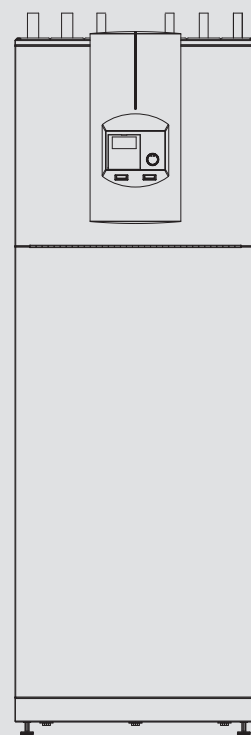


# OPERATION AND INSTALLATION

Hydraulic module

» HSBB 2.1



**STIEBEL ELTRON**

**OPERATION**

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**GUARANTEE**

**ENVIRONMENT AND RECYCLING**

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 a new user if required.

**1.1 Safety instructions**

**1.1.1 Structure of safety instructions**



**KEYWORD Type of risk**  
 Here, possible consequences are listed that may result from failure to observe the safety instructions.  
 ► Steps to prevent the risk are listed.

**1.1.2 Symbols, type of risk**

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

**1.1.3 Keywords**

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

**1.2 Other symbols in this documentation**



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

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

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

### 1.3 Units of measurement



#### Note

All measurements are given in mm unless stated otherwise.

## 2. Safety

### 2.1 Intended use

The appliance is used for heating rooms and domestic hot water.

This appliance may only be used in conjunction with a WPL 10 or WPL 13 from Stiebel Eltron within the respective application limits. Dual mode systems or linking in an external second heat source are/is not permissible.

The appliance is intended for domestic use, i.e. 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.

Observe the application limits listed in the chapter “Specification / Data table”.

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. Any changes or conversions to the appliance void any warranty.

### 2.2 Safety instructions

Observe the following safety instructions and regulations.

- Only qualified contractors should carry out the electrical work and installation of this appliance.
- Contractors are responsible for adherence to all currently applicable regulations 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.
- The DHW cylinder is at mains water pressure. If no diaphragm expansion vessel is installed, expansion water can drip from the safety valve during heat-up.
- Notify your contractor if water is still dripping from the safety valve after the heat-up process.



#### WARNING Injury

Where children or persons with limited physical, sensory or mental capabilities are allowed to control this appliance, ensure that this will only happen under supervision or after appropriate instruction by a person responsible for their safety.

Children must be supervised to ensure that they never play with the appliance.

## 3. Appliance description

The appliance is a hydraulic module with an integral DHW cylinder. The appliance is designed for internal installation. The appliance is connected hydraulically and electrically to the heat pump.

The appliance transfers the heat absorbed by the heat pump to the heating system and the DHW. During this process, the DHW is heated to the required temperature via a heat exchanger.

### Further features

- Robust metal casing made from galvanised, powder coated and stove enamelled sheet steel
- Integral diaphragm expansion vessel for the heating circuit
- High DHW convenience thanks to an enamelled DHW cylinder with internal indirect coil
- Control of the DHW heating via a diverter valve
- Pasteurisation function
- Adjustable heat-up program for drying a screed with embedded underfloor heating system
- Hours run meter for the connected heat pump

### Control unit

The system is controlled with the integral heat pump manager.

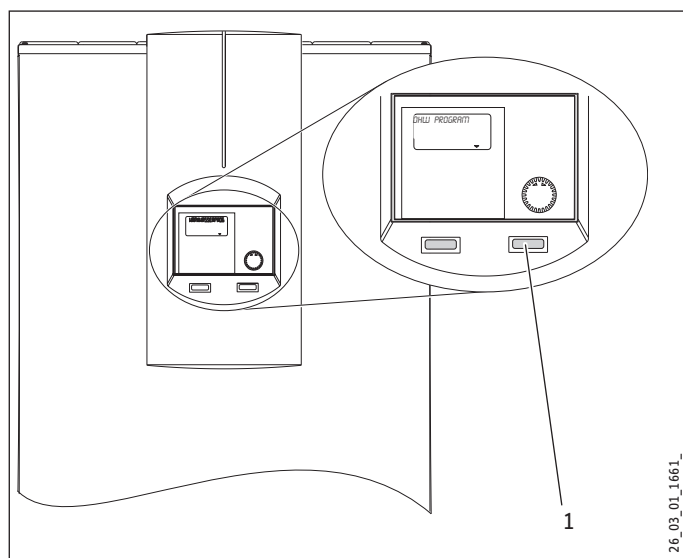
The heat pump manager is equipped with an illuminated symbol and plain text display screen, and is suitable for controlling one direct heating circuit and one mixer circuit.

A seven-day heating program is integrated in the heat pump manager which you can use to set the times and temperatures for heating operation and DHW heating.

You can extend the heat pump manager with the following components:

- Room temperature controllers FE 7 and FEK, for controlling the direct heating circuit, the mixer circuit and cooling
- Mixer module MSM, if connecting a second mixer circuit

## 4. Settings



1 Signal anode display

Operation is exclusively controlled via the heat pump manager.

- ▶ Observe the heat pump manager operating and installation instructions.

## 5. Maintenance and care



### Material losses

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 steel parts. Never use abrasive or corrosive cleaning agents.

## 6. Troubleshooting

Fault	Cause	Remedy
There is no hot water or the heating system stays cold.	One or more fuses are faulty.	Check the fuses/MCBs in your fuse box.

If you cannot remedy the fault, notify your qualified contractor. To facilitate and speed up your request, provide the number from the type plate (000000-0000-000000).

# INSTALLATION

## 7. Safety

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

### 7.1 General safety instructions

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

### 7.2 Instructions, standards and regulations



#### Note

Observe all applicable national and regional regulations and instructions.

### 7.3 Electrical installation



#### WARNING Electrocutation

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



#### WARNING Electrocutation

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



#### WARNING Electrocutation

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



#### Material losses

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

### 7.4 Standard delivery

Delivered with the appliance:

- 1 outside temperature sensor AFS 2
- 4 sliding blocks for the appliance feet
- 1 safety assembly with pressure gauge and overpressure valve for heating circuit
- 1 expansion vessel (incl. fastening material)
- 1 installation kit (pressure reducing valve, non return valves, safety relief valve, tundish)

### 7.5 Accessories

- Remote control for heating and cooling mode
- Mixer module
- Pressure hoses
- Water softener fitting HZEA

## 8. Preparations

### 8.1 General information

Keep the distance between the heat pump and hydraulic module as small as possible to reduce line losses.

### 8.2 Installation location



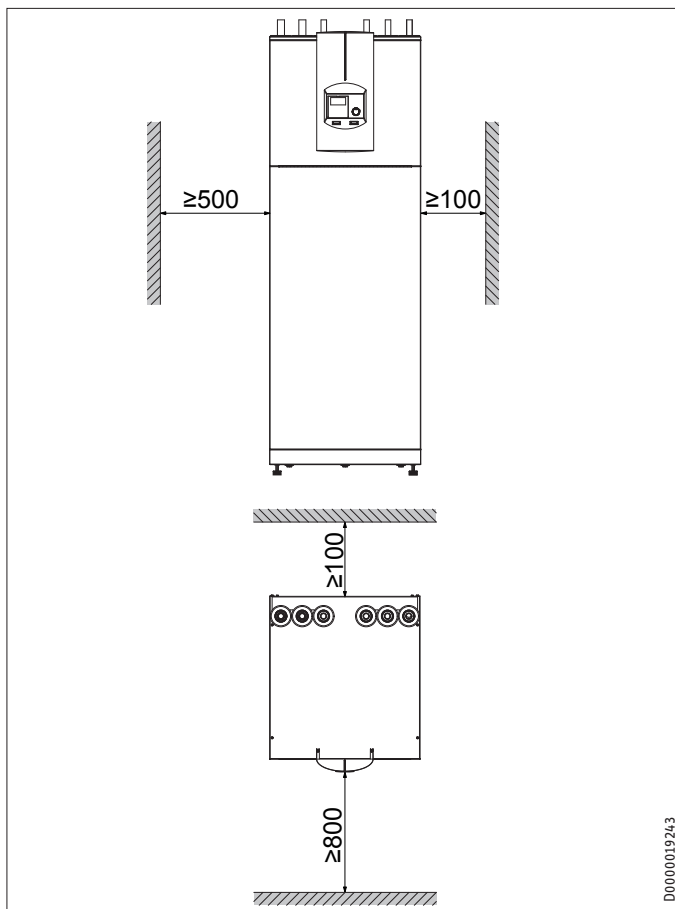
#### Note

The hydraulic module is designed for internal installation, except in wet areas.

The room in which the hydraulic module 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.
- Load-bearing floor (for the weight, see chapter "Specification / Data table").
- When installing the hydraulic module in a boiler room together with other heating equipment, ensure that the operation of other heating equipment will not be impaired.

### 8.3 Minimum clearances



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

### 8.4 Electrical installation

In accordance with VDE 0298-4, use the following cable cross-sections subject to their fuse protection:

Fuse protection	Cable cross-section
C 16 A	2.5 mm <sup>2</sup> 1.5 mm <sup>2</sup> with only two live cores and routing on a wall or in an electrical conduit on a wall.

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

## 9. Installation

### 9.1 Handling



#### Material losses

The appliance is unsuitable for lifting by hoist.



#### Material losses

The appliance should only be stored and transported at temperatures of +5 °C to +50 °C.

- Transport the appliance in its packaging to protect it against damage.

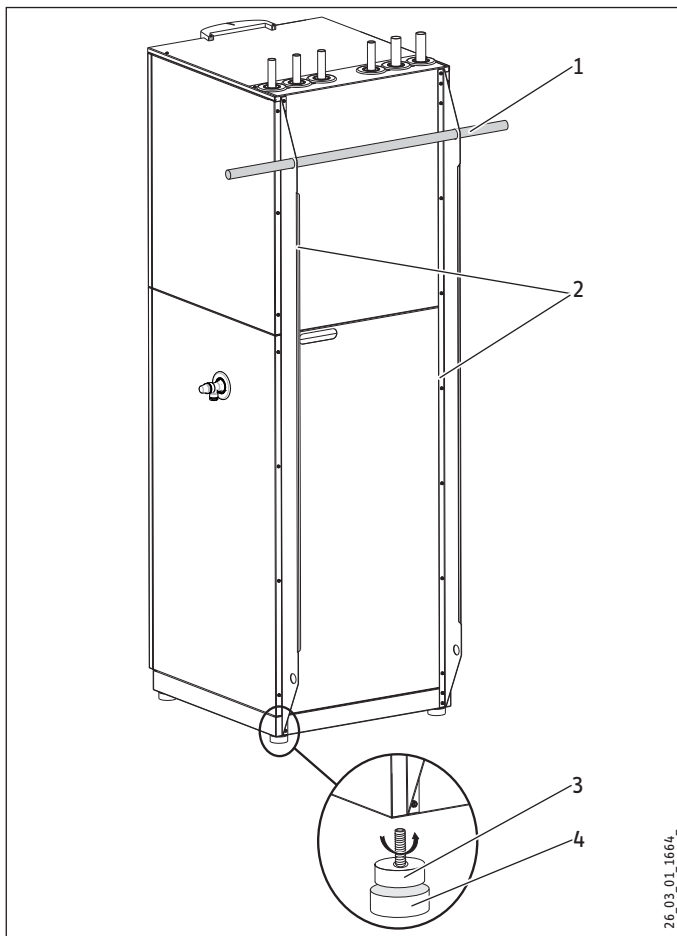
Where space for transport is restricted, you may also move the appliance tipped backwards at an angle.

Angled panels are fitted to the back of the appliance. These can be used as transport aids.

# INSTALLATION

## Installation

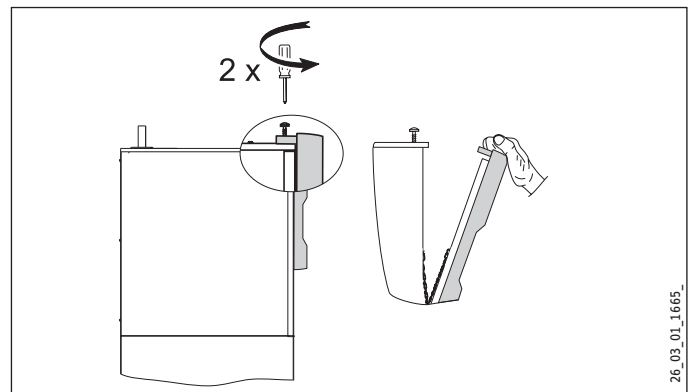
### 9.2 Positioning



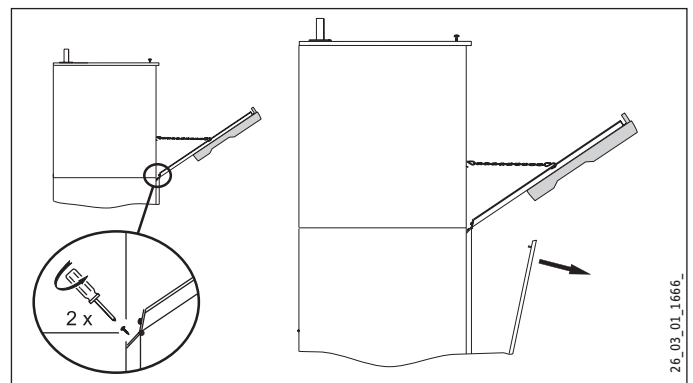
- 1 Transport tube (on the installation side)
- 2 Transport aids
- 3 Appliance foot
- 4 Sliding block

- ▶ Undo the four screws from the non-returnable pallet.
- ▶ Remove the washers.
- ▶ Remove the appliance feet from the pack.
- ▶ Tilt the appliance and wind in the appliance feet.
- ▶ Remove the appliance from the pallet.
- ▶ If required, use the sliding blocks provided to help you position the appliance.
- ▶ Maintain the minimum clearances (see chapter “Preparations / Minimum clearances”).
- ▶ Remove the transport aids.
- ▶ Level the appliance horizontally by adjusting the feet.

### 9.3 Opening the appliance



- ▶ Undo the screws and open the appliance door.



- ▶ Undo the screws and remove them.
- ▶ Remove the lower appliance door.

### 9.4 Connecting the hydraulic module and heat pump

The hydraulic module is connected to the heat pump with copper pipes (pipes that carry heating water). To reduce the transmission of structure-borne noise on the water side, connect the hydraulic module to the heat pump with pressure hoses.

- ▶ When sizing the pipes that carry the heating water, take the following information into account.

#### Available pressure differential

Pressure drops in the heating system can result in a lower heating output if they exceed the permissible value. When sizing the pipes, take the available external pressure differential into consideration.

- ▶ Ensure that the available external pressure differential is not exceeded (see chapter “Specification / Data table”).
- ▶ When calculating the pressure drops, take account of the heat pump flow and return lines. These pressure drops must be covered by the available pressure differential.

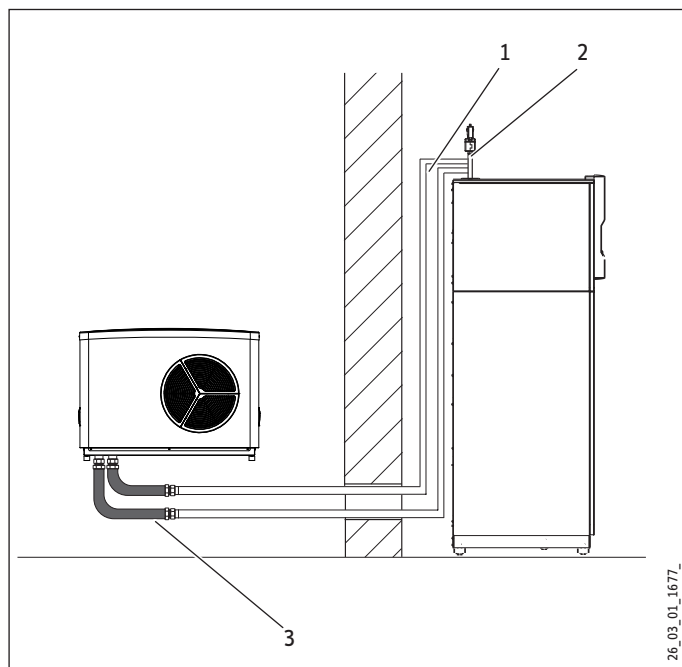
### Supply lines

Depending on the version of the heating system (pressure drops), the maximum permissible line length between the hydraulic module and the heat pump will vary.

As a standard value, assume a maximum line length of 10 m and a pipe diameter of 22-28 mm.

- ▶ Protect the flow and return pipes against frost with sufficient thermal insulation.
- ▶ Provide thermal insulation in accordance with applicable regulations.
- ▶ Only use weather-resistant cables.
- ▶ Also protect all supply lines against humidity, damage and UV radiation by means of a conduit.

### Sample installation



- 1 Pipes carrying heating water
- 2 Fitted safety assembly
- 3 Pressure hoses

### 9.5 Heating water connection



#### Material losses

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

The heat pump heating system must be connected by a contractor in accordance with the water installation drawings, which are part of the technical guides.

- ▶ Install the safety assembly in the heat pump return. Observe the following information:
- ▶ Fit the safety assembly at the highest point in the heat pump return line (see diagram “Installation example”). This position ensures that air can collect at the air vent valve in the safety assembly and that the air vent valve is working correctly.
- ▶ Thoroughly flush the pipework before connecting the heat pump. Debris, such as welding pearls, rust, sand or sealant can impair the operational reliability of the heat pump.
- ▶ Ensure the heating flow and return are connected correctly (see chapter “Dimensions and connections”).
- ▶ Provide thermal insulation in accordance with applicable regulations.

#### Oxygen diffusion



#### Material losses

In underfloor heating systems with plastic pipes that are permeable to oxygen, avoid open vented heating systems or steel pipework.

Steel components, for example in internal cylinders, on steel heating elements or steel pipes, can corrode as a result of oxygen diffusion in open vented heating systems, or if plastic pipes that are permeable to oxygen are used in underfloor heating systems.

The products of corrosion, i.e. rusty sludge, can settle inside the heat pump condenser and can result in a lower output through reduction of cross-section, or in a heat pump shutdown.

### 9.6 Fitting the water connection and the safety assembly

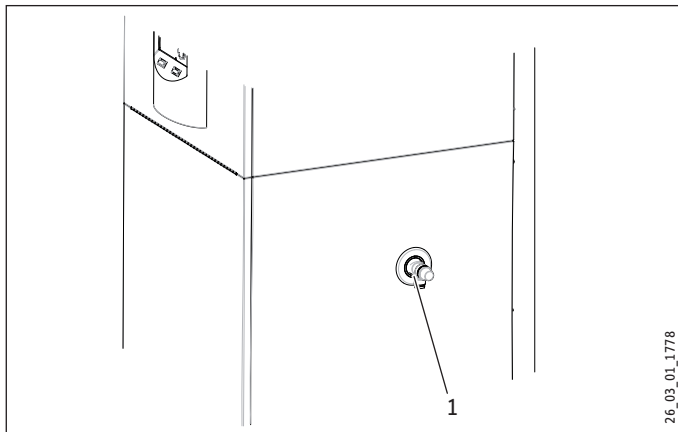


#### Material losses

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

See chapter “Specification / Hydraulic diagram” for general arrangement in schematic form. You can fit the safety assembly in various positions to suit the space available but it must be placed in the same order as shown. The safety assembly provided in the pack is fitted to the cold water supply with the exception of the T&P valve which is fitted at the top of the DHW cylinder. DHW cylinder relief valve connections should not be used for other purpose. No valve should be fitted between the expansion valve and the DHW cylinder.

To obtain a balanced water pressure in the cold water and DHW lines, position the cold water outlet directly on the outlet side of the pressure reducing valve.



1 T&P valve

- The expansion valve should not respond under normal operating conditions as the expansion vessel will accommodate the water as it expands during the heating process.
- Run the expansion valve outlet and that of the T&P valve to a drain via a tundish. The purpose of the tundish is to let water be seen should these valves respond. The outlet pipe should not exceed 9 metres in length without forming an air break, i.e. tundish. The pipe must fall continuously throughout its length with no additional 90° bends. It must be heat resistant and discharge to a safe visible position away from any electrical devices. The pipe diameter must not be smaller than the valve outlet. The two discharge pipes can be joined together at the point of discharge into a single tundish if required.
- Size the drain so that water can drain off unimpeded when the safety valve is fully opened. The blow-off aperture of the safety valve must remain open towards the atmosphere.
- Fit the blow-off line of the safety assembly with a constant slope.
- Observe the information in the installation instructions of the safety assembly.

### Connecting a DHW circulation line

The heat losses incurred in the circulation line and the electrical power consumption of the circulation pump reduce the efficiency of the system. Where possible, avoid installing a circulation line. Where that is not possible, control the DHW circulation pump on site thermally or by means of a time switch. Connect the DHW circulation line directly to the equipment with a tee in the cold water supply line.

### Commissioning

- ▶ Open a downstream draw-off point until the appliance has filled up and the pipes are free of air.
- ▶ Vent the indirect coils after filling the heat pump system.
- ▶ Fit the special accessories and check them if necessary.
- ▶ Check the function of the fitted special accessories.
- ▶ Check the function of the safety assembly.
- ▶ Check that the DHW temperature on the heat pump control unit is displayed correctly.

### 9.7 Electrical connection

Only qualified electricians must carry out the installation in accordance with these instructions.



#### WARNING Electrocutation

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

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

- ▶ Observe VDE 0100 [or local regulations] and the regulations of your local power supply utility.



# INSTALLATION

## Installation

### 9.7.1 Electrical connection of hydraulic module

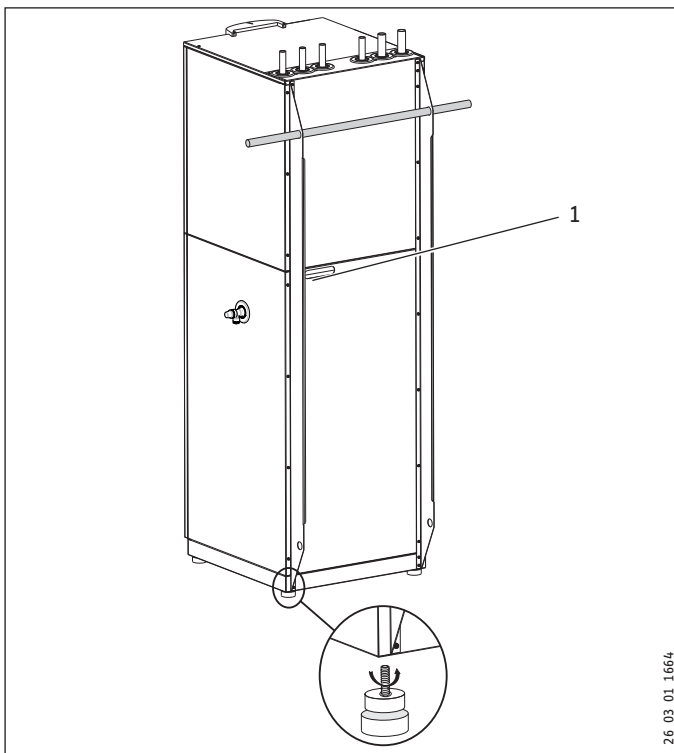
The terminals are inside the control panel of the appliance behind the lower appliance door. If the appliance is closed, see chapter "Opening the appliance".



#### Material losses

Provide separate fuses for the two power circuits of the appliance and the control unit.

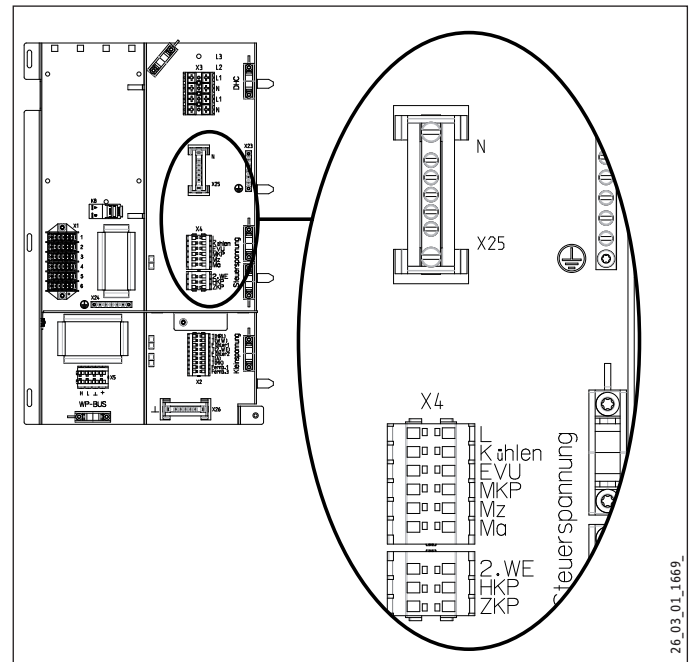
- ▶ Separate the appliance from the power supply by an additional isolator that disconnects all poles with at least 3 mm contact separation.
- ▶ For this, use contactors, circuit breakers or fuses, for example, and fit these on the installation side.



#### 1 Cable entry

- ▶ Route all connecting cables and sensor leads through the cable entry into the appliance.
- ▶ Route all connecting cables and sensor leads through the gap in the centre of the appliance so they reach as far as the PCB.
- ▶ Connect the connecting cables and sensor leads as detailed below.

### Connections X4: Control voltage



#### Control inputs:

L            L and N  
EVU        Power enable signal

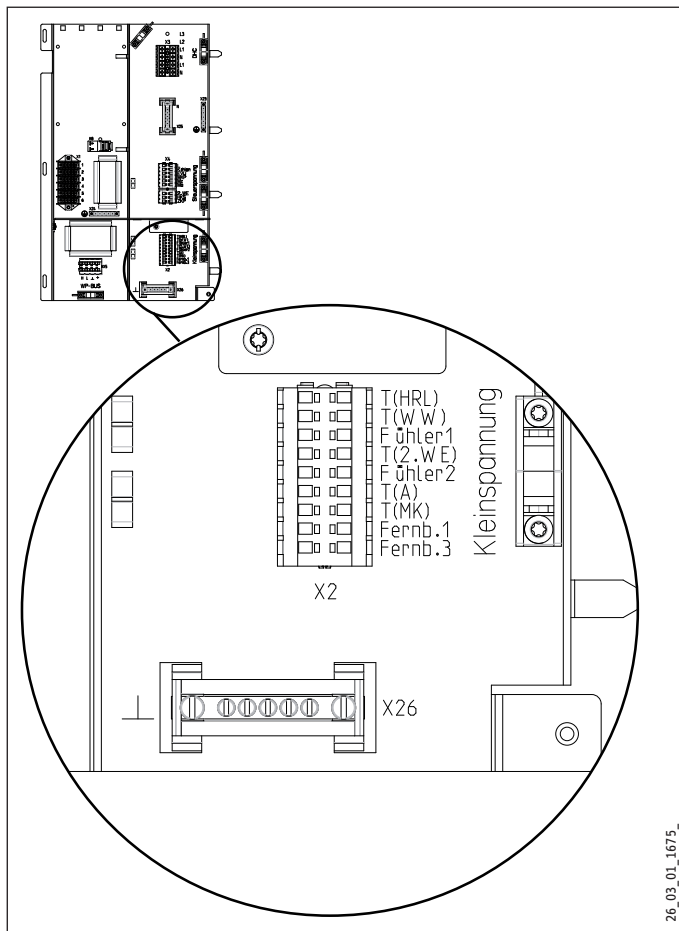
#### Control outputs:

Kühlen    Solar circuit pump  
MKP       Mixer circuit pump  
Mz        Mixer closed  
MA        Mixer open  
2. WE     Second heat source  
HKP       Heating circuit pump  
ZKP       DHW circulation pump  
X25       Common N  
PE        Common PE

# INSTALLATION

## Commissioning

### Connections X2: Low voltage



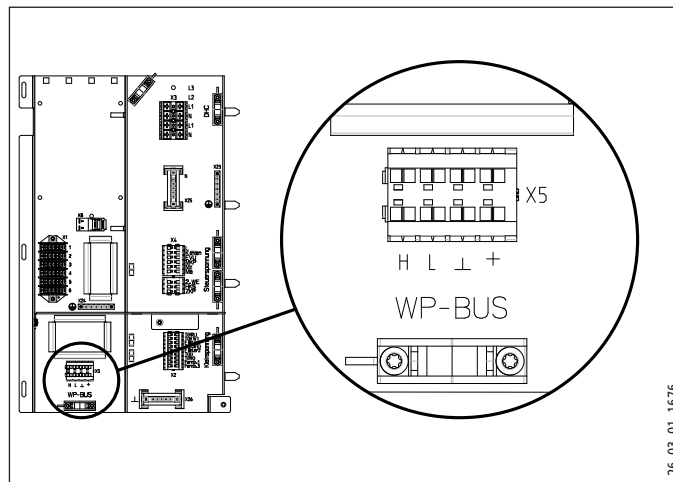
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T(HRL) Temperature sensor heating return  
T(WW) Temperature sensor DHW

Sensor1	
Return temperature sensor	for heat metering
Flow temperature sensor	for cooling
DHW sensor	for solar connection
Sensor2	
Flow temperature sensor	for heat metering
Collector sensor	for solar connection

T(2.WE) Second heat source  
T(A) Outside temperature sensor  
T(MK) Mixer circuit temperature sensor  
Fernb.1 Remote control 1 (FE 7)  
Fernb.3 Remote control 3 (FE 7)  
X26 Earth

### Connections X5: BUS



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H BUS high  
L BUS low  
⊥ BUS ground ⊥  
“+” BUS “+” (only connected in conjunction with DCO or FEK)

## 10. Commissioning

A contractor must commission the appliance, make all the settings when commissioning the heat pump manager, and instruct the user.

Carry out commissioning in accordance with these installation instructions, the operating and installation instructions for the heat pump manager, and the operating and installation instructions for the heat pump.

Our customer service can assist in the commissioning, which is chargeable.

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.

### 10.1 Flushing out the hot water system

Before turning on the water supply, open all taps. Allow the system to fill and flush out all flux and debris from the installation.

# INSTALLATION

## Commissioning

### 10.2 Filling the heating system

#### Water quality



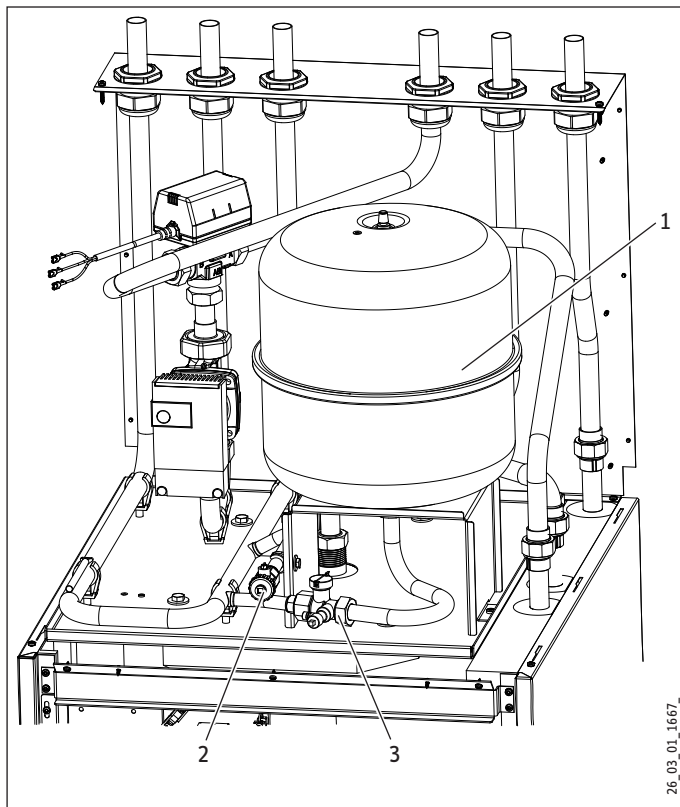
#### Material losses

Do not use fully desalinated water or rainwater, as this leads to heavier corrosion. Suitable equipment for softening, or for filling and flushing heating systems, can be hired from our in-house customer service.

In order to prevent damage caused by scale formation, you must observe the following when filling the system with heating water:

- The total water hardness must be  $< 1$  °dH (0.18 mmol/l alkaline earths).
- Soften the water if the above requirements are not met.

#### Filling the heating system



- 1 Diaphragm expansion vessel (heating)
- 2 Drain & fill valve (heating)
- 3 Cap shut-off valve

- ▶ Fill the heating system via the drain & fill valve.
- ▶ After filling the heating system, check the cap shut-off valve at the diaphragm expansion vessel for leaks.
- ▶ Vent the pipework.

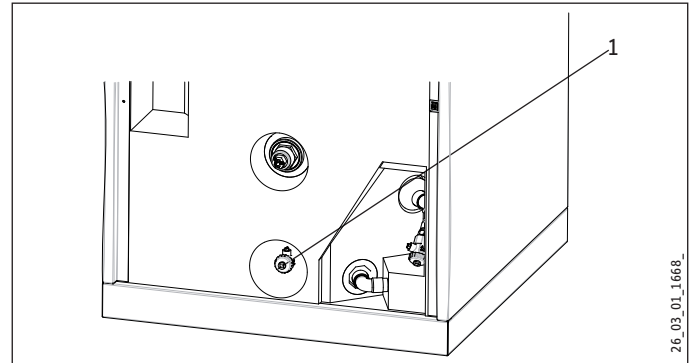
### 10.3 Filling the DHW cylinder



#### Material losses

Some fluxes used to solder pipes and fittings need to be flushed out with hot water.

- ▶ Heat the cylinder to its normal operating temperature and flush all pipe work with hot water to ensure all flux and debris is removed from the system.



- 1 Drain & fill valve (DHW cylinder), male thread diameter G 1/2 A
  - 2 Fill the DHW cylinder via the drain & fill valve in compliance with the UK Water Supply (Water Fittings) Regulations 1999, Section 8 G24.
- ▶ Open all downstream draw-off valves until the appliance has filled up and the pipework is free of air.
  - ▶ Carry out a tightness check.
  - ▶ Check the safety valve located on the installation side.

### 10.4 Check before commissioning the heat pump manager



#### Material losses

Observe the maximum system temperature in underfloor heating systems.

- ▶ Check whether the heating system is filled to the correct pressure and the quick-action air vent valve is open.
- ▶ Check whether the outside temperature sensor is correctly placed and connected.
- ▶ Check whether the power supply is properly connected.
- ▶ Check whether the connecting cable to the heat pump (BUS cable) is correctly connected.

## Taking the appliance out of use

### 10.5 Commissioning the heat pump manager

Commission the heat pump manager and make all settings in accordance with the operating and installation instructions for the heat pump manager.



#### Note

For DHW mode, ensure that parameter DHW PAR OPRTN is set in the heat pump manager. To ensure that the primary pump is enabled even in DHW mode, set this parameter accordingly.

### 10.6 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 unit.

## 11. Taking the appliance out of use



#### Material losses

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

The system should not be switched off in summer. The heat pump manager has an automatic summer/winter changeover.



#### Material losses

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

If the system is taken out of use, set the heat pump manager to standby. This way the safety functions that protect the system remain enabled, e.g. frost protection.



#### Material losses

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

Information on draining the DHW cylinder can be found in chapter "Maintenance".

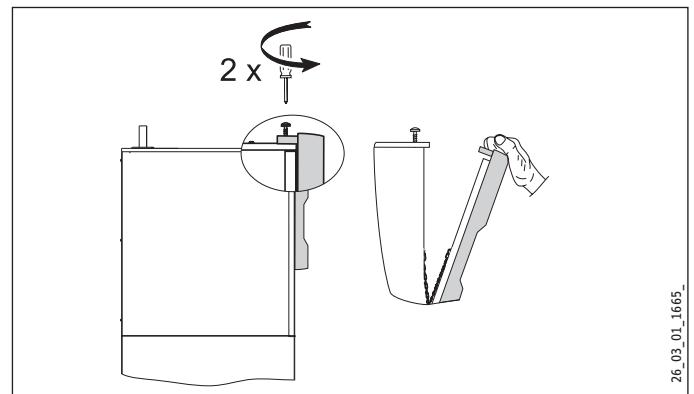
## 12. Maintenance

- ▶ Before any work on the appliance, disconnect all poles of any in-built electric components from the power supply.
- ▶ Regularly vent the safety valve until a full stream of water flows from it.

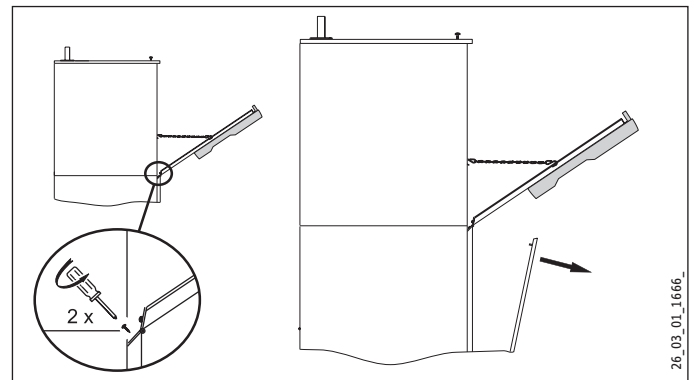
The heating system is only free of dirt if the strainers are completely clean following a prolonged pump runtime.

### 12.1 DHW cylinder

#### Opening the appliance



- ▶ Undo the screws and open the appliance door.



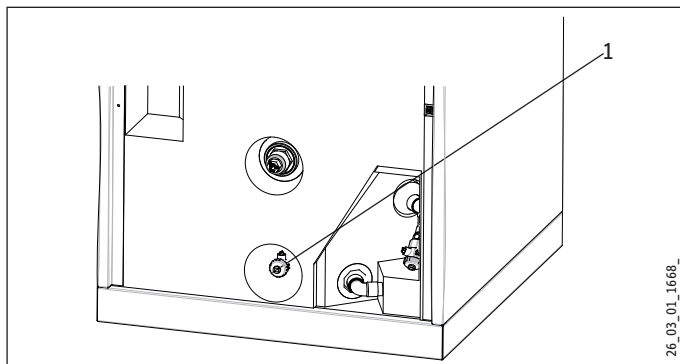
- ▶ Undo the screws and remove them.
- ▶ Remove the lower appliance door.

### Draining the DHW cylinder



**WARNING Burns**  
Hot water may escape when draining the DHW cylinder.

- ▶ Close the shut-off valve in the cold water line.
- ▶ Open the hot water taps on all draw-off points.



1 Drain & fill valve, male thread diameter G 1/2 A

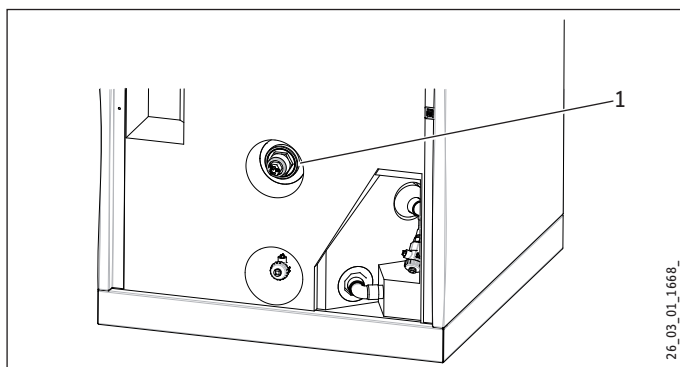
- ▶ Drain the DHW cylinder via the drain & fill valve.

Some residual water will remain in the bottom of the cylinder.

### Cleaning and descaling



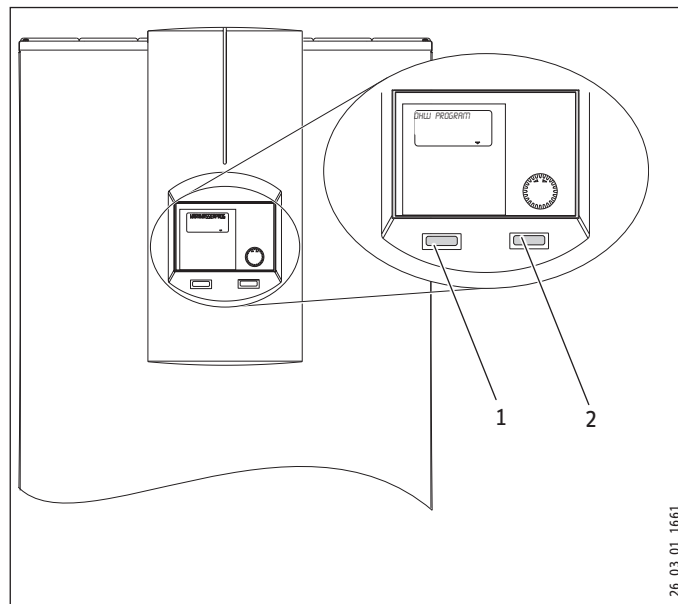
**Material losses**  
Never use descaling pumps. Never use descaling agents to clean the cylinder.



1 Inspection port (threaded signal anode)

- ▶ Remove the signal anode from the appliance.
- ▶ Clean the DHW cylinder with a hose that you guide through the inspection port.
- ▶ Draw the loosened limescale deposits out through the inspection port.

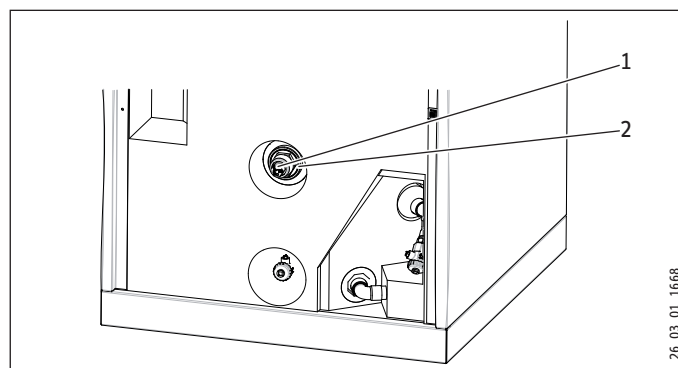
### 12.2 Replacing the signal anode



1 Operating indicator blue (no function)

2 Operating indicator red (status of signal anode)

- ▶ Replace the signal anode if the red signal indicator on the user interface illuminates.



1 Signal anode

2 Pressure switch

The pressure switch is activated as soon as the signal anode is consumed. The signal indicator illuminates.



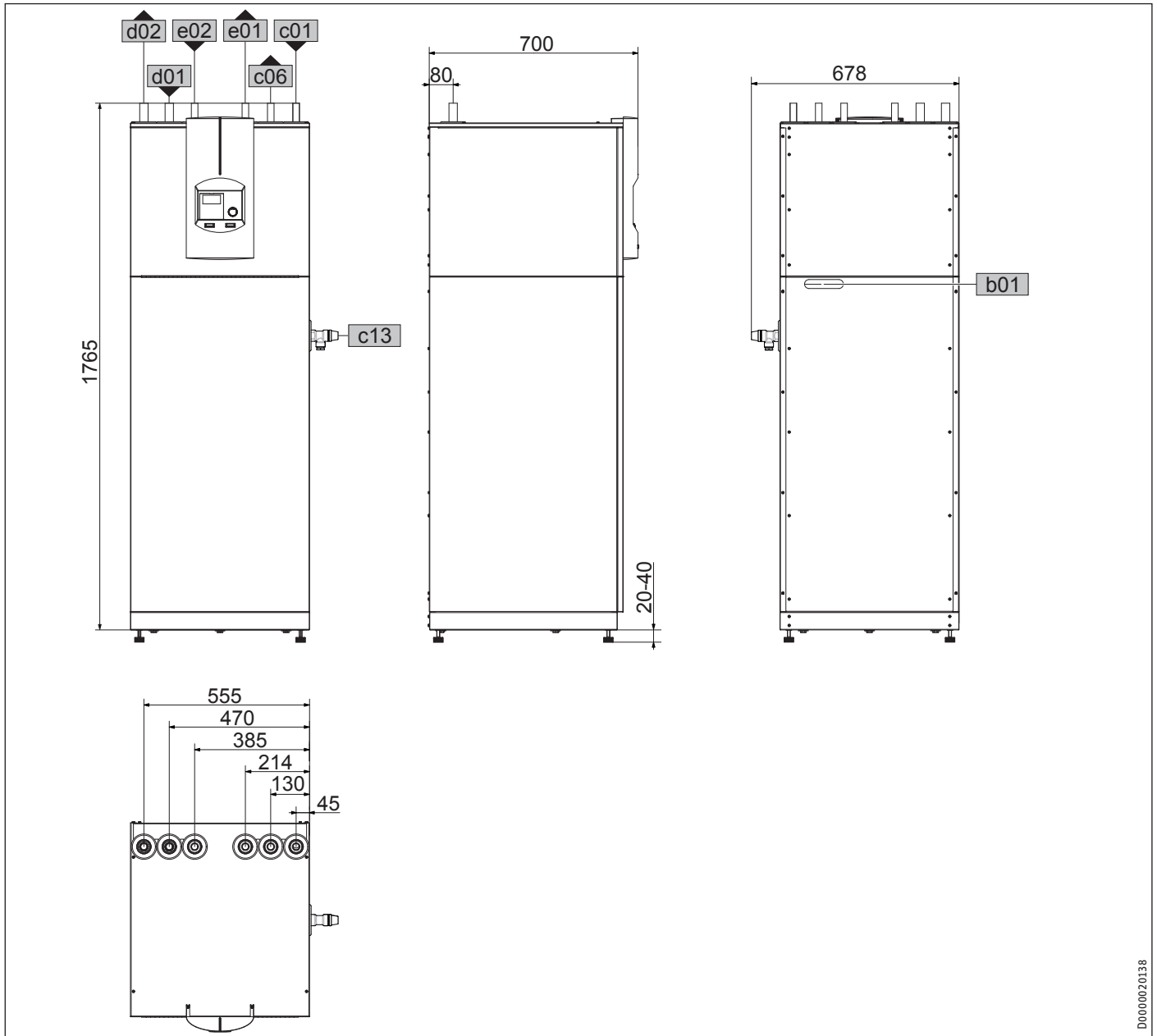
#### Note

The signal anode must be fitted as shown in the diagram.

- ▶ Check for tightness when fitting the pressure switch.

## 13. Specification

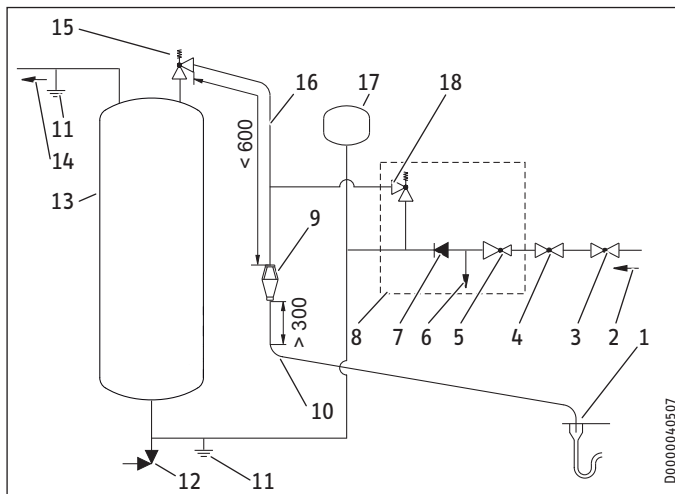
### 13.1 Dimensions and connections



D0000020138

			HSBB 2.1
b01	Entry electrical cables		
c01	Cold water inlet	Diameter	mm 22
c06	DHW outlet	Diameter	mm 22
c13	T&P valve end connection	Diameter	mm 15
d01	Heat pump flow	Diameter	mm 22
d02	Heat pump return	Diameter	mm 22
e01	Heating flow	Diameter	mm 22
e02	Heating return	Diameter	mm 22

## 13.2 Hydraulic diagram



- 1 Discharge below fixed grate
- 2 Cold water supply
- 3 Shut-off valve
- 4 Line strainer
- 5 Pressure reducing valve
- 6 Balanced pressure; cold water outlet
- 7 Check valve
- 8 Safety assembly
- 9 Tundish
- 10 Metal discharge pipe (D2) from tundish, with continuous fall
- 11 Equipotential bond
- 12 Drain valve
- 13 Cylinder
- 14 DHW outlet
- 15 T&P valve
- 16 Metal discharge pipe (D1) from T&P valve to tundish
- 17 Expansion vessel
- 18 Expansion valve

### Data table

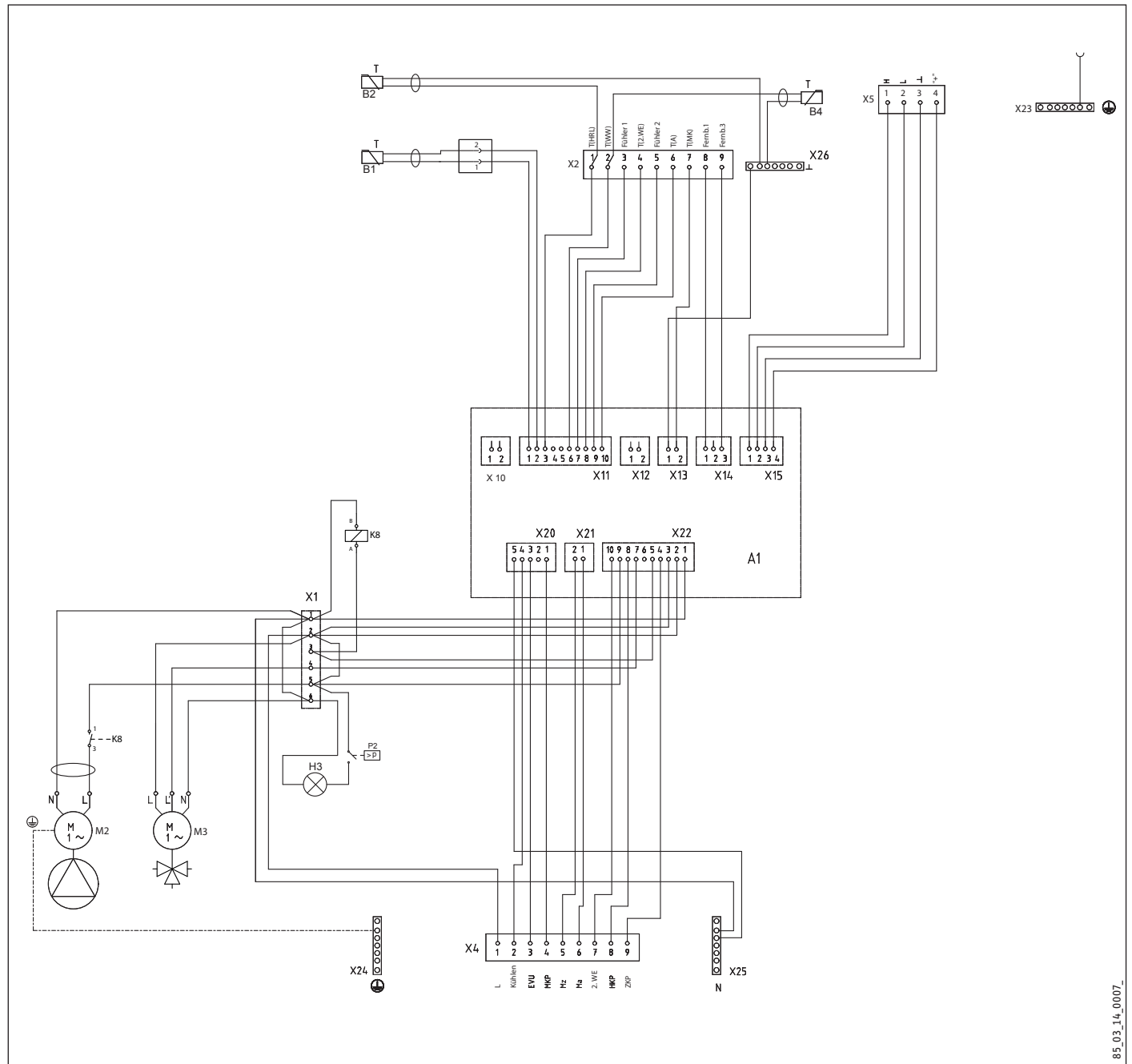
Minimum size of discharge pipe D1	mm			15
Minimum size of discharge pipe D2 from tundish	mm	22	28	35
Maximum permissible pressure drop, expressed as a length of straight pipe (i.e. no elbows or bends)	m	9	18	27
Pressure drop of each elbow or bend	m	0.8	1.0	1.4

### Connection dimensions

Safety assembly connection	mm	22
Expansion valve end connection	mm	15
Expansion vessel connection, male, BSP		G 1 A
Tundish inlet connection	mm	22
Tundish outlet connection		G 1

# INSTALLATION Specification

Wiring diagram HSBB 2.1



85\_03\_14\_0007\_

A1	Heat pump manager WPM II	X10	Plug, pulse input WPM II
B1	Temperature sensor heat pump flow	X11	10-pole plug WPM II
B2	Temperature sensor heat pump return	X12	Plug, HP temperature WPM II
B4	Temperature sensor DHW	X13	Plug, mixer circuit temperature WPM II
H3	Signal indicator, service anode red	X14	Plug, remote control WPM II
K8	Pump motor relay	X15	Plug, BUS WPM II
M2	Motor - pump	X20	Plug, cooling, pumps and power-OFF WPM II
M3	Motor - diverter valve	X21	Plug, mixer control WPM II
P2	Signal anode pressure switch	X22	10-pole plug, control unit WPM II
X1	Terminal	X23	Earth block connection
X2	LV terminal	X24	Earth block control
X4	Control unit terminal	X25	N - block control unit
X5	BUS terminal	X26	Earth - block low voltage



# INSTALLATION

## Specification

### 13.3 Data table



**Note**

Observe the data table of the connected heat source:  
- power consumption

		HSBB 2.1
		234036
<b>Power consumption</b>		
Max. power consumption, circulation pump, heating side	W	72
<b>Output data</b>		
Tested to standard		EN 12897:2006
<b>Hydraulic data</b>		
Rated capacity	l	166
Surface, indirect coil	m <sup>2</sup>	3,6
Mixed water volume 40 °C (15 °C/60 °C)	l	147,1
Primary heating power input at flow rate	kW - l/min	33,1/15,2
Max. operating temperature of the heating fluid	°C	89
Reheating time	min	12,4
<b>Energy data</b>		
Standby energy consumption/24 h at 65 °C	kWh	1,8
<b>Electrical details</b>		
Control unit phases		1/N/PE
Fuses	A	1x C16
Power connection		1/N/PE
<b>Versions</b>		
Suitable for		WPL 10 AC(S), WPL 13 E, WPL 15 AS, WPL 25 A(S)
IP-Rating		IP20
<b>Dimensions</b>		
Height	mm	1921
Width	mm	600
Depth	mm	650
Height of unit when tilted	mm	1941
<b>Weights</b>		
Weight	kg	170
<b>Connections</b>		
Connection on the heating system side		22 mm
Cold water connection		22 mm
DHW connection		22 mm
<b>Values</b>		
Safety assembly, max. supply pressure	MPa	1,6
Max. operating temperature	°C	89
Expansion vessel - pre-charge pressure	MPa	0,35
Heating flow rate (min.)	m <sup>3</sup> /h	0,7
Total available external pressure differential	hPa	335
Permissible operating pressure, heating circuit	MPa	0,3
Operating pressure heating circuit	MPa	0,2
Permissible operating pressure, DHW	MPa	0,7
Operating pressure DHW	MPa	0,35
T&P valve, nominal set temperature	°C	90
T&P valve, nominal set pressure	MPa	0,7
T&P valve, nominal dimension		DN 15
Pressure reducing valve, nominal pressure		PN 16
Pressure reducing valve, set value range	MPa	0,35
Safety valve, nominal pressure	MPa	0,6
Heat loss	kW/24h	1,78

Please note that the data for “available external pressure differential” is relative to the maximum pump rate and does not include pressure drops from the heat pump flow and return lines.

### **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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## NOTES

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