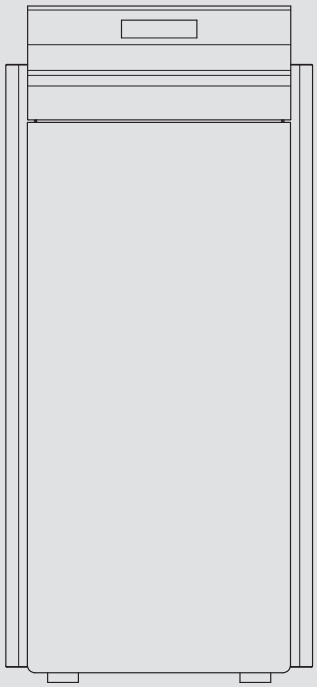
OPERATION AND INSTALLATION

Brine-water heat pump

- » WPF 04
- » WPF 05
- » WPF 07
- » WPF 10
- » WPF 13
- » WPF 16
- » WPF 04 cool
- » WPF 05 cool
- » WPF 07 cool
- » WPF 10 cool
- » WPF 13 cool
- » WPF 16 cool
- » WPF 05 S
- » WPF 07 S
- » WPF 10 S
- » WPF 13 S



STIEBEL ELTRON

CONTENTS

SPECIAL INFORMATION

- The appliance may be used by children aged 8 and up and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.
- Use a permanent connection to the power supply. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.
- Maintain the minimum clearances to ensure trouble-free operation of the appliance and facilitate maintenance work.
- In dual mode operation, return water from the second heat generator may flow through the heat pump. Please note that the return water temperature may be a maximum of 60 °C.
- The WPF can be used for active and passive cooling. This however, is only possible in conjunction with a suitable hydraulic circuit.
- The WPF cool is only suitable for passive cooling. Active cooling with the WPF cool will lead to appliance damage.
- In the delivered condition, the COOLING parameter is set to OFF.
- The COOLING parameter will only be shown if a FEK or FE 7 remote control is connected. Cooling mode is only possible in summer mode.
- With the WPF ... S, cooling is not permitted.
- Maintenance work, such as checking the electrical safety, must only be carried out by a qualified contractor.
- We recommend regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor if required (to return the system to its original condition).
- Never interrupt the power supply, even outside the heating period. The system's active frost protection is not guaranteed if the power supply is interrupted.
- There is no need to shut the system down in summer. The heat pump manager has an automatic summer/winter changeover.

OPERATION

1. General information

The chapters „Special Information“ and „Operation“ are intended for both the user 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 any new user if required.

1.1 Relevant documents

Operating and installation instructions for system components

1.2 Safety instructions

1.2.1 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.

1.2.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution

1.2.3 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.

1.3 Other symbols in this documentation

Note
General information is identified by the symbol shown on the left.
▶ Read these texts carefully.

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

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

□□■ These symbols show you the software menu level (in this example: level 3).

1.4 Information on the appliance

Symbol	Meaning
	Inlet / intake
	Drain / outlet
	Heat source
	Heating
	DHW

1.5 Units of measurement

Note
All measurements are given in mm unless stated otherwise.

1.6 Standardised output data

Explanations to determine and interpret the specified standardised output data.

1.6.1 Standard: EN 14511

The output data specifically mentioned in text, diagrams and technical datasheets has been calculated according to the test conditions of the standard shown in the heading of this section.

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.

Further 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 appliance is designed for:

- heating rooms
- DHW heating

Observe the operating limits listed in chapter "Specification".

This appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in a non-domestic environment, e.g. in a small business, 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 instructions for any accessories used is also part of the correct use of this appliance.

2.2 Safety instructions

- Only recognised, qualified contractors may carry out the electrical work and installation of the heating circuit.
- The qualified contractor is responsible for adherence to all currently applicable instructions during installation and commissioning.
- Operate the appliance only when fully installed and with all safety equipment fitted.
- Protect the appliance from dust and dirt ingress during building work.

WARNING Injury
The appliance may be used by children aged 8 and up and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.

WARNING Injury
▶ For safety reasons, only operate the appliance with the casing closed.

Note
Do not change any system-specific settings at the control unit. Your contractor has set the control unit to match the local conditions for your building and your individual requirements. The system-specific parameters are protected by a code scan so they cannot be unintentionally modified.
The parameters that serve to match the appliance to your personal requirements are not protected by a code scan.

2.3 Test symbols

See type plate on the appliance.

3. Appliance description

The appliance is a heating heat pump suitable for operation as a brine/water heat pump. The heat pump extracts energy from the heat source medium at a low temperature level. This extracted energy is then transferred to the heating water at a higher level, enriched by the electric energy drawn by the compressor. Subject to the heat source temperature, the heating water can be heated up to a flow temperature of 65 °C.

The heating circuit pump, a multi function assembly (MFG) with safety assembly and a three-way valve have been integrated in the appliance for diverting the flow either to the heating circuit or the DHW circuit. DHW is heated by pumping the heating water, which has been heated by the heat pump, through an indirect coil in the DHW cylinder, where it transfers its energy to the DHW.

The appliance is equipped with an electric emergency/booster heater (DHC). If the dual mode point can no longer be maintained in mono mode operation, the electric emergency/booster heater is activated to safeguard heating operation and the provision of high DHW temperatures. In such cases, the electric emergency/booster heater is activated in mono energetic operation as a booster heater.

The appliance is regulated by an integral, weather-compensated return temperature controller (WPM3i heat pump manager).

The WPM3i also regulates the DHW heating to the required temperature. If either the high pressure sensor or the hot gas limiter of the heat pump responds during DHW heating, then DHW heating will automatically be completed by an integral electric emergency/booster heater, subject to the DHW learning function being disabled. If the DHW learning function is enabled, DHW heating will cease and the set DHW value is overwritten with the actual DHW temperature achieved.

The WPM3i also controls the integral electric emergency/booster heater. No other heat generator can be switched.

3.1 Special features of the WPF ... cool

Material losses
In cooling mode, condensate can form when the dew point temperature is undershot.
▶ Take suitable measures to prevent the formation of condensate.

An additional heat exchanger and three-way valve for changing over between heating and cooling are integrated into the WPF... cool.

The living space is cooled by the brine being pumped though the additional heat exchanger, where the energy from the heating water is extracted and passed to the cooler zones underground.

The compressor does not run during cooling.

3.2 Accessories

3.2.1 FE7 remote control

The FE7 remote control allows you to:

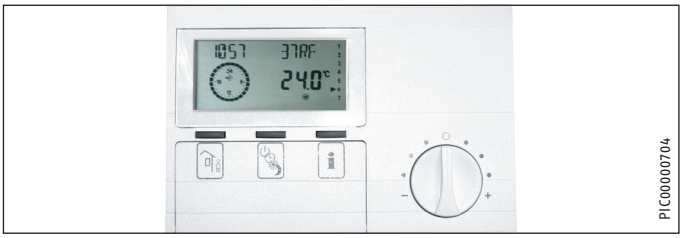
- Change the set room temperature for heating in heating circuit 1 or 2 by ± 5 °C.
- Change the operating mode.

The FE7 remote control features the following controls:

- Rotary selector for changing the set room temperature
- Rotary selector with the following positions
- Automatic mode
- Constant setback mode
- Constant day mode

Note
The remote control is only active in the automatic mode of the heat pump manager.
You can set the temperature for heating times in automatic mode at the remote control.

3.2.2 FEK remote control



The FEK remote control allows you to:

- Change the set room temperature for heating in heating circuit 1 or 2 by ± 5 °C.
- Change the operating mode.

The FEK features the following controls:

- Rotary selector for changing the set room temperature
- „Away“ button
- „Info“ button
- Button for selecting the following operating modes:
- Standby mode
- Automatic mode
- Constant day mode
- Constant setback mode

Note
If the FEK is preselected for a specific heating circuit, the heating curve, room temperature and heating program parameters are not shown at the WPM3i heat pump manager.

3.2.3 Internet Service Gateway (ISG)

The Internet Service Gateway (ISG) is an Ethernet gateway in a wall mounted casing and is connected into the LAN (local area network).

It enables the convenient operation, adjustment and checking of heat pump system data via the browser of a computer, laptop or tablet in the local home network.

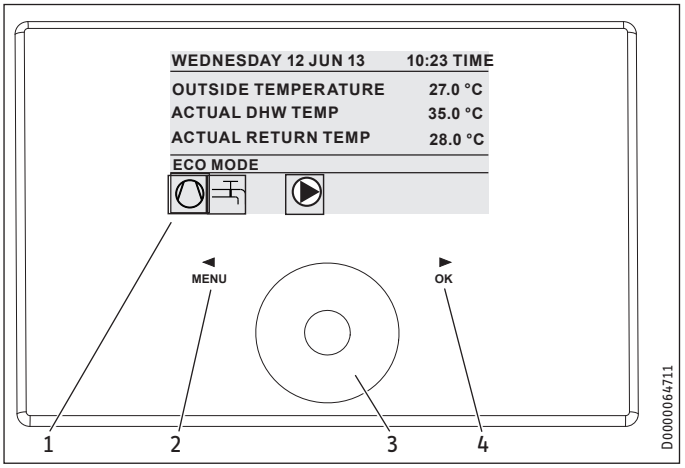
If required by the customer, appliance data can be automatically transmitted to the appliance manufacturer‘s SERVICEWELT portal via the internet.

Via SERVICES you can access additional options such as system operation on the go with a smartphone as well as remote setting of parameters and remote diagnosis, etc.

You can find the current services on our homepage.

4. Operation

4.1 Controls



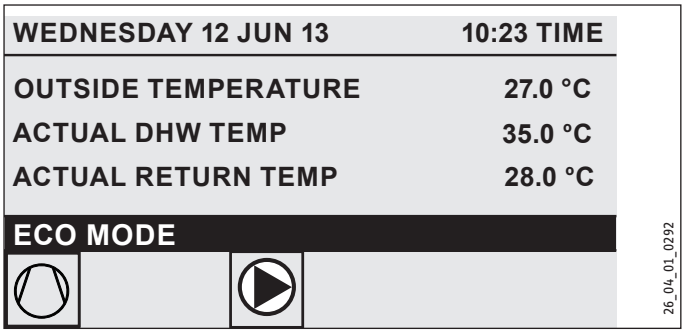
1 Display
2 MENU key
3 Scroll wheel
4 OK key

You control the system with the programming unit of the heat pump manager. Use the scroll wheel and the MENU and OK keys to navigate through the menu structure.

4.1.1 Display

The programming unit display shows the current state of the system and provides messages and information.

Start screen

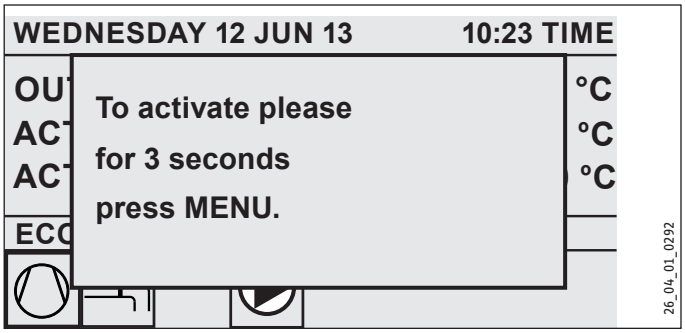


1 Date and time
2 Temperature display
3 Operating mode
4 System status picture symbols

The start screen is divided into four sections. The top field displays the date and time. The field below displays the outside temperature along with the actual DHW temperature and the actual return temperature. The third section is for selecting and displaying the operating modes. In the fourth section, picture symbols indicate the current system state.

Activation

If the scroll wheel and keys/fields are not used for 20 minutes, the programming unit is locked.

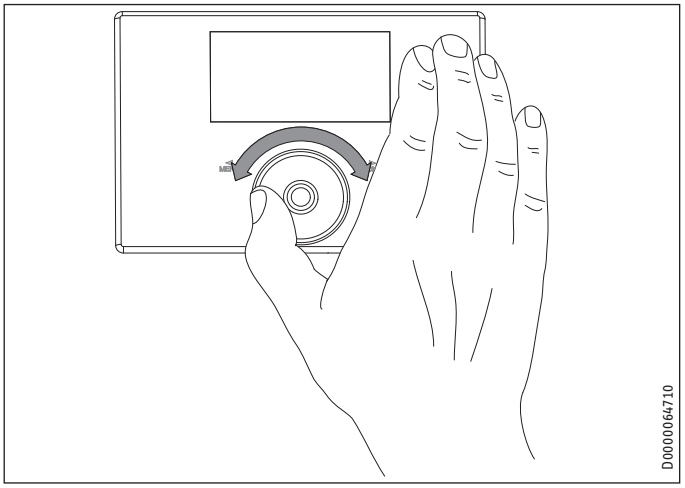


▶ Touch the MENU key for three seconds to enable the programming unit.

Selection indicator

A highlighter within the menu structure indicates the current position at all times. This displays the selected menu item with a dark background. The current menu level is displayed at the top of the display.

4.1.2 Scroll wheel



The scroll wheel comprises a sensor that is touch-sensitive. There is one key array each to the left and right of the scroll wheel. All required appliance functions are controlled and checked with the scroll wheel and the keys.

Note Sensor responsiveness
Wearing gloves, wet hands or a damp programming unit impede the recognition of your touch and the execution of the action you require.

In the MAIN MENU/COMMISSIONING menu, your contractor can set the sensitivity to touch using the parameter TOUCH SENSITIVITY.

Circular movement

Move one finger clockwise over the scroll wheel to move the highlighter downwards or to the right in the list, depending on how the menu options are arranged. An anti-clockwise rotation moves the highlighter to the left or upwards in the list.

Alongside navigation within the menu structure, the scroll wheel is used to set parameters. Clockwise rotation increases values. Anti-clockwise rotation decreases values.

4.1.3 Keys

Note
Press the keys only briefly to initiate the required action. If a key is touched for too long, the programming unit does not respond.

MENU key

The MENU key has two functions:

- From the start screen, touch the MENU key to navigate to the first of 5 menu structure levels.
- Touch the MENU key when within the menu structure to return to the previous menu level.

OK key

The OK key has four functions:

- From the start screen, touch the OK key to activate the required operating mode previously selected using the scroll wheel.
- Within the menu structure, touching the OK key confirms the selected menu option and takes you one menu level down.
- If you are already at parameter level, touching the OK key saves the currently set parameter.
- At every menu level, you will see the entry BACK. If you select BACK, you move a level higher in the menu.

If, for longer than five minutes, there is no user action, no rotation or MENU or OK are not pressed, the programming unit display automatically jumps back to the start screen.

Parameter changes made before this which had not yet been confirmed with OK are lost. The parameters retain the values saved so far.

4.1.4 Contractor access

Note
Some menu options are protected by a code and can only be viewed and adjusted by a qualified contractor.

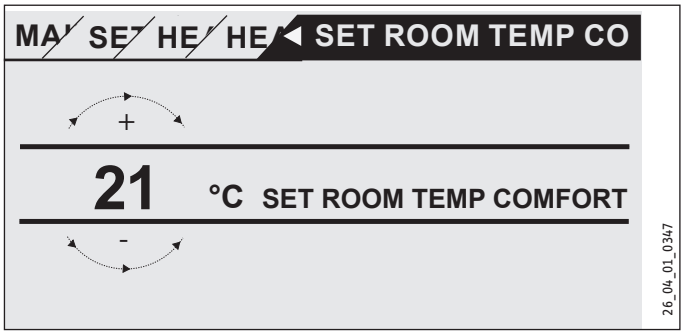
4.2 Entering parameters

Parameters are changed by rotating the scroll wheel. To save the new value, touch OK.

If you want to cancel the entry, touch MENU. The parameter retains the previously saved value.

Example 1

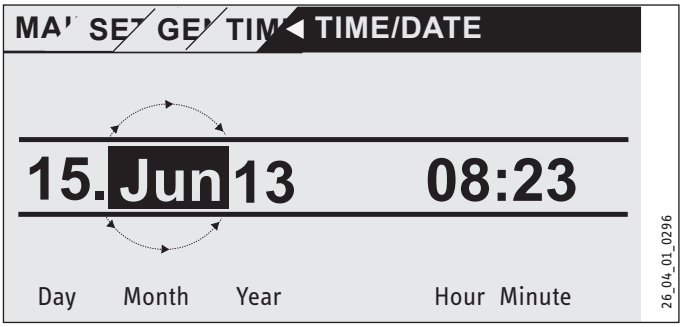
Adjusting the set room temperature.



To enter set temperatures, a number surrounded by a circle appears on the display. This indicates that you can change the value by turning the scroll wheel.

Example 2

Setting the time and date.

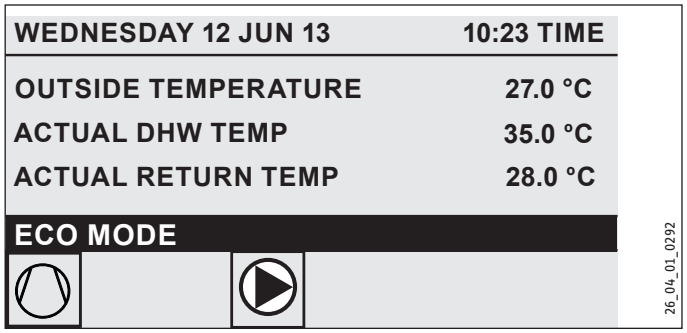


On activation, the highlighter is over the position MONTH. Confirm with OK. Set the current month with the scroll wheel and confirm with OK. A calendar page is displayed. Move the highlighter to the required day with the scroll wheel and confirm with OK. The new value is saved when you confirm with OK. Set the year, hours and minutes the same way.

4.3 Selecting operating modes

If you enable the start screen, the current operating mode is displayed. If you want to select another operating mode, turn the scroll wheel. You run through the list of possible operating modes. The current suggestion (list entry) is shown in the shaded selection field.

Note
To change the appliance to this new operating mode, confirm with OK.



Since you always navigate to a new operating mode from the currently enabled one, you may have to turn anti-clockwise. All operating modes, apart from DHW mode, apply to central heating and DHW.

Standby mode

Frost protection is activated for heating and DHW mode. The set DHW value is fixed at 10 °C, the set heating flow value is calculated based on a set room value of 5 °C.

Application: During prolonged periods of absence, e.g. holidays.

Programming mode

Heating in line with the time switch program (applies to heating circuits 1 and 2). Changeover between Comfort temperature and ECO temperature.

DHW heating in line with the time switch program; changeover between Comfort temperature and ECO temperature.

The remote control is only active in this operating mode.

Application: When DHW and central heating are required.

Comfort mode

The heating circuit (HC) is constantly held at the comfort temperature (HC 1 and HC 2). DHW heating according to time switch program.

Application: Low energy houses without setback mode.

ECO mode

The heating circuit is constantly held at the ECO temperature (applicable to HC 1 and HC 2). DHW heating according to time switch program.

Application: During weekends away.

DHW mode

DHW heating is regulated by a time switch program. If a time program is enabled, the water inside the DHW cylinder is heated to the set comfort temperature. At all other times, the water is heated to the set ECO temperature. Frost protection is activated for heating operation.

Application: The heating season has ended; only DHW should be provided (summer mode).

Emergency mode

In this operating mode, the heat pump is blocked. The BH stages (electric booster stages) of the emergency/booster heater heat according to the selected clock program for heating and DHW operation.

▶ Inform your contractor immediately.

4.4 Picture symbols

At the lower edge of the display, symbols provide information about the current appliance operating status.

Heating circuit pump: The pump symbol is displayed when a heating circuit pump is running.

Mixer circuit pump: The mixer symbol is displayed when a mixer circuit pump is running.

Heat-up program:
This symbol is displayed when the heat-up program runs.

Electric emergency/booster heater:
The electric emergency/booster heater has started. This occurs, for example, when the outside temperature has fallen below the dual mode point.

Central heating: The heating symbol is displayed when the appliance is in heating mode.

DHW heating: This symbol tells you that the heat pump is heating DHW.

Compressor: The symbol is displayed when the compressor is running.

Summer mode: The symbol is displayed when the appliance is in summer mode.

Cooling: The symbol is displayed when the appliance is in cooling mode.

5. Menu structure

After activating the programming unit, you can use the scroll wheel to select other operating modes or the menu key to jump to a level from which you can navigate to a specific appliance parameter.

- ■ INFO
  - ☐■ SYSTEM
  - ☐■ HEAT PUMP
- ■ DIAGNOSIS
  - ☐■ SYSTEM STATUS
  - ☐■ HEAT PUMP STATUS
  - ☐■ SYSTEM
  - ☐■ INTERNAL CALCULATION
  - ☐■ FAULT LIST
  - ☐■ RELAY TEST SYSTEM
- ■ PROGRAMS
  - ☐■ HEATING PROGRAM
  - ☐■ DHW PROGRAM
  - ☐■ PARTY PROGRAM
  - ☐■ HOLIDAY PROGRAM
  - ☐■ HEAT-UP PROGRAM
- ■ SETTINGS
  - ☐■ GENERAL
  - ☐■ HEATING
  - ☐■ DHW
  - ☐■ COOLING
- ■ COMMISSIONING
  - ☐■ ENTER CODE
  - ☐■ LANGUAGE
  - ☐■ SOURCE
  - ☐■ HEATING
  - ☐■ DHW
  - ☐■ COMPRESSOR
  - ☐■ EMERGENCY OPR
  - ☐■ HEAT PUMP RESET
  - ☐■ FAULT LIST RESET
  - ☐■ SYSTEM RESET

■ INFO

In the INFO menu you can check comparisons of set and actual values for temperatures, flow rates and pressures of the heating system and the heat pump.

Note
Please note that actual and set values can only be displayed if the appropriate sensors are connected.

☐■ SYSTEM

☐☐■ ROOM TEMPERATURES	
☐☐☐■ ACTUAL TEMPERATURE FE7 Actual room temperature for heating circuit 1 (HC1) or heating circuit 2 (HC2) (will only be displayed if the FE7 remote control is connected)	°C
☐☐☐■ SET TEMPERATURE FE7 Set room temperature for heating circuit 1 or heating circuit 2 (will only be displayed if the FE7 remote control is connected)	°C
☐☐☐■ ACTUAL TEMPERATURE FEK Actual room temperature for heating circuit 1 or heating circuit 2 (will only be displayed if the FEK remote control is connected)	°C
☐☐☐■ SET TEMPERATURE FEK Set room temperature for heating circuit 1 or heating circuit 2 (will only be displayed if the FEK remote control is connected)	°C
☐☐☐■ REL HUMIDITY	%
☐☐☐■ DEW POINT TEMPERATURE Dew point temperature (will only be displayed if the FEK remote control is connected)	°C

☐☐■ HEATING	
☐☐☐■ OUTSIDE TEMPERATURE	°C
☐☐☐■ ACTUAL TEMPERATURE HC 1 Actual heating circuit temperature heating circuit 1	°C
☐☐☐■ SET TEMPERATURE HC 1 Set heating circuit temperature heating circuit 1 (HC1). Fixed temperature is displayed with set value control.	°C
☐☐☐■ ACTUAL TEMPERATURE HC 2 Actual heating circuit temperature heating circuit 2	°C
☐☐☐■ SET TEMPERATURE HC 2 Set heating circuit temperature heating circuit 2 (HC2). Fixed temperature is displayed with set value control.	°C
☐☐☐■ ACTUAL FLOW TEMPERATURE HP Actual heat pump flow temperature	°C
☐☐☐■ ACTUAL FLOW TEMPERATURE BH Actual flow temperature of electric emergency/booster heater	°C
☐☐☐■ ACTUAL RETURN TEMP	°C
☐☐☐■ SET FIXED TEMPERATURE	°C
☐☐☐■ ACTUAL BUFFER TEMPERATURE Actual buffer cylinder temperature	°C
☐☐☐■ SET BUFFER TEMPERATURE Set buffer cylinder temperature	°C
☐☐☐■ HEATING PRES	bar
☐☐☐■ FLOW RATE	l/min
☐☐☐■ SYST FROST PRO System frost protection temperature	°C

☐☐■ DHW	
☐☐☐■ ACTUAL TEMPERATURE Actual DHW temperature	°C

□□□■ SET TEMPERATURE Set DHW temperature	°C
□□□■ FLOW RATE	l/min

□□■ COOLING	
□□□■ ACTUAL TEMPERATURE FAN	°C
□□□■ SET TEMPERATURE FAN	°C
□□□■ ACTUAL TEMPERATURE AREA	°C
□□□■ SET TEMPERATURE AREA	°C

□□■ ELECTRIC BOOSTER HEATER	
□□□■ DUAL MODE TEMP HEATING Heating dual mode point	°C
□□□■ APPLICATION LIMIT HEATING Heating application limit	°C
□□□■ DUAL MODE TEMP DHW DHW dual mode point	°C
□□□■ APPLICATION LIMIT DHW DHW application limit	°C

□□■ SOURCE	
□□□■ SOURCE TEMPERATURE	°C
□□□■ SOURCE TEMPERATURE MIN	°C
□□□■ SOURCE PRESSURE	bar

□■ HEAT PUMP

Hinweis
The power consumption is calculated on the basis of refrigerant circuit pressure. This calculation is inappropriate for billing purposes. Together with the amount of heat it is used for a rough energy statement.

□□■ PROCESS DATA	
□□■ HOT GAS TEMPERATURE Compressor outlet temperature	°C
□□■ HIGH PRESSURE	bar
□□■ LOW PRESSURE	bar

□□■ AMOUNT OF HEAT	
□□□■ COMPRESSOR HEATING DAY Compressor heat amount in heating mode since 00:00 h today in kWh.	kWh
□□□■ COMPRESSOR HEATING TOTAL Total amount of compressor heat generated in heating mode in MWh.	MWh
□□□■ COMPRESSOR DHW DAY Compressor heat amount in DHW mode since 00:00 h today in kWh.	kWh
□□□■ COMPRESSOR DHW TOTAL Total amount of compressor heat generated in DHW mode in MWh.	MWh
□□□■ BH HEATING TOTAL Total amount of heat generated by the electric emergency/booster heater in heating mode in MWh.	MWh
□□□■ BH DHW TOTAL Total amount of heat generated by the electric emergency/booster heater in DHW mode in MWh.	MWh

□□■ POWER CONSUMPTION	
□□□■ COMPRESSOR HEATING DAY Electrical output of compressor in heating mode since 0:00 h today.	kWh
□□□■ COMPRESSOR HEATING TOTAL Total electrical output of compressor in heating mode.	MWh
□□□■ COMPRESSOR DHW DAY Electrical output of compressor in DHW mode since 0:00 h today.	kWh
□□□■ COMPRESSOR DHW TOTAL Total electrical output of compressor in DHW mode	MWh

□□■ RUNTIMES in hours	
□□□■ HEATING COMPRESSOR 1 Runtime of compressor 1 in heating mode.	Hours
□□□■ DHW COMPRESSOR 1 Runtime of compressor 1 in DHW mode.	Hours
□□□■ COOLING COMPRESSOR 1 Runtime of compressor 1 in cooling mode.	Hours
□□□■ NHZ 1 Runtime of electric emergency/booster heater in booster stage 1.	Hours
□□□■ NHZ 2 Runtime of electric emergency/booster heater in booster stage 2.	Hours
□□□■ NHZ 1/2 Runtime of electric emergency/booster heater in booster stages 1 and 2.	Hours

□□■ STARTS
□□□■ COMPRESSOR

■ DIAGNOSIS

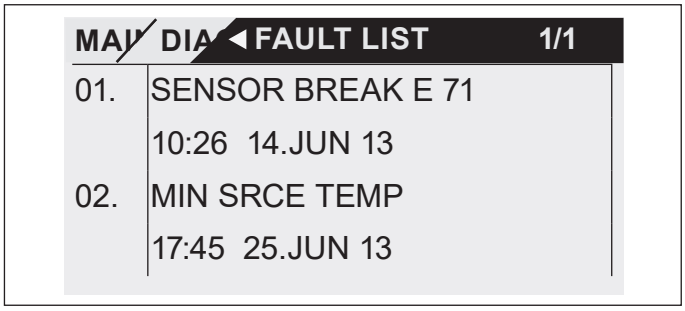
For heating system and heat pump troubleshooting and analysis, all important process data and bus subscribers can be queried under DIAGNOSIS and a relay test can be carried out.

Note
The menu item RELAY TEST SYSTEM is protected by a code and can only be accessed by a qualified contractor.

- ☐■ SYSTEM STATUS
  - ☐☐■ BUFFER CHARGING PUMP
  - ☐☐■ DHW VALVE
  - ☐☐■ HTG CIRC PUMP
  - ☐☐■ MIXER PUMP
  - ☐☐■ MIXER OPEN
  - ☐☐■ MIXER CLOSED
  - ☐☐■ SOURCE PUMP
  - ☐☐■ COOLING MODE
  - ☐☐■ POWER BLOCKED
- ☐■ HEAT PUMP STATUS
  - ☐☐■ REM IDLE TIME in minutes
  - ☐☐■ COMPRESSOR
  - ☐☐■ NHZ 1
  - ☐☐■ NHZ 2
- ☐■ SYSTEM
  - ☐☐■ BUS SUBSCRIBER
  - ☐☐■ HEAT PUMP TYPE
- ☐■ INTERNAL CALCULATION
  - ☐☐■ INTERVAL
  - ☐☐■ LIVE STAGES
- ☐■ FAULT LIST
- ☐■ RELAY TEST SYSTEM
  - ☐☐■ BUFFER CHARGING PUMP
  - ☐☐■ DHW VALVE
  - ☐☐■ HTG CIRC PUMP
  - ☐☐■ MIXER PUMP
  - ☐☐■ MIXER OPEN
  - ☐☐■ MIXER CLOSED
  - ☐☐■ NHZ 1
  - ☐☐■ NHZ 2
  - ☐☐■ NHZ 3
  - ☐☐■ SOURCE PUMP
  - ☐☐■ COOLING MODE
  - ☐☐■ DRAIN HYD MFG

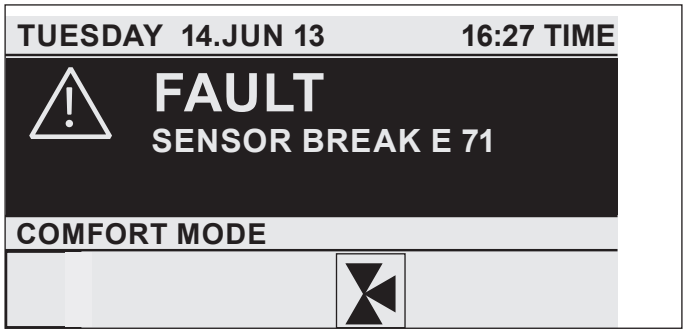
☐■ FAULT LIST

In the fault list, you receive an overview of the faults most recently registered by the appliance. The fault list contains up to 20 fault messages. The display, however, can show only 2. Turn the scroll wheel to access the other entries in the fault list.



Fault message

If the appliance registers a fault, this is clearly displayed with the message shown below.



If more than one fault occurs, the most recent one is shown continuously. Please inform your contractor.

☐■ RELAY TEST

You can control all relay outputs of the controller from here.

■ PROGRAMS

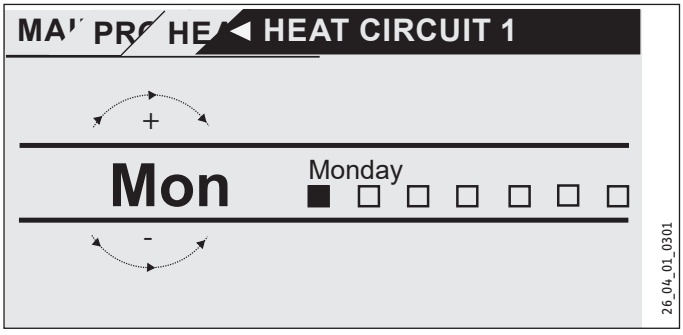
Here you can set all times for heating, DHW, holiday and party modes and you can also start the heat-up program.

- ☐■ HEATING PROGRAM
- ☐☐■ HEAT CIRCUIT 1
- ☐☐■ HEAT CIRCUIT 2
- ☐■ DHW PROGRAM
- ☐■ PARTY PROGRAM
- ☐☐■ HOURS
- ☐■ HOLIDAY PROGRAM
- ☐☐■ HOLS BEGINNING
- ☐☐■ HOLIDAYS ENDING
- ☐■ HEAT-UP PROGRAM
- ☐☐■ ON / OFF
- ☐☐☐■ LOW END TEMPERATURE
- ☐☐☐■ TEMP. RISE PERIOD
- ☐☐☐■ MAXIMUM TEMPERATURE
- ☐☐☐■ MAX TEMPERATURE DURATION
- ☐☐☐■ RISE PER DAY

☐■ HEATING PROGRAM

In the menu item HEATING PROGRAM you can determine when and how often the appliance heats to the set comfort values for heating circuit 1 and heating circuit 2. At all other times, the appliance heats to the set ECO value. You can select the set values under menu item SETTINGS/HEATING/HEATING CIRCUIT 1 or SETTINGS/HEATING/HEATING CIRCUIT 2. There follows an explanation of how to define a time program.

First, select the days on which you want to enable the HEATING function:



You can adjust your heating system as follows:

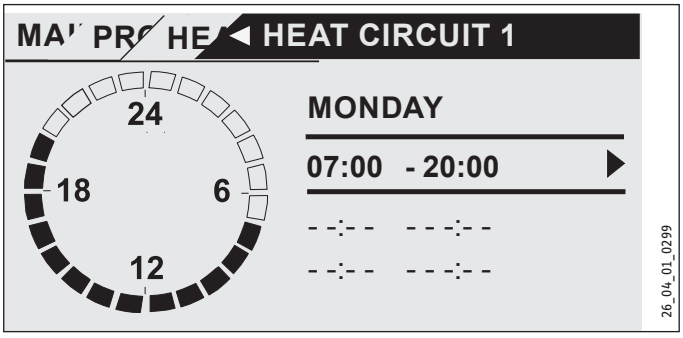
- For each individual day of the week (Monday - Sunday)
- Monday to Friday (Mo - Fr)
- Saturday and Sunday (Sa - Su)
- The whole week (Mo - Su)

Monday is initially offered.

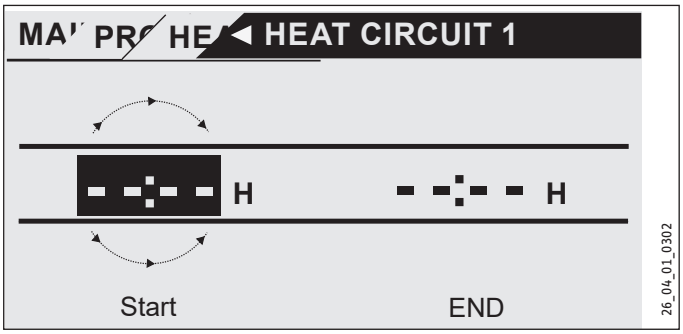
▶ Turn the scroll wheel to select another day or group of days.

▶ Confirm your selection with OK.

You can now set three switching time pairs. The three switching time pairs are shown on the display, to the right of the clock. A switching times pair comprises the start time and end point at which the appliance returns to its previous state.



In this example, only one switching times pair has so far been programmed. For switching times pairs 2 and 3, you can see short dashes instead of times. These switching time pairs are still empty. If you select one of the free switching time pairs with OK, you reach the area where you can set the associated start and end times. Press OK and the display shown below appears. Set the required time with the scroll wheel.



Times can be entered in intervals of 15 minutes. You can set 16:30 or 16:45, but not 16:37. Confirm your entry with OK.

Periods around midnight

Every Wednesday evening, heating mode should be enabled from 22:00 h for four hours. Thus the period does not expire until the next day, Thursday, at 02:00 h. However, since the day ends at 00:00, two switching times are necessary for the required program. First, program the period 22:00 to 00:00 h for Wednesday, then 00:00 to 02:00 h for Thursday.

☐■ DHW PROGRAM

In the menu item DHW PROGRAM you can determine the times during which DHW heating with the set comfort value should take place. At all other times, DHW is heated to the set ECO value. You can select the set values under menu item SETTINGS/DHW/DHW TEMPERATURES.

You can adjust your DHW heating as follows:

- For each individual day of the week (Monday - Sunday)
- Monday to Friday (Mo - Fr)
- Saturday and Sunday (Sa - Su)
- The whole week (Mo - Su)

You can set three switching time pairs for each of these options.

Exception: If you want to heat DHW from 22:00 h until 06:00 h the following day you will need two switching time pairs.

Example:

You would like to heat DHW twice daily, i.e. from 22:00 h until 06:00 h the following day, and then from 08:00 h until 09:00 h.

As the day begins at 00:00 h; you have to begin programming at 00:00 h also for this example.

- The first switching time pair runs from 00:00 h until 06:00 h.
- The second switching time pair runs from 08:00 h until 09:00 h.
- The third switching time pair runs from 22:00 h until 24:00 h.

☐■ PARTY PROGRAM

In the party program you can extend the comfort mode by a few hours for heating.

☐■ HOLIDAY PROGRAM

In the holiday program, the heat pump system runs in ECO mode, and frost protection for DHW heating is enabled.

For both the start and end of the holiday, enter the year, month and day. The start time is 00:00 h on the first day of the holiday. The end time is 24:00 h on the day the holiday ends. After the holiday period has expired, the heat pump system switches back to the previous heating and DHW program.

☐■ HEAT-UP PROGRAM

Note
The HEAT-UP PROGRAM menu item is protected by a code and can only be accessed and set by a qualified contractor.

Heat-up program for underfloor heating systems

Use the heat-up program to dry your screed with a defined temperature profile. To prevent damage to the appliance and/or the installation, observe the following:

- ▶ Perform hydronic balancing of the underfloor heating system.
- ▶ Open all lines of the underfloor heating system.

The heating output required for the floor heating program may exceed the design output of the heat pump. As a result, it may not be possible to achieve the required flow temperature with the heat pump. For problem-free heating/screed drying, therefore, we recommend using an external mobile electric heating appliance.

If screed drying with the heat pump, you will need to activate the electric emergency/booster heater.

If screed drying with a brine/water heat pump, the heat source, particularly a geothermal probe, may become overloaded. The ground around the geothermal probe may freeze in the process. Heat transfer to the ground will be irreparably damaged.

Screed drying with a geothermal probe:

If screed drying with a geothermal probe, obtain an approval from the manufacturer of the geothermal probe.

- ▶ Set the minimum source temperature to > 2 °C (see MIN SOURCE TEMPERATURE parameter in the COMMISSIONING / SOURCE menu).
- ▶ Set the temperature spread on the heat source side to < 3 K via the flow rate (see BRINE PUMP RATE parameter in the COMMISSIONING / SOURCE menu).

In some circumstances, screed drying may take longer than anticipated or may not be completed.

Screed drying with a geothermal collector:

If screed drying with a geothermal collector before the heating season, screed drying must be completed by the end of August at the latest. Otherwise the geothermal collector may not regenerate in time for the heating season.

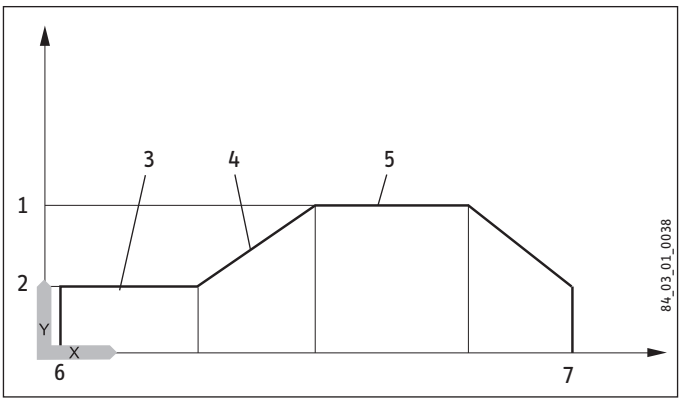
Settings

If you use the heat-up program, input the following settings at the heat pump manager:

First set parameter “LOWER APP LIMIT HZG” to 30 °C.

There are a total of 6 parameters that serve to determine the temperatures and periods for the heat-up program. These 6 parameters can be adjusted in sequence as soon as the heat-up program is activated. The program is started with the HEAT-UP PROGRAM parameter and the setting ON. Please note that depending on the system temperature it may take some time to reach the required low end temperature.

The low end temperature (parameter LOW END TEMPERATURE) is held for the selected time (parameter DURATION BASE TEMP). After expiry of this period, the system heats to the maximum low end temperature (parameter MAXIMUM TEMPERATURE) using an increase K/day (parameter RISE PER DAY) and holds this maximum temperature for the selected time (parameter MAX TEMPERATURE DURATION). The system subsequently returns to the low end temperature using the same steps as for heat-up.



Y Temperature
X Time
1 Maximum temperature
2 Low end temperature
3 Low end temperature duration
4 Increase K/day
5 Max temperature duration
6 Start
7 End

If a heating buffer cylinder has been integrated into the system, the temperature in the buffer cylinder is controlled solely via the

return sensor (fitted at the base of the buffer cylinder). If only the direct heating circuit 1 is operational, the set values are reduced by 5 K to even out temperature differences in the buffer cylinder. If 2 heating circuits are operational (second heating circuit is for underfloor heating system), the mixer in heating circuit 2 regulates down to the selected set values.

During the heat-up program the appliance often reaches maximum output. For this reason, energy consumption and noise levels are comparatively high during screed drying.

After the heat-up process all modified parameters must be reset to their standard values or system values.

Emergency operation is not possible while the heat-up program is active.

Settings

Here you can select all system-specific parameters for heating, cooling and DHW modes as well as general settings such as the time.

Note
Some menu options are protected by a code and can only be viewed and adjusted by a qualified contractor.

- GENERAL
  - TIME / DATE
    - TIME
    - YEAR
    - MONTH
    - DAY
  - SETTING SUMMER TIME
    - DAY BEGINNING
    - DAY ENDING
  - CONTRAST
  - BRIGHTNESS
  - TOUCH SENSITIVITY
  - TOUCH ACCELERATION

- HEATING
  - HEAT CIRCUIT 1
    - COMFORT TEMPERATURE
    - ECO TEMPERATURE
    - MINIMUM TEMPERATURE
    - HEATING CURVE RISE
    - HEATING CURVE VIEW
  - HEAT CIRCUIT 2
    - COMFORT TEMPERATURE
    - ECO TEMPERATURE
    - MINIMUM TEMPERATURE
    - MAXIMUM TEMPERATURE
    - MIXER DYNAMICS
    - HEATING CURVE RISE
    - HEATING CURVE VIEW
  - STANDARD SETTINGS
    - BUFFER OPERAT
    - SUMMER MODE
      - OUTSIDE TEMPERATURE
      - BUILDING HEAT BUFFER
    - MAXIMUM RETURN TEMP
    - MAXIMUM FLOW TEMP
    - FIXED VALUE OPERATION
    - HEATING CIRCUIT OPTIMAL
    - FROST PROTECT
  - REMOTE CONTROL FE7
    - HEATING CIRC PRESELECTION
    - ROOM INFLUENCE
    - ROOM CORRECTION
  - PUMPCYCLES
  - ELECTRIC REHEATING
    - DUAL MODE TEMP HEATING
    - LOWER APP LIMIT HEATING

- DHW
  - DHW TEMPERATURES
    - COMFORT TEMPERATURE
    - ECO TEMPERATURE
  - STANDARD SETTINGS
    - DHW HYSTERESIS
    - DHW LEARNING FUNCTION

□□□■ DHW CORRECTION
□□□■ COMBI CYLINDER
□□■ PASTEURISATION
□□■ ELECTRIC REHEATING
□□□■ DUAL MODE TEMP DHW
□□□■ LOWER APP LIMIT DHW

□■ COOLING
□□■ COOLING
□□■ COOLING MODE
□□□■ PASSIVE COOLING / ACTIVE COOLING
□□■ ACTIVE COOLING
□□□■ AREA COOLING
□□□□■ SET FLOW TEMPERATURE
□□□□■ FLOW TEMP HYSTERESIS
□□□□■ SET ROOM TEMPERATURE
□□□□■ DYNAMIC
□□□■ FAN COOLING
□□□□■ SET FLOW TEMPERATURE
□□□□■ FLOW TEMP HYSTERESIS
□□□□■ SET ROOM TEMPERATURE
□□□□■ DYNAMIC
□□■ PASSIVE COOLING
□□□■ AREA COOLING
□□□□■ SET FLOW TEMPERATURE
□□□□■ FLOW TEMP HYSTERESIS
□□□□■ SET ROOM TEMPERATURE
□□□■ FAN COOLING
□□□□■ SET FLOW TEMPERATURE
□□□□■ FLOW TEMP HYSTERESIS
□□□□■ SET ROOM TEMPERATURE

□■ GENERAL

□□■ TIME / DATE

Here you can set the time, year, month and day.

□□■ SETTING SUMMER TIME

Here you can select summer time.

At the factory, summer time is set to begin on 25 March and to end on 25 October.

□□■ CONTRAST

Here you can set the display contrast.

□□■ BRIGHTNESS

Here you can set the display brightness.

□□■ TOUCH SENSITIVITY and TOUCH ACCELERATION

A code is required for this adjustment.

□■ HEATING

□□■ HEATING CIRCUIT 1 and HEATING CIRCUIT 2

□□□■ COMFORT TEMPERATURE and ECO TEMPERATURE

Here you can select the set room temperatures for Comfort mode and ECO mode as well as the heating curve rise for heating circuit 1 and heating circuit 2.

Changing the set room temperature results in a parallel shift of the heating curve.

The actual room temperature can also be scanned, as soon as the FE 7 remote control has been connected and allocated to heating circuit 1.

The actual room temperature can also be scanned, as soon as the FE 7 or FEK remote control has been connected and allocated to heating circuit 2.

The display HEAT CIRCUIT 2 only appears if the mixer flow sensor for heating circuit 2 has been connected.

□□□■ MINIMUM TEMPERATURE

The set MINIMUM TEMPERATURE is safeguarded by the heating circuit controller and will never be undershot.

□□□■ MAXIMUM MIXER TEMPERATURE

Setting range 20 °C to 90 °C.

This setting limits the flow temperature of the mixer circuit. For example, if a higher set flow temperature is calculated from the mixer circuit data, the max. set mixer flow temperature will be used to control and regulate to this value.

□□□■ MIXER DYNAMICS

Mixer runtime

Setting range 60 to 240

You can use this setting to adapt the mixer characteristics. The setting 60 to 240 means 6 K to 24 K control deviation.

The scan rate is 10 s and the minimum on time for the mixer is 0.5 s. The mixer does not respond in the dead zone of ±1 K from the set value.

Example for the setting 100 = 10 K

The control deviation (set mixer temperature – actual mixer temperature) is 5 K. The mixer opens for 5 s, then pauses for 5 s and starts again.

The control deviation (set mixer temperature – actual mixer temperature) is 7.5 K. The mixer opens for 7.5 s, then pauses for 2.5 s and starts again.

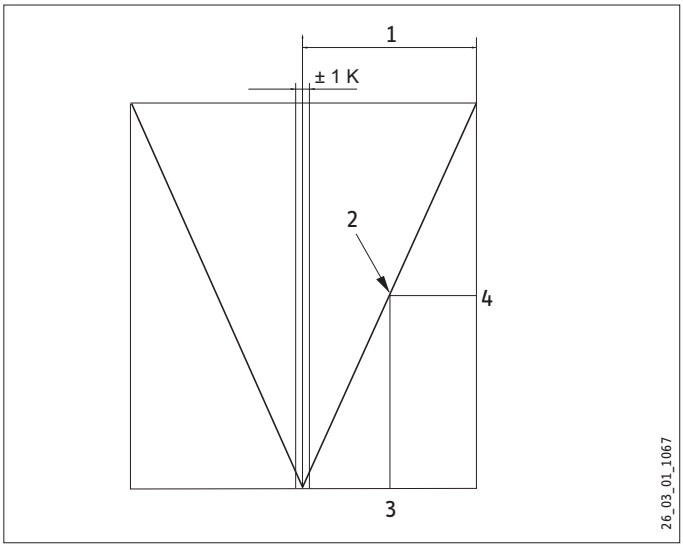
The smaller the control deviation, the shorter the mixer on time and the longer the pauses.

A reduction of the MIXER DYNAMIC value with the control deviation unchanged increases the on duration and reduces pauses.

Example for setting 100 and a current control deviation of 5 K.

5 K of 10 K = 50 % = on duration

Example: Control deviation



1 Setting 100 = control deviation 10 K
2 Control deviation 5 K
3 Control deviation in K
4 On time in %

□□□■ HEATING CURVE RISE

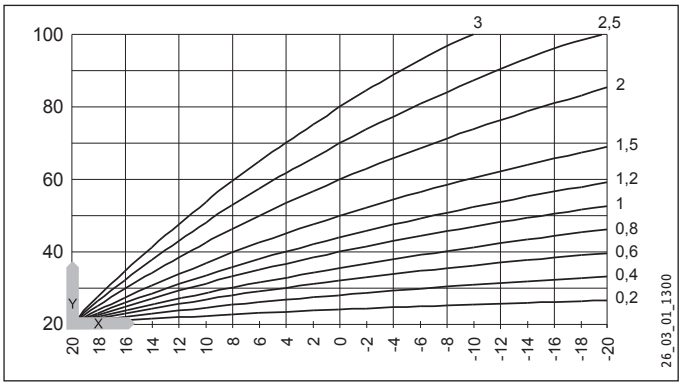
The menu item HEATING CURVE RISE enables you to adjust one heating curve each for heating circuits 1 and 2.

Note: Your contractor will have set a building and system-specific optimum heating curve for every heating circuit. It relates to the heat pump return temperature for heating circuit 1 and to the mixer flow temperature for heating circuit 2.

When adjusting the heating curve on the heat pump manager, the calculated set return or flow temperature, subject to the outside temperature and the set room temperature, will be shown at the top of the display.

As soon as you have preselected a temperature in menu SETTINGS / HEATING / STANDARD SETTING under parameter FIXED VALUE OPERATION, heating curve 1 is hidden from view and the display shows SET FIXED TEMPERATURE with the relevant temperature.

At the factory, heating curve 0.6 is set up for heating circuit 1 and heating curve 0.2 for heating circuit 2. These heating curves relate to a set room temperature of 20 °C.

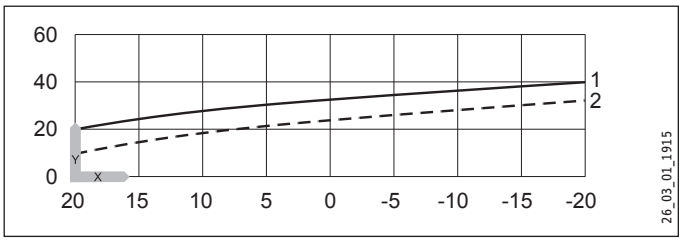


Y Return / flow temperature [°C]
X Outside temperature [°C]

□□□■ HEATING CURVE

Adjustment of programmed changeover between Comfort and ECO mode

The figure shows the diagram with the set heating curve relating to a set room temperature for Comfort mode. The second, dashed line in the display relates to a set room temperature for ECO mode.



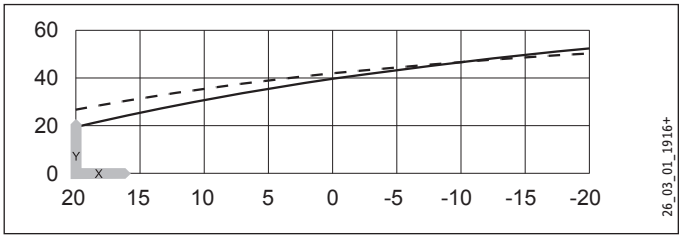
Y Return/flow temperature [°C]
X Outside temperature [°C]
1 Comfort mode
2 ECO mode

Adapting a heating curve

Example:

During spring and autumn, the temperature of a building's heating system is too low at an outside temperature between 5 °C and 15 °C, despite open radiator valves, but is OK at outside temperatures of ≤ 0 °C. This problem can be remedied with a parallel shift and a simultaneous reduction of the heating curve.

Prior to this adjustment, heating curve 1.0 was adjusted, relative to a set room temperature of 20 °C. The dotted line indicates the modified heating curve at 0.83 and a modified set room temperature of 23.2 °C.



Y Return/flow temperature [°C]
X Outside temperature [°C]

□□■ STANDARD SETTING

□□□■ BUFFER OPERATION

When using a buffer cylinder, set this parameter to ON.

□□□■ SUMMER MODE

The SUMMER MODE parameter can be used to define the point at which the heating system is to switch to summer mode. Summer mode can be switched ON or OFF. This function offers 2 adjustable parameters.

□□□□■ OUTSIDE TEMP

Available outside temperature 10 °C to 30 °C

□□□□■ BUILDING HEAT BUFFER

This parameter lets you choose whether an average outside temperature should be determined, according to the type of building.

You can select from 3 settings.

Setting "1": Minor insulation of the outside temperature (averaging over a 24 h period), for example timber construction with rapid heat transfer.

Setting "2": Moderate insulation of the outside temperature (averaging over a 48 h period), for example solid construction with thermal insulation and average heat transfer.

Setting "3": Heavy insulation (averaging over a 72 h period) of the outside temperature. House with slow heat transfer.

Both heating circuits (if installed) enter summer mode if the determined outside temperature is ≥ than the selected outside temperature; reverse hysteresis −1 K.

With fixed-value control, summer mode is disabled for heating circuit 1.

□□□■ MAXIMUM RETURN TEMPERATURE

Setting range 20 °C to 60 °C.

The heat pump is switched OFF immediately if the temperature at the return sensor reaches this value during heating operation. This safety function prevents the high pressure switch from responding. No fault message is issued when this value is reached.

During DHW operation the return temperature is not scanned.

□□□■ MAXIMUM FLOW TEMPERATURE

Maximum heat pump flow temperature for central heating

Setting range 20 °C to 65 °C.

This setting limits the flow temperature of the heat pump and the electric emergency/booster heater in heating mode.

□□□■ FIXED VALUE OPERATION

The heat pump return is regulated to the set fixed value. The switching time program will then be ignored. The various positions of the program selector will then only affect the mixer circuit (if installed). The frost protection is activated and the compressor is switched OFF when the program selector is set to standby and a fixed temperature has been selected. Summer logic remains disabled with fixed temperature control. This means that the heating circuit pump is not switched off for the direct heating circuit.

□□□■ HEATING CIRCUIT OPTIMAL

When an Uponor DEM WP module is connected, the heating curve is dynamically optimised for the heat demand of individual rooms. This involves modifying the preset heating curve by up to 50 % of its initial value.

The HEATING CIRCUIT OPTIMAL parameter is only shown if no mixer sensor and no FE7 remote control are connected.

The parameter HEATING CIRCUIT OPTIMAL can be set to ON or OFF. The default value is OFF.

This parameter may only be set to ON when an Uponor DEM WP module is connected.

This function is only active in Comfort mode, ECO mode and Programmed operation.

□□□■ FROST PROTECTION

To protect the heating system from frost, the heating circuit pumps are started at the selected frost protection temperature; the reverse hysteresis is 1 K.

□□■ REMOTE CONTROL FE7

This menu item is only displayed when the FE7 remote control is connected.

□□□■ HEATING CIRCUIT PRESELECTION

Remote control FE7 can be selected for both heating circuits.

This parameter lets you choose on which heating circuit the remote control is to act. Depending on the remote control preselection, you can query the actual room temperature under INFO/ SYSTEM/ROOM TEMPERATURE.

□□□■ ROOM INFLUENCE

Standard setting 5, adjustable from ---- via 0 to 20 dashes (----) in the display:

With the FE7 remote control connected, the room temperature sensor only serves to record and display the actual room temperature; it has no influence on the actual control. Only in automatic mode can the room temperature for heating circuit 1 or 2 be adjusted by ± 5 °C. This set value adjustment applies to the then current heating time, not to the setback time.

At the same time, setting "0 to 20" serves to control the room temperature-dependent night setback. This means that the heating circuit pump is switched off at the point of changeover from the heating into the setback phase. It remains off, until the actual room temperature falls below the set room temperature. After this, the system continues to regulate in weather-compensated mode.

If you want the room temperature to be taken into account, set the room temperature sensor influence to > 0. The room sensor influence has the same effect as the outside temperature sensor has on the return temperature, except that the effect is 1 to 20 times greater, depending on the factor set.

- **Room temperature-dependent return/flow temperature with weather compensation**

With this type of control, a control cascade is formed from a return/flow temperature control that is subject to both weather and room temperature. This means that the weather-compensated return/flow temperature control sets a default return/flow temperature that is corrected by the overriding room temperature control in accordance with the following formula:

$\Delta\vartheta_R = (\vartheta_{RSOLL} - \vartheta_{RIST}) * S * K$

Because a substantial proportion of the control is already handled by the weather-compensated control, the room temperature sensor compensation factor K can be set lower than with pure room temperature control (K=20). The figure indicates the control

method with the set factor K=10 (room influence) and a heating curve S=1.2.

- **Room temperature control with weather-compensation**

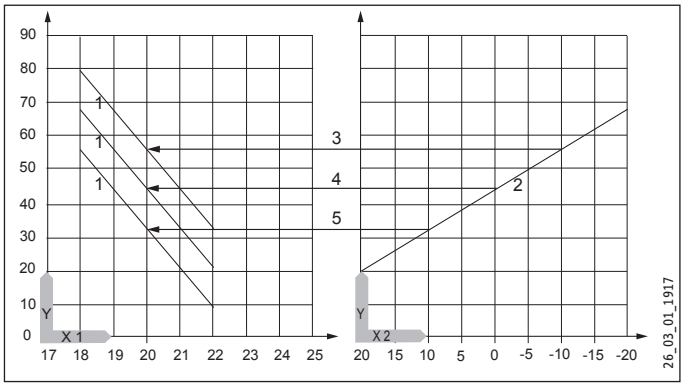
This type of control offers two significant benefits:

Incorrectly set heating curves are corrected by the room sensor influence **K**; whilst the smaller factor **K** provides more stable control.

However, observe the following for all control units with room temperature sensor influence:

- The room temperature sensor must capture the room temperature accurately.
- Open doors and windows greatly affect the control result.
- All radiator valves in the lead room must be fully open at all times.
- The temperature inside the lead room affects the entire heating circuit.

If you want the room temperature to be taken into account, set the room temperature sensor influence to > 0.



Y Flow temperature [°C]
X 1 Room temperature [°C]
X 2 Outside temperature [°C]
1 Room temperature sensor influence at K = 10 and S = 1.2 and control deviation +/- 2 K
2 Heating curve S = 1.2
3 Weather-compensated set flow temperature at ϑ_A = - 10 °C
4 Weather-compensated set flow temperature at ϑ_A = 0 °C
5 Weather-compensated set flow temperature at ϑ_A = + 10 °C

□□□■ ROOM CORRECTION

This parameter enables the calibration of the actual room temperature.

□□■ PUMP CYCLES

- **Heating circuit pump control**

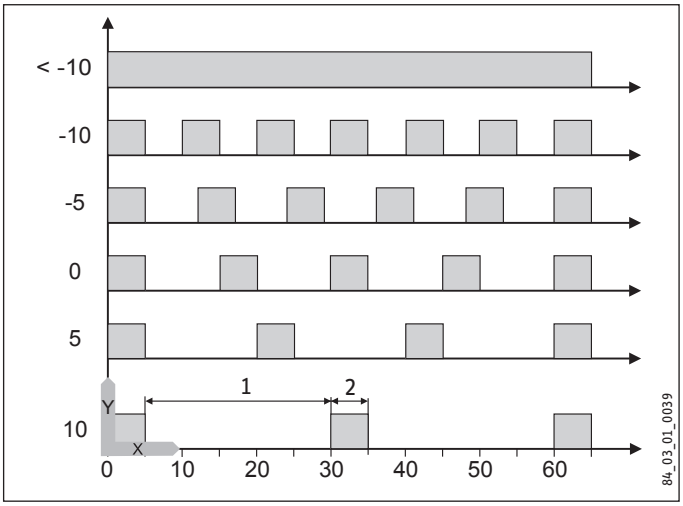
The PUMPCYCLES parameter only applies to the direct heating circuit 1, i.e. for heating circuit pump 1.

This parameter can be set ON or OFF. In the OFF setting, the heating circuit pump will not cycle. It will operate constantly. It is only switched off in summer mode.

As soon as this parameter is set to ON, the heating circuit pump will be switched in line with a fixed temperature curve for the outside temperature.

The heating circuit pump start pulse is always 5 minutes.

The heating circuit pump for heating circuit 1 always starts with each heat pump start. The pump runs on for 5 minutes after the heat pump has been shut down. Now the start-up duration takes effect, for example at an outside temperature of 5 °C, the pump starts 3 times per hour for 5 minutes each time.



Y Outside temperature in °C
X Time in minutes
1 Pause
2 Pump run time

- **Pump kick**

To prevent the pumps seizing up, over summer for example, the pumps are switched on for 10 seconds after every 24 hour period of inactivity. This applies to all pumps.

- **Heating circuit pump control with connected remote control FE7 / FEK**

In conjunction with the FE7 or FEK remote control, in accordance with the switching condition

$\vartheta_{ACTUAL\ room} > \vartheta_{SET\ room} + 1K$

the respective heating circuit pump is switched off and the mixer moves to CLOSE. This only applies if the room sensor influence is set to K > 0. Reverse switching is subject to the following condition:

$\vartheta_{ACTUAL\ room} > \vartheta_{SET\ room}$

The summer mode also becomes effective for the respective heating circuit when operating with a FE7 or FEK remote control.

□□■ ELECTRIC BOOSTER HEATER

□□□■ LOWER APP LIMIT HTG

Heat pump application limit

The heat pump is switched off if the outside temperature drops below the selected lower application limit for heating.

The electric emergency/booster heater alone provides central heating.

□□□■ **DUAL MODE TEMP HEATING**

The dual mode temperature of the heat pump for heating operation

Below this outside temperature, the electric emergency/booster heater is switched on for heating operation, subject to load.

□■ **DHW**

□□■ **DHW TEMPERATURES**

□□□■ **COMFORT TEMPERATURE and ECO TEMPERATURE**

Here you can select the set DHW temperatures for Comfort and ECO mode.

□□■ **STANDARD SETTINGS**

□□□■ **DHW HYSTERESIS**

This determines the switching hysteresis for DHW operation.

- Starting DHW heating at the set DHW temperature minus the hysteresis value.

□□□■ **DHW LEARNING FUNCTION**

Setting OFF

When heating DHW, the system automatically adjusts itself to the required DHW temperature (self-learning function).

The electric emergency/booster heater will be added as a booster stage as soon as the heat pump is shut down in DHW mode via the HP sensor or via the hot gas temperature limit (130 °C). If the flow temperature of 70 °C is achieved in this operating mode, DHW heating will be terminated, and the set DHW temperature is overwritten with the actual DHW temperature.

Setting ON

As soon as the heat pump is shut down in DHW mode via the HP sensor or the hot gas temperature limit (130 °C), DHW heating is terminated and the set DHW temperature will be overwritten with the current actual DHW temperature. This operating mode saves energy, as DHW is exclusively heated by heat pump.

□□□■ **DHW CORRECTION**

The DHW temperature is measured in the bottom third of the cylinder. The DHW outlet temperature is approx. 3 K higher than the measured temperature. This deviation is corrected and can be calibrated if necessary.

□□□■ **COMBI CYLINDER**

As soon as the parameter is set to ON, the heating circuit pumps are switched off during DHW heating.

(Only in conjunction with the instantaneous water cylinder SBS)

□□■ **PASTEURISATION**

The DHW cylinder is heated daily at 01:00 h to 60 °C if pasteurisation has been enabled. Pasteurisation only takes place when the emergency/booster heater is connected.

□□■ **ELECTRIC BOOSTER HEATER**

□□□■ **DUAL MODE TEMP DHW**

The dual mode temperature of the heat pump for DHW heating.

Below this outside temperature, the electric emergency/booster heater is switched on for DHW heating, subject to load.

□□□■ **LOWER APP LIMIT DHW**

Lower application limit for the heat pump for DHW heating.

The heat pump is switched off at outside temperatures below the selected lower DHW application limit.

The electric emergency/booster heater alone provides DHW heating.

□■ **COOLING**

Appliance and system damage
The WPF cool is only suitable for passive cooling. Active cooling with the WPF cool will lead to appliance damage. The WPF can be used for active and passive cooling. This, however, is only possible in conjunction with a suitable hydraulic circuit.
In the delivered condition, the COOLING parameter is set to OFF.

Appliance and system damage
With the WPF ... S, cooling is not permitted.

□□■ **COOLING**

On / OFF

□□■ **COOLING MODE**

Passive cooling / active cooling

□□■ **ACTIVE COOLING**

□□□■ **AREA COOLING**

□□□□■ **FLOW TEMPERATURE**

□□□□■ **FLOW TEMP. HYSTERESIS**

□□□□■ **SET ROOM TEMPERATURE**

□□□□■ **DYNAMIC**

□□□■ **FAN COOLING**

□□□□■ **FLOW TEMPERATURE**

□□□□■ **FLOW TEMP. HYSTERESIS**

□□□□■ **SET ROOM TEMPERATURE**

□□□□■ **DYNAMIC**

□□■ **PASSIVE COOLING**

□□□■ **AREA COOLING**

□□□□■ **FLOW TEMPERATURE**

□□□□■ **FLOW TEMP. HYSTERESIS**

□□□□■ **SET ROOM TEMPERATURE**

□□□■ **FAN COOLING**

□□□□■ **FLOW TEMPERATURE**

□□□□■ **FLOW TEMP. HYSTERESIS**

□□□□■ **SET ROOM TEMPERATURE**

Note
The COOLING parameter will only be shown if an FEK or FE7 remote control is connected. Cooling mode is only possible in summer mode.

The WPF with a suitable circuit cools in 2 stages:

Stage 1 (source pump)

Heat is extracted from the heating circuit and is passed to the heat source system.

Stage 2 (source pump + compressor)

In addition, the refrigerant circuit extracts heat from the heating circuit and transfers it to the heat source system.

DHW heating

DHW heating always has priority. As long as the actual temperature has not dropped below the set flow or room temperature, active cooling continues even during DHW heating, and any extracted heat is transferred to the DHW. If there is no cooling demand, DHW is conventionally heated via the heat source system.

Cooling mode with the FE 7

The FE7 is not equipped with dew point monitoring. It can therefore only be used in conjunction with fan convectors with condensate drain. Set COOLING MODE parameter to FAN.

Cooling mode with the FEK

The FEK remote control is equipped with dew point monitoring, and can therefore be used with area heating systems (e.g. underfloor/wall heating systems, etc.). Set parameter COOLING to AREA COOLING. The set flow temperature is compared with the captured dew point temperature, so the actual temperature never drops below the dew point. When using fan convectors with the FEK remote control, set the COOLING parameter to FAN COOLING.

The following settings for the FE 7 and the FEK can be selected for Cooling mode in parameter COOLING:

- Room temperature
  Cooling mode starts when the selected room temperature is exceeded (output COOLING=230 V).
  Cooling mode is stopped, if the actual room temperature drops 2 K below its set temperature. (output COOLING=0 V)
- Flow temperature and hysteresis
  Cooling mode is regulated via the selected flow temperature.
  The brine pump starts at:
  [Flow temperature + hysteresis]
  Brine pump off when the actual temperature drops below the flow temperature.
  The [flow temperature+hysteresis] should be at least 3 K < room temperature. Lower flow temperatures cause a more rapid cooling of the room.
  As soon as, with setting AREA COOLING, the determined dew point temperature is + 2 K higher than the selected flow temperature, that temperature will be overridden with the dew point temperature and acts as control variable. The brine pump starts at [entered or newly determined flow temp. + hysteresis].
  The source pump stops and Cooling mode terminates, if the actual flow temperature lies below the entered or newly determined flow temperature. The cooling signal remains active.
- Dynamic
  The Dynamic can be adjusted from 1 to 10. It describes the delay and changeover between passive cooling and active cooling, whereby active cooling is started sooner, the smaller the value.

6. Maintenance and care

Appliance and system damage
Maintenance work, such as checking the electrical safety, must only be carried out by a qualified contractor.

A damp cloth is sufficient for cleaning all plastic and sheet metal parts. Never use abrasive or corrosive cleaning agents.

We recommend regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor if required (to return the system to its original condition).

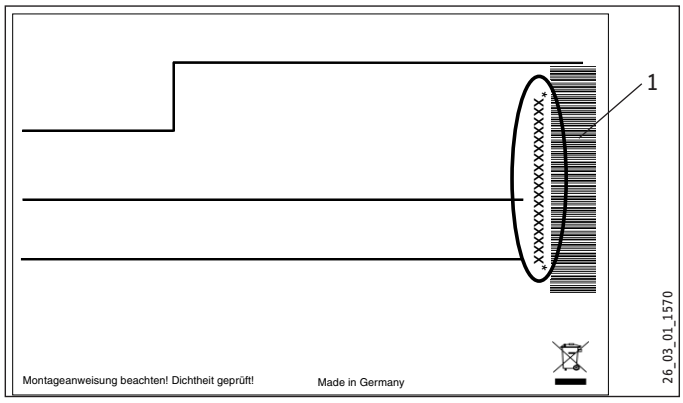
7. Troubleshooting

Fault	Cause	Remedy
There is no hot water or the heating system stays cold.	The fuse/MCB has blown/ responded.	Check the fuse/MCB in your fuse box/distribution panel.

7.1 Other problems

If you cannot remedy the fault, notify your qualified contractor. To facilitate and speed up your enquiry, please provide the serial number from the type plate. The type plate is located at the front top, on the right or left hand side of the casing.

Sample type plate



1 Number on the type plate

INSTALLATION

8. Safety

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

8.1 General safety instructions

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

8.2 Instructions, standards and regulations

Note
Observe all applicable national and regional regulations and instructions.

9. Appliance description

9.1 Mode of operation

The heat exchanger on the heat source side (evaporator) extracts natural heat from the heat source. Any energy extracted is transferred, together with the energy drawn by the compressor drive, to the heating water by a heat exchanger on the heating water side (condenser). Subject to the heat load, the heating water is heated up to + 65 °C.

The electric emergency/booster heater starts if the high pressure sensor or the hot gas limiter responds during DHW heating. In addition it covers any residual heat demand, if the heating system demand exceeds the heat pump output.

9.2 Special features of the WPF...cool

For cooling, the brine is pumped, via a further three-way valve through a second heat exchanger, where the energy is extracted from the heating water.

9.3 Standard delivery

The following are delivered with the appliance:

- 1 outside temperature sensor AFS 2
- 1 immersion sensor TF 6
- 6 push-fit connectors 28) mm

9.4 Accessories

- Brine charging unit WPSF
- Water softener fitting HZEA
- Filter assembly 22 mm (FS-WP 22)
- Filter assembly 28 mm (FS-WP 28)
- Remote control FE 7
- Remote control FEK

10. Preparations

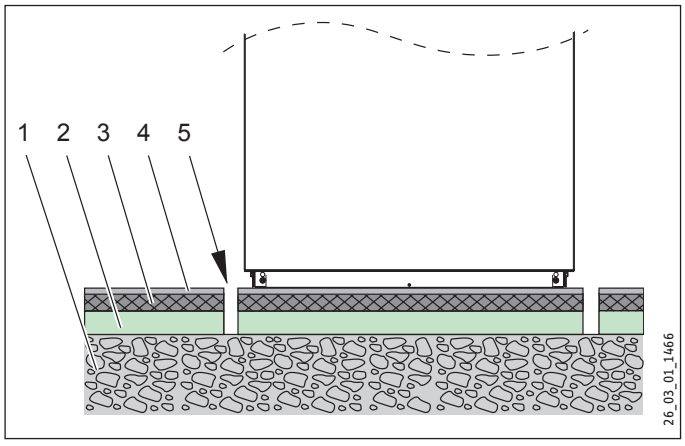
Note
The appliance is designed for internal installation, except in wet areas.

- ▶ Never install the appliance directly below or next to bedrooms.
- ▶ Protect pipe transitions through walls and ceilings with anti-vibration insulation.

The room in which the appliance is to be installed must meet the following conditions:

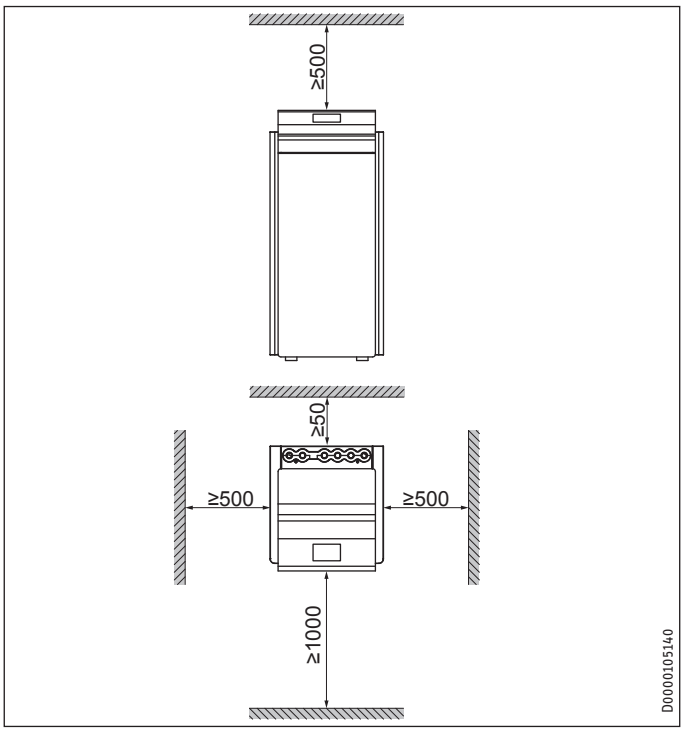
- No risk from frost.
- The room must not be subject to a risk of explosions arising from dust, gases or vapours.
- When installing the appliance in a boiler room together with other heating equipment, ensure that the operation of other heating equipment will not be impaired.
- The volume of the installation room should be at least 13.8 m³.
- Load-bearing floor (for the weight of the internal unit, see chapter “Specification / Data table”).

- ▶ For installation on floating screeds, make provisions for quiet heat pump operation.
- ▶ Isolate the mounting surface around the heat pump by recesses. After completing the installation, seal these recesses with a water-impervious and sound insulating material, such as silicone for example.



1 Concrete base
2 Impact sound insulation
3 Floating screed
4 Floor covering
5 Recess

10.1 Minimum clearances



- ▶ Maintain the minimum clearances to ensure trouble-free operation of the appliance and facilitate maintenance work.

10.2 Electrical installation

DANGER Electrocution
Carry out all electrical connection and installation work in accordance with national and regional regulations.

DANGER Electrocution
Only use a permanent connection to the power supply. Ensure that 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 with contactors, circuit breakers, fuses, etc.

Note
The specified voltage must match the mains voltage. Observe the type plate.

Install cables with the following cross-sections in accordance with the respective fuse rating:

Fuse/MCB rating	Assignment	Cable cross-section
C 16 A	Compressor (three phase)	2.5 mm²
B 16 A	Electric emergency/ booster heater (BH) (three phase)	2.5 mm²
		1.5 mm² with only two live cores and routing on a wall or in an electrical conduit on a wall.
C 16 A	Compressor WPF 05 S / 07 S (single phase)	1.5 mm² for open routing. Note the type of routing!
		2.5 mm² for routing through a wall. Note the type of routing!
C 25 A	Compressor WPF 10 S / 13 S (single phase)	4.0 mm² for open routing. Note the type of routing!
		6.0 mm² for routing through a wall. Note the type of routing!
B 16 A	Electric emergency/ booster heater (BH) (single phase)	2.5 mm² for routing through a wall. Note the type of routing!
		1.5 mm² when routing a multi core line on a wall or in an electrical conduit on a wall.
B 16 A	Control unit	1.5 mm²

The electrical data is provided in the chapter "Specification / Data table".

Material losses
Provide separate fuses/MCBs for the two power circuits of the compressor and the electric emergency/booster heater.

11. Installation

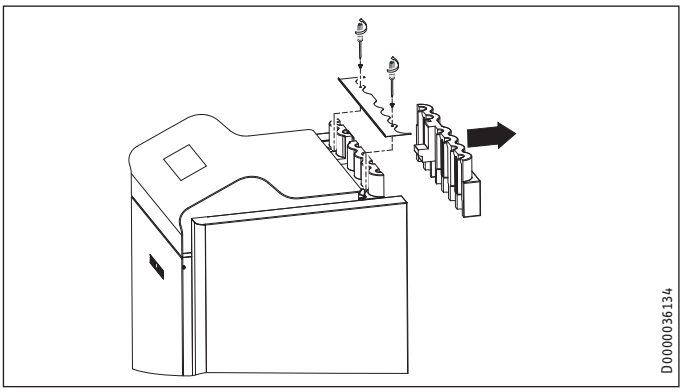
11.1 Handling

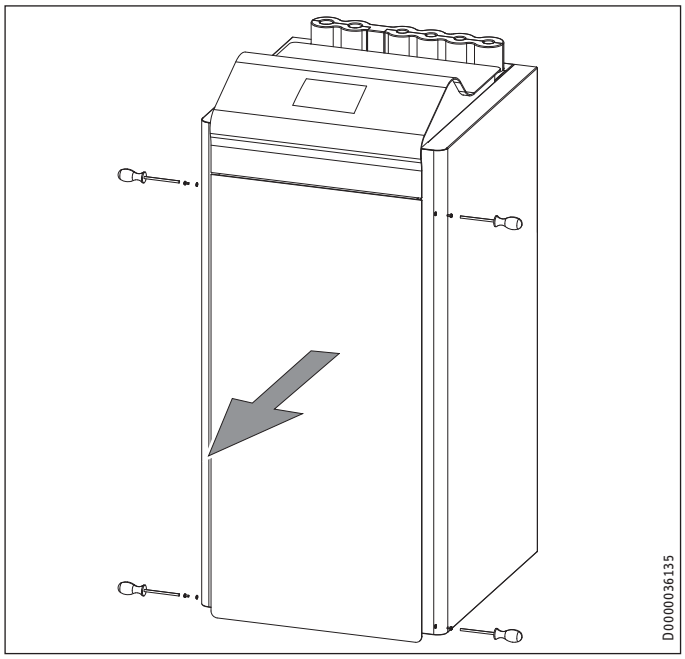
- ▶ Transport the appliance in its packaging to protect it against damage.
- ▶ Protect the appliance against heavy impact during transport.
- Only allow the appliance to be tilted during transport for a short time to one of its longitudinal sides.
  The longer the appliance is tilted, the greater the distribution of refrigerant oil in the system.
- Storage and transport at temperatures below - 20 °C and in excess of + 50 °C are not permissible.

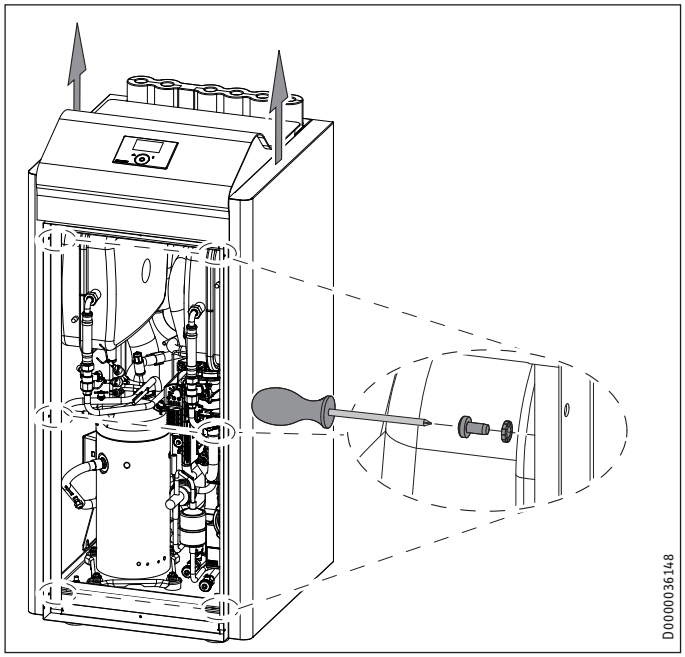
11.2 Siting

- ▶ Remove the packaging film and the top and side EPS padding.
- ▶ Slightly tilt the appliance forward.
- ▶ Place wooden blocks underneath the back of the appliance.
- ▶ Tilt the appliance backwards slightly and remove it from the EPS pallet.
- ▶ To do this, use the handles provided at the back and the front adjustable rubber feet at the bottom.
- ▶ Position the appliance on the prepared substrate.
- ▶ Maintain the minimum clearances.
- ▶ Level the appliance horizontally by adjusting the feet.

11.3 Removing the casing parts







11.4 Installing the heat source system

Design the heat source system for the ground source heat pump in accordance with the technical guides.

11.4.1 Permitted brine:

- Heat transfer medium as concentrate on an ethylene glycol base, part no: 231109 (10 l)
- Heat transfer medium as concentrate on an ethylene glycol base, part no: 161696 (30 l)

11.4.2 Circulation pump and required flow rate

See "Adjusting the flow rate on the heat source side" in the Commissioning chapter.

11.4.3 Connection and filling with brine

▶ Thoroughly flush the pipework before connecting the heat pump to the heat source circuit. Foreign bodies, such as rust, sand and sealant, can impair the operational reliability of the heat pump. We recommend installing our Brine filling unit WPSF in the heat source inlet (see chapter "Accessories").

To facilitate an easy connection to the brine circuit, the appliance is supplied with plug-in connectors (see chapter “Fitting the push-fit connector”).

You can find the brine volume of the heat pump under operating conditions in the data table (see chapter "Specification").

The overall volume equals that of the required amount of brine that should be mixed from undiluted ethylene glycol and water. The chloride content of the water must not exceed 300 ppm.

Mixing ratio

The brine concentration varies when using a ground collector or a geothermal probe as a heat source.

For the mixing ratio see the table below.

	Ethylene glycol	Water
Geothermal probe	25 %	75 %
Ground collector	33 %	67 %

Charging the brine circuit

Note
▶ Insulate the brine lines with diffusion-proof thermal insulation.

Note
The WPF S series does not have a brine pressure switch.

The integral diaphragm expansion vessel is opened and sealed at the factory.

▶ Check the pre-charge pressure (set pressure: 0.5 bar) of the diaphragm expansion vessel on the brine side.

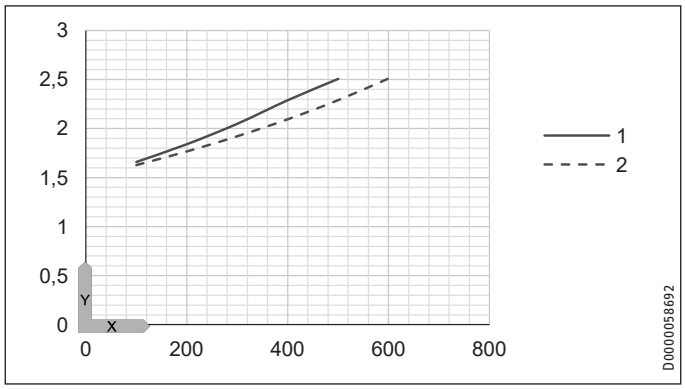
▶ If necessary, adjust the pre-charge pressure.

The brine/water heat pump is equipped with a brine pressure switch in the brine circuit. The brine pressure switch prevents brine getting into the ground if there is a leak in the brine circuit.

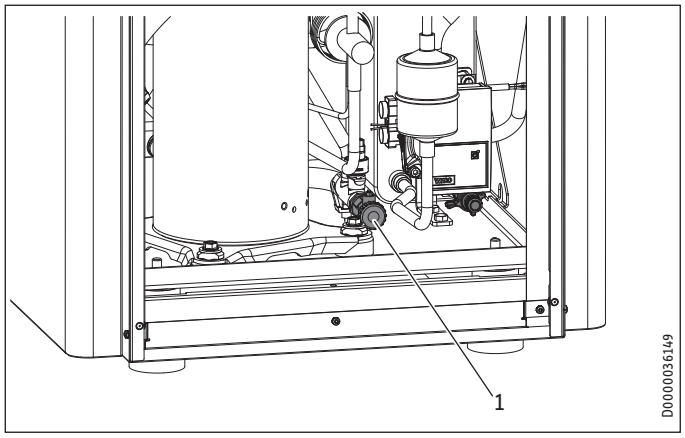
If the pressure in the brine circuit falls below 0.7 bar, the brine pressure switch turns the heat pump off. In order for the heat pump to be enabled again, the pressure must be raised to at least 1.5 bar while the heat pump is on standby.

To prevent the brine pressure switch turning the heat pump off when there is no leak, charge the heat source side of the heat pump during installation with a minimum pressure of > 1.5 bar.

▶ Charge the system according to the following curve.



X System volume [l]
Y Charge pressure [bar]
1 Required charge pressure subject to the system volume with 33 % brine
2 Required charge pressure subject to the system volume with 25 % brine



1 Drain, brine side

► Fill the brine circuit via the drain.

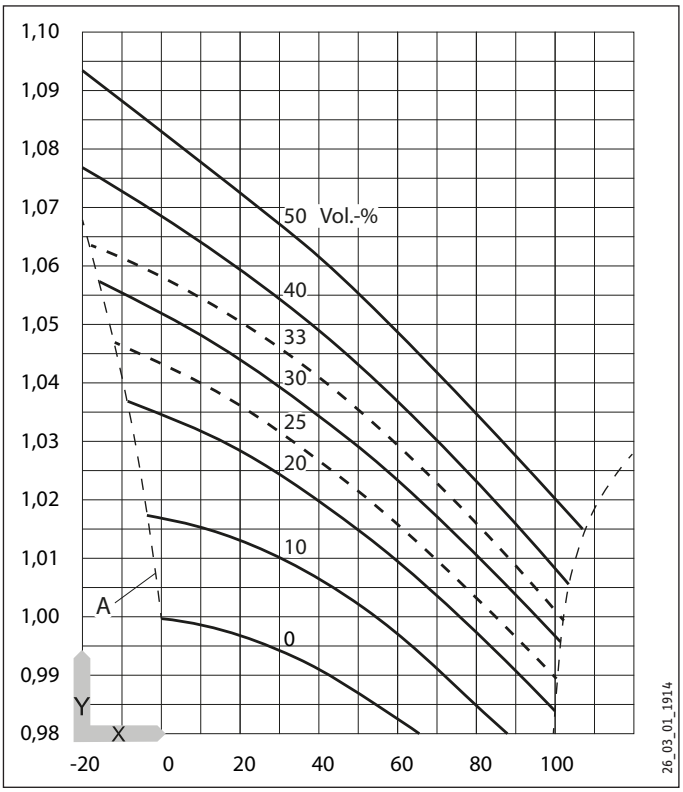
After filling the system with brine and prior to commissioning, open the drain until brine runs out of it. No water must remain in the pipe run to the drain.

Check the brine concentration:

► Determine the density of the ethylene glycol/water mixture, e.g. with a hydrometer.

Using the actual density and temperature, you can check the actual concentration in the diagram.

Note
The quoted details refer to ethylene glycol (see "Specification").



X Temperature [°C]
Y Density [g/cm³]
A Frost protection [°C]

Thermally insulate all brine pipes with diffusion-proof material.

The integral pressure expansion vessel is opened and sealed at the factory. The pre-charge pressure of the expansion vessel on the brine side should be checked and adjusted, if required. For this, the system fill pressure must be higher than the pre-charge pressure plus max. brine pump pressure differential.

For geothermal probes, the expansion vessel is suitable for a fill volume of up to 600 l.

11.5 Heating water connection

The heating system to which the heat pump is connected must be installed by a qualified contractor in accordance with the water installation diagrams that are part of the technical guides.

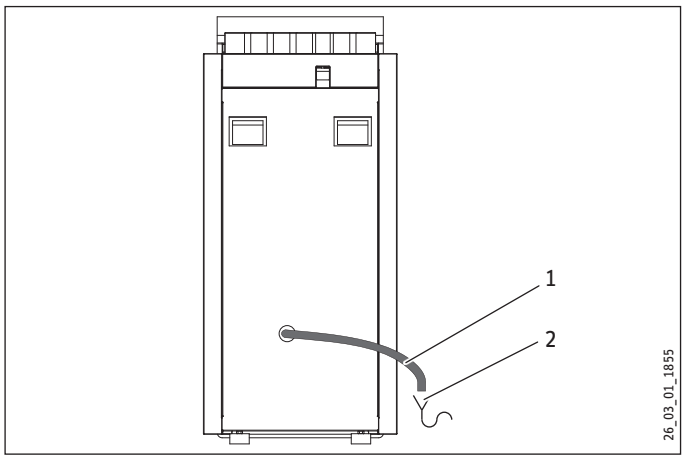
- ▶ Thoroughly flush the pipework before connecting the heat pump. Foreign bodies, such as rust, sand and sealant, can impair the operational reliability of the heat pump. We recommend installing our filter assembly in the heating return (see chapter "Accessories").

To facilitate an easy connection to the heating system, the appliance is supplied with plug-in connectors (see chapter "Fitting the push-fit connector").

- ▶ Connect the heating system to the "heating flow" and "heating return" connections. Check for tightness.
- ▶ Ensure the correct connection of the heating flow and return.
- ▶ When sizing the heating circuit, observe the maximum available external pressure differential (see chapter "Specification / Data table").
- ▶ Provide thermal insulation in accordance with applicable regulations.

At the factory, the pressure expansion vessel on the heating side is sealed in the open position at the cap valve.

Safety valve



1 Drain
2 Discharge outlet

- ▶ Size the discharge outlet so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ Ensure that the safety valve drain is open to the outside.
- ▶ Install the safety valve drain with a constant fall to the discharge outlet. When installing the drain, never kink the pipe.

11.6 Oxygen diffusion

Material losses
Do not use open vented heating systems. Use oxygen diffusion-proof pipes in underfloor heating systems with plastic pipework.

In underfloor heating systems with plastic pipes that are permeable to oxygen and in open vented heating systems, oxygen diffusion may lead to corrosion on the steel components of the heating system (e.g. on the indirect coil of the DHW cylinder, on buffer cylinders, steel radiators or steel pipes).

- ▶ With heating systems that are permeable to oxygen, separate the heating system between the heating circuit and the buffer cylinder.

Material losses
The products of corrosion (e.g. rusty sludge) can settle in the heating system components and can result in a lower output or fault shutdowns due to reduced cross-sections.

11.7 Filling the heating system

Water quality

A fill water analysis must be available prior to charging the system. This may, for example, be requested from the relevant water supply utility.

Material losses
To avoid damage as a result of scaling, it may be necessary to soften or desalinate the fill water. The fill water limits specified in chapter "Specification / Data table" must always be observed.

- ▶ Recheck these limits 8-12 weeks after commissioning and as part of annual system maintenance.

Note
With conductivity of >1000 µS/cm, desalination treatment is recommended in order to avoid corrosion.

Note
Suitable appliances for water softening and desalinating, as well as for charging and flushing heating systems, can be obtained via trade suppliers.

Note
If you treat the fill water with inhibitors or additives, the same limits as for desalination apply.

Filling the heating system

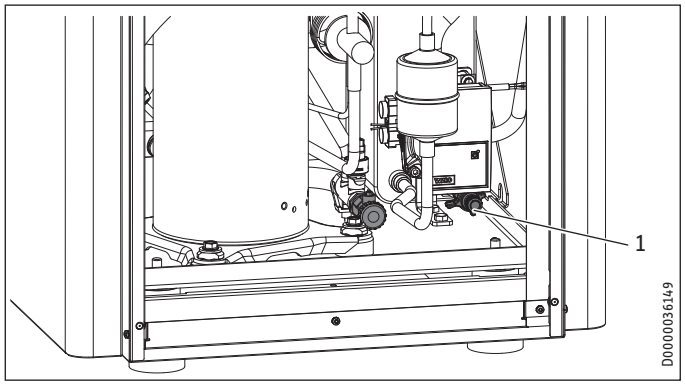
Material losses
Never switch on the power before filling the system.

Material losses
High flow rates or water hammer can damage the appliance.
▶ Fill the appliance at a low flow rate.

In the delivered condition, the diverter valve of the MFG is positioned at the centre, enabling the heating and DHW circuits to be filled evenly. If power is switched on, the diverter valve automatically moves into the central heating position.

If you intend filling or draining the system later, first place the diverter valve into its centre position.

For this, activate controller parameter DRAIN HYD in the DIAGNOSIS / RELAY TEST SYSTEM menu.



1 Drain, heating side

▶ Fill the heating system via the drain. Refer to section “Determine the fill pressure”.

Determine the fill pressure

The diaphragm expansion vessel installed in the appliance has a volume of 24 litres. The pre-charge pressure P0 is 1.5 bar.

If the height difference Δh between the highest point of the heating system and the diaphragm expansion vessel is no more than 13 m, the diaphragm expansion vessel can be used without any changes being required.

▶ Fill the heating system to a pressure of at least 1.8 bar (P0 + 0.3 bar). Observe the safety valve’s response pressure of 3 bar.

If the height difference between the highest point of the heating system and the diaphragm expansion vessel is more than 13 m, the pre-charge pressure needs to be adapted.

▶ Calculate the pre-charge pressure:

$$P0 = \frac{\Delta h}{10} + 0{,}2 \text{ bar}$$

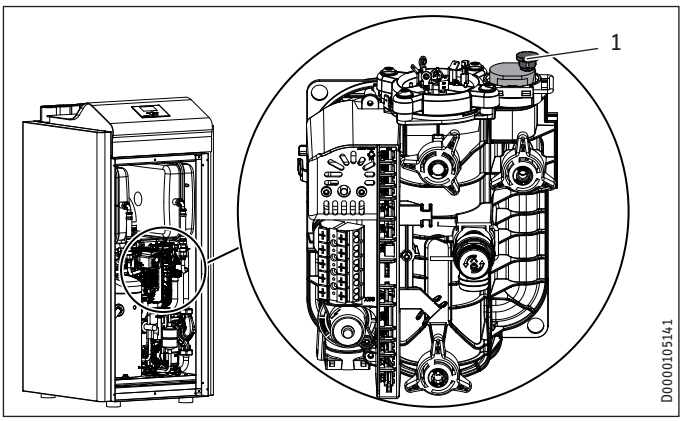
D0000081230

▶ Note that the heating system fill pressure increases accordingly.

▶ Check whether a further external diaphragm expansion vessel needs to be installed.

▶ Fill the heating system to the appropriate pressure (P0 + 0.3 bar). Observe the safety valve’s response pressure of 3 bar.

11.8 Venting the heating system



1 Air vent valve

▶ Vent the pipework by pulling up the red cap on the air vent valve.

▶ Close the air vent valve after the venting process.

11.9 DHW heating

For DHW heating, a DHW cylinder with internal indirect coils is required. The minimum coil surface area required is 3 m³.

A three-way valve is integrated into the WPF between the DHW heating circuit and the central heating circuit.

▶ Thoroughly flush the pipework before connecting the heat pump. Foreign bodies, such as rust, sand and sealant, can impair the operational reliability of the heat pump. We recommend installing our filter assembly in the DHW heating circuit (see chapter “Accessories”).

▶ Connect the DHW flow of the appliance to the upper coil connection of the DHW cylinder (see "Specification / Connections").

▶ Connect the DHW return of the appliance to the lower coil connection of the DHW cylinder.

Note
If no DHW heating is being connected, connections e22 (cylinder flow) and e23 (cylinder return) are to be hydraulically interconnected.

11.10 Operation with buffer cylinder

▶ Install the TF6 return sensor supplied.

▶ Connect the return sensor to the control panel.

▶ At the heat pump manager, set parameter BUFFER MODE to ON.

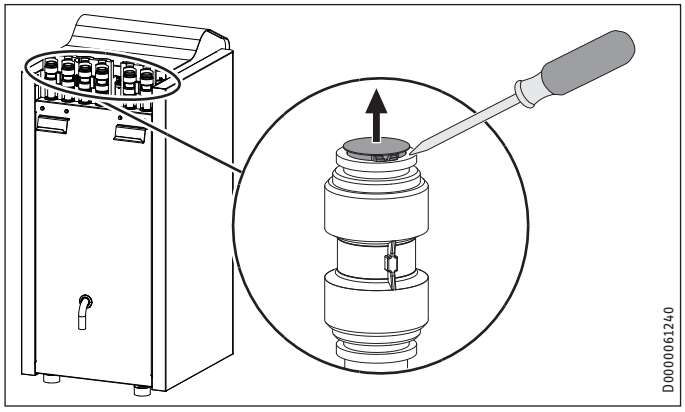
11.11 Fitting the push-fit connectors

Note
Never install the push-fit connectors in the DHW line. Only install the push-fit connectors in the heating circuit and the solar circuit.

Material losses
Tighten the screw cap of the push-fit connector by hand. Never use a tool.

Material losses
To ensure the push-fit connector is held securely, pipes with a surface hardness > 225 HV (e.g. stainless steel) must have a groove.

- ▶ Using a pipe cutter, cut a groove (depth approx. 0.1 mm) at a defined distance from the end of the pipe.
  - Pipe diameter 22 mm: 17±0.5 mm
  - Pipe diameter 28 mm: 27.5±0.5 mm



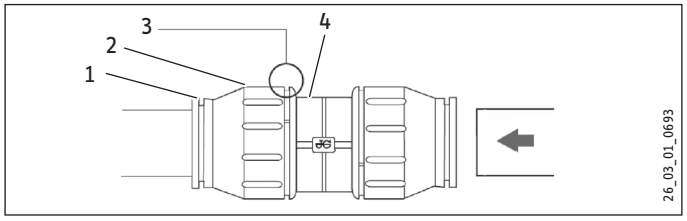
- ▶ Remove the protective grey caps from the push-fit connectors.

How the push-fit connectors work

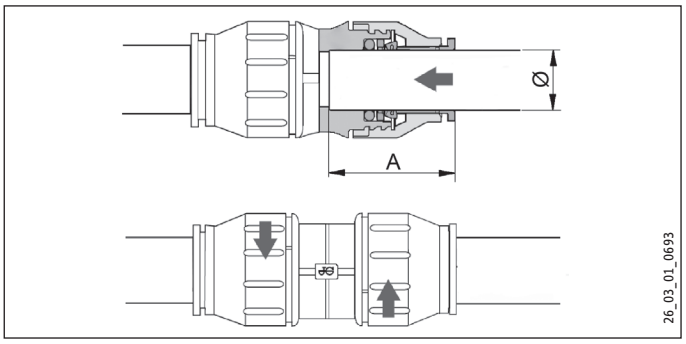
The push-fit connectors are equipped with a retainer with stainless steel serrations and an O-ring seal. In addition, the push-fit connectors are equipped with the “twist and lock” function. Simply turning the screw cap by hand will secure the pipe in the connector and push the O-ring against the pipe to seal it.

Making the push-fit connection

The connector must be in its relaxed position before the pipe is inserted. In this position, there is a small gap between the screw cap and main body.



1 Retainer
2 Screw cap
3 Gap between screw cap and main body
4 Main body



Pipe Ø	28 mm
Depth of insertion A	44 mm

Material losses
Pipe ends must be deburred.

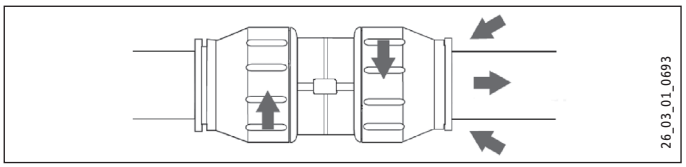
- ▶ Always use a pipe cutter to trim pipes.

- ▶ Push the pipe through the O-ring into the push-fit connector until it reaches the prescribed insertion depth.
- ▶ Tighten the screw cap by hand against main body as far as it will go. This locks the push-fit connection.

Undoing the push-fit connection

If the push-fit connectors later need to be undone, proceed as follows:

- ▶ Turn the screw cap anti-clockwise until there is a narrow gap of approx. 2 mm. Press the retainer back with your fingers and hold on to it.
- ▶ Pull out the inserted pipe.



12. Power supply

12.1 General

WARNING Electrocution
▶ Before any work, isolate the appliance from the power supply at the control panel.

Note
The leakage current of this appliance can be > 3.5 mA.

Connection must only be carried out by a qualified contractor and in accordance with these instructions.

Permission to connect the appliance may need to be obtained from your local power supply utility.

- ▶ Observe chapter "Preparations / Electrical installation".

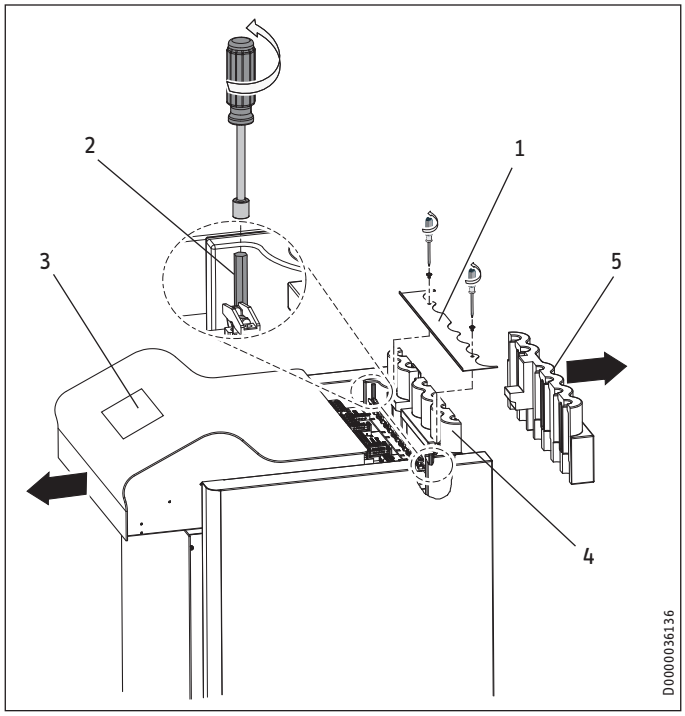
Note
In conjunction with the WPM heat pump manager, use the HSM mixer servomotor.

12.2 Power supply

Note
Before making the electrical connections you need to fill the heating system (see chapter "Heating water connection").

Terminals are located at the appliance control panel under the top cover.

Use appropriate cables in accordance with local regulations for all connections.



1 Cover strip
2 Hexagon bolt (SW 7)
3 Cover
4 Front thermal insulation piece
5 Rear thermal insulation piece

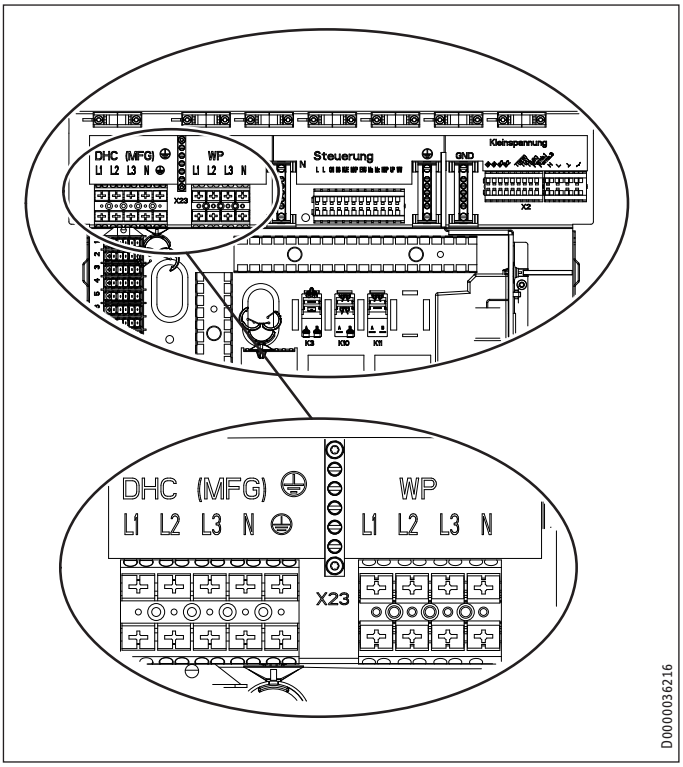
- ▶ Remove the cover strip.
- ▶ Undo the hex bolts with a socket spanner and remove the cover towards the front.
- ▶ Remove the rear thermal insulation piece.
- ▶ Route the cables through the cable entry in the front thermal insulation piece.
- ▶ Then route the electrical cables through the strain relief fittings.
- ▶ Check the function of the strain relief fittings.
- ▶ Route all connecting cables and sensor leads through the entry provided in the back panel.

12.2.1 Compressor and electric emergency/booster heater WPF ... and WPF ... cool

Material losses
The compressor must only rotate in one direction. Change the direction of rotation by interchanging two phases, if the fault NO POWER appears in the WPM3i display when the compressor starts.

Appliance function	Effect of the electric emergency/booster heater
Mono energetic operation	If the heat pump cannot reach the dual mode point, the electric emergency/booster heater ensures both the heating operation and the provision of high DHW temperatures.
Emergency mode	Should the heat pump suffer a fault that prevents its continued operation, the heating output will be covered by the electric emergency/booster heater.

- ▶ Connect cables according to the following diagram.



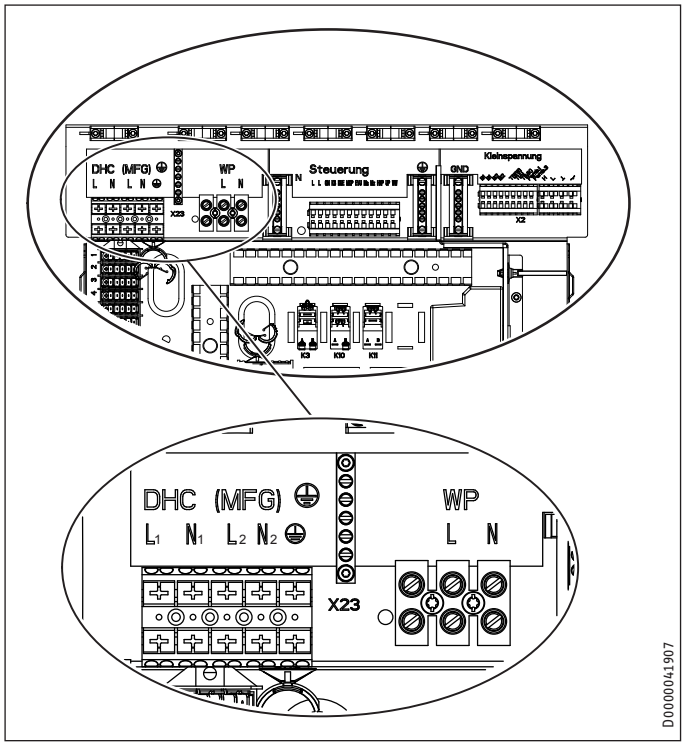
X3	Electric emergency/booster heater (DHC)			
	L1, L2, L3, N, PE			
	Connected load	Terminal allocation		
	2.9 kW	L1		PE
	5.9 kW	L1	L2	PE
	8.8 kW	L1	L2	L3	PE
X3	Compressor (HP)			
	L1, L2, L3, N, PE			

- ▶ Route cables and leads through the strain relief fittings. Check that the strain relief fittings are working as intended.

12.2.2 Compressor and electric emergency/booster heater WPF ... S

Appliance function	Effect of the electric emergency/booster heater
Mono energetic operation	If the heat pump cannot reach the dual mode point, the electric emergency/booster heater ensures both the heating operation and the provision of high DHW temperatures.
Emergency mode	Should the heat pump suffer a fault that prevents its continued operation, the heating output will be covered by the electric emergency/booster heater.

▶ Connect cables according to the following diagram.

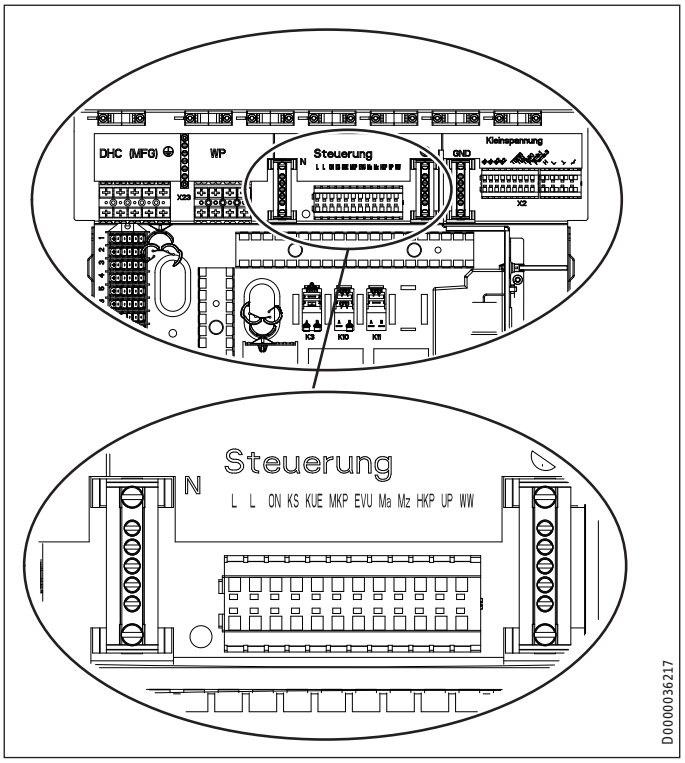


X3	Compressor (WP)
	L, N, PE

X3	Electric emergency/booster heater (DHC)					
	L1, N1, L2, N2, PE					
	Connected load	Terminal assignment				
	2.9 kW	L1	N1			PE
	2.9 kW			L2	N2	PE
	5.9 kW	L1	N1	L2	N2	PE

▶ Route cables and leads through the strain relief fittings. Check that the strain relief fittings are working as intended.

12.2.3 Control voltage



X4	Control voltage (control outputs)
ON	Compressor signal
KS	Brine pump signal
KUE	Cooling
MKP	Mixer circuit pump and N (X25), PE
M(A)	Mixer open
M(Z)	Mixer closed
HKP	Heating circuit pump and N, PE
UP	Pump
DHW	DHW

X4	Control voltage (control inputs)
L, N, PE	Power supply
EVU	Enable signal

▶ Route cables and leads through the strain relief fittings. Check that the strain relief fittings are working as intended.

If no voltage is applied to the power supply utility enable signal, the heat pump will not start. The message “power-OFF” appears on the controller. In this event, install a jumper across “EVU” and phase “L”.

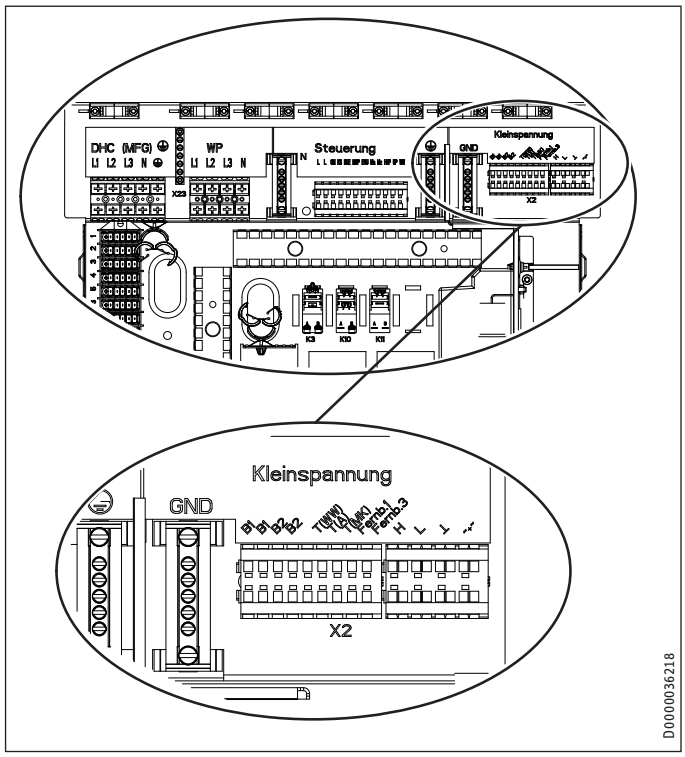
Material losses

▶ Only connect energy efficient circulation pumps to the pump connections if they have been approved by us.

If energy efficient circulation pumps are used that have not been approved by us, use a relay with a breaking capacity of at least 10 A/250 VAC or our WPM-RBS relay set.

	Part no.:
UP 25/7.0 E	232942
UP 25/7.5 E	232943
UP 25/7.5 PCV	235949
UP 30/7.5 E	233947
WPKI-HK E	233602
WPKI-HKM E	233603

12.2.4 Low voltage, bus cable



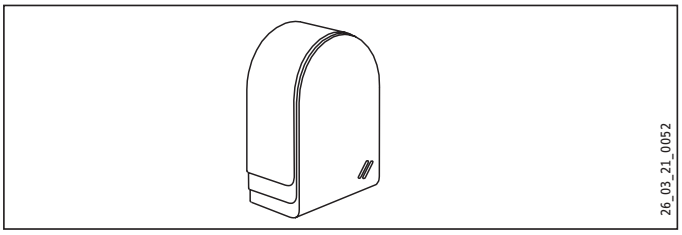
X2	Safety extra low voltage	
	B1	Heat pump flow temperature sensor
	B2	Heat pump return temperature sensor
	T (WW)	DHW cylinder sensor and earth (X26)
	T(A)	Outside temperature sensor and earth (X26)
	T(MK)	Mixer circuit temperature sensor and earth (X26)
	Fernb. 3	Connection for FE 7
	Fernb. 1	Connection for FE 7 and uponor DEM WP module
	+	CAN bus for remote control
	⊥	
	L	
	H	
GND	Ground for temperature sensor	

- ▶ Route cables and leads through the strain relief fittings. Check that the strain relief fittings are working as intended.

12.3 Sensor installation

Outside temperature sensor AFS 2 (included in the pack supplied)

The temperature sensors have a significant influence on the function of your heating system. Therefore ensure the correct seating and adequate insulation of sensors.



Install the outside temperature sensor on a north or north-eastern wall. Minimum clearances: 2.5 m above the ground, and 1 m to the side of windows and doors. The outside temperature sensor should be freely exposed to the elements but not placed in direct sunlight. Never mount the outside temperature sensor above windows, doors or flues.

Connect the outside temperature sensor to terminal X2 (T(A)) and to the earth block for low voltage X26 of the appliance.

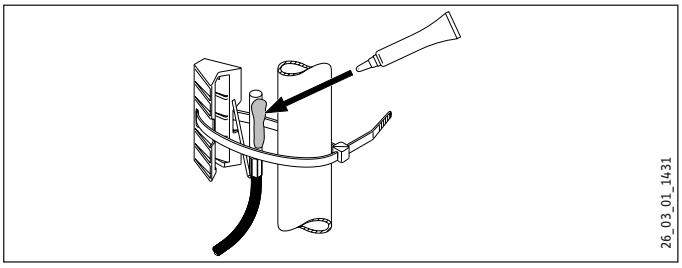
Installation:

- ▶ Remove the cover.
- ▶ Secure the lower part with the screw supplied.
- ▶ Connect the cable.
- ▶ Replace the cover. The cover must audibly click into place.

Contact sensor AVF 6

This sensor is required when using a mixer circuit.

Installation information:



- ▶ Clean the pipe.
- ▶ Apply heat conducting paste.
- ▶ Secure the sensor with a cable tie.

Sensor resistance values

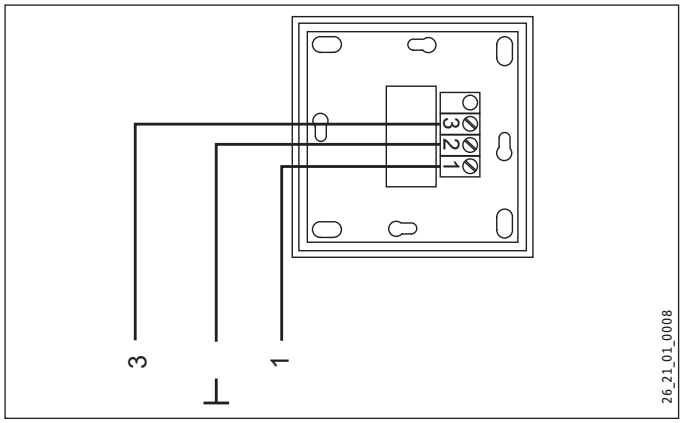
Temperature in °C	PT 1000 sensor Resistance in Ω	KTY sensor Resistance in Ω
- 30	882	1250
- 20	922	1367
-10	961	1495
0	1000	1630
10	1039	1772
20	1078	1922
25	1097	2000
30	1117	2080
40	1155	2245
50	1194	2417
60	1232	2597
70	1271	2785
80	1309	2980
90	1347	3182
100	1385	3392
110	1423	---
120	1461	---

12.4 Safety temperature controller for underfloor heating system STB-FB

Material losses
In case of failure, in order to prevent an excessively high flow temperature in the underfloor heating system, we generally recommend the use of a safety temperature controller to limit the system temperature.

12.5 Remote control FE 7

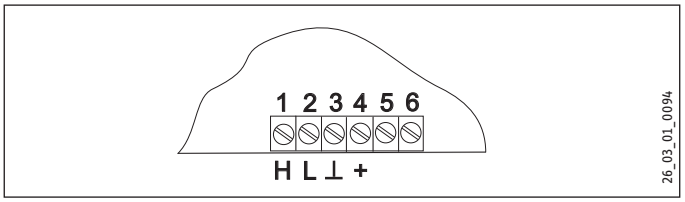
Connection array FE 7



The FE 7 remote control enables you to adjust the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C in automatic mode only. You can also change the operating mode. Connect the remote control to terminals Fernb.1 (Rem.con.1) and Fernb.3 (Rem.con.3) at terminal block X2 and earth block for low voltage X26 of the appliance.

12.6 Remote control FEK

Connection array FEK



The FEK remote control enables you to change the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C as well as the operating mode. Connect the remote control to terminals H, L, ⊥ and + to terminal block X2 of the appliance.

▶ Also observe the FEK operating instructions.

12.7 Uponor DEM WP module

When an Uponor DEM WP module is connected, the heating curve is dynamically optimised for the heat demand of individual rooms. This involves modifying the preset heating curve by up to 50 % of its initial value.

The Uponor DEM WP module is connected as an alternative to an FE7 remote control. Operation with both devices is not possible.

Connect the Uponor DEM WP module to terminals Fernb. 1 and ⊥ to terminal block X2 of the appliance.

▶ Also observe the Uponor DEM WP module operating instructions.

12.8 Internet Service Gateway ISG

The Internet Service Gateway ISG lets you operate the heat pump in your local home network and via the internet when on the go. Connect the Internet-Service-Gateway to terminals H, L, and ⊥ to terminal block X2 of the appliance.

The ISG is not supplied with power via the heat pump.

▶ Also observe the ISG operating instructions.

13. Commissioning

Only qualified contractors may carry out the adjustments on the heat pump manager commissioning report, commission the appliance and instruct the owner in its use.

Commissioning should be carried out in accordance with these operating and installation instructions. Our customer service can assist with commissioning, which is a chargeable service.

Where this appliance is intended for commercial use, the rules of the relevant Health & Safety at Work Act may be applicable for commissioning. For further details, check your local authorising body.

13.1 Checks before commissioning

Before commissioning check the points detailed below.

13.1.1 Heating system

- Have you filled the heating system to the correct pressure?
- Have you closed the air vent valve of the multi-function assembly (MFG) again after venting?

Material losses
Observe the maximum system temperature in underfloor heating systems.

13.1.2 Heat source

Material losses
Never use the heat pump to dry the screed by means of the underfloor heating system (see chapter „Menu structure / Menu PROGRAMS / HEAT-UP PROGRAM“).

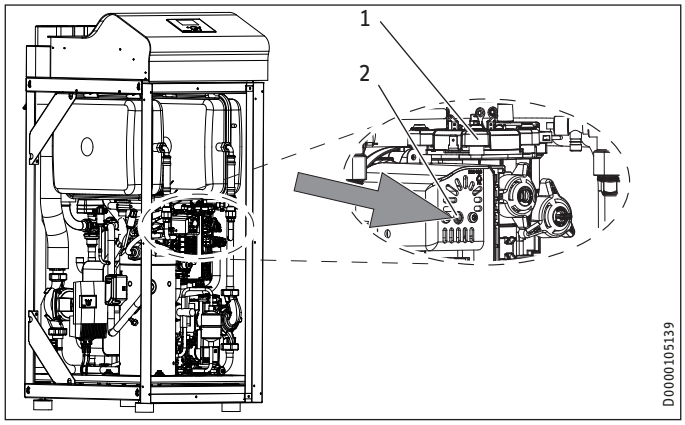
13.1.3 Temperature sensor

- Have you correctly positioned and connected the outside temperature sensor and the return temperature sensor (in conjunction with a buffer cylinder)?

13.1.4 High limit safety cut-out

At ambient temperatures below -15 °C the high limit safety cut-out of the multi function assembly may respond.

▶ Check if the high limit safety cut-out has responded.



1 Electric emergency/booster heater
2 High limit safety cut-out reset button

▶ Reset the high limit safety cut-out by pressing the reset button.

13.1.5 Power supply

- Have you correctly connected the power supply?
- The compressor turns in the right direction if, when voltage is applied to the heat pump power supply (mains), no fault message appears in the display. If the fault message NO OUTPUT appears, reverse the rotational direction of the compressor.

13.2 Heating curve adjustment during commissioning

The efficiency of a heat pump decreases as the flow temperature rises. Therefore adjust the heating curve with care. A heating curve that is set too high leads to the zone and thermostatic valves closing and the minimum flow rate required for the heating circuit may not be achieved.

The following steps will help you to adjust the heating curve correctly:

▶ Fully open thermostatic or zone valves in a lead room (e.g. living room or bathroom).
We do not recommend installing thermostatic or zone valves in the lead room. Control the temperature for these rooms via remote control.

▶ At different outside temperatures (e.g. -10 °C and + 10 °C), adjust the heating curve so the required temperature is set in the lead room.

Standard values for the start:

Parameter	Underfloor heating system	Radiator heating system
Heating curve	0.4	0.8
Control dynamic	10	10
Comfort temperature	20 °C	20 °C

If the room temperature in spring and autumn is too low (approx. 10 °C outside temperature), the COMFORT TEMPERATURE parameter must be raised.

Note
If no remote control is installed, raising the COMFORT TEMPERATURE parameter leads to a parallel offset of the heating curve.

If the room temperature is not high enough at low outside temperatures, increase the HEATING CURVE parameter.

If the parameter HEATING CURVE has been raised, adjust the zone valve or thermostatic valve in the lead room to the required temperature at high outside temperatures.

Note
Never reduce the temperature in the entire building by closing all zone or thermostatic valves, but by using the setback programs.

13.3 Commissioning menu

Note
All menu options are protected by a code and can only be viewed and adjusted by a qualified contractor.

☐■ ENTER CODE

☐■ LANGUAGE
☐☐■ ENGLISH

☐■ SOURCE
☐☐■ SOURCE TEMPERATURE MIN
☐☐■ BRINE PUMP RATING
☐☐■ SOURCE MEDIUM
☐☐☐■ ETHYLENE GLYCO
☐☐☐■ POTASSIUM CARBONATE
☐☐☐■ EXTRACT MODULE 0
☐☐☐■ EXTRACT MODULE 30
☐☐☐■ EXTRACT MODULE 60
☐☐☐■ EXTRACT MODULE 120
☐☐☐■ EXTRACT MODULE 180
☐☐☐■ WATER
☐☐☐■ GROUNDWATER MODULE

☐■ HEATING
☐☐■ CNTRL DYNAMIC
☐☐■ HP SENSOR MAX
☐☐■ HEATING CIRCT PUMP RATING

☐■ DHW
☐☐■ DHW CIRCUIT PUMP RATING

☐■ COMPRESSOR
☐☐■ IDLE TIME
☐☐■ SINGLE PHASE OPERATION
☐☐■ QUICK START

☐■ EMERGENCY OPR

☐■ HEAT PUMP RESET

☐■ FAULT LIST RESET

☐■ SYSTEM RESET

☐■ ENTER CODE

Enter the correct four-digit code to change parameters. The factory-set code is 1 0 0 0.

☐■ LANGUAGE

Here you can select the menu language.

☐■ SOURCE

☐☐■ SOURCE TEMPERATURE MIN

Setting range -10 °C to +10 °C and setting OFF.

Material losses
Never operate the appliance with source temperatures below – 9 °C.

When set to OFF, the source temperature sensor temperature is not scanned.

The compressor shuts down and the idle time is set, when the actual temperature drops below the minimum source temperature. The compressor is enabled again after the idle time has expired and the fixed hysteresis of 2 K has been exceeded.

This fault, i.e. MIN SOURCE T, is indicated in the display by a flashing warning triangle, and entered into the fault list.

The source pump will always be started 30 seconds earlier than the compressor, which starts when there is a heat demand coming from the central heating or DHW side.

Note
The source pump runs on for 60 seconds after the heat pump has been shut down.

☐☐■ BRINE PUMP RATING

The brine pump flow rate can be adjusted here.

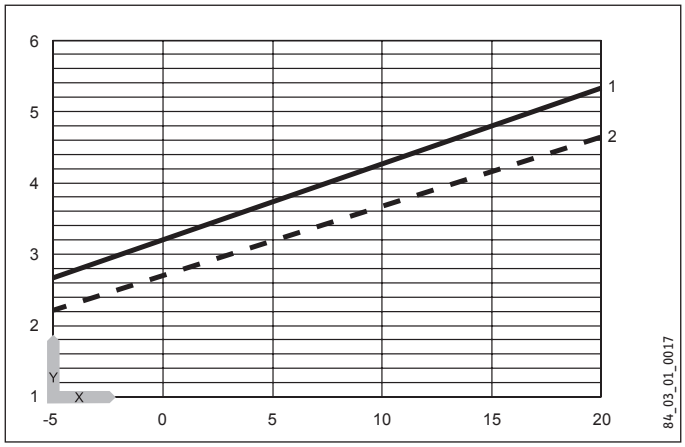
The heat source flow rate is set via the temperature differential of the heat source circuit.

- ▶ Operate the appliance in heating or DHW mode. To do so, switch on the appliance using the parameter BRINE PUMP RATING in the COMMISSIONING / SOURCE menu.
- ▶ Start the setting of the source pump after the heat pump has run for at least 10 minutes.

The brine pump rating should be selected so that the temperature differential on the brine side is not exceeded. The setting is made in the programming unit.

The flow rate on the brine side is not displayed in the programming unit.

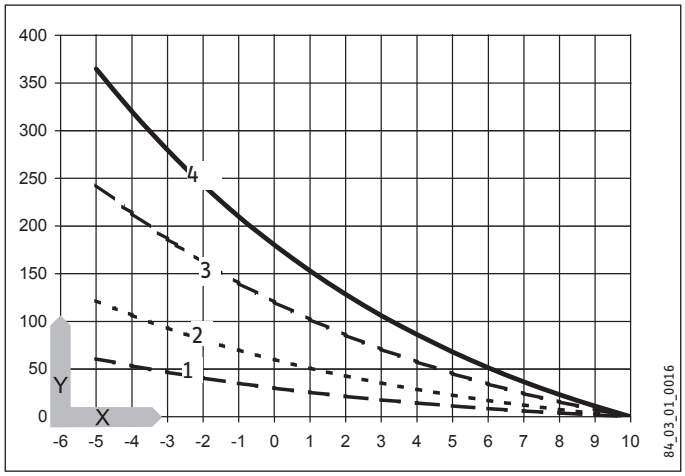
Max. temperature differential of heat source circuit



Y Max. temperature differential [K]
X Source inlet temperature [°C]
1 Heating flow 35 °C
2 Heating flow 50 °C

Note
You can check the source outlet temperature on the heat pump manager display under system menu item INFO TEMPERATURES.

Brine pump run-on time with extractor module



Y Brine pump run-on time [minutes]
X Brine inlet temperature [°C]
1 EXTRACT MODULE 30
2 EXTRACT MODULE 60
3 EXTRACT MODULE 120
4 EXTRACT MODULE 180

□□■ SOURCE MEDIUM

□□□■ ETHYLENE GLYCOL

□□□■ POTASSIUM CARBONATE

□□□■ WATER

□□□■ GROUNDWATER MODULE

□□□■ EXTRACT MODULE 0, 30, 60, 120 AND 180 (Only in conjunction with the extractor module LWM 250)

At a brine inlet temperature of < 10 °C, a regeneration of the heat source system can be implemented in conjunction with the extractor module and ethylene glycol or propylene glycol as brine. Settings enable the determination of the run-on time of the brine pump, after the heat pump has been shut down. The values stated correspond to the run-on time in minutes at an average brine inlet temperature of 0 °C.

Setting	Brine pump run-on time
EXTRACT MODULE 0	1 minute
EXTRACT MODULE 30	30 minutes
EXTRACT MODULE 60	60 minutes
EXTRACT MODULE 120	120 minutes
EXTRACT MODULE 180	180 minutes

If the brine inlet temperature rises, the resulting run-on time of the source pump reduces accordingly. If the brine inlet temperature drops, the run-on time increases. From a brine inlet temperature of 10 °C, the run-on time will always be at least one minute.

Note
The heat pump can only be operated as a ground source heat pump.

□■ HEATING

□□■ CONTROL DYNAMIC

Setting range 0 to 30

The selected control dynamic is a measure of the switching interval between the compressor and the electric emergency/booster heater. Normally, the pre-selected dynamic should be sufficiently fast and without oscillation. Heating systems that respond quickly require a lower value, whilst very slow responding systems require the setting of a higher value.

□□■ HP SENSOR MAX

Maximum high pressure

Setting range 38 bar to 40 bar.

This setting limits the high pressure during DHW or central heating. The system implements a controlled shutdown when the maximum high pressure is reached.

See also DHW learning function.

☐☐■ HEATING CIRCUIT PUMP RATING

Here you set the "Rated heating flow rate" (see chapter "Specification / Data table").

☐■ DHW

☐☐■ DHW CIRCUIT PUMP RATING

Set the maximum flow rate here. If this is noisy, reduce the flow rate.

☐■ COMPRESSOR

☐☐■ IDLE TIME

After a heat pump has been shut down, an idle time is set as protection for the compressor. The default idle time of 20 minutes should normally not be reduced. Where a reduction is required because of adjustments or repair work, reset the idle time again to 20 minutes after completing the necessary work.

☐☐■ SINGLE PHASE OPERATION

This parameter must always be set to OFF.

☐☐■ QUICK START

During commissioning, you can test the heat pump function by triggering a heat pump quick start. When this parameter is started, OFF appears at the bottom of the display. Pressing PRG initiates a quick start. The respective pumps are switched on after the heat pump has started. The value 60 is visibly counted down to 0 on the display; then the display shows ON.

After that, the heat pump and the associated buffer charging pump are switched ON.

☐■ EMERGENCY MODE

Characteristics in case of "Fatal Error" conditions in conjunction with the emergency operation:

The EMERGENCY OPR parameter can be set to ON or OFF.

Emergency mode set to ON:

The program selector automatically changes over to emergency mode as soon as faults occur and the heat pump fails.

Emergency operation set to OFF:

As soon as faults occur and the heat pump fails, the electric emergency/booster heater takes over the frost protection of the central heating system. Users can then select emergency mode on their own initiative.

☐■ HEAT PUMP RESET

The heat pump can be reset if a fault occurs. Setting it to ON resets the fault that has occurred. The compressor starts again. The fault remains stored in the fault list.

☐■ FAULT LIST RESET

ON / OFF

The entire fault list will be deleted.

☐■ SYSTEM RESET

A system reset will reset the heat pump manager to its delivered condition (factory settings).

▶ You will need to select the corresponding heat pump type again.

Note
The heat pump can only be operated as a ground source heat pump.
▶ Heat pump type WPF MFG must be set.

13.4 WPM3i commissioning report

The following lists the parameters that can be adjusted via the programming unit.

Programs / heat-up program	Setting range	Standard	System value
LOW END TEMPERATURE	20..40 °C	25.0 °C	
TEMP. RISE PERIOD	0 to 5 days	2 days	
MAXIMUM TEMPERATURE	20...50 °C, inc 0.5 K	40.0 °C	
MAX TEMPERATURE DURATION	0 to 10 days	0 days	
RISE PER DAY	1 to 10 K/day	1 K/day	

Settings / general	Setting range	Standard	System value
CONTRAST	01 to 10	5	
BRIGHTNESS	0 to 100 %	50 %	
TOUCH SENSITIVITY	01 to 10	04	
TOUCH ACCELERATION	02 to 10	06	

Settings / heating / heating circuit 1	Setting range	Standard	System value
COMFORT TEMPERATURE	5 to 30 °C	20 °C	
ECO TEMPERATURE	5 to 30 °C	20 °C	
MINIMUM TEMPERATURE	OFF / 10 to 20 °C	OFF	
HEATING CURVE RISE	0.2 to 3	0.6	
HEATING CURVE VIEW			

Settings / heating / heating circuit 2	Setting range	Standard	System value
COMFORT TEMPERATURE	5 to 30 °C	20 °C	
ECO TEMPERATURE	5 to 30 °C	20 °C	
MINIMUM TEMPERATURE	OFF / 10 to 20 °C	OFF	
MIXER DYNAMICS	20 to 90 °C	50 °C	
HEATING CURVE RISE	30 to 240	100	
HEATING CURVE RISE	0.2 to 3	0.2	
HEATING CURVE VIEW			

Settings / heating / standard setting	Setting range	Standard	System value
BUFFER OPERAT	ON / OFF	OFF	
SUMMER MODE	ON / OFF	ON	
OUTSIDE TEMPERATURE	3 to 30 °C	20 °C	
BUILDING HEAT BUFFER	1 to 3	1	
MAXIMUM RETURN TEMP	20 to 60 °C	60 °C	
MAXIMUM FLOW TEMP	20 to 65 °C	65 °C	
FIXED VALUE OPERATION	OFF / 20 ..50 °C	OFF	
OPTIMUM HEATING CURVE	OFF / 0.01 ..0.1	OFF	
FROST PROTECT	-10 to 10 °C	4 °C	

Settings / heating / FE7 remote control	Setting range	Standard	System value
HEATING CIRC PRESELECTION	1 / 2 heating circuits	Heating circuit 1	
ROOM INFLUENCE	OFF / 0 to 20	5	
ROOM CORRECTION	-5 to 5 K	0	

Settings / heating / pump cycles	Setting range	Standard	System value
PUMPCYCLES	ON / OFF	OFF	

Settings / heating / electric reheating	Setting range	Standard	System value
DUAL MODE TEMP HEATING	-40 to 40 °C	-20 °C	
LOWER APP LIMIT HEATING	OFF / -39.5 to 40 °C	-20 °C	

Settings / DHW / DHW temperatures	Setting range	Standard	System value
COMFORT TEMPERATURE	10 to 60 °C	50 °C	
ECO TEMPERATURE	10 to 60 °C	50 °C	

Settings / DHW / standard setting	Setting range	Standard	System value
DHW HYSTERESIS	1 to 10 K	5 K	
DHW LEARNING FUNCTION	ON / OFF	OFF	
DHW CORRECTION	0 to 5 °C	3 °C	
COMBI CYLINDER	ON / OFF	OFF	
PASTEURISATION	ON / OFF	OFF	

Settings / DHW / electric reheating	Setting range	Standard	System value
DUAL MODE TEMP DHW	-40 to 40 °C	-20 °C	
LOWER APP LIMIT DHW	OFF / -39.5 to 40 °C	-20 °C	

Settings / cooling / standard setting	Setting range	Standard	System value
COOLING	ON / OFF	OFF	
COOLING MODE	PASSIVE / ACTIVE		

Settings / cooling / active cooling / AREA COOLING	Setting range	Standard	System value
SET FLOW TEMPERATURE	7 to 25 °C	15 °C	
FLOW TEMP HYSTERESIS	1 to 5 K	5 K	
SET ROOM TEMPERATURE	20 to 30 °C	25 °C	
DYNAMIC	1 to 10	10	

Settings / cooling / active cooling / fan cooling	Setting range	Standard	System value
SET FLOW TEMPERATURE	7 to 25 °C	15 °C	
FLOW TEMP HYSTERESIS	1 to 5 K	5 K	
SET ROOM TEMPERATURE	20 to 30 °C	25 °C	
DYNAMIC	1 to 10	10	

Settings / cooling / passive cooling / AREA COOLING	Setting range	Standard	System value
SET FLOW TEMPERATURE	7 to 25 °C	15 °C	
FLOW TEMP HYSTERESIS	1 to 5 K	5 K	
SET ROOM TEMPERATURE	20 to 30 °C	25 °C	

Settings / cooling / passive cooling / fan cooling	Setting range	Standard	System value
SET FLOW TEMPERATURE	7 to 25 °C	15 °C	
FLOW TEMP HYSTERESIS	1 to 5 K	5 K	
SET ROOM TEMPERATURE	20 to 30 °C	25 °C	

Commissioning	Setting range	Standard	System value
ENTER CODE	0000 to 9999	1000	
LANGUAGE		English	

Source	Setting range	Standard	System value
SOURCE TEMPERATURE MIN	OFF / -10 to 10 °C	-9 °C	
BRINE PUMP RATING	20 to 100 %	100 %	
SOURCE MEDIUM		Ethylene glycol	

Heating	Setting range	Standard	System value
HP SENSOR MAX	38 to 46 bar	40	
CNTRL DYNAMIC	1 to 30	10	
HEATING CIRCT PUMP RATING	20 to 100 %	100 %	

DHW	Setting range	Standard	System value
DHW CIRCUIT PUMP RATING	20 to 100 %	100 %	

Compressor	Setting range	Standard	System value
IDLE TIME	1 to 120 minutes	20 minutes	
SINGLE PHASE OPERATION	ON / OFF	OFF	
QUICK START	ON / OFF	OFF	
EMERGENCY OPR	ON / OFF	OFF	
HEAT PUMP RESET	ON / OFF	OFF	
FAULT LIST RESET	ON / OFF	OFF	
SYSTEM RESET	ON / OFF	OFF	

14. Settings

14.1 Standard settings

At the factory, the heat pump manager is programmed with the following standard settings:

Switching times for heating circuit 1 and 2 (day mode) only the 1st switching pair is pre-programmed.		
	Standard	Setting range
Monday - Friday	6:00 - 22:00	0:00 - 23:59
Saturday - Sunday	7:00 - 23:00	0:00 - 23:59
Room temp. 1 / 2 Standard settings without night setback.		
Room temperature in day mode	20 °C	5 - 30 °C
Room temperature in night mode	20 °C	5 - 30 °C
DHW program switching times		
Monday - Sunday	0:00 - 24:00	0:00 - 23:59
DHW temperature		
DHW day temperature	50 °C	OFF / 50 - 70 °C
DHW night temperature	50 °C	OFF / 50 - 70 °C
Heating curve slope		
Heating curve 1	0.6	0 - 5
Heating curve 2	0.2	0 - 5

14.2 Heating and DHW programs

You may enter your individual programs into the following tables.

14.2.1 Heating program, heating circuit 1

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mo - Fr			
Sa - Su			
Mo - Su			

14.2.2 Heating program, heating circuit 2

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mo - Fr			
Sa - Su			
Mo - Su			

14.2.3 DHW program

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mo - Fr			
Sa - Su			
Mo - Su			

14.3 Appliance handover

Explain the appliance function to users and familiarise them with its operation.

Note
Hand over these operating and installation instructions to the user for safe-keeping. Always carefully observe all information in these instructions. They provide information on safety, operation, installation and maintenance of the appliance.

15. Shutting down

If the system is to be taken out of use, set the heat pump manager to standby. This retains the safety functions designed to protect the system (e.g. frost protection).

There is no need to shut the system down in summer. The heat pump manager has an automatic summer / winter changeover.

Material losses
Never interrupt the power supply, even outside the heating period. The system's active frost protection is not guaranteed if the power supply is interrupted.

Material losses
Observe the temperature application limits and the minimum circulation volume on the heat utilisation side (see chapter "Specification / Data table").

Material losses
If the heat pump and frost protection are completely switched off, drain the system on the water side.

16. Troubleshooting

WARNING Electrocution
▶ Isolate the appliance from the power supply when carrying out any work.

16.1 Fault display

Faults/errors in the system or in the heat pump are indicated on the display. For heating system and heat pump troubleshooting and analysis, all important process data and bus subscribers can be queried under DIAGNOSIS and a relay test can be carried out.

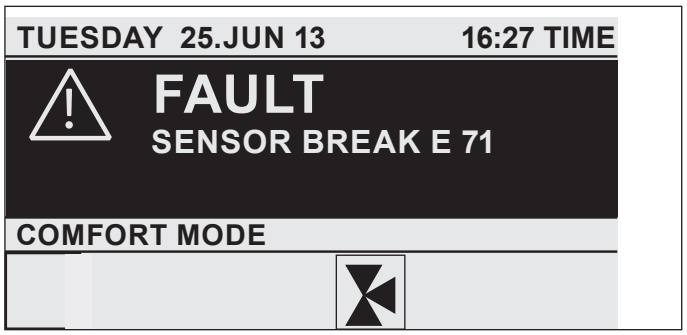
▶ For troubleshooting, analyse all available parameters before opening the heat pump control panel.

The heat pump manager will not indicate whether the electric emergency/booster heater high limit safety cut-out has responded. The high limit safety cut-out can be reset by your contractor through pressing the reset button. The high limit safety cut-out response is generally caused by air in the heating circuit or an inadequate heating flow rate.

▶ Check the heating flow rate and ventilate the heating system.

16.2 Fault message

If the appliance registers a fault, this is clearly displayed with the message shown below.



If more than one fault occurs, the most recent one is shown continuously. Please inform your contractor.

16.2.1 Heat pump-specific or hardware faults

See chapter "Fault table".

16.2.2 The heat pump does not run

The heat pump will not restart following a controller replacement or after a “SYSTEM RESET” has been carried out:

Check the heat pump type in the controller menu DIAGNOSIS / SYSTEM / HEAT PUMP TYPE. If this is not “WPC MFG”, execute another “SYSTEM RESET” and select the correct heat pump type.

The heat pump is in standby mode [⏻].

▶ Change the system over to programmed operation.

The power supply has been blocked, POWER-OFF is displayed.

▶ Wait until the blocking time elapses. The heat pump starts again automatically.

There is no heat demand

▶ Check the set and actual values under the INFO menu item.

There may be an incorrect fuse rating.

▶ See chapter "Specification / Data table".

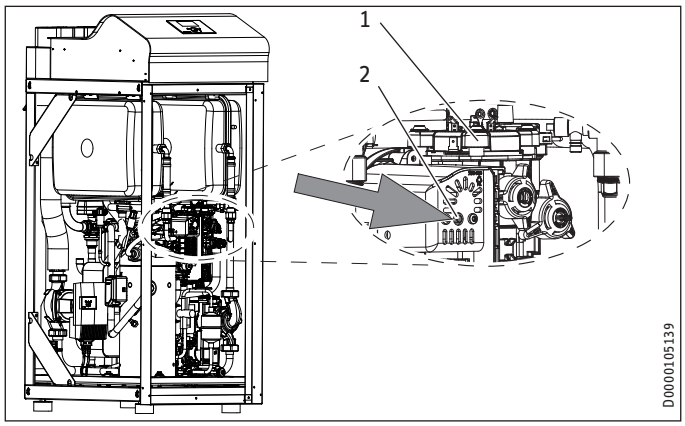
Note
The heat pump can only be restarted after the fault has been removed and the heat pump has been reset (parameter HEAT PUMP RESET).

Additional parameters available for system analysis:

- QUICK START: The quick start must only be carried out by our customer support. The heat pump compressor is checked during a quick start.
- RELAY TEST: Test for all relays in the heat pump manager

16.3 Resetting the high limit safety cut-out

If the heating water temperature exceeds 95 °C, the electric emergency/booster heater shuts down.

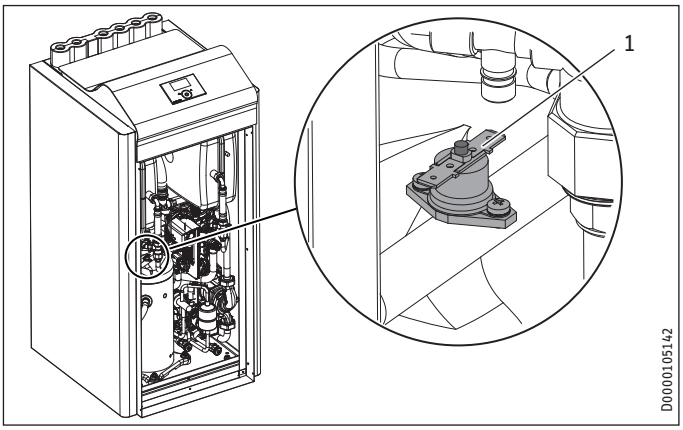


1 Electric emergency/booster heater
2 High limit safety cut-out reset button

- ▶ Remove the cause of the fault.
- ▶ Reset the high limit safety cut-out by pressing the reset button. To do so, use a pointed object.
- ▶ Check whether the heating water is being circulated at a sufficient flow rate.

16.4 Resetting the compressor high limit safety cut-out

When the hot gas temperature exceeds 140 °C, the compressor shuts down.



1 High limit safety cut-out reset button

- ▶ Isolate the appliance from the power supply.
- ▶ Remove the cause of the fault.
- ▶ Reset the high limit safety cut-out by pressing the reset button.

16.5 Fault table

Fault display	Cause	Remedy
SENSOR BREAK E 70	The mixer sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 71	The source sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 72	The flow sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 73	The return sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 75	The external sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 76	The DHW sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 80	The remote control is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 130	The HP sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
SENSOR BREAK E 128	The LP sensor is faulty.	Check the sensor terminal on the MFG or replace sensor.
ERR T FLO BH MFG	The flow sensor of the electric emergency/booster heater is faulty.	Check the sensor terminal in the MFG or replace sensor.
ERR T FLO HP MFG	The heat pump flow sensor on the MFG is faulty.	Check the sensor terminal on the MFG or replace sensor.
ERR T RTRN MFG	The return sensor on the MFG is faulty.	Check the sensor terminal on the MFG or replace sensor.
ERR T DHW MFG	The DHW sensor on the MFG is faulty.	Check the sensor terminal on the MFG or replace sensor.
HP SENSOR MAX	Fatal error in heating mode only, 5 faults in 5 minutes compressor runtime The fault will be written to the fault list and the system will be permanently shut down after the system has been shut down 5 times within the operating time (5 minutes). Generally, the shutdown via HP sensor max is a controlled shutdown that is only displayed for information and for the duration of the idle time, i.e. it is not entered into the fault list. Only frequent shutdowns over a short period of time point towards a fault and are therefore entered into the fault list.	Only when a fault has been entered into the fault list: Check flow temperature monitoring and HP sensor. Check flow rate and temperature of heating side.
MAX HOT GAS T	The compressor will be stopped for the minimum idle time if a hot gas temperature of 130 °C is exceeded. This is a normal controlled shutdown that is not entered into the fault list. The reason for the shutdown is displayed for information during the idle time.	This requires no action, as it is a controlled shutdown.
HIGH PRESSURE	After the compressor has started, and after a delay of 15 seconds, masking checks whether the relay K9 is open. A HP limit switch has responded, if that is the case. The fault is written to the fault list, and the system is permanently shut down.	Monitor the flow temperature and check the HP sensor. Check the flow rate and the temperature on the heating side.
LOW PRESSURE	The system will be permanently shut down after the fault has occurred five times within the operating time (idle time x 50 plus 20 minutes). The fault will be written to the fault list after it has occurred for the first time.	Check the flow rate and the layout of the source side. Check the refrigerant level.
MIN SRCE TEMP	Minimum source temperature The defined minimum source temperature was not reached. The fault is written to the fault list. The compressor starts again after the selected idle time has expired.	Check the minimum source temperature and change it if required. Check the source flow rate: Check source design.
CONTACTOR STUCK	Each time the compressor is switched off, the system checks after 10 seconds whether the relay K9 is open. A contactor is stuck, if that is the case. The fault is written to the fault list, and the system is permanently shut down.	Check contactors K1 and K2 and replace if required.
NO OUTPUT	After the compressor has started, the pressure must have risen by 2 bar within 10 seconds. A fault has occurred, if that is not the case, and the fault will be written into the fault list, if that is its first occurrence, and the system is permanently shut down.	Compressor turns in the wrong rotational direction. Change the rotational direction by interchanging two supply cores.
POWER-OFF	The power supply utility has blocked the heat pump (see chapter „Installation / Troubleshooting / Fault message / The heat pump is not running“).	No action required. If this message is still shown despite enabling by the power supply utility, the brine pressure switch has responded (see „CHECK BRINE PRESSURE“).
CHECK BRINE PRESSURE	The pressure in the brine line is too low. If this is the case, there is a leak in the brine line or the heat pump has been charged with inadequate brine.	Check the brine line for leaks and remedy any that are found. Subsequently recharge the system (see chapter „Installation / Installation / Installing the heat source system / Connection and brine charging / Charging the brine circuit“).
TO T FLO BH MFG	The flow sensor of the electric emergency/booster heater is faulty.	Check the communication cable terminal or replace the communication cable.
TO T FLO HP MFG	The heat pump flow sensor on the MFG is faulty.	Check the communication cable terminal or replace the communication cable.
TO T RET MFG	The return sensor on the MFG is faulty.	Check the communication cable terminal or replace the communication cable.
TO T DHW MFG	The DHW sensor on the MFG is faulty.	Check the communication cable terminal or replace the communication cable.
TO FL RATE HC MFG	Faulty communication with the MFG.	Check the communication cable terminal or replace the communication cable.
TO PRES HC MFG	Faulty communication with the MFG.	Check the communication cable terminal or replace the communication cable.
TO P SOL MFG	Faulty communication with the MFG.	Check the communication cable terminal or replace the communication cable.
TO PUMP HC MFG	Faulty communication between heating circuit pump and MFG.	Check the communication cable terminal or replace the communication cable.
TO P BRINE MFG	Faulty communication between brine circuit pump and MFG.	Check the communication cable terminal or replace the communication cable.

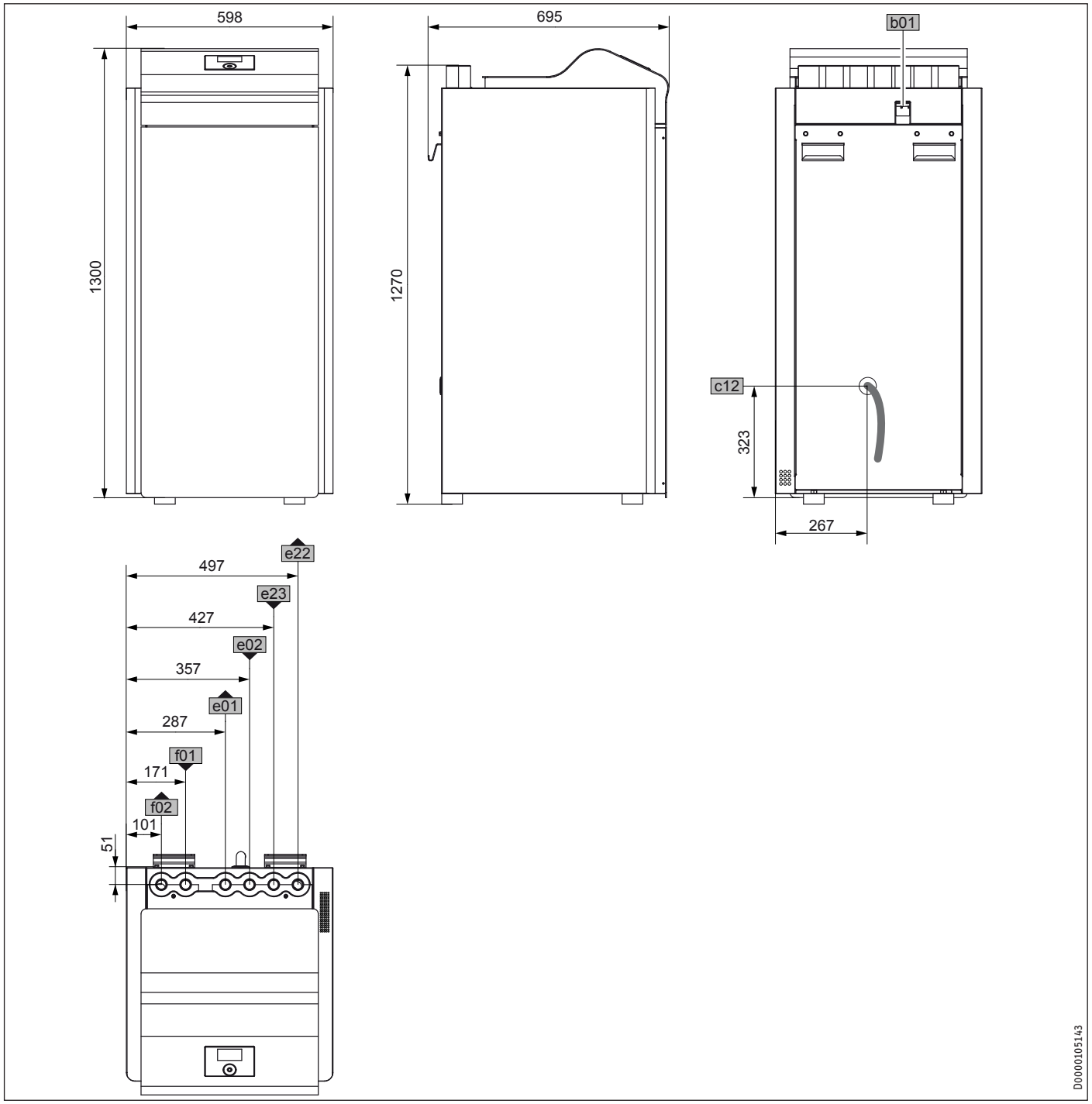
Fault display	Cause	Remedy
TO VALVE MFG	Faulty communication between three-way valve and MFG.	Check the communication cable terminal or replace the communication cable.
TO BH MFG	Faulty communication of the electric emergency/booster heater in the MFG.	Check the communication cable terminal or replace the communication cable.
TO MFG	MFG timeout	Check the communication cable terminal or replace the communication cable.
ERR BH MFG	The electric emergency/booster heater is faulty.	Check the communication cable terminal or replace the communication cable.
ERR PU SOL MFG	Error brine pump MFG.	Check the communication cable terminal or replace the communication cable.
ERR VALVE MFG	Error valve MFG.	Check the communication cable terminal or replace the communication cable.
ERR PU HC MFG	Error heating circuit pump MFG.	Check the communication cable terminal or replace the communication cable.

17. Maintenance

We recommend a regular inspection (to establish the current condition of the system), and maintenance if required (to return the system to its original condition).

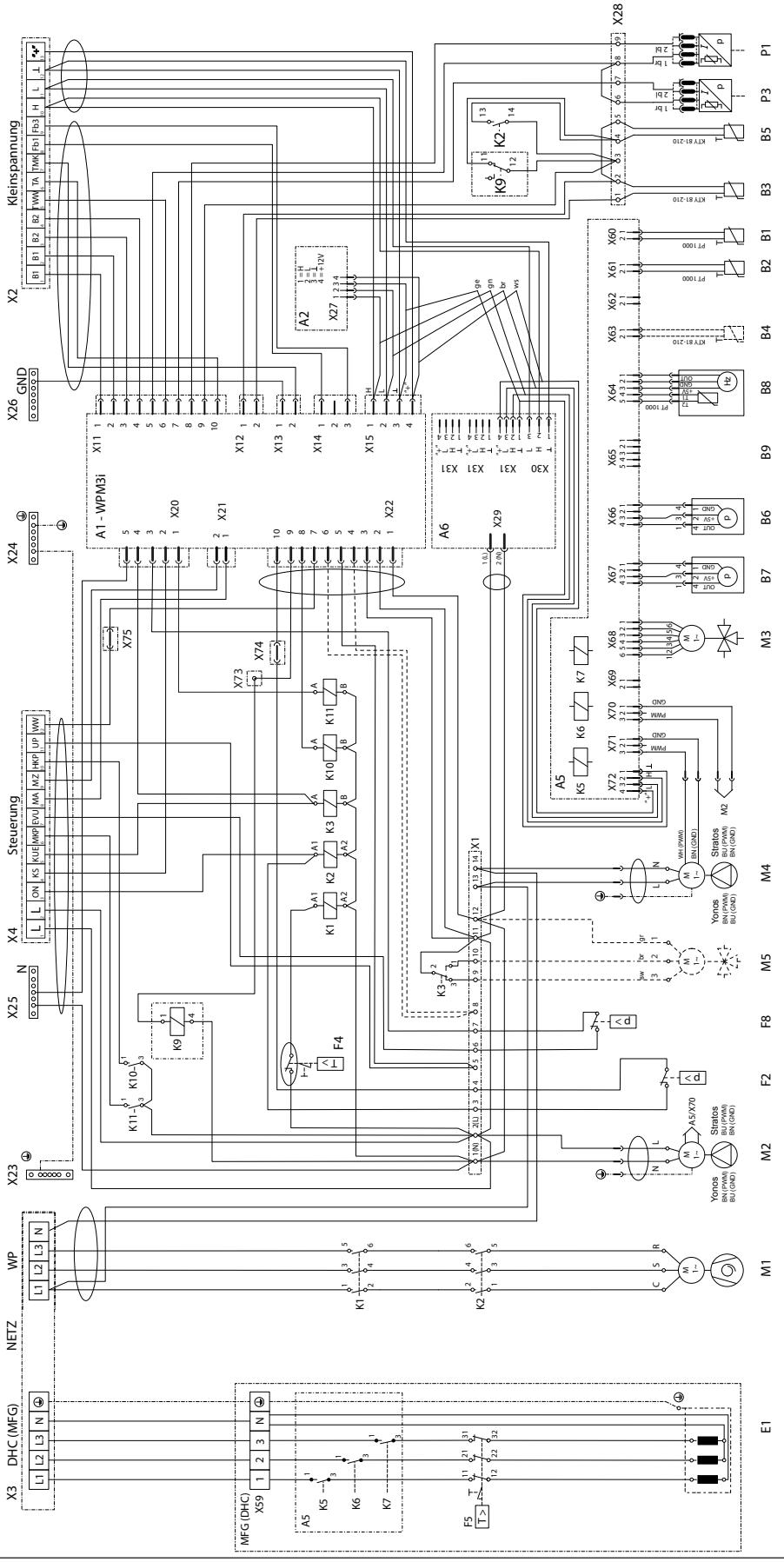
18. Specification

18.1 Dimensions and connections



				WPF ..	WPF ..cool	WPF... S
b01	Entry electrical cables					
c12	Safety valve drain					
e01	Heating flow	Diameter	mm	28	28	28
e02	Heating return	Diameter	mm	28	28	28
e22	Cylinder flow	Diameter	mm	28	28	28
e23	Cylinder return	Diameter	mm	28	28	28
f01	Heat source flow	Diameter	mm	28	28	28
f02	Heat source return	Diameter	mm	28	28	28

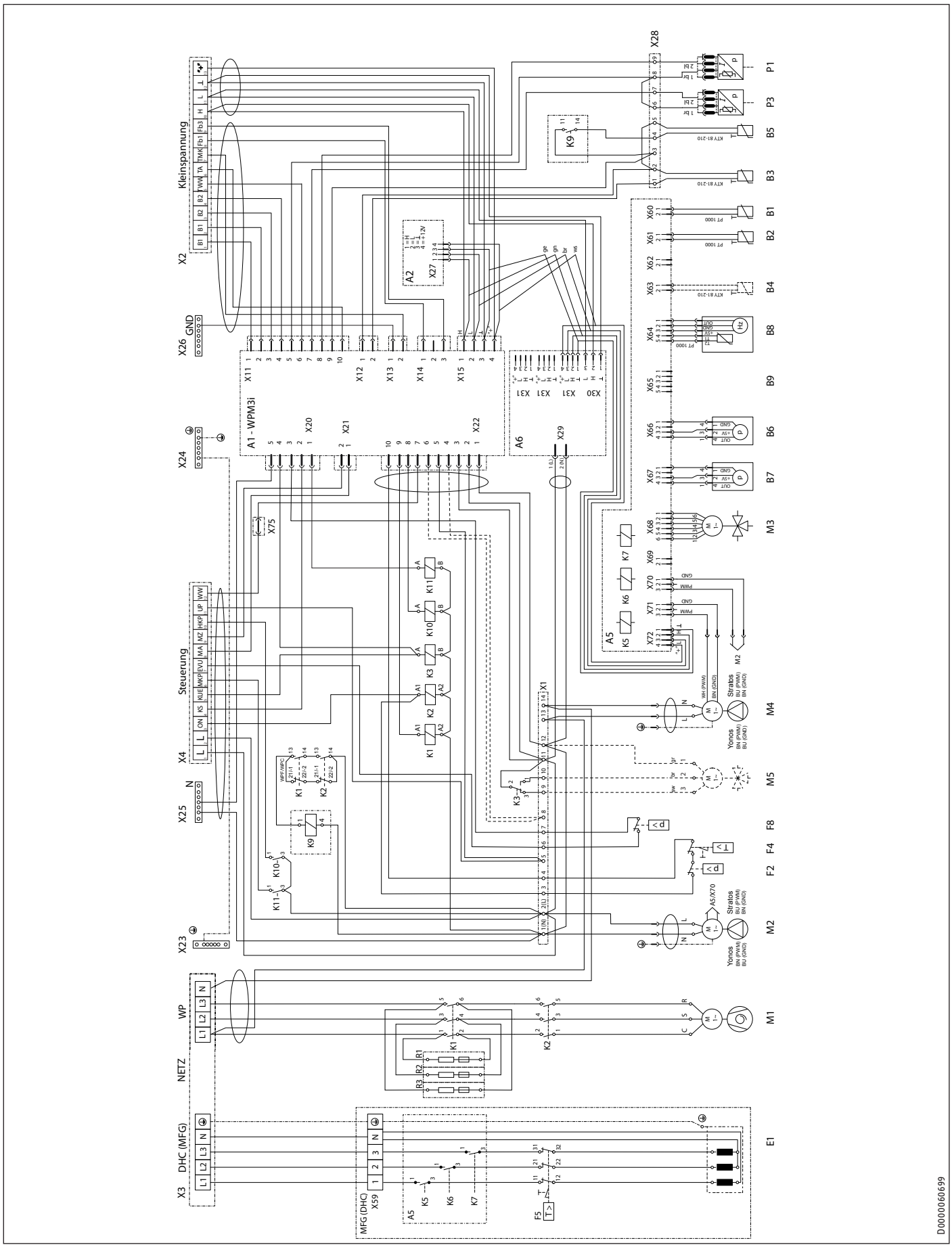
18.2 Wiring diagram WPF 04 | 04 cool | WPF 05 | 05 cool



Key to wiring diagram

A1 Heat pump manager WPM 3i
A2 Programming unit
A5 MFG PCB
A6 Power supply unit
B1 Heat pump flow temperature sensor
B2 Heat pump return temperature sensor
B3 Heat source return temperature sensor
B4 Temperature sensor DHW cylinder (WPC only)
B5 Hot gas temperature sensor
B6 Heating circuit pressure sensor
B7 Brine circuit pressure sensor
B8 Heating circuit flow rate and temperature
B9 (Not assigned) brine circuit flow rate and temperature
E1 Instantaneous water heater MFG
F2 High pressure switch
F4 Compressor high limit safety cut-out
F5 MFG high limit safety cut-out
F8 Brine pressure switch
K1 Contactor
K2 Contactor, compressor start
K3 Brine diverter valve relay
K5 MFG relay
K6 MFG relay
K7 MFG relay
K9 Contactor stuck relay
K10 HKP relay
K11 MKP relay
M1 Compressor motor
M2 Heating pump motor
M3 Heating/DHW MFG diverter valve motor
M4 Brine pump motor
M5 Heating/cooling diverter valve motor
P1 High pressure sensor
P3 Low pressure sensor
R1 Start-up resistance
R2 Start-up resistance
R3 Start-up resistance
X1 Internal terminal block 14-pin
X2 External low voltage terminals
X3 External power terminals
X4 External control terminals
X11 Plug, temperature sensor WPM3i
X12 Plug, heat source temperature WPM3i
X13 Plug, mixer circuit temperature WPM3i
X14 Plug, remote control WPM3i
X15 Plug, bus WPM3i
X20 Plug, pumps and power-OFF WPMm3i
X21 Plug, mixer control WPMm3i
X22 Plug, control
X23 Power supply earth block
X24 Earth block control
X25 N block control
X26 Earth block LV
X27 Programming unit terminals
X28 Internal low voltage terminals
X29 Power supply unit power supply
X30 Power supply unit CAN bus connection
X31 Power supply unit CAN bus connection
X59 MFG load side terminal block
X60 Rast 2.5 connector (HP flow temperature)
X61 Rast 2.5 connector (HP return temperature)
X62 Not assigned (HS return temperature)
X63 Not assigned (DHW cylinder temperature, WPC only)
X64 Rast 2.5 connector (heating system temperature and flow rate)
X65 Not assigned (heat source system temperature and flow rate)
X66 Rast 2.5 connector (heating system pressure)
X67 Rast 2.5 connector (heat source system pressure)
X68 Rast 2.5 connector (control of motorised valve heating / DHW)
X69 Not assigned
X70 Rast 2.5 connector (control of heating pump PWM or 1-10 V)
X71 Rast 2.5 connector (control of heat source pump PWM or 1-10 V)
X72 Rast 2.5 connector (CAN bus)
X73 Push-fit connectors
X74 Push-fit connectors
X75 Push-fit connectors

18.3 Wiring diagram WPF 07 | 07 cool | WPF 10 | 10 cool | WPF 13 | 13 cool | WPF 16 | 16 cool



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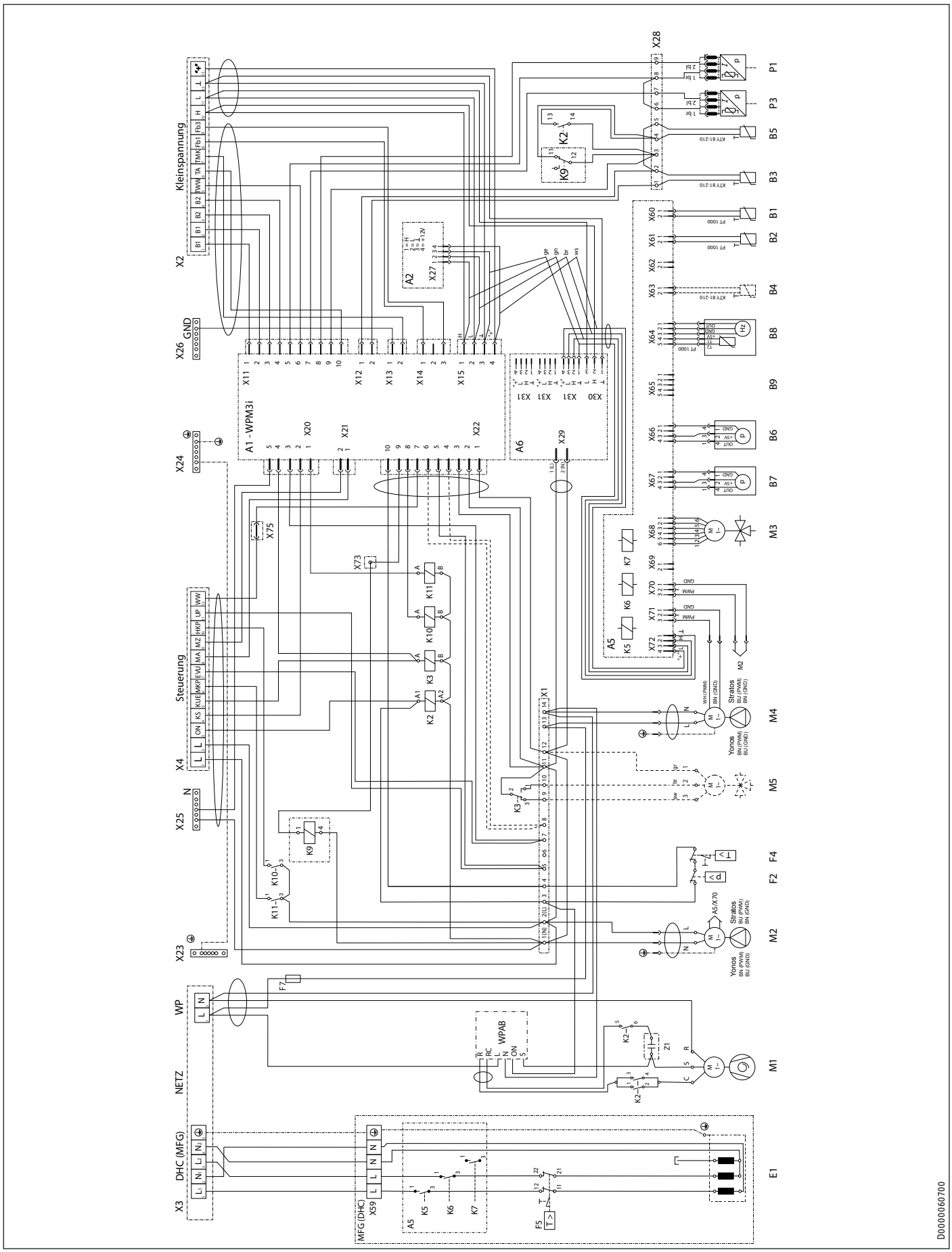
B7 Brine circuit pressure sensor
B8 Heating circuit flow rate and temperature
B9 (Not assigned) brine circuit flow rate and temperature
E1 Instantaneous water heater MFG
F2 High pressure switch
F4 Compressor high limit safety cut-out
F5 MFG high limit safety cut-out
F8 Brine pressure switch
K1 Contactor
K2 Contactor, compressor start
K3 Brine diverter valve relay
K5 MFG relay
K6 MFG relay
K7 MFG relay
K9 Contactor stuck relay
K10 HKP relay
K11 MKP relay
M1 Compressor motor
M2 Heating pump motor
M3 Heating/DHW MFG diverter valve motor
M4 Brine pump motor
M5 Heating/cooling diverter valve motor
P1 High pressure sensor
P3 Low pressure sensor
R1 Start-up resistance
R2 Start-up resistance
R3 Start-up resistance
X1 Internal terminal block 14-pin
X2 External low voltage terminals
X3 External power terminals
X4 External control terminals
X11 Plug, temperature sensor WPM3i
X12 Plug, heat source temperature WPM3i
X13 Plug, mixer circuit temperature WPM3i
X14 Plug, remote control WPM3i
X15 Plug, bus WPM3i
X20 Plug, pumps and power-OFF WPMm3i
X21 Plug, mixer control WPMm3i
X22 Plug, control
X23 Power supply earth block
X24 Earth block control
X25 N block control
X26 Earth block LV
X27 Programming unit terminals
X28 Internal low voltage terminals
X29 Power supply unit power supply
X30 Power supply unit CAN bus connection
X31 Power supply unit CAN bus connection
X59 MFG load side terminal block
X60 Rast 2.5 connector (HP flow temperature)
X61 Rast 2.5 connector (HP return temperature)
X62 Not assigned (HS return temperature)
X63 Not assigned (DHW cylinder temperature, WPC only)
X64 Rast 2.5 connector (heating system temperature and flow rate)
X65 Not assigned (heat source system temperature and flow rate)
X66 Rast 2.5 connector (heating system pressure)
X67 Rast 2.5 connector (heat source system pressure)
X68 Rast 2.5 connector (control of motorised valve heating / DHW)
X69 Not assigned
X70 Rast 2.5 connector (control of heating pump PWM or 1-10 V)
X71 Rast 2.5 connector (control of heat source pump PWM or 1-10 V)
X72 Rast 2.5 connector (CAN bus)
X75 Push-fit connectors

18.4 Wiring diagram WPF 05 S | WPF 07 S | WPF 10 S | WPF 13 S



Key to wiring diagram

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A5 MFG PCB
A6 Power supply unit
B1 Heat pump flow temperature sensor
B2 Heat pump return temperature sensor
B3 Heat source return temperature sensor
B4 not assigned (DHW cylinder temperature sensor, WPC only)
B5 Hot gas temperature sensor
B6 Heating circuit pressure sensor
B7 Brine circuit pressure sensor
B8 Heating circuit flow rate and temperature
B9 (Not assigned) brine circuit flow rate and temperature
E1 Instantaneous water heater MFG
F2 High pressure switch
F4 Compressor high limit safety cut-out
F5 MFG high limit safety cut-out
F7 Fine-wire fuse (heat pump connection)
K2 Contactor, compressor start
K3 Brine diverter valve relay
K5 MFG relay
K6 MFG relay
K7 MFG relay
K9 Contactor stuck relay
K10 HKP relay
K11 MKP relay
M1 Compressor motor
M2 Heating pump motor
M3 Heating/DHW MFG diverter valve motor
M4 Brine pump motor
M5 not assigned (motor diverter valve for heating/cooling (WPF cool and WPC cool only))
P1 High pressure sensor
P3 Low pressure sensor
X1 Internal terminal block 14-pin
X2 External low voltage terminals
X3 External power terminals
X4 External control terminals
X11 Plug, temperature sensor WPM3i
X12 Plug, heat source temperature WPM3i
X13 Plug, mixer circuit temperature WPM3i
X14 Plug, remote control WPM3i
X15 Plug, bus WPM3i
X20 Plug, pumps and power-OFF WPMm3i
X21 Plug, mixer control WPMm3i
X22 Plug, control
X23 Power supply earth block
X24 Earth block control
X25 N block control
X26 Earth block LV
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X29 Power supply unit power supply
X30 Power supply unit CAN bus connection
X31 Power supply unit CAN bus connection
X59 MFG load side terminal block
X60 Rast 2.5 connector (HP flow temperature)
X61 Rast 2.5 connector (HP return temperature)
X62 Not assigned (HS return temperature)
X63 Not assigned (DHW cylinder temperature, WPC only)
X64 Rast 2.5 connector (heating system temperature and flow rate)
X65 Not assigned (heat source system temperature and flow rate)
X66 Rast 2.5 connector (heating system pressure)
X67 Rast 2.5 connector (heat source system pressure)
X68 Rast 2.5 connector (control of motorised valve heating / DHW)
X69 Not assigned
X70 Rast 2.5 connector (control of heating pump PWM or 1-10 V)
X71 Rast 2.5 connector (control of heat source pump PWM or 1-10 V)
X72 Rast 2.5 connector (CAN bus)
X73 Push-fit connector (in cable trunking)
X75 Push-fit connector (in cable trunking)
Z1 Run capacitor, compressor

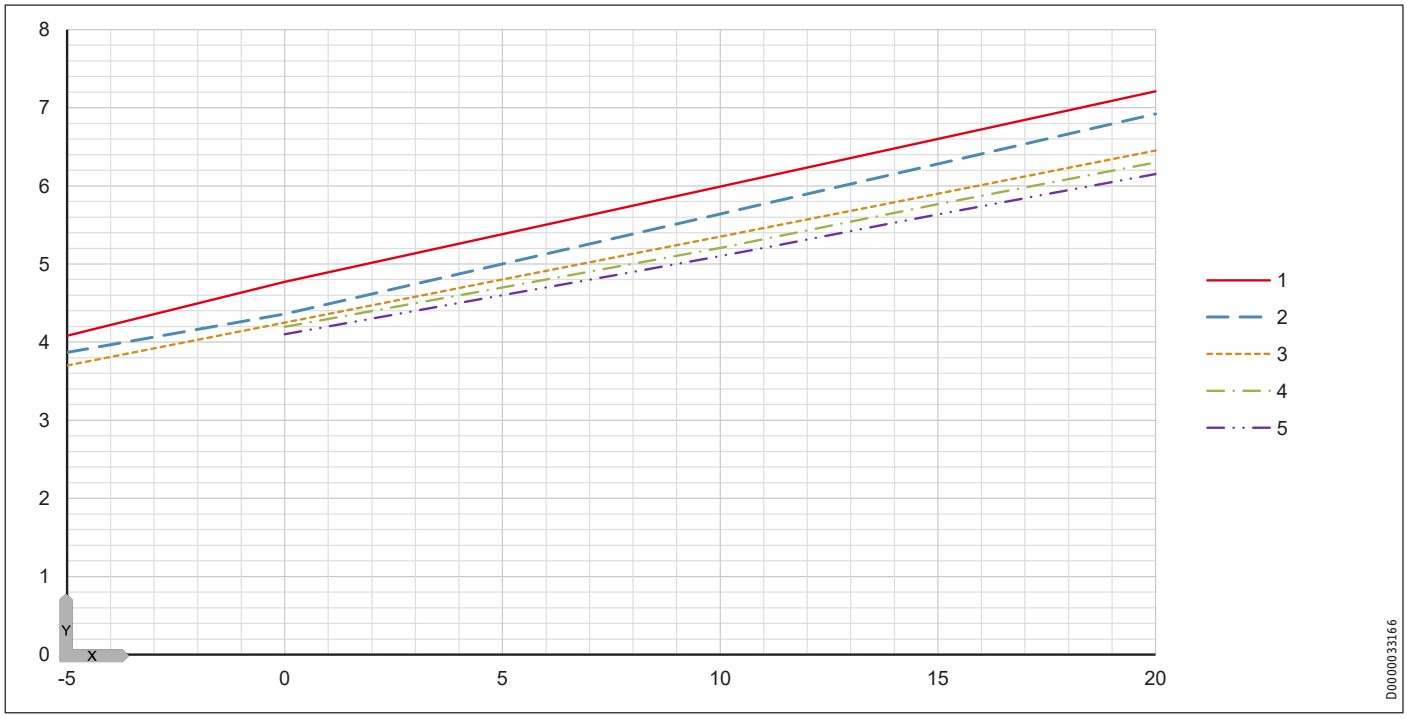
WPAB Softstarter

18.5 Output diagrams WPF 04 | WPF 04 cool

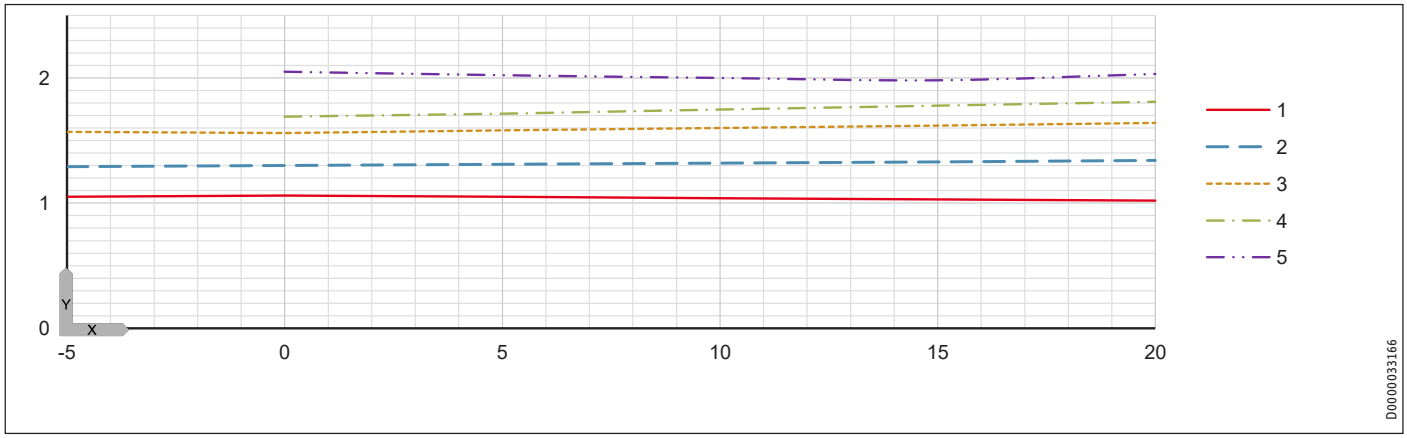
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

Heating output



Power consumption



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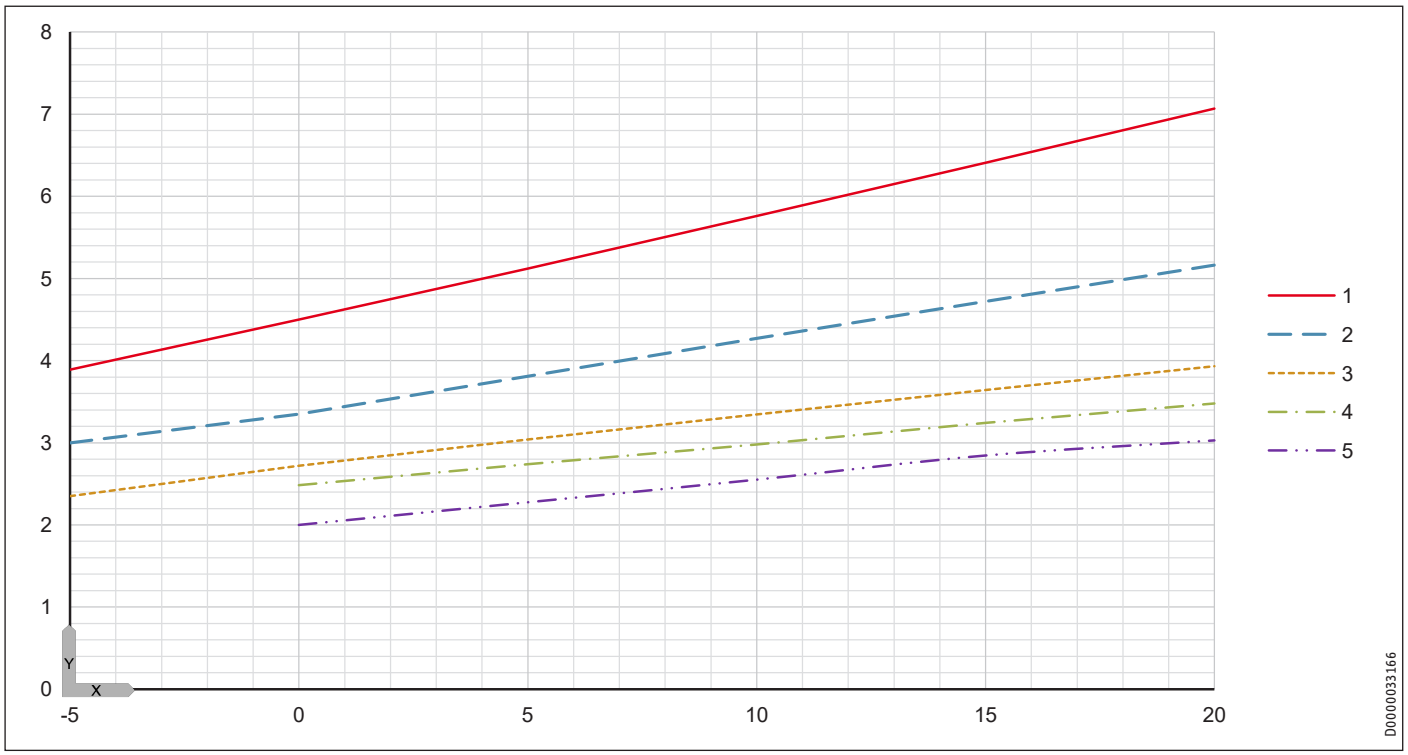
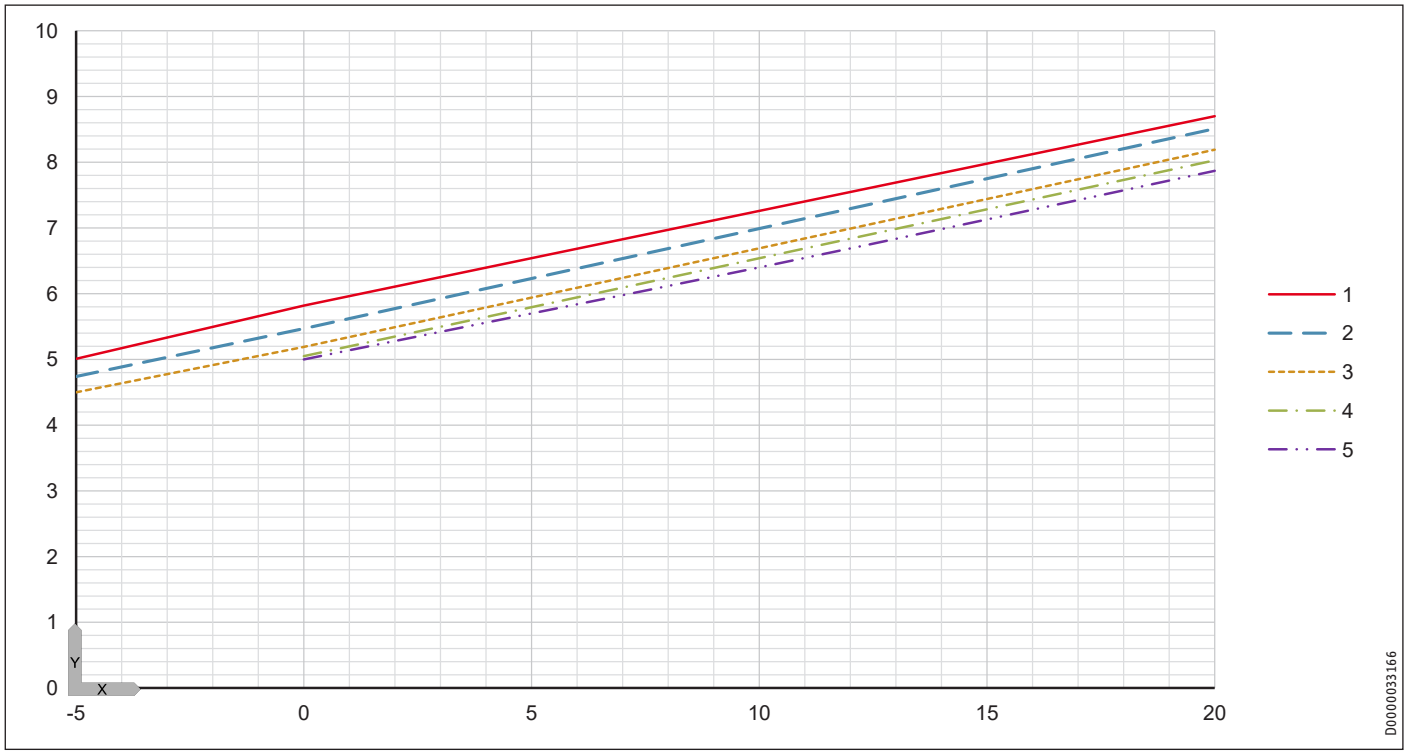


18.6 Output diagrams WPF 05 | WPF 05 cool

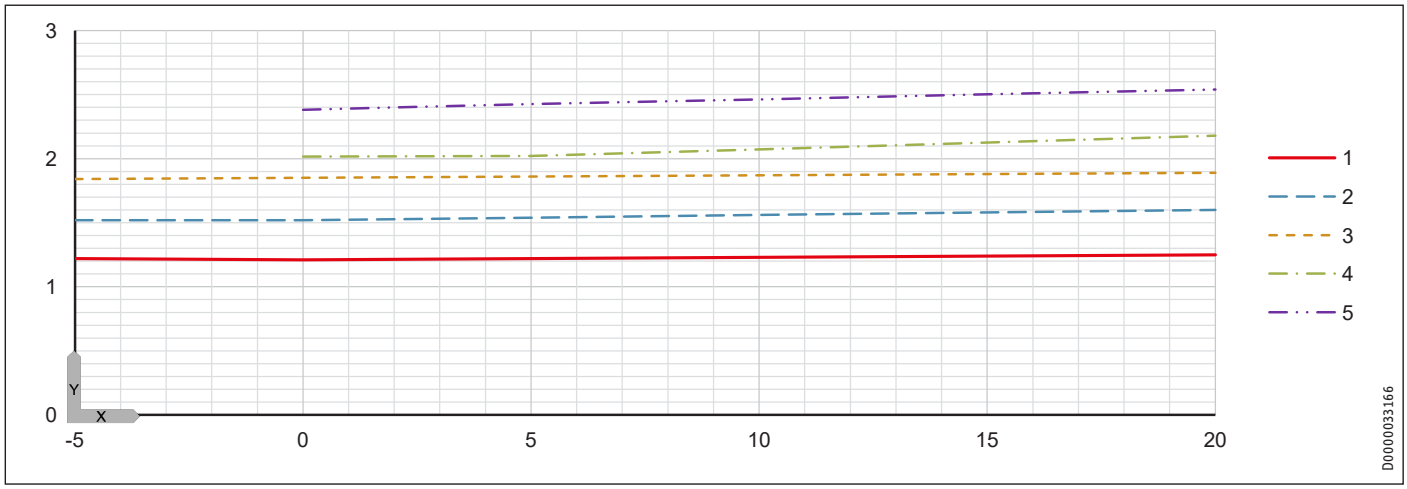
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

Heating output

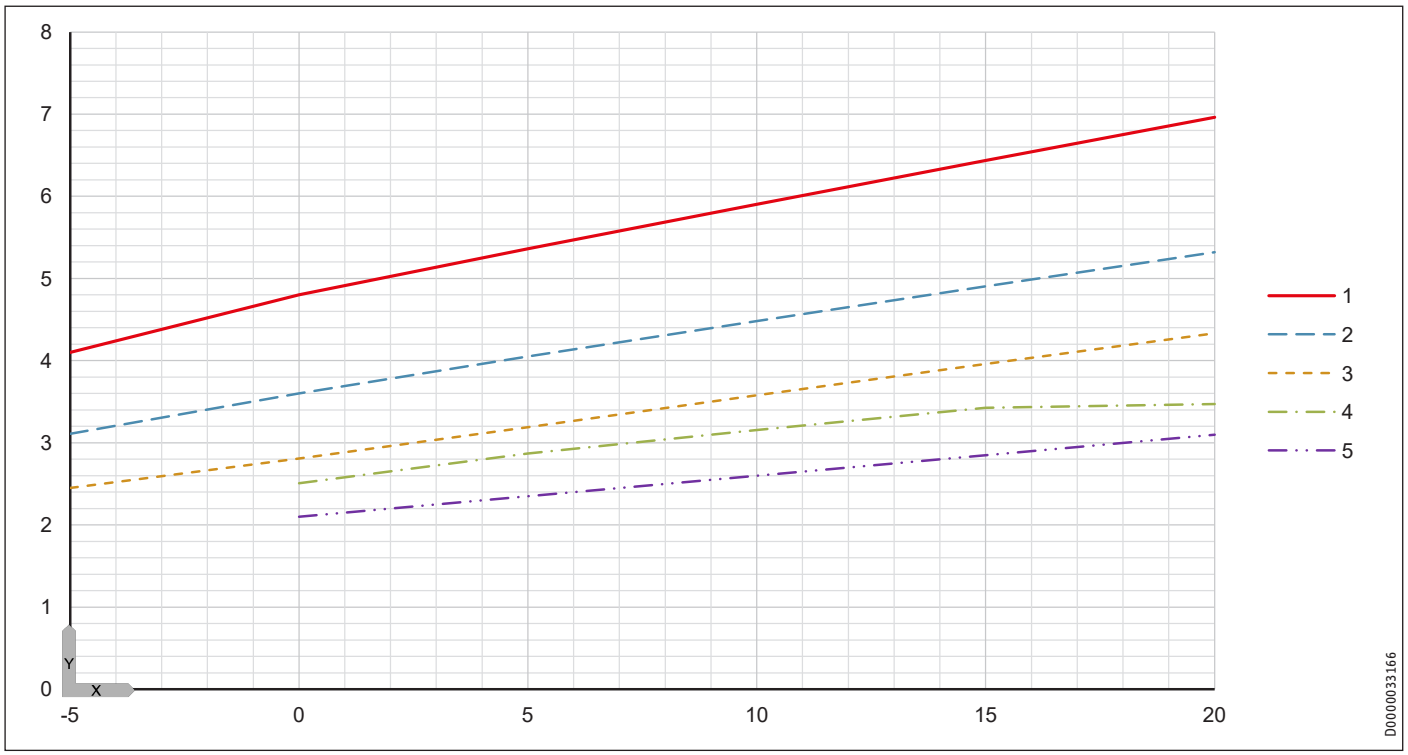


Power consumption



Specification

COP

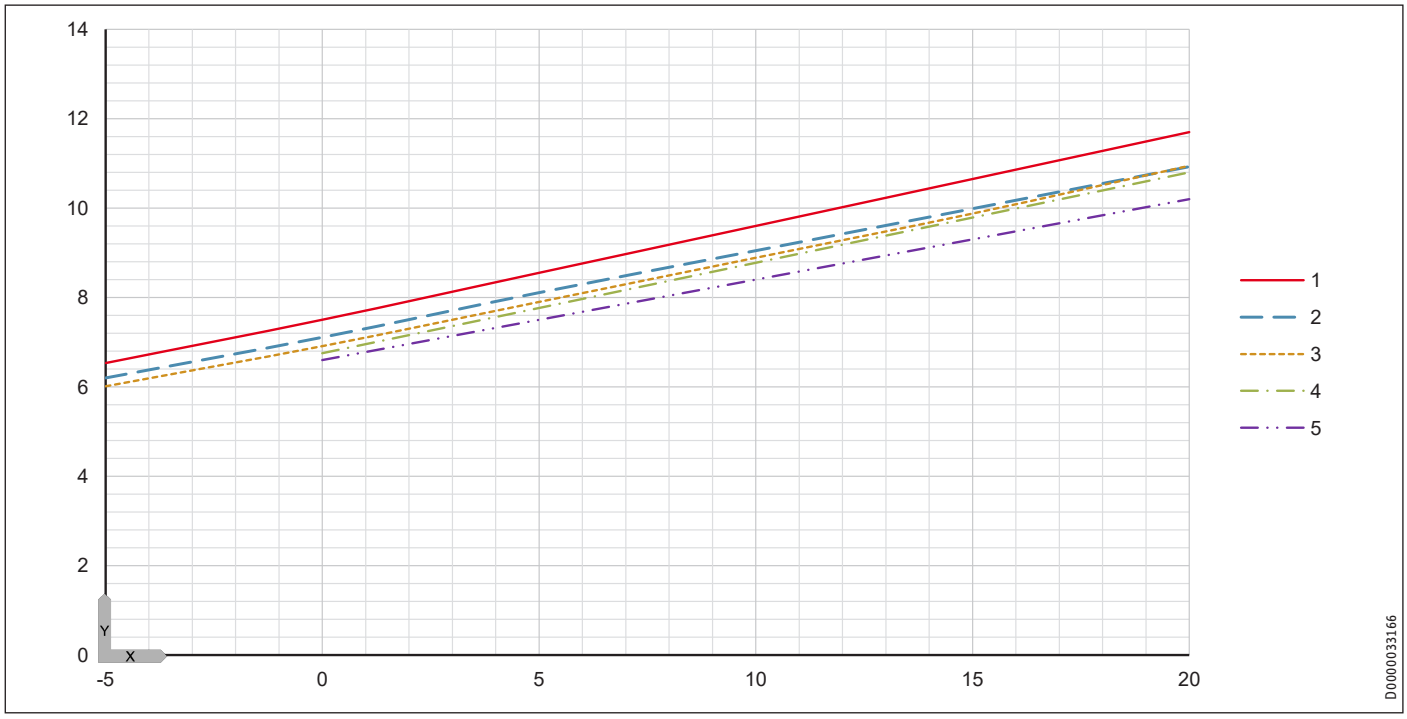


18.7 Output diagrams WPF 07 | WPF 07 cool

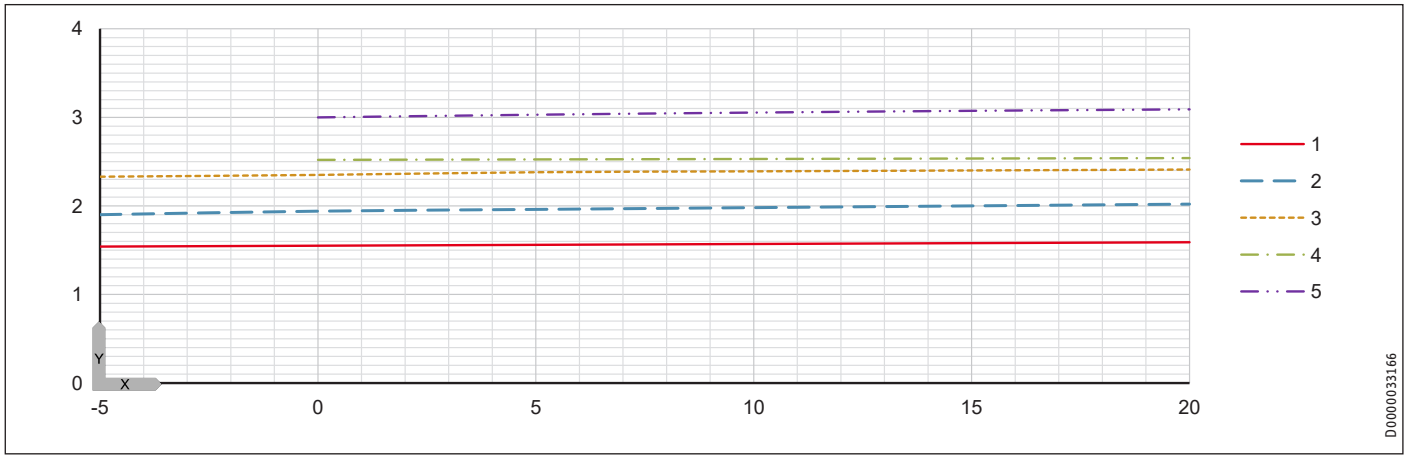
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

Heating output

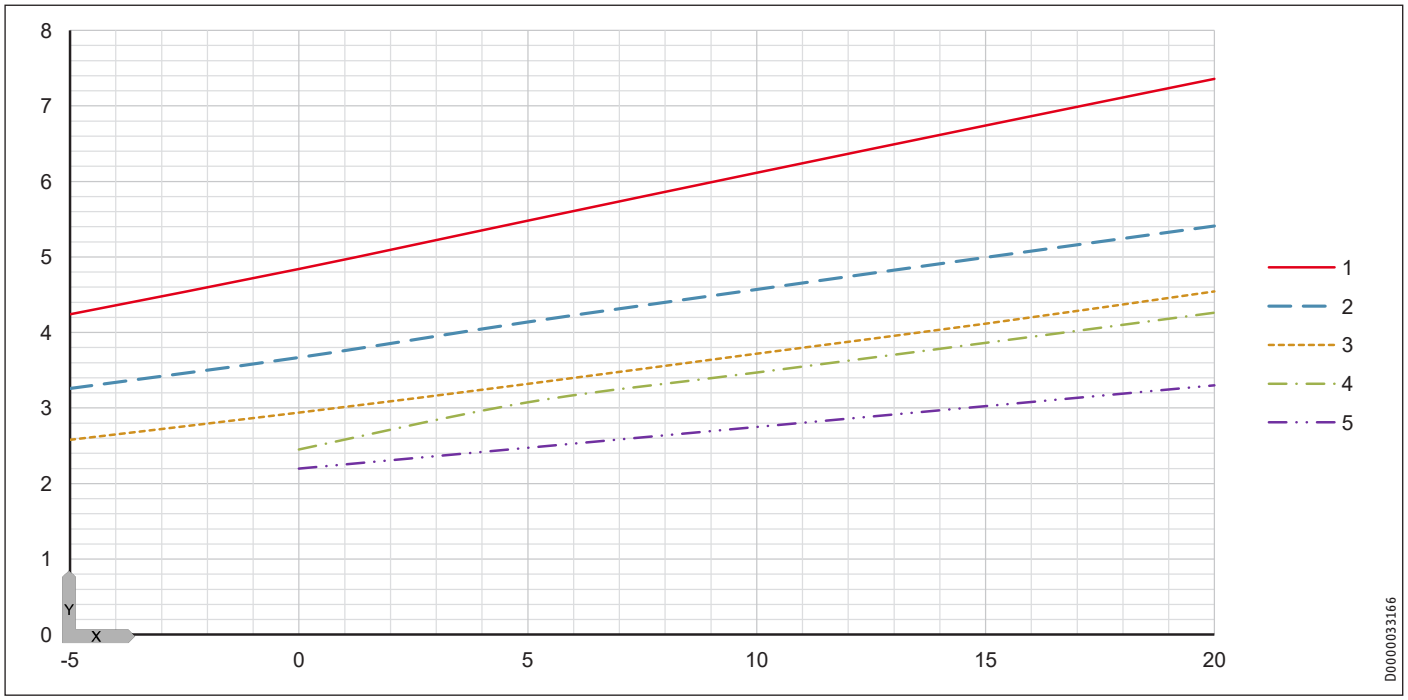


Power consumption



Specification

COP

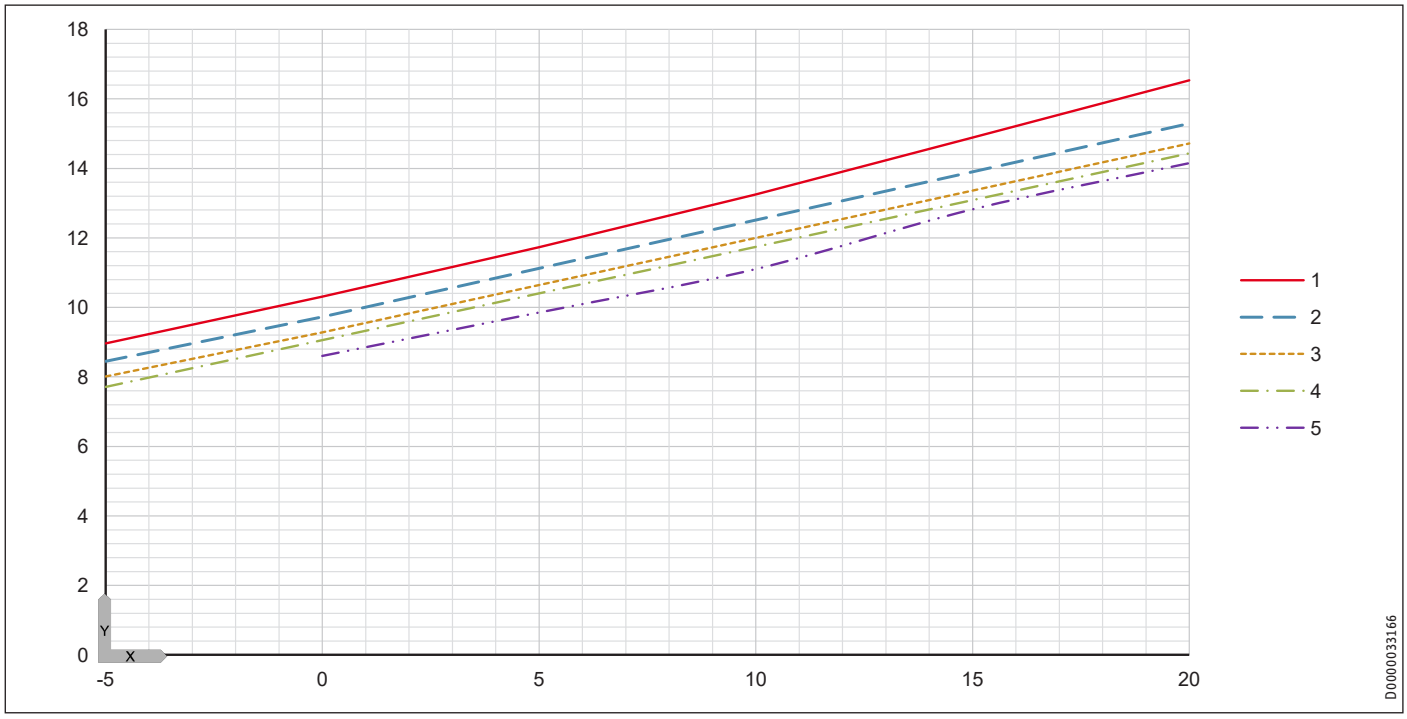


18.8 Output diagrams WPF 10 | WPF 10 cool

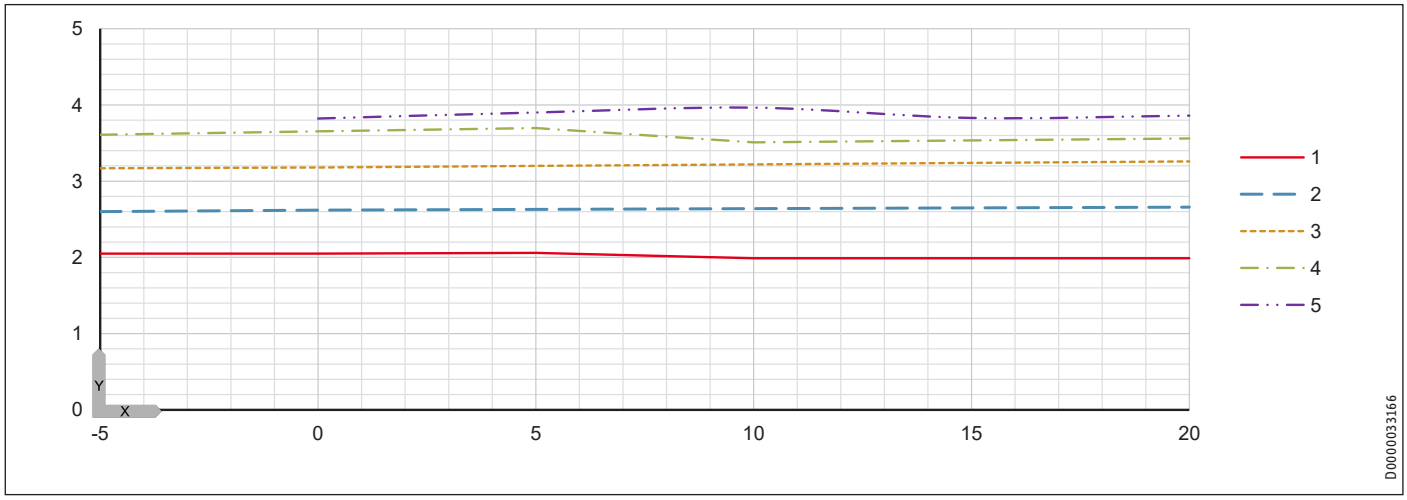
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

Heating output



Power consumption



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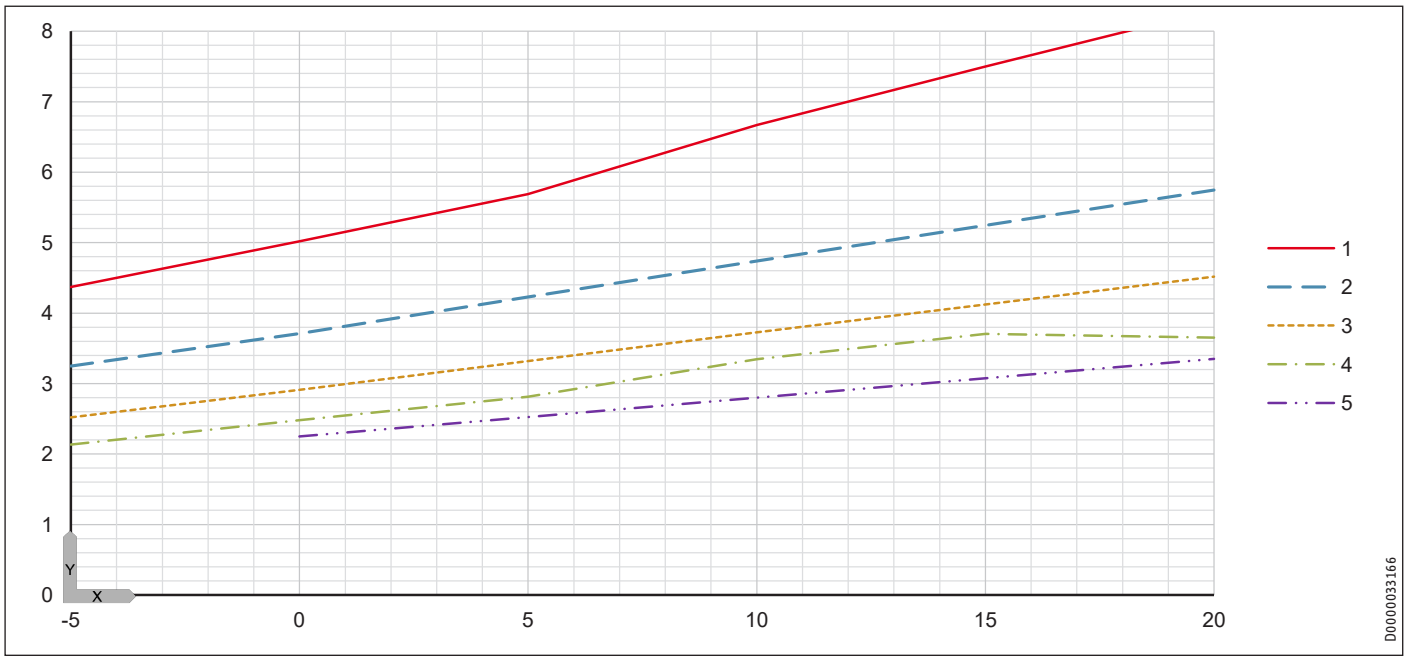
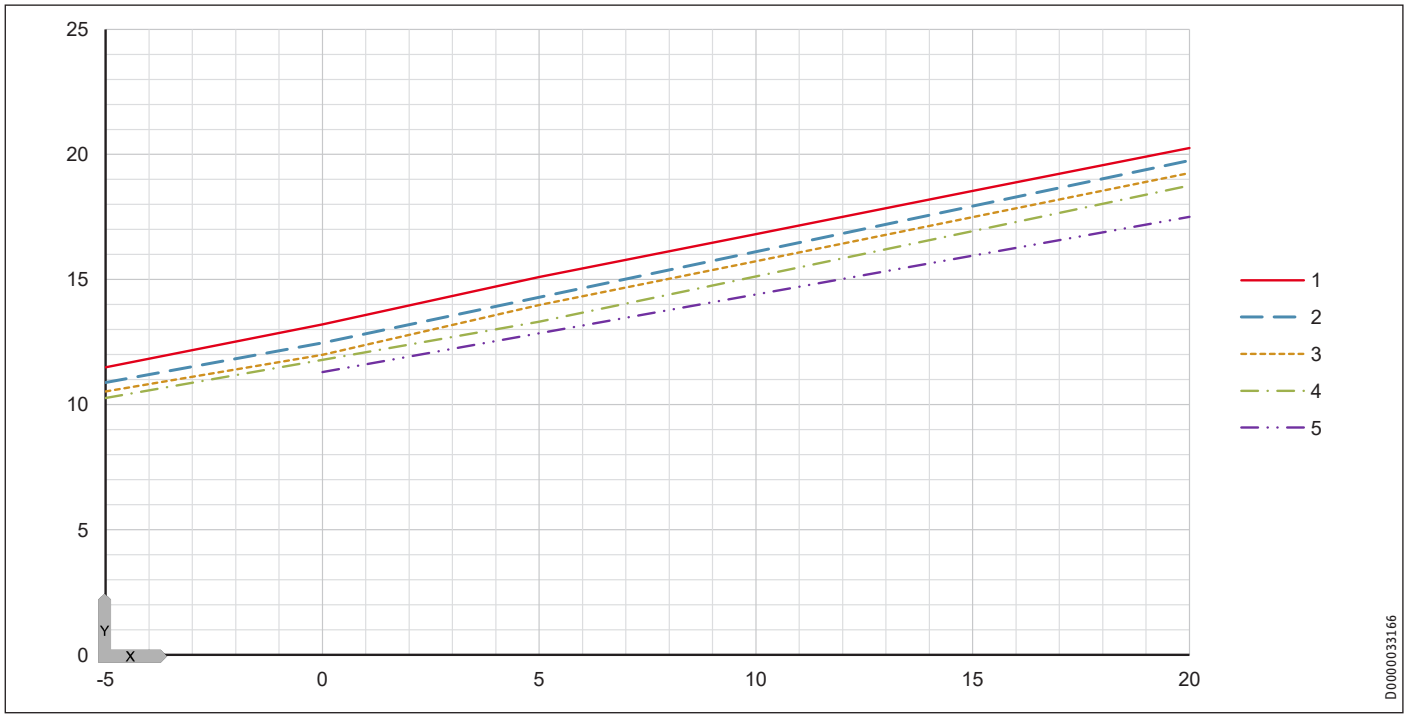


18.9 Output diagrams WPF 13 | WPF 13 cool

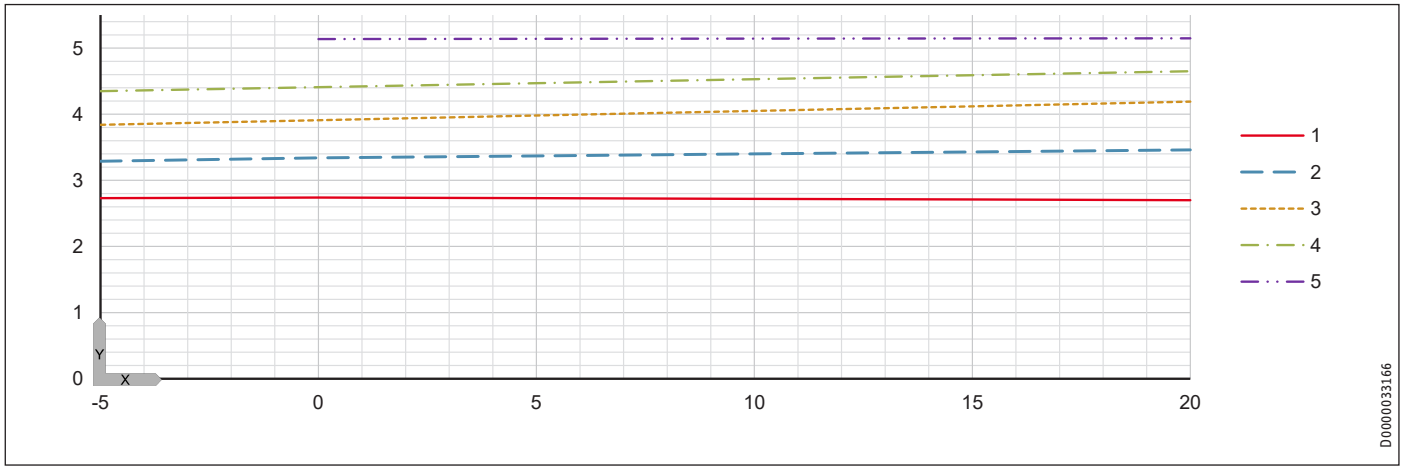
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

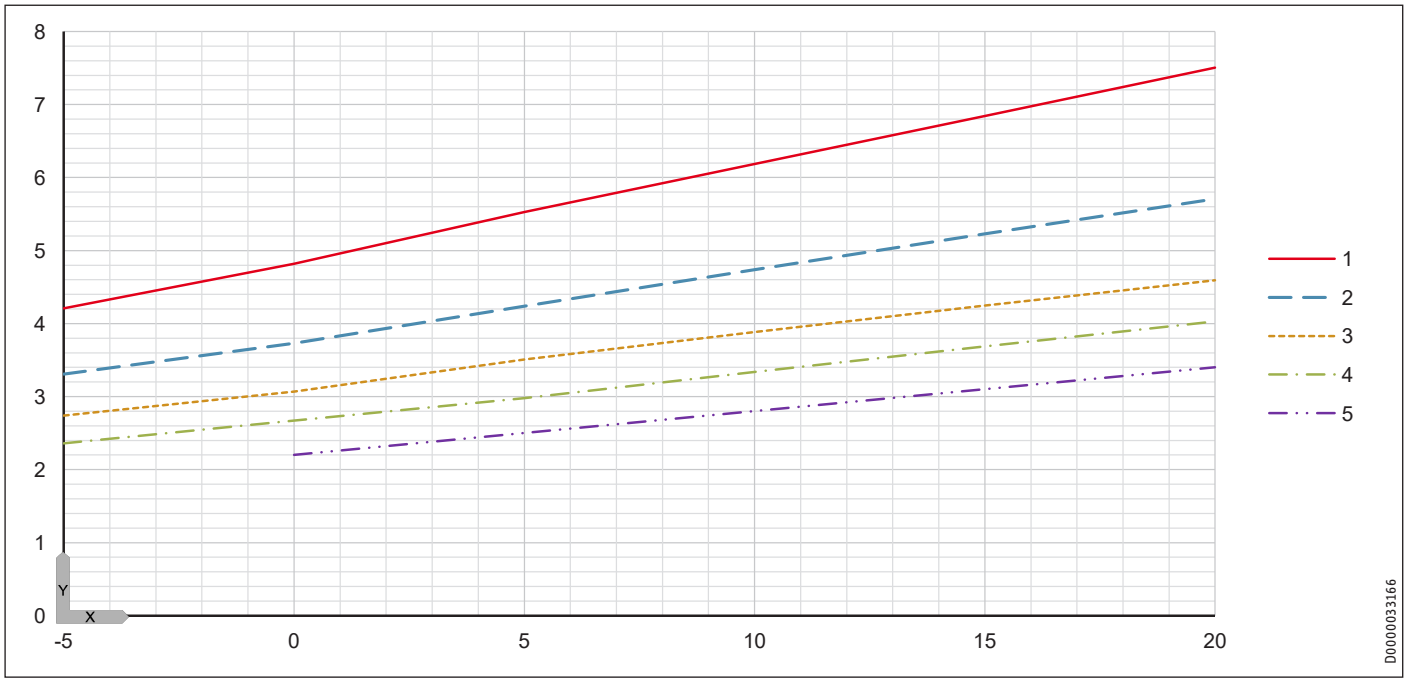
Heating output



Power consumption



COP

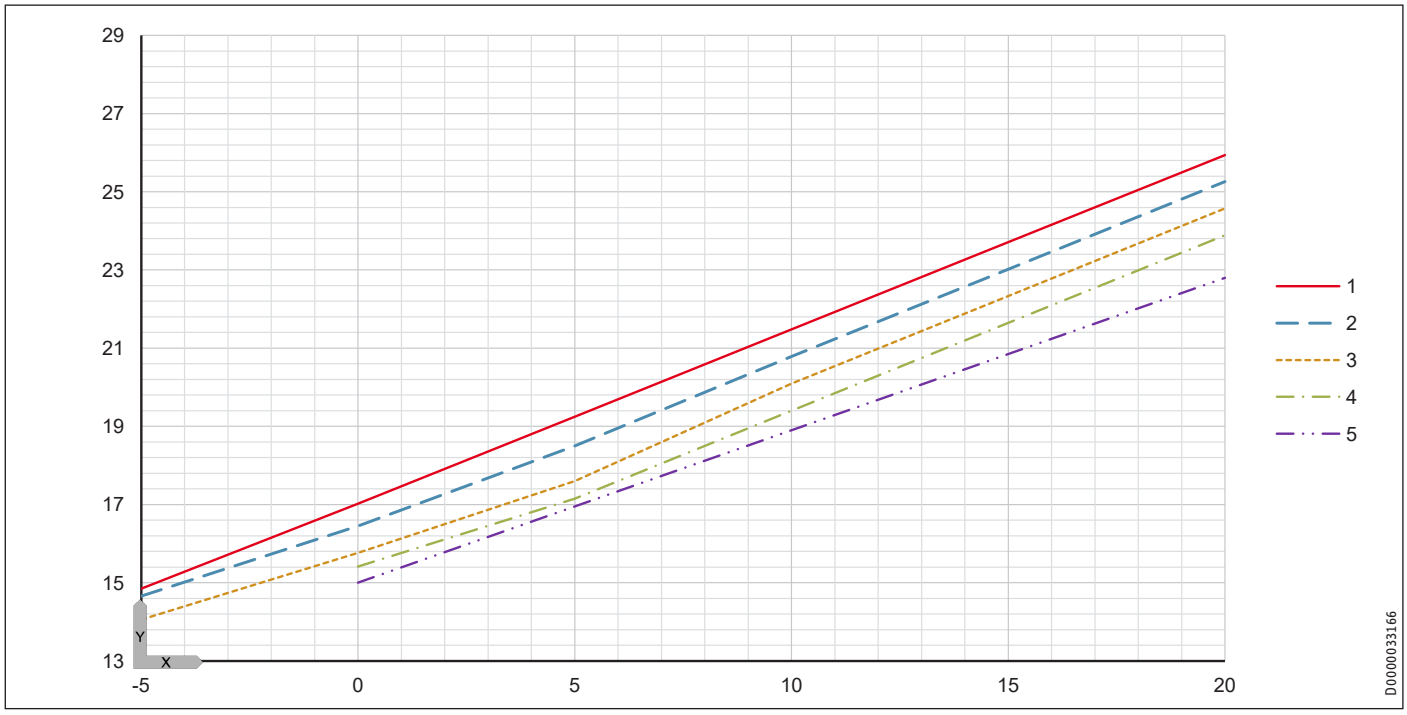


18.10 Output diagrams WPF 16 | WPF 16 cool

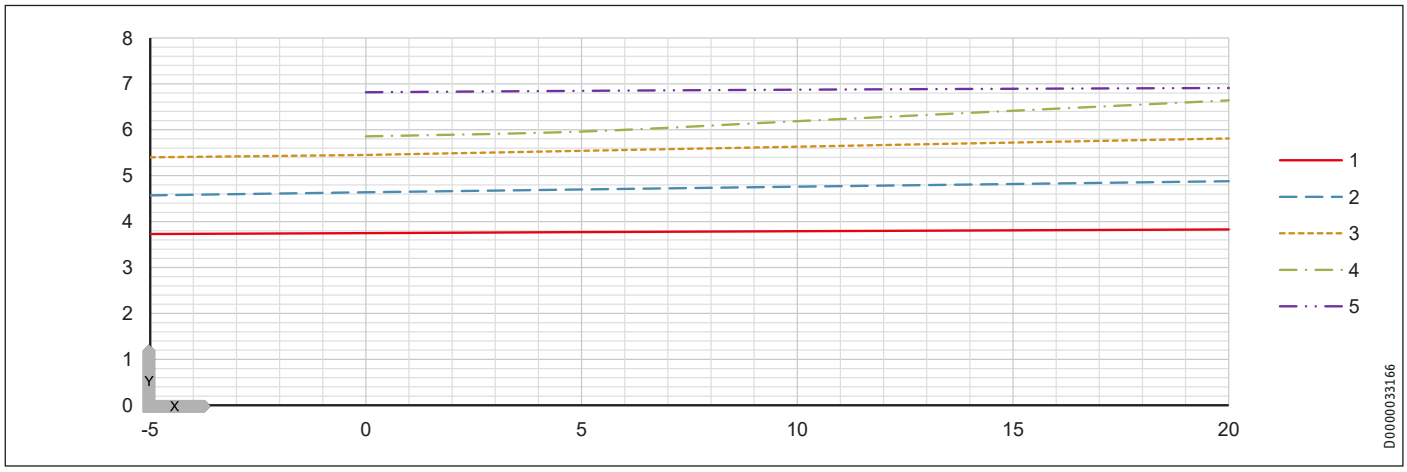
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C
5 Flow temperature 65 °C

Heating output



Power consumption



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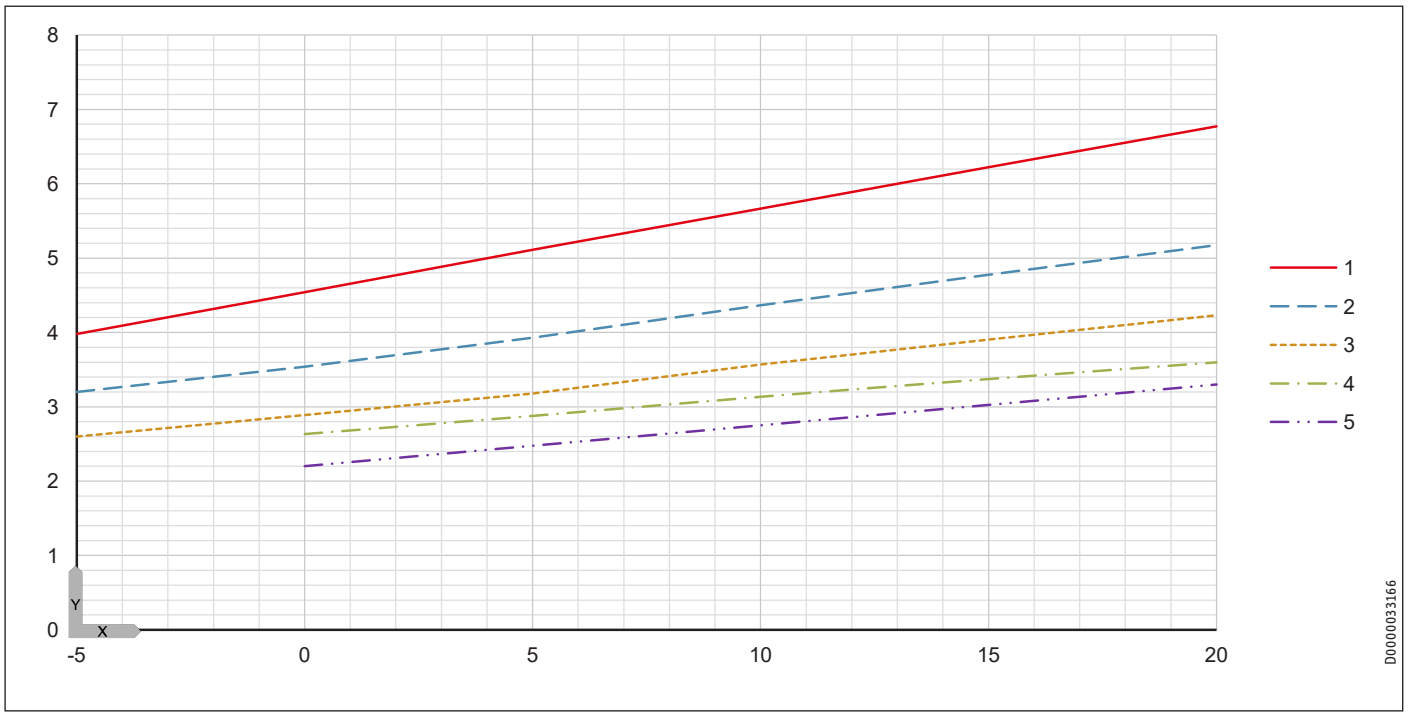
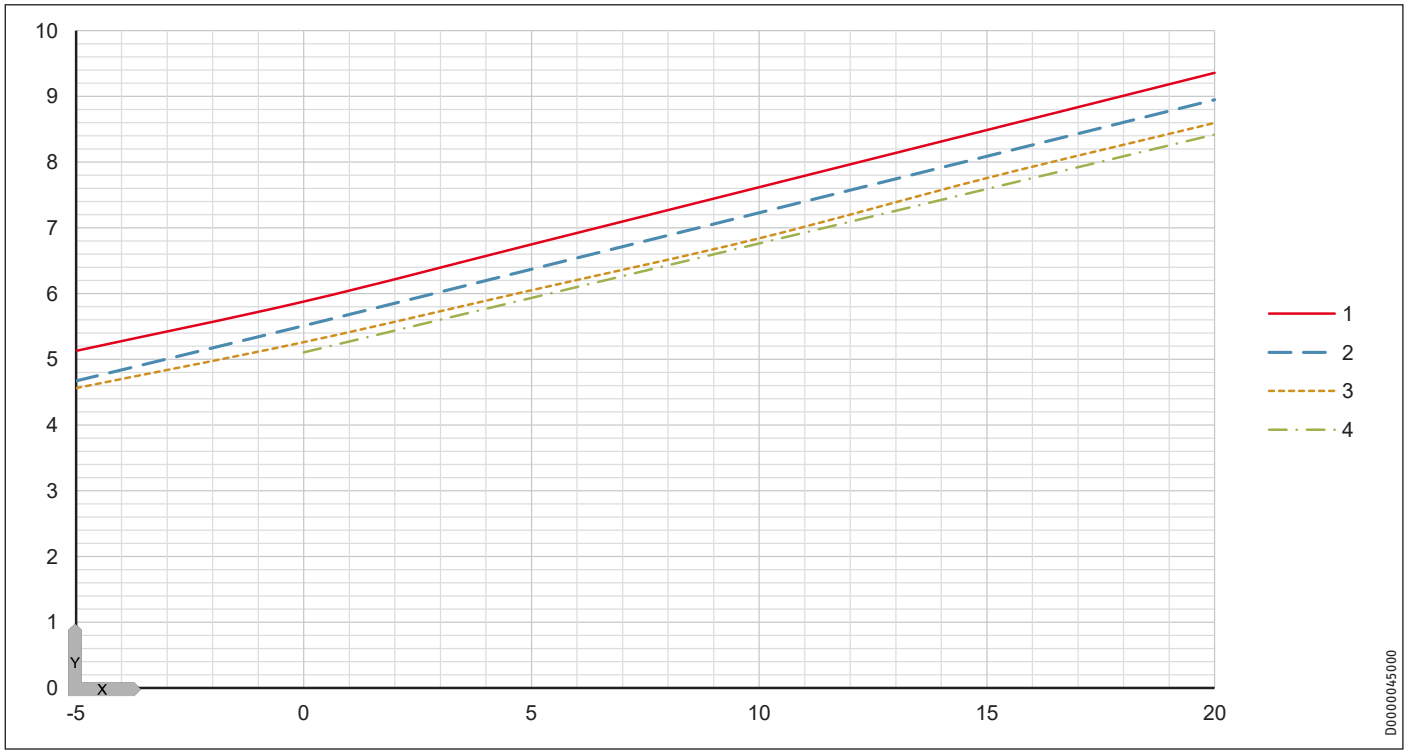


18.11 Output diagrams WPF 05 S

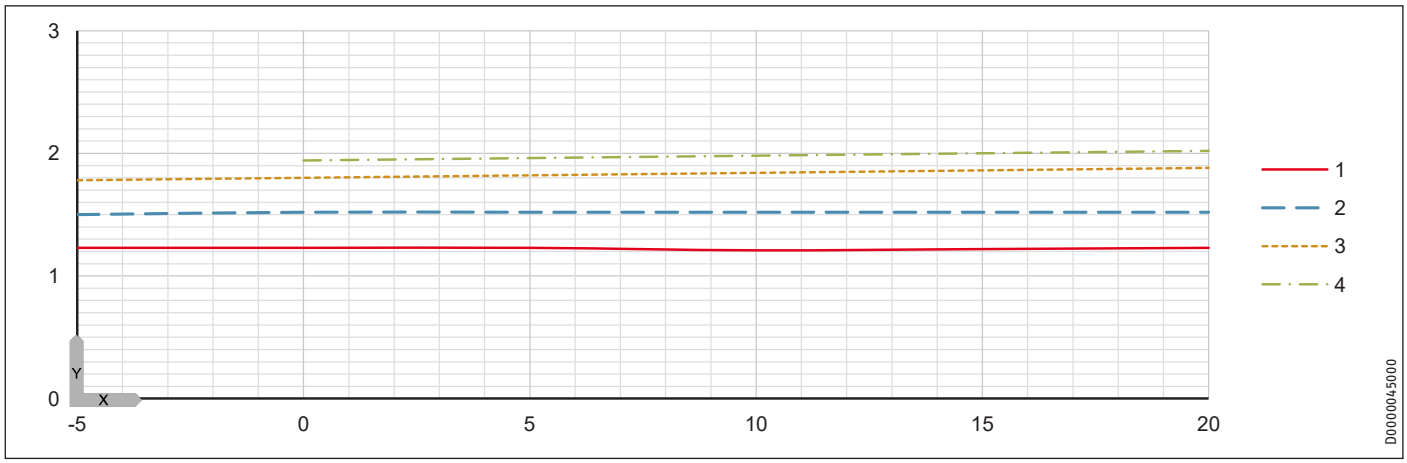
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C

Heating output



Power consumption



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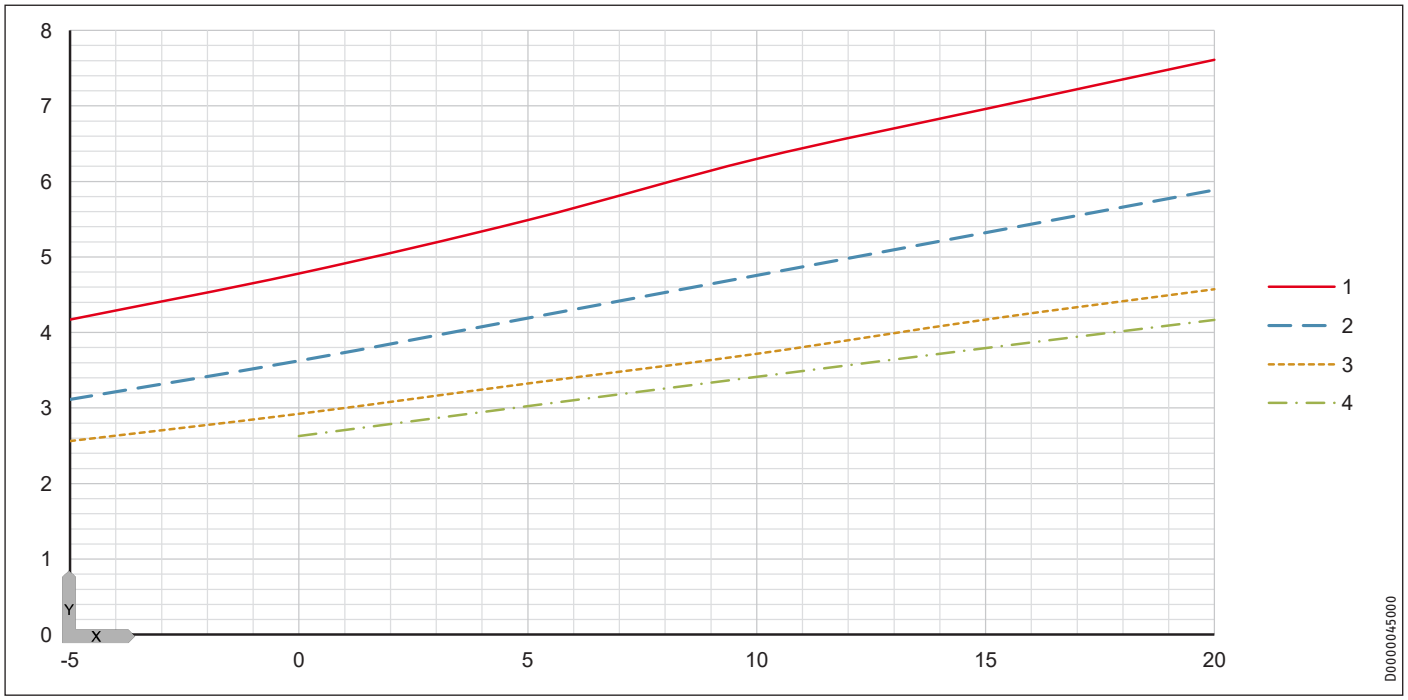
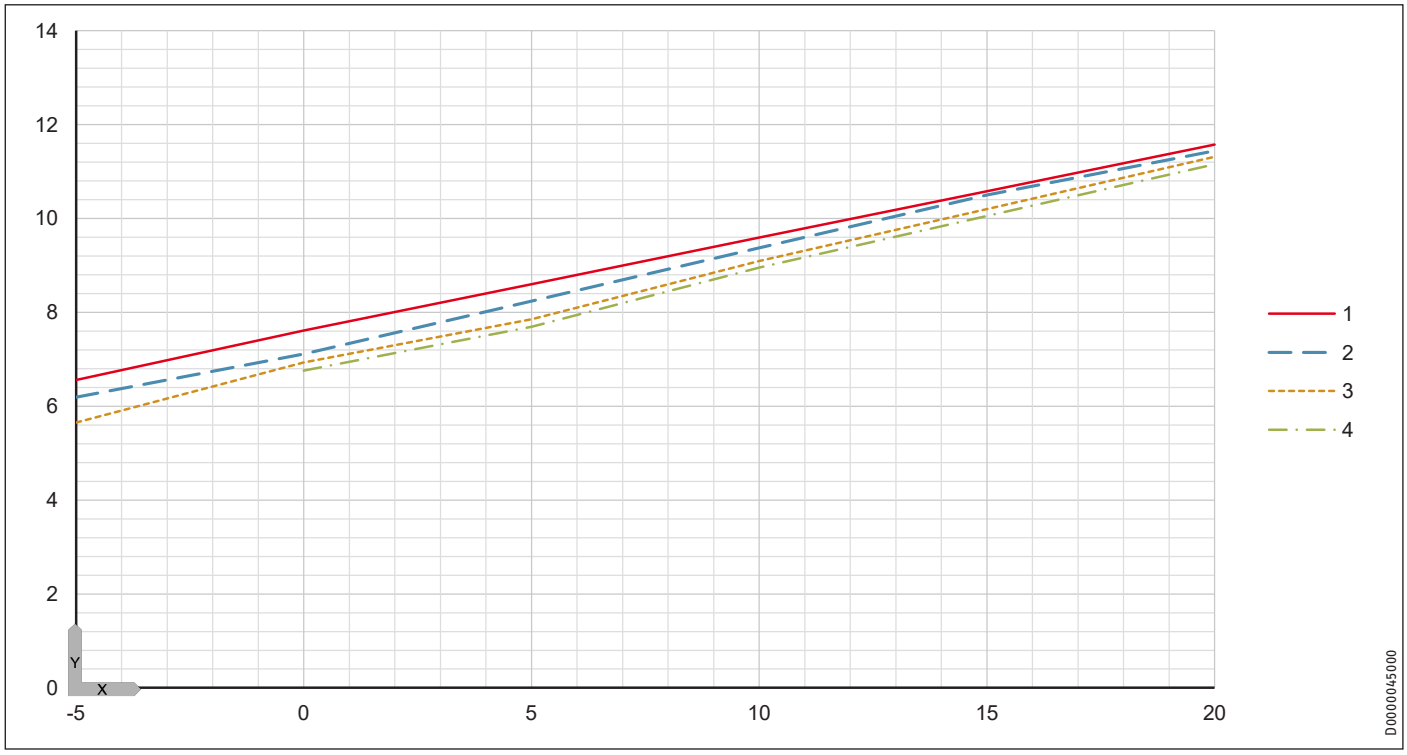


18.12 Output diagrams WPF 07 S

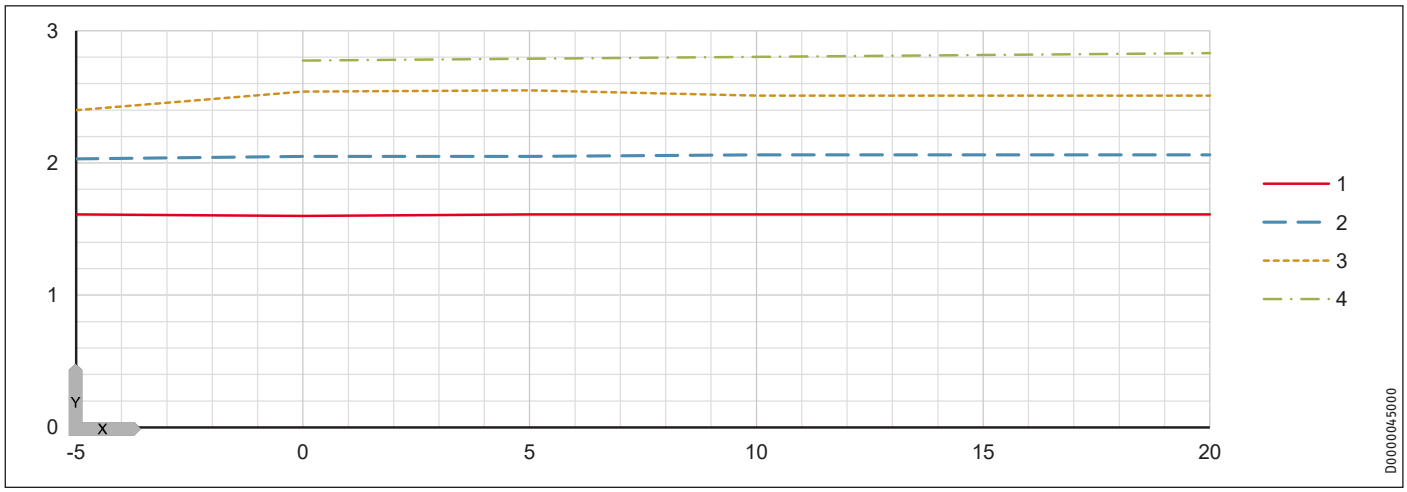
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C

Heating output



Power consumption



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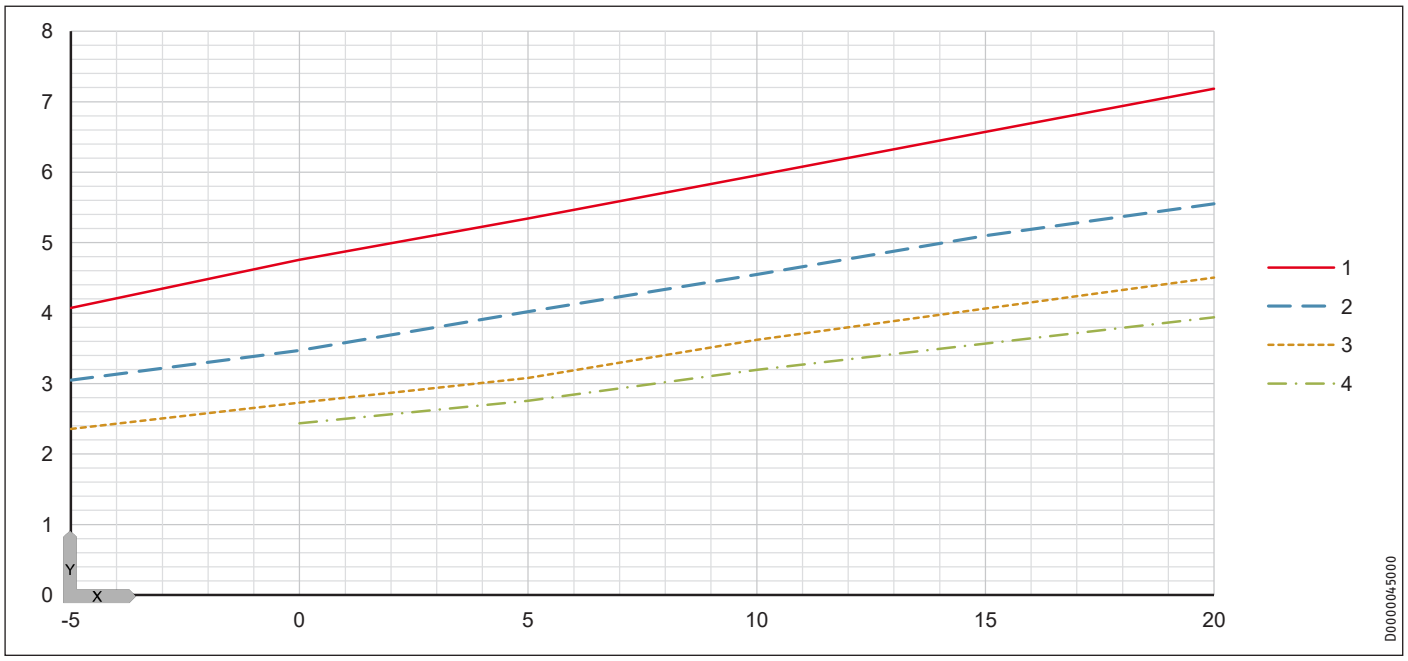
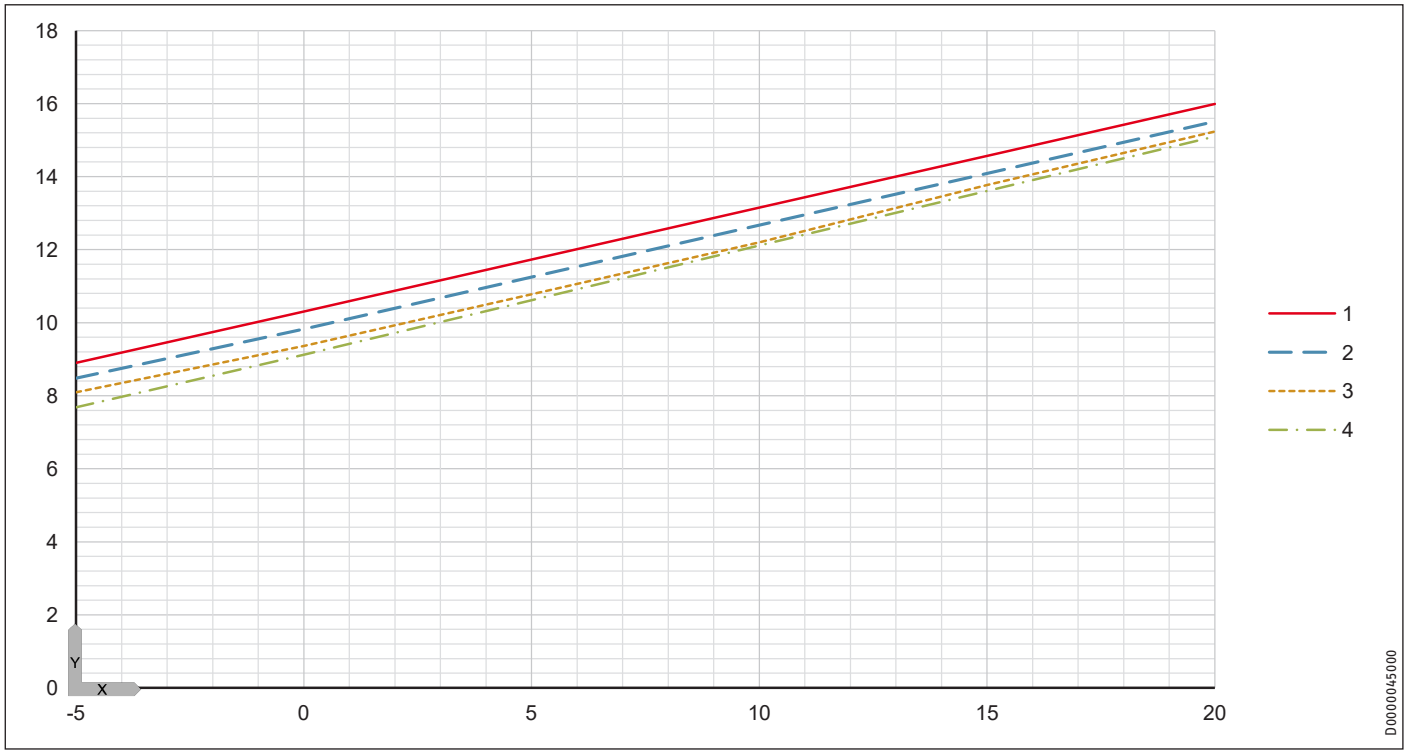


18.13 Output diagrams WPF 10 S

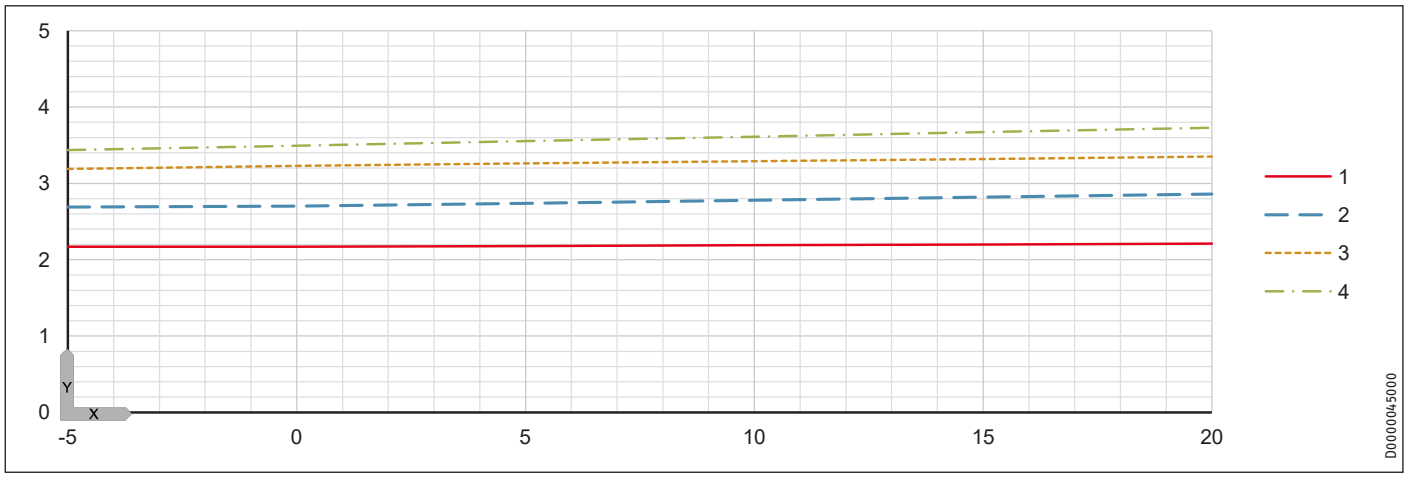
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C

Heating output



Power consumption



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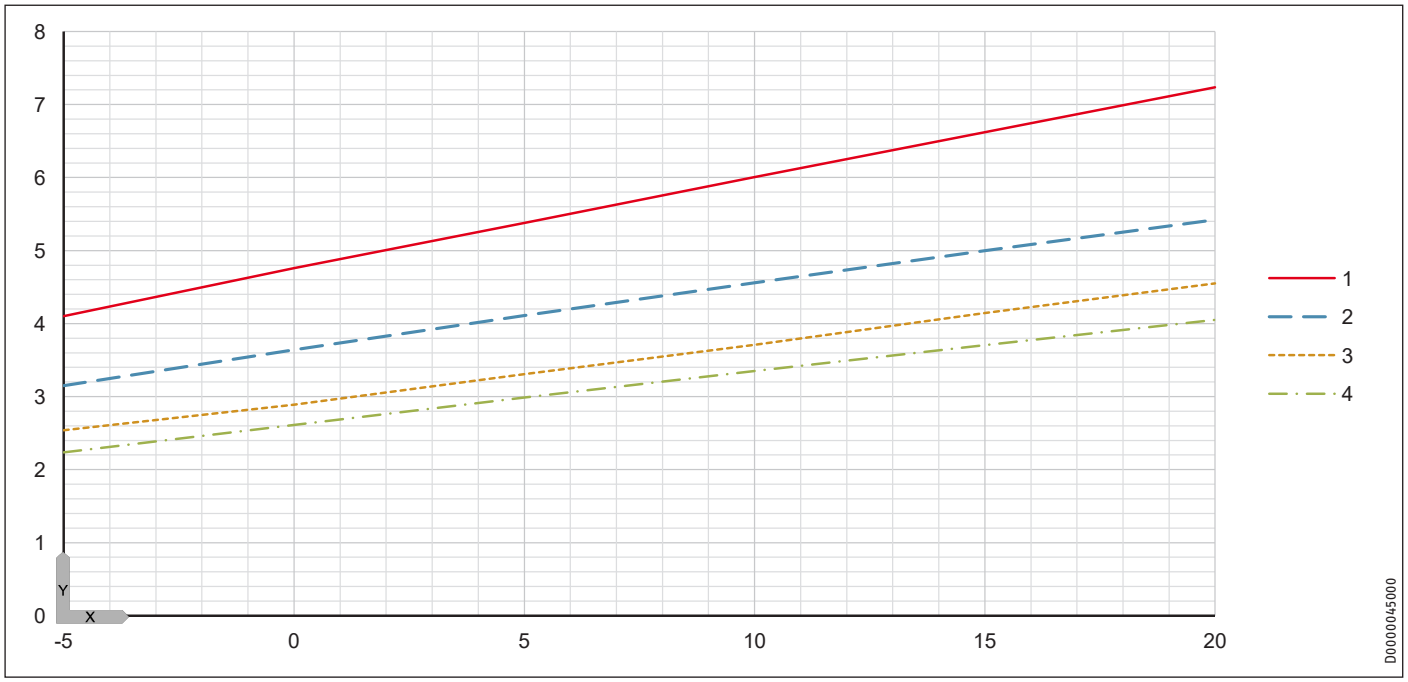
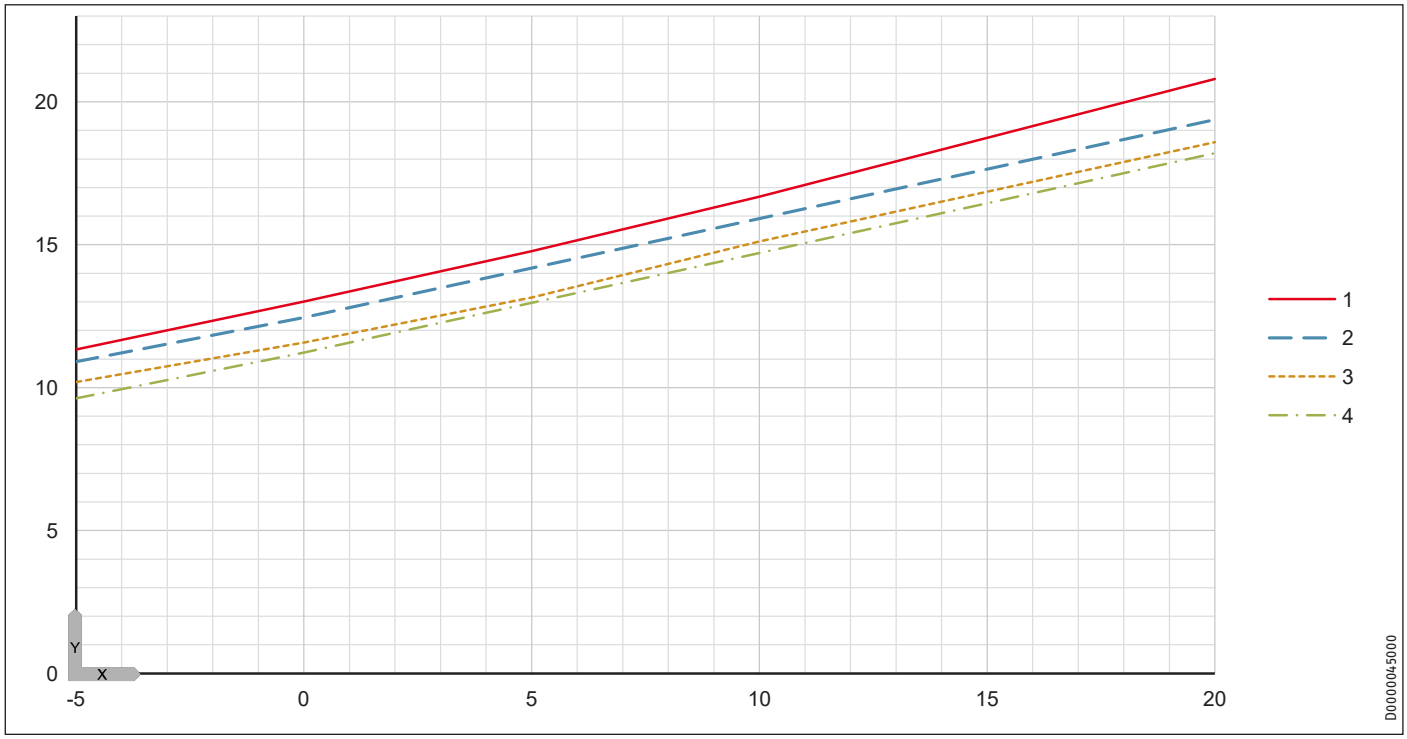


18.14 Output diagrams WPF 13 S

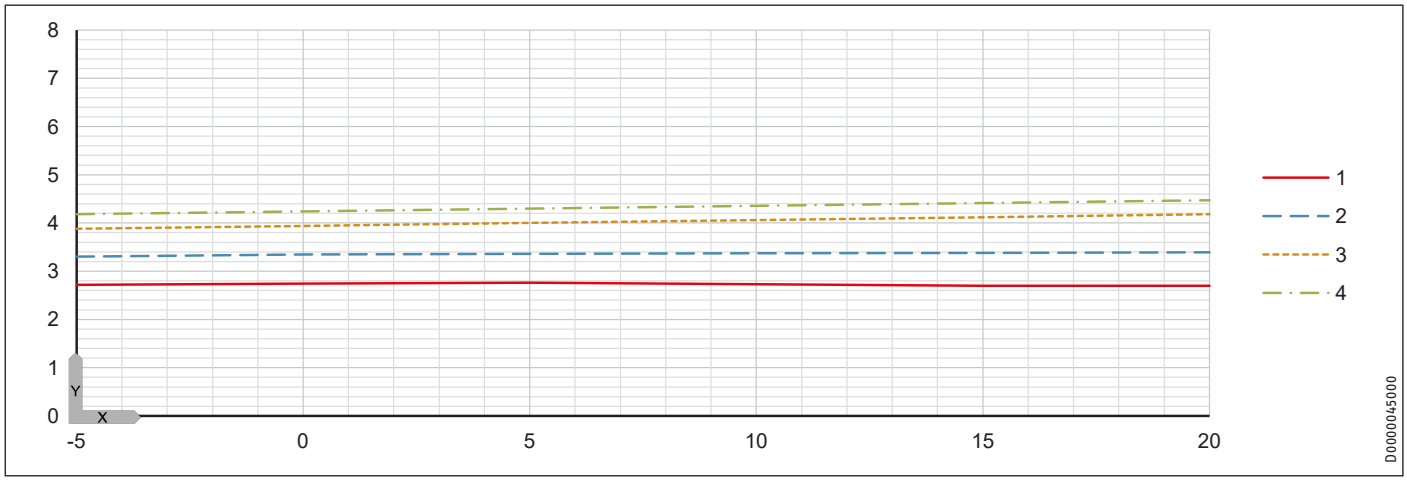
Key to output diagrams

Y Heating output [kW] / power consumption [kW] / coefficient of performance e [-]
X Inlet temperature of the WQA medium [°C]
1 Flow temperature 35 °C
2 Flow temperature 45 °C
3 Flow temperature 55 °C
4 Flow temperature 60 °C

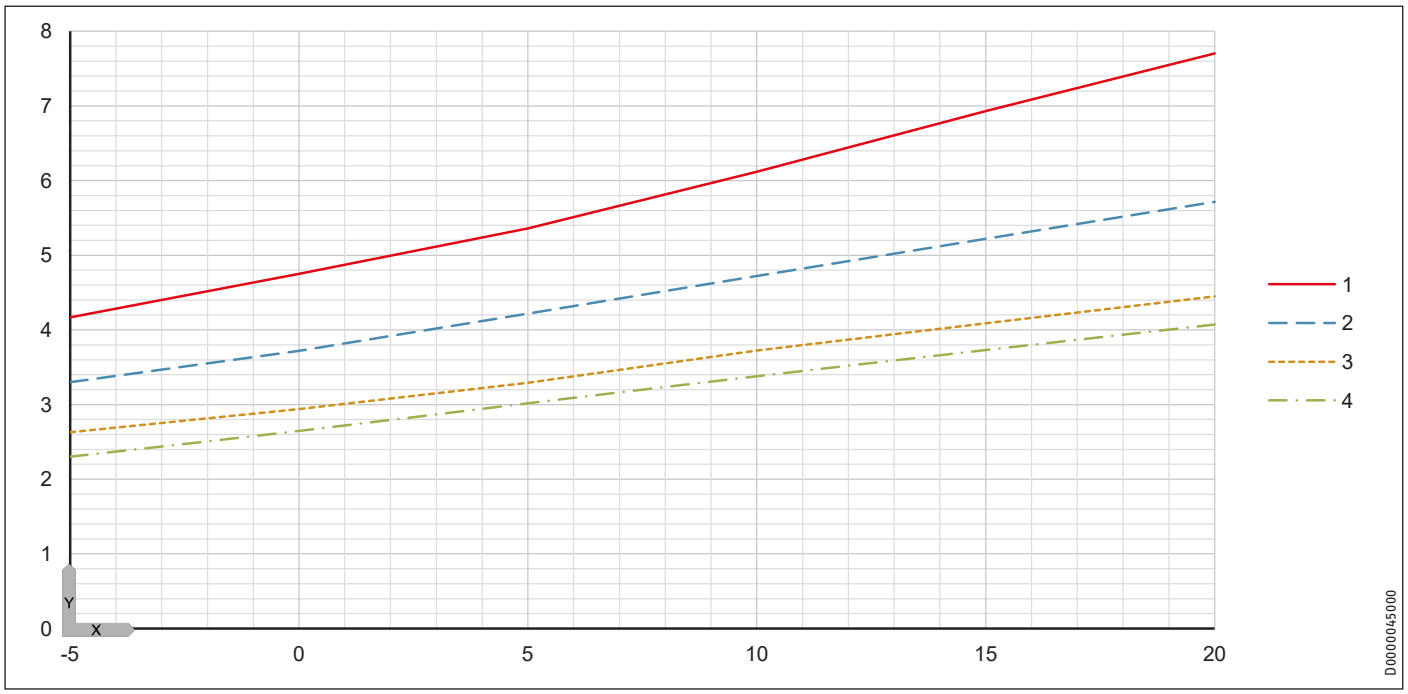
Heating output



Power consumption



COP



18.15 Data table WPF ....

Output details apply to new appliances with clean heat exchangers.

The power consumption figures for the integral auxiliary drives are maximum values and may vary subject to operating point.

The power consumption of the integral auxiliary drives is included in the output details of the heat pump (to EN 14511).

		WPF 04	WPF 05	WPF 07	WPF 10	WPF 13	WPF 16
		232909	232910	232911	232912	232913	232914
Heating output							
Heating output at B0/W35 (EN 14511)	kW	4.77	5.82	7.50	10.31	13.21	17.02
Heating output at B0/W65 (EN 14511)	kW	4.1	5	6.6	8.6	11.3	15
Heating output at B10/W35	kW	5.99	7.26	9.60	13.25	16.82	21.48
Heating output at B10/W65 (EN 14511)	kW	5.35	6.4	8.4	11.1	14.4	19.6
Power consumption							
Power consumption at B0/W35 (EN 14511)	kW	1.06	1.21	1.55	2.05	2.74	3.75
Power consumption at B0/W65 (EN 14511)	kW	2.05	2.38	3.0	3.82	5.14	6.82
Power consumption at B10/W35	kW	1.04	1.23	1.57	1.99	2.73	3.79
Power consumption at B10/W65 (EN 14511)	kW	2.1	2.46	3.05	3.96	5.14	7.13
Power consumption, emergency/booster heater	kW	8.8	8.8	8.8	8.8	8.8	8.8
Max. power consumption, circulation pump on the heating side	W	45	45	45	72	72	130
Max. power consumption, circulation pump on the source side	W	76	76	130	130	130	310
Coefficient of performance							
COP at B10/W35		5.76	5.90	6.11	6.67	6.16	5.67
COP at B0/W35 (EN 14511)		4.50	4.80	4.84	5.02	4.82	4.54
COP at B0/W65 (EN 14511)		2.0	2.1	2.2	2.25	2.2	2.2
COP at B10/W65 (EN 14511)		2.55	2.6	2.75	2.8	2.8	2.75
SCOP (EN 14825)		4.93	5.33	5.33	5.60	5.28	4.93
Sound emissions							
Sound power level (EN 12102)	dB(A)	43	43	44	48	50	53
Sound pressure level at a distance of 1 m in a free field	dB(A)	35	35	36	40	42	44.8
Sound pressure level at a distance of 5 m in a free field	dB(A)	20	21	22	26	28	31
Application limits							
Max. permissible pressure	MPa	4.3	4.3	4.3	4.3	4.3	4.3
Min. application limit on the heating side	°C	15	15	15	15	15	15
Max. application limit on the heating side	°C	65	65	65	65	65	65
Min. application limit, heat source	°C	-5	-5	-5	-5	-5	-5
Max. application limit, heat source	°C	20	20	20	20	20	20
Shutdown pressure, brine pressure switch (positive pressure)	MPa	0.7	0.7	0.7	0.7	0.7	0.7
Energy data							
Energy efficiency class		A++/A++	A++/A++	A++/A++	A++/A++	A++/A++	A++/A++
Electrical data							
Frequency	Hz	50	50	50	50	50	50
MCB/fuse protection, emergency/booster heater	A	3 x B 16	3 x B 16	3 x B 16	3 x B 16	3 x B 16	3 x B 16
Control unit fuse/MCB	A	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16
Compressor fuse/MCB	A	3 x C 16	3 x C 16	3 x C 16	3 x C 16	3 x C 16	3 x C 16
Rated voltage, emergency/booster heater	V	400	400	400	400	400	400
Rated voltage, control unit	V	230	230	230	230	230	230
Rated voltage, compressor	V	400	400	400	400	400	400
Emergency/booster heater phases		3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE
Control unit phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE
Compressor phases		3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE
Starting current (with/without starting current limiter)	A	27	27	20	23	23	25
Max. operating current	A	3.5	4.1	4.8	7	8.3	12.1

Specification

		WPF 04	WPF 05	WPF 07	WPF 10	WPF 13	WPF 16
Versions							
Refrigerant		R410 A	R410 A	R410 A	R410 A	R410 A	R410 A
Refrigerant charge	kg	1.05	1.40	1.72	2.03	2.30	2.35
CO_2 equivalent (CO_2e)	t	2.19	2.92	3.59	4.24	4.8	4.91
Global warming potential of the refrigerant (GWP100)		2088	2088	2088	2088	2088	2088
Compressor oil		Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF
Condenser material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Evaporator material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Circulation pump type on the heating side		Yonos PARA 25/7.0	Yonos PARA 25/7.0	Yonos PARA 25/7.0	Yonos PARA 25/7.5	Yonos PARA 25/7.5	Stratos PARA 25/1-8
Circulation pump type, source side		Yonos PARA RS 25/7.5 PWM GT	Yonos PARA RS 25/7.5 PWM GT	Stratos PARA 25/1-8	Stratos PARA 25/1-8	Stratos PARA 25/1-8	Stratos PARA 25/1-12
IP rating		IP20	IP20	IP20	IP20	IP20	IP20
Dimensions							
Height	mm	1319	1319	1319	1319	1319	1319
Width	mm	598	598	598	598	598	598
Depth	mm	658	658	658	658	658	658
Weights							
Weight	kg	150	152	157	169	171	181
Connections							
DHW flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Heat source flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Heating flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Water quality requirements							
Water hardness	°dH	≤3	≤3	≤3	≤3	≤3	≤3
pH value (with aluminium fittings)		8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5
pH value (without aluminium fittings)		8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Chloride	mg/l	<30	<30	<30	<30	<30	<30
Conductivity (softening)	µS/cm	<1000	<1000	<1000	<1000	<1000	<1000
Conductivity (desalination)	µS/cm	20-100	20-100	20-100	20-100	20-100	20-100
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heat transfer medium requirements on the heat source side							
Ethylene glycol concentration, geothermal probe	Vol.-%	25	25	25	25	25	25
Ethylene glycol concentration, geothermal collector	Vol.-%	33	33	33	33	33	33
Values							
Available external pressure differential, heating system	hPa	690	525	465	440	180	300
Available external pressure differential, heat source	hPa	610	630	755	660	395	920
Nominal design heating system flow rate at B0/W35 and 7 K	m³/h	0.58	0.71	0.92	1.26	1.64	2.09
Min. heating flow rate	m³/h	0.47	0.57	0.75	1.00	1.29	1.62
Heating flow rate (EN 14511) at A7/W35, B0/W35 and 5 K	m³/h	0.78	1.04	1.28	1.78	2.28	2.91
Flow rate on heat source side	m³/h	1.15	1.41	1.82	2.61	3.22	4.20
Internal volume on the heating side	l	5.4	6.1	6.1	6.7	7.3	7.3
Internal volume on the source side	l	9.1	9.7	10.5	11.3	11.8	12.3
Expansion vessel pre-charge pressure on the heating side	MPa	0.15	0.15	0.15	0.15	0.15	0.15
Expansion vessel volume on the heating side	l	24	24	24	24	24	24
Expansion vessel pre-charge pressure on the source side	MPa	0.05	0.05	0.05	0.05	0.05	0.05
Expansion vessel volume on the source side	l	24	24	24	24	24	24

Conversion: 1 m³/h = 16.67 l/min

Further details

		WPF 04	WPF 05	WPF 07	WPF 10	WPF 13	WPF 16
		232909	232910	232911	232912	232913	232914
Maximum altitude for installation	m	2000	2000	2000	2000	2000	2000

18.16 Data table WPF .... cool

Output details apply to new appliances with clean heat exchangers.

The power consumption figures for the integral auxiliary drives are maximum values and may vary subject to operating point.

The power consumption of the integral auxiliary drives is included in the output details of the heat pump (to EN 14511).

		WPF 04 cool	WPF 05 cool	WPF 07 cool	WPF 10 cool	WPF 13 cool	WPF 16 cool
		232915	232916	232917	232918	232919	232920
Heating output							
Heating output at B0/W35 (EN 14511)	kW	4.77	5.82	7.50	10.31	13.21	17.02
Heating output at B0/W65 (EN 14511)	kW	4.1	5	6.6	8.6	11.3	15
Heating output at B10/W35	kW	5.99	7.26	9.60	13.25	16.82	21.48
Heating output at B10/W65 (EN 14511)	kW	5.35	6.4	8.4	11.1	14.4	19.6
Cooling capacity at B15/W23	kW	3.0	3.8	5.2	6.0	8.5	11
Power consumption							
Power consumption at B0/W35 (EN 14511)	kW	1.06	1.21	1.55	2.05	2.74	3.75
Power consumption at B0/W65 (EN 14511)	kW	2.05	2.38	3.0	3.82	5.14	6.82
Power consumption at B10/W35	kW	1.04	1.23	1.57	1.99	2.73	3.79
Power consumption at B10/W65 (EN 14511)	kW	2.1	2.46	3.05	3.96	5.14	7.13
Power consumption, emergency/booster heater	kW	8.8	8.8	8.8	8.8	8.8	8.8
Max. power consumption, circulation pump on the heating side	W	45	45	45	72	72	130
Max. power consumption, circulation pump on the source side	W	76	76	130	130	130	310
Coefficient of performance							
COP at B10/W35		5.76	5.90	6.11	6.67	6.16	5.67
COP at B0/W35 (EN 14511)		4.50	4.80	4.84	5.02	4.82	4.54
COP at B0/W65 (EN 14511)		2.0	2.1	2.2	2.25	2.2	2.2
COP at B10/W65 (EN 14511)		2.55	2.6	2.75	2.8	2.8	2.75
SCOP (EN 14825)		4.93	5.33	5.33	5.60	5.28	4.93
Sound emissions							
Sound power level (EN 12102)	dB(A)	43	43	44	48	50	53
Sound pressure level at a distance of 1 m in a free field	dB(A)	35	35	36	40	42	44.8
Sound pressure level at a distance of 5 m in a free field	dB(A)	20	21	22	26	28	30.8
Application limits							
Max. permissible pressure	MPa	4.3	4.3	4.3	4.3	4.3	4.3
Min. application limit on the heating side	°C	15	15	15	15	15	15
Max. application limit on the heating side	°C	65	65	65	65	65	65
Min. application limit, heat source	°C	-5	-5	-5	-5	-5	-5
Max. application limit, heat source	°C	20	20	20	20	20	20
Shutdown pressure, brine pressure switch (positive pressure)	MPa	0.7	0.7	0.7	0.7	0.7	0.7
Energy data							
Energy efficiency class		A++/A++	A++/A++	A++/A++	A++/A++	A++/A++	A++/A++
Electrical data							
Frequency	Hz	50	50	50	50	50	50
MCB/fuse protection, emergency/booster heater	A	3 x B 16	3 x B 16	3 x B 16	3 x B 16	3 x B 16	3 x B 16
Control unit fuse/MCB	A	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16
Compressor fuse/MCB	A	3 x C 16	3 x C 16	3 x C 16	3 x C 16	3 x C 16	3 x C 16
Rated voltage, emergency/booster heater	V	400	400	400	400	400	400
Rated voltage, control unit	V	230	230	230	230	230	230
Rated voltage, compressor	V	400	400	400	400	400	400
Emergency/booster heater phases		3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE
Control unit phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE
Compressor phases		3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE	3/N/PE
Starting current (with/without starting current limiter)	A	27	27	20	23	23	25
Max. operating current	A	3.5	4.1	4.8	7	8.3	12.1

Specification

		WPF 04 cool	WPF 05 cool	WPF 07 cool	WPF 10 cool	WPF 13 cool	WPF 16 cool
Versions							
Refrigerant		R410 A	R410 A	R410 A	R410 A	R410 A	R410 A
Refrigerant charge	kg	1.05	1.40	1.72	2.03	2.30	2.35
CO_2 equivalent (CO_2e)	t	2.19	2.92	3.59	4.24	4.8	4.91
Global warming potential of the refrigerant (GWP100)		2088	2088	2088	2088	2088	2088
Compressor oil		Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF
Condenser material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Evaporator material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Circulation pump type on the heating side		Yonos PARA 25/7.0	Yonos PARA 25/7.0	Yonos PARA 25/7.0	Yonos PARA 25/7.5	Yonos PARA 25/7.5	Stratos PARA 25/1-8
Circulation pump type, source side		Yonos PARA RS 25/7.5 PWM GT	Yonos PARA RS 25/7.5 PWM GT	Stratos PARA 25/1-8	Stratos PARA 25/1-8	Stratos PARA 25/1-8	Stratos PARA 25/1-12
IP rating		IP20	IP20	IP20	IP20	IP20	IP20
Dimensions							
Height	mm	1319	1319	1319	1319	1319	1319
Width	mm	598	598	598	598	598	598
Depth	mm	658	658	658	658	658	658
Weights							
Weight	kg	158	160	165	177	182	192
Connections							
DHW flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Heat source flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Heating flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Water quality requirements							
Water hardness	°dH	≤3	≤3	≤3	≤3	≤3	≤3
pH value (with aluminium fittings)		8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5
pH value (without aluminium fittings)		8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Chloride	mg/l	<30	<30	<30	<30	<30	<30
Conductivity (softening)	µS/cm	<1000	<1000	<1000	<1000	<1000	<1000
Conductivity (desalination)	µS/cm	20-100	20-100	20-100	20-100	20-100	20-100
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heat transfer medium requirements on the heat source side							
Ethylene glycol concentration, geothermal probe	Vol.-%	25	25	25	25	25	25
Ethylene glycol concentration, geothermal collector	Vol.-%	33	33	33	33	33	33
Values							
Available external pressure differential, heating system	hPa	690	525	465	440	180	300
Available external pressure differential, heat source	hPa	610	630	755	660	395	920
Nominal design heating system flow rate at B0/W35 and 7 K	m³/h	0.58	0.71	0.92	1.26	1.64	2.09
Min. heating flow rate	m³/h	0.47	0.57	0.75	1.00	1.29	1.62
Heating flow rate (EN 14511) at A7/W35, B0/W35 and 5 K	m³/h	0.78	1.04	1.28	1.78	2.28	2.91
Flow rate on heat source side	m³/h	1.15	1.41	1.82	2.61	3.22	4.20
Internal volume on the heating side	l	6.4	7.1	7.1	7.7	8.3	8.3
Internal volume on the source side	l	10.3	10.9	11.7	12.2	13.0	13.5
Expansion vessel pre-charge pressure on the heating side	MPa	0.15	0.15	0.15	0.15	0.15	0.15
Expansion vessel volume on the heating side	l	24	24	24	24	24	24
Expansion vessel pre-charge pressure on the source side	MPa	0.05	0.05	0.05	0.05	0.05	0.05
Expansion vessel volume on the source side	l	24	24	24	24	24	24

Conversion: 1 m³/h = 16.67 l/min

Further details

		WPF 04 cool	WPF 05 cool	WPF 07 cool	WPF 10 cool	WPF 13 cool	WPF 16 cool
		232915	232916	232917	232918	232919	232920
Maximum altitude for installation	m	2000	2000	2000	2000	2000	2000

18.17 Data table WPF .... S

Output details apply to new appliances with clean heat exchangers.

The power consumption figures for the integral auxiliary drives are maximum values and may vary subject to operating point.

The power consumption of the integral auxiliary drives is included in the output details of the heat pump (to EN 14511).

		WPF 05 S	WPF 07 S	WPF 10 S	WPF 13 S
		232922	232923	232924	232925
Heating output					
Heating output at B0/W35 (EN 14511)	kW	5.88	7.61	10.31	13.01
Power consumption					
Power consumption at B0/W35 (EN 14511)	kW	1.23	1.60	2.17	2.74
Power consumption, emergency/booster heater	kW	5.9	5.9	5.9	5.9
Max. power consumption, circulation pump on the heating side	W	45	45	72	72
Max. power consumption, circulation pump on the source side	W	76	130	130	130
Coefficient of performance					
COP at B0/W35 (EN 14511)		4.78	4.75	4.76	4.75
SCOP (EN 14825)		5.23	5.30	5.20	5.18
Sound emissions					
Sound power level (EN 12102)	dB(A)	46	50	50	50
Sound pressure level at a distance of 1 m in a free field	dB(A)	38	42	42	42
Sound pressure level at a distance of 5 m in a free field	dB(A)	24	28	28	28
Application limits					
Min. application limit on the heating side	°C	15	15	15	15
Max. application limit on the heating side	°C	60	60	60	60
Min. application limit, heat source	°C	-5	-5	-5	-5
Max. application limit, heat source	°C	20	20	20	20
Energy data					
Energy efficiency class		A++/A++	A++/A++	A++/A++	A++/A++
Electrical data					
Frequency	Hz	50	50	50	50
MCB/fuse protection, emergency/booster heater	A	2 x B 16	2 x B 16	2 x B 16	2 x B 16
Control unit fuse/MCB	A	1 x B 16	1 x B 16	1 x B 16	1 x B 16
Compressor fuse/MCB	A	1 x C16	1 x C16	1 x C25	1 x C25
Rated voltage, emergency/booster heater	V	230	230	230	230
Rated voltage, control unit	V	230	230	230	230
Rated voltage, compressor	V	230	230	230	230
Emergency/booster heater phases		2/N/PE	2/N/PE	2/N/PE	2/N/PE
Control unit phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE
Compressor phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE
Starting current (with/without starting current limiter)	A	31/60	30/83	41/100	34/130
Versions					
Refrigerant		R410 A	R410 A	R410 A	R410 A
Refrigerant charge	kg	1.50	1.90	2.13	2.25
CO_2 equivalent (CO_2e)	t	4.7	4.45	3.97	3.13
Global warming potential of the refrigerant (GWP100)		2088	2088	2088	2088
Compressor oil		Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF	Emkarate RL 32 3MAF
Condenser material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Evaporator material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
Circulation pump type on the heating side		Yonos PARA 25/7.0	Yonos PARA 25/7.0	Yonos PARA 25/7.5	Yonos PARA 25/7.5
Circulation pump type, source side		Yonos PARA RS 25/7.5 PWM GT	Stratos PARA 25/1-8	Stratos PARA 25/1-8	Stratos PARA 25/1-8
IP rating		IP20	IP20	IP20	IP20
Dimensions					
Height	mm	1319	1319	1319	1319
Width	mm	598	598	598	598
Depth	mm	658	658	658	658
Weights					
Weight	kg	152	157	169	171
Connections					
DHW flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm
Heat source flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm
Heating flow/return push-fit connection		28 mm	28 mm	28 mm	28 mm

Specification

		WPF 05 S	WPF 07 S	WPF 10 S	WPF 13 S
Water quality requirements					
Water hardness	°dH	≤3	≤3	≤3	≤3
pH value (with aluminium fittings)		8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5
pH value (without aluminium fittings)		8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Chloride	mg/l	<30	<30	<30	<30
Conductivity (softening)	µS/cm	<1000	<1000	<1000	<1000
Conductivity (desalination)	µS/cm	20-100	20-100	20-100	20-100
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02	<0.02	<0.02	<0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	<0.1	<0.1	<0.1	<0.1
Heat transfer medium requirements on the heat source side					
Ethylene glycol concentration, geothermal probe	Vol.-%	25	25	25	25
Ethylene glycol concentration, geothermal collector	Vol.-%	33	33	33	33
Values					
Available external pressure differential, heating system	hPa	554	444	440	282
Available external pressure differential, heat source	hPa	591	732	660	520
Nominal design heating system flow rate at B0/W35 and 7 K	m³/h	0.71	0.92	1.26	1.64
Min. heating flow rate	m³/h	0.57	0.74	1.00	1.27
Heating flow rate (EN 14511) at A7/W35, B0/W35 and 5 K	m³/h	1.00	1.29	1.76	2.25
Flow rate on heat source side	m³/h	1.45	1.76	2.54	3.13
Expansion vessel pre-charge pressure on the heating side	MPa	0.15	0.15	0.15	0.15
Expansion vessel volume on the heating side	l	24	24	24	24
Expansion vessel pre-charge pressure on the source side	MPa	0.05	0.05	0.05	0.05
Expansion vessel volume on the source side	l	24	24	24	24

Conversion: 1 m³/h = 16.67 l/min

Further details

		WPF 05 S	WPF 07 S	WPF 10 S	WPF 13 S
		232922	232923	232924	232925
Maximum altitude for installation	m	2000	2000	2000	2000

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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