WPE-I 07.1 Plus H 400
WPE-I 07.1 Plus H 230
WPE-I 07.1 Plus HW 400
WPE-I 07.1 Plus HW 230
WPE-I 12.1 Plus H 400
WPE-I 12.1 Plus H 230
WPE-I 12.1 Plus HW 400
WPE-I 12.1 Plus HW 230

Table of contents

1 Special information

- The following groups of people are not permitted to use the appliance:
  - Children
  - Persons with reduced physical, sensory or mental capabilities
  - Persons lacking experience and expertise
- Children must never play with the appliance.
- Only qualified contractors are permitted to clean and service the appliance.
- The connection to the power supply must be in the form of a permanent connection. Install safety equipment that allows the appliance to be separated from the power supply with contact separation of 3 mm. Safety equipment includes contactors, circuit breakers and fuses.
- Observe all applicable national and regional regulations and instructions during installation.

2 General information

▶ Read these instructions carefully before using the appliance and retain them for future reference.

2.1 Symbols in this document

Symbol	Meaning
	This symbol indicates possible property damage, equipment damage, consequential damage or environmental damage.
	General information is indicated by the adjacent symbol.
▶	This symbol indicates that you have to do something.
✓	This symbol indicates that you must fulfil certain prerequisites before you perform the following steps.
⇨	This symbol indicates a result or intermediate result.
□□■	These symbols show you the software menu level (in this example level 3).
[▷ 11]	This symbol indicates a reference to the corresponding page number (page 11 in this example).

2.2 Symbols on the appliance

Symbol	Meaning
	This appliance is filled with R290, a highly flammable refrigerant.

2.3 Units of measurement

All measurements are given in mm unless stated otherwise.

2.4 Other applicable documents

- Instructions for the heat pump manager
- Operating and installation instructions for system components

2.5 Standardised output data

Information on determining and interpreting the specified standardised output data

Standard: EN14511

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

Generally, these standardised test conditions will not fully meet the conditions found at the installation site of the system user.

Depending on the chosen test method and the extent to which this method deviates from the conditions defined in the norm shown in the heading of this section, any deviations can have a considerable impact.

Additional factors that have an influence on the test values are the measuring equipment, the system configuration, the age of the system and the flow rates.

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

2.6 Target groups

Operator

Person without specialist expert knowledge

Qualified heating contractor

Person with specialist expert knowledge in the following areas: heating technology, heating media, building services and engineering, ventilation and air conditioning technology, measuring technology, heat pump technology, environmental technology, occupational safety and fire safety

Qualified electrical contractor

Person with specialist expert knowledge in the following areas: electrical engineering, measuring technology, occupational safety and fire safety

Qualified contractor in refrigeration technology

Person with specialised expertise in the following areas: work relating to refrigeration technology, refrigerants, inspection and maintenance of refrigeration systems, safety at work and fire safety

Apprentice

Apprentices may only carry out the assigned tasks under professional supervision and instruction.

Professional qualification

Subject to local regulations, a training course, a higher education qualification or further development training will be required.

Gender-sensitive documentation

We have endeavoured to follow changes in language and to use a gender-conscious form of language without impairing the reading flow. We want to address, include and make visible all genders in our documentation.

3 Safety

3.1 Intended use

The appliance is used for DHW heating and for heating rooms.

For appliances WPE-I 07.1-12.1 Plus H, an external DHW cylinder is required.

The appliances are designed for heating systems with a volume of up to 1000 l.

The appliance is designed for installation indoors.

The product is designed for domestic use. It can be used safely by untrained persons. This product 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.

Observation of these instructions and of instructions for any accessories used is also part of the intended use of this appliance.

3.2 Foreseeable misuse

The appliance is not designed for installation in damp areas. Wet rooms include rooms used, for example, for washing or drying clothes.

3.3 Safety instructions

Injury

- Failure to install and wire the appliance correctly may result in injury. Only a qualified electrician may carry out the electrical work and installation of the appliance.
- Safe use is not guaranteed if you install the appliance. The appliance should only be operated once it is fully installed and all safety equipment has been fitted.
- Opening the casing while the appliance is in operation may cause injury. Only operate the appliance with the casing closed.
- To ensure that the leak detection function is active, do not disconnect the refrigerant sensor and the fan from the power supply.
- This appliance is filled with R290, a highly flammable refrigerant. For safety purposes, the appliance is equipped with a refrigerant detector and ventilation system. To ensure that the safety system is effective, the appliance must always be supplied with power after installation, except during maintenance work.
- If possible, no automatic air vent valves should be installed in the heating system. If automatic air vent valves are required for ventilation of the heating system, they must be closed and then secured against opening. The appliance is supplied with instruction labels stating that the automatic air vent valves must always be closed. Attach the supplied instruction labels to the automatic air vent valves.
- The diaphragm expansion vessel for the heating circuit must not exceed a volume of 50 l, as otherwise the safe functioning of the safety concept cannot be guaranteed.

Property damage, consequential losses, environmental pollution

- Unsuitable spare parts and accessories may jeopardise user and product safety. Only use original spare parts and original accessories.
- If the overflow pipes are blocked, the pressure in the appliance cannot be reduced. Never block the connection to the overflow pipes for the air vent valves.
- Polluted ambient air can damage the appliance. Protect the appliance from dust and dirt during building work.

3.4 Structure of the warning notices

3.4.1 Section-specific warning notices

Section-specific warning notices apply to all steps in the section.

Injury

CAUTION
Type and source of risk Consequence(s) of failure to observe the warning notice ▶ Hazard prevention measure(s)

Property damage, consequential losses, environmental pollution

NOTICE
Type and source of risk Consequence(s) of failure to observe the warning notice ▶ Hazard prevention measure(s)

3.4.2 Embedded warning notices

Embedded warning notices apply only to the step immediately following the notice.

▶ **SIGNAL WORD: Consequence(s) of failure to observe the warning notice. Hazard prevention measure(s).** Step to which the warning notice refers

3.4.3 Key to symbols

Symbol	Type of risk
	Injury
	Electrocution
	Burns, scalding

3.4.4 Signal words

Signal word	Meaning
DANGER	Failure to observe this information will result in death or serious injury.
WARNING	Failure to observe this information may result in death or serious injury.
CAUTION	Failure to observe this information may result in moderate or minor injury.
NOTICE	Failure to observe this information may result in property damage, consequential losses or environmental damage.

4 Appliance description

4.1 Function description

The appliance is used to heat heating water and to indirectly heat domestic hot water.

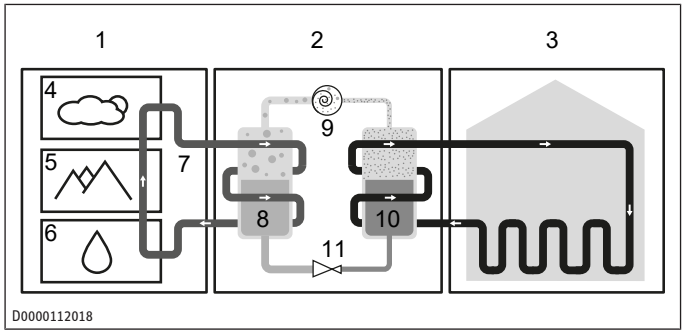
WPE-I 07.1-12.1 Plus HW is equipped with an integral DHW cylinder.

WPE-I 07.1-12.1 Plus H can be connected to a separate DHW cylinder (not included in the standard delivery).

Function

- A closed brine circuit routes the brine from the appliance into the ground and back into the evaporator. The brine absorbs the thermal energy from the ground and transfers it to the refrigerant.
- The thermal energy causes the refrigerant in the evaporator to evaporate.
- The compressor draws in the gaseous refrigerant and compresses it. This increase in pressure raises the refrigerant temperature further.
- In the downstream condenser, the refrigerant then transfers heat to the heating water.
- Then, the expansion valve reduces the pressure in the refrigerant circuit, and the cycle starts again.
- The heating water is pumped through a heating coil inside the DHW cylinder, heating the domestic hot water.

The lower the ground temperature and the higher the selected set temperature, the longer the heat-up time. The heating output of the heat pump drops and the demand for electrical energy increases.



1 Heat source
2 Heat pump (refrigerant circuit)
3 Heat distribution system (heating circuit)
4 Air
5 Ground
6 Water
7 Environmental energy
8 Evaporator
9 Compressor
10 Condenser
11 Expansion valve

Heat pump manager (WPM G)

The heat pump manager is an integral weather-compensated flow temperature control unit.

The WPM G regulates DHW heating to the preferred temperature and controls the built-in electric emergency/auxiliary heater.

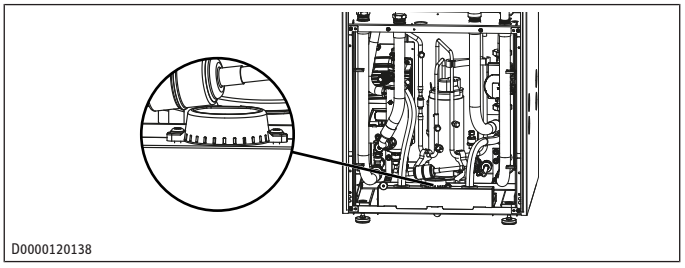
Detection of a leak in the brine circuit

The appliance is equipped with a brine pressure switch in the brine circuit. The brine pressure switch prevents brine getting into the ground if there is a leak in the brine circuit.

If the pressure in the brine circuit falls below 0.5 bar, the brine pressure switch turns the heat pump off. In order for the heat pump to resume operation, the pressure must be raised to at least 1 bar while the heat pump is on standby.

Ventilation: Safety concept for refrigerant

The appliance is equipped with a leak detector function for the refrigerant in the appliance. If leaking refrigerant is detected, the fan is switched on. The refrigerant is routed outside via the air duct and does not enter the installation room.



4.2 Standard delivery

- 1× outside sensor
- 2× contact sensor
- 1× adaptor for flexible pipe: DN 100 to DN 80
- Lifting straps
- Gasket for cable connection
- These instructions

4.3 Accessories

4.3.1 Required accessories

- Safety valve for the cold water inlet (opening pressure: 10 bar)
- Diaphragm expansion vessel for the brine circuit
- Diaphragm expansion vessel for the heating circuit (max. 50 l)
- Filter assembly
  - FS-WP 22
  - FS-WP 28
- Extract air ducts for the safety concept incl. wall outlet to the outside. The air duct system must fulfil tightness class B to DIN EN 12237 and be antistatic.

For DHW heating, a DHW cylinder with an internal indirect coil is required. The minimum indirect coil surface area can be found in the table.

Output	Indirect coil surface area
WPE-I 07.1-12.1 Plus H	1.85 m²

4.3.2 Optional accessories

- AHP-TC magnetic design fascia
- AHP-PH pipe set (for the use of heat meters with a gauge of 130 mm)
- Accessory set for ventilation (safety concept) AWG 80 (including gaskets, flexible pipes, check valve, weather grille, wall outlet)
- Brine filling unit WPSF

5 Storage

How to store the appliance
- Dry
- Dust-free
- Free from the risk of frost
- Free from aggressive substances
- Covered (if it has been unpacked)

WARNING

Highly flammable refrigerant

In the event of a leak, escaping refrigerant may cause serious injuries and/or property damage.

▶ Until installation, store the appliance in a room without permanently operating ignition sources such as open flames, an operating appliance or a hot surface with a temperature above 360 °C.

6 Transportation (qualified contractors)

Observe the following information:
- The appliance casing is not designed to withstand strong forces.

▶ Transport the appliance at temperatures between 15 °C and 25 °C.

▶ Transport the appliance vertically.

▶ Use the recessed grips and the bottom section of the pallet to carry the appliance.

▶ Tilt the appliance no more than 45°.

▶ Remove the packaging material.

▶ Remove the transport plugs from the connections for the water lines and brine lines.

▶ To transport the appliance, loop the carrying straps supplied around the appliance feet. Lift the appliance by the carrying straps and recessed grips.

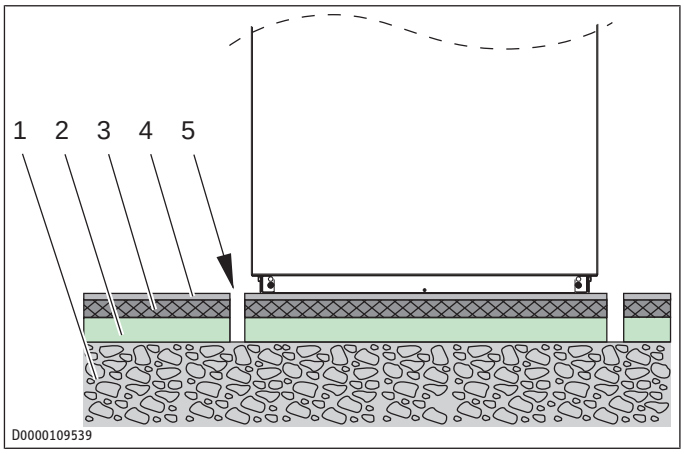
7 Installation (qualified contractors)

7.1 Preparing the installation location

The installation site must fulfil the following requirements:
- Free from the risk of frost
- Air temperature: 15 to 25 °C
- There are no sources of ignition such as dust, gases, vapours or naked flames at the installation site.
- The installation site is sufficiently ventilated.
- No unauthorised access
- Substrate
  - Horizontal
  - Level
  - Sufficient load bearing capacity
  - Water resistant
  - No joist floors
  - Concrete floor with a minimum thickness of 100 mm or similar substrate with the appropriate properties
- Bottom drain available (recommended)
- The appliance is not impaired by the operation of other appliances at the installation location.

7.1.1 Sound emissions

- The installation site should not be located in a corner or close to a bedroom or living space. The surrounding walls may amplify the noise of the appliance.
- Ensure that the entire appliance frame is in full contact with the substrate. Uneven substrates can increase sound emissions.
- Avoid installation on large, echoing floor areas, e.g. tiled floors.
- Implement pipe outlets through walls and ceilings with anti-vibration insulation.
- Secure the supply lines with structure-borne noise attenuation on noise-sensitive walls.
- Align the appliance feet.
- For installation on floating screeds, make provisions for quiet heat pump operation.
- Isolate the installation surface around the heat pump by means of a recess. After completing the installation, seal the recess with a waterproof, sound insulating material, such as silicone.



1	Concrete base	2	Impact sound insulation
3	Floating screed	4	Floor covering
5	Recess for anti-vibration material		

7.1.2 Safety distance for the air outlet of the air duct g12 (refrigerant safety concept)

WARNING

Risk of explosion

The refrigerant used is heavier than air. In the event of a leak, the refrigerant can enter the building through light wells, open windows and other air apertures below the air outlet. This poses a risk of explosion in the building.

▶ Observe the information in this chapter.

▶ Do not install the air outlet of the safety system on the outside of the building in front of or above supply air, extract air or other ventilation installations.

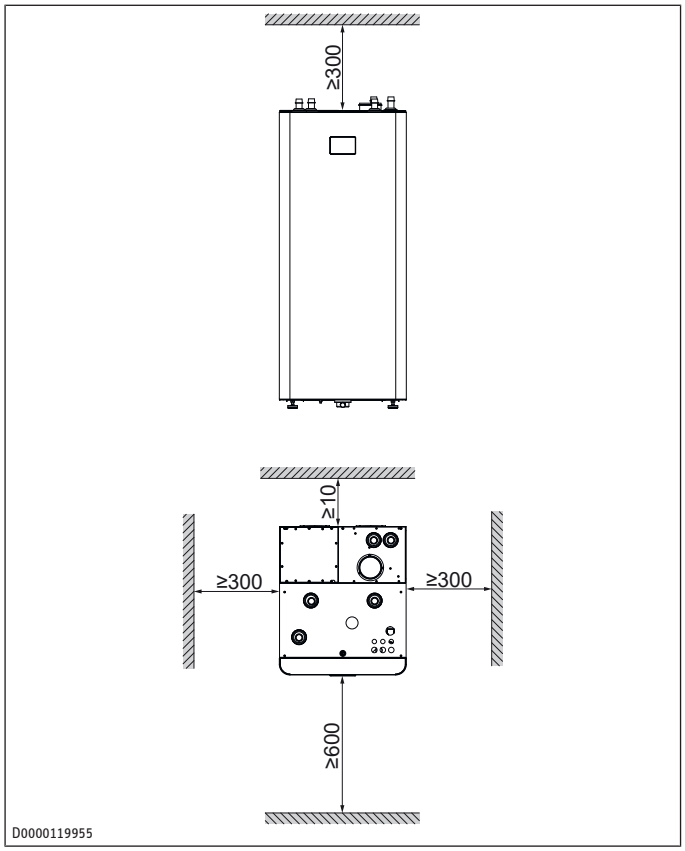
▶ There must be no ignition sources or open flames within a radius of 1 m around the air outlet (explosion risk zone 2).

▶ The air outlet must be at least 1 m away from openings in the building envelope such as doors, windows and light wells.

- ▶ We recommend installing the air outlet at least 1 m above ground level. Regardless of this, ensure that the air outlet is always clear and cannot be blocked by snow or leaves, for example.
- ▶ The air outlet must be at least 1 m away from public spaces such as walkways or roads.
- ▶ In an industrial environment, the explosion risk zone 2 area must be marked accordingly.

7.1.3 Minimum clearances

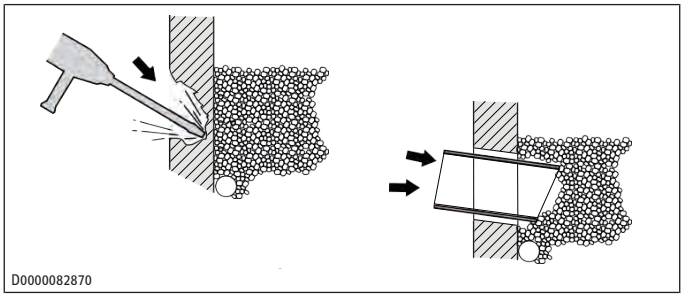
- ▶ Maintain the minimum clearances in order to ensure trouble-free operation of the appliance and to allow enough space for maintenance work.



7.2 Creating wall outlets

7.2.1 Creating wall outlets - brine lines

- ▶ Route the brine lines through separate wall outlets.
- ▶ Establish wall outlets in the building wall with a slight fall to the outside (minimum inclination: 1 cm every 30 cm).
- ▶ Insert the wall outlets with a slight fall.
- ▶ Cut off the wall outlet from the top downwards at an angle to the building wall.
- ▶ Seal the space between the wall and the wall outlet.



Wall outlet below ground for brine lines

7.2.2 Wall outlet for air duct (safety concept)

- ✓ The wall outlet leads out of the building.
- ✓ The air outlet is not blocked (e.g. by snow, ice, leaves).
- ▶ Create the wall outlet (Ø 80 or 100 mm) for the air duct. Observe the safety distances (see chapter *Safety distance for the air outlet of the air duct g12 (refrigerant safety concept) [▸ 6]*).
  - You can either route the air duct with DN 100 to the outside at connection g12 of the appliance or use the supplied adaptor to reduce it to DN 80 and use the optional AWG 80 accessories.

If you want to install several appliances in a cascade, you can lay individual air ducts to each appliance or connect several appliances to one air duct (see chapter *Connecting an air duct for the refrigerant safety concept [▸ 7]*

7.3 Siting the appliance

- ▶ Position the appliance on the prepared substrate.
- ▶ Level the appliance horizontally by adjusting the appliance feet.

7.4 Connecting an air duct for the refrigerant safety concept

Air duct requirements:

- The air duct must be separate from other ventilation systems.
  The air duct may only be used for the extract air from the casing.
- The air duct must be routed out of the building (see chapter *Safety distance for the air outlet of the air duct g12 (refrigerant safety concept) [▸ 6]*).
- The air duct system must fulfil leak tightness class B to DIN EN 12237.

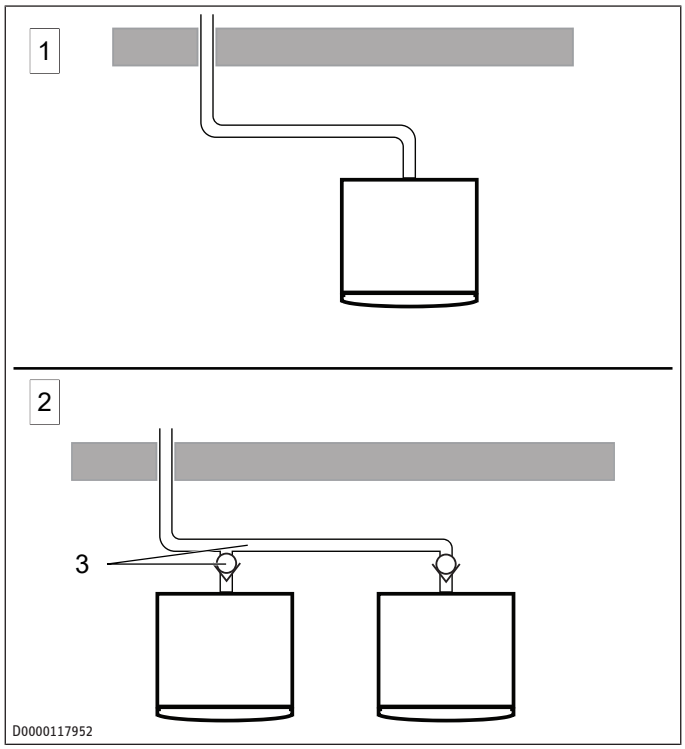
- ▶ Size the air duct so that the pressure drop with a flow rate of 19 l/s is lower than 200 Pa.
  - ⇨ We recommend installing the AWG80 accessory set with a maximum of four 90° bends.
- ▶ Connect the g12 connection to an air duct. We recommend installing a check valve in the air duct.
- ▶ Guide the air duct through the wall outlet.
- ▶ Insert an external wall grille.
- ▶ Seal the ventilation system so that any escaping refrigerant is not dispersed at the installation site in the event of a leak.

Cascade

You can install one air duct per appliance or connect several appliances to one air duct.

- ▶ Observe the instructions in this chapter.

▶ If you connect several appliances to one air duct, install non-return valves close to the connection to the manifold. This prevents air being exchanged between the appliances.



1 One heat pump to one air duct
2 Multiple heat pumps to one air duct
3 Non-return valve

7.5 Refrigerant safety test prior to installation

Before continuing with the installation of the appliance, ensure that the refrigerant circuit has not been damaged during transportation.

✓ The appliance must be installed at the installation location.

✓ The air duct for the extract air from the appliance casing must be connected and routed to the outside.

✓ You will need a three-core power cable with 230 V.

▶ **NOTICE: Ensure that no damage is caused to the cable between the front cover and the appliance.** Take off the front cover.

▶ Remove the cover of the electrical connection panel.

▶ Route the three-core cable through the entry to the electrical connection panel from above.

▶ Always connect the heat pump manager connection as described under *Electrical connection [▸ 12]*.

▶ Switch on the appliance using the fuse/MCB.

▶ Wait for at least 5 minutes.

⇨ The appliance carries out a safety test.

⇨ Various fault messages for the compressor and integral emergency/auxiliary heater are displayed.

⇨ Ensure that the message `Refrigerant leak detected` is **NOT** displayed.

▶ Interrupt the power supply via the fuse/MCB.

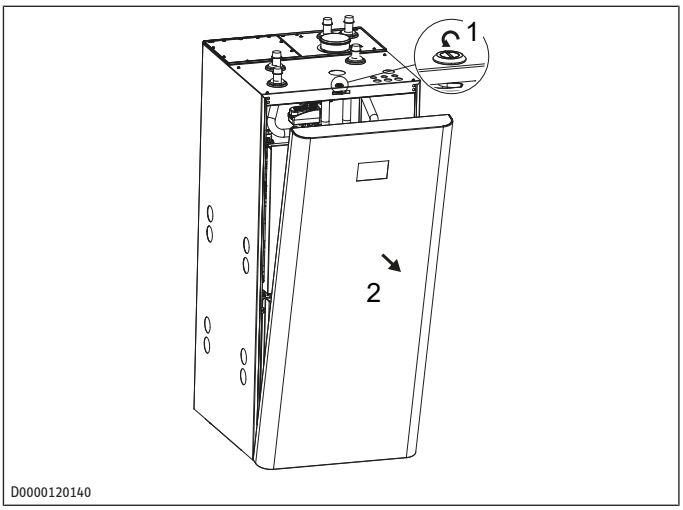
▶ Disconnect the electrical power cables from the connection panel.

▶ Continue with installation as described.

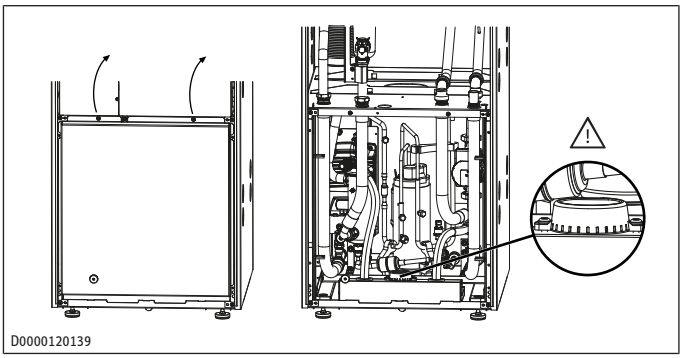
7.6 Removing the transport lock

The transport lock is used to secure the compressor plate during transport.

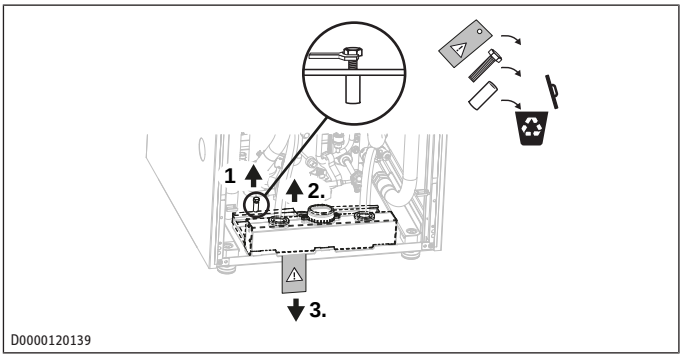
▶ **NOTICE: Ensure that no damage is caused to the cable between the front cover and the appliance.** Take off the front cover.



▶ **WARNING: If the refrigerant sensor is damaged or removed, the appliance will not be able to detect leaking refrigerant promptly in the event of a leak. Do not touch the underside of the refrigerant sensor. Do not remove the refrigerant sensor.** Take the cover off the refrigerant circuit.



▶ Remove the transport screw from the bottom of the appliance.



▶ Carefully lift the metal box and pull the paper strip forwards towards you.

⇨ The sleeve falls out of the metal box.

▶ Dispose of the paper strip and the sleeve.

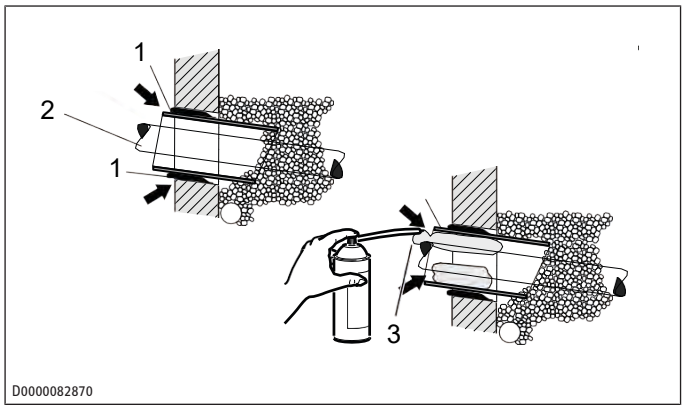
▶ If you need to move the appliance again, refit the transport screw in its original position.

- ▶ If you no longer need to move the appliance, dispose of the transport screw.
- ▶ Ensure that all parts of the transport lock have been removed.
- ▶ Return the metal box to its original position.
- ▶ **WARNING: If the cover for the refrigerant circuit is not fitted correctly, the refrigerant sensor will not work properly.** Fit the cover for the refrigerant circuit.
- ▶ Fit the front heat pump cover.

7.7 Installing and filling the brine circuit

7.7.1 Routing the brine lines through the wall outlets

- ▶ Route the brine lines through the wall outlets.
- ▶ Seal the space between the brine line and wall outlet with a suitable sealant (e.g. well foam). Ensure the brine lines are centred in the wall outlets.



1 Mortar
2 Brine line
3 Sealant

7.7.2 Installing the brine circuit

WARNING

Injury

Automatically actuated air vent valves in the brine circuit override the safety concept and, in the event of a leak, can channel the refrigerant into the indoor air via the brine circuit. This could cause an explosive atmosphere in the installation room.

- ▶ Do not install automatic air vent valves, where possible.
- ▶ If automatic air vent valves are required for ventilation of the brine circuit, they must be closed and then secured against opening.
- ▶ The appliance is supplied with instruction labels stating that the automatic air vent valves must always be closed. Attach the supplied instruction labels to the automatic air vent valves.

WARNING

Injury

The heat pump has pre-installed safety valves on the brine and heating sides. If additionally installed safety valves respond upstream of the pre-installed safety valves, the refrigerant flows into the installation room in the event of a leak in the refrigerant circuit.

- ▶ Always install safety valves with a response pressure above 3 bar.

- ▶ Lay the pipework for the brine circuit.
- ▶ Insulate all brine lines with vapour diffusion-proof thermal insulation.
- ▶ Install a diaphragm expansion vessel on the brine side. Ensure that the pre-charge pressure is at 0.5 bar.

7.7.3 Mixing the brine

Permitted brine:

Type	Description	Part no.
MEG 10	Heat transfer medium as concentrate based on ethylene glycol Content: 10 l	231109
MEG 30	Heat transfer medium as concentrate based on ethylene glycol Content: 30 l	161696

- ▶ Refer to the specification to determine the brine volume in the heat pump under operating conditions. The overall volume is equal to the amount of brine required.
- ▶ Make up the brine by mixing undiluted glycol and water in a separate clean container. The chloride content of the water must not exceed 250 ppm.

	Ethylene glycol [%]	Water [%]
Geothermal probe	25	75
Geothermal collector	33	67

- ▶ Check the freezing point using a refractometer.

7.7.4 Flushing the brine circuit

- ✓ You will need an external pump to fill the brine circuit.
- ▶ **NOTICE: Foreign bodies, such as rust or sealing material, can impair the operational reliability of the heat pump.** Before connecting the heat pump to the heat source circuit, flush the pipework thoroughly with brine.
- ▶ Connect the pressure side of the external pump to the filling unit.
  - ⇨ We recommend brine filling unit WPSF.
- ▶ Start the external pump.
- ▶ Once the brine circuit has been flushed, switch off the external pump.

7.7.5 Charging the brine circuit

- ✓ The brine circuit has been thoroughly flushed with brine.
- ✓ You will need an external pump to fill the brine circuit.
- ▶ Place a filter with a maximum mesh size of 0.7 mm in the heat source flow.
- ▶ Connect the appliance to the brine circuit.

▶ Start the external pump.

▶ To prevent the brine pressure switch turning the heat pump off when there is no leak, charge the heat source side of the heat pump to a pressure of 1-2 bar.

⇨ We recommend brine filling unit WPSF.

▶ Vent the brine circuit.

▶ Close the air vent valves after the venting process.

▶ Switch off the external pump.

▶ Determine the density of the glycol/water mixture.

7.8 Installing the heating circuit

WARNING

Injury

Automatically actuated air vent valves in the heating circuit override the safety concept and, in the event of a leak, can channel the refrigerant into the indoor air via the heating circuit. This could cause an explosive atmosphere in the room.

▶ Do not install automatic air vent valves, where possible.

▶ If automatic air vent valves are required for ventilation of the heating circuit, these must be closed and then secured against opening.

▶ The appliance is supplied with instruction labels stating that the automatic air vent valves must always be closed. Attach the supplied instruction labels to the automatic air vent valves.

▶ Offset the height difference in the heating circuit.

WARNING

Injury

The heat pump has pre-installed safety valves on the brine and heating sides. If additionally installed safety valves respond upstream of the pre-installed safety valves, the refrigerant flows into the installation room in the event of a leak in the refrigerant circuit.

▶ Always install safety valves with a response pressure above 3 bar.

✓ The heating system to which the appliance is connected has been installed by a qualified contractor in accordance with the installation diagrams that are part of the technical guides.

✓ The DHW line is made from stainless steel, copper or plastic.

✓ The cold water line is made from galvanised steel, stainless steel, copper or plastic.

✓ When sizing the heating circuit, observe the internal pressure differential (see chapter *Data table [▶ 24]*).

▶ Lay the pipework for the heating circuit.

▶ Install a dirt trap (maximum mesh size 0.7 mm) in the heating return in the immediate vicinity of the appliance.

▶ Install a magnetite filter in the heating return.

▶ Install a fill connector with a non-return valve for filling the heating circuit.

▶ Install a diaphragm expansion vessel (max. 50 l).

▶ **NOTICE: Foreign bodies, such as welding pearls, rust or sealing material, can impair the operational reliability of the appliance.** Flush the pipework thoroughly.

▶ Connect the heat pump on the heating side.

▶ Install manually actuated air vent valves.

▶ Install the circulation pump in the heating flow.

▶ Provide thermal insulation.

Heating circuit oxygen diffusion

If oxygen gets into the heating system, steel parts may become corroded, e.g. the indirect coil in the DHW cylinder or the buffer cylinder. The products of corrosion (e.g. rusty sludge) can settle in the heating system components. This may cause the pipe cross-sections to narrow, leading to a lower output.

▶ Use oxygen diffusion-proof pipes and hoses (e.g. multi-layer composite pipes).

▶ If you have an open vented heating system, separate the heating circuit from the buffer cylinder. For example, you could use a plate heat exchanger for this.

▶ Install a dirt separator in the heating system.

Limits for DHW in heating systems

The heating system is filled with drinking water. To prevent damage to the heating system, comply with the following limits.

	Unit	Value
Water hardness	°dH	≤3
pH value		6.5-8.5
Chloride*	mg/l	<50

* If you can ensure that no oxygen is introduced into the heat distribution system, it is not necessary to adhere to the specified chloride value.

You can measure the values (water hardness, pH and chloride value) using commercially available measuring equipment or ask your local drinking water supplier.

▶ Observe local requirements (e.g. VDI 2035 in Germany).

We do not recommend desalinating the fill water, as this may cause a negative change in the pH value.

▶ If you desalinate the fill water or the pH value of the fill water is less than 8.2, check the pH value 8 to 12 weeks after installation, every time the system is topped up and the next time it is serviced.

▶ Do not add inhibitors or additives to the fill water.

7.9 Connecting the appliance to the DHW cylinder

This chapter only applies to the WPE-I 07.1-12.1 Plus H.

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

▶ **NOTICE: Foreign bodies, such as rust or sealing material, can impair the operational reliability of the heat pump.** Before connecting the heat pump to the DHW cylinder, flush the pipework thoroughly.

▶ We recommend installing our filter assembly in the DHW heating circuit.

▶ Connect the DHW inlet of the heat pump to the upper indirect coil connection of the DHW cylinder.

▶ Connect the DHW return of the heat pump to the lower indirect coil connection of the DHW cylinder.

▶ **CAUTION: Water discharged from the safety valve overflow pipe may be hot.** Route away any water discharged from the overflow pipe via a bottom drain.

Using the heat pump without DHW heating

▶ Deactivate the function for DHW heating in the WPM heat pump manager.

7.10 Filling the DHW cylinder and heating circuit

Before filling, check that

✓ The pipe connections have been installed according to the water installation diagrams in the technical guides.

✓ A diaphragm expansion vessel with a volume of max. 50 l has been installed.

✓ In a heating system with a sealed unvented diaphragm expansion vessel, a pressure gauge has been installed.

▶ To prevent damage to the appliance, observe the limits for the fill water. Soften or desalinate the fill water if required.

- With a conductivity >1000 µS/cm, desalination treatment is recommended in order to avoid corrosion.
- If you treat the fill water with inhibitors or additives, the same limits apply as for desalination.
- Recheck these limits 8-12 weeks after commissioning and during the annual service.

Filling the DHW cylinder and heating circuit

✓ The front cover of the heat pump is removed.

▶ Fill the DHW cylinder through the cold water inlet (c01).

▶ Open a DHW draw-off point.

⇨ The DHW cylinder is filled.

▶ **NOTICE: High flow rates or water hammer can damage the appliance. Fill the appliance at a low flow rate.** Fill the heating circuit with water up to a pressure of 1 bar.

▶ Vent the heating coil of the hot water generator via the air vent valve on the DHW cylinder e07 (WPE-I 07.1-12.1 Plus HW) or via the air vent valve on the external DHW cylinder (WPE-I 07.1-12.1 Plus H).

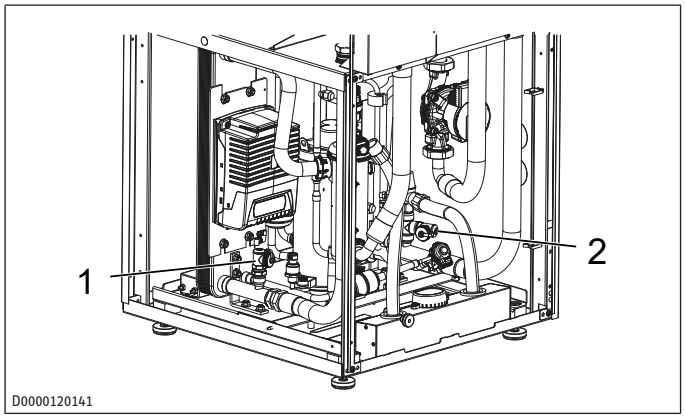
▶ Close the air vent valve after the venting process.

▶ Switch off the circulation pump.

▶ Bleed the indirect coils via the air vent valves.

▶ Fill the heating system until the pressure is approx. 1 bar.

⇨ We recommend filling the heating system with max. 1.5 bar.



1 Heating circuit 2 Brine circuit

▶ Repeat the process until there is no more air left in the heating system.

▶ Check the heating system for leaks.

▶ Leave the radiator valves fully open.

▶ Ensure that a free flow rate of >14 l/kW is always possible. Excessively low flow rates or a blockage in the heating circuit can lead to operating faults, a shorter service life or high-pressure alarms.

Determining the fill pressure

▶ Calculate the pre-charge pressure:

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

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⇨ The heating system fill pressure is increased.

▶ Fill the heating system to the appropriate pressure (P0 + 0.3 bar). Fill the heating system with max. 1.5 bar.

Water quality

°dH	DHW temperature ←60 °C	DHW temperature →60 °C
0-8.4 (soft)	No water treatment necessary	▶ Periodically descale the electric emergency/ auxiliary heater and the DHW cylinder.
8.4-14 (medium)	No water treatment necessary	▶ Periodically descale the electric emergency/ auxiliary heater and the DHW cylinder.
14-21 (hard)	Periodic descaling necessary (see chapter "Descaling the appliance")	▶ Soften the water.
>21	Softening	▶ Soften the water. ▶ Reduce the DHW temperature.

Water constituent	Concentration (mg/l or ppm)		Time limits Investigation time following sampling
Alkalinity (HCO_3^-)	< 70 70-300 > 300	0 + 0	Within 24 hours
Sulphate[1] (SO_4^{2-})	< 100 < 200 > 200	+ 0 -	No limit
HCO_3-/SO_4^{2-}	> 1.0 < 1.0	+ -	No limit
Electrical conductivity	< 10 µS/cm 10-500 µS/cm > 500 µS/cm	0 + 0	No limit
pH[2]	< 7.0 7.0-9.0 > 9.0	0 + 0	Within 24 hours

Water constituent	Concentration (mg/l or ppm)		Time limits Investigation time following sampling
Ammonium (NH_4^+)	< 2 2-20 > 20	+ 0 -	Within 24 hours
Chloride (Cl)	< 100 100-200 > 200	+ 0 -	No limit
Free chlorine (Cl_2)	<1 1-5 >5	+ 0 -	Within 5 hours
Hydrogen sulphide (H_2S)	< 0.05 > 0.05	+ -	No limit
Free (aggressive) carbon dioxide (CO_2)	< 5 5-20 > 20	+ 0 -	No limit
Total hardness (°dH)	4-14		No limit
Nitrate[1]	< 100 > 100	+ 0	No limit
Iron[3] (Fe)	< 0.2 > 0.2	+ 0	No limit
Aluminium (Al)	< 0.2 > 0.2	+ 0	No limit
Manganese[3] (Mn)	< 0.1 > 0.1	+ 0	No limit

\+ Resistance under normal conditions

0 Corrosion may occur, especially if other factors are rated as 0.

\- Use is not recommended

[1] Sulphates and nitrates act as inhibitors of pitting corrosion caused by chloride in pH-neutral environments

[2] Generally, a low pH value (below 6) increases the risk of corrosion. A high pH value (above 7.5) reduces the risk of corrosion.

[3] Fe_3^+ and Mn_4^+ are strong oxidising agents and can increase the risk of local corrosion in stainless steel.

SiO_2 above 150 ppm increases the risk of scale build-up

7.11 Hot water connection

For DHW heating, you need additional system components such as a DHW cylinder with an internal indirect coil (not included in the standard delivery).

▶ **NOTICE: Foreign bodies, such as rust or sealing material, can impair the operational reliability of the heat pump.** Before connecting the heat pump to the DHW cylinder, flush the pipework thoroughly.

▶ Install a DHW circulation pump.

7.12 Electrical connection

7.12.1 400 V connection (WPE-I 07.1-12.1 Plus H(W) 400)

✓ You must have permission to connect the appliance from the relevant power supply utility (PSU).

✓ The heating system has been filled.

▶ Remove the cover of the electrical connection panel.

▶ Lay the electrical cables through the cable entry in the upper cover.

Connection version 1

Compressor, electric emergency/auxiliary heater and heat pump manager have separate fuse protection in the distribution board.

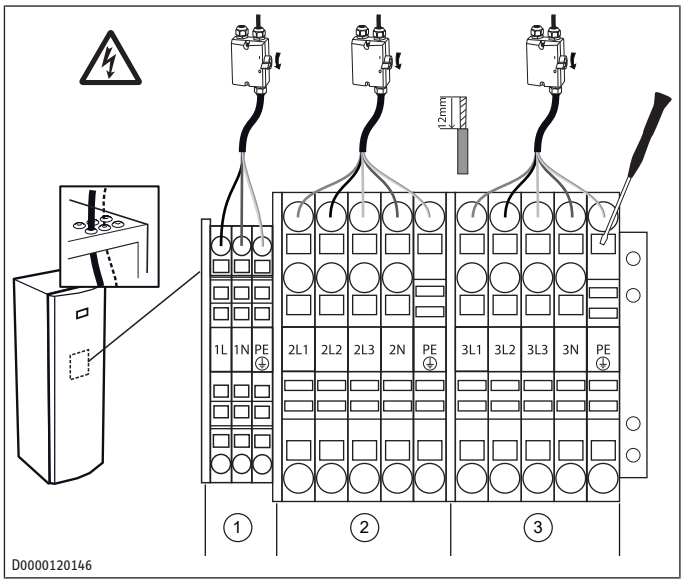
This will ensure that, in the event of a power-OFF by the power supply utility, the electric emergency/auxiliary heater and the heat pump manager will continue to be supplied with power; the compressor is switched off.

▶ Provide each power cable in the distribution board with 16 A fuse protection.

✓ You will need two five-core cables with 400 V and a three-core cable with 230 V.

▶ Strip 12 mm of insulation off the wires.

▶ Connect the cables according to the following diagram.



1 Heat pump manager

2 Electric emergency/auxiliary heater

3 Compressor

▶ If an RCD is required for the installation, connect the heat pump to a separate RCD (minimum 30 mA).

Connection version 2

Compressor, electric emergency/auxiliary heater and heat pump manager are protected via a fuse in the building connection.

✓ You will need a 5-core cable with 400 V.

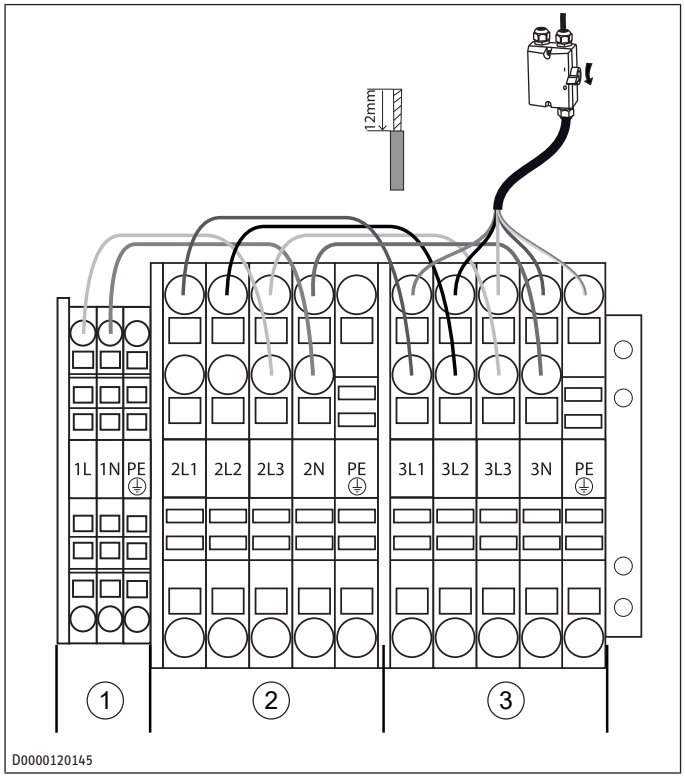
▶ Provide appliances up to a heating output of 12 kW with fuse protection of 24 A in the distribution board.

▶ Provide appliances with a heating output of 17 kW with fuse protection of 32 A in the distribution board.

▶ Strip 12 mm of insulation off the wires.

▶ Bridge the terminals as shown in the illustration. Use an appropriately sized cable for this.

▶ Connect the cable to the compressor terminals.



1 Heat pump manager
2 Electric emergency/auxiliary heater
3 Compressor

▶ If an RCD is required for the installation, connect the heat pump to a separate RCD (minimum 30 mA).

7.12.2 230 V connection (WPE-I 07.1-12.1 Plus H(W) 230)

Compressor, electric emergency/auxiliary heater and heat pump manager have separate fuse protection in the distribution board.

This will ensure that, in the event of a power-OFF by the power supply utility, the electric emergency/auxiliary heater and the heat pump manager will continue to be supplied with power; the compressor is switched off.

✓ You must have permission to connect the appliance from the relevant power supply utility (PSU).

✓ The heating system has been filled.

✓ You will need three 3-core cables with 230 V for the heat pump manager, the electric emergency/auxiliary heater and the compressor.

▶ Remove the cover of the electrical connection panel.

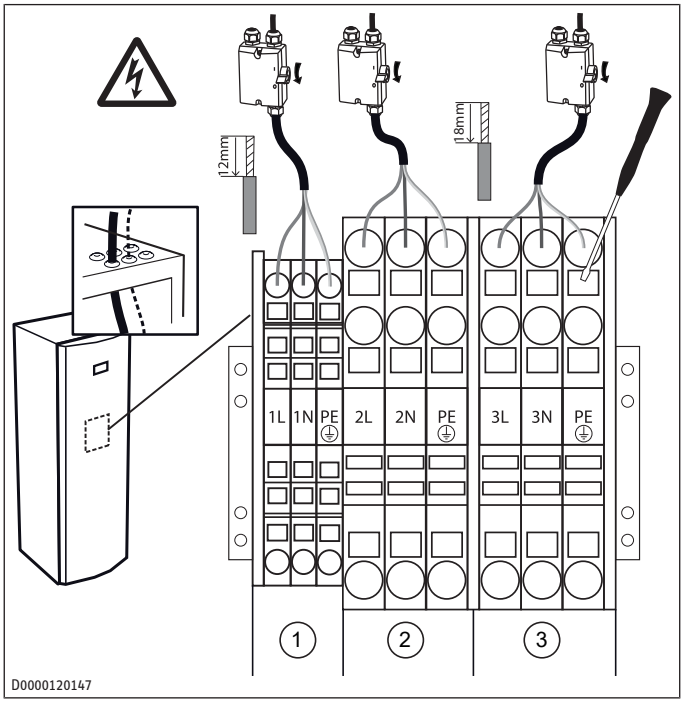
▶ Lay the electrical cables through the cable entry in the upper cover.

▶ Strip insulation off the wires.

⇨ WPM: 12 mm

⇨ Compressor and electric emergency/auxiliary heater: 18 mm

▶ Connect the cables according to the following diagram.



1 Heat pump controller
2 Electric emergency/auxiliary heater
3 Compressor

▶ If an RCD is required for the installation, connect the heat pump to a separate RCD (minimum 30 mA).

7.13 Temperature sensor

Outside temperature sensor

Cable length [m]	Cable cross-section [mm²]
<50	0.75
50-120	1.5

✓ The minimum clearances are observed (see chapter *Minimum clearances [▶ 7]*).

✓ The installation location is not above or below windows, doors or air ducts.

✓ The outside temperature sensor is freely exposed to the elements but not in direct sunlight.

✓ We recommend installing the sensor with a clearance of approximately 2 m from windows and air outlets. This prevents the warm air that flows from the inside to the outside during ventilation from influencing the heating system.

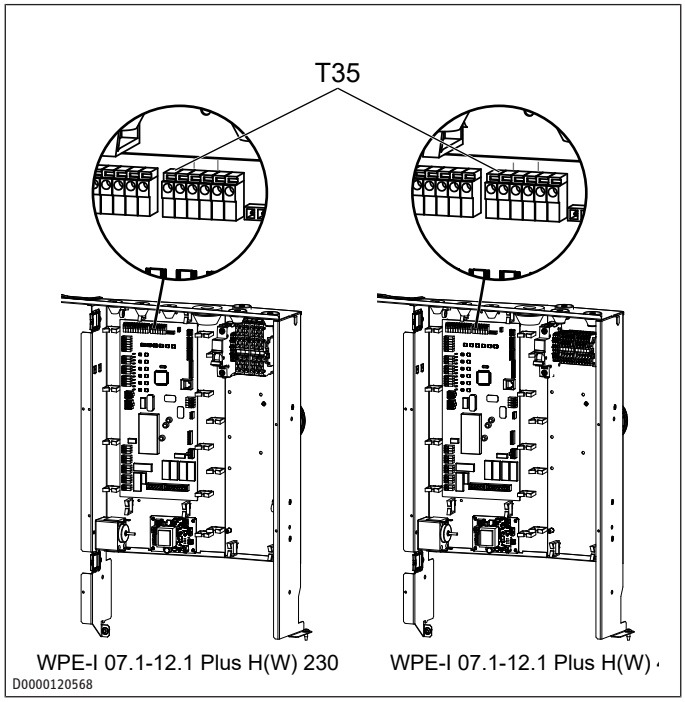
✓ The front cover of the heat pump is removed.

▶ Remove the cover of the outside temperature sensor.

▶ Fasten the lower section using the fixing materials necessary for installation on the required wall.

▶ Guide the sensor lead through the designated entry in the cover of the heat pump.

▶ Connect the outside temperature sensor.

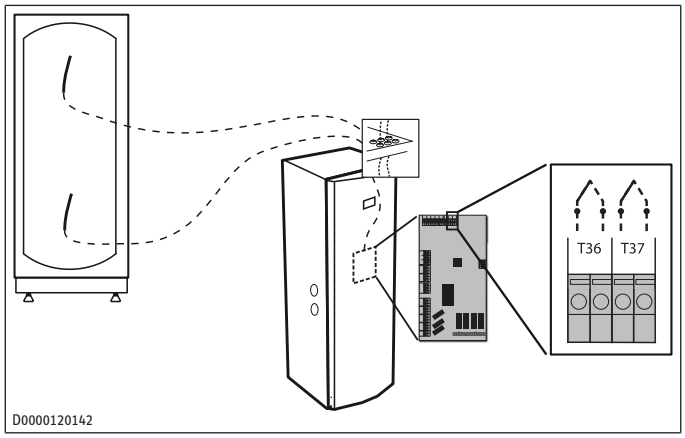


DHW sensor

In models with an integral DHW cylinder (WPE-I 07.1-12.1 Plus HW), the sensors are already factory-fitted.

In models without an integral DHW cylinder (WPE-I 07.1-12.1 Plus H), you can use one or both of the supplied contact sensors as a DHW sensor. Install the contact sensor as described below.

- ▶ To use one of the supplied contact sensors as a DHW sensor, install the sensor at the top position in the DHW cylinder.
- ▶ If you also want to use the second supplied sensor as a DHW sensor, install the sensor at the bottom position in the DHW cylinder.
- ▶ Cut the cable grommet to fit the sensor cable.
- ▶ Route the sensor cables through the cable entries. Use the cable entries on the left-hand side of the casing or on the top of the casing.
- ▶ Connect the top sensor to terminal T36 and the bottom sensor to terminal T37.



Contact sensor AVF 6

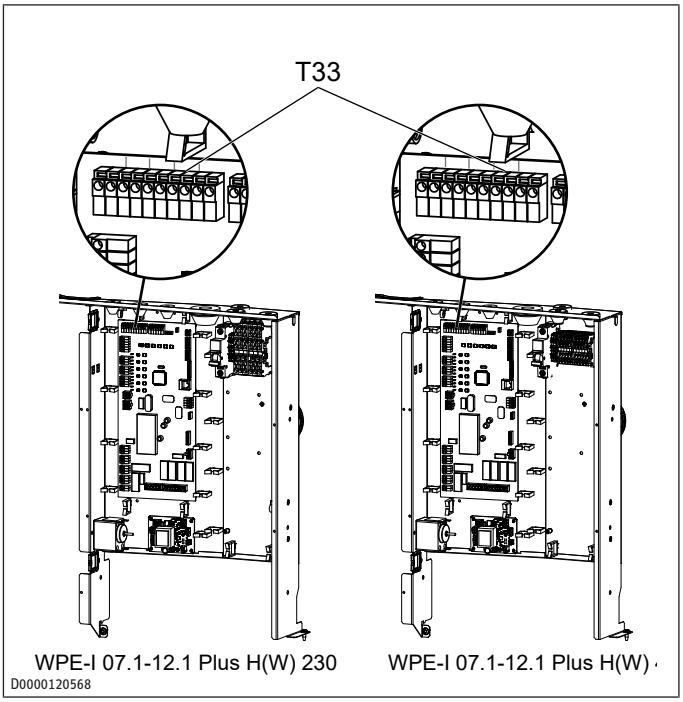
Install the sensor in the heating circuit flow if you wish to use a mixer circuit.

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

Sensor resistance values:

Temperature [°C]	PT 1000 sensor Resistance [Ω]
- 30	882
- 20	922
-10	961
0	1000
10	1039
20	1078
25	1097
30	1117
40	1155
50	1194
60	1232
70	1271
80	1309
90	1347
100	1385
110	1423
120	1461

- ▶ Connect the sensor's electrical connections.



Flow temperature sensor

You will need the supplied flow temperature sensor if you wish to operate the heating system with a buffer cylinder.

- ▶ Install the sensor on the buffer outlet.
- ▶ Connect the sensor in accordance with the wiring diagram (see chapter *Wiring diagram [▸ 19]*).

7.14 High limit safety cut-out

NOTICE

Property damage

Excessively high flow temperatures may damage underfloor heating systems.

▶ Use a high limit safety cut-out to limit the system temperature in the event of a fault.

We recommend using high limit safety cut-out STB-FB.

▶ Install the high limit safety cut-out according to the corresponding instructions.

7.15 Fitting casing parts

▶ Insert the front fascia.

▶ Secure the front fascia using the closure on the top cover of the heat pump.

8 Commissioning (qualified contractors)

If this 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 (e.g. TÜV in Germany).

8.1 Checks before commissioning

8.1.1 Heating circuit

- Have you filled the heating system to the correct pressure?
- Have you vented the heating system?
- Have you closed the air vent valves again?

8.1.2 Brine circuit

- Have you filled the brine circuit to the correct pressure?
- Have you vented the brine circuit?
- Have you closed the air vent valves again?

8.1.3 Temperature sensor

- Have you correctly connected and positioned the sensors?

8.1.4 High limit safety cut-out of the electric emergency/ auxiliary heater

At ambient temperatures of below -15 °C, the high limit safety cut-out of the electric emergency/auxiliary heater may trip.

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

8.1.5 Power supply

- Have you correctly connected the power supply?

8.2 Testing components manually

Certain menu items are protected by a code.

The code programmed at the factory is 1000. Use this code to call up the preferred menu.

▶ Call up the "Manual test" menu on the programming unit.

▶ Activate the manual test.

⇨ A hand is displayed when the manual test is activated.

Circulation pump, heating circuit

▶ Select the test for the heating circuit pump.

▶ Start the pump via the menu.

▶ Check whether the heating circuit pump is running.

⇨ Listen for air noises.

⇨ Place one hand on the heating circuit pump.

▶ If you can hear air noises, vent the heating system.

▶ Stop the heating circuit pump via the menu.

▶ Deactivate the manual test.

Circulation pump on the source side

▶ Select the test for the brine pump.

▶ Start the pump via the menu.

▶ Check whether the pump is running.

- Listen for air noises.
- Check the pressure in the brine circuit with an on-site pressure gauge. The pressure in the heat source system must not exceed 3 bar.

▶ If you can hear air noises, vent the brine circuit.

▶ Stop the pump via the menu.

▶ Deactivate the manual test.

9 Cleaning

▶ **NOTICE: To prevent damage to components, never use abrasive or corrosive cleaning agents.** Clean plastic and sheet metal parts with a damp cloth.

10 Cleaning (qualified contractors)

Component	Interval
Filters in the heating circuit and brine circuit	In the first year: 2× per year Adapt the interval according to the water quality and the installation conditions in subsequent years.

10.1 Cleaning the heating circuit filter

Cleaning filters can let air into the heating circuit, which may cause operating faults. Information about cleaning magnetite filters can be found in the instructions provided by the filter manufacturer.

▶ Have a cloth ready for any leaking water.

▶ Switch off the heat pump.

▶ Close the shut-off valve.

▶ Take off the cover.

▶ Remove the filter.

▶ Clean the filter.

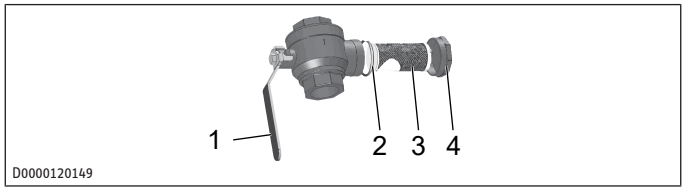
▶ Reinsert the filter.

▶ Ensure that the gasket ring on the cover is not damaged.

▶ Fit the cover.

▶ Open the appliance shut-off valve.

▶ Start the heat pump.



1 Shut-off valve
2 Sealing ring
3 Filter
4 Cover

11 Maintenance (qualified contractors)

Component	Activity	Interval
Entire appliance	Check pressure in brine circuit	At least every six months
Entire appliance	Check pressure in heating circuit	At least every six months
Entire appliance	Leak test (visual check)	Every 2 years
Entire appliance	Check brine level	Every 2 years
Safety valves outside the heat pump unit	Check whether the mechanism is clogged with deposits.	4× per year

11.1 Checking the brine level

▶ Check the brine level using the brine filling unit or the WPM.

▶ If the brine level is below ⅓, check the brine circuit for leaks and top it up (see chapter *Installing and filling the brine circuit [▶ 9]*).

11.2 Checking safety valves

The safety valve of the DHW cylinder is located on the supply line to the cold water inlet.

▶ **NOTICE: There is a risk of damage to the DHW cylinder if the safety valve is not checked regularly.** Check whether the mechanism is clogged by deposits: turn the cap clockwise a quarter of a turn until water is discharged from the overflow pipe.

▶ Never block the connection to the overflow pipes for the safety valves. Excess pressure must always be able to escape.

12 Troubleshooting

Fault	Possible cause	Remedy
There is no hot water or the heating system remains cold.	No voltage at the appliance.	Check the fuses / MCBs in your fuse box / distribution board. Replace the fuses/reset the MCBs if required. Notify a qualified contractor if the fuses/MCBs blow/ trip again after switching the system back on.
Leak in the heating circuit		Close the shut-off valve at the cold water inlet (c01) and call a qualified contractor.
Leak in the brine circuit		Take the heat pump out of operation and call a qualified contractor.

▶ If you cannot remedy the fault, contact your qualified contractor.

▶ To facilitate and speed up your enquiry, please provide the qualified contractor with the number from the type plate.

The type plate is located at the top, on the right or left-hand side of the casing.

▶ Please observe the instructions for the heat pump manager.

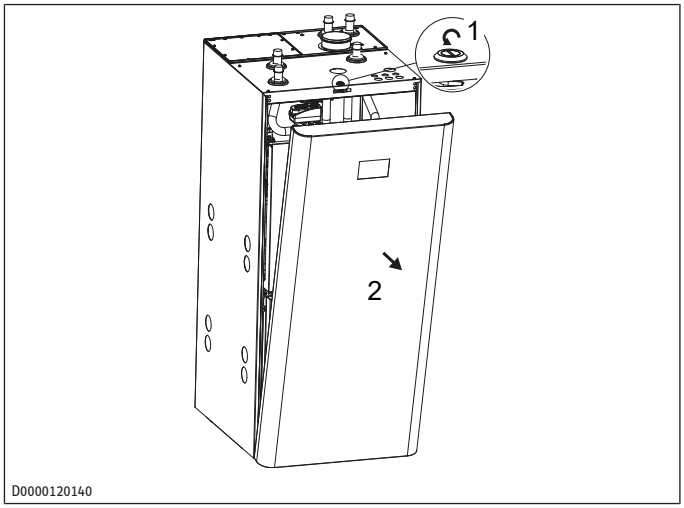
13 Troubleshooting (qualified contractors)

13.1 Resetting the high limit safety cut-out of the emergency/auxiliary heater

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

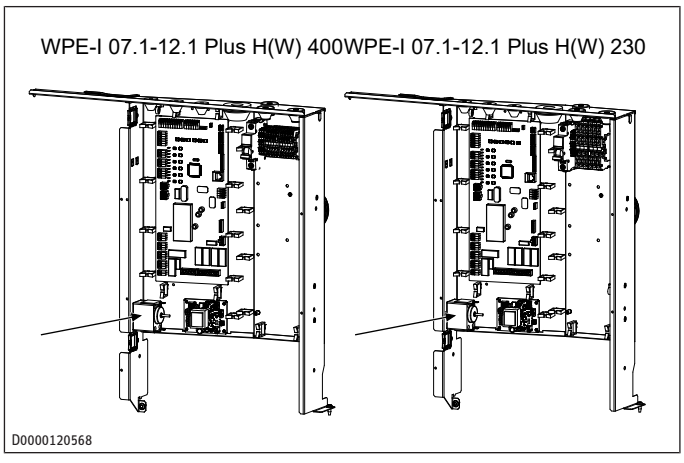
▶ Remove the cause of the fault.

▶ **NOTICE: Ensure that no damage is caused to the cable between the front cover and the appliance.** Take off the front cover.



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

⇨ The reset button T1 is located on the side of the control panel.



▶ Check whether the heating water is being circulated at a sufficiently high flow rate.

▶ Install the front cover.

13.2 Refrigerant leak

- ▶ If you suspect a leak in the system's refrigerant circuit, ensure that there are no open flames or ignition sources.
- ▶ Ventilate the room so that any escaping refrigerant flows into the atmosphere.
- ▶ Inform customer service.

14 Shutdown (qualified contractors)

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

Standby mode

- ▶ Activate standby mode. This retains the refrigerant leak detection and the safety functions designed to protect the system (e.g. frost protection).

Interrupting the power supply

- This appliance is filled with R290, a highly flammable refrigerant. For safety purposes, the appliance is equipped with a refrigerant detector and ventilation system. To ensure that the safety system is effective, the appliance must always be supplied with power after installation, except during maintenance work.

When interrupting the power supply for an extended period, you must drain the water side of the system if there is a risk of frost. For this, proceed as follows:

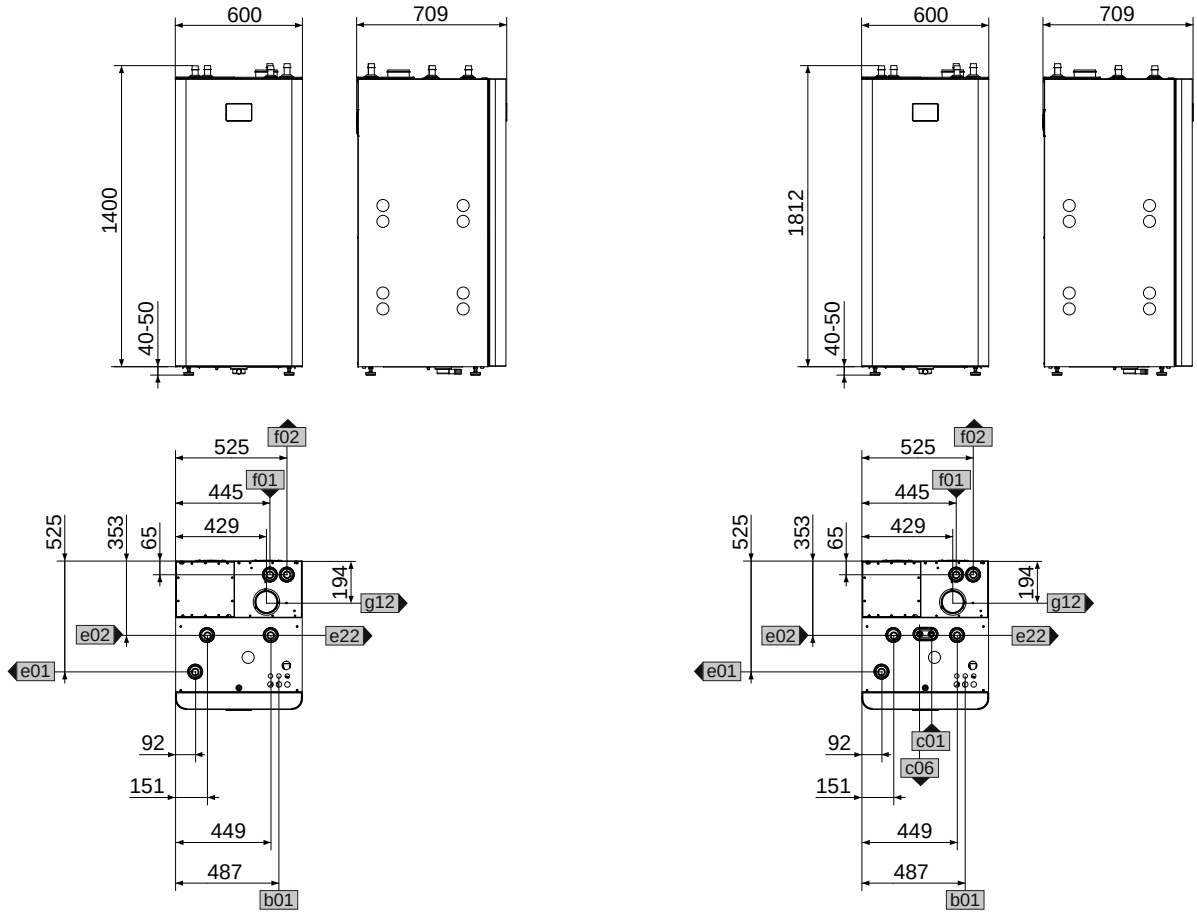
- ▶ Switch off the appliance and disconnect it from the power supply.
- ▶ Close the cold water inlet.
- ▶ Disconnect the water supply lines and water drains from the appliance.
- ▶ Drain the DHW cylinder on the heating water and domestic hot water sides.

15 Specification

15.1 Dimensions and connections

WPE-I 07.1 Plus H
WPE-I 12.1 Plus H
WPE-I 17.1 Plus H 400

WPE-I 07.1 Plus HW
WPE-I 12.1 Plus HW



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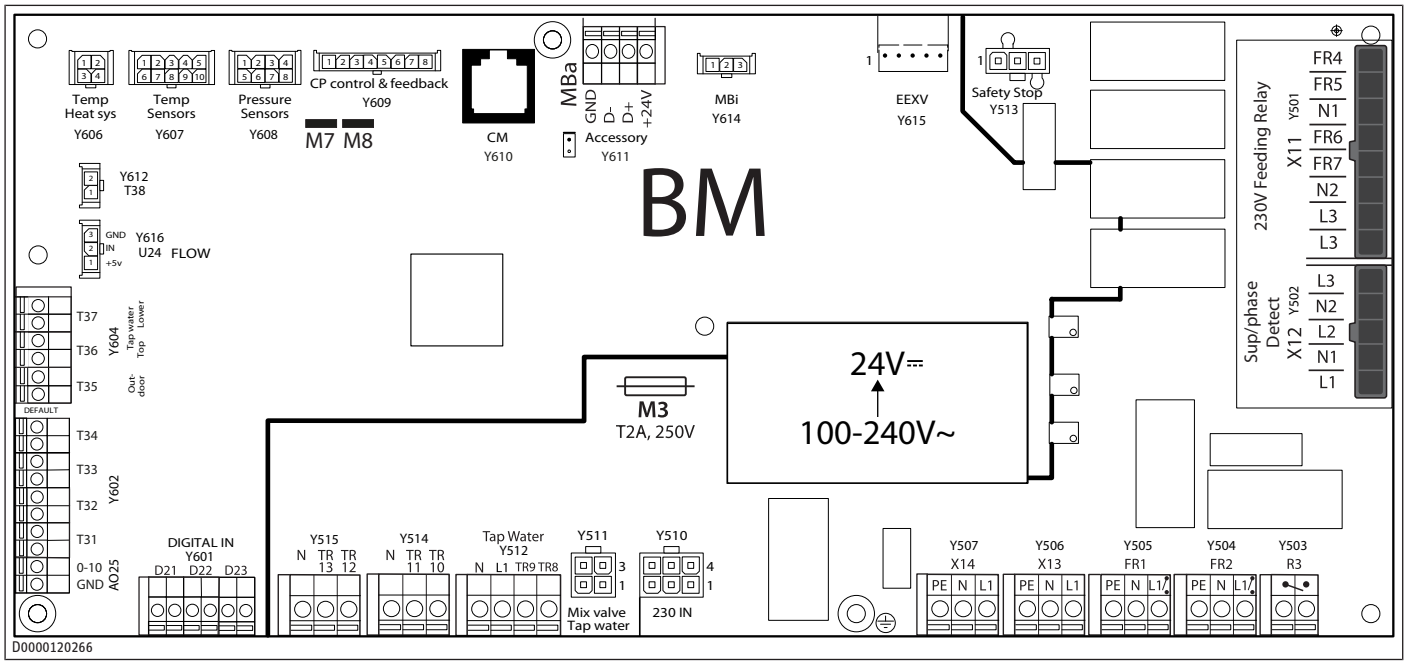
				WPE-I 07.1 Plus H 400	WPE-I 07.1 Plus H 230	WPE-I 12.1 Plus H 400	WPE-I 12.1 Plus H 230	WPE-I 17.1 Plus H 400
b01	Entry electrical cables							
e01	Heating flow	Diameter	mm	28	28	28	28	28
e02	Heating return	Diameter	mm	28	28	28	28	28
e22	Cylinder flow	Diameter	mm	28	28	28	28	28
f01	Heat source flow	Diameter	mm	28	28	28	28	28
f02	Heat source return	Diameter	mm	28	28	28	28	28
g12	Safety extraction	Diameter	mm	100	100	100	100	100

				WPE-I 07.1 Plus HW 400	WPE-I 07.1 Plus HW 230	WPE-I 12.1 Plus HW 400	WPE-I 12.1 Plus HW 230
b01	Entry electrical cables						
c01	Cold water inlet	Diameter	mm	22	22	22	22
c06	DHW outlet	Diameter	mm	22	22	22	22
e01	Heating flow	Diameter	mm	28	28	28	28
e02	Heating return	Diameter	mm	28	28	28	28
e22	Cylinder flow	Diameter	mm	28	28	28	28
f01	Heat source flow	Diameter	mm	28	28	28	28
f02	Heat source return	Diameter	mm	28	28	28	28
g12	Safety extraction	Diameter	mm	100	100	100	100

15.2 Wiring diagram



	BM card		Description
501	Y501	X11	Immersion heater
502	Y502	X12	Power supply for immersion heater / phase detection
503	Y503	R3	External auxiliary heater / additional system circulation pump (brine)
504	Y504	FR2	Circulation pump (heating circuit 2)
505	Y505	FR1	Circulation pump (heating circuit 1)
506	Y506	X13	230 V AC output level for outdoor loads
507	Y507	X14	230 V AC output level for outdoor loads
510	Y510	230 IN	230 V AC network input
511	Y511	Mixing valve	DHW diverter valve, internal
512.TR8	Y512	Tap water	DHW diverter valve, external
512.TR9	Y512	Tap water	Heating/cooling diverter valve
514.TR10	Y514		Mixing valve (heating circuit 1), rotational direction of the motor: clockwise (CW)
514.TR11	Y514		Mixing valve (heating circuit 1), rotational direction of the motor: anti-clockwise (CCW)
515.TR12	Y515		Mixing valve (heating circuit 2), rotational direction of the motor: clockwise (CW)
515.TR13	Y515		Mixing valve (heating circuit 2), rotational direction of the motor: anti-clockwise (CCW)
601.D21	Y601	D21	Power supply utility/ SmartGrid 1
601.D22	Y601	D22	SmartGrid 2
601.D23	Y601	D23	Flow switch

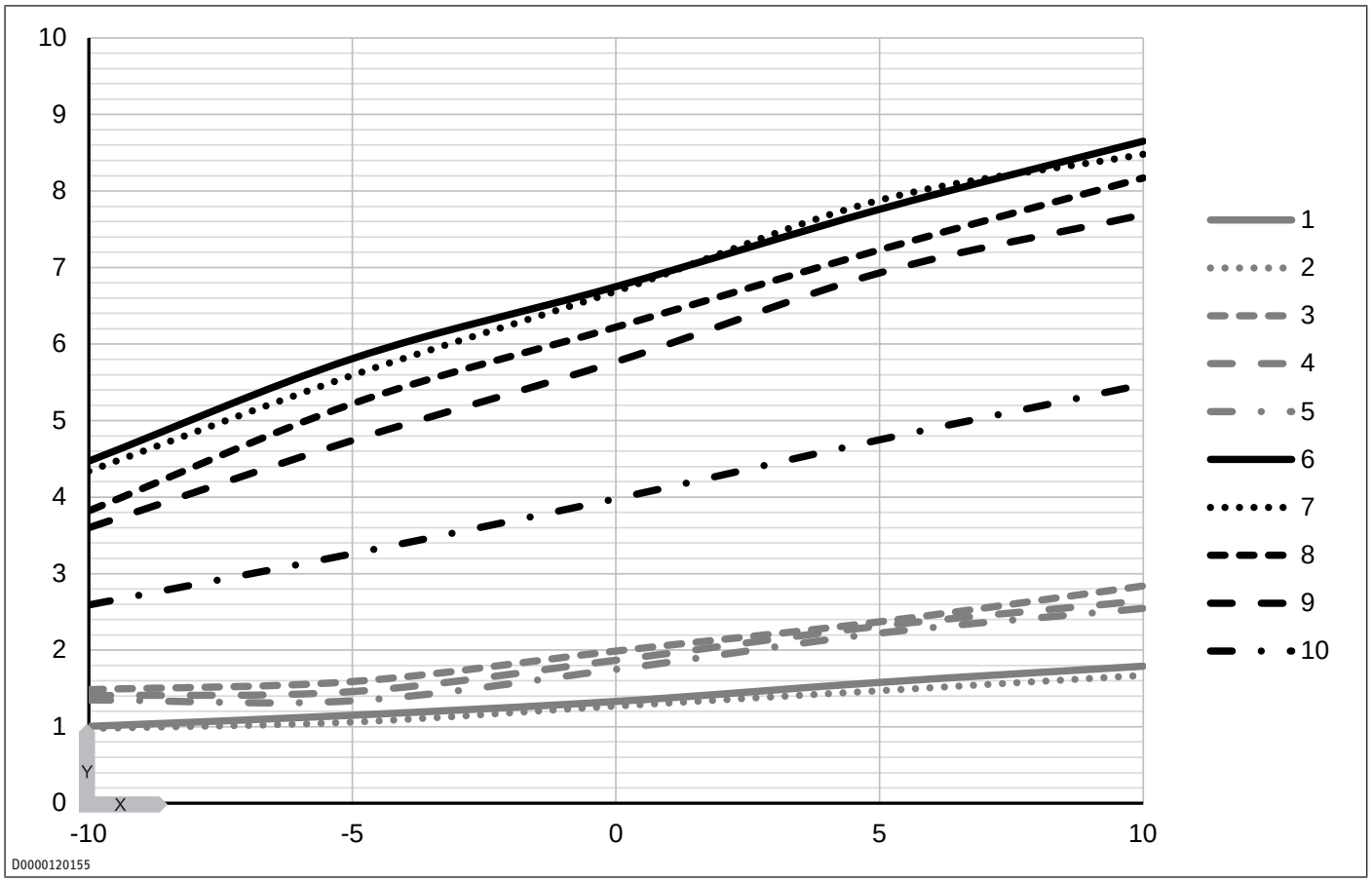
	BM card		Description
602.AO25	Y602	AO25	Auxiliary heater control
602.T31	Y602	T31	Buffer cylinder sensor
602.T32	Y602	T32	Flow sensor heating circuit 2
602.T33	Y602	T33	Flow sensor heating circuit 1
602.T34	Y602	T34	PT 1000 room temperature sensor
604.T35	Y604	T35	Outside temperature sensor
604.T36	Y604	T36	Top sensor DHW (only WPE-I 07.1-12.1 Plus HW)
604.T37	Y604	T37	Bottom sensor DHW
616.1	Y616	U24	Flow sensor, +5 V
616.2	Y616	U24	Flow sensor, IN
616.3	Y616	U24	Flow sensor, GND
616.1-2	Y612	T38	Compressor oil temperature
606.1-3	Y606	TEMP HEAT SYS	Heating sensor HP inlet
606.2-4	Y606	TEMP HEAT SYS	Heating sensor HP outlet
607.1-6	Y607	TEMP SENSORS	Brine inlet sensor
607.2-7	Y607	TEMP SENSORS	Brine outlet sensor
607.3-8	Y607	TEMP SENSORS	Hot gas sensor
607.4-9	Y607	TEMP SENSORS	Liquid line sensor
607.5-10	Y607	TEMP SENSORS	Drain pipe sensor
608.1-5	Y608	PRESSURE SENSORS	Not assigned
608.4-3-2	Y608	PRESSURE SENSORS	Low pressure transmitter
608.6-8-7	Y608	PRESSURE SENSORS	High pressure transmitter
609.1-2-5	Y609	CP CONTROL	Brine pump control unit
609.3-4-7	Y609	CP CONTROL	Condenser pump control unit
610	Y610	CM	CM card / display
611	Y611	MBa	Accessories / Room temperature sensor
614	Y614	Mbi	Inverter
615	Y615	EEXV	Electronic expansion valve
513	Y513	Safety stop	Safety stop
*Note 28			230 V AC for outdoor loads
*Note 29			Max. 5 A total load

RSM card		Description
Y1	230 IN	230 V AC power supply
Y2	intFAN	Fan (safety concept)
Y3	SAFETY STOP	Safety stop
Y4	SWITCH	Differential pressure switch
Y5	GAS SENSOR	Refrigerant sensor
Y6	MODBUS	Modbus communication
Y7	extFAN	External safety fan

15.3 Output diagrams

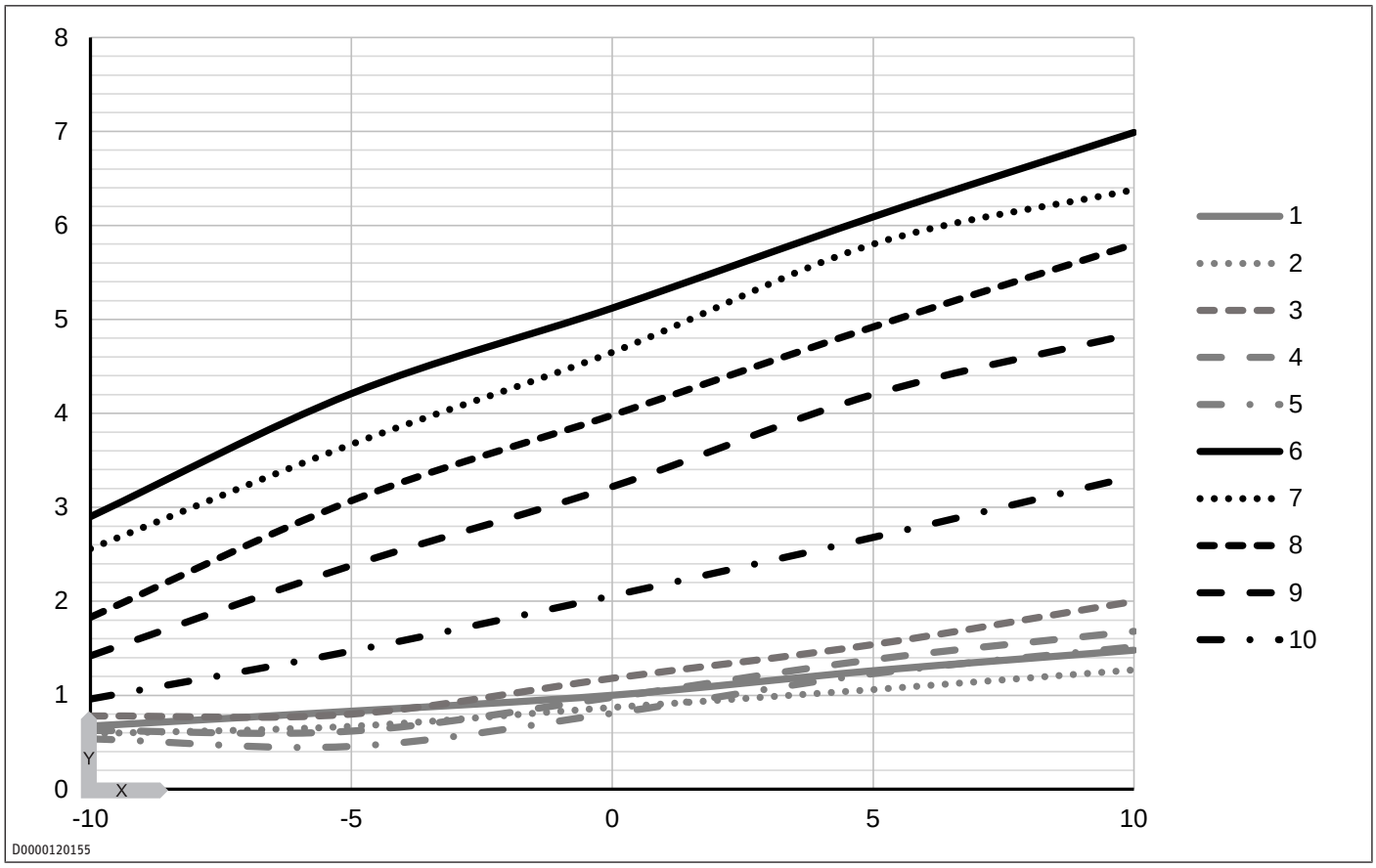
15.3.1 WPE-I 07.1 Plus H | WPE-I 07.1 Plus HW

Heating output



X	Temperature of heat source system [°C]	1 min. W35	2 min. W45	3 min. W55	4 min. W65	5 min. W70
Y	Heat pump heating output [kW]	6 max. W35	7 max. W45	8 max. W55	9 max. W65	10 max. W70

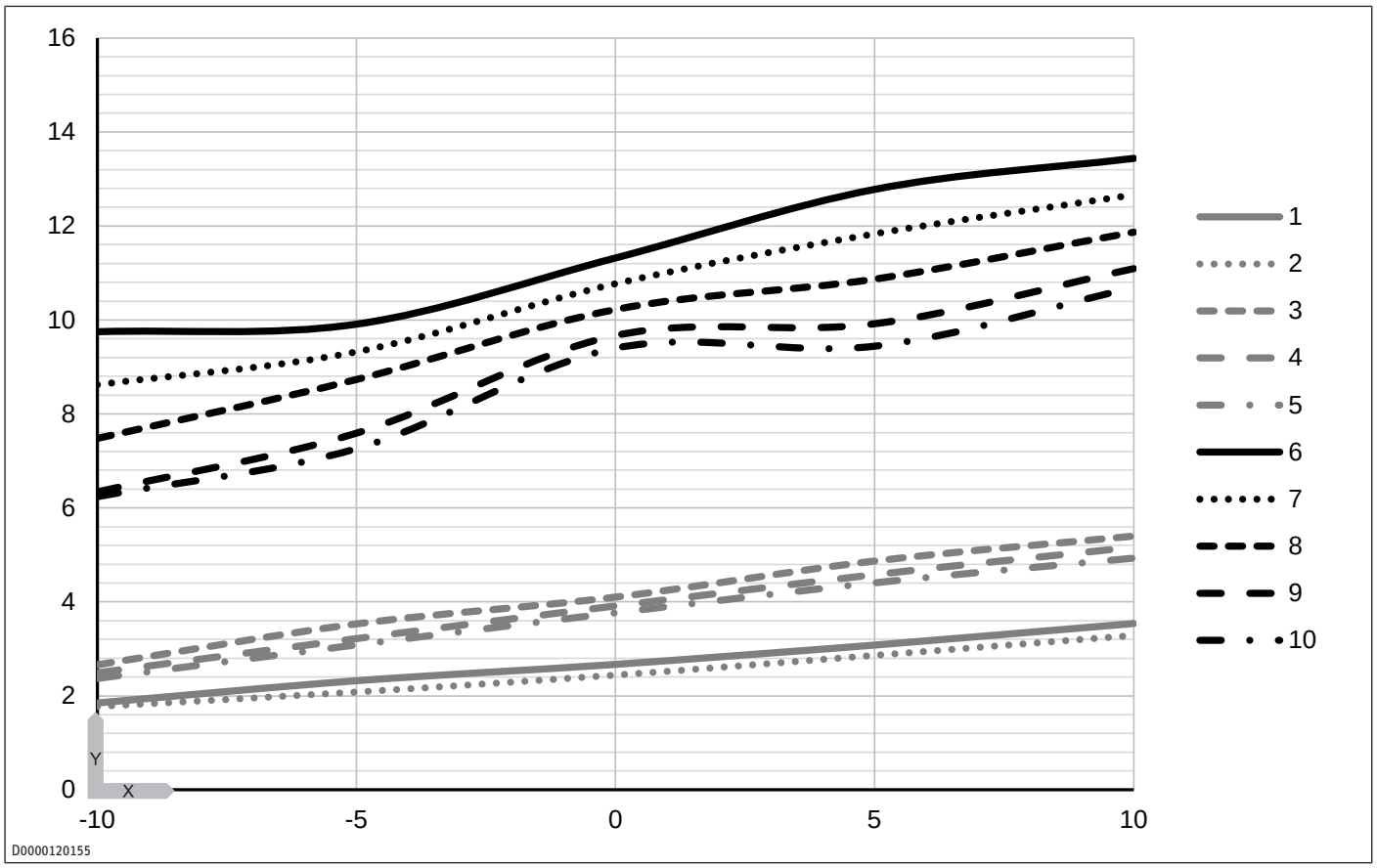
Cooling capacity



X	Temperature of heat source system [°C]	1 min. W35	2 min. W45	3 min. W55	4 min. W65	5 min. W70
Y	Cooling capacity of the heat pump [kW]	6 max. W35	7 max. W45	8 max. W55	9 max. W65	10 max. W70

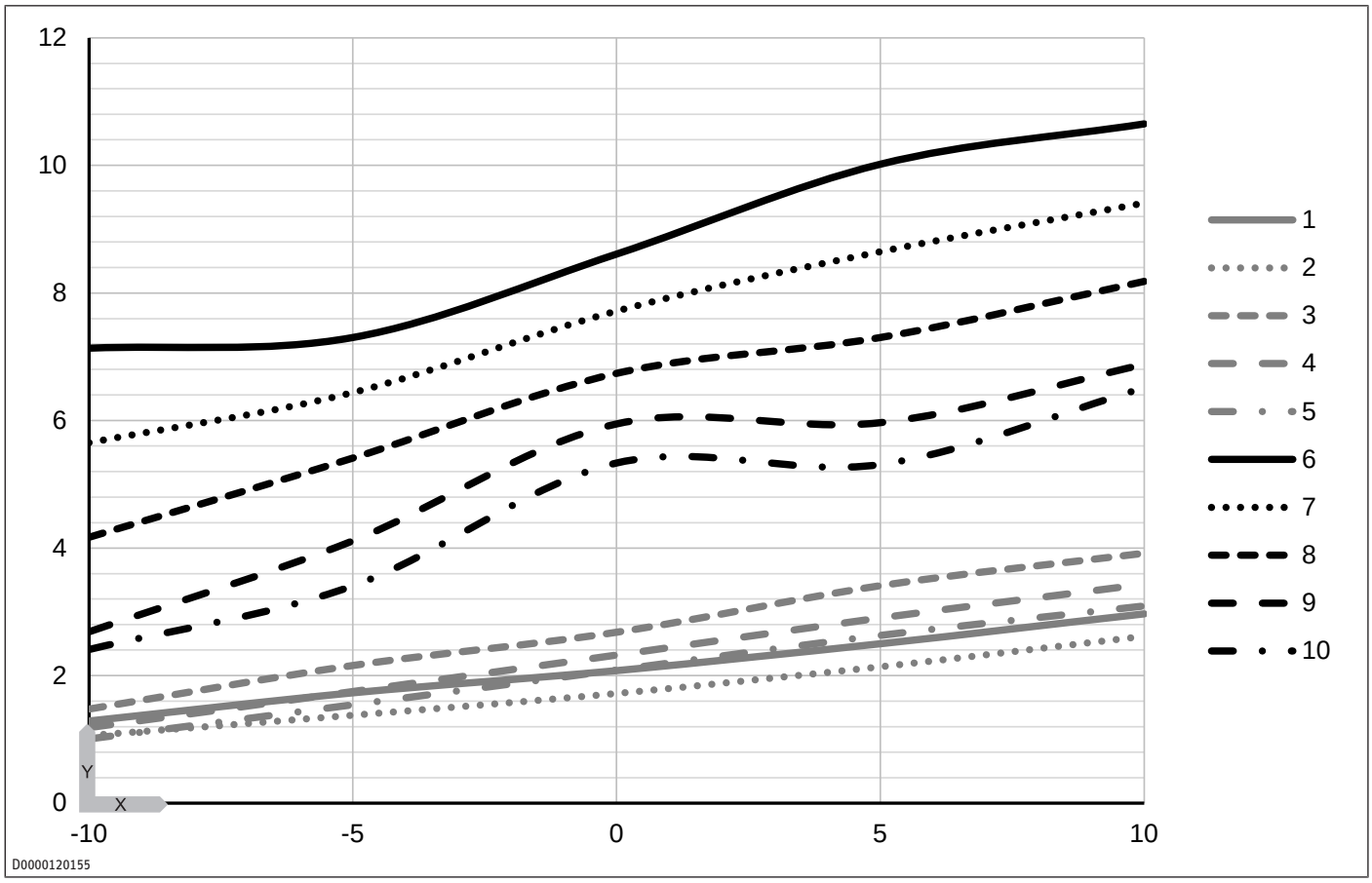
15.3.2 WPE-I 12.1 Plus H | WPE-I 12.1 Plus HW

Heating output



X	Temperature of heat source system [°C]	1 min. W35	2 min. W45	3 min. W55	4 min. W65	5 min. W70
Y	Heat pump heating output [kW]	6 max. W35	7 max. W45	8 max. W55	9 max. W65	10 max. W70

Cooling capacity



X	Temperature of heat source system [°C]	1 min. W35	2 min. W45	3 min. W55	4 min. W65	5 min. W70
Y	Cooling capacity of the heat pump [kW]	6 max. W35	7 max. W45	8 max. W55	9 max. W65	10 max. W70

15.4 Data table

Performance data applies to new appliances with clean heat exchangers.

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

The power consumption of the integral auxiliary drives is included in the performance data of the heat pump.

The performance data given in the data table refers to ethylene glycol. These details will vary as a result of different viscosity and thermal conductivity properties.

		WPE-I 07.1 Plus H 400	WPE-I 07.1 Plus HW 400	WPE-I 07.1 Plus H 230	WPE-I 07.1 Plus HW 230	WPE-I 12.1 Plus H 400	WPE-I 12.1 Plus HW 400	WPE-I 12.1 Plus H 230	WPE-I 12.1 Plus HW 230
		207177	207180	207183	207185	207178	207181	207184	207186
Heating outputs									
Heating output at B0/W35 (EN 14511)	kW	3.36	3.36	3.36	3.36	6.2	6.2	6.2	6.2
Heating output at B0/W35 (min./max.)	kW	1.4/7.0	1.4/7.0	1.4/7.0	1.4/7.0	2.7/11.6	2.7/11.6	2.7/11.6	2.7/11.6
Heating output at B10/W35	kW	4.19	4.19	4.19	4.19	7.9	7.9	7.9	7.9
Heating output at B0/W55 (EN 14511)	kW	2.66	2.66	2.66	2.66	5.33	5.33	5.33	5.33
Power consumption									
Max. power consumption, circulation pump, source side	W	75	75	75	75	140	140	140	140
Max. power consumption, circulation pump, heating side	W	63	63	63	63	63	63	63	63

		WPE-I 07.1 Plus H 400	WPE-I 07.1 Plus HW 400	WPE-I 07.1 Plus H 230	WPE-I 07.1 Plus HW 230	WPE-I 12.1 Plus H 400	WPE-I 12.1 Plus HW 400	WPE-I 12.1 Plus H 230	WPE-I 12.1 Plus HW 230
Power consumption at B0/W35 (EN 14511)	kW	0.73	0.73	0.73	0.73	1.27	1.27	1.27	1.27
Power consumption at B0/W55 (EN 14511)	kW	1.01	1.01	1.01	1.01	1.78	1.78	1.78	1.78
Power consumption at B10/W35	kW	0.68	0.68	0.68	0.68	1.26	1.26	1.26	1.26
Power consumption, emergency/ auxiliary heater	kW	6	6	6	6	9	9	6	6
Coefficients of performance									
COP at B0/W35 (EN 14511)		4.62	4.62	4.62	4.62	4.87	4.87	4.87	4.87
COP at B0/W55 (EN 14511)		2.64	2.64	2.64	2.64	3	3	3	3
Coefficient of performance at B10/W35		6.16	6.16	6.16	6.16	6.25	6.25	6.25	6.25
SCOP (EN 14825)		5.21	5.21	5.21	5.21	5.4	5.4	5.4	5.4
Sound emissions									
Sound power level (EN 12102)	dB(A)	38	37	38	37	40	40	40	40
Application limits									
Min./max. heating application limit for flow temperature	°C	25/70	25/70	25/70	25/70	25/70	25/70	25/70	25/70
Min. application limit, heat source	°C	-10	-10	-10	-10	-10	-10	-10	-10
Max. application limit, heat source	°C	25	25	25	25	25	25	25	25
Shutdown pressure, brine pressure switch (positive pressure)	MPa	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Permissible operating pressure, heating circuit	MPa	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Max. operating pressure (brine circuit)	MPa	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Energy data									
Energy efficiency class		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Energy efficiency class, heat pump W35		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Energy efficiency class, heat pump W55		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Electrical data									
Emergency/auxiliary heater fuse protection	A	16	32	32	32	16	16	32	32
Control unit fuse protection	A	10	10	10	10	10	10	10	10
Compressor fuse protection	A	16	16	16	16	10	10	20	20
Frequency	Hz	50	50	50	50	50	50	50	50
Rated voltage, emergency/auxiliary heater	V	400	400	230	230	400	400	230	230
Rated voltage, control unit	V	230	230	230	230	230	230	230	230
Rated voltage, compressor	V	230	230	230	230	400	400	230	230

		WPE-I 07.1 Plus H 400	WPE-I 07.1 Plus HW 400	WPE-I 07.1 Plus H 230	WPE-I 07.1 Plus HW 230	WPE-I 12.1 Plus H 400	WPE-I 12.1 Plus HW 400	WPE-I 12.1 Plus H 230	WPE-I 12.1 Plus HW 230
Phases, emergency/auxiliary heater		2/N/PE	1/N/PE	1/N/PE	1/N/PE	3/N/PE	3/N/PE	1/N/PE	1/N/PE
Phases, control unit		1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE
Phases, compressor		1/N/PE	1/N/PE	1/N/PE	1/N/PE	3/N/PE	3/N/PE	1/N/PE	1/N/PE
Versions									
Installation site		inside	inside	inside	inside	inside	inside	inside	inside
CO2 equivalent (CO2e)	kg	0.007	0.007	0.007	0.007	0.01	0.01	0.01	0.01
Refrigerant charge	kg	0.33	0.33	0.33	0.33	0.52	0.52	0.52	0.52
Refrigerant		R290	R290	R290	R290	R290	R290	R290	R290
Global warming potential of the refrigerant (GWP100)		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Compressor oil		POE	POE	POE	POE	POE	POE	POE	POE
Dimensions									
Width	mm	600	600	600	600	600	600	600	600
Height	mm	1450	1863	1450	1863	1450	1863	1450	1863
Depth	mm	700	700	700	700	700	700	700	700
Values									
Min. flow rate, heating	m³/h	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nominal design flow rate of heating system at B0/W35 and 7 K	m³/h	0.39	0.39	0.39	0.39	0.75	0.75	0.75	0.75
Heating flow rate (EN 14511) at A7/W35, B0/W35 and 5 K	m³/h	0.58	0.58	0.58	0.58	1.07	1.07	1.07	1.07
Max. flow rate on heat source side at B0/W35 and 3 K	m³/h	1.15	1.15	1.15	1.15	1.76	1.76	1.76	1.76
Available external pressure differential, heating	hPa	500	500	500	500	160	160	160	160
Available external pressure differential, heat source	hPa	630	630	630	630	660	660	660	660
Internal volume, heating side	l	10.6	20.9	10.6	20.9	11.4	21.7	21.7	21.7
Internal volume, source side	l	10.4	12.6	10.4	12.6	11.1	13.2	13.2	13.2

16 Environment and recycling

▶ Dispose of the appliances and materials after use in accordance with national regulations.

▶ If a crossed-out waste bin is pictured on the appliance, take the appliance to your local waste and recycling centre or nearest retail take-back point for reuse and recycling.

This document is made of recyclable paper.

▶ Dispose of the document at the end of the appliance's life cycle in accordance with national regulations.

17 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.

Comfort through Technology

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