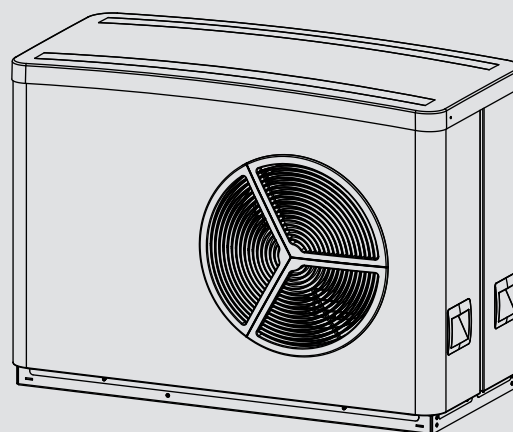


## OPERATION AND INSTALLATION

Air source heat pump

- » HPA-0 7 S Premium
- » HPA-0 7 CS Premium
- » HPA-0 10 Premium
- » HPA-0 10 C Premium
- » HPA-0 13 S Premium
- » HPA-0 13 CS Premium
- » HPA-0 13 Premium
- » HPA-0 13 C Premium



**STIEBEL ELTRON**

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## GUARANTEE

## ENVIRONMENT AND RECYCLING

# SPECIAL INFORMATION OPERATION

- 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 potential 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.
- Maintain the minimum clearances to ensure trouble-free operation of the appliance and facilitate maintenance work.
- Maintenance work, such as checking the electrical safety, must only be carried out by a qualified contractor.
- We recommend regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor if required (to return the system to its original condition).
- Following disconnection from the power supply, parts of the appliance may remain energised for 2 minutes until the inverter capacitors have discharged.
- Never interrupt the power supply, even outside the heating season. The system's active frost protection is not guaranteed if the power supply is interrupted.
- If the heat pump is completely switched off and there is a risk of frost, drain the system on the water side.

## 1. General information

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

The chapter "Installation" is intended for qualified contractors.



### Note

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

### 1.1 Relevant documents



Instructions for the WPM heat pump manager



Operating and installation instructions for system components



Commissioning checklist for heat pump

### 1.2 Safety instructions

#### 1.2.1 Structure of safety instructions



#### KEYWORD Type of risk

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

► Steps to prevent the risk are listed.

#### 1.2.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution

#### 1.2.3 Keywords

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

### 1.3 Other symbols in this documentation



#### Note

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

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

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

### 1.4 Units of measurement



#### Note

All measurements are given in mm unless stated otherwise.

### 1.5 Standardised output data

Information on determining and interpreting the specified standardised output data.

#### 1.5.1 EN 14511

The output data specifically mentioned in texts, diagrams and technical datasheets has been calculated according to the test conditions of the standard shown in the heading of this section. However, there is a deviation from this norm in the output data for air/water inverter heat pumps at source temperatures of  $> -7^{\circ}\text{C}$ , as this concerns partial load values. The associated percentage weighting in the partial load range can be found in EN 14825 and EHPA quality label regulations.

Generally, the test conditions stated above will not fully match the conditions found at the installation site of the system user.

Depending on the chosen test method and the extent to which this method differs from the test conditions defined in the first paragraph of this section, any deviations can be considerable.

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.

Confirmation of the specified output data can only be obtained if the test conducted for this purpose is also performed in accordance with the test conditions defined in the first paragraph of this section.

## 2. Safety

### 2.1 Intended use

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

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

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

### 2.2 Safety instructions

Observe the following safety instructions and regulations.

- Only qualified contractors may carry out the electrical work and installation of this appliance.
- The qualified contractor is responsible for adherence to all applicable regulations during installation and commissioning.
- The appliance should only be operated once it is fully installed and all safety equipment has been fitted.
- Protect the appliance from dust and dirt during building work.



#### WARNING Injury

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



#### WARNING Injury

► For safety reasons, only operate the appliance with the casing closed.



### 3. Appliance description

#### 3.1 Properties

The appliance is an air source heat pump that operates as a heating heat pump for outdoor installation. Heat is extracted from the outdoor air at a low temperature level, and is then transferred to the heating water at a higher temperature. The heating water can be heated up to a flow temperature of 65 °C.

The appliance is equipped with an electric emergency/booster heater (NHZ). To safeguard heating operation and the provision of high DHW temperatures, the electric emergency/booster heater is activated as an emergency heater if the dual mode point is undershot in mono mode operation. If the same thing happens in mono energetic operation, the electric emergency/booster heater is activated as a booster heater.

This appliance has further operational characteristics:

- Suitable for underfloor and radiator heating systems.
- Preferred for low temperature heating systems.
- Extracts heat from the outdoor air even at outside temperatures of -20 °C.
- Corrosion-protected, external casing made from hot-dipped galvanised sheet steel plus stove-enamelled finish.
- Comprises all components and safety equipment required for operation.
- Filled with non-combustible safety refrigerant.



#### Note

For centralised control of the heating system, you would need the WPM heat pump manager.

#### 3.2 Function

##### 3.2.1 Heating

Heat is extracted from the outdoor air via the heat exchanger (evaporator) on the air side. The evaporated refrigerant is compressed by a compressor. This process requires electrical energy. At this point, the refrigerant is at a higher temperature level. A further heat exchanger (condenser) transfers the heat to the heating circuit. The refrigerant then expands again and the cycle restarts from the beginning.

At air temperatures below approx. 7 °C, the humidity in the air condenses as hoarfrost on the evaporator fins. This hoarfrost is automatically defrosted. Water created by this defrosting process collects in the defrost pan and is drained off.



#### Material losses

During the defrost cycle, the fan is switched off and the heat pump circuit is reversed. The heat required for defrosting is drawn from the buffer cylinder. For operation without a buffer cylinder, observe the information in the instructions for the WPM and parameter BUFFER OPERATION in menu SETTINGS / STANDARD SETTING. Otherwise the heating water freezes under unfavourable conditions.

The heat pump automatically reverts to heating mode at the end of the defrost cycle.



#### Material losses

In dual mode operation, return water from the second heat generator may flow through the heat pump. Please note that the return temperature must be no higher than 60 °C.

##### 3.2.2 Cooling



#### Material losses

The heat pump is not suitable for continuous, year-round cooling.

- ▶ Observe the application limits (see chapter "Specification / Data table").



#### Material losses

In cooling mode, condensate can form when the dew point temperature is undershot.

- ▶ Take suitable measures to prevent the formation of condensate.

Rooms are cooled by reversing the heat pump circuit. Heat is extracted from the heating water and the evaporator transfers this heat to the outdoor air.

Area cooling and fan cooling require the installation of a remote control unit (FET) in a reference room to capture the relative humidity and the room temperature as part of dew point monitoring.

With fan cooling, it is also necessary to install a buffer cylinder.

#### Heat pump application limit

The heat pump is switched off if the outside temperature falls below the selected lower application limit for cooling (COOLING LIMIT parameter).

### 4. Settings

The system is operated exclusively via the WPM heat pump manager.

- ▶ Please observe the instructions for the heat pump manager.

## 5. Maintenance and care

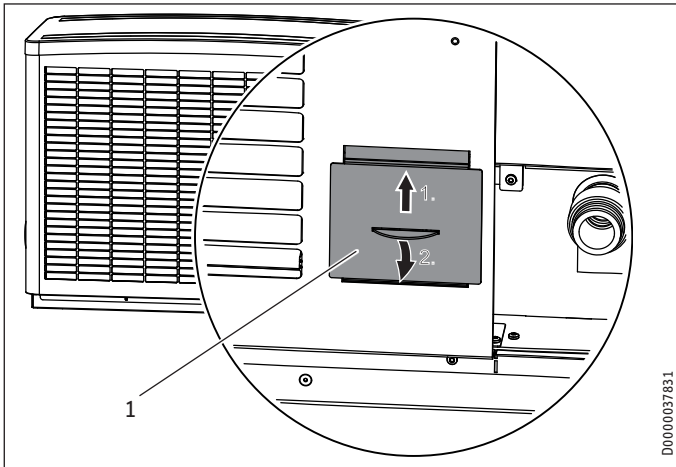


### Material losses

Maintenance work, such as checking the electrical safety, may only be carried out by a qualified contractor.

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

Regularly check the condensate drain (visual inspection). Remove any contaminants and blockages immediately.



1 Inspection port



### Material losses

Keep the air discharge and intake apertures free from snow and leaves.

Remove any leaves or other foreign bodies from the evaporator fins periodically.

We recommend a regular inspection (to establish the current condition of the system), and maintenance by a qualified contractor as required (to restore the system to the ideal condition).

## 6. Troubleshooting

Fault	Cause	Remedy
There is no hot water or the heating system remains cold.	No power at the appliance.	Check the fuses/MCBs in your distribution board. Replace the fuses/reset the MCBs if required. Notify your qualified contractor if the fuses/MCBs blow/trip again after switching the system back on.
Water is leaking from the appliance.	The condensate drain may be blocked.	Clean the condensate drain as described in "Maintenance and care".
The heater gets warm, but the rooms are not heated to the required temperature.	The dual mode temperature is set too low.	Increase the dual mode temperature to e.g. 0 °C.
	The building is a new build and is in the screed drying phase.	Increase the dual mode temperature to +5 °C. After 1 to 2 years the dual mode temperature can be reset to e.g. -3 °C.

Fault	Cause	Remedy
Condensate is collecting on the outside of the appliance.	The heat pump extracts heat from the outdoor air in order to heat the building. This can cause the humidity in the outdoor air to accumulate as dew or frost on the cooled heat pump casing. This is not a defect.	
The fan runs when the compressor is switched off.	At outside temperatures below 10 °C, the fan is regularly started at the lowest speed when the compressor is idle. This prevents the evaporator and fan from freezing or icing up due to water draining off. At temperatures above the freezing point, the time between two defrost cycles is increased, thereby improving overall efficiency.	
The appliance produces rhythmic scraping or grinding noises.	Ice has formed on the air grille, on the fan blades or in the air routing.	Call your qualified contractor (see chapter "Installation / Troubleshooting / Fan noise").

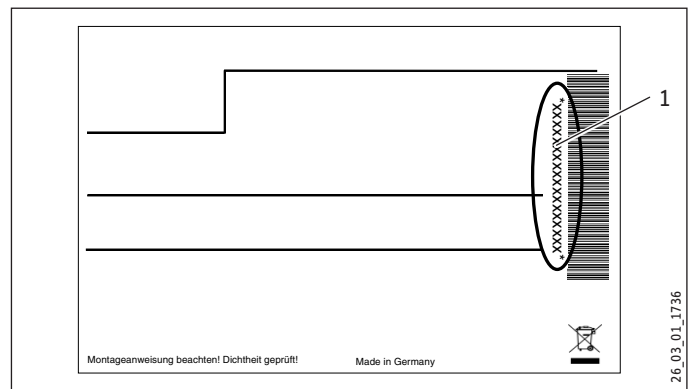


### Note

Even when the condensate is draining away correctly, it is not unusual for water to drip from the appliance onto the floor.

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

### Sample type plate



1 Number on the type plate

# INSTALLATION

## 7. Safety

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

### 7.1 General safety instructions

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

### 7.2 Instructions, standards and regulations



#### Note

Observe all applicable national and regional regulations and instructions.

The tested appliance conforms to IEC 61000-3-11.

The tested appliance conforms to IEC 61000-3-12.

## 8. Appliance description

The appliance offers frost protection for the connection lines. The integral frost protection circuit starts the circulation pump in the heat pump circuit automatically at a condenser temperature of 8 °C, and thereby ensures circulation in all water-carrying sections. If the temperature inside the buffer cylinder drops, the heat pump starts automatically no later than when the temperature falls below +5 °C.

### 8.1 Accessories

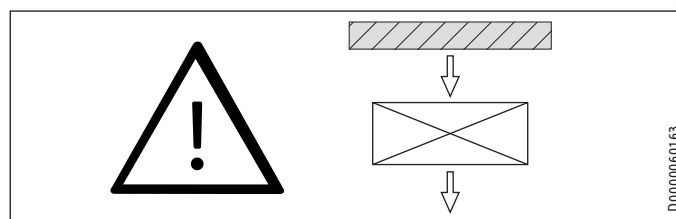
#### 8.1.1 Required accessories

- WPM heat pump manager

#### 8.1.2 Additional accessories

- FET remote control
- FE7 remote control
- HZB 1 ribbon heater
- HZB 2 ribbon heater
- STB-FB high limit safety cut-out for underfloor heating systems
- SK 1 T-support
- WK 2 wall mounting bracket
- MK 1 mounting bracket
- AS-WP 1 connection set
- AS-WP 2 connection set

## 9. Preparation



The appliance is designed for siting in front of a wall. Observe the minimum clearances. If the appliance is installed in an open space or on a roof, protect the air intake side. Do this by erecting a wall to shield it against the wind.

### 9.1 Sound emissions

The appliance is louder on the air intake and air discharge sides than on the two enclosed sides. Take the following information into account when selecting the installation location.



#### Note

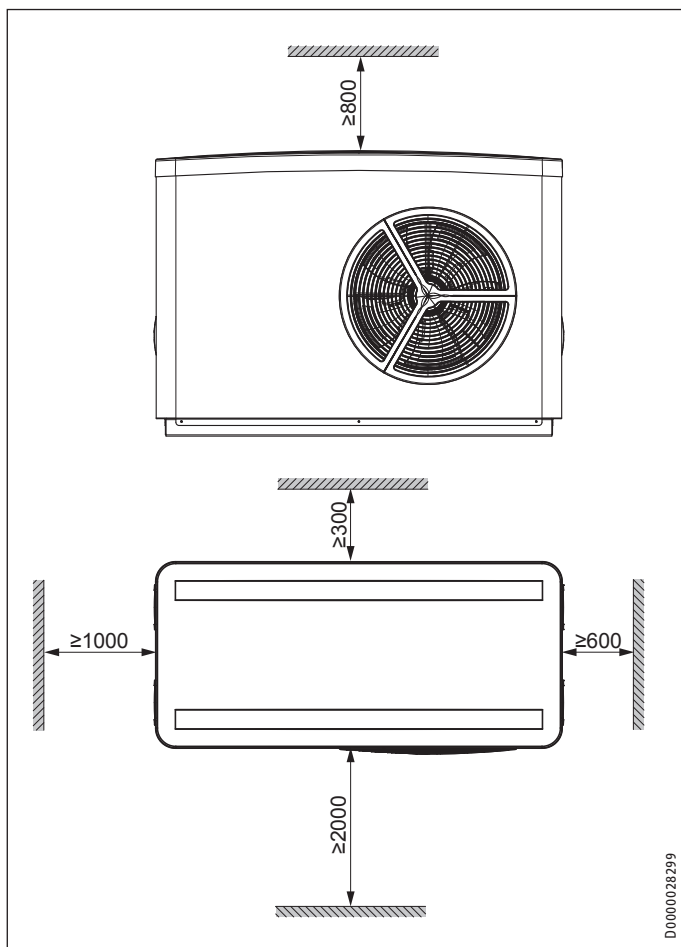
For details regarding the sound power level, see chapter "Specification / Data table".

- Lawn areas and shrubs help reduce the spread of noise.
- Noise propagation can also be reduced through dense palisades or similar.
- ▶ Ensure that the entire appliance frame is in full contact with the substrate. Uneven substrates can increase sound emissions.
- ▶ Ensure that the air intake direction is the same as the dominant wind direction. Air should not be drawn in against the wind.
- ▶ Ensure that the air intake and air discharge are never directed towards noise-sensitive rooms of the house, e.g. bedrooms, or neighbouring houses.
- ▶ Avoid installation on large, echoing floor areas, e.g. tiled floors.
- ▶ Avoid installation between reflective building walls. Reflecting building walls can increase the noise level.

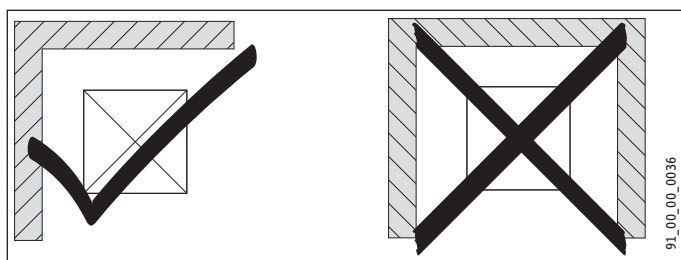
# INSTALLATION

## Preparation

### 9.2 Minimum clearances



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



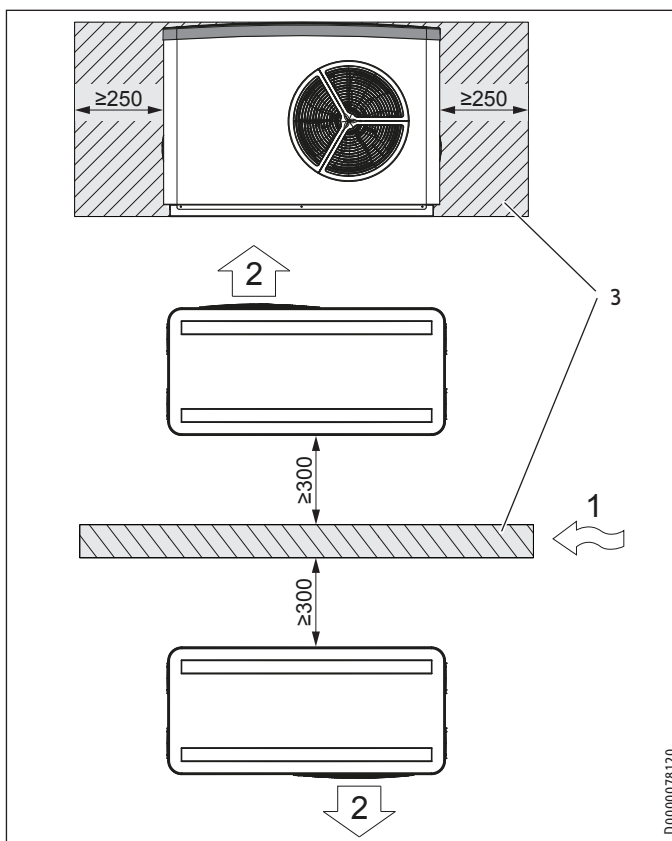
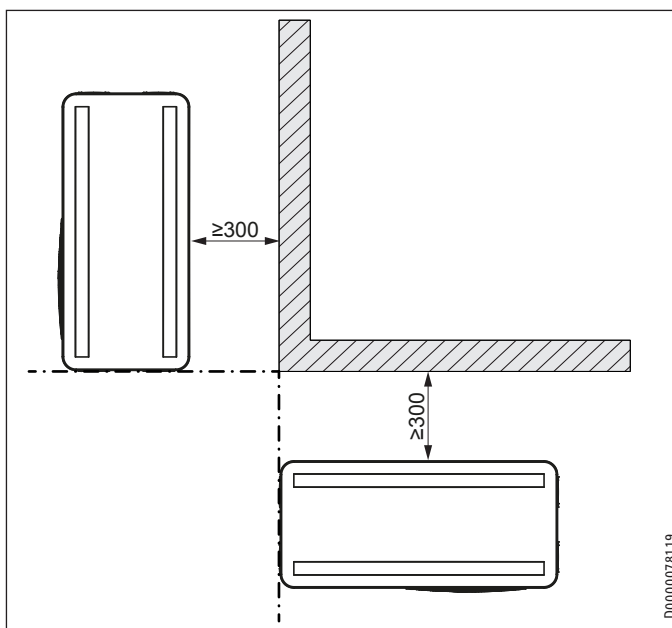
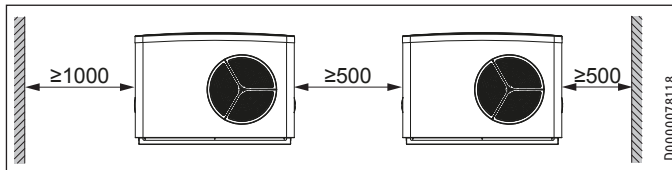
- ▶ Never install the appliance in a recess. Two sides of the appliance must remain exposed.



#### Material losses

Please note that both the flow of outdoor air into the appliance, and the flow of exhaust air from the appliance must be unimpeded. If the air intake and discharge of the appliance are obstructed by surrounding objects, this may cause a thermal short circuit.

### 9.2.1 Minimum clearances with cascades



- 1 Main wind direction
- 2 Air discharge
- 3 Wall or wind protection

# INSTALLATION

## Preparation

### 9.3 Preparing the installation location



#### WARNING Injury

The discharged cold air can cause condensation to be formed in the vicinity of the air outlet.

- ▶ Ensure that no risk of slipping due to wet conditions or ice formation occurs on adjacent footpaths and driveways at low temperatures.

- ▶ Observe chapter "Sound emissions".
- ▶ Ensure that the appliance is accessible from all sides.
- ▶ Ensure that the substrate is level, even, solid and permanent.
- ▶ Provide a recess (space) in the base to enable supply lines to be routed into the appliance from below.

### 9.4 Installing the supply lines

The supply lines are all electric cables plus the flow and return lines.

- To facilitate connection to the appliance, we recommend using flexible supply lines in the case of outdoor installation.
- ▶ Also protect all supply lines against humidity, damage and UV radiation by means of a conduit.
- ▶ Use only weatherproof cables, e.g. NYY.
- ▶ Protect the flow and return lines against frost with sufficient thermal insulation. The thermal insulation must be at least twice as thick as the diameter of the pipe. Provide thermal insulation in accordance with applicable regulations.
- ▶ Protect all pipe fixings and external wall ducts with anti-vibration insulation.



#### Note

When routing the condensate hose, observe chapter "Installation / Condensate drain".

### 9.5 Siting

- ▶ When siting the appliance, observe the air discharge direction.
- ▶ Position the appliance on the prepared substrate or on a suitable support.

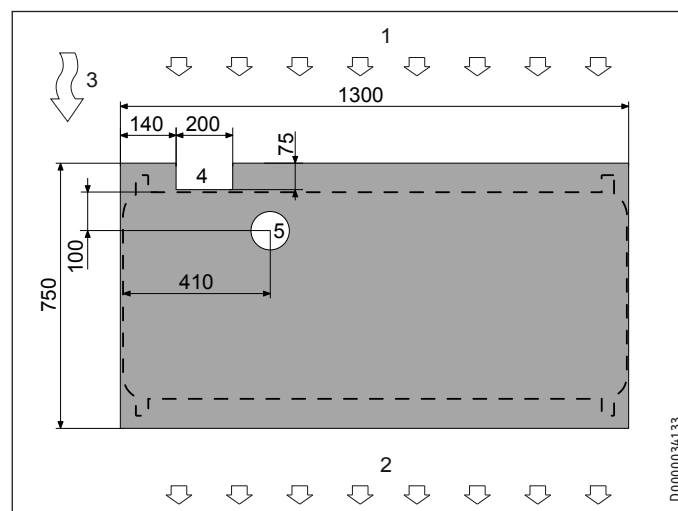
### 9.5.1 Siting on foundations or an MK 1 mounting bracket (HPA-O 7 S Premium | HPA-O 7 CS Premium only)



#### Note

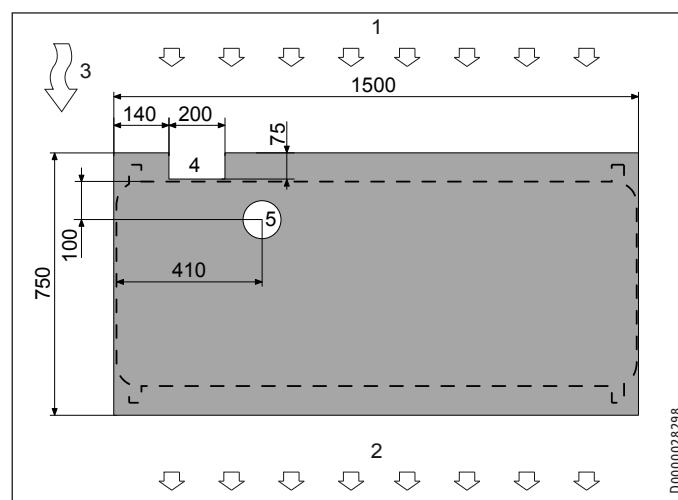
Allow the conduits for the supply lines to protrude slightly above the foundations. Ensure that no water can enter the conduits.

#### Foundations with recess (HPA-O 7 S Premium | HPA-O 7 CS Premium)



- 1 Air intake
  - 2 Air discharge
  - 3 Main wind direction
  - 4 Supply line recess
  - 5 Condensate drain recess (minimum diameter 70 mm)
- ▶ Ensure that the foundations offer the necessary recess.

#### Foundations with recess (HPA-O 10 Premium | HPA-O 10 C Premium | HPA-O 13 Premium | HPA-O 13 S Premium | HPA-O 13 C Premium | HPA-O 13 CS Premium)

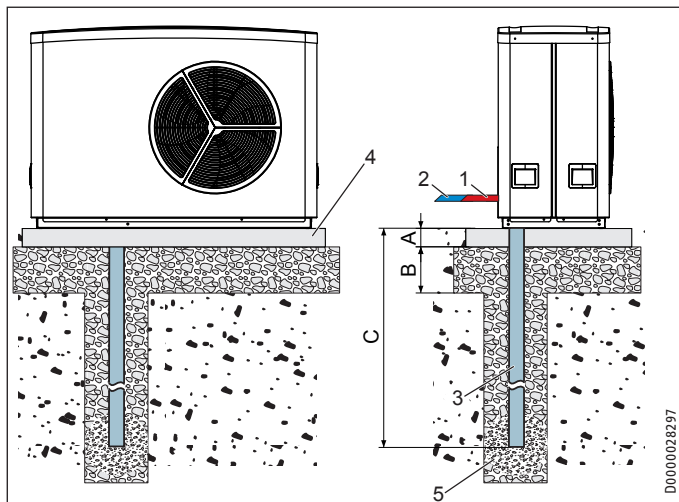


- 1 Air intake
  - 2 Air discharge
  - 3 Main wind direction
  - 4 Supply line recess
  - 5 Condensate drain recess (minimum diameter 70 mm)
- ▶ Ensure that the foundations offer the necessary recess.

# INSTALLATION

## Preparation

### Installation on foundations

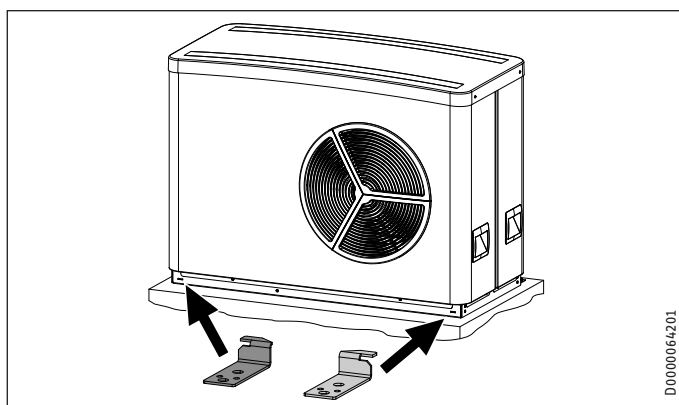


- A 100
- B 300
- C Depth of frost line
- 1 Heating flow
- 2 Heating return
- 3 Condensate drain conduit
- 4 Foundation
- 5 Gravel bed



#### Note

- To secure the appliance against toppling over, it can also be fixed to the foundations with screws.
- ▶ Use the accessories with which the appliance was secured to the transport pallet.



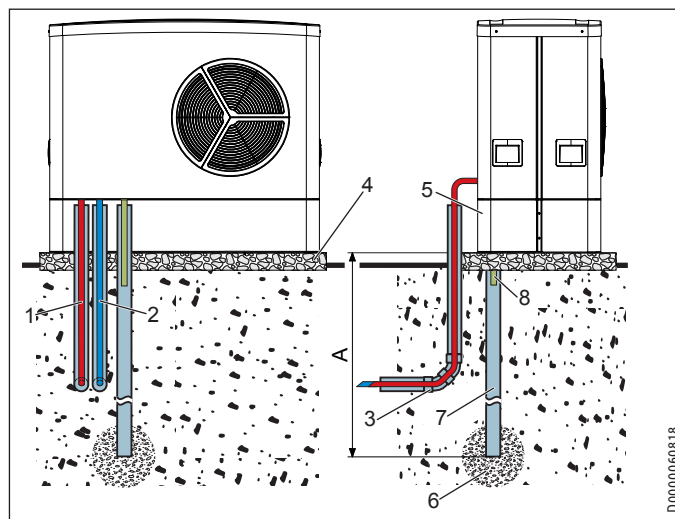
- ▶ Hook two brackets respectively into the lateral slots on the front and back. Ensure you are using the correct brackets for the left and right hand slots respectively.
- ▶ Position the brackets so that the groove on the bracket is hooked into the appliance.
- ▶ Secure the appliance to the foundations using the brackets and suitable rawl plugs and screws. Do not use the screws with which the appliance was secured to the transport pallet.

### MK 1 mounting bracket (HPA-0 7 S Premium I HPA-0 7 CS Premium only)



#### Note

- The mounting bracket cannot be used in combination with the connection sets (AS-WP 1 and AS-WP 2).



- A Depth of frost line
- 1 Heating flow
- 2 Heating return
- 3 Conduit for supply lines
- 4 Foundation
- 5 Mounting bracket
- 6 Gravel bed
- 7 Condensate drain conduit
- 8 Condensate drain

# INSTALLATION

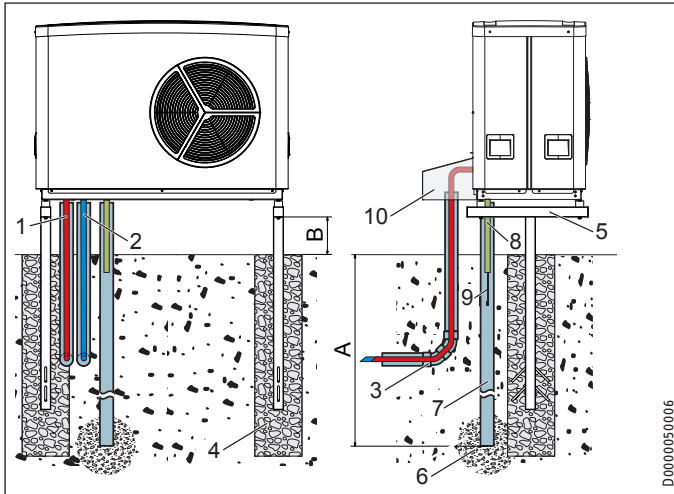
## Preparation

### 9.5.2 T-support SK 1



#### Note

► Install a ribbon heater when mounting on the wall bracket or T-support (see chapter "Electrical connection / Ribbon heater").



A Depth of frost line  
B 300

- 1 Heating flow
- 2 Heating return
- 3 Conduit for supply lines
- 4 Foundation
- 5 T-support
- 6 Gravel bed
- 7 Condensate drain conduit
- 8 Condensate drain
- 9 Ribbon heater
- 10 Cover

- Observe the structural limits of the T-support used.
- See the dimensioned connection drawing for the correct spacing between holes (see chapter "Specification / Dimensions and connections").

### 9.5.3 WK 2 wall mounting bracket



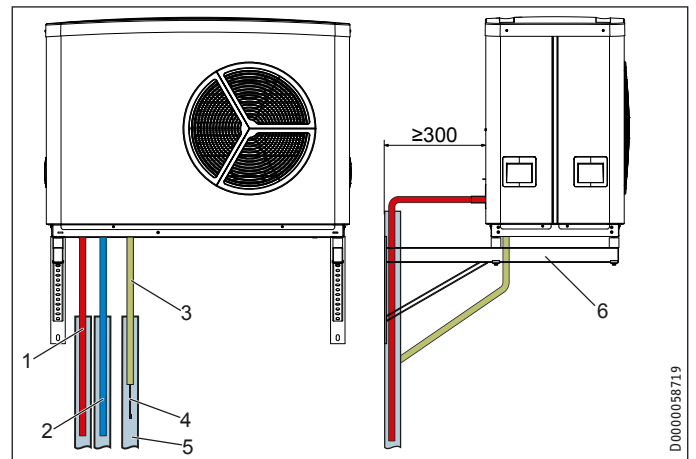
#### Note

► Install a ribbon heater when mounting on the wall bracket or T-support (see chapter "Electrical connection / Ribbon heater").



#### Note

To prevent disturbance due to structure-borne noise transmission, never install the wall mounting bracket on the external walls of living areas or bedrooms.  
► Install the wall mounting bracket on a garage wall, for example.



- 1 Heating flow
- 2 Heating return
- 3 Condensate drain
- 4 Ribbon heater
- 5 Condensate drain conduit
- 6 Wall mounting bracket

- Observe the structural limits of the wall mounting bracket used.
- See the dimensioned connection drawing for the correct spacing between holes (see chapter "Specification / Dimensions and connections").

### 9.6 WPM heat pump manager

A WPM heat pump manager is required to operate the appliance. This controls the entire heating system.

- Observe the WPM installation instructions during installation.

### 9.7 Buffer cylinder



#### Material losses

A buffer cylinder with diffusion-proof insulation is essential to enable cooling by means of fan convectors. The emergency/booster heater must be connected.



#### Note

If cooling is provided via an area heating system, the buffer cylinder is not required.

We recommend the use of a buffer cylinder to ensure trouble-free appliance operation.

The buffer cylinder provides hydraulic separation of the volume flows in the heat pump circuit and heating circuit, and also serves as an energy source for defrosting.

- For operation without a buffer cylinder, observe the details in chapter "Minimum flow rate with individual room control via remote control in systems without buffer cylinder".



# INSTALLATION

## Installation

### 9.8 Preparing the electrical installation



#### WARNING Electrocutation

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



#### WARNING Electrocutation

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



#### Material losses

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



#### Material losses

Provide separate fuses/MCBs for the three power circuits, i.e. those of the appliance, the control unit and the electric emergency/booster heater.

- Use cables with the relevant cross-sections. Observe the applicable national and regional regulations.

MCB/fuse rating	Assignment	Cable cross-section
1x B 20 A	Compressor (1-phase)	2.5 mm <sup>2</sup> when routing above the surface
	HPA-O 7 S Premium HPA-O 7 CS Premium	4.0 mm <sup>2</sup> when routing in a wall
1x B 35 A	Compressor (1-phase)	6.0 mm <sup>2</sup> when routing in a wall
	HPA-O 13 S Premium HPA-O 13 CS Premium	
3x B 16 A	Compressor (3-phase)	2.5 mm <sup>2</sup>
	HPA-O 10 Premium	
	HPA-O 10 C Premium	
	HPA-O 13 Premium	
	HPA-O 13 C Premium	
2x B 16 A	Electric emergency/booster heater	2.5 mm <sup>2</sup>
	HPA-O 7 S Premium	
	HPA-O 7 CS Premium	
	HPA-O 13 S Premium	
	HPA-O 13 CS Premium	
3x B 16 A	Electric emergency/booster heater	2.5 mm <sup>2</sup>
	HPA-O 10 Premium	
	HPA-O 10 C Premium	
	HPA-O 13 Premium	
	HPA-O 13 C Premium	
1x B 16 A	Control unit	1.5 mm <sup>2</sup>

The electrical data can be found in the chapter "Specification". You require a screened J-Y (St) 2x2x0.8 mm<sup>2</sup> cable as a bus cable.



#### Note

The appliance includes an inverter for the variable speed compressor. In the event of a fault, inverters can cause DC residual currents. If RCDs are provided, they must be type B AC/DC-sensitive.

A DC residual current can block type A RCDs.

- Ensure that the appliance power supply is disconnected from the distribution board.

## 10. Installation

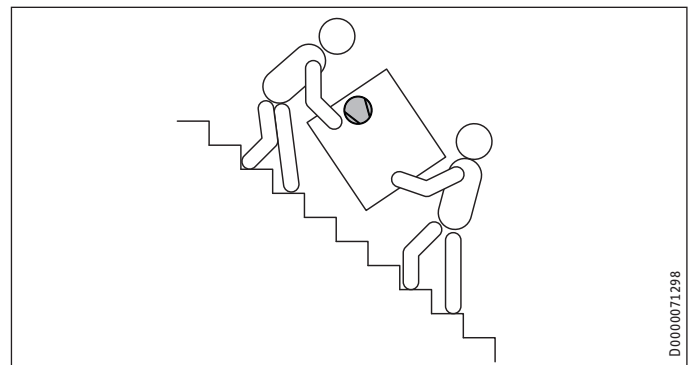


#### Note

The device is designed in such a way that it can be positioned and connected without removing the cover or side panels.

### 10.1 Transport

- When transporting the appliance, be aware of its centre of gravity.
- The centre of gravity is in the area where the compressor is located.
- Protect the appliance against heavy impact during transport.
- Use the recessed grips provided at the sides.



- If the appliance needs to be tilted during transport, this must only be for a short time and it must only be tilted on one of its longitudinal sides. When transporting the appliance, ensure the compressor is on the upper appliance side.
- The longer the appliance is tilted, the greater the distribution of refrigerant oil inside the system.
- Wait approximately 30 minutes before starting the appliance after it has been tilted.



# INSTALLATION

## Installation

### 10.2 Heating water connection

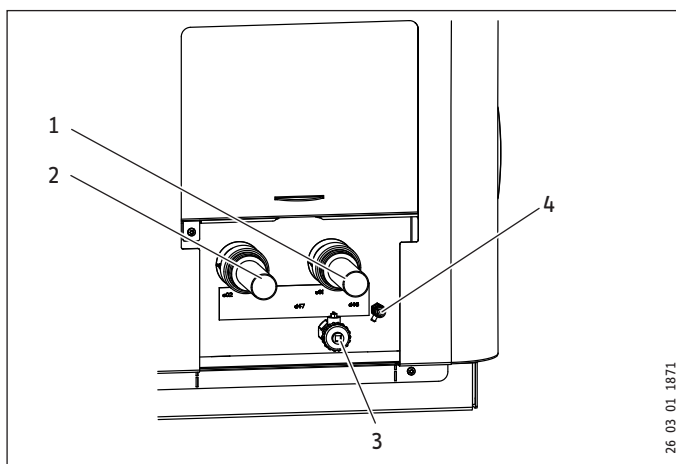
**! Material losses**  
The heating system to which the heat pump is connected must be installed by a qualified contractor in accordance with the water installation drawings that are part of the technical guide.

To facilitate connection to the heating system, push-fit connectors are enclosed with the appliance (see chapter "Fitting the push-fit connectors").

- ▶ Before connecting the heat pump, flush the pipework thoroughly with suitable water. Foreign bodies, such as welding pearls, rust, sand or sealant can impair the operational reliability of the heat pump.
- ▶ Connect the heat pump on the heating side. Check for tightness.
- ▶ Ensure that the heating flow and return are connected correctly.
- ▶ Provide thermal insulation in accordance with applicable regulations.
- ▶ When sizing the heating circuit, observe the internal pressure differential (see chapter "Specification / Data table").

### 10.3 Flow and return connection

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



- 1 Heating flow
  - 2 Heating return
  - 3 Drain
  - 4 Ventilation
- ▶ Connect the heat pump to the heating circuit. Check for tightness.

### 10.4 Fitting the push-fit connectors

**Note**  
The plastic push-fit connectors are not suitable for installation in the DHW line or the solar circuit.  
▶ Install the push-fit connectors only in the heating circuit.

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

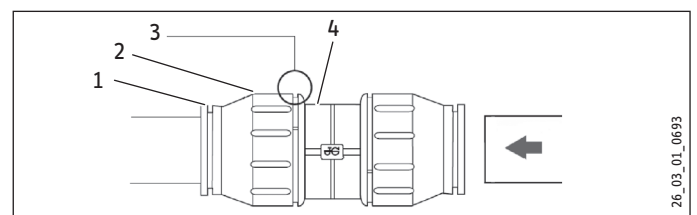
**! Material losses**  
To ensure the push-fit connector is held securely, pipes with a surface hardness > 225 HV (e.g. stainless steel) must have a groove.  
▶ Using a pipe cutter, cut a groove (depth approx. 0.1 mm) at a defined distance from the end of the pipe.  
- Pipe diameter 22 mm: 17±0.5 mm  
- Pipe diameter 28 mm: 21±0.5 mm

#### How the push-fit connectors work

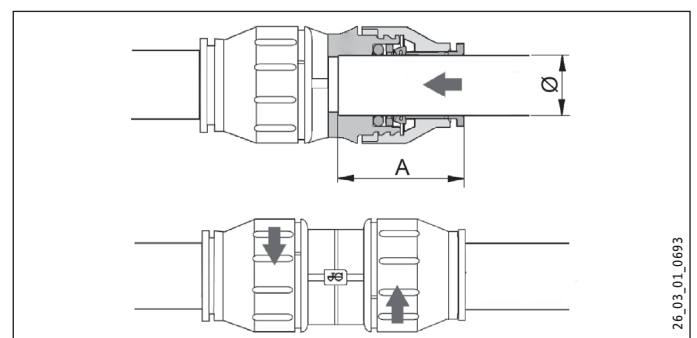
The push-fit connectors are equipped with a retainer with stainless steel serrations and an O-ring for sealing. The push-fit connectors also have a "twist and secure" function. Simply turning the screw cap by hand will secure the pipe in the connector and push the O-ring against the pipe to seal it.

#### Making the push-fit connection

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



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



Pipe Ø	28 mm
Depth of insertion A	max. 44 mm

# INSTALLATION

## Installation

### ! Material losses

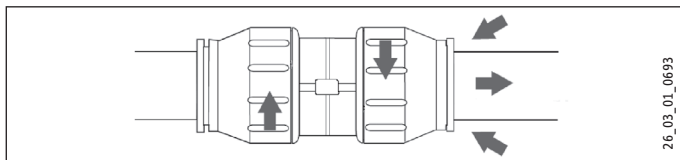
- Pipe ends must be deburred.  
▶ Always use a pipe cutter to trim pipes.

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

### Undoing the push-fit connection

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

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



## 10.5 Oxygen diffusion

### ! Material losses

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

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

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

### ! Material losses

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

## 10.6 Filling the heating system

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

### ! Material losses

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

- ▶ Recheck these limits 8-12 weeks after commissioning, every time the system is topped up and during the annual 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 apply as for desalination.

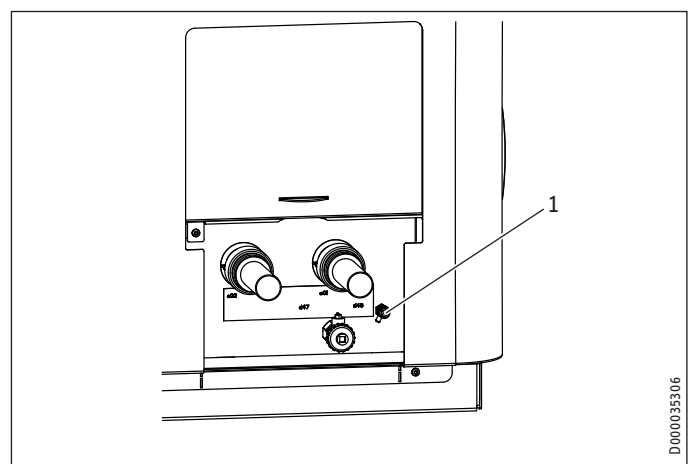
### Note

- Suitable appliances for water softening and desalinating, as well as for filling and flushing heating systems, can be obtained from trade suppliers.

- ▶ Fill the heating system via the drain (see chapter "Specification / Dimensions and connections").
- ▶ After filling the heating system, check the connections for leaks.

### 10.6.1 Venting the heating system

- ▶ Vent the pipework carefully.



1 Ventilation

- ▶ Vent the pipework by activating the ventilation.

## 10.7 Minimum flow rate

The minimum flow rate and the defrost energy must always be assured (see chapter "Specification / Data table").

### 10.8 Setting the flow rate on the heating side



#### Material losses

For operation without a buffer cylinder, it is essential that the electric emergency/booster heater (NHZ) is connected.

The appliance is designed in such a way that no buffer cylinder is required in conjunction with appropriately sized area heating systems.

Installations with several heating circuits require a buffer cylinder to be used.

The setting is made in heat pump mode. In order to do this, firstly make the following settings:

- ▶ Temporarily remove the fuse from the electric emergency/booster heater to isolate the emergency/booster heater from the power supply. Alternatively, switch OFF the second heat generator.
- ▶ Operate the appliance in heating mode.

#### In combination with the HM hydraulic module



#### Note

You can enable spread control in combination with the HM hydraulic module (see menu "COMMISSIONING / HEATING / SPREAD CONTROL"). When spread control is disabled, the heat pump regulates to the set pump rate and a fixed flow rate.

The flow rate is set automatically via the self-regulating system (see menu "COMMISSIONING / HEATING / SPREAD CONTROL / STANDBY PUMP RATE" in the heat pump manager).

In heat pump mode a fixed spread between the heat pump flow and return is set (see menu "COMMISSIONING / HEATING / SPREAD CONTROL" in the heat pump manager).

#### Checking the flow rate

- ▶ Set parameter STANDBY PUMP RATE to 100 %.
- ▶ Set buffer operation to OFF.
- ▶ If no buffer cylinder is installed, close all controllable heating circuits.
- ▶ The current flow rate can be called up in the menu "INFO / INFO HEAT PUMP / PROCESS DATA" under "WP WATER FLOW RATE".
- ▶ Compare the value with the specification (see chapter "Specification / Data table").
- ▶ If the specified flow rate is not met, take suitable measures to achieve the flow rate.
- ▶ If no buffer cylinder is installed, reopen all controllable heating circuits.
- ▶ Reset the parameters to their original values.

#### 10.8.1 Minimum flow rate with individual room control via remote control in systems without buffer cylinder

For systems without a buffer cylinder, in the "SETTINGS / HEATING / STANDARD SETTING" menu, set the "BUFFER OPERATION" parameter to "OFF".

In such cases, one or more heating circuits in the heating system must be left open. Ensure the minimum flow rate (see "Specification / Data table") by means of the relevant open heating circuits (see table "Sizing recommendation for the underfloor heating system in the lead room").



#### Note

The table applies if individual room control is installed.

Sizing recommendation for the underfloor heating system in the lead room:



#### Material losses

A buffer cylinder with diffusion-proof insulation is essential to enable cooling by means of fan convectors.

	Minimum flow rate L/h	Minimum water content of the buffer cylinder or the open circuits l	Composite pipework 16 x 2 mm / installation spacing 10 cm		Composite pipework 20 x 2.25 mm / installation spacing 15 cm	
			Lead room floor area m <sup>2</sup>	Number of circuits n x m	Lead room floor area m <sup>2</sup>	Number of circuits n x m
HPA-O 7 S Premium	700	16	21	3x70	21	2x70
HPA-O 7 CS Premium	700	16	21	3x70	21	2x70
HPA-O 10 Premium	1000	29	28	4x70	32	3x70
HPA-O 10 C Premium	1000	29	28	4x70	32	3x70
HPA-O 13 Premium	1000	29	28	4x70	32	3x70
HPA-O 13 S Premium	1000	29	28	4x70	32	3x70
HPA-O 13 C Premium	1000	29	28	4x70	32	3x70
HPA-O 13 CS Premium	1000	29	28	4x70	32	3x70

	Buffer cylinder always required	Recommended buffer cylinder volume, underfloor heating system	Recommended buffer cylinder volume, radiators	Activate the integral emergency/booster heater
HPA-O 7 S Premium	No	100	100	Yes
HPA-O 7 CS Premium	No	100	100	Yes
HPA-O 10 Premium	No	100	100	Yes
HPA-O 10 C Premium	No	100	100	Yes
HPA-O 13 Premium	No	100	100	Yes

# INSTALLATION

## Installation

	Buffer cylinder always required	Recommended buffer cylinder volume, underfloor heating system	Recommended buffer cylinder volume, radiators	Activate the integral emergency/booster heater
HPA-O 13 S Premium	No	100	100	Yes
HPA-O 13 C Premium	No	100	100	Yes
HPA-O 13 CS Premium	No	100	100	Yes

- ▶ Install the open heating circuit(s) in the lead room (room where the external programming unit of the heat pump control unit is installed, such as in the living room). The individual room can then be controlled either with the external programming unit or indirectly by adjusting the heating curve or the room influence.
- ▶ Fully open the heating circuit(s) in the lead room.
- ▶ Close all other heating circuits.
- ▶ If an overflow valve has been installed in the heating system, fully close this overflow valve in order to determine the minimum flow rate.

In combination with a hydraulic module, cylinder and hydraulic module or integral cylinder:

- ▶ Under menu item "COMMISSIONING / HEATING" the parameter "HEATING CIRC PUMP RATE" (heating circuit pump rate) such that the minimum flow rate required for system operation is assured (see chapter "Specification / Data table").

If the appliance is operated on its own with a WPM:

- ▶ Set the heating circuit pump so that the minimum flow rate required to operate the system is safeguarded.

The current flow rate can be called up in the menu "INFO / HEAT PUMP INFO / PROCESS DATA" under "WP WATER FLOW RATE".

### 10.8.2 Minimum flow rate for systems with a buffer cylinder

When using a buffer cylinder, in menu "SETTINGS / HEATING / STANDARD SETTINGS", set parameter "BUFFER OPERATION" to "ON".

In combination with a hydraulic module, cylinder and hydraulic module or integral cylinder, and with spread control disabled:

- ▶ In menu "COMMISSIONING / HEATING", set parameter "HEATING CIRC PUMP RATE" so that the nominal flow rate required for system operation is assured (see chapter "Specification / Data table").

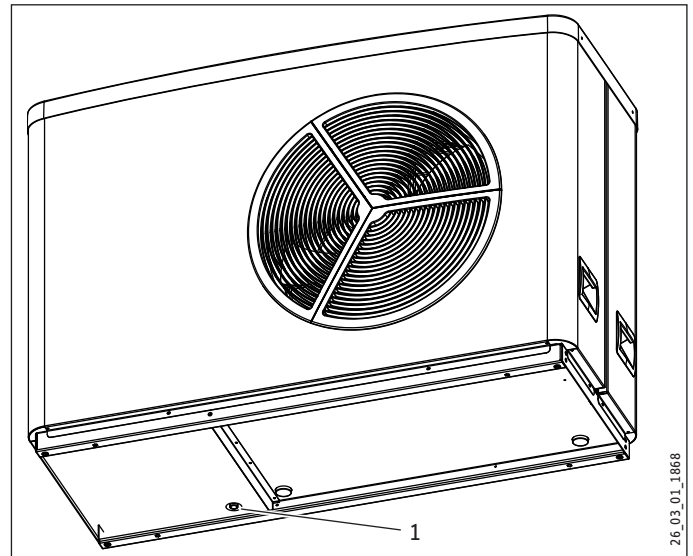
If the appliance is operated on its own with a WPM:

- ▶ Set the buffer charging pump so that the nominal flow rate required for system operation is assured.

The current flow rate can be called up in the menu "INFO / HEAT PUMP INFO / PROCESS DATA" under "WP WATER FLOW RATE".

### 10.9 Condensate drain

A condensate drain connector is factory-fitted to the defrost pan to enable any condensate to drain off.



#### 1 Condensate drain

- ▶ Observe chapter "Electrical connection / Ribbon heater".
- ▶ If the appliance is sited on foundations, the condensate drips freely into the condensate drain pipe.
- ▶ If the appliance is mounted on a bracket or T-support, attach a condensate hose to the condensate drain.
- ▶ Protect the condensate hose against frost with sufficient thermal insulation.



#### Material losses

Ensure the condensate hose is not kinked. Route the hose with a slope.

- ▶ After routing the condensate hose, check that the condensate can drain correctly.

### 10.10 External second heat generator

For dual mode systems, always connect the heat pump into the return of the second heat generator (e.g. oil boiler).

### 10.11 High limit safety cut-out for area heating system



#### Material losses

In order to prevent excessively high flow temperatures in the area heating system causing damage in the event of a fault, install a high limit safety cut-out to limit the system temperature.

### 11. Electrical connection



**WARNING Electrocutation**

► Before working on the appliance, isolate it from the power supply at the control panel.



**Note**

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

The connection must only be made by a qualified contractor and in accordance with these instructions.

You must have permission to connect the appliance from the relevant power supply utility.



**Note**

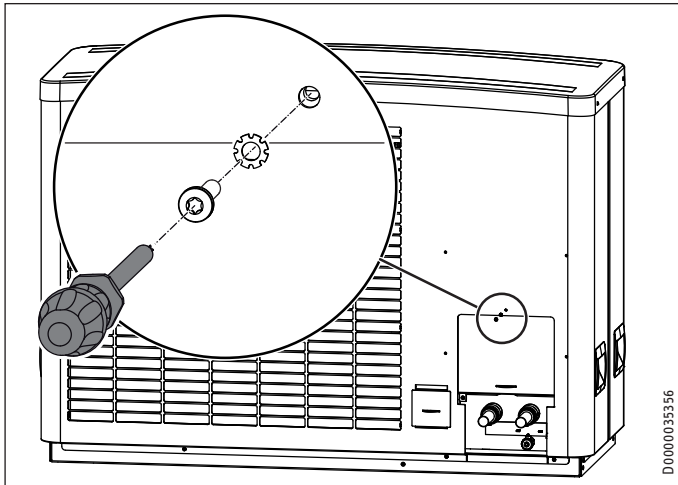
Please observe the instructions for the heat pump manager.

The terminals are located in the terminal area of the appliance.

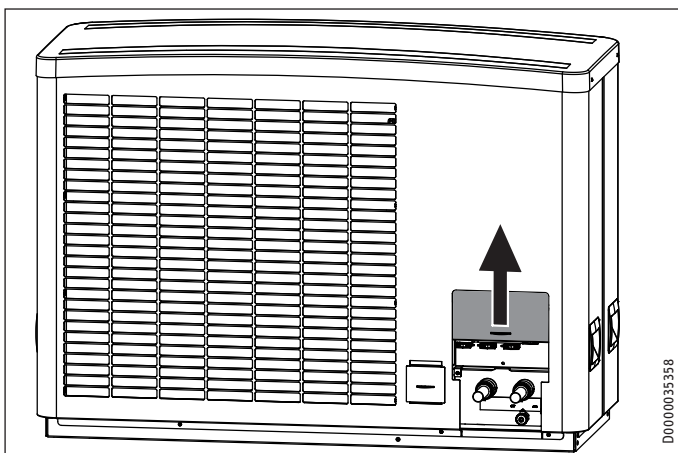
Follow the instructions in the chapter "Preparation / Preparing the electrical installation".

► For all connections, use appropriate cables in accordance with local regulations.

#### 11.1 Access to the terminal area

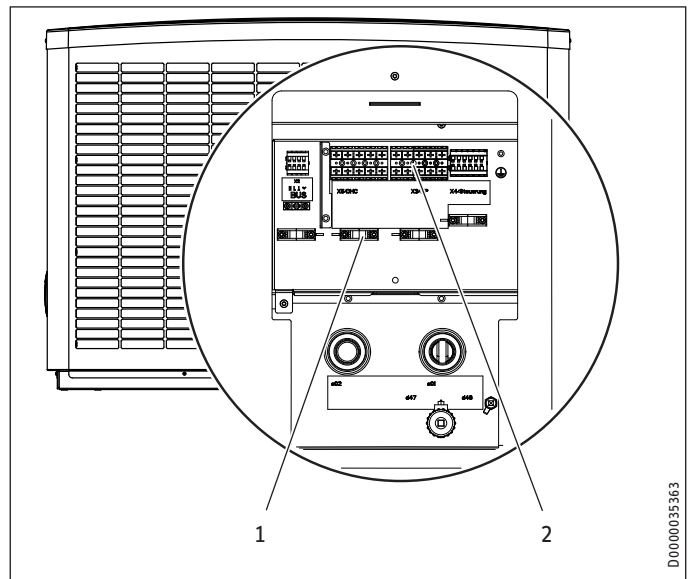


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D0000035358

► Push the cover upwards.

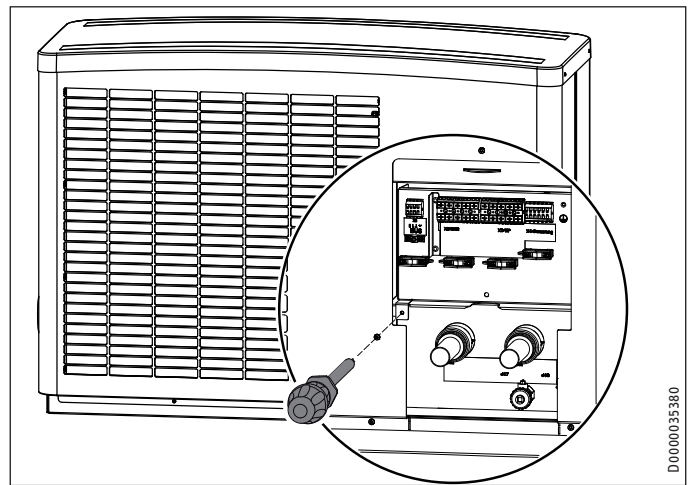


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- 1 Strain relief
- 2 Terminal area

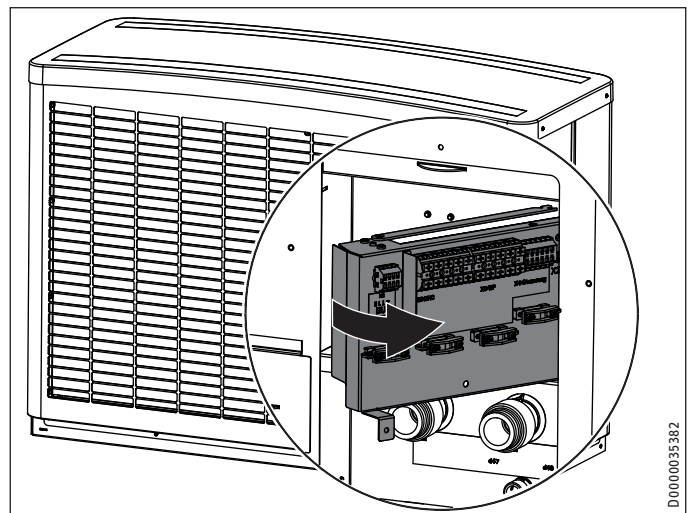
► Route cables and leads through the strain relief fittings.

If space behind the appliance is limited, the terminal area can be folded out.



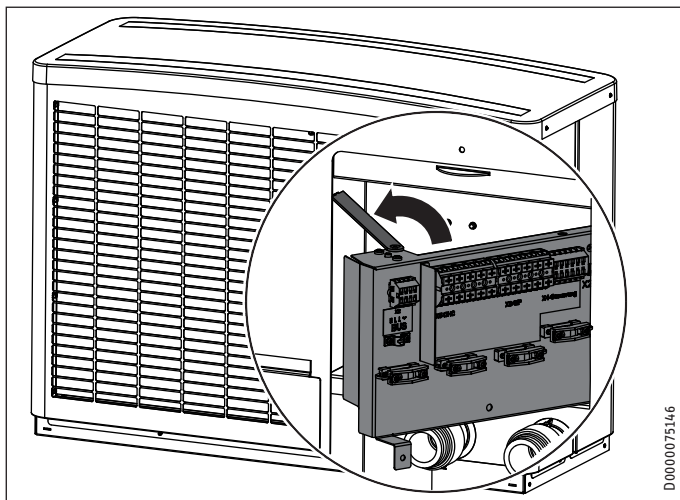
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► Undo the screw on the terminal area.



D0000035382

- ▶ Pivot the terminal area to the side.

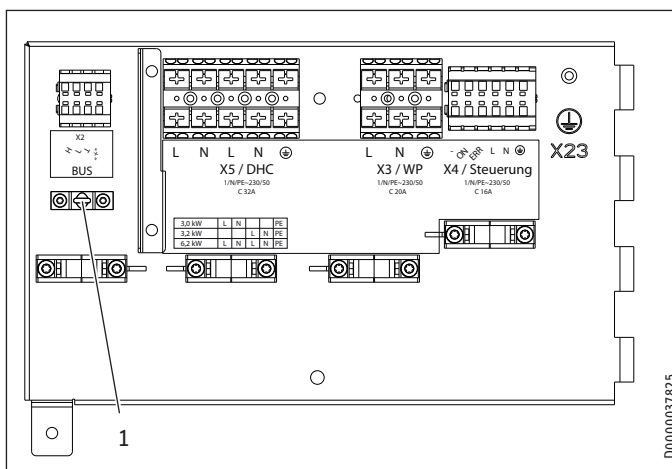


- ▶ Fix the terminal area in place with the locking mechanism.
- ▶ Connect the electric emergency/booster heater if you want to utilise the following appliance functions:

Appliance function	Effect of the electric emergency/booster heater
Mono energetic operation	If the dual mode point is undershot, the electric emergency/booster heater safeguards both the heating operation and the provision of high DHW temperatures.
Emergency mode	If the heat pump shuts down due to a fault, the heating output is covered by the electric emergency/booster heater.
Heat-up program (only for underfloor heating systems)	Where return temperatures are <25 °C, the electric emergency/booster heater must provide the necessary heat for screed drying. With such low system temperatures, the heat for screed drying must not be provided by the heat pump, otherwise the frost protection of the appliance can no longer be guaranteed during the defrost cycle. When the heat-up program has ended, the electric emergency/booster heater can be disconnected if it is not required for appliance operation. Please note that during the heat-up program, emergency mode is not available.
Pasteurisation mode	The electric emergency/booster heater starts automatically when pasteurisation mode is active. The DHW is then regularly heated to 60 °C to protect it against the growth of legionella bacteria.

### 11.2 HPA-O 7 S Premium | HPA-O 7 CS Premium

- ▶ Connect the cables according to the following diagram.



- 1 Earth terminal for screening the LV lead

<b>X2</b>	<b>Safety extra low voltage (BUS)</b>																				
	BUS High H																				
	BUS Low L																				
	BUS earth $\perp$																				
	BUS "+" (is not connected)																				
<b>X3</b>	<b>Compressor (inverter)</b>																				
	L, N, PE																				
<b>X4</b>	<b>Control voltage</b>																				
	-																				
	ON																				
	ERR																				
	Power supply: L, N, PE																				
<b>X5</b>	<b>Electric emergency/booster heater (NHZ)</b>																				
	L, N, L, N, PE																				
	<table border="1"> <thead> <tr> <th>Connected load</th> <th colspan="3">Terminal assignment</th> </tr> </thead> <tbody> <tr> <td>3.0 kW</td> <td>L</td> <td>N</td> <td>PE</td> </tr> <tr> <td>3.2 kW</td> <td></td> <td>L</td> <td>N</td> </tr> <tr> <td>6.2 kW</td> <td>L</td> <td>N</td> <td>L</td> </tr> <tr> <td></td> <td></td> <td>N</td> <td>PE</td> </tr> </tbody> </table>	Connected load	Terminal assignment			3.0 kW	L	N	PE	3.2 kW		L	N	6.2 kW	L	N	L			N	PE
Connected load	Terminal assignment																				
3.0 kW	L	N	PE																		
3.2 kW		L	N																		
6.2 kW	L	N	L																		
		N	PE																		

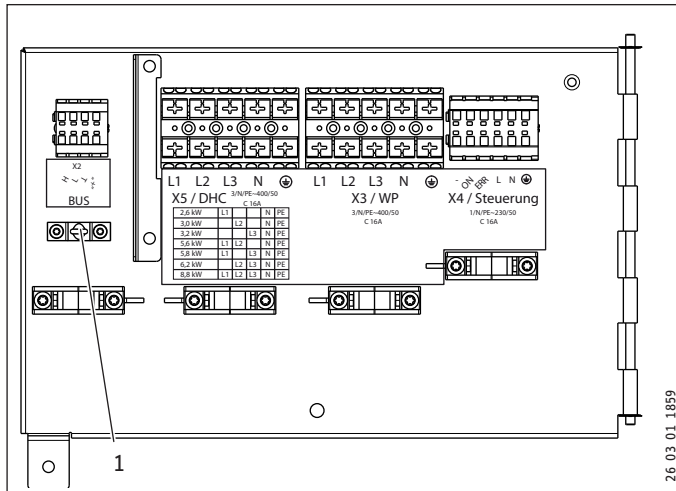
- ▶ Earth the LV lead by inverting the screen over the cable sheath and clamping it under the earth terminal.
- ▶ Then check that the strain relief fittings are working as intended.



## Electrical connection

### 11.3 HPA-O 10 Premium | HPA-O 10 C Premium | HPA-O 13 Premium | HPA-O 13 C Premium

► Connect the cables according to the following diagram.



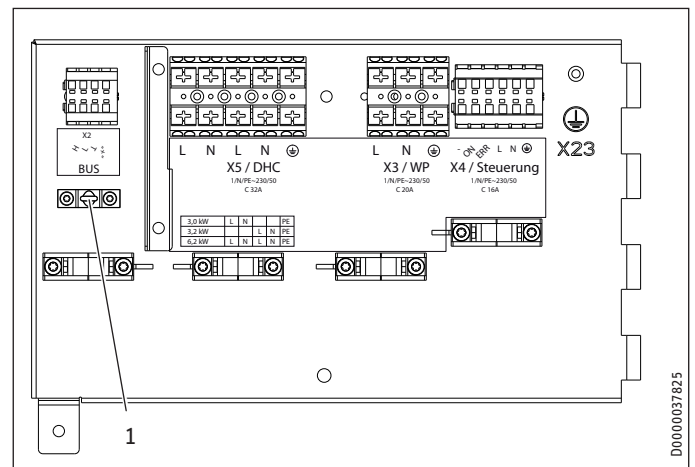
1 Earth terminal for screening the LV lead

<b>X2</b>	<b>Safety extra low voltage (BUS)</b>	
	BUS High H	
	BUS Low L	
	BUS earth $\perp$	
	BUS "+" (is not connected)	
<b>X3</b>	<b>Compressor (inverter)</b>	
	L1, L2, L3, N, PE	
<b>X4</b>	<b>Control voltage</b>	
	-	
	ON	
	ERR	
	Power supply: L, N, PE	
<b>X5</b>	<b>Electric emergency/booster heater (NHZ)</b>	
	L1, L2, L3, N, PE	
	<b>Connected load</b>	<b>Terminal assignment</b>
	2.6 kW	L1 PE
	3.0 kW	L2 PE
	3.2 kW	L3 PE
	5.6 kW	L1 L2 PE
	5.8 kW	L1 L3 PE
	6.2 kW	L2 L3 PE
	8.8 kW	L1 L2 L3 PE

- Earth the LV lead by inverting the screen over the cable sheath and clamping it under the earth terminal.
- Then check that the strain relief fittings are working as intended.

### 11.4 HPA-O 13 S Premium | HPA-O 13 CS Premium

► Connect the cables according to the following diagram.



1 Earth terminal for screening the LV lead

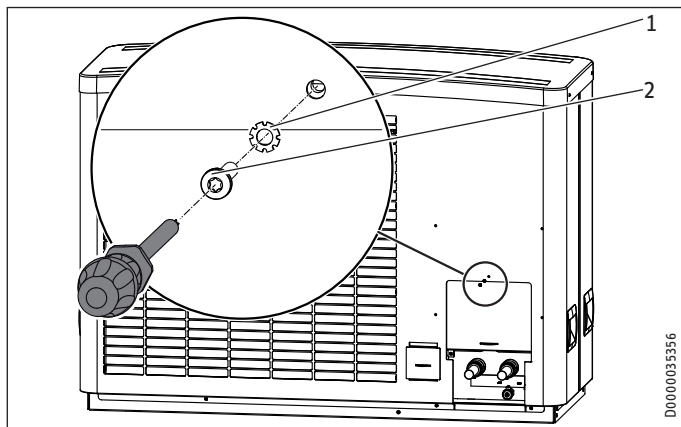
<b>X2</b>	<b>Safety extra low voltage (BUS)</b>	
	BUS High H	
	BUS Low L	
	BUS earth $\perp$	
	BUS "+" (is not connected)	
<b>X3</b>	<b>Compressor (inverter)</b>	
	L, N, PE	
<b>X4</b>	<b>Control voltage</b>	
	-	
	ON	
	ERR	
	Power supply: L, N, PE	
<b>X5</b>	<b>Electric emergency/booster heater (NHZ)</b>	
	L, N, L, N, PE	
	<b>Connected load</b>	<b>Terminal assignment</b>
	3.0 kW	L N PE
	3.2 kW	L N PE
	6.2 kW	L N L N PE

- Earth the LV lead by inverting the screen over the cable sheath and clamping it under the earth terminal.
- Then check that the strain relief fittings are working as intended.

# INSTALLATION

## Electrical connection

### 11.5 Closing the terminal area



- 1 Serrated washer
- 2 Screw

- ▶ Secure the cover with the screw and serrated washer.
- ▶ Connect the following components to the heat pump manager in accordance with the technical guides:
  - Circulation pump for the heat consumer side
  - Outside temperature sensor
  - Return sensor (only for operation with buffer cylinder)

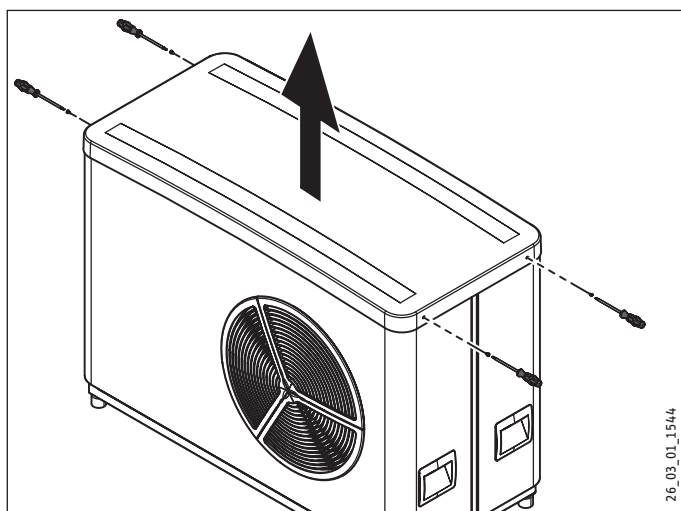
### 11.6 Ribbon heater

A ribbon heater (see chapter "Installation / Appliance description / Accessories / Further accessories") can be fitted to the condensate pan and the condensate hose.

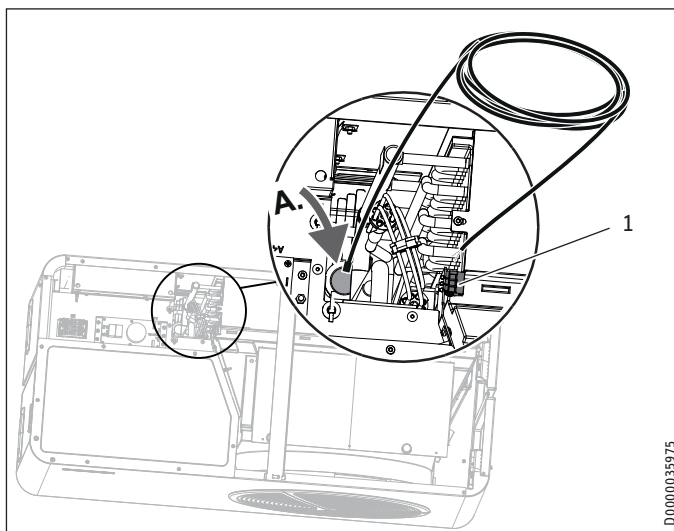
- ▶ Install a ribbon heater when mounting on the wall bracket or T-support.

When installing on foundations or the mounting bracket, we recommend installing a ribbon heater if the routing of the condensate hose means it is at risk of frost or is fully exposed to the elements.

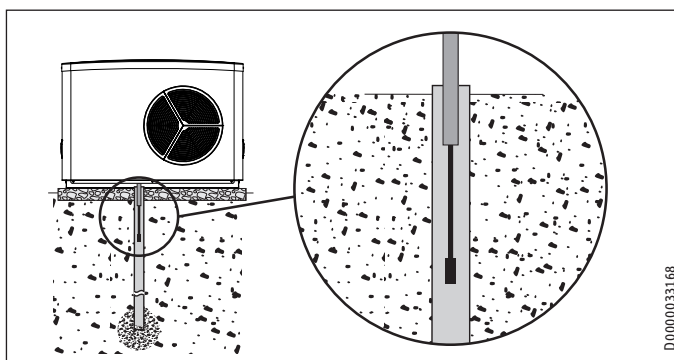
#### Access to the terminal area



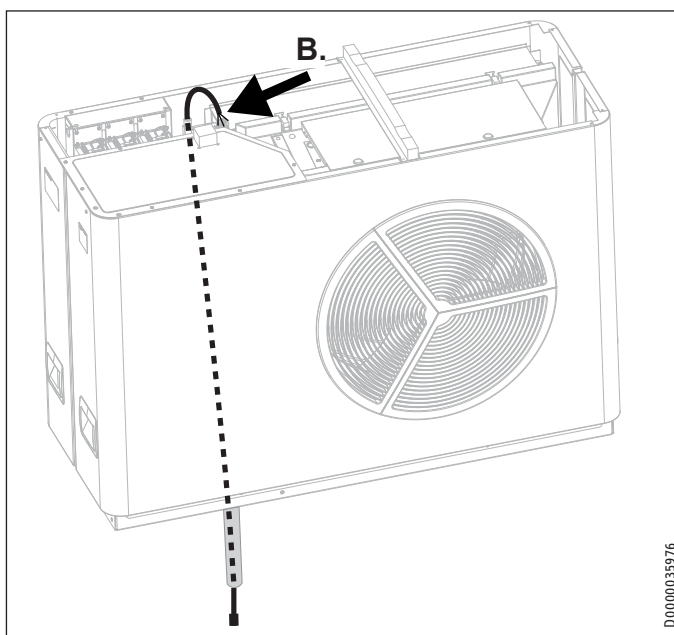
- ▶ Remove the cover.



- 1 Electrical connection for ribbon heater
- ▶ Guide the ribbon heater through the appliance.



- ▶ Guide the ribbon heater into the condensate drain pipe.



- ▶ Make the electrical connection for the ribbon heater.

Electrical connection for ribbon heater

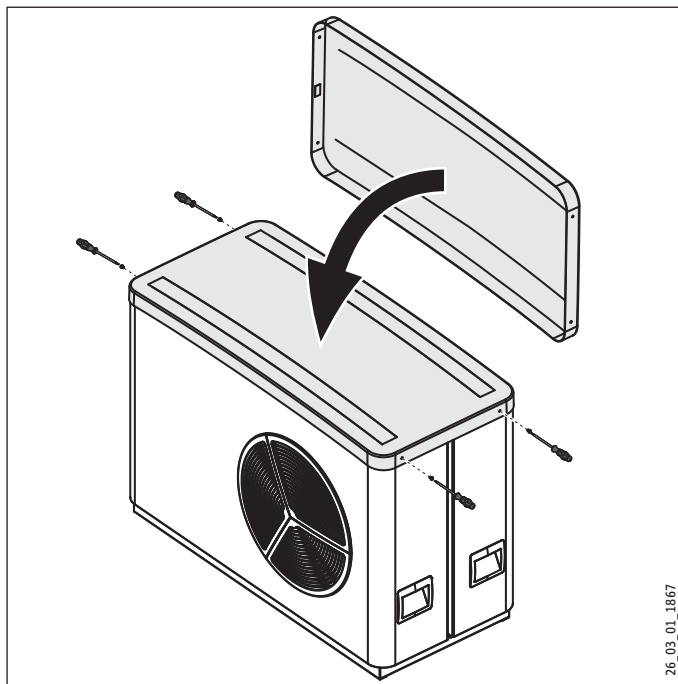
Power supply: L, N, PE



# INSTALLATION

## Commissioning

### Closing the terminal area



- ▶ Position the cover on the appliance.
- ▶ Secure the cover with the four screws.

## 12. Commissioning

A WPM heat pump manager is required to operate the appliance. All necessary adjustments prior to and during operation are made on this device.

Only qualified contractors may make the settings in the heat pump manager commissioning report, commission the appliance and instruct the owner in its use.

Carry out commissioning in accordance with these operating and installation instructions, and the instructions for the heat pump manager. Our customer support can assist with commissioning, which is a chargeable service.

Where this appliance is intended for commercial use, the rules of the relevant Operational Safety Ordinance must be observed at commissioning. For further details, check with your local authorising body (e.g. TÜV).

### 12.1 Checks before commissioning

Before commissioning, check the following:

#### 12.1.1 Heating system

- Have you filled the heating system to the correct pressure and opened the quick-action air vent valve?

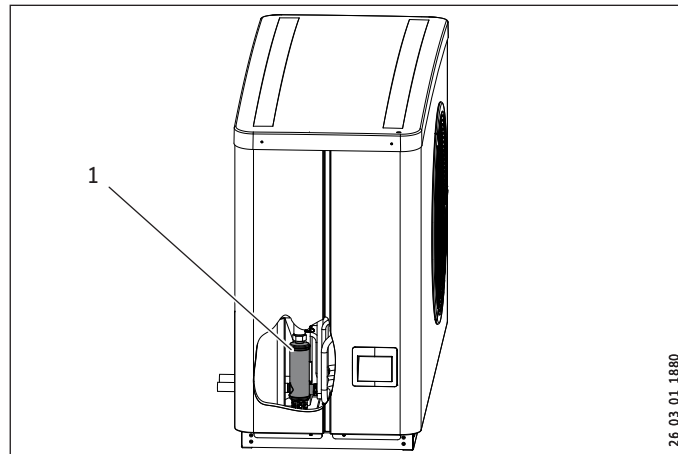
#### 12.1.2 Temperature sensors

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

### 12.1.3 High limit safety cut-out

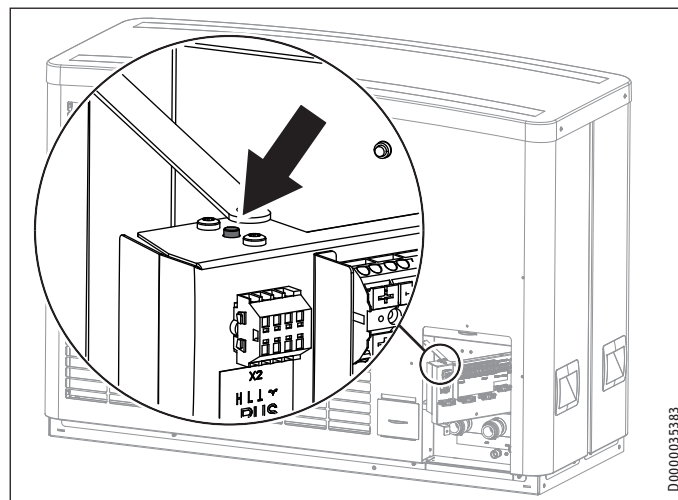
At ambient temperatures below  $-15\text{ °C}$  it is possible that the high limit safety cut-out of the electric emergency/booster heater may trip.

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



- 1 Electric emergency/booster heater

- ▶ Remove the cause of the fault.



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

### 12.1.4 Power supply

- Have you correctly connected the power supply?

## 12.2 Using the appliance with an external second heat generator

The appliance is factory set for compressor operation with an electric emergency/booster heater. If the appliance is operated in dual mode with an external second heat generator, set the DIP switch to compressor mode with an external second heat generator (see chapter "Troubleshooting / Checking the IWS DIP switch settings").

# INSTALLATION

## Settings

### 12.3 Initial start-up

#### 12.3.1 Heating curve adjustment

The efficiency of a heat pump decreases as the flow temperature rises. The heating curve should therefore be adjusted with care. Heating curves that are set too high cause the zone valves or thermostatic valves to close, which may lead to the minimum flow rate required for the heating circuit not being achieved.

► Observe the instructions for the WPM.

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

- Fully open thermostatic or zone valves in a lead room (e.g. living room and bathroom).  
We do not recommend installing thermostatic or zone valves in the lead room. Control the temperature for these rooms via a remote control.
- At different outside temperatures (e.g.  $-10\text{ }^{\circ}\text{C}$  and  $+10\text{ }^{\circ}\text{C}$ ), adjust the heating curve so that the required temperature is set in the lead room.

Standard values to begin with:

Parameter	Underfloor heating system	Radiator heating system
Heating curve	0.4	0.8
Control response time	25	50
Comfort temperature	$21\text{ }^{\circ}\text{C}$	$23\text{ }^{\circ}\text{C}$

If the room temperature is too low in spring and autumn (approx.  $10\text{ }^{\circ}\text{C}$  outside temperature), go to heat pump manager menu SETTINGS / HEATING / HEATING CIRCUIT and raise the parameter COMFORT TEMPERATURE”.



#### Note

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

If the room temperature is too low at low outside temperatures, increase parameter "HEATING CURVE".

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



#### Material losses

Never reduce the temperature in the entire building by closing all zone or thermostatic valves; instead use the setback programs.

When everything has been implemented correctly, the system can be heated to its maximum operating temperature and vented once again.



#### Material losses

For underfloor heating systems, observe the maximum permissible system temperature for that particular underfloor heating.

#### 12.3.2 Other settings

► For operation with or without a buffer cylinder, observe the information in the instructions for the WPM and parameter BUFFER OPERATION in menu SETTINGS / STANDARD SETTING.

#### Using the heat-up program

If you use the heat-up program, make the following settings on the WPM:

- Initially set the "DUAL MODE TEMP HZG" parameter to  $30\text{ }^{\circ}\text{C}$ .
- Then set the "LOWER APP LIMIT HZG" parameter to  $30\text{ }^{\circ}\text{C}$ .



#### Note

After completing the heat-up process, reset the "DUAL MODE TEMP HZG" and "LOWER APP LIMIT HZG" parameters to their respective standard values or to the respective system values.

### 12.4 Appliance handover

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



#### Note

Hand over these operating and installation instructions to users for safekeeping. All information in these instructions must be closely observed. The instructions provide information on safety, operation, installation and maintenance of the appliance.

## 13. Settings

### 13.1 Silent mode

SILENT MODE is an operating mode for air source heat pumps in which the sound level of the heat pump is reduced.

► See the data table (see chapter "Specification / Data table") for the sound power level when silent mode is deactivated.

You can reduce the fan speed and compressor output for a certain time in the "COMMISSIONING / SILENT MODE / OUTPUT REDUCTION" menu.



#### Note

If you activate SILENT MODE, the maximum output at A-7/ W35 is reduced to 70 % as standard. This value can be increased further or reduced to the specified minimum value as required.



#### Note

When silent mode is active, operating costs will be higher. In silent mode 2, heating and DHW heating are provided solely via the emergency/booster heater.

► See the table for the maximum appliance sound levels according to the settings made in the "COMMISSIONING / SILENT MODE / OUTPUT REDUCTION / OUTPUT" menu.

	Setting in the WPM Output re-stricted to [%]	Sound power level Maximum value due to output restriction [dB(A)]	Heating output Maximum at A-7/W35 [kw]
HPA-O 7 (C)S Premium	70	52	4.80
	63	50	4.30
HPA-O 10 (C) Premium	70	54	7.10
	70	54	7.10
HPA-O 13 (C)(S) Premium	70	57	9.00
	61	54	7.85

- ▶ In the “PROGRAMS / SILENT PROGRAM 1” menu, set the times when the heat pump should switch to a quieter operating mode.

### 14. Appliance shutdown



#### Material losses

Never interrupt the heat pump power supply, even outside of the heating season. Otherwise, system frost protection is not guaranteed. The heat pump manager automatically switches the heat pump to summer or winter mode.

#### 14.1 Standby mode

To shut the system down, simply set the heat pump manager to “Standby mode”. This way, the safety functions that protect the system remain enabled, e.g. frost protection.

#### 14.2 Power interruption

If the system is to be isolated from the power supply permanently, please observe the following:



#### Material losses

If the heat pump is completely switched off and there is a risk of frost, drain the system on the water side.

### 15. Maintenance

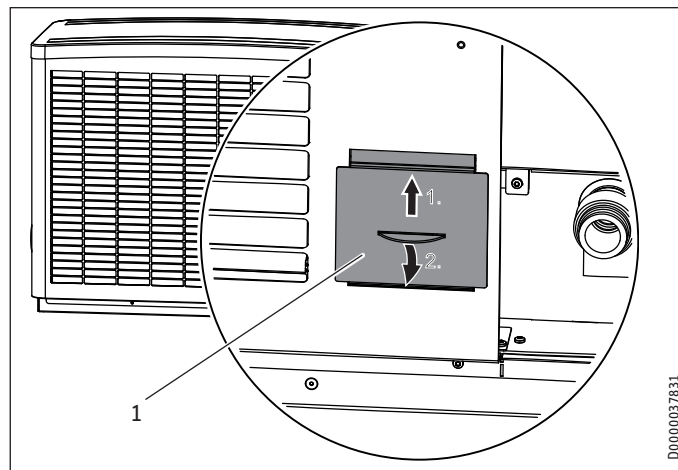


#### WARNING Electrocutation

- ▶ Prior to commencing any service or cleaning work, isolate the appliance across all poles from the power supply. Following disconnection from the power supply, parts of the appliance may remain energised for 2 minutes until the inverter capacitors have discharged.

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

Check the condensate drain (visual inspection). Remove any contaminants and blockages immediately.



1 Inspection port



#### Material losses

- Keep the air discharge and intake apertures free from snow and ice.

Remove any leaves or other foreign bodies from the evaporator fins periodically.

### 16. Troubleshooting



#### WARNING Electrocutation

- ▶ Before working on the appliance, isolate it from the power supply at the control panel. Following disconnection from the power supply, parts of the appliance may remain energised for 2 minutes until the inverter capacitors have discharged.



#### Note

- Please observe the instructions for the heat pump manager.

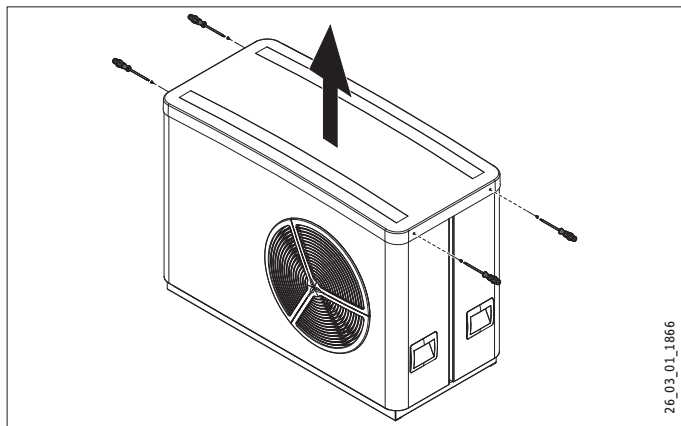
If the fault cannot be located during a service using the heat pump manager, open the control panel in emergencies and check the IWS settings.

# INSTALLATION

## Troubleshooting

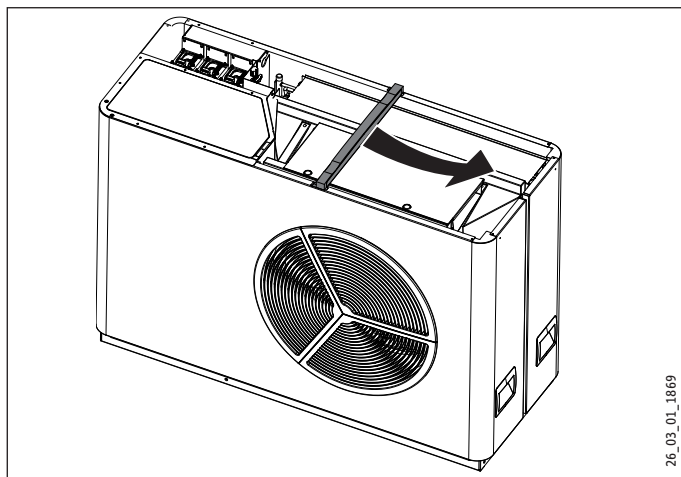
### 16.1 Checking the IWS DIP switch settings

Carry out the following steps to make the IWS accessible.



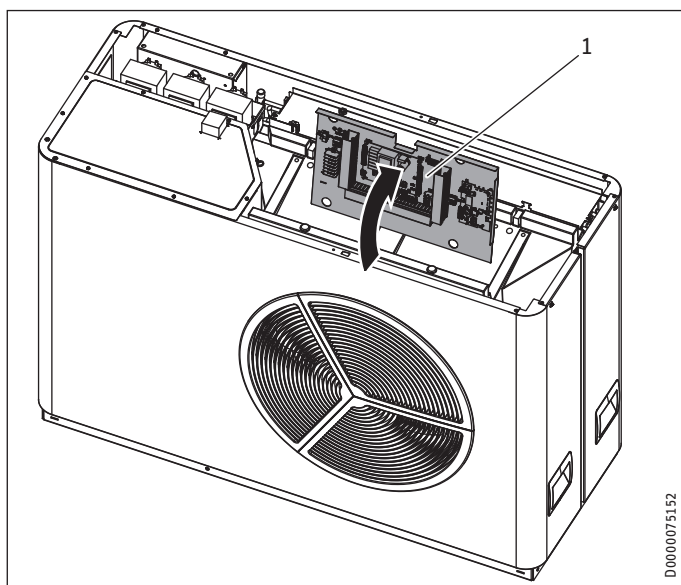
26\_03\_01\_1866

► Remove the cover.



26\_03\_01\_1869

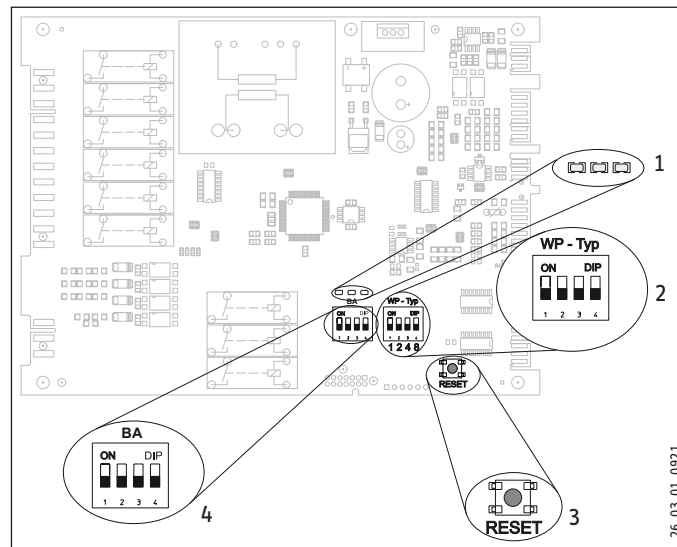
► Remove the bracket highlighted in grey.



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- 1 IWS
- Lift the control panel.
  - Turn the control panel around.

### IWS



26\_03\_01\_0921

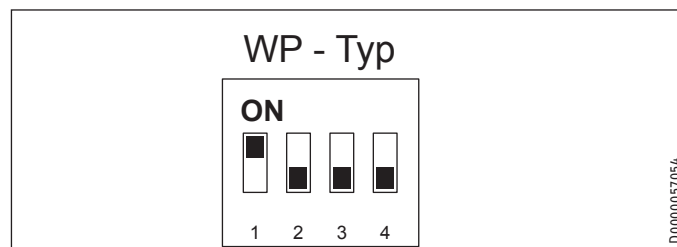
- 1 LEDs
- 2 DIP switch (WP-Typ)
- 3 Reset button
- 4 DIP switch (BA)

#### DIP switch (WP-Typ)

The DIP switch (WP-Typ) on the IWS serves to set the relevant heat pump type.

#### Factory setting

##### Compressor mode with electric emergency/booster heater



D0000057054

► Check whether the DIP switch is set correctly.

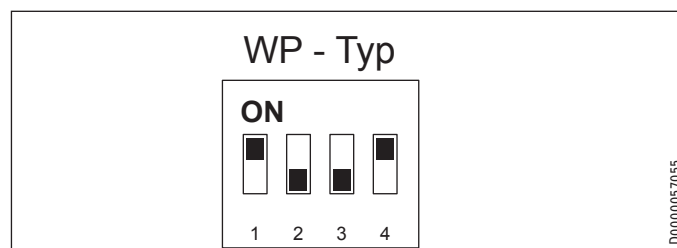
##### Compressor mode with an external second heat generator



#### Material losses

In this case, do not connect the electric emergency/booster heater.

If the appliance is operated in dual mode operation with an external second heat generator or as a module with a further heat pump, set the DIP switch as shown.



D0000057055

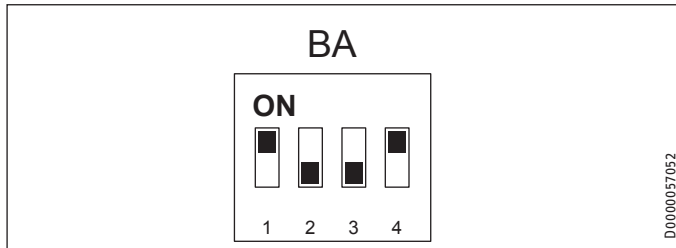
# INSTALLATION

## Troubleshooting

### DIP switch (BA)

- Check whether the DIP switch (BA) is set correctly.

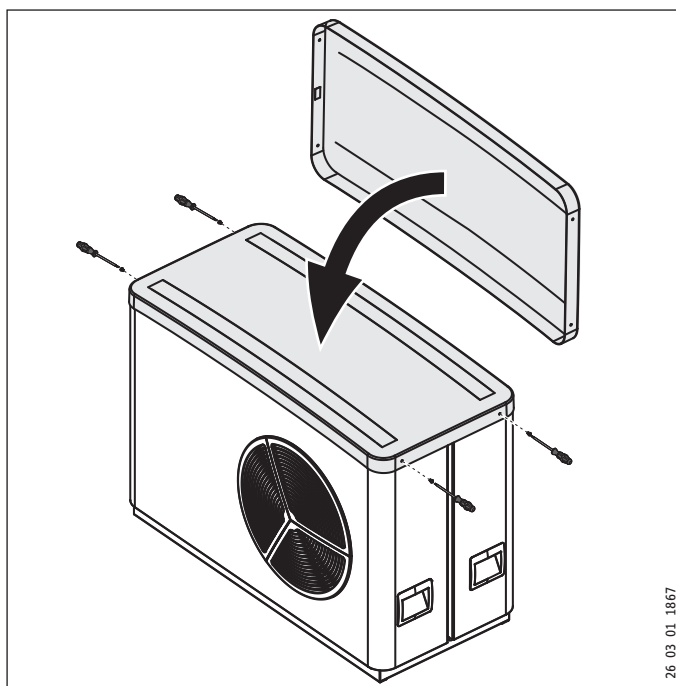
### Heating mode



### Heating and cooling mode

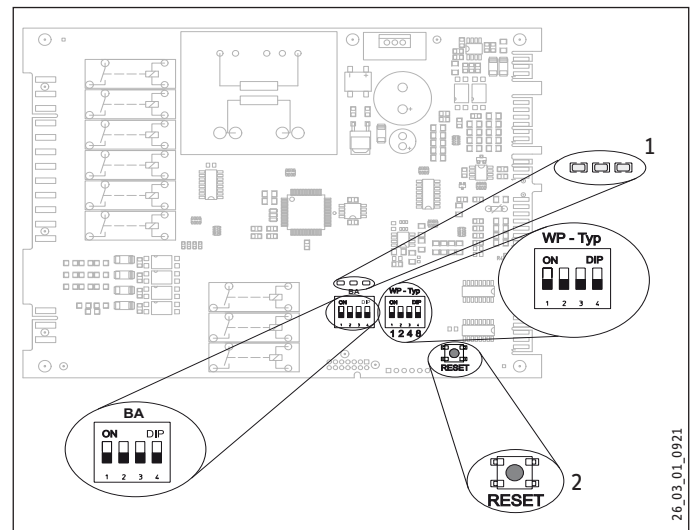


### 16.1.1 Closing the terminal area



- Position the cover on the appliance.
- Secure the cover with the four screws.

## 16.2 Light emitting diodes (LEDs)



- 1 LEDs
- 2 Reset button

The following table shows the meaning of the LEDs on the IWS.

LED indicator	Meaning
Red LED flashes	Single fault. The appliance is shut down and re-starts after 10 minutes. The LED extinguishes.
Red LED illuminates	More than 5 faults within 2 hours run. The appliance is shut down permanently and only restarts following a reset on the IWS. This also resets the internal fault counter. The appliance can be restarted after 10 minutes. The LED extinguishes.
Green LED (centre) flashes	The heat pump is initialising.
Green LED (centre) illuminates	The heat pump was initialised successfully and the connection with the WPM is active.

### Faults indicated by the red LED:

- High pressure fault
- Low pressure fault
- Central fault
- Hardware fault on the IWS (see fault list or message list for the WPM heat pump manager)

### 16.3 Reset button

If the IWS was not initialised successfully, you can reset the settings with this button.

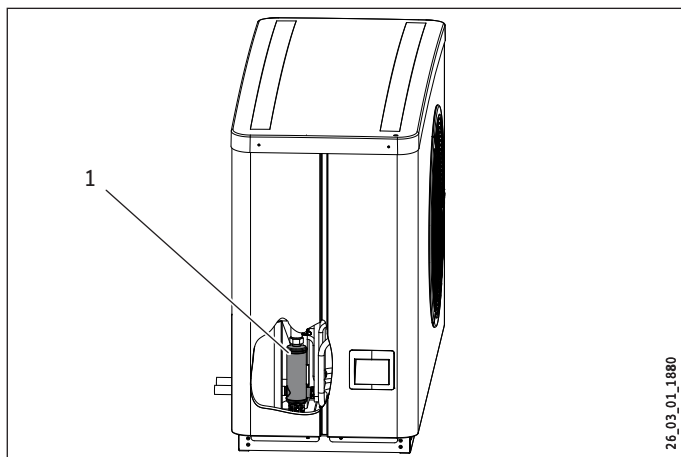
- For this, also observe chapter "Reinitialising the IWS" in the heat pump manager instructions.

# INSTALLATION

## Troubleshooting

### 16.4 Resetting the high limit safety cut-out

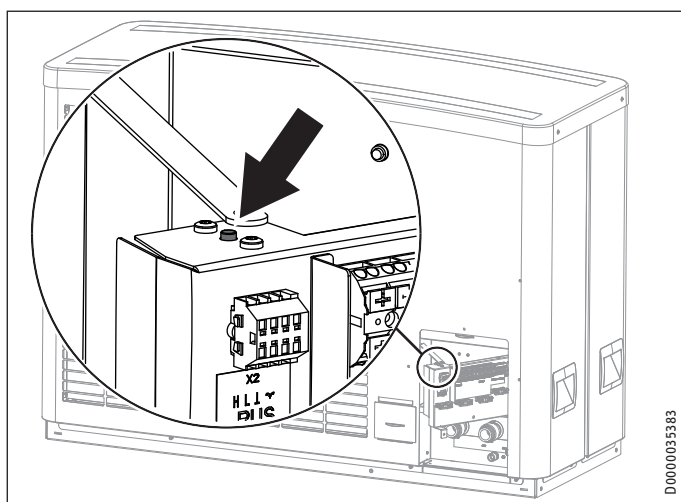
The electric emergency/booster heater stops if the heating water temperature exceeds 85 °C, for example if the flow rate is too low.



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1 Electric emergency/booster heater

- ▶ Remove the cause of the fault.



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- ▶ Reset the high limit safety cut-out by pressing the reset button.
- ▶ Check whether the heating water is being circulated at a sufficiently high flow rate.

### 16.5 Fan noise

The heat pump draws heat from the outdoor air. This causes the outdoor air to cool down. At outside temperatures of 0 °C to 8 °C, the air may be cooled to below freezing point. If, under these conditions, precipitation occurs in the form of rain or fog, ice may form on the air grille, the fan blades or the air routing pipes. If the fan comes into contact with this ice, this creates noise.

#### How to remedy rhythmic scratching or grinding noises:

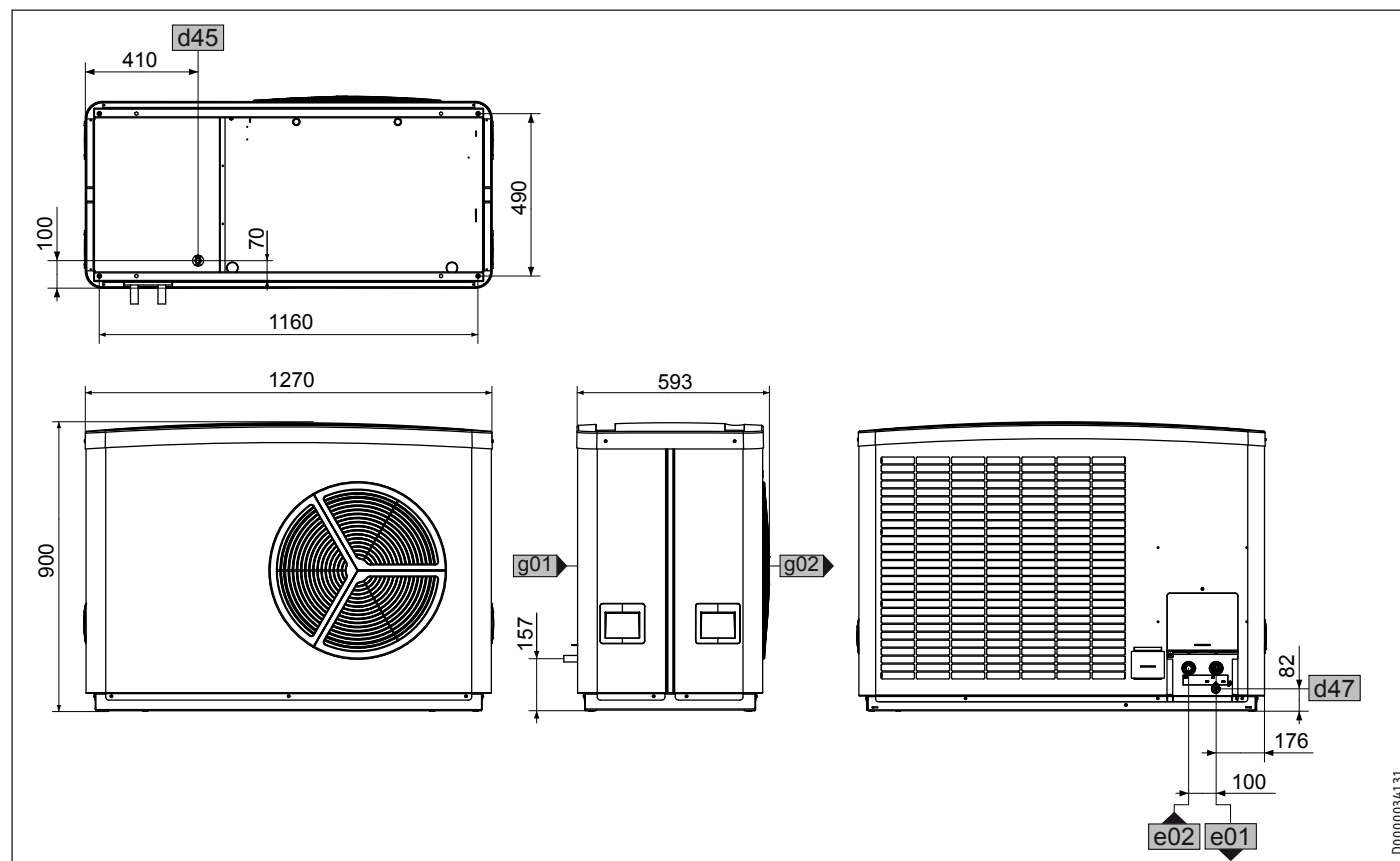
- ▶ Check whether the condensate drain is clear of obstructions.
- ▶ Check whether the design output and temperature are set correctly. Ice formation is particularly pronounced when a high heating output is demanded at moderate outside temperatures.

- ▶ Carry out a manual defrost, as many times as necessary, until the fan runs freely again. Observe the information in the WPM instructions and parameter "START DEFROST" in menu "COMMISSIONING / COMPRESSOR".
- ▶ At outside temperatures above +1 °C, shut down the appliance or switch it over to emergency mode for approx. 1 hour. After this, the ice should have melted.
- ▶ Check that the appliance is installed in line with the installation requirements.
- ▶ If noise occurs frequently, activate intensive defrost. Observe the information in the WPM instructions and parameter "POWERDEFROST" in menu "COMMISSIONING / COMPRESSOR".
- ▶ If noise persists, notify the customer service department.

## 17. Specification

### 17.1 Dimensions and connections

HPA-0 7 S Premium | HPA-0 7 CS Premium

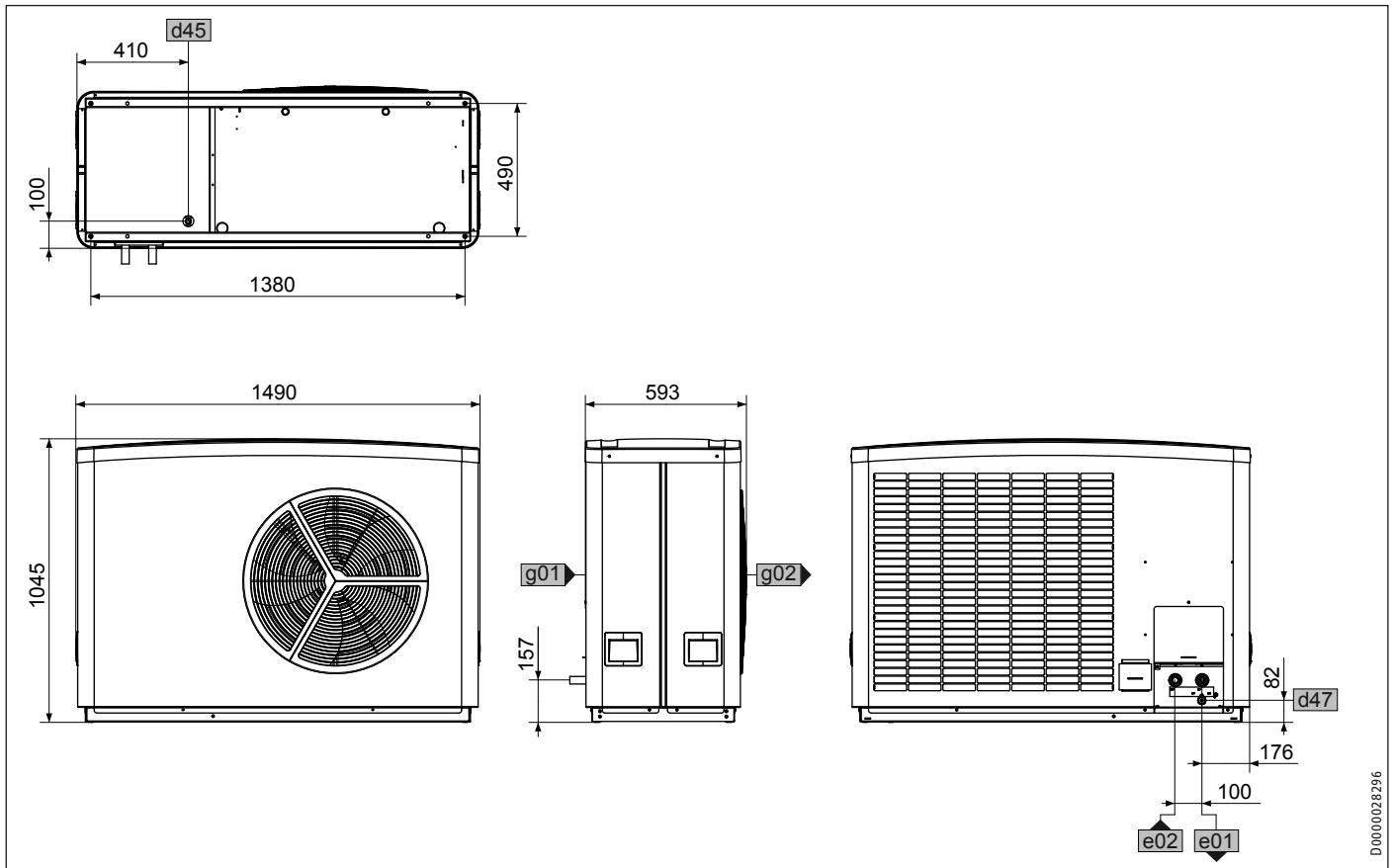


			HPA-0 7 S Premium	HPA-0 7 CS Premium
e01	Heating flow	Type of connection	Push-fit connection	Push-fit connection
		Diameter	mm	28
e02	Heating return	Type of connection	Push-fit connection	Push-fit connection
		Diameter	mm	28
d45	Condensate drain	Diameter	mm	29.6
d47	Drain			29.6
g01	Air intake			
g02	Air discharge			



# INSTALLATION Specification

HPA-O 10 Premium | HPA-O 10 C Premium | HPA-O 13 Premium | HPA-O 13 S Premium | HPA-O 13 C Premium | HPA-O 13 CS Premium



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			HPA-O 10 Premium	HPA-O 10 C Premium	HPA-O 13 S Premium	HPA-O 13 CS Premium	HPA-O 13 Premium	HPA-O 13 C Premium
e01	Heating flow	Type of connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection
		Diameter	mm	28	28	28	28	28
e02	Heating return	Type of connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection	Push-fit connection
		Diameter	mm	28	28	28	28	28
d45	Condensate drain	Diameter	mm	29.6	29.6	29.6	29.6	29.6
d47	Drain							
g01	Air intake							
g02	Air discharge							



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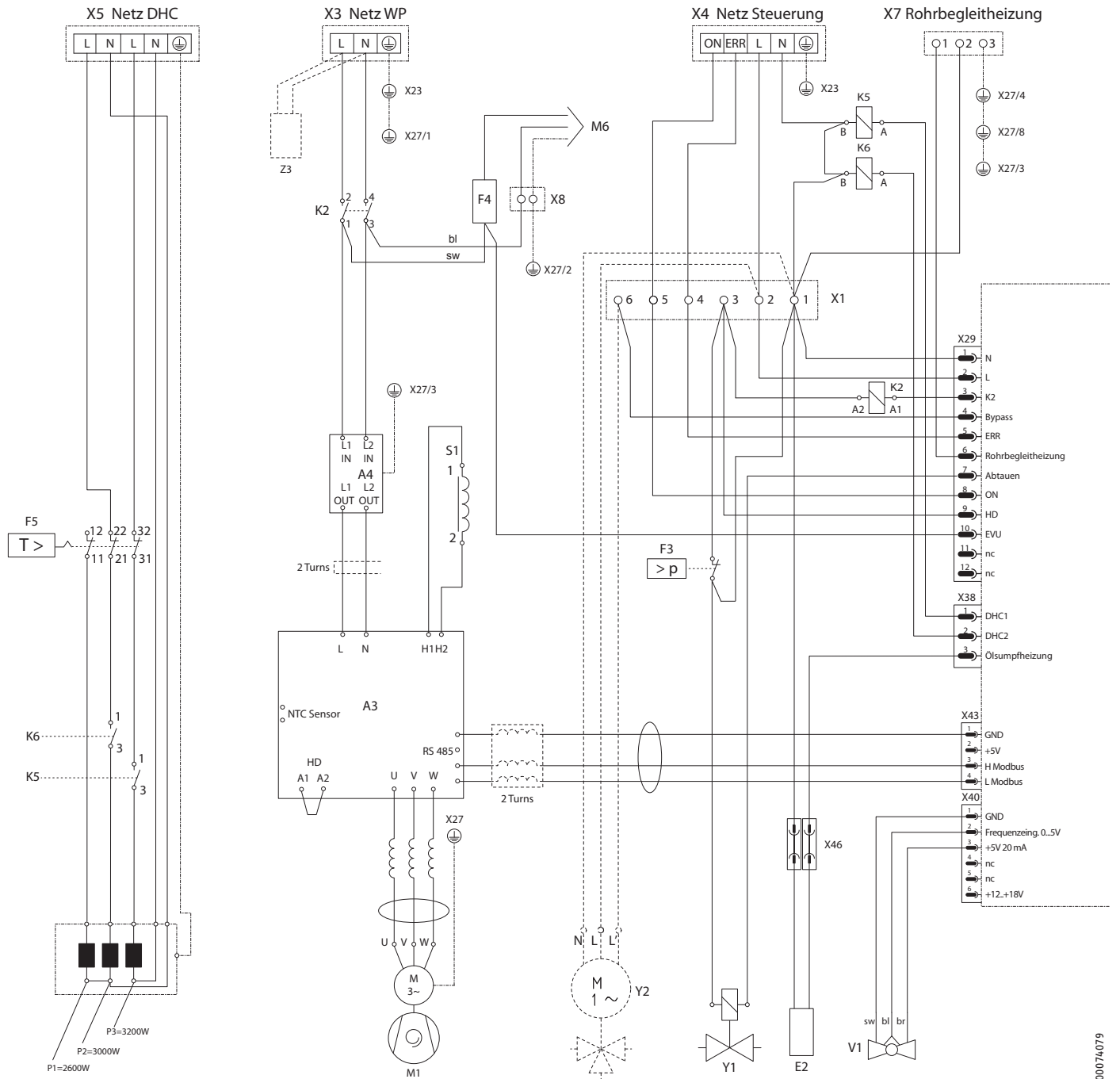
INSTALLATION  
Specification

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# INSTALLATION Specification

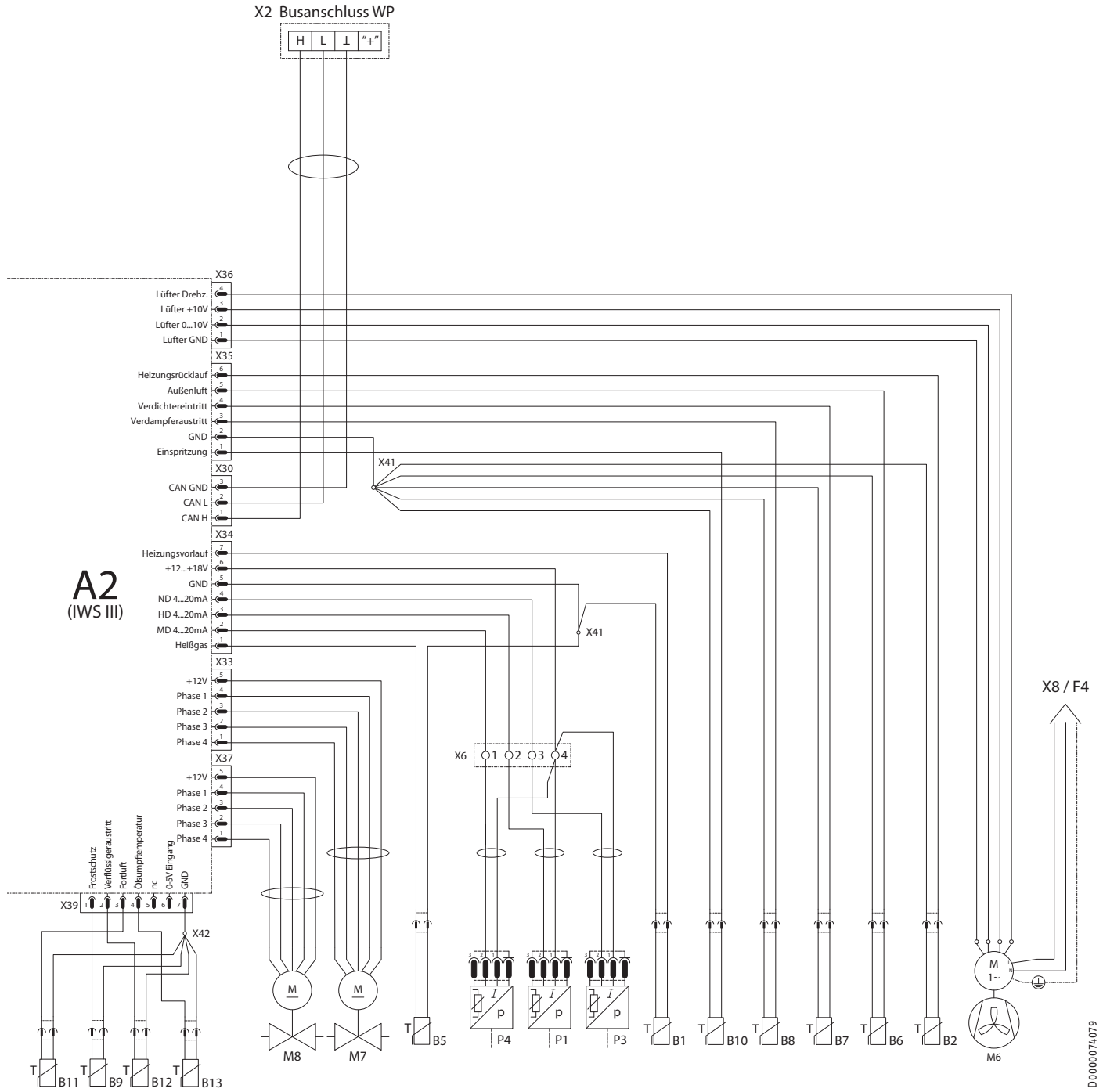
## 17.2 Wiring diagram

HPA-0 7 S Premium | HPA-0 7 CS Premium | HPA-0 13 S Premium | HPA-0 13 CS Premium (single phase)



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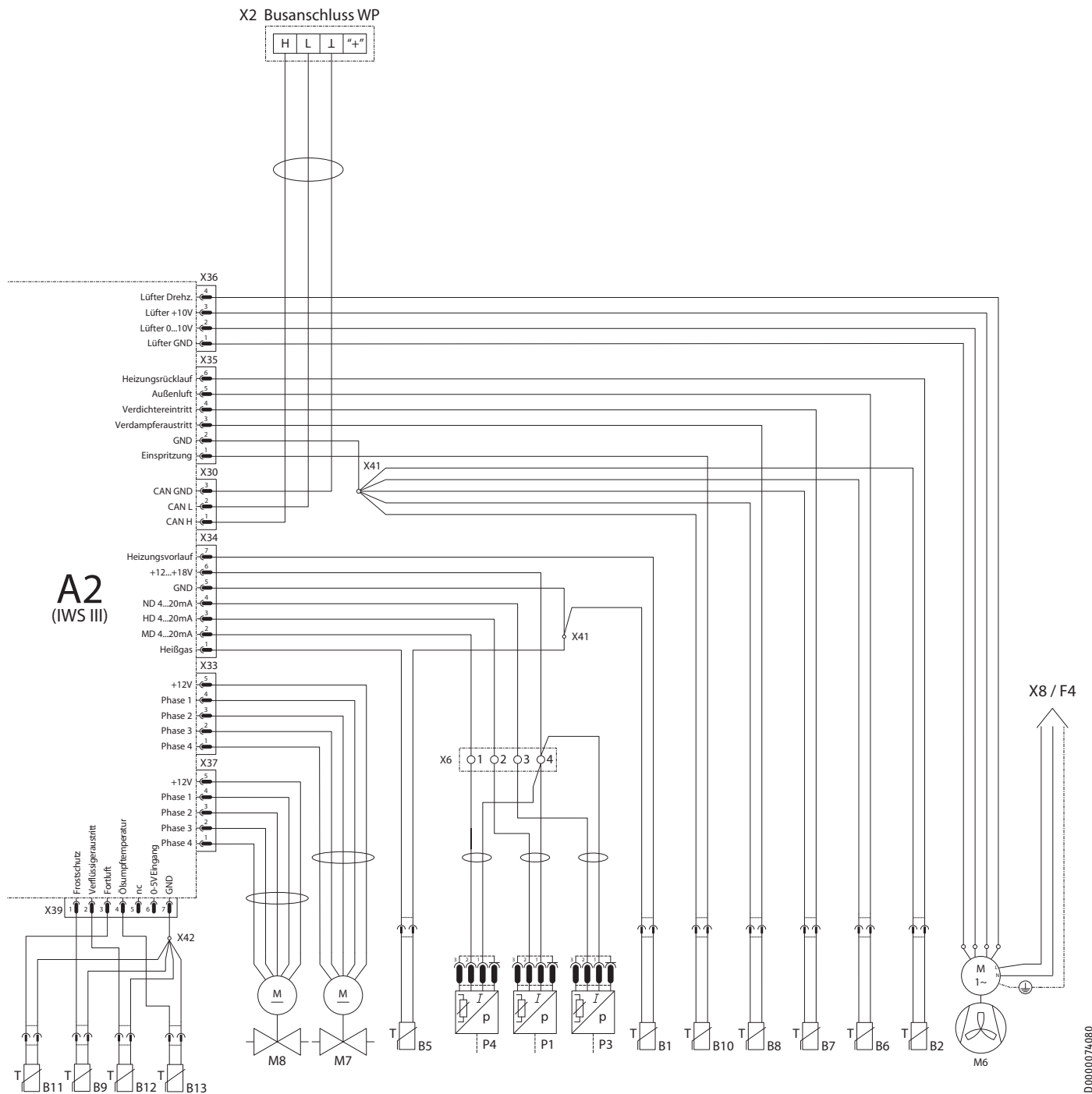
# INSTALLATION Specification



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# INSTALLATION Specification



D0000074.080

# INSTALLATION Specification

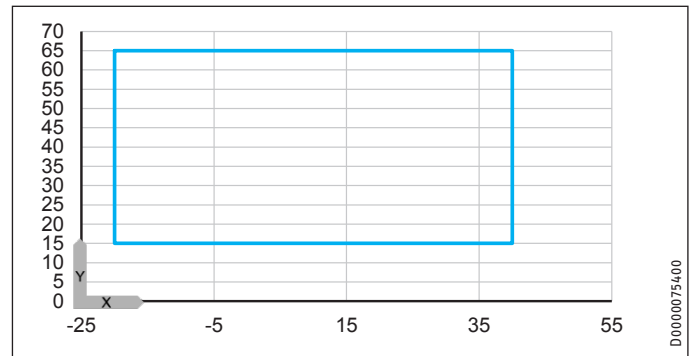
## Key

A2	Integral heat pump control unit (IWS)
A3	Inverter, compressor
A4	Filter assembly
A5	DC assembly
B1	Heating flow temperature sensor - KTY
B2	Heating return temperature sensor - KTY
B5	Hot gas temperature sensor - PT1000
B6	Outdoor air temperature sensor - PT1000
B7	Compressor intake temperature sensor - PT1000
B8	Evaporator discharge temperature sensor - PT1000
B9	Frost protection temperature sensor - KTY
B10	Injection temperature sensor - PT1000
B11	Exhaust air temperature sensor - KTY
B12	Condenser discharge temperature sensor - KTY
B13	Oil sump temperature sensor - KTY
E1	Emergency/booster heater NHZ
E2	Oil sump heater
F3	High pressure switch 42 bar
F4	Fuse 10 A (fan)
F5	High limit safety cut-out for NHZ
K2	Compressor start contactor L
K5	NHZ relay
K6	NHZ relay
K7	NHZ relay
M1	Compressor motor
M6	Fan motor
M7	Electrical expansion valve stepper motor
M8	Electrical injection valve stepper motor
P1	High pressure sensor (42 bar)
P3	Low pressure sensor (16 bar)
P4	Mean pressure sensor (30 bar)
S1	Sinus filter coil
S2	Sinus filter coil
S3	Sinus filter coil
V1	Flow rate sensor
X1	Internal distribution terminal
X2	External bus terminal
X3	External power supply terminal
X4	External control unit terminal
X5	External NHZ terminal
X6	4-pole terminal
X7	Ribbon heater terminal
X8	2-pole terminal
X23	Earth block, power supply
X27	Earth stud
X29	IWS plug 12-pin - control unit
X30	IWS plug 3-pin - BUS
X33	IWS plug 5-pin - electrical expansion valve
X34	IWS plug 7-pin - sensors
X35	IWS plug 6-pin - temperature sensors
X36	IWS plug 3-pin - fan
X37	IWS plug 5-pin - electrical injection valve
X38	IWS plug 3-pin - oil sump
X39	IWS plug 7-pin - temperature
X40	IWS plug 6-pin - HT special
X41	Link PCB ground
X42	Link PCB ground
X43	IWS plug 3-pin - Modbus
X46	Plug-in connector
Y1	Diverter valve, defrost
Y2	Bypass diverter valve (only for HPA-O 7 CS Premium, HPA-O 10 C Premium, HPA-O 13 C Premium, HPA-O 13 CS Premium)

Z3 Interference suppression filter

## 17.3 Application limit

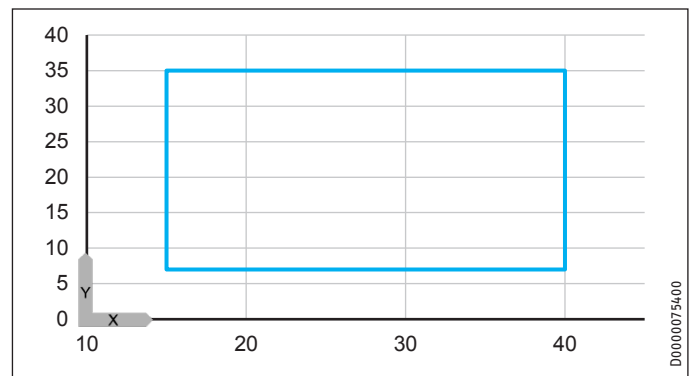
### 17.3.1 Heating



X Outside temperature [°C]

Y Flow temperature [°C]

### 17.3.2 Cooling



X Outside temperature [°C]

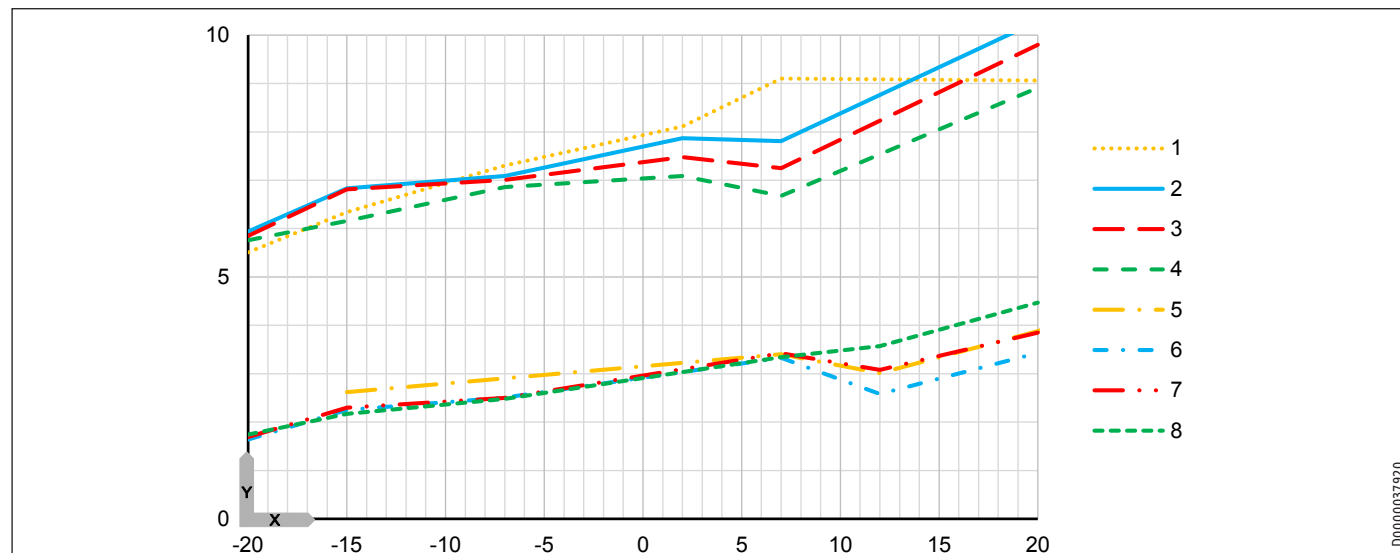
Y Flow temperature [°C]

# INSTALLATION Specification

## 17.4 Output diagrams

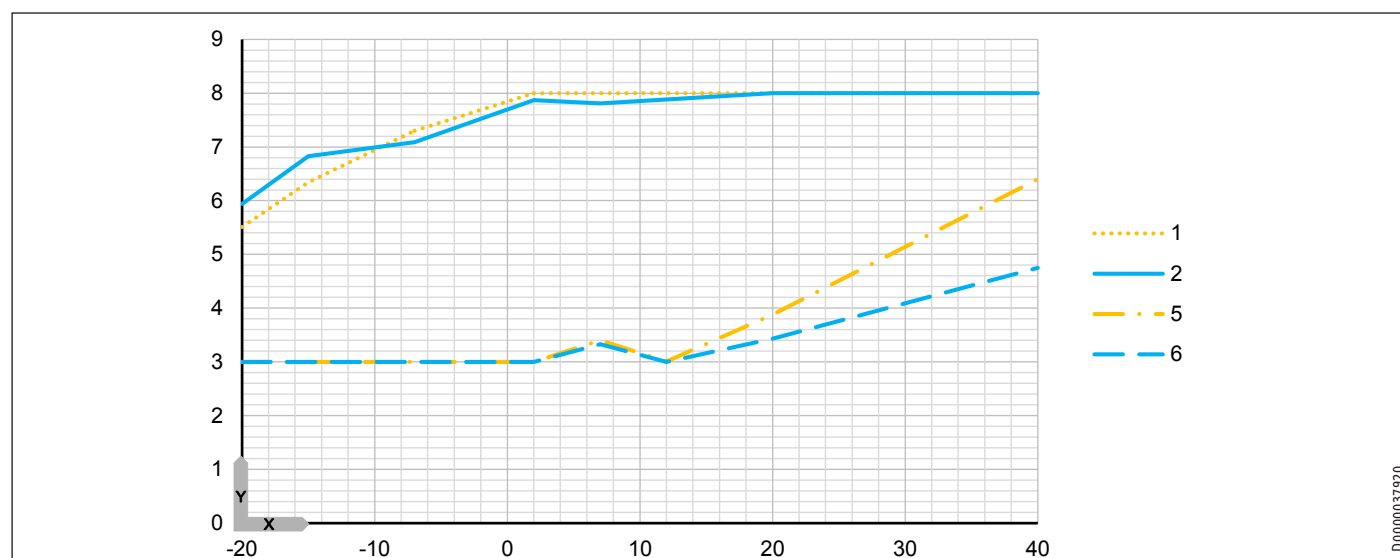
### 17.4.1 HPA-0 7 S Premium | HPA-0 7 CS Premium

#### Heating output



X Outside temperature [°C]    1 max. W65                    3 max. W45                    5 min. W65                    7 min. W45  
 Y Heating output [kW]        2 max. W55                    4 max. W35                    6 min. W55                    8 min. W35

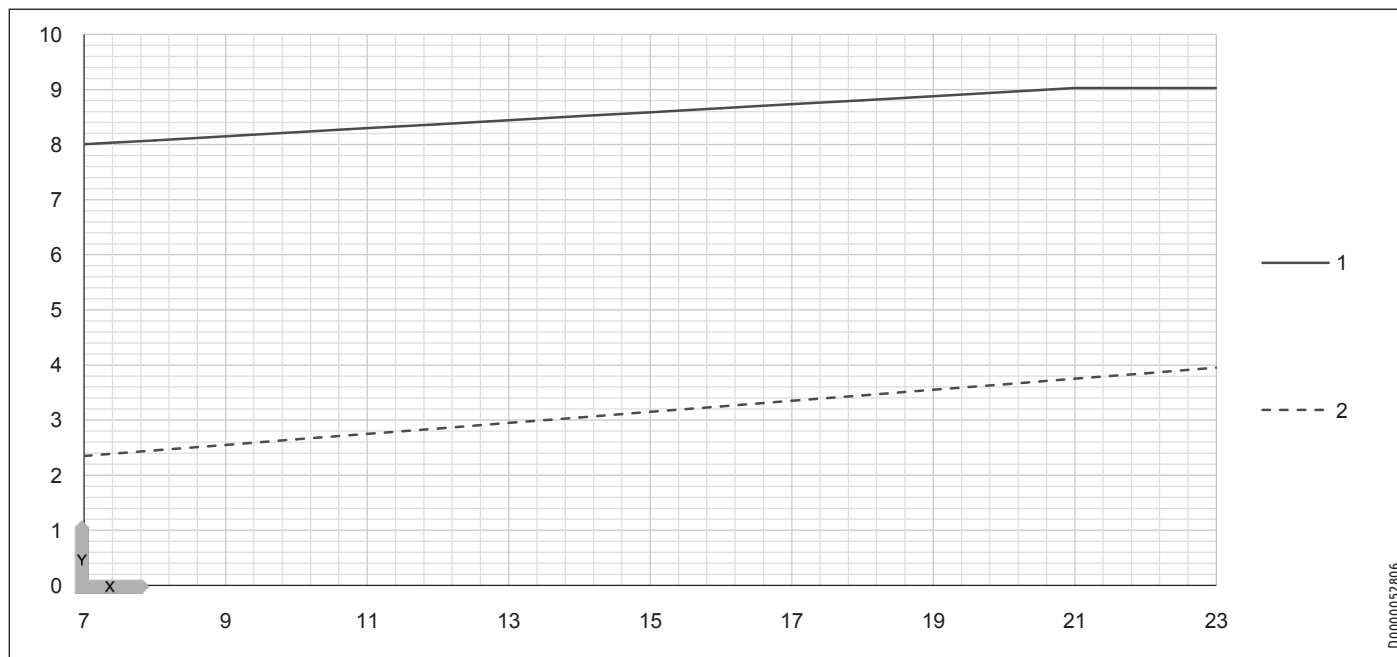
#### DHW output



X Outside temperature [°C]    1 max. W65                    5 min. W65  
 Y DHW output [kW]            2 max. W55                    6 min. W55

# INSTALLATION Specification

## Cooling capacity



X Flow temperature [°C]      1 Max. A35  
Y Cooling capacity [kW]      2 Min. A35

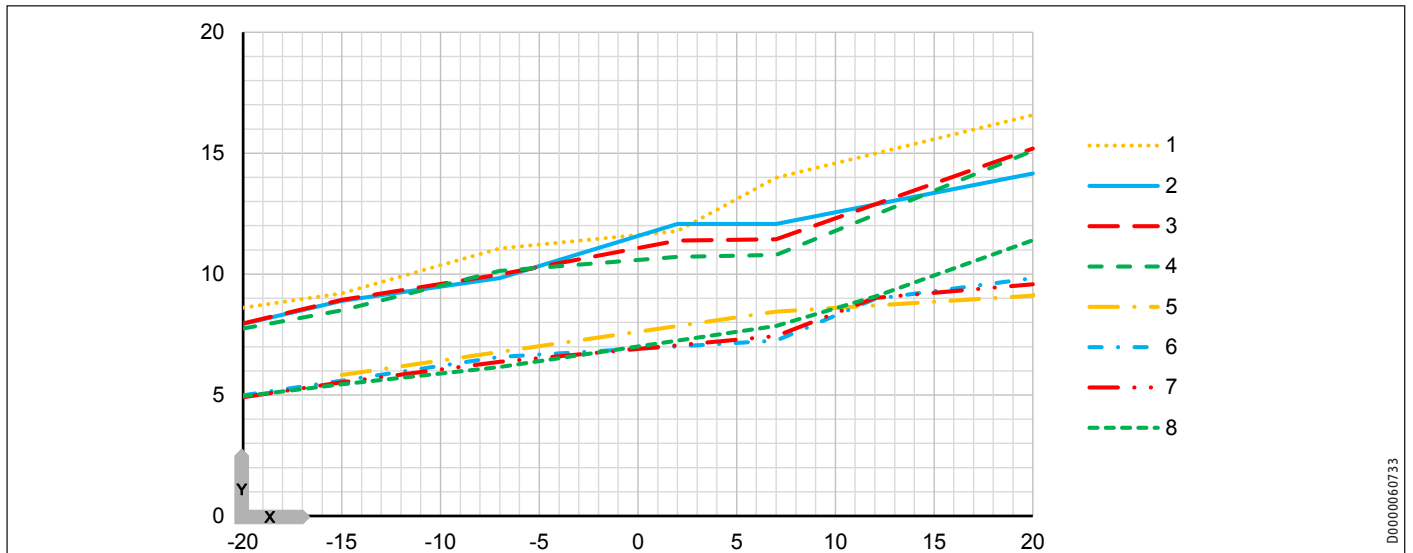
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# INSTALLATION Specification

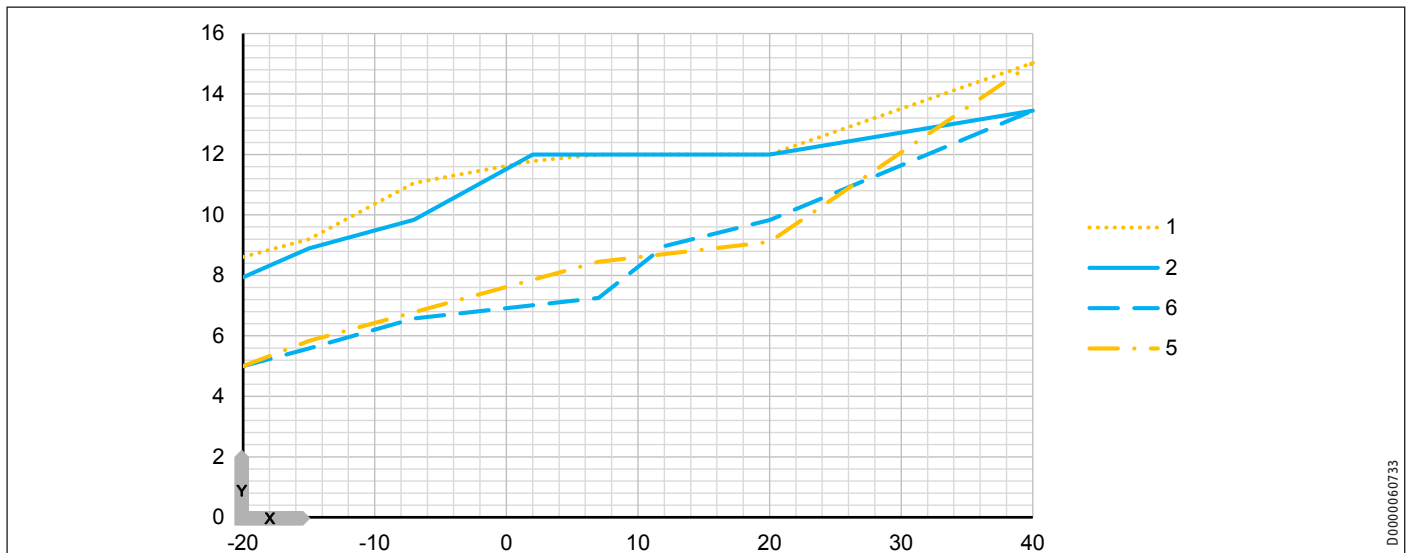
## 17.4.2 HPA-O 10 Premium | HPA-O 10 C Premium

### Heating output



X Outside temperature [°C]	1 max. W65	3 max. W45	5 min. W65	7 min. W45
Y Heating output [kW]	2 max. W55	4 max. W35	6 min. W55	8 min. W35

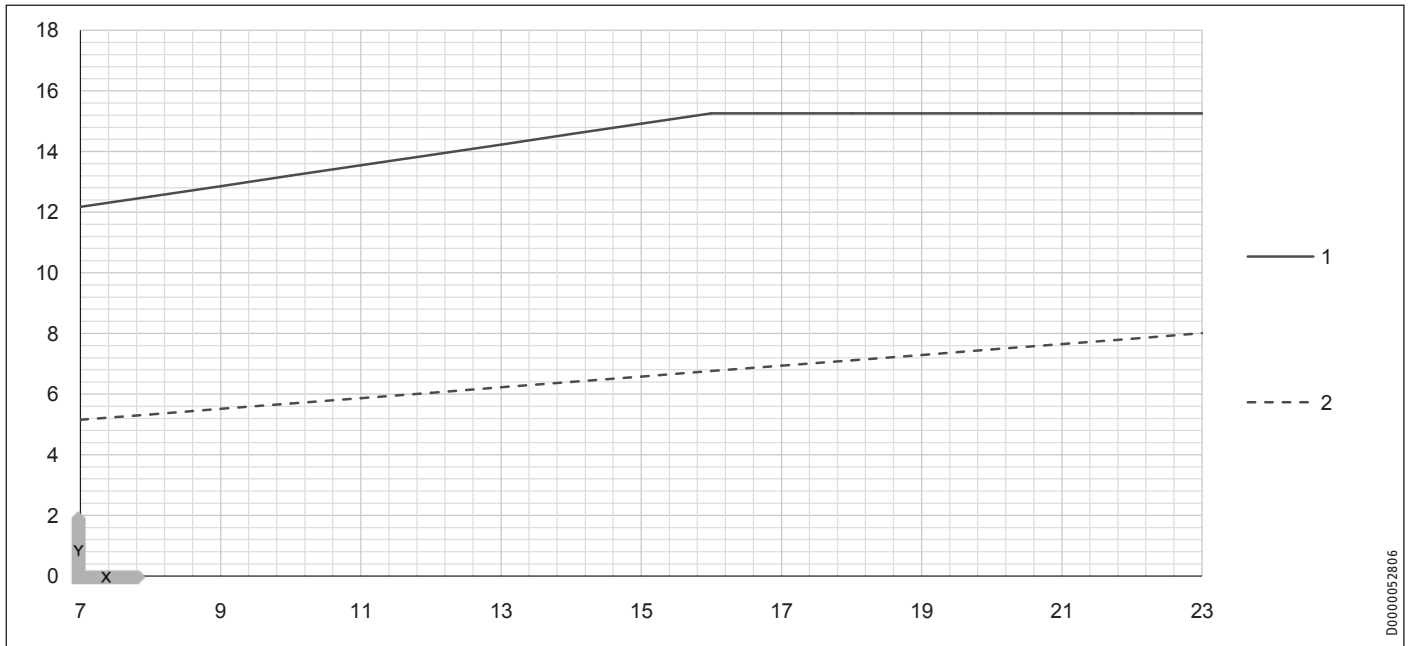
### DHW output



X Outside temperature [°C]	1 max. W65	5 min. W65
Y DHW output [kW]	2 max. W55	6 min. W55

# INSTALLATION Specification

## Cooling capacity



X Flow temperature [°C]  
Y Cooling capacity [kW]

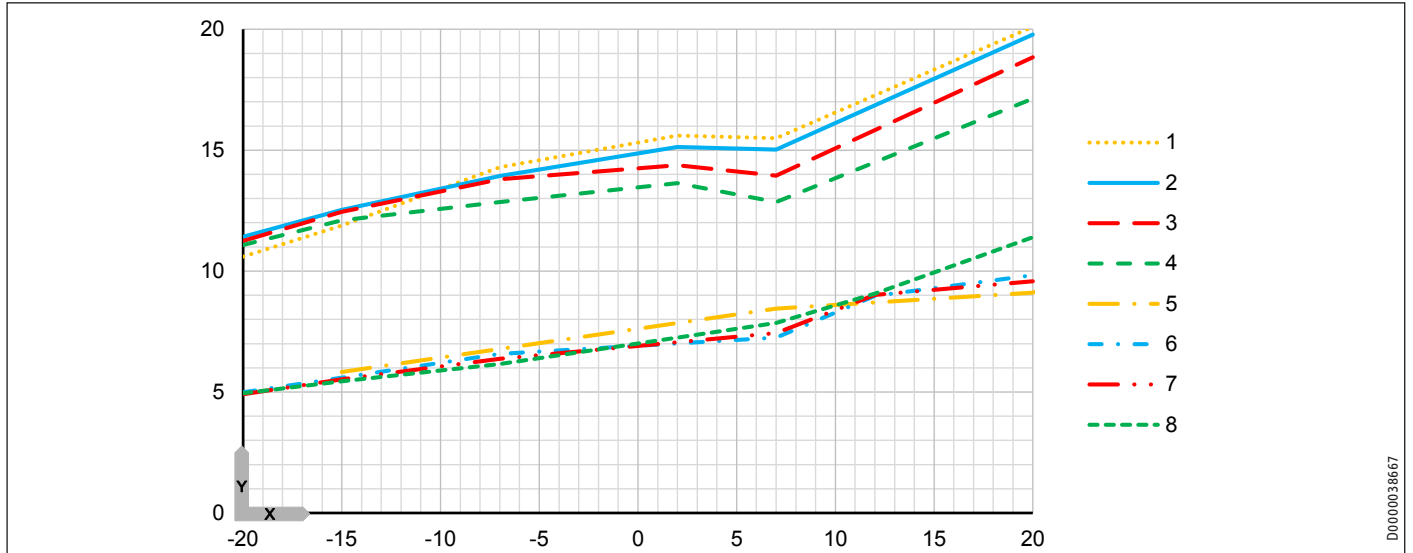
1 Max. A35  
2 Min. A35

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# INSTALLATION Specification

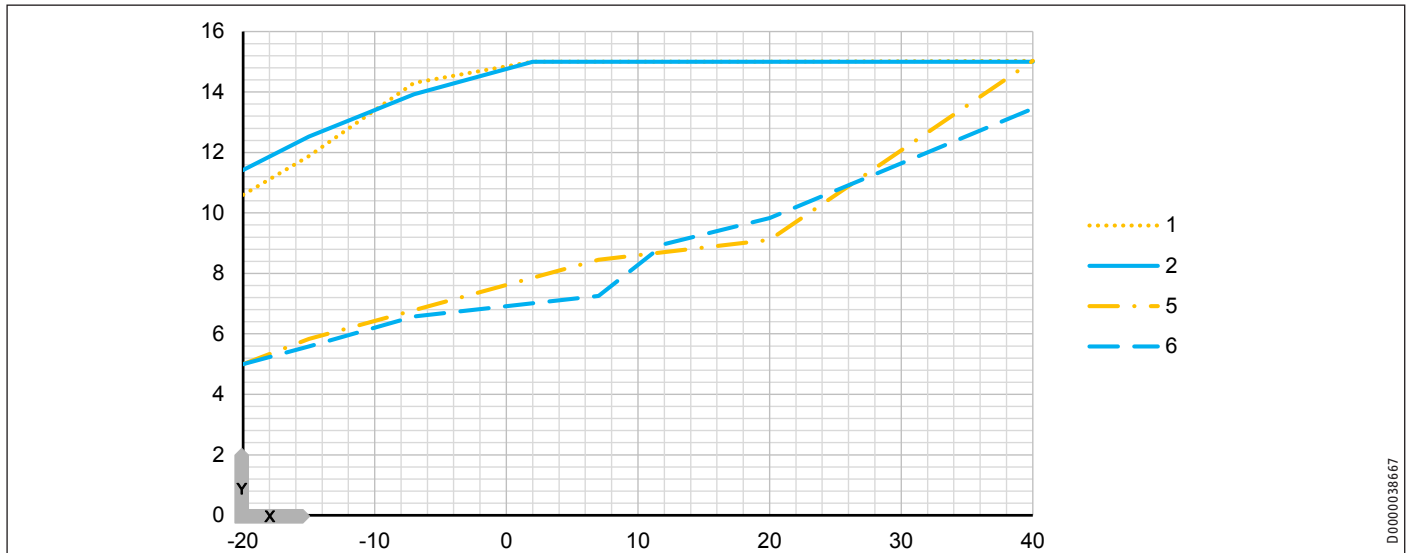
## 17.4.3 HPA-O 13 Premium | HPA-O 13 C Premium | HPA-O 13 S Premium | HPA-O 13 CS Premium

### Heating output



X Outside temperature [°C]	1 max. W65	3 max. W45	5 min. W65	7 min. W45
Y Heating output [kW]	2 max. W55	4 max. W35	6 min. W55	8 min. W35

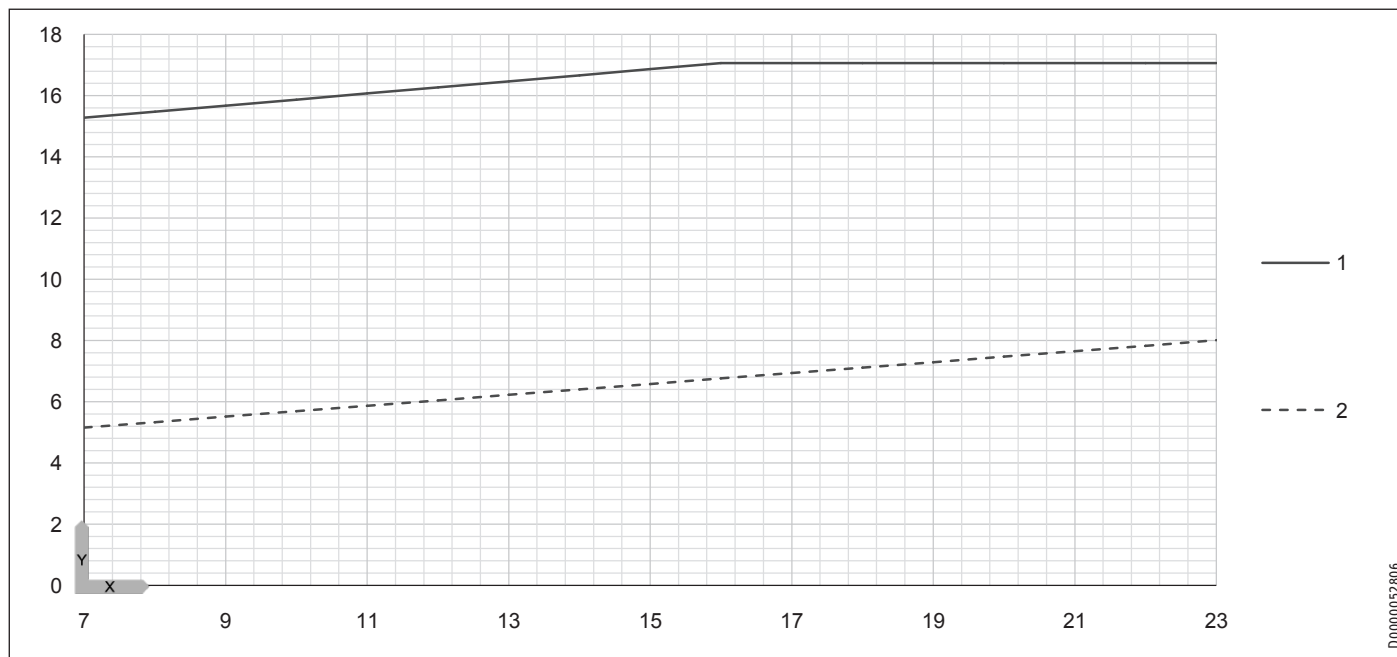
### DHW output



X Outside temperature [°C]	1 max. W65	5 min. W65
Y DHW output [kW]	2 max. W55	6 min. W55

# INSTALLATION Specification

## Cooling capacity



X Flow temperature [°C]      1 Max. A35  
Y Cooling capacity [kW]      2 Min. A35

D000052806

# INSTALLATION Specification

## 17.5 Data table

The performance data apply for new appliances with clean heat exchangers.

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

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

		HPA-0 7 S Premi- um	HPA-0 7 CS Pre- mium	HPA-0 10 Premium	HPA-0 10 C Premi- um	HPA-0 13 S Premi- um	HPA-0 13 CS Pre- mium	HPA-0 13 Premium	HPA-0 13 C Premi- um
		238976	238977	238978	238979	238980	238981	238982	238983
<b>Heating output</b>									
Heating output at A7/W35 (min./max.)	kW	3.50/7.40	3.50/7.40	7.85/10.80	7.85/10.80	7.85/12.85	7.85/12.85	7.85/12.85	7.85/12.85
Heating output at A2/W35 (min./max.)	kW	3.10/7.09	3.10/7.09	8.33/10.71	8.33/10.71	8.33/13.64	8.33/13.64	8.33/13.64	8.33/13.64
Heating output at A-7/W35 (min./max.)	kW	2.50/6.86	2.50/6.86	6.16/10.14	6.16/10.14	6.16/12.86	6.16/12.86	6.16/12.86	6.16/12.86
Heating output at A7/W65 (EN 14511)	kW	4.56	4.56	8.45	8.45	8.45	8.45	8.45	8.45
Heating output at A7/W35 (EN 14511)	kW	4.68	4.68	7.84	7.84	8.00	8.00	7.84	7.84
Heating output at A2/W35 (EN 14511)	kW	4.23	4.23	8.33	8.33	8.33	8.33	8.33	8.33
Heating output at A-7/W35 (EN 14511)	kW	6.86	6.86	9.54	9.54	12.86	12.86	12.86	12.86
Heating output at A-7/W55 (EN 14511)	kW	7.09	7.09	10.73	10.73	13.97	13.97	13.93	13.93
Heating output at A-7/W65 (EN 14511)	kW	7.30	7.30	11.06	11.06	14.30	14.30	14.30	14.30
Heating output at A-15/W35 (EN 14511)	kW	6.16	6.16	8.51	8.51	11.96	11.96	12.05	12.05
Heating output in silent mode at A-7/W35 (70 %)	kW	4.80	4.80	7.10	7.10	9.00	9.00	9.00	9.00
Max. heating output in silent mode at A-7/W35	kW	4.30	4.30	7.10	7.10	7.85	7.85	7.85	7.85
Max. cooling capacity at A35/W7	kW		7.86		11.49		14.88		14.88
Cooling capacity at A35/W7 partial load	kW		2.15		4.80		4.80		4.80
Max. cooling capacity at A35/W18	kW		8.66		15.26		17.06		17.06
Cooling capacity at A35/W18 partial load	kW		3.25		6.76		6.76		6.76
<b>Power consumption</b>									
Power consumption at A7/W65 (EN 14511)	kW	1.93	1.93	3.28	3.28	3.28	3.28	3.28	3.28
Power consumption at A7/W35 (EN 14511)	kW	1.11	1.11	1.54	1.54	1.66	1.66	1.54	1.54
Power consumption at A2/W35 (EN 14511)	kW	1.09	1.09	2.01	2.01	2.01	2.01	2.01	2.01
Power consumption at A-7/W35 (EN 14511)	kW	2.42	2.42	2.93	2.93	4.31	4.31	4.16	4.16
Power consumption at A-7/W55 (EN 14511)	kW	3.38	3.38	4.10	4.10	5.94	5.94	5.76	5.76
Power consumption at A-7/W65 (EN 14511)	kW	3.95	3.95	5.25	5.25	7.53	7.53	7.53	7.53
Power consumption at A-15/W35 (EN 14511)	kW	2.45	2.45	2.91	2.91	4.56	4.56	4.48	4.48
Max. power consumption, fan heating	kW	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20
Power consumption, emergency/booster heater	kW	6.20	6.20	8.80	8.80	8.80	8.80	8.80	8.80
<b>Coefficient of performance</b>									
COP at A7/W65 (EN 14511)		2.36	2.36	2.57	2.57	2.57	2.57	2.57	2.57
COP at A7/W35 (EN 14511)		4.23	4.23	5.09	5.09	4.82	4.82	5.09	5.09
COP at A2/W35 (EN 14511)		3.88	3.88	4.14	4.14	4.14	4.14	4.14	4.14
COP at A-7/W35 (EN 14511)		2.83	2.83	3.26	3.26	2.98	2.98	2.93	2.93
COP at A-7/W55 (EN 14511)		2.10	2.10	2.62	2.62	2.35	2.35	2.42	2.42
COP at A-7/W65 (EN 14511)		1.85	1.85	2.10	2.10	1.90	1.90	1.90	1.90
COP at A-15/W35 (EN 14511)		2.51	2.51	2.92	2.92	2.62	2.62	2.69	2.69
SCOP (EN 14825)		3.84	4.04	4.70	4.87	4.39	4.53	4.63	4.76
Max. cooling capacity factor at A35/W7			2.41		2.53		2.38		2.38
Cooling capacity factor at A35/W7 partial load			2.39		2.84		2.84		2.84
Max. cooling capacity factor at A35/W18			2.87		3.12		2.83		2.83
Cooling capacity factor at A35/W18 partial load			3.78		3.76		3.76		3.76
<b>Sound emissions</b>									
Sound power level (EN 12102)	dB(A)	50	50	54	54	54	54	54	54
Sound pressure level at 5 m in free field	dB(A)	28	28	32	32	32	32	32	32
Max. sound power level for outdoor installation	dB(A)	61	61	66	66	66	66	66	66
Sound power level in silent mode 70 %	dB(A)	52	52	54	54	57	57	57	57
Max. sound power level, silent mode	dB(A)	50	50	54	54	54	54	54	54
<b>Application limits</b>									
Min. application limit, heat source	°C	-20	-20	-20	-20	-20	-20	-20	-20
Max. application limit, heat source	°C	40	40	40	40	40	40	40	40
Min. application limit on the heating side	°C	15	15	15	15	15	15	15	15
Max. application limit on the heating side	°C	65	65	65	65	65	65	65	65
Application limit, heat source at W65	°C	-20	-20	-20	-20	-20	-20	-20	-20
Min. cooling mode application limit for outside temperature	°C		15		15		15		15
Max. cooling mode application limit for outside temperature	°C		40		40		40		40

# INSTALLATION Specification

		HPA-0 7 S Premium	HPA-0 7 CS Premium	HPA-0 10 Premium	HPA-0 10 C Premium	HPA-0 13 S Premium	HPA-0 13 CS Premium	HPA-0 13 Premium	HPA-0 13 C Premium
<b>Energy data</b>									
Energy efficiency class		A+/A++	A++/A++	A++/A+++	A++/A+++	A++/A++	A++/A+++	A++/A+++	A++/A+++
<b>Electrical data</b>									
Max. power consumption without emergency/booster heater	kW	4.40	4.40	5.50	5.50	6.90	6.90	7.10	7.10
Rated voltage, compressor	V	230	230	400	400	230	230	400	400
Rated voltage, control unit	V	230	230	230	230	230	230	230	230
Rated voltage, emergency/booster heater	V	230	230	400	400	230	230	400	400
Compressor phases		1/N/PE	1/N/PE	3/N/PE	3/N/PE	1/N/PE	1/N/PE	3/N/PE	3/N/PE
Control unit phases		1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE	1/N/PE
Emergency/booster heater phases		2/N/PE	2/N/PE	3/N/PE	3/N/PE	2/N/PE	2/N/PE	3/N/PE	3/N/PE
Compressor fuse protection	A	1 x B 20	1 x B 20	3 x B 16	3 x B 16	1 x B 35	1 x B 35	3 x B 16	3 x B 16
Control unit fuse protection	A	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16	1 x B 16
Fuse protection, emergency/booster heater	A	2 x B 16	2 x B 16	3 x B 16	3 x B 16	2 x B 16	2 x B 16	3 x B 16	3 x B 16
Starting current	A	7	7	4	4	10	10	4	4
Max. operating current	A	19.10	19.10	7.90	7.90	30.00	30.00	10.20	10.20
<b>Versions</b>									
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	4.2	4.2	4.7	5.5	4.7	5.5	4.7	5.5
CO <sub>2</sub> equivalent (CO <sub>2</sub> e)	t	8.77	8.77	9.81	11.48	9.81	11.48	9.81	11.48
Global warming potential of the refrigerant (GWP100)		2088	2088	2088	2088	2088	2088	2088	2088
IP rating		IP 14B	IP 14B	IP 14B	IP 14B	IP 14B	IP 14B	IP 14B	IP 14B
Condenser material		1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu	1.4401/Cu
<b>Dimensions</b>									
Height	mm	900	900	1045	1045	1045	1045	1045	1045
Width	mm	1270	1270	1490	1490	1490	1490	1490	1490
Depth	mm	593	593	593	593	593	593	593	593
<b>Weights</b>									
Weight	kg	160	160	175	175	175	175	175	175
<b>Connections</b>									
Connection, heating flow/return		28 mm	28 mm	28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
<b>Heating water quality requirements</b>									
Water hardness	°dH	≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3
pH value (with aluminium fittings)		8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5	8.0-8.5
pH value (without aluminium fittings)		8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Conductivity (softening)	µS/cm	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Conductivity (desalination)	µS/cm	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100
Chloride	mg/l	<30	<30	<30	<30	<30	<30	<30	<30
Oxygen 8-12 weeks after filling (softening)	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
<b>Values</b>									
Permissible operating pressure, heating circuit	MPa	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Heating flow rate (EN 14511) at A7/W35, B0/W35 and 5 K	m <sup>3</sup> /h	0.73	0.73	1.06	1.06	1.40	1.40	1.40	1.40
Flow rate on heat source side	m <sup>3</sup> /h	2300	2300	4000	4000	4000	4000	4000	4000
Nominal heating flow rate at A-7/W35 and 7 K	m <sup>3</sup> /h	0.842	0.842	1.17	1.17	1.59	1.59	1.57	1.57
Nominal internal pressure drop, heating	hPa	45	45	100	100	100	100	100	100
Min. heating flow rate	m <sup>3</sup> /h	0.70	0.70	1.00	1.00	1.00	1.00	1.00	1.00

## Further details

		HPA-0 7 S Premium	HPA-0 7 CS Premium	HPA-0 10 Premium	HPA-0 10 C Premium	HPA-0 13 S Premium	HPA-0 13 CS Premium	HPA-0 13 Premium	HPA-0 13 C Premium
		238976	238977	238978	238979	238980	238981	238982	238983
Maximum altitude for installation	m	2000	2000	2000	2000	2000	2000	2000	2000

### **Guarantee**

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

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

### **Environment and recycling**

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