加热装置

15.6 防蚀阳极

电气紧急加热/辅助加热装置的法兰上装配了一个防蚀阳极, 防止设备连接电源后受到腐蚀。防蚀阳极是一个免维护的外部电流阳极。

如果屏幕上显示防蚀阳极损坏的故障代码, 请进行如下操作:

- ▶ 请取下电气紧急加热/辅助加热装置的调节器。
- ▶ 检查防蚀阳极及其布线情况。
- ▶ 重新装回电气紧急加热/辅助加热装置的调节器。

15.7 阀门


定期检查设备的阀门(安全阀、减压阀、排水阀), 保证设备的操作安全性。水的结垢量与当地水质有关。

- ▶ 请检查设备阀门并清除结垢。
- ▶ 必要时更换阀门。
- ▶ 请检查阀门的功能。


15.8 冷凝水出口

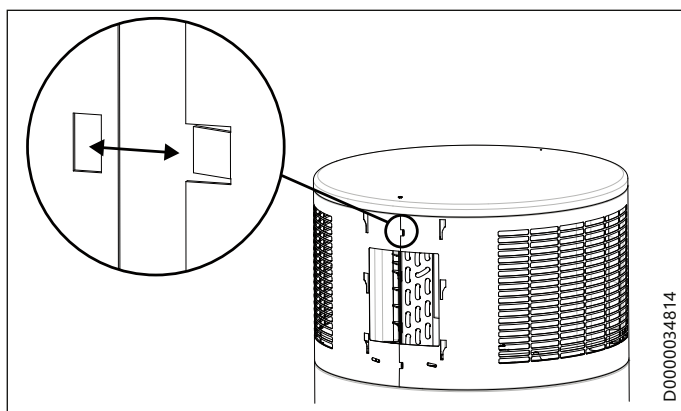
- ▶ 检查冷凝水出口是否脏污。请清除污垢。

15.9 更换电气连接导线

 **警告, 电击**
如果电源线缆损坏, 则必须更换一条新线缆。电源线缆仅允许由专业人员更换 (连接方式 X)。

15.10 安装壳体盖圈

 **警告, 电击**
▶ 重新将接地线连接到壳体盖圈。



- ▶ 装上顶部的壳体盖圈。壳体盖圈在接缝处叠盖。一个舌板插在壳体盖圈另一端的槽口里。
- ▶ 将壳体盖圈拧紧。
- ▶ 安装冷凝水出口和冷凝水排水弯管的饰圈。

15.11 安装设备盖板

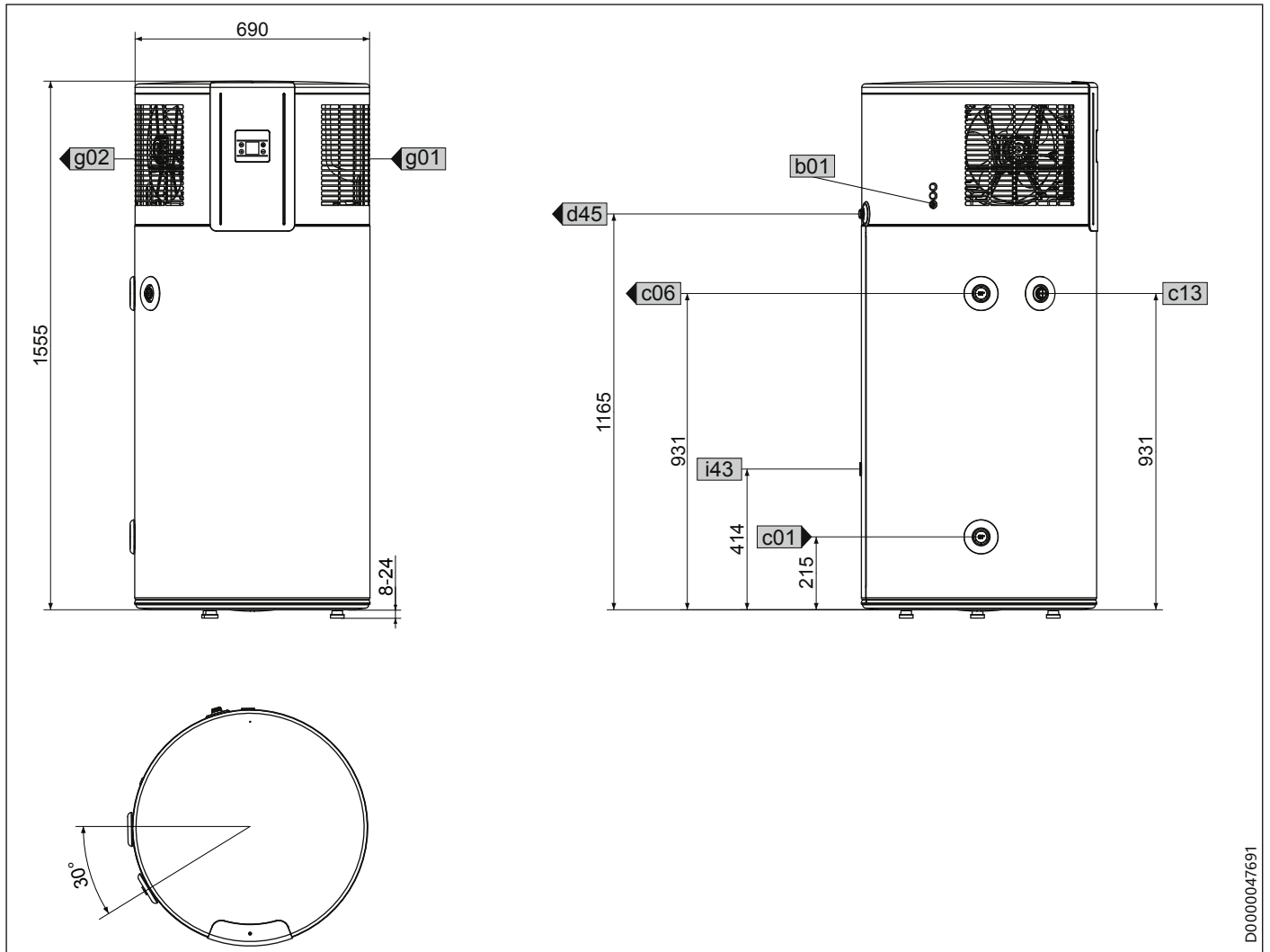
 **警告, 电击**
▶ 重新将接地线连接到设备盖板。

- ▶ 将盖板重新放到设备上。
- ▶ 将盖板压入壳体盖圈中的一圈卷边中。
- ▶ 连接控制面板背面的电缆, 将操作元件与设备内的主板相连。
- ▶ 装入控制面板。
- ▶ 将螺栓拧入控制面板的顶部, 以此来固定住控制面板。

16. 技术数据

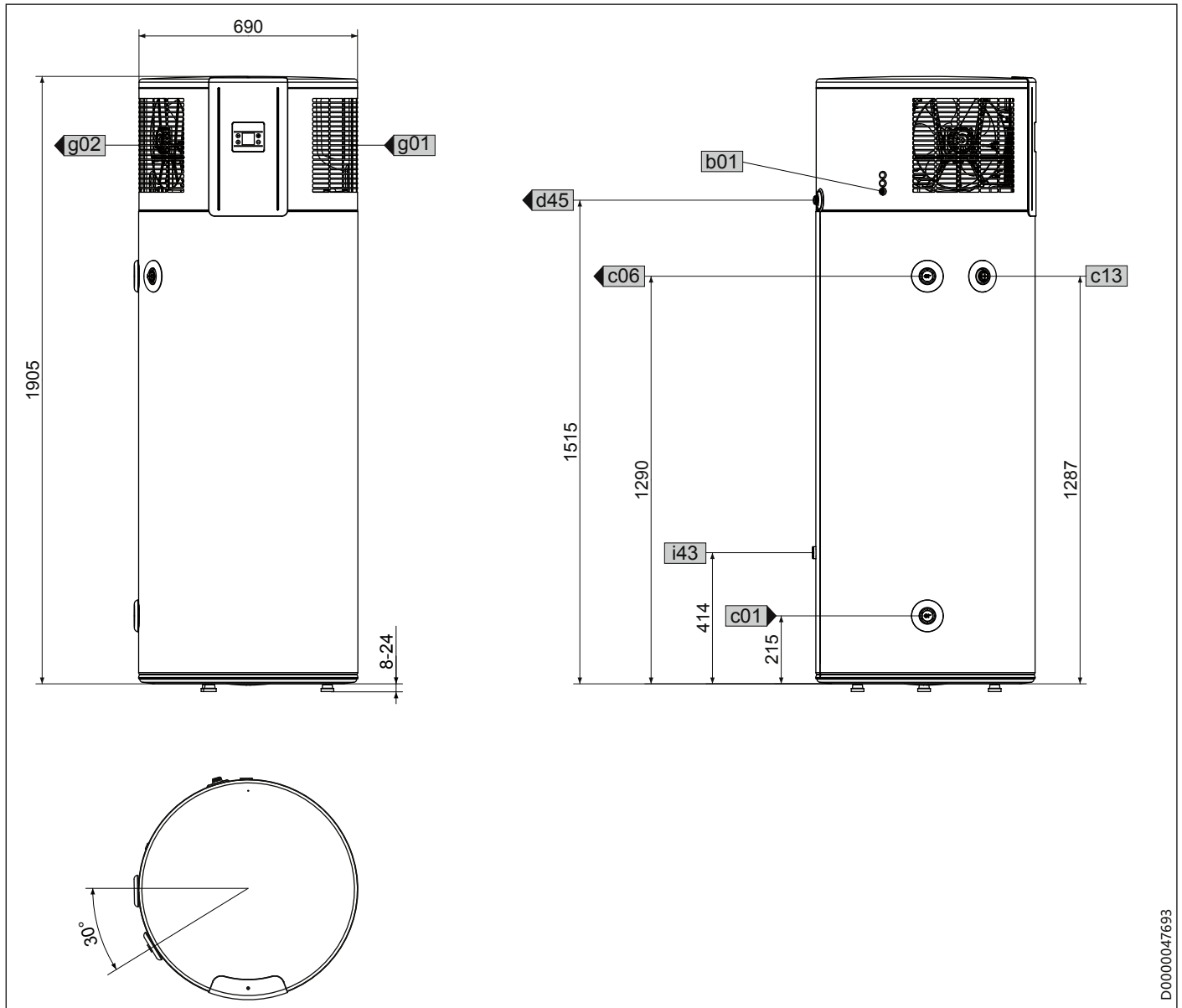
16.1 尺寸和接口

16.1.1 WWK 223 electronic



WWK 223 electronic			
b01	电线穿管		
c01	冷水输入	外螺纹	G 1
c06	生活热水输出	外螺纹	G 1
c13	T&P 阀门	内螺纹	G 3/4
d45	冷凝水出口	外螺纹	G 3/4
g01	进气口		
g02	出气口		
i43	生产口的盖子		

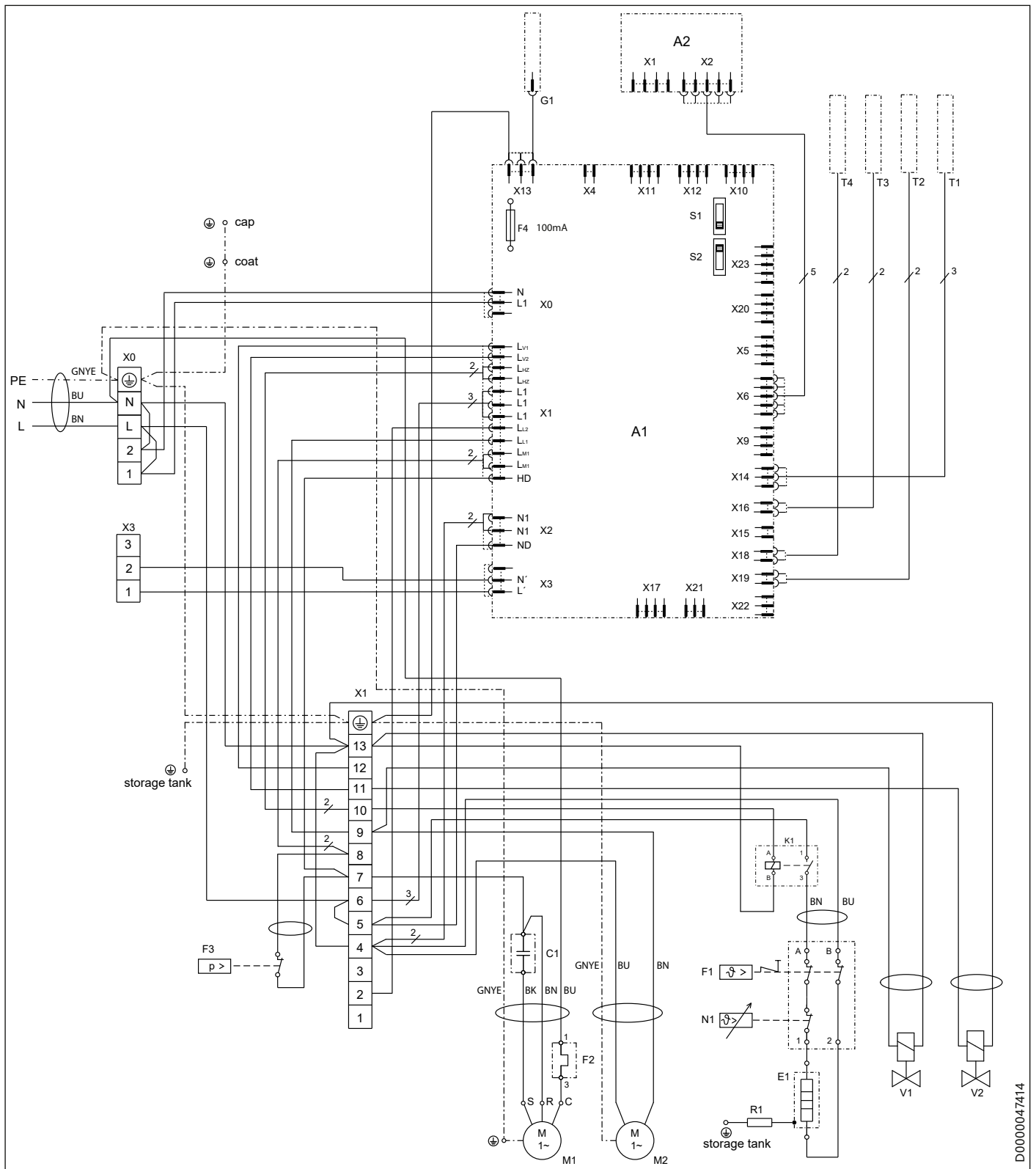
16.1.2 WWK 303 electronic



D0000047693

			WWK 303 electronic
b01	电线穿管		
c01	冷水输入	外螺纹	G 1
c06	生活热水输出	外螺纹	G 1
c13	T&P 阀门	内螺纹	G 3/4
d45	冷凝水出口	外螺纹	G 3/4
g01	进气口		
g02	出气口		
i43	生产口的盖子		

16.2 电路图



A1	电子组件 (控制装置)	S1	滑动开关
A2	电子组件 (控制面板)	S2	滑动开关
C1	工作电容器	T1	主体/集成式温度传感器
E1	散热器	T2	热气体温度传感器
F1	安全温度限制器 TSR	T3	进气口温度传感器
F2	电机保护开关 M1	T4	蒸发器温度传感器
F3	高压监控器	V1	电磁阀 (在加热模式中通电)
F4	保险丝	V2	电磁阀 (在除霜模式中通电)
G1	外部电流阳极	X0	电源连接端子
K1	继电器 (散热器)	X1	连接端子
M1	压缩机	X3	连接端子 (外部信号)
M2	风扇	Behälter	容器
N1	恒温器 TSR	Kappe	盖帽
R1	电阻	Mantel	护板

16.3 故障情况条件



警告, 烧伤
发生故障时, 温度可能达到安全温度极限 (参见“技术数据/数据表”章节)。

16.4 数据表

		WWK 223 electronic 234406	WWK 303 electronic 234405
水力参数			
额定容量	l	220	302
使用极限			
使用热泵加热的最高热水温度。	°C	65	65
使用紧急加热/辅助加热装置加热的最高热水温度	°C	65	65
安全温度极限	°C	92	92
热泵模式下热源的最小/最大使用极限。	°C	-5/+42	-5/+42
水箱环境温度的最小/最大使用极限。	°C	-5/+55	-5/+55
冷热水允许的最高运行超压	MPa	0.85	0.85
饮用水最小/最大电导率	μS/cm	100-1500	100-1500
功率数据			
CEL (中国能效标识)		2	3
能量参数			
制备热水的能效等级 (负载曲线), 室内空气		A+ (L)	A+ (XL)
性能数据符合 EN 16147			
热水额定温度 (EN 16147)	°C	55	55
额定负载曲线 (EN 16147)		L	XL
热输出功率			
平均加热功率 (A15 / W10-55)	kW	1.6	1.6
电功率消耗			
热泵平均功耗 (A15 / W10-55)	kW	0.5	0.5
热泵最大功率消耗 (启动周期除外)	kW	0.68	0.68
紧急加热/辅助加热装置的功率消耗	kW	3.15	3.15
热泵 + 紧急加热/辅助加热装置的最大功率消耗。	kW	3.65	3.65
电气参数			
额定电压	V	220 230	220 230
电源接口		1/N/PE 220 V 50/60 Hz	1/N/PE 220 V 50/60 Hz
外部信号发生器的允许电压范围		~ 220 V 50 Hz	~ 220 V 50 Hz
最高运行电流	A	17.51	17.51
最大接通电流。	A	29.37	29.37
保险装置	A	C20	C20
声音数据			
声功率输出 (EN 12102)	dB(A)	60	60
室外 1 m 距离内的平均声压等级	dB(A)	45	45
规格			
防护等级 (IP)		IP 24	IP 24
制冷剂		R134a	R134a
制冷剂填充量	kg	0.85	0.85
制冷剂潜在温室效果 (GWP100)		1430	1430
CO ₂ 当量 (CO ₂ e)	t	1.216	1.216
电源线的长度约为	mm	2000	2000
尺寸			
高度	mm	1501	1905
直径	mm	690	690
翻转尺寸	mm	1652	2026
包装的翻转尺寸	mm	1895	2230
包装单位规格 (高/宽/深)	mm	1740/740/740	2100/740/740
重量			
清空后的重量	kg	120	135
接口			
冷凝水接口		G 3/4 A	G 3/4 A
安全阀接口		G 3/4	G 3/4
水接口		G 1 A	G 1 A
数值			
阳极类型		外部电流阳极	外部电流阳极
空气流量	m ³ /h	550	550
推荐的用户数量		≤ 4	≤ 6

功率参数涉及配备干净换热器的新设备。
额定数据符合 EN 16147 - 热泵空气循环

其它数据

		WWK 223 electronic	WWK 303 electronic
最大安装高度	m	234406 2000	234405 2000

16.5 设备参数

		WWK 223 electronic	WWK 303 electronic
降低接通滞后	K	6	6
最长升温时间	h	13	13
最长除霜时间	分钟	180	180
除霜终止温度	°C	5	5
节能设定值	°C	52	52
最低蒸发器温度	°C	-20	-20
多次压力故障	-	5	5
压力故障 - 评估持续时间	h	5	5
压缩机锁闭时间	分钟	20	20
快速加热设定温度	°C	65	65
防冻功能的启动温度	°C	8	8
设定温度 1 (出厂设置)	°C	62	62
"运行时间关联的快速加热"功能的时间设定 (出厂设置)	°C	10	10

17. 质保

用户可扫描以下二维码, 获取电子保修卡



官方网站



用户平台



官方微信



18. 环境和回收

请帮助保护我们的环境。请在使用完之后按国家规定处理各种材料。

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