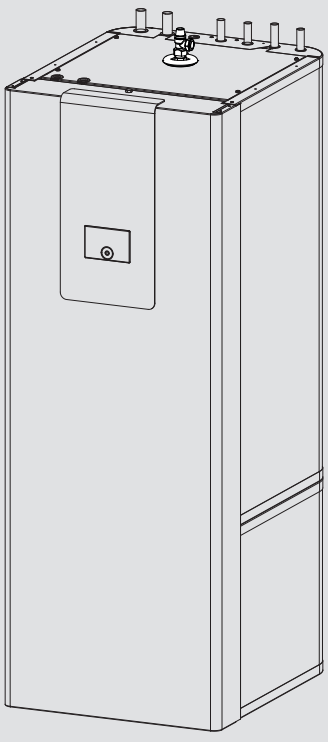
OPERATION AND INSTALLATION

Integral cylinder

» HSBC 200 S (GB)



STIEBEL ELTRON

SPECIAL INFORMATION

- The appliance may be used by children aged 8 and older 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.
- The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.
- Observe all applicable national and regional regulations and instructions.
- Observe minimum distances (see chapter “Installation / Preparations / Installation site”).
- Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

DHW cylinder

- Drain the appliance as described in chapter “Installation / Maintenance / Draining the DHW cylinder”.
- Observe the maximum permissible pressure (see chapter “Installation / Specification / Data table”).
- The appliance is pressurised. During the heat-up process, expansion water will drip from the safety valve.
- Regularly activate the safety valve to prevent it from becoming blocked, e.g. by limescale deposits.
- The safety valve discharge aperture must remain open to atmosphere.

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 Relevant documents

- Operating and installation instructions for the WPM heat pump manager
- Operating and installation instructions for the connected heat pump
- Operating and installation instructions for all other 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
	Burns (burns, scalding)

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 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.

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

1.4 Information on the appliance

Connections

Symbol	Meaning	
	Inlet / intake	Red arrow: Hot Blue arrow: Cold Green arrow: Neutral
	Drain / outlet	Red arrow: Hot Blue arrow: Cold Green arrow: Neutral
	Domestic hot water	
	DHW circulation	
	Heat pump	
	Central heating	

1.5 Units of measurement

Note
All measurements are given in mm unless stated otherwise.

2. Safety

2.1 Intended use

This appliance is intended to be used for heating and cooling interiors (area cooling 18 °C / 23 °C) and for DHW heating.

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 General safety instructions

WARNING Burns
There is a risk of scalding at outlet temperatures in excess of 43 °C.

WARNING Injury
The appliance may be used by children aged 8 and older 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 front casing closed.

Note
The DHW cylinder is under supply pressure. During the heat-up process, expansion water will drip from the safety valve.
▶ If water continues to drip when heating is completed, please inform your qualified contractor.

2.3 Test symbols

See type plate on the appliance.

3. Appliance compatibility

The appliance can be operated in conjunction with the following air | water heat pumps:

- WPL 13 E
- WPL 10 AC (S)
- WPL 15-25 AC (S), WPL 15-25 A (S)
- WPL 19/24 IK
- WPL 07-17 ACS classic
- HPA-O 7-13 (C/S/CS) Premium

4. Appliance description

The buffer cylinder and DHW cylinder with indirect coil are arranged one above the other and can be separated for easier handling.

The appliance has a plastic jacket with foam insulation and is equipped with a removable front casing. The appliance is connected hydraulically and electrically to the heat pump. All hydraulic connections are made at the top.

In addition to the DHW cylinder and the buffer cylinder, further system components are integrated:

- Heat pump manager
- Cylinder primary pump
- Highly efficient circulation pump for a heating circuit without mixer
- Multifunction assembly with safety valve and 3-way diverter valve
- Emergency/booster heater for mono energetic operation

DHW cylinder

The steel cylinder is coated on the inside with special direct enamel and is equipped with a signal anode. The anode with consumption indicator protects the cylinder interior from corrosion.

The heating water heated by the heat pump is pumped through an indirect coil inside the DHW cylinder. The heat channelled through the indirect coil is thus transferred to the domestic hot water. The integral heat pump manager regulates the DHW heating to the required temperature.

Buffer cylinder

The steel cylinder provides hydraulic separation between the flow rates of heat pump and heating circuit. The heating water heated by the heat pump is transferred into the buffer cylinder by the cylinder charging pump. When a demand is issued, the integral heating circuit pump delivers the heating water to the heating circuit.

Heat pump manager (WPM)

The system is controlled by means of the integral heat pump manager.

The heat pump manager is suitable for the control of a direct heating circuit and a heating circuit with mixer.

You can set the times and temperatures for heating operation and heating DHW. Remote controls for controlling the direct heating circuit and the heating circuit with mixer are available as accessories.

For detailed information, see the enclosed operating and installation instructions for the WPM heat pump manager.

Multifunction assembly (MFG)

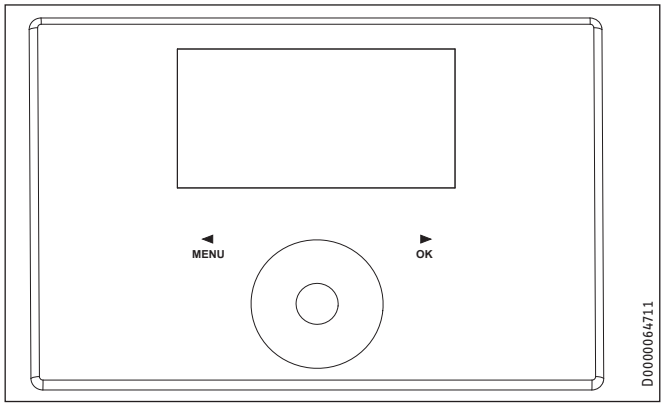
The multifunction assembly switches between heating circuit and DHW heating.

5. Settings

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

Note
The heat pump manager has an automatic summer/winter changeover so you can leave the system switched on in summer.

The system is controlled by means of the integral heat pump manager. Please observe the heat pump manager operating and installation instructions.

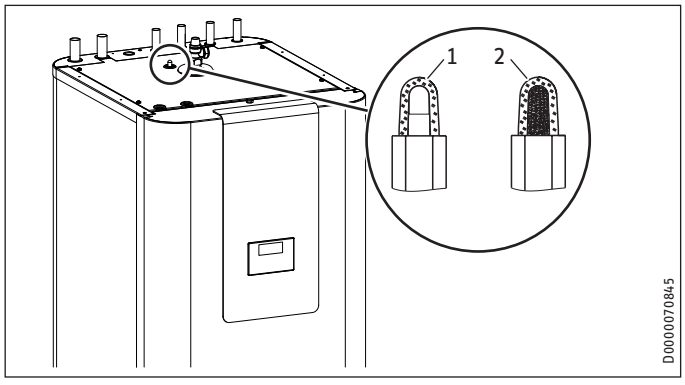


6. Cleaning, care and maintenance

▶ Have the electrical safety of the appliance and the function of the safety assembly regularly checked by a qualified contractor.
▶ Never use abrasive or corrosive cleaning agents. A damp cloth is sufficient for cleaning the appliance.

Signal anode with consumption indicator

Material losses
If the consumption indicator changes colour from white to red, have the signal anode checked by a qualified contractor and if necessary replaced.



1 White = Anode OK
2 Red = Requires checking by qualified contractor

Scaling

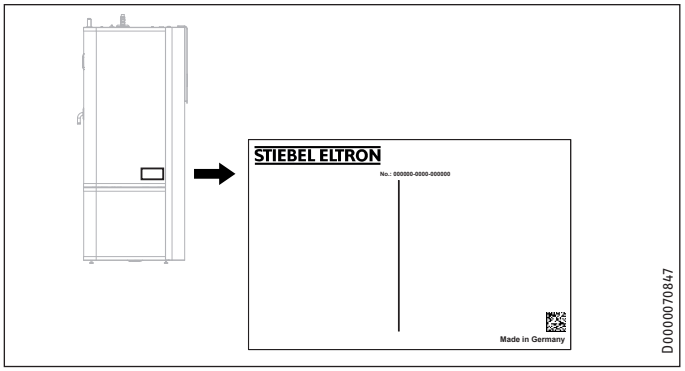
Almost every type of water will deposit limescale at high temperatures. This settles inside the appliance and affects both the performance and service life. A qualified contractor who knows the local water quality will tell you when the next service is due.

▶ Check the taps regularly. Limescale deposits at the tap outlets can be removed using commercially available descaling agents.
▶ Regularly activate the safety valve to prevent it from becoming blocked, e.g. by limescale deposits.

7. Troubleshooting

Problem	Cause	Remedy
The water does not heat up. The heating does not work.	There is no power.	Check the fuses/MCBs in your fuse box/distribution panel.

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

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 Standard delivery

The following are delivered with the appliance:

- Operating and installation instructions for the WPM heat pump manager
- Outside temperature sensor AF PT
- 4 adjustable feet
- Drain hose
- 1 expansion vessel (incl. fastening material)
- 1 installation kit (pressure reducing valve, check valves, expansion relief valve, tundish)

9.2 Accessories

Required accessories

Safety assemblies and pressure reducing valves are available to suit the prevailing supply pressure. These type-tested safety assemblies protect the appliance against impermissible excess pressure.

Required for area cooling:

- Temperature sensor PT1000
- FET remote control

Further accessories

- Pump assembly for a heating circuit with mixer HSBC-HKM
- Remote control for heating operation
- High limit safety cut-out STB-FB
- Pressure hoses
- Water softener HZEA

10. Preparations

10.1 Installation site

Material losses
Never install the appliance in wet rooms.

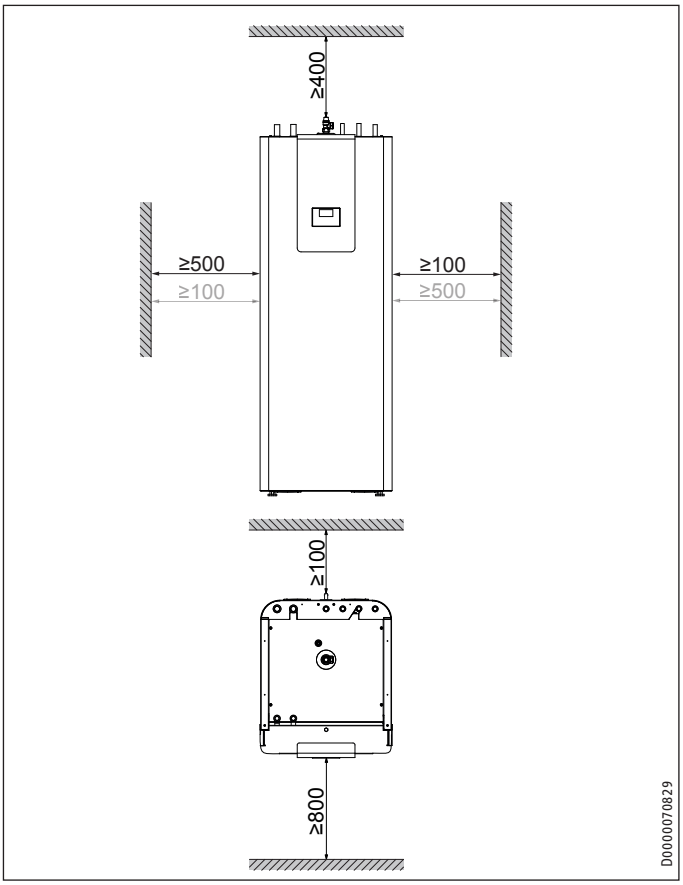
Install the appliance near the draw-off point in a dry room free from the risk of frost. To reduce line losses, keep the distance short between the appliance and the heat pump.

Ensure the floor has sufficient load-bearing capacity and evenness (for weight, see chapter “Specification / Data table”).

The room must not be subject to a risk of explosions arising from dust, gases or vapours.

If you are installing the appliance in a boiler room together with other heating equipment, ensure that the operation of other heating equipment will not be impaired.

Minimum clearances



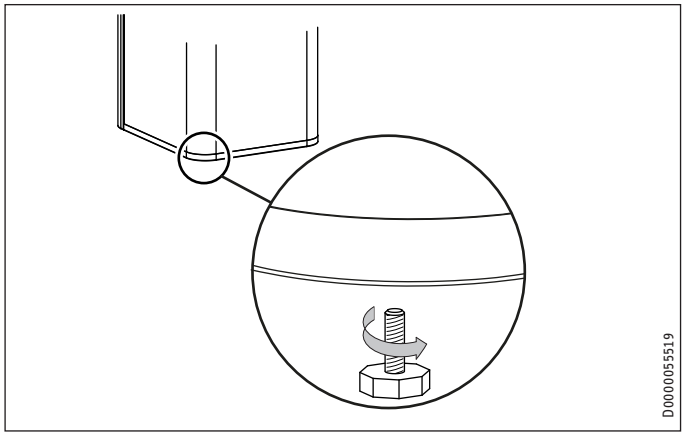
The minimum side clearances can be swapped to left or right.

10.2 Transport and handling

Material losses
Store and transport the appliance at temperatures of -20 °C to +60 °C.

Handling

▶ Undo the 4 screws from the non-returnable pallet.



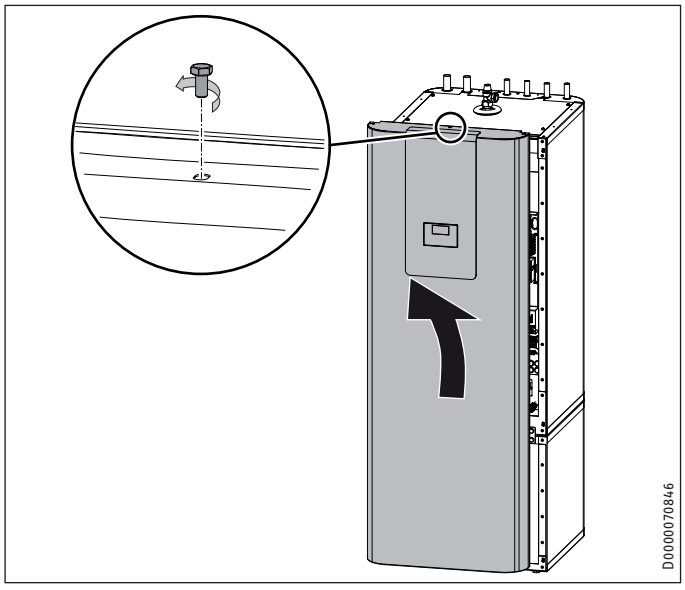
▶ Tilt the appliance and wind the 4 adjustable feet into the appliance.

▶ Lift the appliance off the pallet. For a better hold during transport, use the recessed grips on the underside and rear of the appliance.

If narrow doors or hallways hinder handling, you can separate the upper and lower sections of the appliance as described in the following chapters.

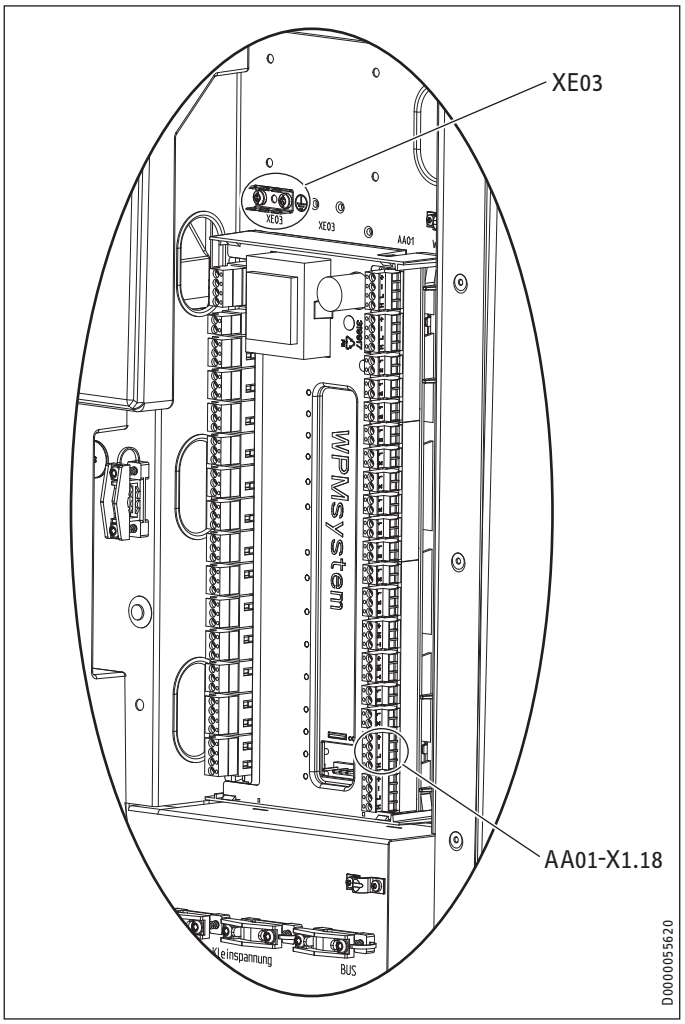
10.2.1 Removing / fitting the front casing

Removing the front casing



▶ Remove the screw at the top in the middle of the appliance.

▶ Unhook the front casing towards the top.



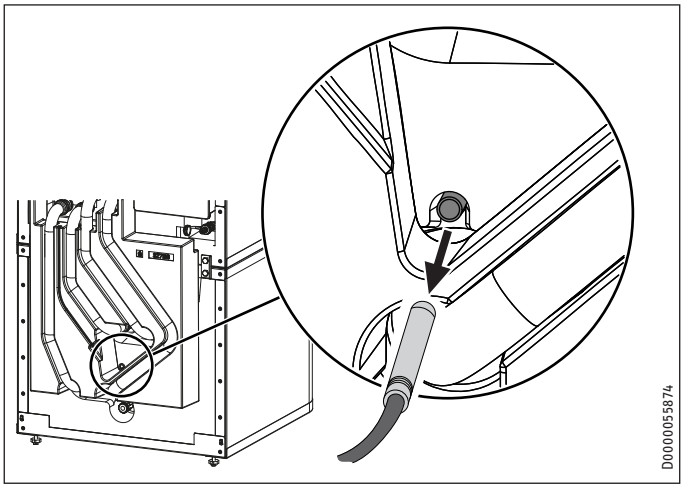
▶ Detach the plug of the electronic assembly for operation (AA01-X1.18) and the earth connection (XE03) on the heat pump manager.

Fitting the front casing

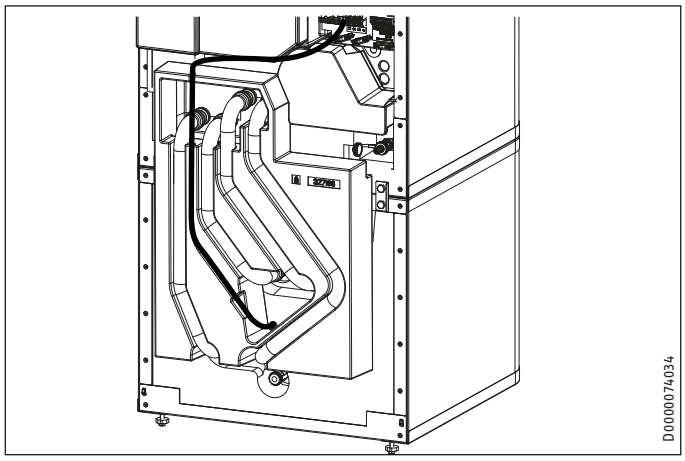
Fit the front casing in reverse order.

10.2.2 Separating / joining the appliance sections

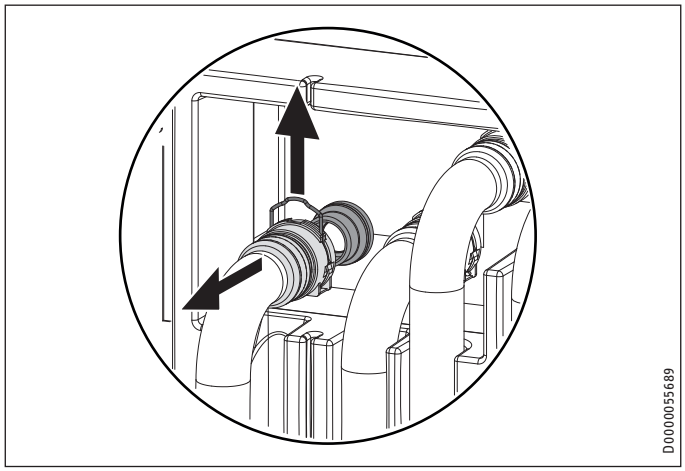
Separating the appliance sections



▶ Pull the “heating sensor” out of the buffer cylinder.

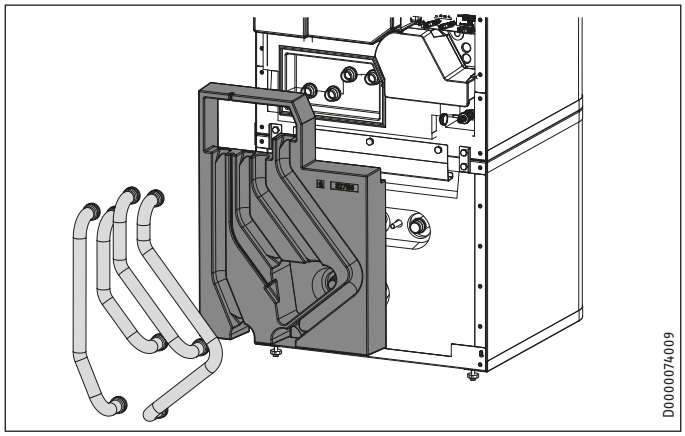


▶ Release the sensor lead from the guide groove in the insulation segment.

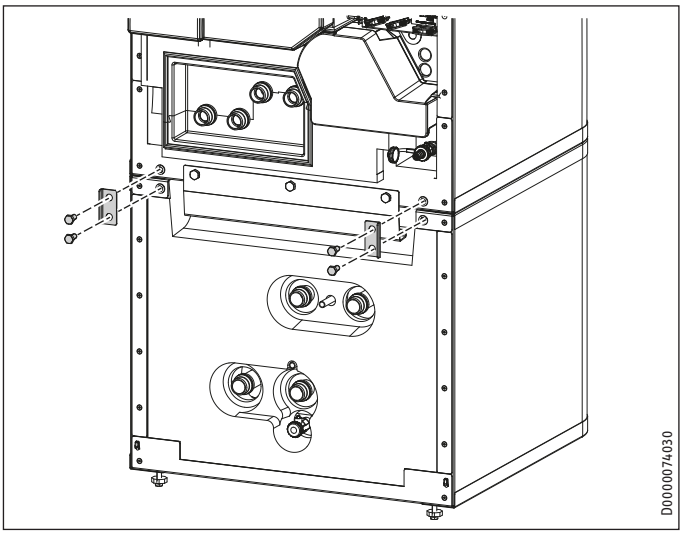


▶ Disconnect the push-fit connectors of the 4 hydraulic connections. To do this, pull the spring clips fully out with a screwdriver.

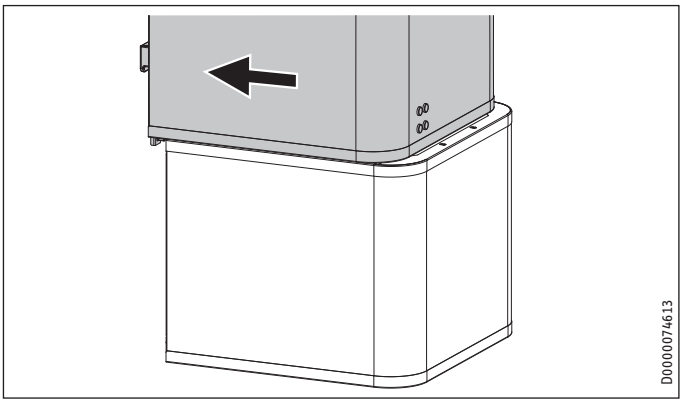
▶ Pull the hydraulic connectors off forwards.



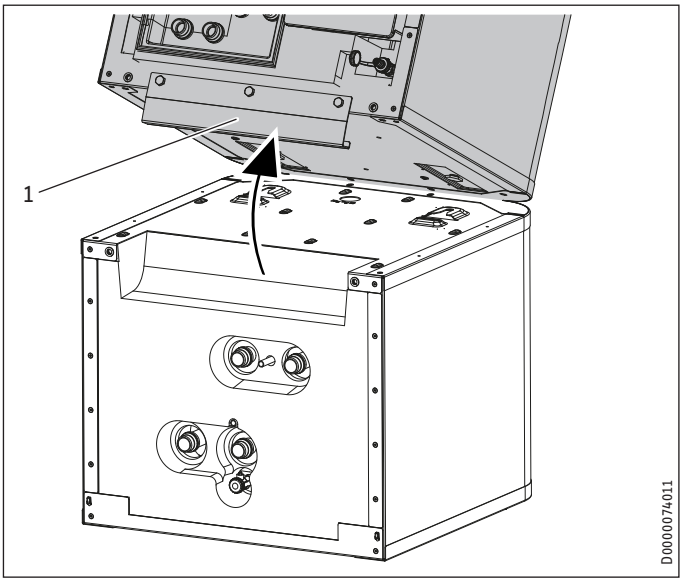
▶ Remove the 4 hydraulic hoses and the insulation segment.



▶ Release the 4 screws on the tabs at the front of the appliance.

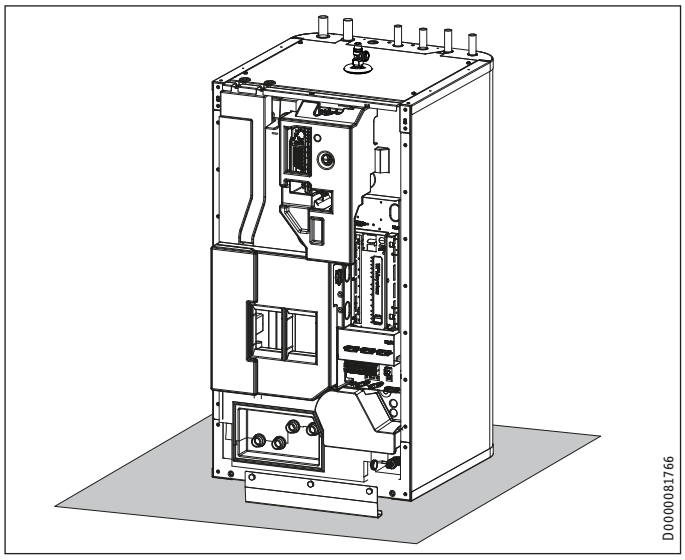


▶ Pull the upper section of the appliance towards the front.



1 Handle

▶ Tip the upper section of the appliance backwards. Use the handle for improved grip.

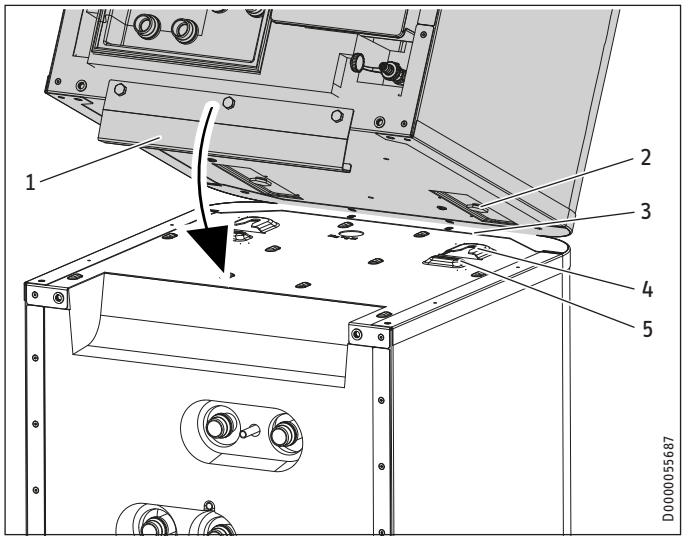


▶ Place the upper section of the appliance on a base to prevent damage.

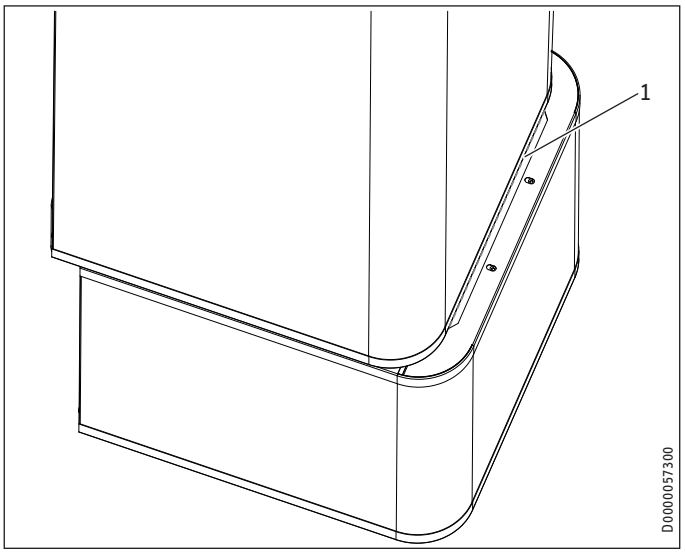
Joining appliance sections

Rejoin the appliance sections in reverse order.

The positioning aids and the dotted line marking provide assistance when positioning and inserting the upper appliance section into the guide groove on the lower section:

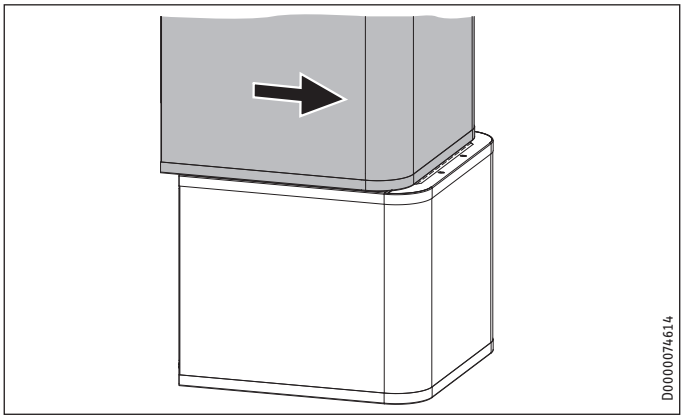


1 Handle
2 Guide pin
3 Dotted line (perforation in the panel)
4 Guide groove
5 Positioning aid



1 Dotted line (perforation in the panel)

▶ Place the upper appliance section onto the lower appliance section along the dotted line.



▶ Slide the upper appliance section to the back until it is flush with the lower appliance section. If the appliance sections are joined correctly, the final position is determined by the guide groove and guide pin.

▶ Secure the tabs on the appliance front.

▶ Fit the insulation segment and the 4 hydraulic hoses.

▶ Connect the push-fit connectors of the 4 hydraulic connections. Ensure that the spring clips click into place.

▶ Insert the “heating sensor” into the buffer cylinder.

▶ Lay the sensor lead in the guide groove provided for this purpose in the insulation segment.

11. Installation

11.1 Positioning the equipment

- ▶ When positioning the appliance, observe minimum clearances (see chapter “Preparations / Installation site”).
- ▶ Use the adjustable feet to compensate for any unevenness in the floor.

11.2 Heating water connection and safety valve

11.2.1 Safety instructions

Material losses
The heating system to which the appliance is connected must be installed by a qualified contractor in accordance with the water installation drawings in the technical guides.

Material losses
When fitting additional shut-off valves, install a further safety valve in an accessible location on the heat generator itself or in the flow line in close proximity to the heat generator.
There must be no shut-off valve between the heat generator and the safety valve.

Oxygen diffusion

Material losses
Avoid open heating systems and plastic pipes in underfloor heating systems which are permeable to oxygen.

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 heating elements or steel pipes).

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.

Supply lines

- ▶ The maximum permissible line length between the appliance and the heat pump will vary, depending on the version of the heating system (pressure drop). 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 lines against frost with sufficient thermal insulation.
- ▶ Also protect all supply lines/cables against humidity, damage and UV radiation by means of a conduit.
- ▶ Connect the hydraulic connections with flat gaskets.

Pressure hoses against structure-borne sound transmission:

The appliance and the heat pump are connected to each other hydraulically via pipes carrying heating water. To reduce the transmission of structure-borne sound on the water side, connect the appliance to the heat pump with pressure hoses (not required for WPL 15-25 A).

Pressure differential:

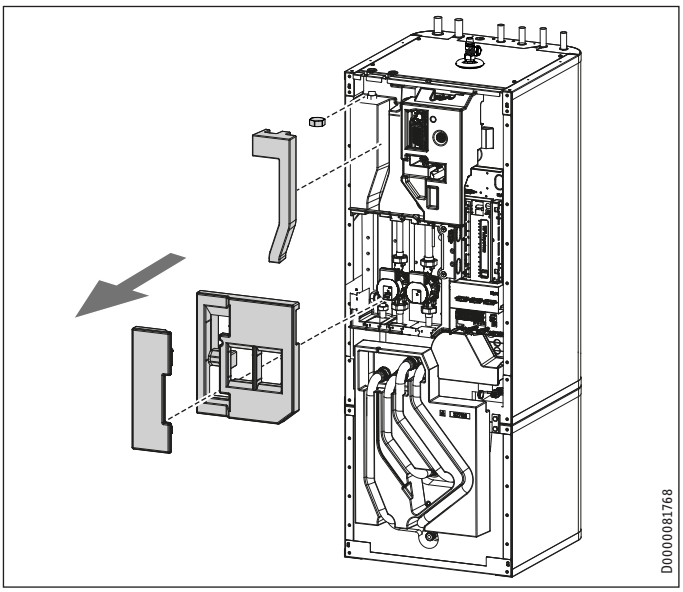
If the available external pressure difference is exceeded, the pressure drop in the heating system could result in a reduced heating output.

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

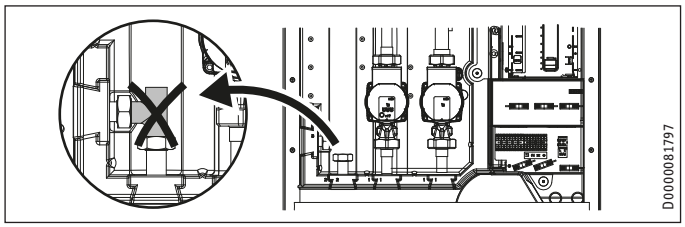
11.2.2 Fitting the pump assembly (accessory) if required

To extend the appliance with a heating circuit with mixer, you can install pump assembly HSBC-HKM (available as accessory).

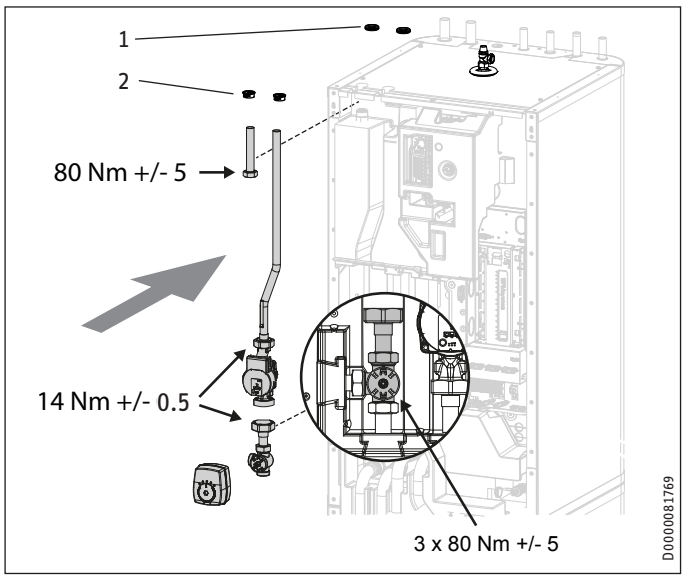
- Connection pipes
- Pre-fitted contact thermostat
- Heating circuit pump
- 3-way mixer with servomotor
- 2 plastic fixing aids
- Operating and installation instructions for the heating circuit pump



- ▶ Remove the EPS profiles from the HSBC side.
- ▶ Remove the union nut at the mixed heating return connection.



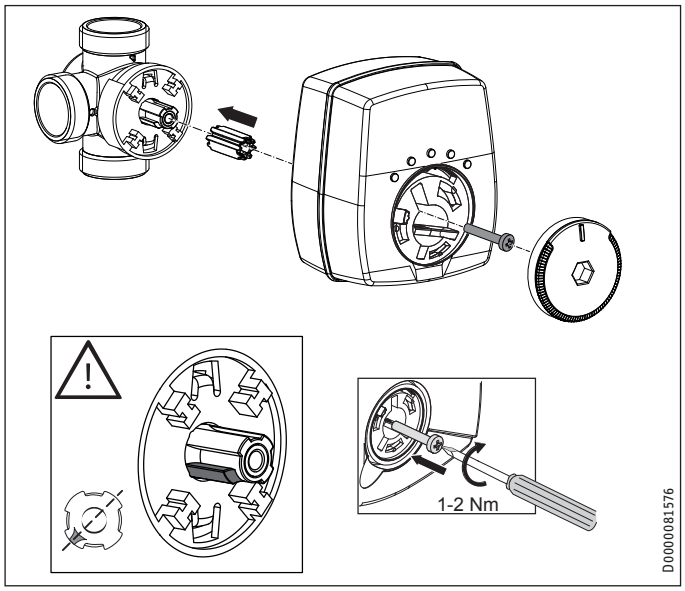
▶ Remove the tee at the mixed heating flow connection of the buffer cylinder.



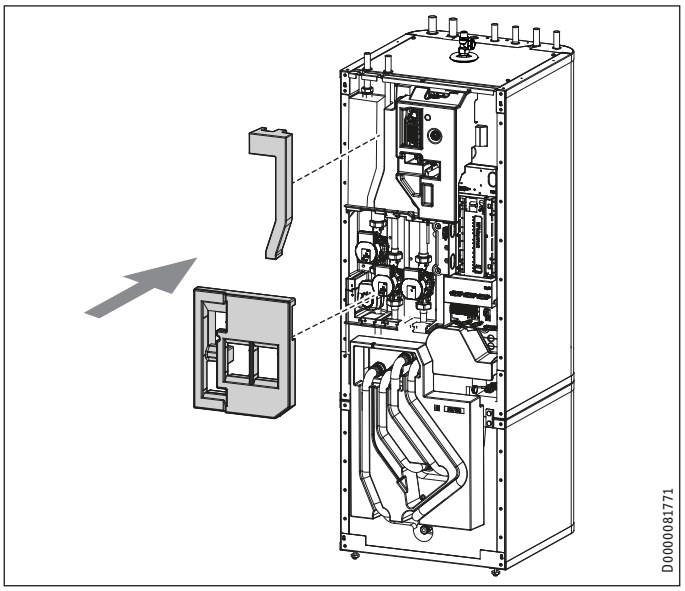
1 Dummy plug
2 Plastic fixing aid

▶ Replace the dummy plugs with the enclosed plastic fixing aids at the mixed heating flow and return connections.

▶ Fit the pump assembly connection pipes.



▶ When installing the servomotor, ensure the drive cam is positioned correctly.



▶ Insert the EPS profiles on the HSBC side.

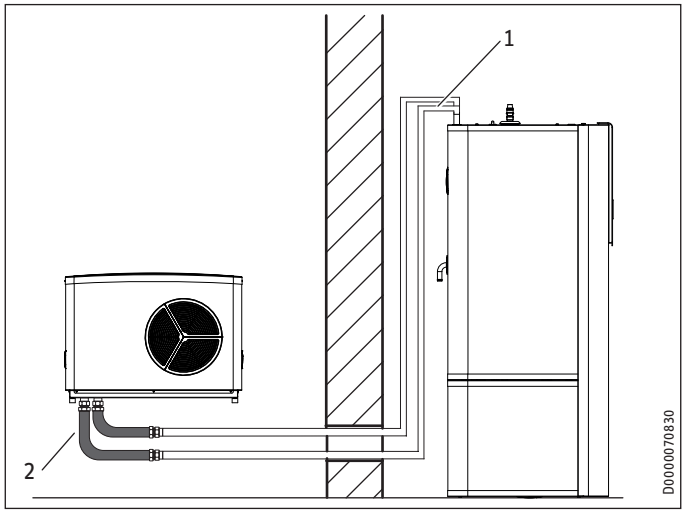
Observe the parameter settings in menu “SETTINGS / HEATING / HEATING CIRCUIT 2” in the enclosed operating and installation instructions for the heat pump manager.

Electrical connection of pump assembly

▶ See chapter “Installation / Electrical connection / Control voltage”.

11.2.3 Connection

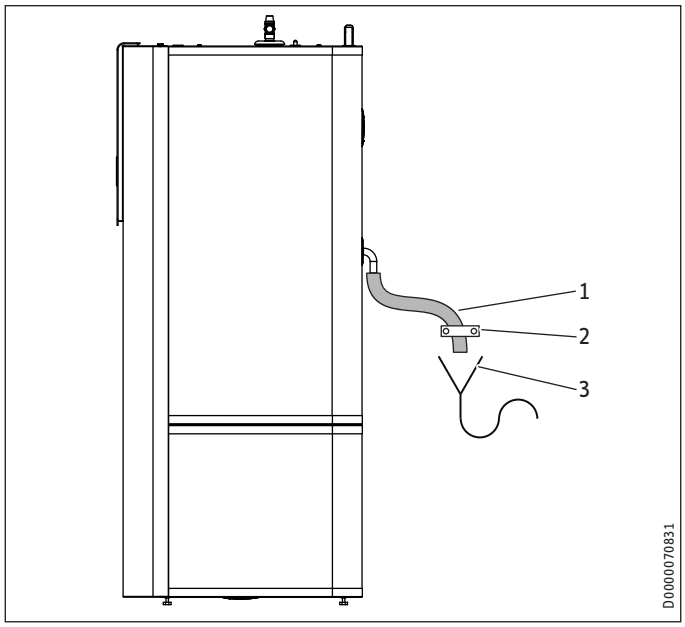
Installation example:



1 Pipes carrying heating water
2 Pressure hose (available as accessory)

- ▶ Thoroughly flush the pipes before connecting the heat pump. Foreign bodies (e.g. welding pearls, rust, sand, sealant, etc.) can impair the operational reliability of the heat pump.
- ▶ Install the heating water pipes (see chapter “Specification / Dimensions and connections”).

Safety valve



1 Drain hose
2 Fasteners (not part of the standard delivery)
3 Drain (not part of the standard delivery)

- ▶ Size the drain hose so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ Ensure that the safety valve drain hose is open to the outside.
- ▶ Lay the safety valve drain hose with a constant fall to the drain.
- ▶ Secure the drain hose to prevent any hose movement while water is discharged.

11.3 DHW connection and safety assembly

11.3.1 Safety instructions

Material losses
The maximum permissible pressure must not be exceeded (see chapter "Specification / Data table").

Material losses
Operate the appliance only with pressure-tested taps.

Note
The use of non-return valves in the charging circuits between the heat generator and the buffer or DHW cylinder can impair the function of the integral multifunction assembly (MFG) and lead to faults in the heating system.
- ▶ Only use our standard hydraulic solutions for the installation of the appliances.

Cold water line

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

Material losses
A safety valve is required.

DHW line, DHW circulation line

Stainless steel, copper and plastic are approved materials.

11.3.2 Installing the DHW circulation line, if applicable

A DHW circulation line with external DHW circulation pump can be fitted to the DHW circulation connection (see chapter “Specification / Dimensions and connections”).

- ▶ Remove the sealing cap from the DHW circulation connection (see chapter “Specification / Dimensions and connections”).
- ▶ Connect the DHW circulation line.

11.3.3 DHW connection and safety assembly

- ▶ Flush the pipes thoroughly.
- ▶ Install the DHW outlet line and the cold water inlet line (see chapter “Specification / Dimensions and connections”). Connect the hydraulic connections with flat gaskets.
- ▶ Install a type-tested safety valve in the cold water inlet line. Please note that, depending on the supply pressure, you may also need a pressure reducing valve.
- ▶ Size the drain pipe so that water can drain off unimpeded when the safety valve is fully opened.
- ▶ The safety valve discharge aperture must remain open to atmosphere.
- ▶ Install the safety valve drain pipe with a constant fall to the drain.

11.4 Filling the system

Heating circuit water quality

Carry out a fill water analysis before the system is filled. This analysis may, for example, be requested from the relevant water supply utility.

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 during the annual system service.

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

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

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

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

11.4.1 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.

11.4.2 Filling the heating system

Note
▶ Fill the heating system only via the lower drain valve on the buffer cylinder.

In the delivered condition, the 3-way diverter valve of the multifunction assembly is in its middle position, so that the heating circuit and the heat exchanger for DHW heating are filled evenly. When power is switched on, the 3-way diverter valve automatically switches to heating mode.

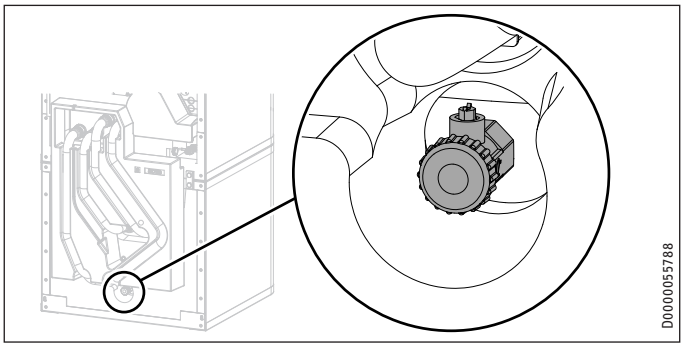
To fill or drain the system later, you must first place the 3-way diverter valve into its centre position.

To set the heat pump manager:

▶ With the MENU key, call up the main menu.

▶ Select the menu or value and confirm with OK:

■ DIAGNOSIS
☐■ RELAY TEST SYSTEM
☐☐■ DRAIN HYD



▶ Fill the heating system via the drain valve.

▶ Vent the pipework.

11.4.3 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.

▶ Fill the DHW cylinder via the the drain valve in compliance with the UK Water Supply (Water Fittings) Regulations 1999, Section 8 G24.

▶ Open all downstream draw-off valves/taps until the appliance is full and the pipework is free of air.

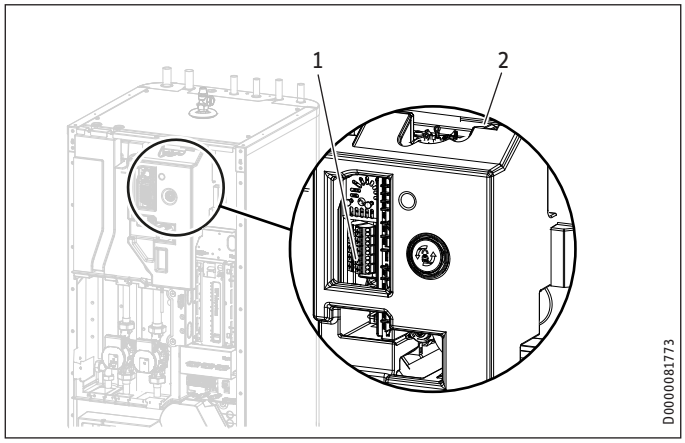
▶ Adjust the flow rate. For this, observe the maximum permissible flow rate with a fully opened tap (see chapter “Specification / Data table”). If necessary reduce the flow rate at the butterfly valve of the safety assembly.

▶ Carry out a tightness check.

▶ Check the safety valve.

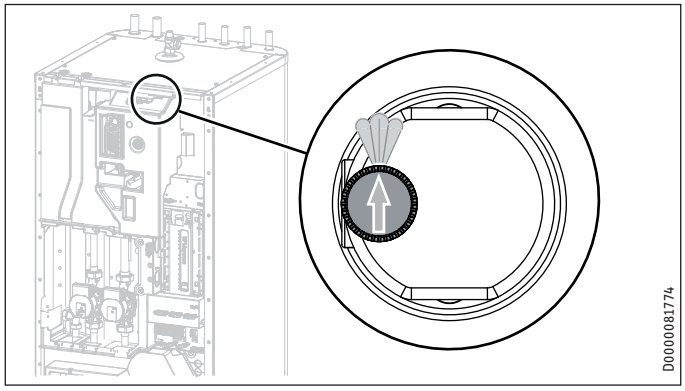
11.5 Venting the appliance

▶ To ventilate, temporarily open the quick-action air vent valve in the multifunction assembly.



1 PCB
2 Quick-action air vent valve

Material losses
The air vent in the knurled cap of the quick-action air vent valve must not point towards the multifunction assembly PCB.
▶ Turn the air vent in the direction shown in the following diagram.



Material losses
Close the quick-action air vent valve again after venting.

12. Power supply

WARNING Electrocution
Carry out all electrical connection and installation work in accordance with relevant regulations.
Before any work on the appliance, disconnect all poles from the power supply.

WARNING Electrocution
Only 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. This requirement can be met with contactors, circuit breakers, fuses/MCBs, etc.

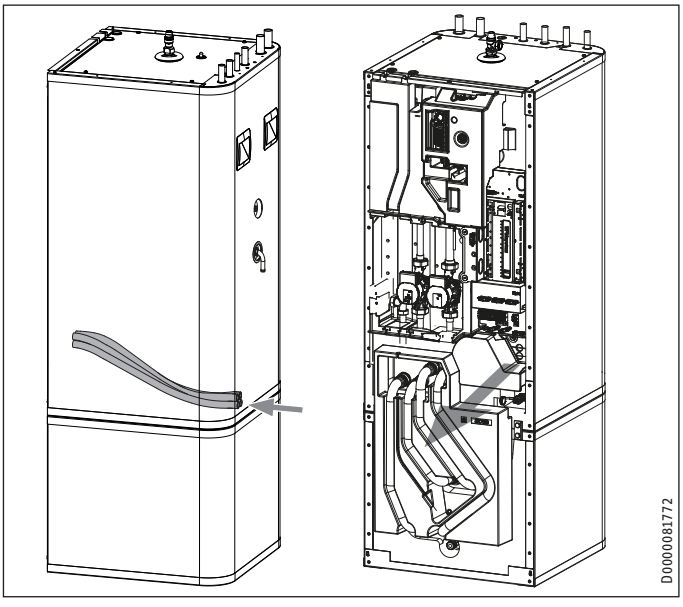
Material losses
Provide separate fuses for the two power circuits of the appliance and the control unit.

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

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

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

The terminal box of the appliance is located behind the front casing (see chapter “Preparations / Transport and handling / Removing / fitting the front casing”).



▶ Route all power cables and sensor leads into the appliance through the cable entry.
▶ Connect the power cables and sensor leads as detailed below.

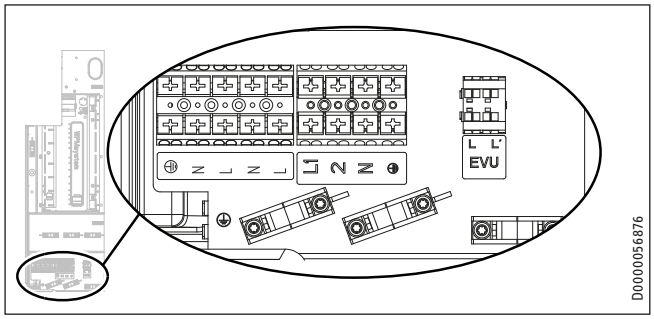
Install cables with the following cross-sections in accordance with the respective fuse rating:

MCB/fuse rating	Assignment	Cable cross-section
B 16 A	Electric emergency/ booster heater (DHC)	2.5 mm²
		1.5 mm² when routing a multi-core cable on a wall or in an electrical conduit on a wall
B 16 A	Control unit	1.5 mm²

12.1 Electric emergency/booster heater and control voltage

Appliance function	Effect of the electric emergency/booster heater
Mono energetic operation	If the heat pump undershoots the dual mode point, the electric emergency/booster heater safeguards both the heating operation and the delivery 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.

Electrical connection



XD02 Electric emergency/booster heater (DHC)

Connected load	Cable cross-section	Terminal assignment				
2.9 kW	2.5 mm²	PE			N	L
5.9 kW	2.5 mm²	PE			N	L
	2.5 mm²	PE	N	L		

▶ Connect the cables for the electrical emergency/booster heater with the desired rating as in the table.

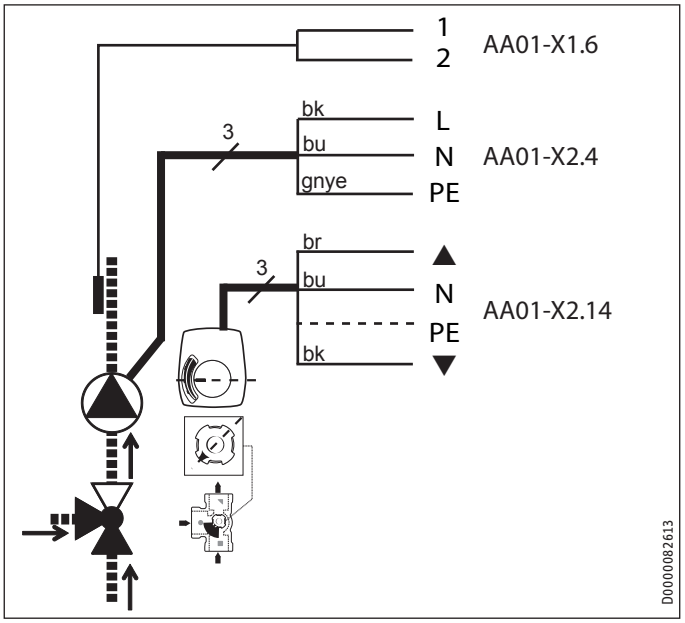
Control voltage

Material losses
▶ Only connect energy efficient circulation pumps approved by us to the pump connections.

XD01.2 Heat pump enable signal

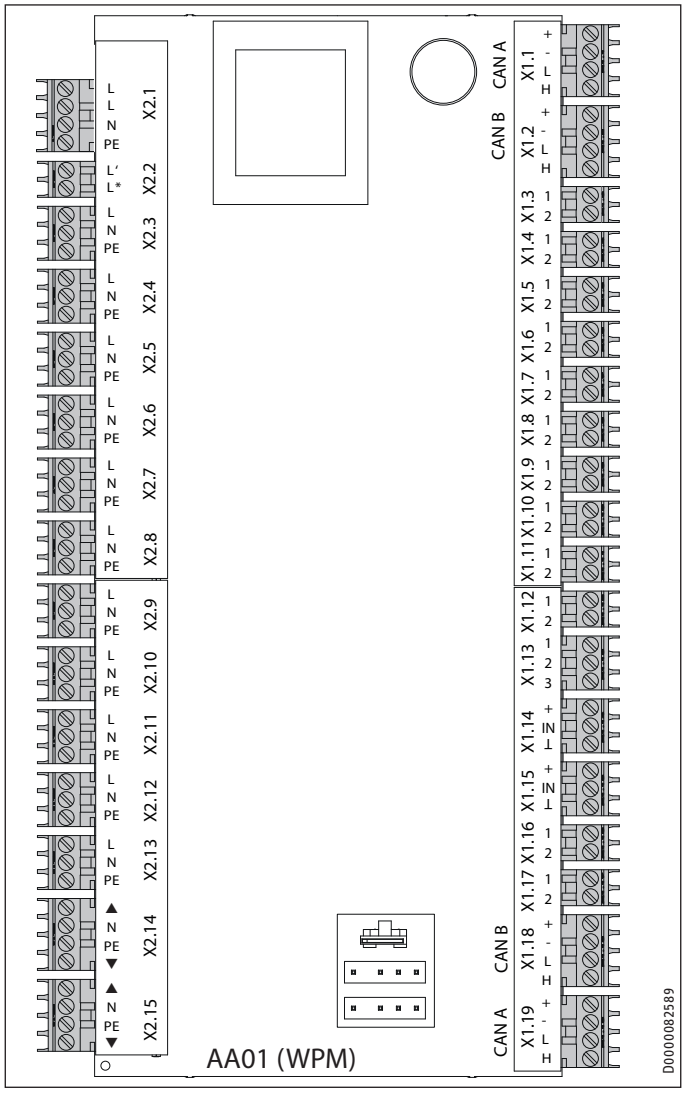
EVU	Enable signal

Pump assembly (accessory) if required



Heat pump manager terminal assignment

WARNING Electrocution
Only components that operate with safety extra low voltage (SELV) and that ensure secure separation from the mains voltage supply may be connected to the low voltage terminals of the appliance.
Connecting other components can make parts of the appliance and connected components live.
▶ Only use components which have been approved by us.



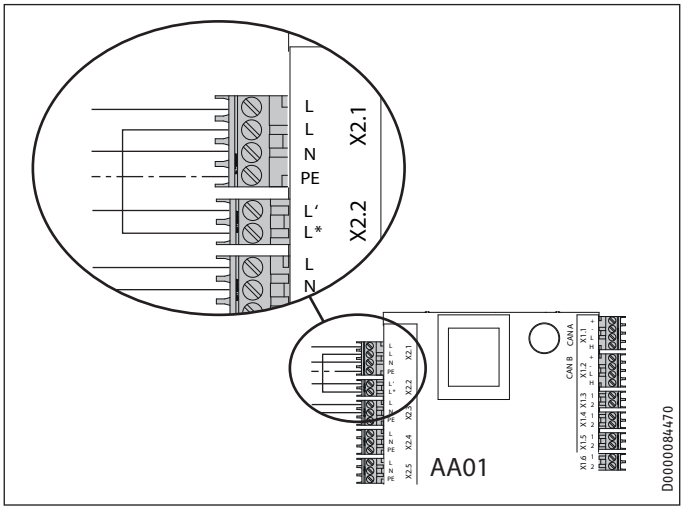
Safety extra low voltage			
X1.1 CAN A	+ - L H	+ - L H	CAN (connection for heat pump and WPE heat pump extension)
X1.2 CAN B	+ - L H	+ - L H	CAN (connection for FET remote control and ISG Internet Service Gateway)
X1.3	Signal Earth	1 2	Outside temperature sensor
X1.4	Signal Earth	1 2	Buffer sensor (heating circuit sensor 1)
X1.5	Signal Earth	1 2	Flow sensor
X1.6	Signal Earth	1 2	Heating circuit sensor 2
X1.7	Signal Earth	1 2	Heating circuit sensor 3
X1.8	Signal Earth	1 2	DHW cylinder sensor
X1.9	Signal Earth	1 2	Source sensor
X1.10	Signal Earth	1 2	Heat generator 2
X1.11	Signal Earth	1 2	Cooling flow
X1.12	Signal Earth	1 2	DHW circulation sensor
X1.13	Signal Earth Signal	1 2 3	FE7 remote control / telephone remote switch / heating curve optimisation / SG Ready
X1.14	Constant 12 V Input GND	+ IN ⊥	Analogue input 0-10 V
X1.15	Constant 12 V Input GND	+ IN ⊥	Analogue input 0-10 V
X1.16	Signal Earth	1 2	PWM output 1
X1.17	Signal Earth	1 2	PWM output 2
X1.18 CAN B	+ - L H	+ - L H	CAN (connection for FET remote control and ISG Internet Service Gateway)
X1.19 CAN A	+ - L H	+ - L H	CAN (connection for heat pump and WPE heat pump extension)

Power supply

Mains voltage			
X2.1	L L N PE	L L N ⏚	Power supply
X2.2	L' (power supply utility input) L* (pumps L)	L' L* (pumps L)	L' (power supply utility input) L* (pumps L)
X2.3	L N PE	L N ⏚ PE	Heating circuit pump 1
X2.4	L N PE	L N ⏚ PE	Heating circuit pump 2
X2.5	L N PE	L N ⏚ PE	Heating circuit pump 3
X2.6	L N PE	L N ⏚ PE	Buffer charging pump 1
X2.7	L N PE	L N ⏚ PE	Buffer charging pump 2
X2.8	L N PE	L N ⏚ PE	DHW charging pump
X2.9	L N PE	L N ⏚ PE	Source pump/defrost
X2.10	L N PE	L N ⏚ PE	Fault output
X2.11	L N PE	L N ⏚ PE	DHW circulation pump / 2nd heat source DHW
X2.12	L N PE	L N ⏚ PE	2nd heat source heating
X2.13	L N PE	L N ⏚ PE	Cooling
X2.14	Mixer OPEN N PE Mixer CLOSE	▲ N ⏚ PE ▼	Mixer heating circuit 2 (X2.14.1 Mixer OPEN X2.14.2 Mixer CLOSE)
X2.15	Mixer OPEN N PE Mixer CLOSE	▲ N ⏚ PE ▼	Mixer heating circuit 3 (X2.15.1 Mixer OPEN X2.15.2 Mixer CLOSE)

Note
For every appliance fault, output X2.10 issues a 230 V signal.
In the case of temporary faults, the output switches the signal through for a specific time.
In the case of faults that result in a permanent appliance shutdown, the output switches through permanently.

If required, STB-FB high limit safety cut-out accessory for underfloor heating systems

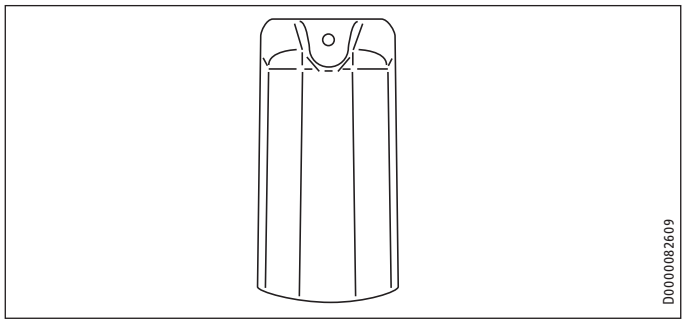


- ▶ Remove the jumper at AA 01 between X 2.1 (L) and X 2.2 (L*).
- ▶ Connect the STB-FB high limit safety cut-out to AA 01 between X 2.1 (L) and X 2.2 (L*).

12.2 Sensor installation

12.2.1 Outside temperature sensor AF PT

The outside temperature sensors have a significant influence on the function of your heating system. Therefore ensure that the outside temperature sensors are correctly positioned and well insulated.



- Install the outside temperature sensor on a north or north-eastern wall.
- Ensure that the outside temperature sensor is freely exposed to the elements but not placed in direct sunlight.
- Never mount the outside temperature sensor above windows, doors or air ducts.
- Observe the following minimum clearances: 2.5 m above the ground and 1 m to the side of windows and doors

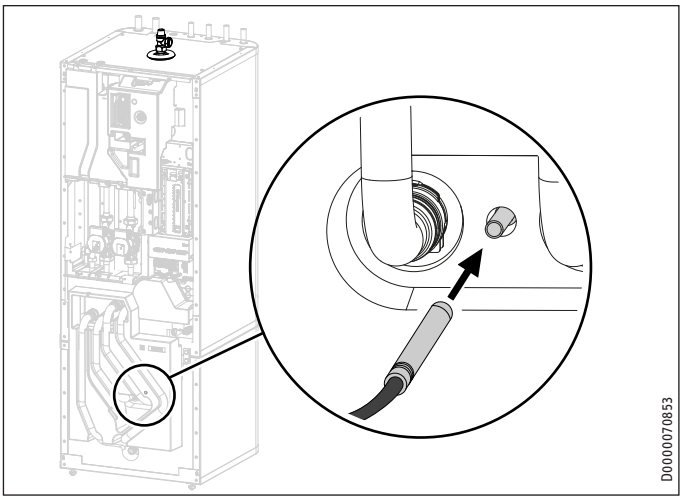
Installation

▶ Remove the cover.
▶ Secure the base with the screw supplied.
▶ Connect the outside temperature sensor to AA01-X1.3.
▶ Replace the cover. The cover must audibly click into place.

12.2.2 Fitting the temperature sensor (accessory) for area cooling

Area cooling requires the fitting of a temperature sensor, available as an accessory.

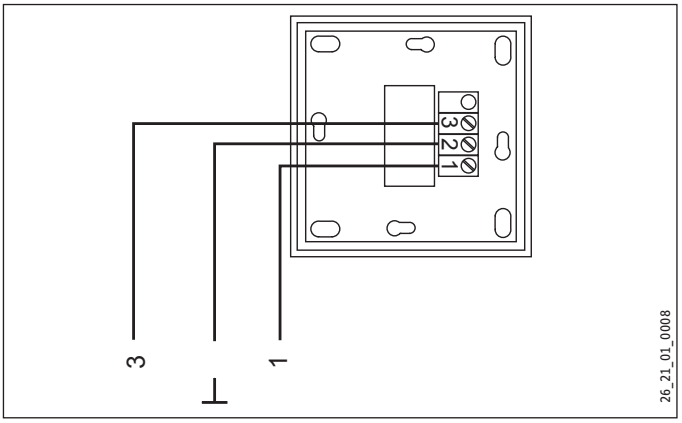
▶ Remove the front casing (see chapter “Preparations / Transport and handling / Removing / fitting the front casing”).



▶ Insert the temperature sensor into the sensor well “Sensor heat pump cooling, optional”.
▶ Connect the temperature sensor to AA01-X1.11.

12.3 Remote control

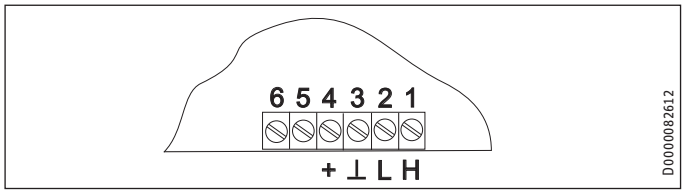
12.3.1 FE 7 remote control



With the FE 7 remote control you can adjust the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C in automatic mode only. You can also select the operating mode.

▶ Connect the remote control to terminal AA01-X1.13.

12.3.2 FET remote control



With the FET remote control you can select the operating mode and change the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C.

▶ Connect the remote control to terminal AA01-X1.2.

13. Commissioning

Our customer support can assist with commissioning, which is a chargeable service.

If the appliance is intended for commercial use, observe the rules of the relevant Health & Safety at Work Act during commissioning. For further details, check with your local authorising body.

13.1 Checks before commissioning the heat pump manager

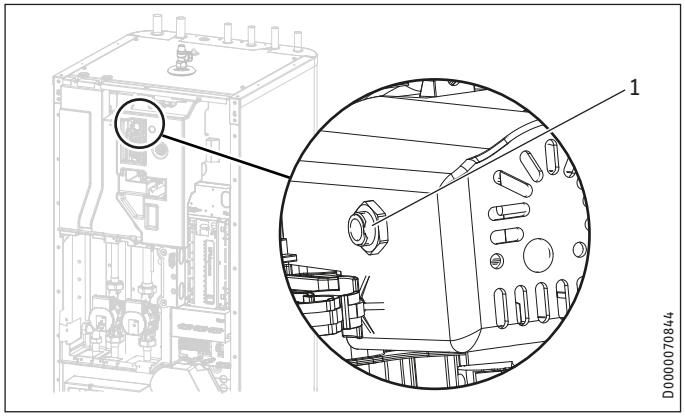
Material losses
Observe the maximum system temperature in underfloor heating systems.

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

High limit safety cut-out

Note
At temperatures below -15 °C the high limit safety cut-out may respond. The appliance may be subjected to these temperatures during storage or transport.

▶ Check whether the high limit safety cut-out has tripped.



1 High limit safety cut-out reset button

13.2 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 the PARALLEL OPERATION option is set in the heat pump manager. With this setting the primary pump is also active in DHW mode.

To set the heat pump manager:
▶ With the MENU key, call up the main menu.
▶ Select the menu or value and confirm with OK:

■ SETTINGS	Value
□■ DHW	
□□■ STANDARD SETTING	
□□□■ DHW MODE	PARALLEL OPERATION

Note
On appliances with a single phase connection, set the heat pump manager as follows for calculating the amount of heat.

To set the heat pump manager:
▶ With the MENU key, call up the main menu.
▶ Select the menu or value and confirm with OK:

■ SETTINGS	Value
□■ HEATING	
□□■ ELECTRIC REHEATING	
□□□■ NUMBER OF STAGES	2

Area cooling setting

Material losses
Condensation caused by the temperature falling below the dew point can lead to material losses. HSBC is therefore exclusively approved for area cooling.

Adjusting the heat pump manager settings for area cooling:
▶ With the MENU key, call up the main menu.
▶ Select the menu or value and confirm with OK:

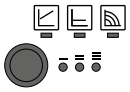
■ SETTINGS	Value
□■ COOLING	
□□■ COOLING	ON
□□■ STANDARD SETTING	
□□□■ COOLING CAPACITY	system specific
□□■ ACTIVE COOLING	
□□□■ AREA COOLING	ON
□□□□■ SET FLOW TEMPERATURE	system specific
□□□□■ FLOW TEMP HYSTERESIS	system specific
□□□□■ SET ROOM TEMPERATURE	system specific

13.3 Circulation pumps Wilo-Para .../Sc

Indicator lights (LEDs)

	Signal display: LED is lit up in green in normal operation LED lights up/flashes in case of a fault
	Display of selected control mode Δp-v, Δp-c and constant speed
	Display of selected pump curve (I, II, III) within the control mode
	LED indicator combinations during the pump venting function, manual restart and key lock

Operating button

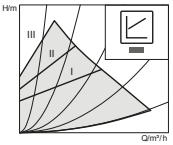


Press
Select control mode
Select pump curve (I, II, III) within the control mode

Press and hold
Activate the pump venting function (press for 3 seconds)
Activate manual restart (press for 5 seconds)
Lock/unlock button (press for 8 seconds)

Control modes and functions

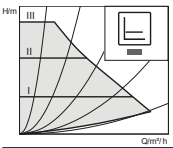
Variable differential pressure Δp-v (I, II, III)



Recommended for two-pipe heating systems with radiators to reduce the flow noise at thermostatic valves.

The pump reduces the delivery head to half in the case of decreasing volume flow in the pipe network. Electrical energy saving by adjusting the delivery head to the volume flow requirement and lower flow rates.
There are three pre-defined pump curves (I, II, III) to choose from.

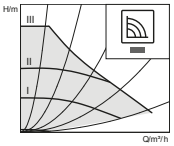
Constant differential pressure Δp-c (I, II, III)



Recommended for underfloor heating for large-sized pipes or all applications without a variable pipe network curve (e.g. storage charge pumps), as well as single-pipe heating systems with radiators.

The control keeps the set delivery head constant irrespective of the pumped volume flow.
There are three pre-defined pump curves (I, II, III) to choose from.

Constant speed (I, II, III)



Recommended for systems with fixed system resistance requiring a constant volume flow.

The pump runs in three prescribed fixed speed stages (I, II, III).

Note
Factory setting:
Constant speed,pump curve III

Venting

Fill and vent the system correctly.

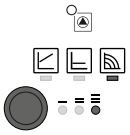
If the pump does not vent automatically:
Activate the pump venting function via the operating button: press and hold for 3 seconds, then release.
The pump venting function is initiated and lasts 10 minutes.
The top and bottom LED rows flash in turn at 1 second intervals.

To cancel, press and hold the operating button for 3 seconds.

Note
After venting, the LED display shows the previously set values of the pump.

Setting the control mode

Select control mode



The LED selection of control modes and corresponding pump curves takes place in clockwise succession.

Press the operating button briefly (approx. 1 second). LEDs display the set control mode and pump curve.

The following shows the various possible settings:

Operating button	LED-Display	Control mode	Pump curve
1x		Constant speed	II
2x		Constant speed	I
3x		Variable differential pressure Δp-v	III
4x		Variable differential pressure Δp-v	II
5x		Variable differential pressure Δp-v	I
6x		Constant differential pressure Δp-c	III
7x		Constant differential pressure Δp-c	II
8x		Constant differential pressure Δp-c	I
*9x		Constant speed	III

(*) Pressing the button for the 9th time returns to the basic setting (constant speed / characteristic curve III).

13.4 Appliance handover

- ▶ Explain the appliance function to users and familiarise them with its operation.
- ▶ Make users aware of potential dangers.
- ▶ Hand over these instructions.

14. Shutdown

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

Material losses
If the heat pump and frost protection are completely switched off, drain the system (see chapter “Maintenance / Draining the DHW cylinder”).

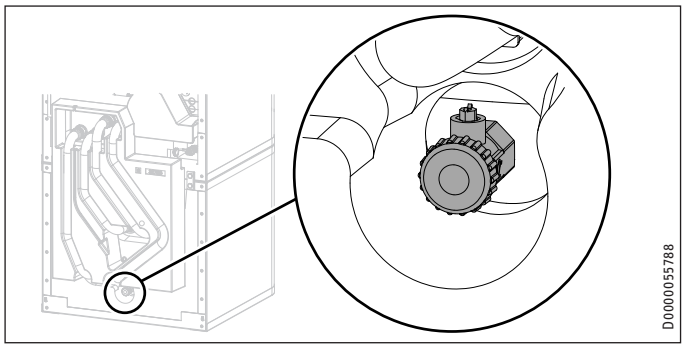
- ▶ If you take the system out of use, set the heat pump manager to standby so that the safety functions that protect the appliance (e.g. frost protection) remain active.

15. Maintenance

WARNING Electrocution
Carry out all electrical connection and installation work in accordance with relevant regulations.

WARNING Electrocution
Before any work on the appliance, disconnect all poles of the appliance from the power supply.

Draining the buffer cylinder

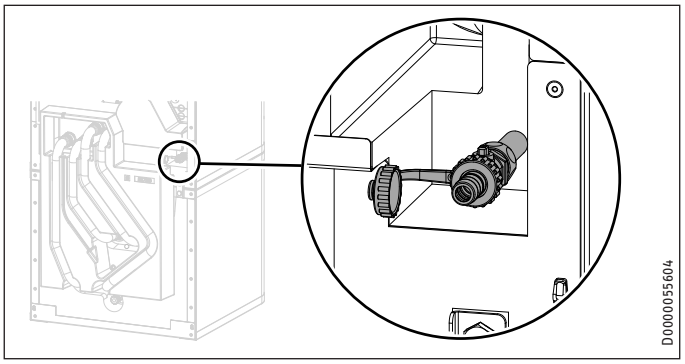


- ▶ Drain the buffer cylinder via the drain valve.

Draining the DHW cylinder

CAUTION Burns
Hot water may escape during draining.

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



- ▶ Drain the DHW cylinder via the drain valve.

Cleaning and descaling the DHW cylinder

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

- ▶ Clean the appliance through the inspection flange.

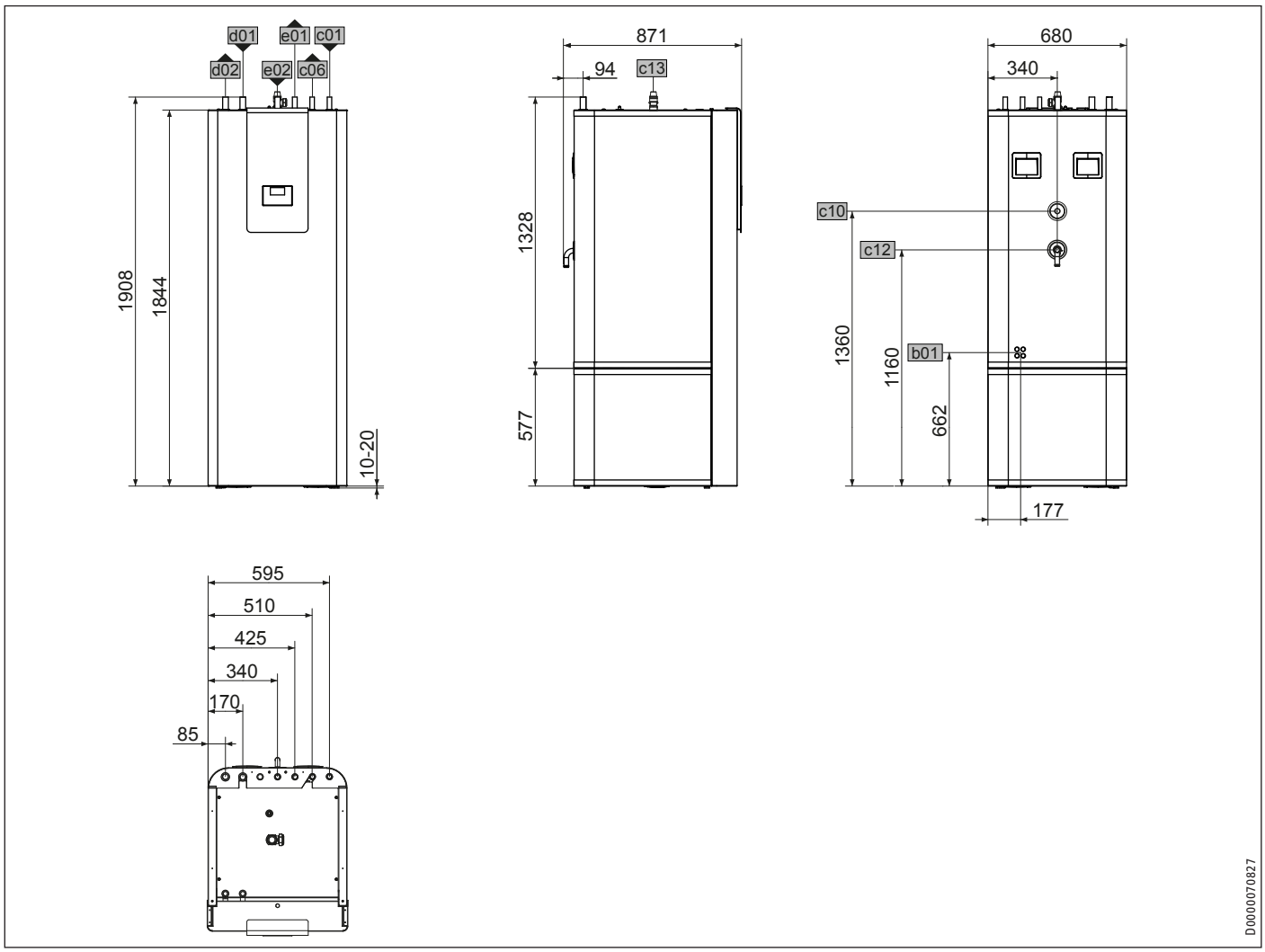
For the torque of the flange screws, see chapter “Specification / Dimensions and connections”.

Replacing the signal anode

- ▶ Replace the signal anode if it becomes depleted.

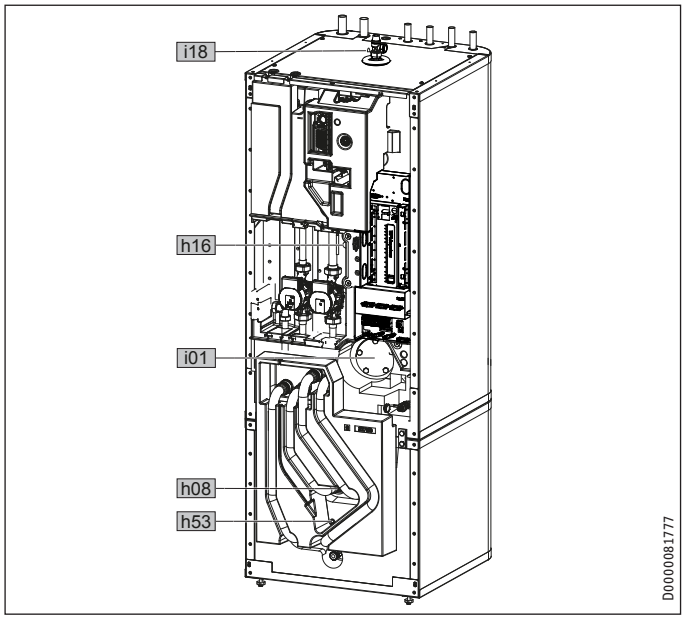
16. Specification

16.1 Dimensions and connections



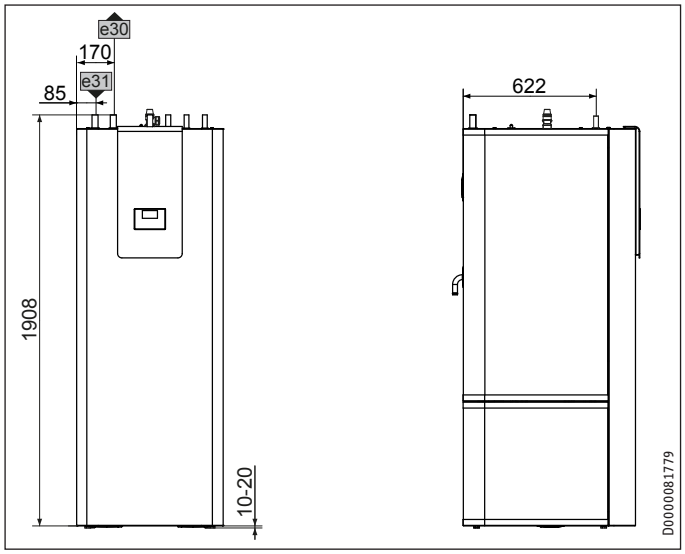
				HSBC 200 S (GB)
b01	Entry electrical cables			
c01	Cold water inlet	Diameter	mm	22
c06	DHW outlet	Diameter	mm	22
c12	Safety assembly drain	Diameter	mm	22
c13	T&P valve			
d01	Heat pump flow	Diameter	mm	28
d02	Heat pump return	Diameter	mm	28
e01	Heating flow	Diameter	mm	22
e02	Heating return	Diameter	mm	22

Further dimensions and connections



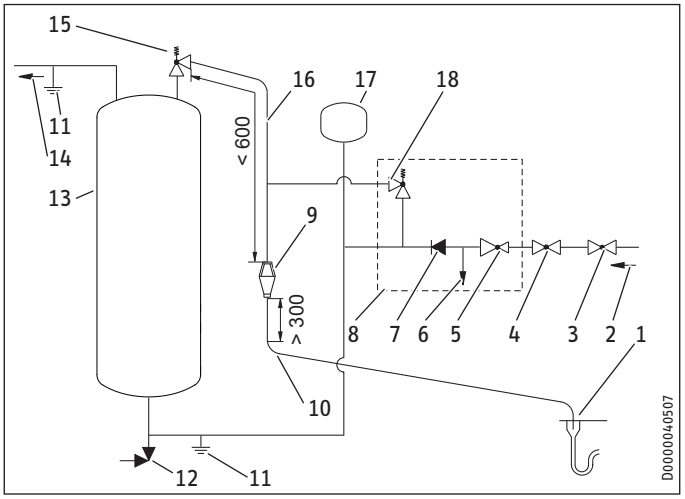
				HSBC 200 S (GB)
h08	Sensor heat pump cooling, optional	Diameter	mm	9.5
h16	Sensor DHW	Diameter	mm	9.5
h53	Sensor heating	Diameter	mm	9.5
i01	Flange	Diameter	mm	140
		Pitch circle diameter	mm	120
		Screws		M 10
		Torque	Nm	55
i18	Protective anode			

16.1.1 HSBC-HKM accessories



				HSBC-HKM
e30	Heating flow, mixed	Diameter	mm	22
e31	Heating return, mixed	Diameter	mm	22

16.2 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 relief valve

Material losses
The tundish should be installed away from electrical devices.

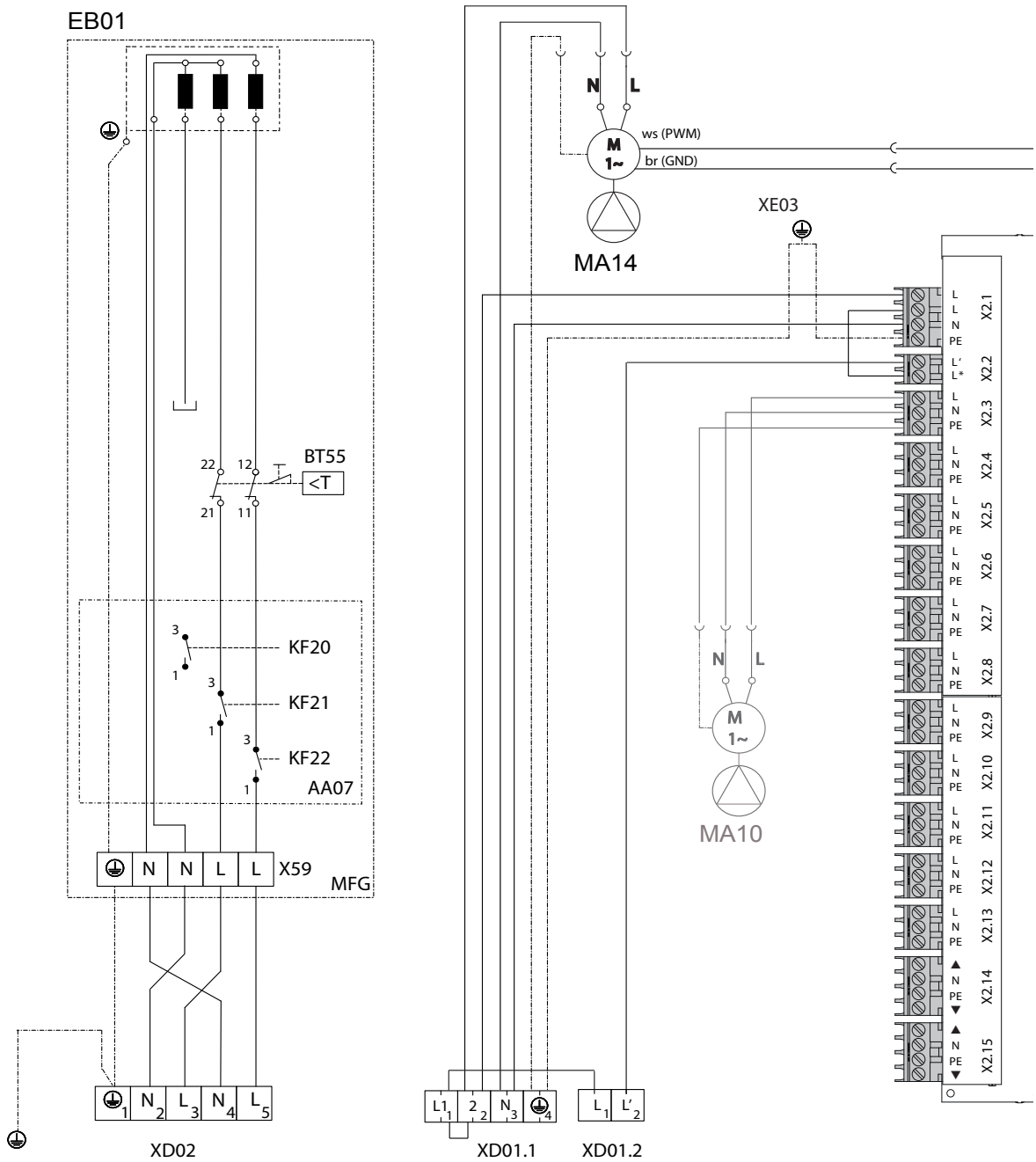
Note
If secondary return circuits are used then an additional expansion vessel may be required.

Data table

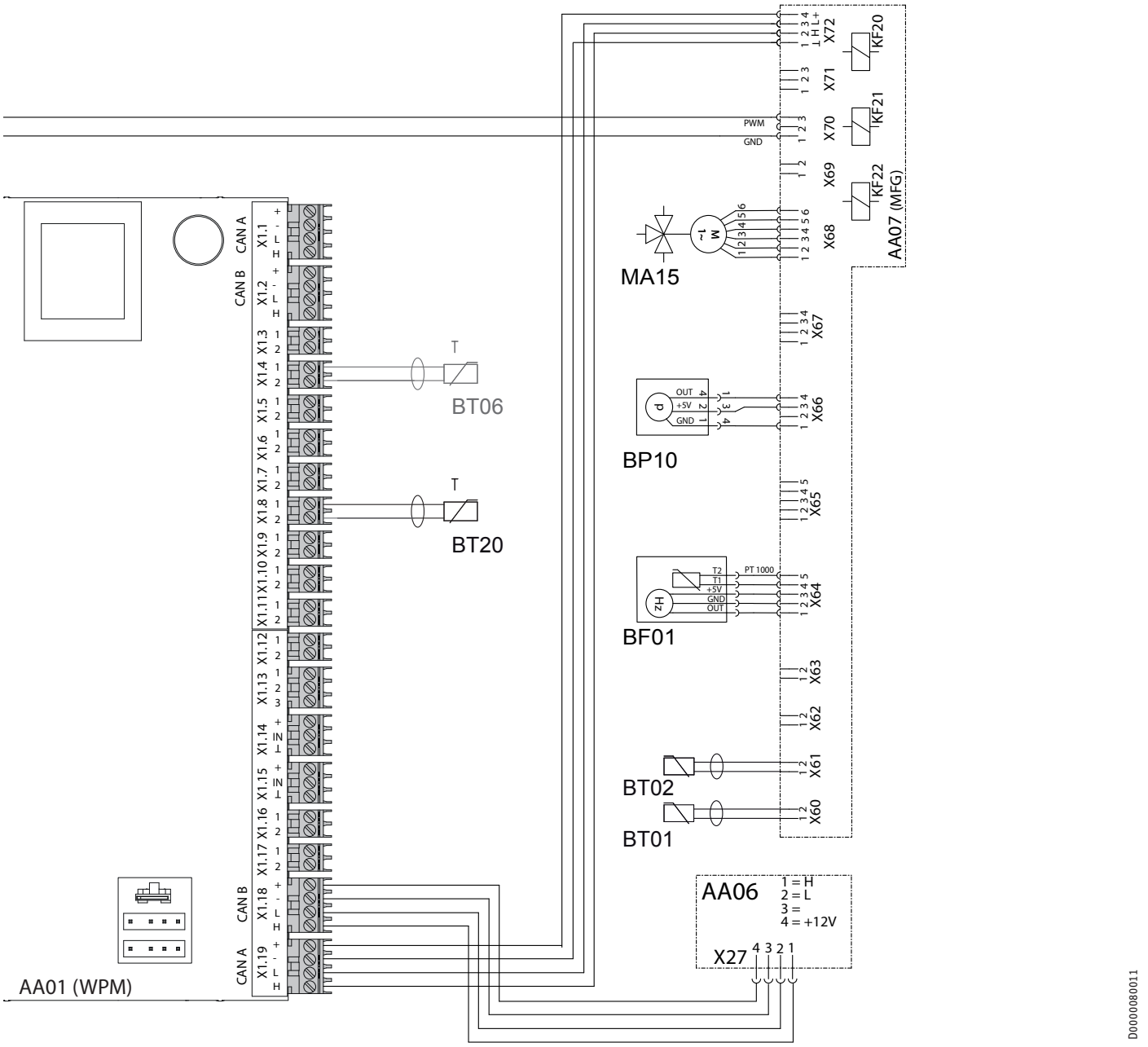
Minimum size of discharge pipe D1	mm			15
Minimum size of discharge pipe D2 from tundish	mm	22	28	35
Maximum permissible pressure drop, expressed as a length of straight pipe (i.e. no elbows or bends)	m	9	18	27
Pressure drop of each elbow or bend	m	0.8	1.0	1.4

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

16.3 Wiring diagram



AA01	Extra low voltage (WPM heat pump manager)
AA06	Programming unit
AA07	PCB, booster heater MFG
EB01	Booster heater MFG (not for HSBB/HSBC 200 S BE)
BF01	Flow rate and temperature, heating circuit
BP10	Pressure sensor, heating circuit
BT01	Temperature sensor, heat pump flow
BT02	Temperature sensor, heat pump return
BT06	Temperature sensor, heat pump buffer cylinder (not for HSBB or TSBB eco)
BT20	Temperature sensor, DHW cylinder
BT55	High limit safety cut-out MFG (manual reset)
MA10	Motor, heating circuit pump (not for HSBB or TSBB eco)
MA14	Motor, buffer charging pump (PWM/1-10V)
MA15	Motor, diverter valve, heating/DHW
KF20	Relay, booster heater MFG
KF21	Relay, booster heater MFG
KF22	Relay, booster heater MFG
XD01.1	Terminal, power supply
XD01.2	Terminal, power-OFF contact
XD02	Terminal, MFG power supply
XE03	Earth terminal, control unit
AA01-X1.1	Connector, CAN A (WP connection)
AA01-X1.2	Connector, CAN B (FET/ISG connection)
AA01-X1.3	Connector, outside temperature sensor
AA01-X1.4	Connector, buffer temperature sensor BT06 (not for HSBB or TSBB eco)
AA01-X1.5	Connector, flow temperature sensor
AA01-X1.6	Connector, heating circuit temperature sensor 2



AA01-X1.7	Connector, heating circuit temperature sensor 3
AA01-X1.8	Connector, DHW cylinder sensor BT20
AA01-X1.9	Connector, source sensor
AA01-X1.10	Connector, heat source 2
AA01-X1.11	Connector, flow, cooling
AA01-X1.12	Connector, DHW circulation sensor
AA01-X1.13	Connector, remote control FE7
AA01-X1.14	Connector, analogue input 0-10 V
AA01-X2.14	Connector, mixer, heating circuit 2 (X2.14.1 Mixer OPEN/X2.14.2 Mixer CLOSE)
AA01-X2.15	Connector, mixer, heating circuit 3 (X2.15.1 Mixer OPEN/X2.15.2 Mixer CLOSE)
AA06-X27	Terminal, programming unit
AA07-X60	Connector, temperature sensor, heat pump flow BT01
AA07-X61	Connector, temperature sensor, heat pump return BT02
AA07-X62	Not assigned – connector, temperature sensor, heat pump return
AA07-X63	Not assigned – connector, temperature sensor, DHW cylinder, internal
AA07-X64	Connector, temperature and flow rate, heating circuit, BF01
AA07-X65	Not assigned
AA07-X66	Rast 2.5 connector (heating system pressure) BP01
AA07-X67	Not assigned
AA07-X68	Connector, switching, motor, diverter valve central heating / DHW
AA07-X69	Not assigned
AA07-X70	Connector, switching, pump, heating circuit PWM/1-10V
AA07-X71	Not assigned
AA07-X72	Connector, CAN bus
EB01-X59	Terminal, MFG

16.4 Details on energy consumption

Product datasheet: Hot water storage tanks to regulation (EU) no. 812/2013 / (S.I. 2019 No. 539 / Schedule 2)

		HSBC 200 S (GB) set
		236917
Manufacturer		STIEBEL ELTRON
Model identification of the supplier		HSBC 200 S (GB) Set
Energy efficiency class		B
standing loss S	W	55
storage volume V	l	189

16.5 Data table

		HSBC 200 S (GB) set
		236917
Hydraulic data		
Nominal capacity, DHW cylinder	l	168
Nominal capacity, buffer cylinder	l	100
Surface, indirect coil	m²	3.3
Content, indirect coil	l	21
External available pressure differential, circulation pump / heat pump at 1.0 m³/h	hPa	656
External available pressure differential, circulation pump / heat pump at 1.5 m³/h	hPa	527
External available pressure differential, circulation pump / heat pump at 2.0 m³/h	hPa	210
External available pressure differential, circulation pump / heating circuit 1 at 1.0 m³/h	hPa	725
External available pressure differential, circulation pump / heating circuit 1 at 1.5 m³/h	hPa	663
External available pressure differential, circulation pump / heating circuit 1 at 2.0 m³/h	hPa	444
External available pressure differential, circulation pump / heating circuit 2 (optional) at 1.0 m³/h	hPa	665
External available pressure differential, circulation pump / heating circuit 2 (optional) at 1.5 m³/h	hPa	518
External available pressure differential, circulation pump / heating circuit 2 (optional) at 2.0 m³/h	hPa	189
Hot water volume > 40°C	l	147.1
Primary heating water input power at flow rate, upper indirect coil	kW - l/min	33.1 / 15.2
Pressure drop at 1.0 m³/h, indirect coil, top	hPa	28
Reheating time, upper indirect coil	min	12.4
Max. operating temperature heating water	°C	89
Application limits		
Max. permissible pressure (Design Pressure) DHW cylinder	MPa	0.7
Max. permissible pressure (Design Pressure), upper indirect coil	MPa	0.3
Test pressure, DHW cylinder	MPa	1.5
Max. throughput	l/min	25
Max. permissible pressure (Design Pressure) buffer tank	MPa	0.3
Test pressure, buffer cylinder	MPa	0.45
Maximum permissible pressure	°C	89
Heating water quality requirements		
Water hardness	°dH	≤3
pH value (with aluminium compounds)		8.0-8.5
pH value (without aluminium compounds)		8.0-10.0
Conductivity (softening)	µS/cm	<1000
Conductivity (desalinating)	µS/cm	20-100
Chloride	mg/l	<30
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02
Oxygen 8-12 weeks after filling (desalinating)	mg/l	<0.1
Power consumption		
Power consumption, emergency/booster heater	kW	5.9
Max. power consumption, charging pump	W	60
Max. power consumption, circulation pump, heating side	W	60
Energy data		
Standby energy consumption/24 h at 65 °C	kWh	1.3
Energy efficiency class		B

Specification

		HSBC 200 S (GB) set
Electrical details		
Rated control voltage	V	230
Control phases		1/N/PE
Control circuit fuse	A	1 x B 16
Rated voltage, emergency/booster heater	V	230
Phases, emergency/booster heater		2/N/PE
Emergency/booster heater fuse	A	2 x B 16
Frequency	Hz	50
Output data		
Tested to standard		EN 12897:2016
Values		
Nominal design flow rate of heating system at A-7/W35 and 7 K	m³/h	1.4
Heating flow rate (min.)	m³/h	0.7
Safety assembly, max. supply pressure	MPa	1.6
Recommended operating pressure - heating circuit	MPa	0.2
Recommended operating pressure - DHW	MPa	0.35
Pressure reducing valve, downstream set pressure	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
Expansion vessel pre charge-pressure, DHW	MPa	0.35
Expansion vessel volume, DHW	l	8
Versions		
IP-Rating		IP20
Dimensions		
Height	mm	1908
Width	mm	680
Depth	mm	871
Height of unit when tilted	mm	2107
Weights		
Weight (wet)	kg	471
Weight (dry)	kg	203

Further details

		HSBC 200 S (GB) Set
		236917
Maximum altitude for installation	m	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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