STIEBEL ELTRON

WPL-A 07.2 Plus HK 230
WPL-A 10.2 Plus HK 400
WPL-A 13.2 Plus HK 400

Air source heat pump 2



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1 Special information

- 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. Cleaning and user maintenance must not be carried out by children without supervision.
- Observe all applicable national and regional regulations and instructions during installation.
- 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.
- The minimum clearances must be maintained to ensure trouble-free operation of the appliance and facilitate maintenance work.
- Following disconnection from the power supply, parts of the appliance may remain energised for 5 minutes until the inverter capacitors have discharged.

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
	Flammable refrigerant

2.3 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

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 endeavour to follow language changes and use gender-aware linguistic form without compromising fluency. We aim to recognise, include and speak to all genders in our documentation.

2.4 Units of measurement

All measurements are given in mm unless stated otherwise.

2.5 Other applicable documents

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

2.6 Standardised output data

Information on determining and interpreting the specified standardised output data.

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 °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.

3 Safety

3.1 Structure of the warning notices

3.1.1 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)

3.1.2 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

3.1.3 Key to symbols

Symbol	Type of risk
	Injury
	Electrocution
	Burns, scalding

3.1.4 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.

3.2 Intended use

The appliance must only be operated with outdoor air.

The appliance is used to heat and cool rooms and produce domestic hot water within the application limits.

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.

3.3 Foreseeable misuse

The appliance is not suitable for continuous cooling all year round.

3.4 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.
- The appliance contains the flammable refrigerant R290 (propane). In the event of a leak, escaping refrigerant can create a flammable atmosphere. Observe and comply with the special requirements for the safety zone around the appliance.
- 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.
- A shut-off device is built into the appliance. This shut-off device prevents refrigerant from entering the building via the heating hydraulics in the event of a leak. The power supply to the control unit may only be disconnected in exceptional cases (e.g. servicing). Ensure a permanent power supply to the control unit.
- In rare cases, refrigerant may enter the heating circuit and accumulate in the radiators. Before bleeding radiators in the heating system, refer to chapter *Troubleshooting [▸ 26]*.
- If the casing is opened or the cover is not secure while the appliance is in operation, there is a risk of injury. Only operate the appliance with the casing and cover closed.
- Unsuitable spare parts and accessories may jeopardise user and appliance safety. Only use original spare parts and original accessories.

Property damage, consequential losses, environmental pollution

- Polluted ambient air can damage the appliance. Protect the appliance from dust and dirt during building work.
- Poor air quality can damage the appliance. Keep the appliance installation site free from air contaminated with oil or salt (chloride) (see chapter *Installation in coastal areas [▸ 10]*). Keep the installation site free from corrosive and explosive substances. Avoid contaminating the installation site with dust or substances containing chlorine or ammonia.

- Overvoltage (e.g. caused by a lightning strike) can damage the appliance. Install surge protection. Observe the current standards and guidelines in your region and country.

4 Appliance description

This appliance is an air source heat pump designed 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 75 °C.

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 a buffer cylinder is installed in the heating system and the temperature inside the buffer cylinder drops, the heat pump starts automatically no later than when the temperature falls below 5 °C.

The appliance can be operated together with a second heat generator. In dual mode operation, return water from the second heat generator may flow through the heat pump. Ensure that the temperature of the return water does not exceed the temperature set in the heat pump manager.

This appliance has further features:

- Suitable for area and radiator heating systems.
- The appliance can be used for cooling in combination with an underfloor heating system or additional fan coil units.
- Still extracts heat from the outdoor air at -25 °C outside temperature.
- Corrosion-protected, external casing made from hot-dipped galvanised sheet steel plus stove-enamelled finish.
- Comprises all components and safety equipment required for operation.
- The safety concept in the appliance prevents large quantities of refrigerant from entering the water-based heat distribution system in the event of a leak in the condenser.

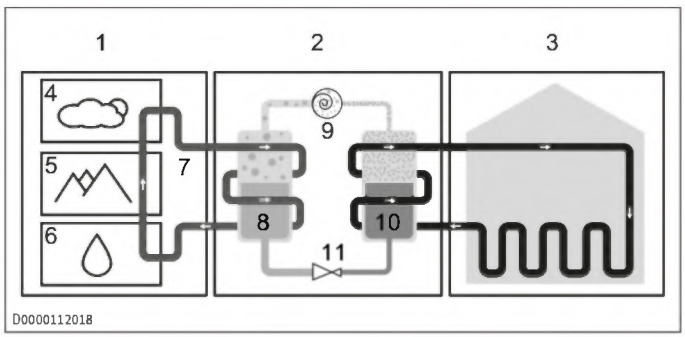
Operation

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

▶ Please observe the instructions for the heat pump manager.

4.1 Function

4.1.1 Heating



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 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.

Defrost

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 or heat distribution system.

If sufficient energy cannot be provided, the electric emergency/auxiliary heater supports the defrosting process.

The electric emergency/auxiliary heater is located in the indoor unit. If no indoor unit is installed in the heating system, we recommend the use of an auxiliary heater in the buffer and/or DHW cylinder.

If the flow rate falls below the minimum flow rate, defrosting is stopped and a message appears in the WPM heat pump manager.

✓ Buffer cylinder in the system.

▶ Ensure that buffer mode is activated in the WPM heat pump manager.

✓ No buffer cylinder in the system.

▶ Ensure that underfloor heating is installed and that the minimum flow rate is maintained via permanently open heating circuits (see chapter *Ensuring a minimum flow rate [▸ 24]*).

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

With condensate pan:

The accumulated water is collected in the condensate pan and drained off (see chapter *Condensate drain [▸ 11]*).

Without condensate pan:

The accumulated water flows out of the appliance via the free condensate drain and seeps away into the gravel bed (see chapter *Condensate drain [▸ 11]*).

4.1.2 Cooling

NOTICE

Property damage

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

▶ Use the FET remote control for dew point monitoring in the lead room.

▶ Insulate all hydraulic pipework in the building with vapour diffusion-proof insulation.

The appliance is not suitable for continuous cooling all year round.

▶ Observe the application limits of the appliance (see chapter *Data table [▸ 51]*).

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.

4.2 Standard delivery

- Heat pump
- Documentation
- 4× slotted washers

4.3 Accessories

4.3.1 Required accessories

A WPM heat pump manager is required to operate the appliance. The heat pump manager controls the entire heating system and is the interface to the heat pump electronics.

The WPM heat pump manager is included in some of our indoor units and is available as a wall mounted version if no indoor unit with integral heat pump manager is used (e.g. for cascades).

Indoor units with integral WPM heat pump manager

- Integral cylinder HSBB 180 Plus
- Integral cylinder HSBB 180 S Plus
- Integral cylinder HSBC 180 Plus
- Integral cylinder HSBC 180 S Plus
- Integral cylinder HSBC 200
- Integral cylinder HSBC 200 S
- Integral cylinder HSBC 300 cool
- Hydraulic module HM
- Hydraulic module HMS
- Hydraulic module HM Trend
- Hydraulic module HMS Trend

Installation without indoor unit with integral WPM heat pump manager

- WPM heat pump manager
- Electric booster heater module AHP-BH 8.8

4.3.2 Optional accessories

- Condensate pan AHP-DT.1
- Ball siphon AHP-BS.1
- HZB 1 ribbon heater
- HZB 2 ribbon heater
- Floor bracket AHP-GC.1
- Floor bracket enclosure set AGC-CB.1
- Heat pump feet enclosure set AHP-CB.1
- T-support AHP-SC.1
- Sound attenuation base AHP-DS 0.8
- Hydraulic connection downwards AHP-FH 25-0.4
- Telescopic duct AHP-TB 420
- Telescopic duct AHP-TB 710
- Rear downwards hydraulic connection cover AHP-SB.1
- Wall mounting bracket AHP-WM.1
- Wall mounting bracket enclosure set AWM-CD.1
- Wall outlet above ground level AHP-WO.1
- Wall outlet below ground level with diaphragm flange AHP-WU.1
- Wall outlet below ground level for concrete walls AHP-WU.2
- Hose assembly 2.5 m AWU-HS 2.5
- Hose assembly 5 m AWU-HS 5
- Hose assembly 10 m AWU-HS 10
- Sealing assembly for hose assembly in DN 200 pipe AHS-SI 200
- Wind protector for installation in open spaces AHP-WB.1

5 Storage

▶ Store the appliance outside of buildings and rooms.

▶ Do not store the appliance in long, narrow courtyards.

▶ Do not store the appliance in public places.

▶ Avoid ignition sources such as showers of sparks, smoking, hot surfaces, etc.

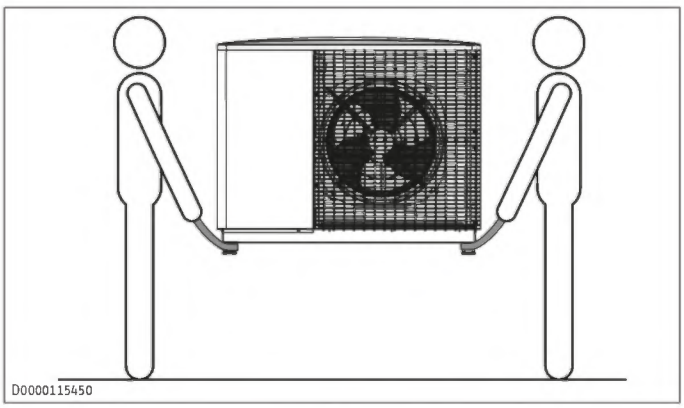
6 Transportation (qualified contractors)

▶ Refer to the table for the minimum number of persons required to transport the appliance.

	2 people	3 people (2 people on the compressor side)
WPL-A 07.2 Plus HK 230	x	
WPL-A 10.2 Plus HK 400	x	
WPL-A 13.2 Plus HK 400		x

▶ 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.



▶ Carry the appliance using the carrying straps.

▶ If you need to transport the appliance over a longer distance, we recommend conveying it on a pallet using suitable means of transport.



If the appliance needs to be tilted during transport (up to 45°), 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.

7 Installation (qualified contractors)

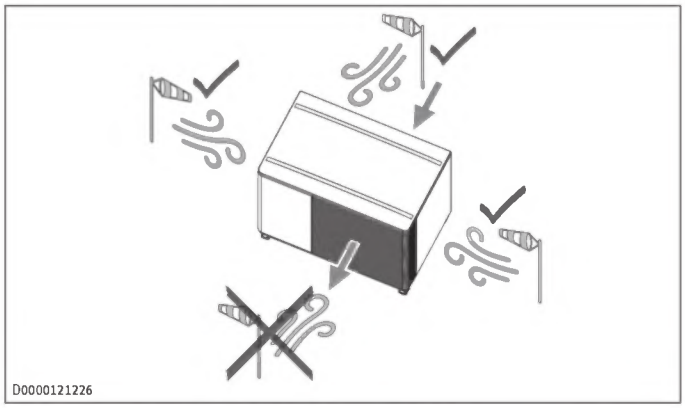
The device is designed in such a way that it can be positioned and connected without removing the cover or side panels.

7.1 Installation site

The installation site must fulfil the following requirements:

- Horizontal
- Level
- Fixed
- Permanent

▶ Ensure that the appliance is accessible from all sides. Observe the minimum clearances (see chapter *Minimum clearances [▶ 9]*).



▶ 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 appliance is not installed in a location exposed to wind.

▶ The rear of the appliance must be protected by a building, wall or wind protector.

If there is no building, wall or wind protector at the rear of the appliance and none can be erected (e.g. in the case of flat roof installation), you can install our wind protector (see chapter *Optional accessories [▶ 6]*).

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

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

▶ Do not place or plant any cold-sensitive plants in front of the air discharge.

If the air intake and discharge of the appliance are obstructed by surrounding objects, this may cause a thermal short circuit.

▶ Ensure that both the flow of outdoor air into the appliance and the flow of exhaust air from the appliance are unimpeded.

The appliance may be damaged if insects or other small animals nest inside it.

▶ Select an installation location that will not be susceptible to insects or other small animals (e.g. mice) nesting in the appliance.

7.1.1 Safety zone

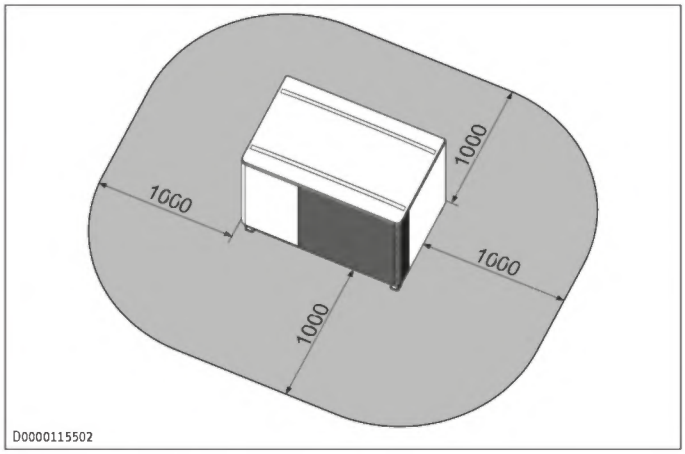
The appliance contains flammable refrigerant. The refrigerant has a higher density than air. In the event of leaks, escaping refrigerant can accumulate near the ground. Accumulations of refrigerant (e.g. in cavities) can lead to a dangerous, explosive, asphyxiating or toxic atmosphere.

- The refrigerant must not enter the interior of the building through openings.
- The refrigerant must not accumulate in cavities.
- The refrigerant must not enter the drain network.

A special safety zone applies to the installation site. The safety zone must fulfil certain requirements.

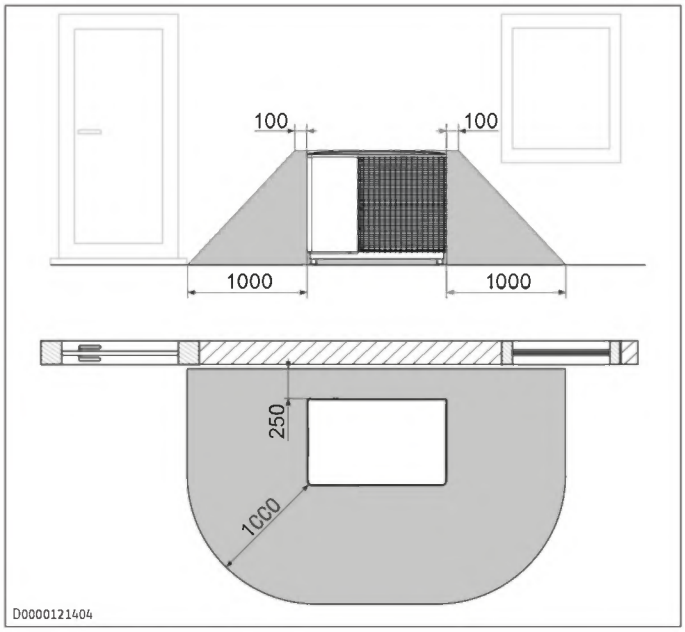
- There must be no windows, doors, light wells, cellar access, escape hatches, flat roof windows or ventilation openings (openings into the interior of the building).
- There must be no ignition sources such as open flames, electrical systems, sockets, light switches, lights, household electrical connections, electric switches, spark-generating tools, objects with a high surface temperature (>360 °C) or other permanent or short-term ignition sources.
- The safety zone must not extend to neighbouring properties or public traffic areas.
- Structural changes that infringe the aforementioned rules for the safety zone are not permitted.
- Wall outlets must be secured against the ingress of gas. Above-ground or underground wall outlets are available as optional accessories (see chapter *Optional accessories [▶ 6]*).

7.1.1.1 Siting in an open space



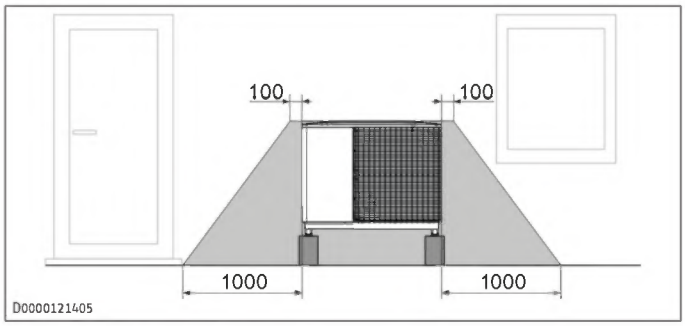
▶ Maintain the safety zone.

7.1.1.2 Siting in front of a wall



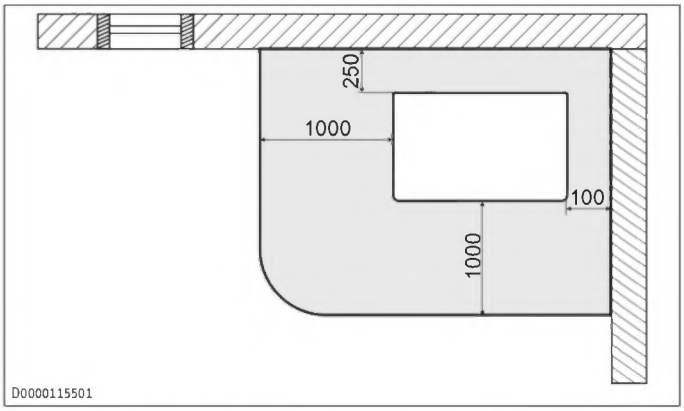
▶ Maintain the safety zone.

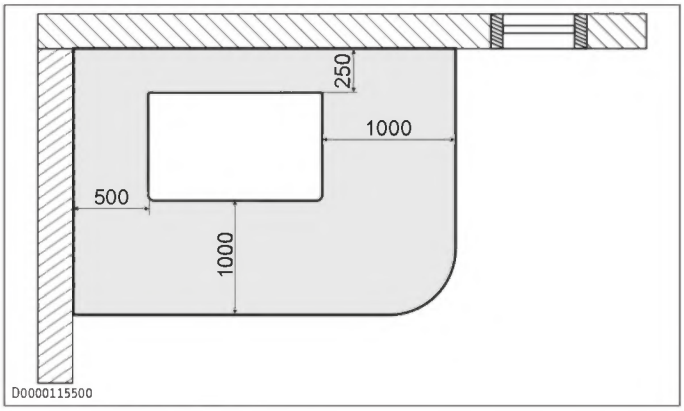
7.1.1.3 Siting on a floor bracket, wall mounting bracket or T-support



▶ Maintain the safety zone.

7.1.1.4 Siting at the corner of a building

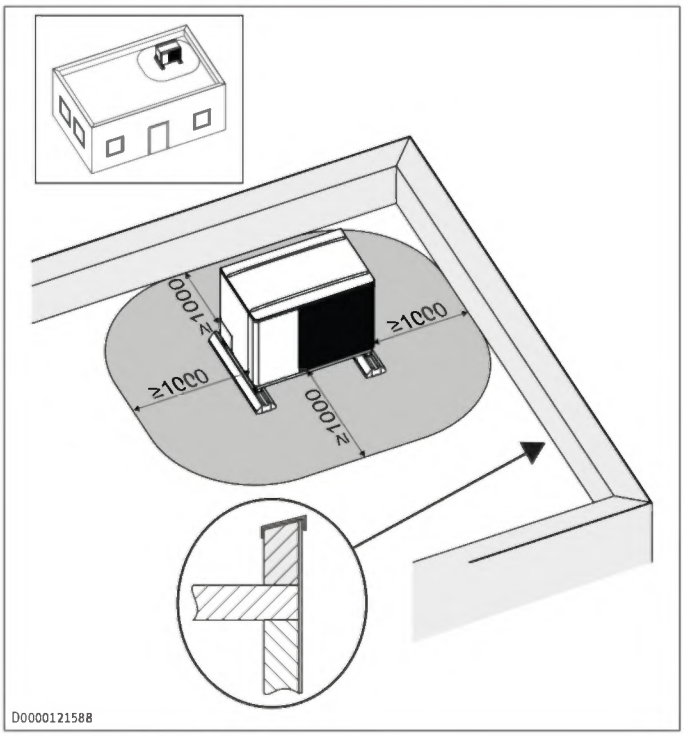




▶ Maintain the safety zone.

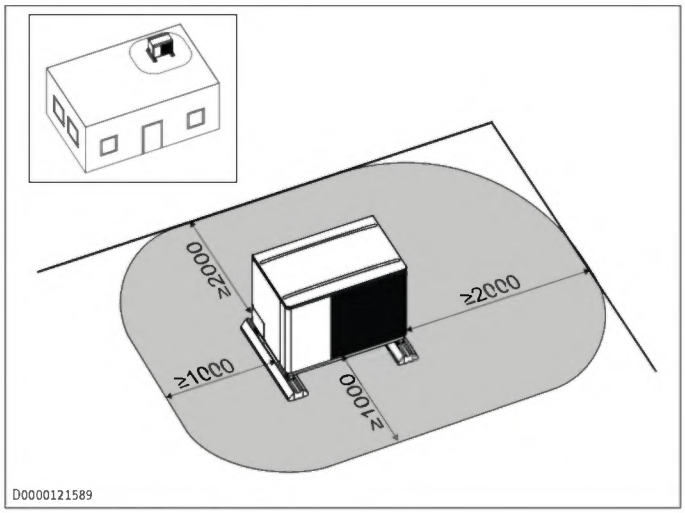
7.1.1.5 Siting on a flat roof

Building with a parapet (upward extension of the exterior wall)



▶ Maintain the safety zone.

Building without parapet



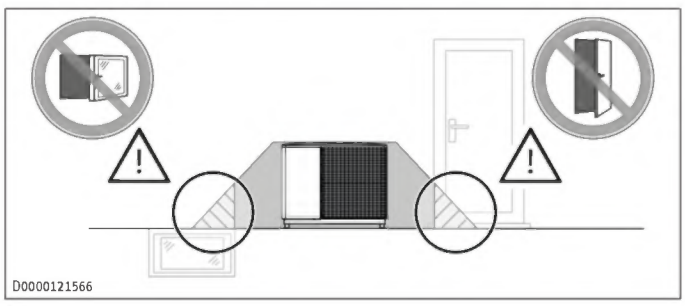
▶ Maintain the safety zone.

7.1.1.6 Options for reducing the size of the safety zone

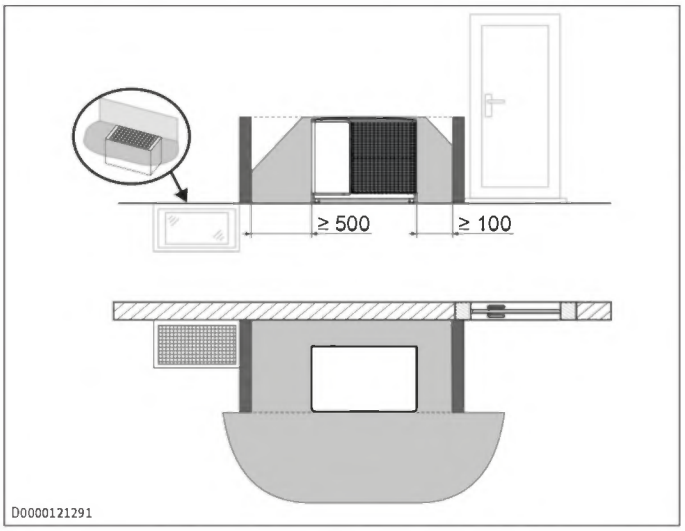
If the safety zone cannot be maintained due to building characteristics at the installation site, you can implement the following measures.

Building characteristics	Activity
Openings (e.g. doors, windows, light wells)	**Option 1:** Close the openings permanently. To do this, remove the window handle, for example, and secure the opening against reopening.
	Option 2: Erect a sealed protective wall. The protective wall must be impermeable to gas and at least as high and deep as the appliance. Observe the dimensions of the safety zone and the minimum clearances to ensure trouble-free operation of the appliance (see chapter *Minimum clearances [▶ 9]*).

Option 1: Seal openings permanently

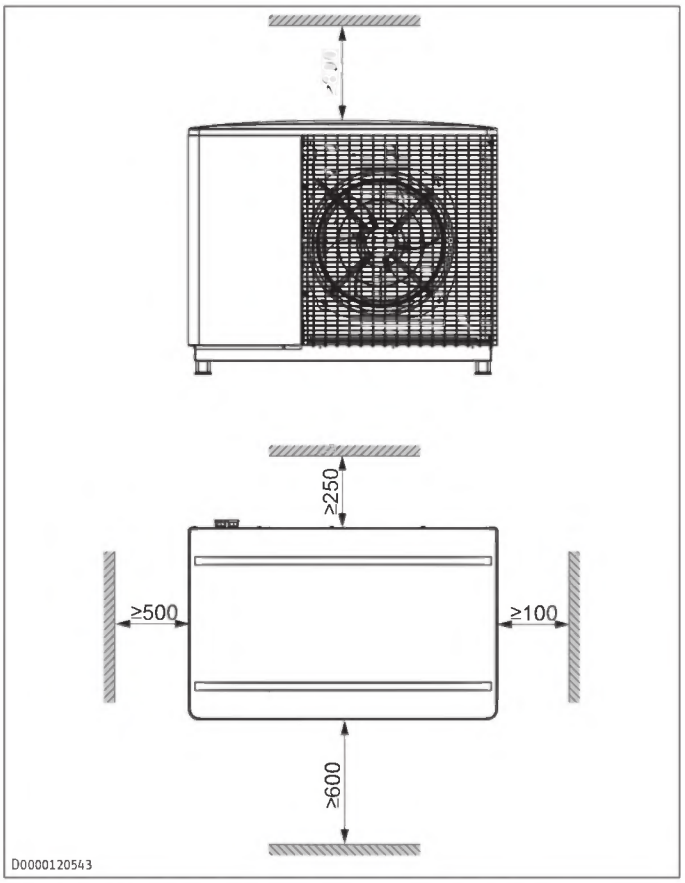


Option 2: Siting with protective wall



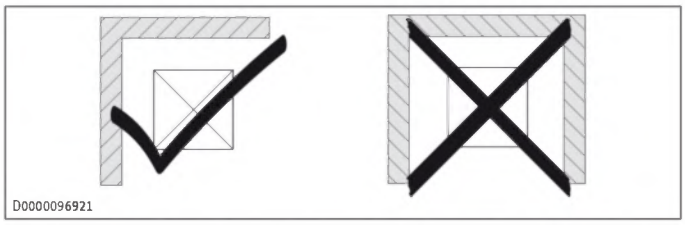
▶ Observe minimum clearances (see chapter *Minimum clearances [▶ 9]*).

7.1.2 Minimum clearances



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

If you mount the appliance on our wall mounting bracket (see chapter *Optional accessories [▶ 6]*), you can reduce the clearance to the rear to 200 mm.

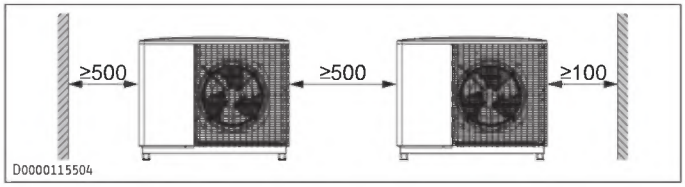


▶ Avoid installing the appliance in a recess. Two sides of the appliance must remain exposed.

▶ Maintain the safety zone.

7.1.3 Minimum clearances with cascades

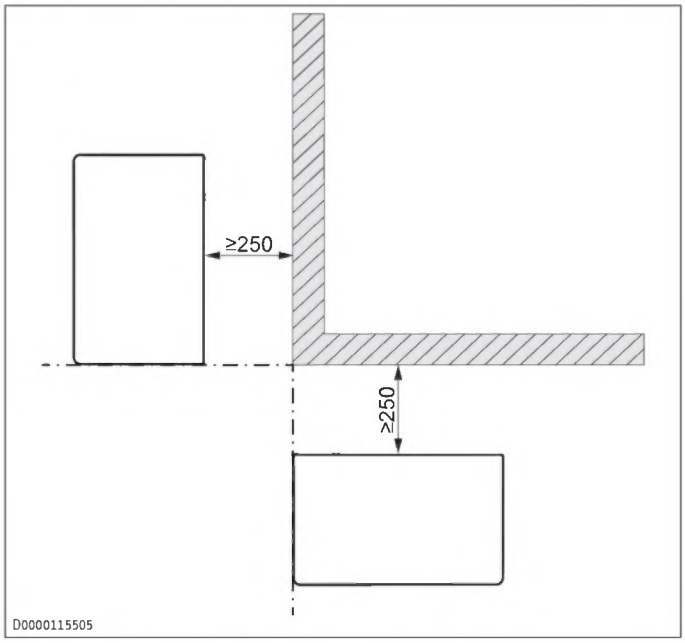
Example: 2 appliances next to each other



▶ Maintain the minimum clearances.

▶ Maintain the safety zone.

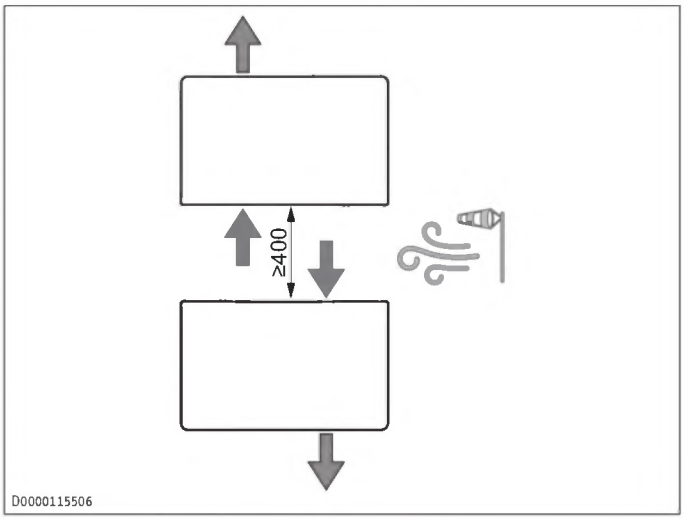
Example: 2 appliances around a corner



▶ Maintain the minimum clearances.

▶ Maintain the safety zone.

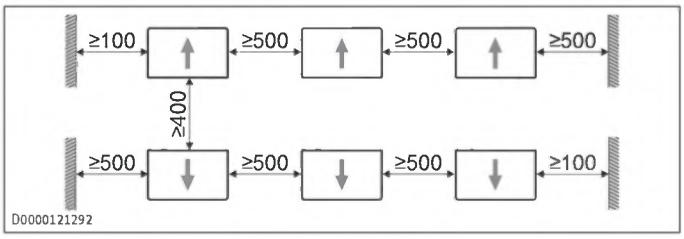
Example: 2 appliances back to back



▶ Maintain the minimum clearances.

▶ Maintain the safety zone.

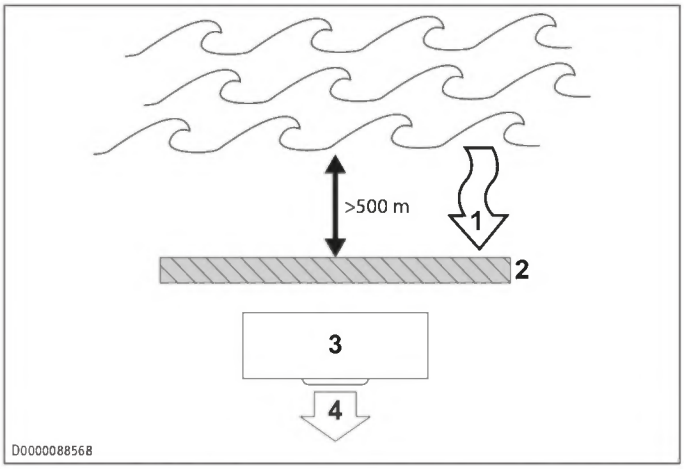
Example: 6 appliances next to each other and back to back



▶ Maintain the minimum clearances.

▶ Maintain the safety zone.

7.1.4 Installation in coastal areas



1 Main wind direction
2 Building, wall or wind protection
3 Appliance
4 Air discharge

▶ Ensure that the air intake direction is the same as the dominant wind direction. If the main wind direction is from the sea (> 2 % salinity), ensure that the installation is at least 500 m from the sea.

7.1.5 Sound emissions

The appliance is louder on the air intake and air discharge sides than on the two enclosed sides. Information on the sound power level can be found in chapter *Data table [▶ 51]*.

- Lawn areas and shrubs help reduce the spread of noise.
- Noise propagation can also be reduced through dense palisades or similar.

▶ Ensure that the air intake and air discharge are never directed towards noise-sensitive rooms of the house, e.g. bedrooms, or neighbouring houses.

▶ 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.

▶ Avoid installation between reflective building walls. Reflecting building walls can increase the noise level.

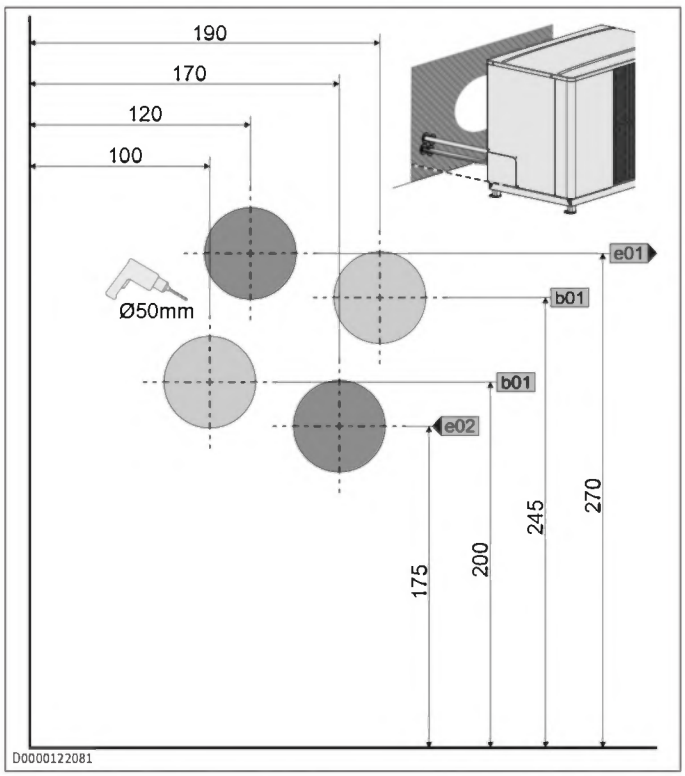
▶ If the appliance is installed on a roof and is in direct contact with the building structure, also install anti-vibration mounts.

7.1.6 Installing the supply lines

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

If condensate drips freely, the heating flow and return lines must not be laid in the gravel bed under the appliance.

If the supply lines are to be routed behind the appliance through the building wall, refer to the illustration for the dimensions of the boreholes or use the drilling template on the appliance packaging.



▶ Insulate the wall outlets to prevent the temperature falling below the dew point during cooling.

▶ Seal the wall outlets for all supply lines into the building to ensure that they are watertight.

▶ Seal the wall outlets against the ingress of gas.

▶ To facilitate connection to the appliance, use flexible supply lines.

▶ 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.

7.1.7 Condensate drain

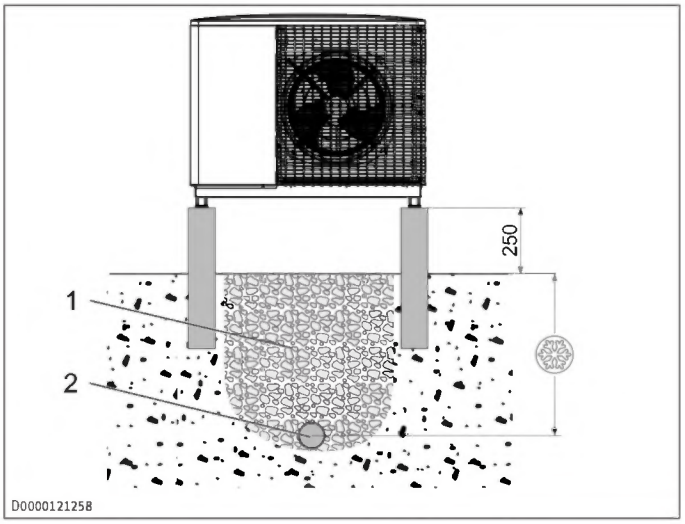
Any condensate produced can either drip into a condensate pan or freely into a gravel bed.

If the condensate is collected in a condensate pan and drained into the domestic waste water pipe via a condensate drain pipe, it must be ensured that no refrigerant can enter the building in the event of a leak in the refrigerant circuit. A ball siphon offers this protection (see chapter *Optional accessories [▶ 6]*). If the siphon dries out, refrigerant could enter the building via normal siphons.

You can reduce the diameter of the condensate drain pipe upstream of the ball siphon.

Installation situation	Ball siphon required	Ball siphon not necessary
Condensate drainage in gravel bed		x
Condensate drainage in rainwater pipe, without connection to the domestic waste water pipe		x
Condensate drainage via roof surface		x
Condensate drainage in rainwater pipe that is connected to the domestic waste water pipe (combined system).	x	
Condensate drainage into domestic waste water pipe	x	
Condensate drainage into the inside of the building	x	

Soakaway without condensate pan



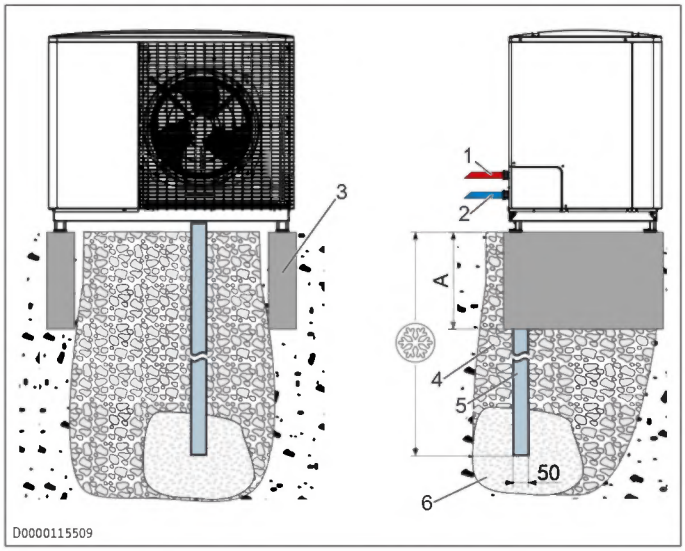
1 Rubble 2 Drainage pipe

▶ Lay a moisture barrier at the foundation of the building.

▶ Lay a drainage pipe in a frost-free area under the appliance to drain moisture away from the building.

▶ Make sure that the gravel layer extends into the frost-free area.

Soakaway with condensate pan

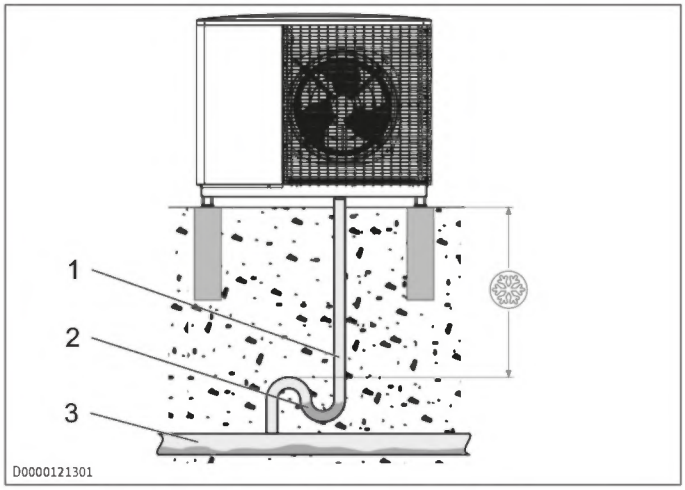


1 Heating flow
2 Heating return
3 Strip foundation (edge block)
4 Rubble
5 Condensate drain conduit
6 Gravel bed

A 300

▶ Make sure that the gravel layer is in the frost-free area.

Drainage system with condensate pan, siphon underground



1 Condensate drain conduit
2 Ball siphon
3 Waste water pipe in sewage system

The ball siphon must be installed in a frost-free area.

If the ball siphon cannot be installed below the frost line, you can ensure frost protection by using a pipe trace heating cable (see chapter *Optional accessories [▸ 6]*). Ensure that the pipe trace heating cable is not routed through the ball siphon. Otherwise the functioning of the ball siphon will be disabled.

You can install the ball siphon either in the building directly behind the building wall or in the ground.

If you install the ball siphon in the ground, the ball siphon must be freely accessible for maintenance. For example, you can provide access via a shaft or an inserted KG pipe with cover.

▶ Observe the installation instructions of the ball siphon.

7.2 Siting

▶ Observe the information on the air discharge direction in chapter *Installation site [▸ 7]*.

If you wish to install a condensate pan in the appliance, we recommend doing so before fixing the appliance at the installation site and before carrying out the hydraulic and electrical connections.

If the appliance is operated without a condensate pan, a clearance of 300 mm from the bottom edge of the appliance must be maintained under the appliance. This is the only way to ensure trouble-free operation all year round.

▶ Use a bracket or a raised strip foundation.

▶ If you want the hydraulic connection to be downwards rather than towards the rear, refer to chapter *Optional: Hydraulic connection (downwards) [▸ 17]*.

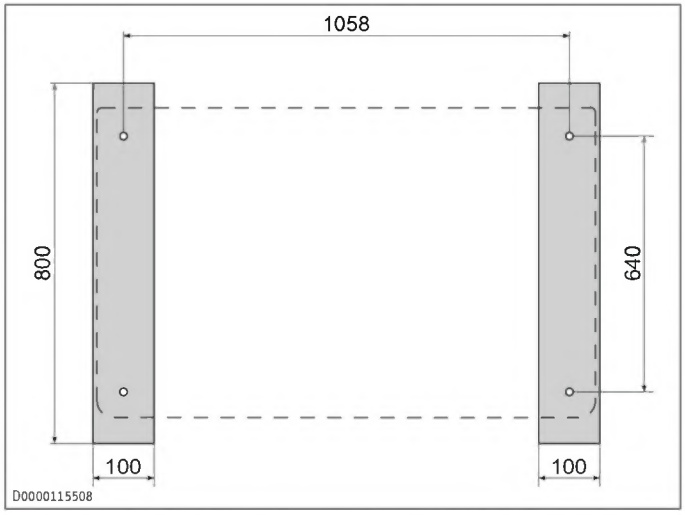
▶ Refer to the following table to see which installation version is suitable for which area of application.

Installation version	Possible areas of application
Strip foundation or kerbstones	– Standard installation
Strip foundation or kerbstones with floor bracket	– Condensate drips off freely. – Hydraulics are routed downwards through the ground. – The position of the condensate drain from the previous heat pump is not suitable.
Sound attenuation base	– Paved driveway can be used. – Concrete work in the floor not possible
Sound attenuation base (roof installation)	– Roof installation with low wind load
Sound attenuation base on ballast (roof installation)	– Roof installation with higher wind load
Wall mounting bracket	– Floor is not level. – Garden not yet designed – Concrete work is not required. – No space available for floorstanding installation
T-support	– Floor is not level. – Less effort than a strip foundation – Height of the site not yet clear

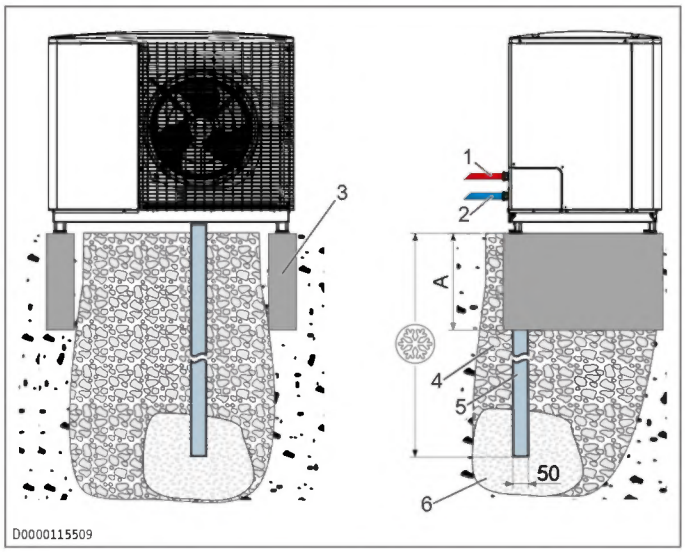
7.2.1 Strip foundation or kerbstones

The appliance can be mounted directly on a strip foundation or kerbstones or additionally on a floor bracket.

▶ When installing with a floor bracket, please also observe chapter *Floor bracket AHP-GC.1 [▸ 15]*.



Strip foundation or kerbstones with condensate pan



1 Heating flow
2 Heating return
3 Strip foundation (edge block)
4 Rubble
5 Condensate drain conduit
6 Gravel bed

A 300

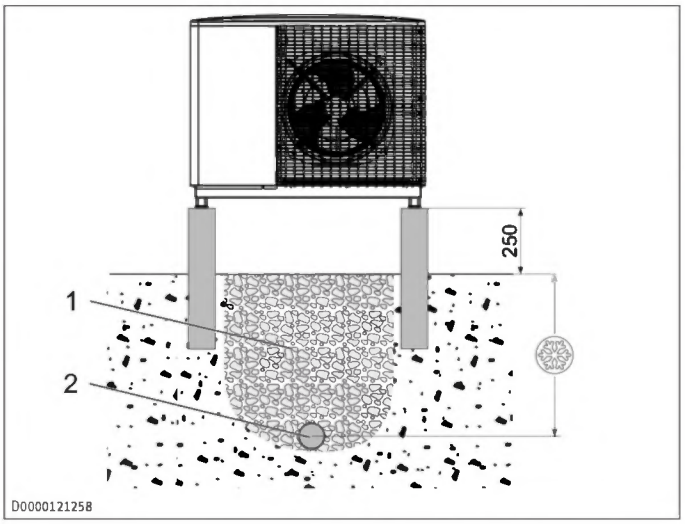
▶ Erect the strip foundation or the kerbstones level with the ground or slightly raised.

▶ Lay the condensate drain pipe.

▶ Fill the area under the appliance with gravel and crushed stone.

▶ Optionally, you can cover the adjustable feet with the cover AHP-CB.1 (see chapter *Optional accessories [▸ 6]*).

Strip foundation or kerbstones without condensate pan



1 Rubble
2 Drainage pipe

A free space (300 mm) must be maintained under the appliance so that the condensate can drip off unhindered and freezing condensate does not cause any damage to the appliance.

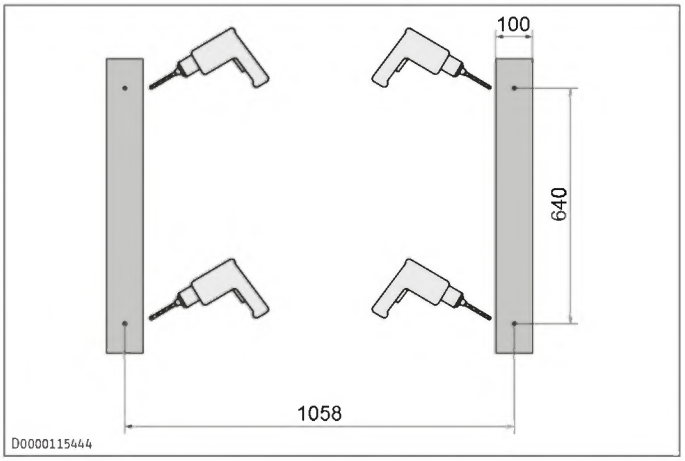
▶ Erect the strip foundations or kerbstones at the specified height.

▶ Fill the area under the appliance with gravel and crushed stone.

▶ Optionally, you can cover the adjustable feet with the cover AHP-CB.1 (see chapter *Optional accessories [▸ 6]*).

Securing the appliance against toppling over

To secure the appliance against toppling over, it can also be fixed to the foundations with screws.

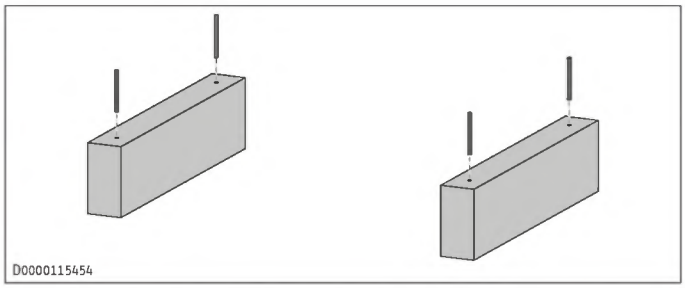


▶ Place the supplied drilling template on the foundation. The drilling template is part of the packaging and protects the appliance cover during transport.

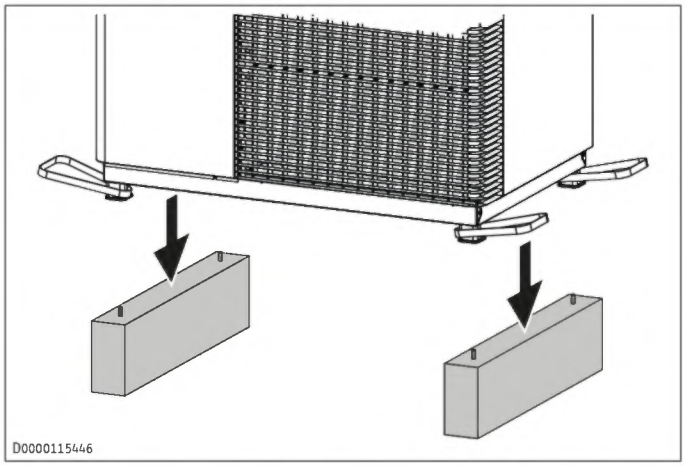
▶ Mark the drill holes on the foundation.

▶ Drill the holes.

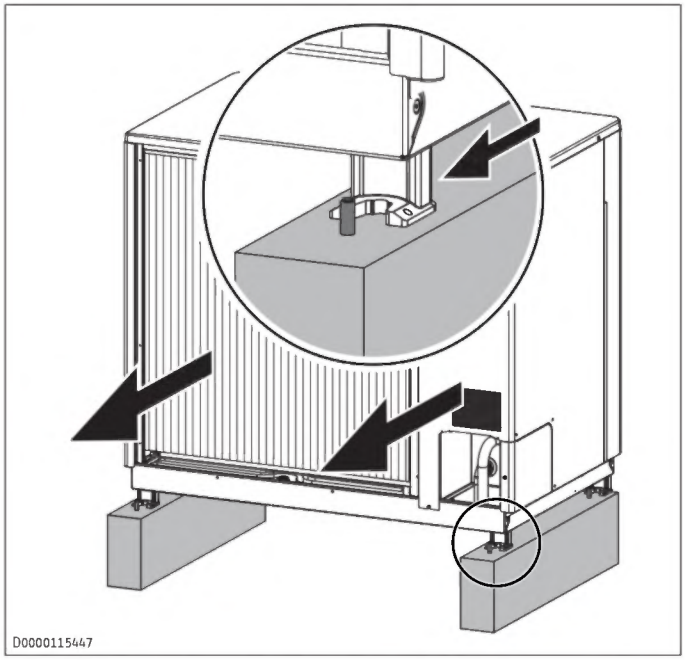
With threaded rod



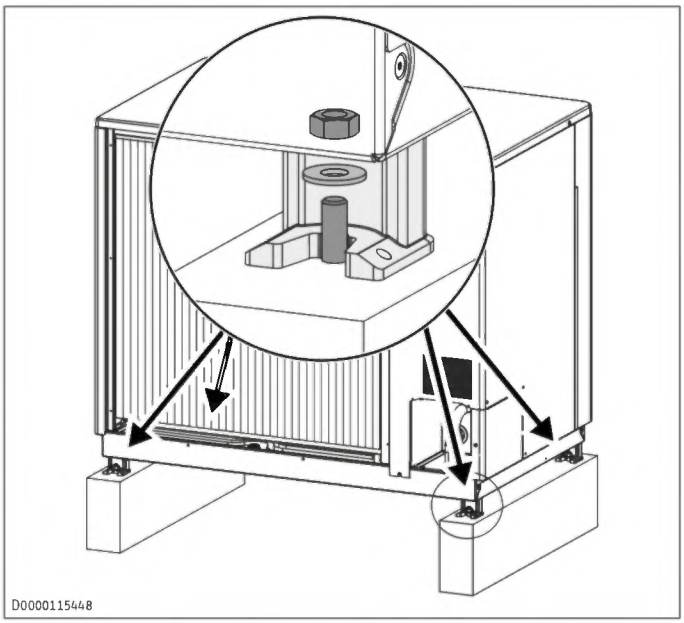
▶ Glue threaded rods into the holes so that they protrude 25-30 mm.



▶ Place the appliance on the foundation with the feet in front of the threaded rods.



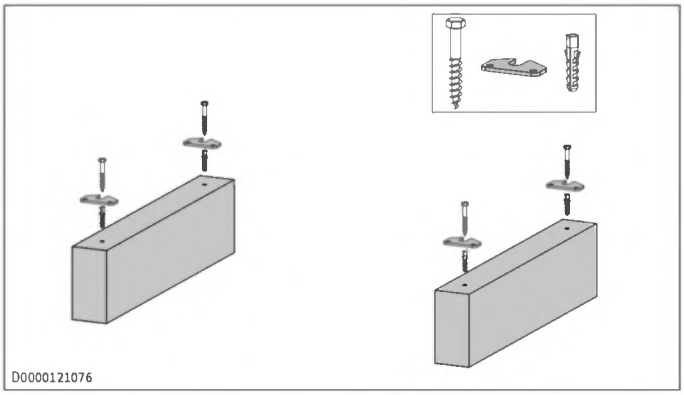
▶ Slide the appliance backwards so that the recesses in the feet grip around the threaded rod.



▶ Place a washer and a nut on the threaded rod.

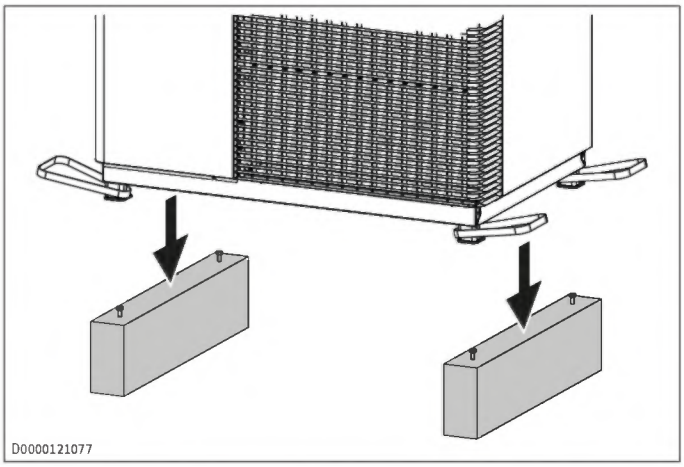
▶ Tighten the nuts.

With screw

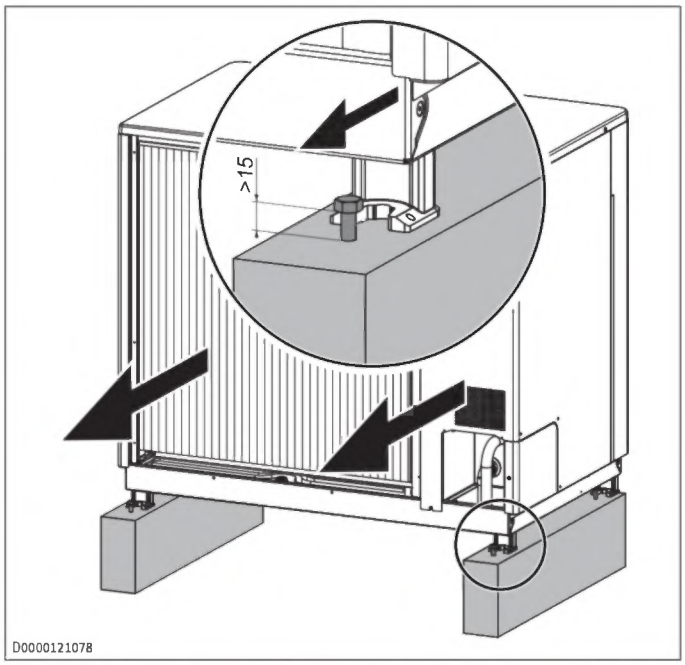


▶ Insert suitable rawl plugs into the holes.

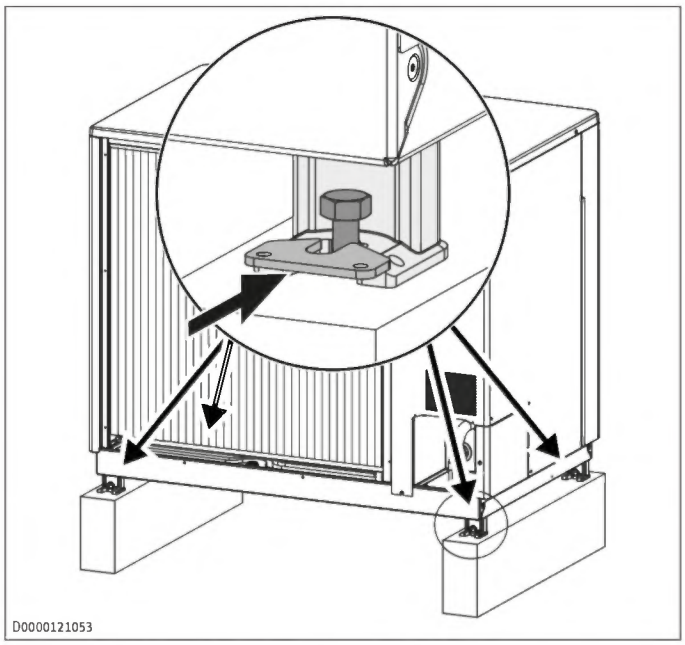
▶ Screw suitable screws into the rawl plugs so that they protrude >15 mm.



▶ Place the appliance on the foundation with the feet in front of the screws.



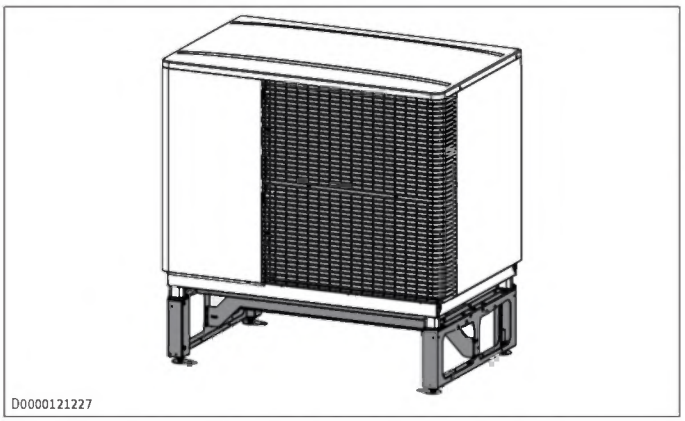
▶ Slide the appliance backwards so that the recesses in the feet grip around the screws.



▶ Install the slotted washers over the feet on the screws.

▶ Tighten the screws.

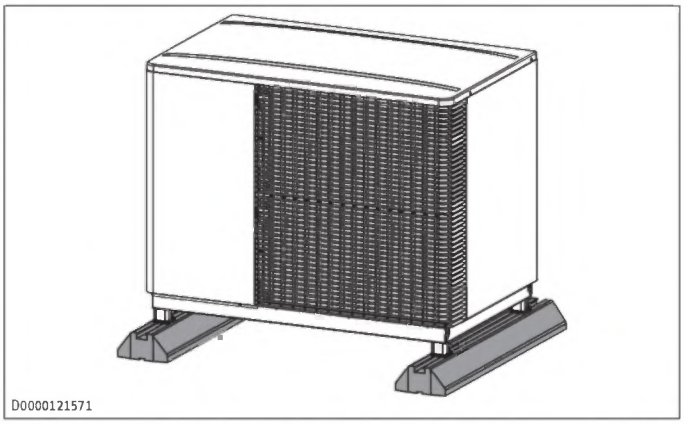
7.2.2 Floor bracket AHP-GC.1



▶ Observe the installation instructions for the bracket.

▶ Optionally, you can cover the bracket with an enclosure set (see chapter *Optional accessories [▶ 6]*).

7.2.3 Sound attenuation base AHP-DS 0.7



▶ **CAUTION: Freely dripping condensate can freeze on hard surfaces at temperatures below freezing and become a fall hazard.** Install a condensate pan.

If you are mounting the appliance on a hard surface, we recommend mounting it on our sound attenuation bases (see chapter *Optional accessories [▶ 6]*). The sound attenuation bases reduce vibration transmission to the substrate.

▶ Observe the installation instructions for the sound attenuation bases.

7.2.4 Flat roof

▶ For flat roof installation in particular, observe the information on the choice of installation location with regard to the dominant wind direction and protection of the rear of the appliance (see chapter *Installation site [▸ 7]*).

Installation version	Requirement
Hydraulic connection towards the rear	No special requirements
Hydraulic connection downwards	– There must be at least 200 mm of free space below the appliance (can be done e.g. with AHP-GC.1 (see chapter *Optional accessories [▸ 6]*) or by providing a means of elevation on site) – Accessories for connection downwards AHP-FH 25-0.4 (see chapter *Optional accessories [▸ 6]*)

If you are installing the appliance on a flat roof, we recommend mounting it on our sound attenuation bases (see chapter *Optional accessories [▸ 6]*). The sound attenuation bases reduce the transmission of noise to the building.

To further reduce the transmission of vibrations to the building, you can lay additional concrete slabs under the appliance if necessary. Concrete slabs are required for wind speeds > 25 m/s.

Wind speed [m/s]	Possible installation version
< 25	– Appliance on sound attenuation bases – Appliance on sound attenuation bases and concrete slabs
< 30	– Appliance on sound attenuation bases and concrete slabs

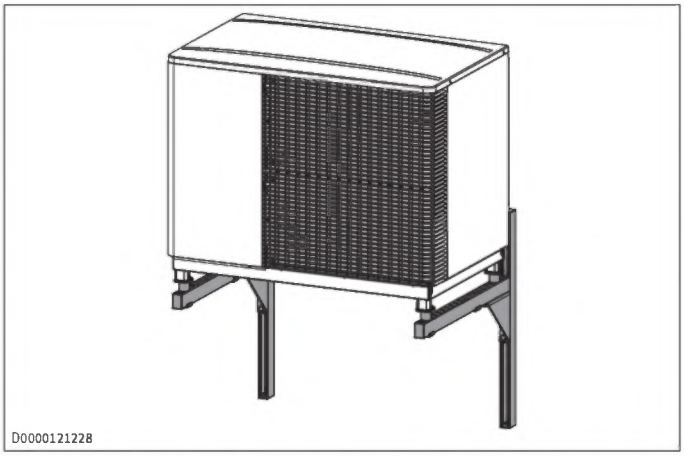
▶ Observe the installation instructions for the sound attenuation bases.

7.2.5 Wall mounting bracket AHP-WM.1

▶ If you mount the appliance on our wall mounting bracket, you can reduce the clearance to the rear to 200 mm.

To prevent disturbance due to structure-borne noise transmission, do not 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.


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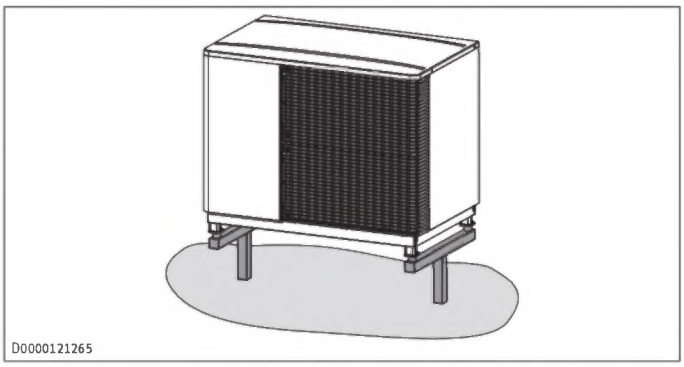
▶ Observe the structural limits of the bracket used.

▶ Observe the installation instructions for the bracket.

▶ Optionally, you can also cover the hydraulic connections (see chapter *Optional accessories [▸ 6]*).

▶ Optionally, you can cover the bracket with an enclosure set (see chapter *Optional accessories [▸ 6]*).

7.2.6 T-support AHP-SC.1


D0000121265

▶ Observe the structural limits of the bracket used.

▶ Observe the installation instructions for the bracket.

7.3 Buffer cylinder

Prerequisite	Activity
– Underfloor heating system	If the minimum flow rate can be maintained (see chapter *Ensuring a minimum flow rate [▸ 24]*), you do not need to do anything.
– Radiators	Install a buffer cylinder in the heating system. 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.

Prerequisite	Activity
– No buffer cylinder required.	When operating without a buffer cylinder, observe the details specified in chapter *Ensuring a minimum flow rate [▶ 24]*.

Cooling mode

Prerequisite	Activity
– Cooling operation via underfloor heating system	Increase the output of the heating circuit pump.
– Cooling operation via fan coil units – Indoor unit installed in the heating system, see chapter (*Required accessories [▶ 6]*).	Install a diffusion-proof insulated buffer cylinder.

7.4 Optional: Hydraulic connection (downwards)

The appliance is factory-fitted with hydraulic connection towards the rear. However, the hydraulic connection can also be converted so that it runs downwards out of the appliance.

▶ Use the conversion kit available as an accessory for hydraulic connection downwards (see chapter *Optional accessories [▶ 6]*).

If the hydraulic connection is routed downwards, there must be at least 200 mm of free space under the appliance for installation.

▶ Create the required free space under the appliance using a bracket available as an accessory (e.g. AHP-GC.1 (see chapter *Optional accessories [▶ 6]*)) or by providing a means of elevation on site.

▶ Observe the installation instructions for the hydraulic connection downwards.

7.5 Installing the heating circuit

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. multilayer 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.

Installing the heating circuit

NOTICE

Property damage

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

▶ Use the FET remote control for dew point monitoring in the lead room.

▶ Insulate all hydraulic pipework in the building with vapour diffusion-proof insulation.

✓ 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.

▶ When sizing the heating circuit, observe the internal pressure differential (see chapter *Data table [▶ 51]*).

▶ Lay the pipework for the heating circuit.

▶ **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 (see chapter *Dimensions and connections [▶ 31]*). Check for leaks.

Leak testing of the heating installation with gas is not possible due to the integral automatic air vent valve in the appliance.

▶ Use water for the leak test.

▶ Ensure that the heating flow and return are connected correctly.

▶ 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.

7.5.1 Safety concept

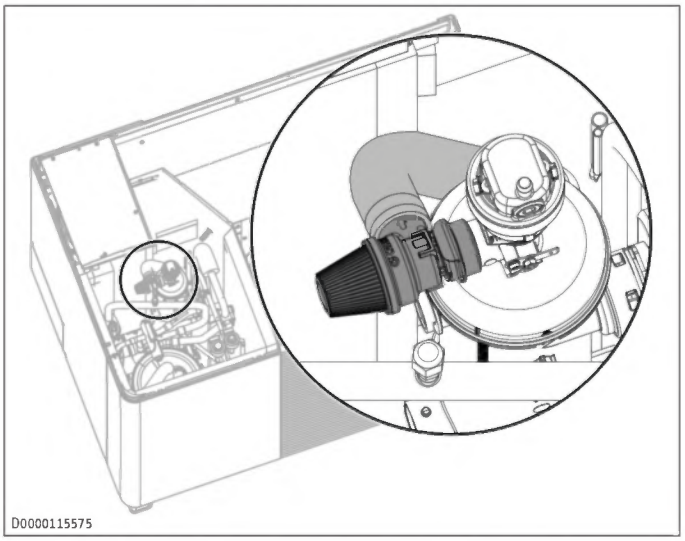
Safety valve

WARNING

Leakage of flammable refrigerant

A safety valve is built into the appliance. Refrigerant can escape via the safety valve in the event of a fault. A defective safety valve leads to a loss of pressure in the heating system.

▶ If the safety valve is defective, have it replaced by our service department.

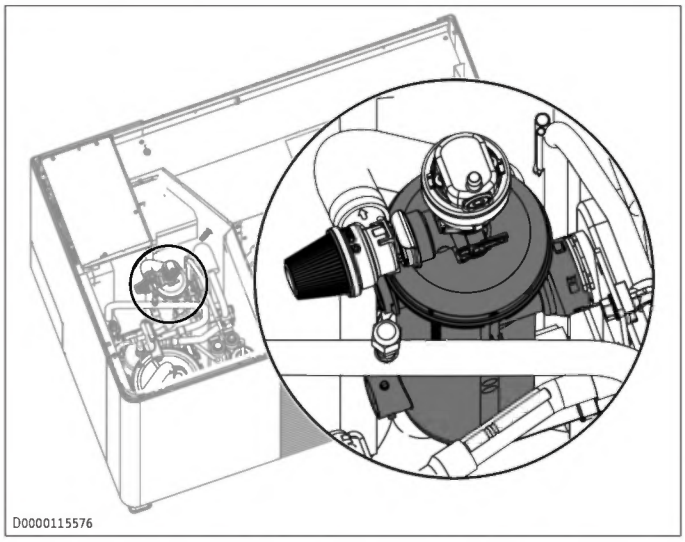


A safety valve is built into the appliance. If the opening pressure is exceeded, the safety valve will open. The escaping medium passes into the condensate pan via a built-in hose.

Opening pressure [bar]	Tolerance [bar]	
2.5	+0.15	-0.35

▶ Only install safety valves with an opening pressure of 3 bar in the rest of the heating system.

Cyclone separator



In the event of a fault in the condenser, the cyclone separator separates the refrigerant from the heating water so that no refrigerant enters the building. The gaseous refrigerant escapes via the air vent valve and the safety valve.

7.6 External second heat generator

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

7.7 High limit safety cut-out for area heating system

▶ **NOTICE: If the flow temperature in the area heating system becomes too high in the event of a fault, this may damage the floor covering.** Install a high limit safety cut-out (STB) to limit the system temperature.

7.8 Electrical connection

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

▶ Please observe the instructions for the heat pump manager.

leakage current

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

Since the unit is connected to the distribution board, the leakage current from the unit and the residual currents of the installation are recorded together during a residual current test.

▶ Evaluate the percentage of leakage current from the unit and the residual currents in the test result.

▶ Take into account the local and unit-specific conditions at the test location, as well as any insulation faults or other influencing factors.

7.8.1 Preparing the electrical installation

WARNING

Electrocution

The appliance includes an inverter for the variable speed compressor. In the event of a fault, inverters can cause DC residual currents. If residual current devices are to be installed, they must be type F (mixed-frequency sensitive) or 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.

▶ Refer to the table to find out which residual current device (RCD) is required for which appliance.

	Type of residual current device (RCD)
WPL-A 07.2 Plus HK 230	F
WPL-A 10.2 Plus HK 400	B
WPL-A 13.2 Plus HK 400	B

The electrical specifications are given in chapter *Data table [▸ 51]*.

For the bus cable, you will require a rigid screened J-Y (St) 2x2x0.8 mm² cable.

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 over an isolating distance of 3 mm. Safety devices are e.g. contactors, circuit breakers, fuses.

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

▶ The required fuse protection can be found in the data table (see chapter *Data table [▸ 51]*).

▶ Use rigid electrical cables with a suitable conductor cross-section for the fuse protection.

Output reduction in the case of reduced compressor fuse protection

You can protect some appliances with a smaller fuse.

If you have selected a lower fuse protection for the compressor, you will need to limit the maximum power consumption.

▶ Set the parameter MAXIMUM CURRENT in the menu COMMISSIONING / COMPRESSOR. Observe the information in the instructions for the heat pump manager.

Appliance	Possible lower fuse protection
WPL-A 07.2 Plus HK 230	10 A

If you select lower fuse protection, the output will be reduced under the given ambient conditions. The output reduction primarily affects DHW heating.

▶ Please refer to the tables with the output specifications in chapter *Output reduction in the case of reduced compressor fuse protection [▸ 49]*.

7.8.2 Terminal area

WARNING

Electrocution

If you work on the appliance while it is still live, you are at risk of electrocution.
Following disconnection from the power supply, parts of the appliance may remain energised for 5 minutes until the inverter capacitors have discharged.

▶ Before working on the appliance, isolate it from the power supply.

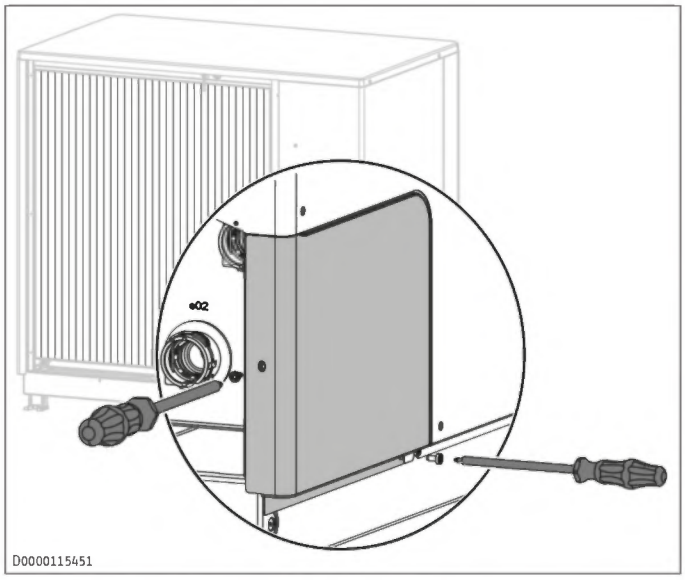
▶ Disconnect the appliance from the power supply by removing the fuses/tripping the MCBs.

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

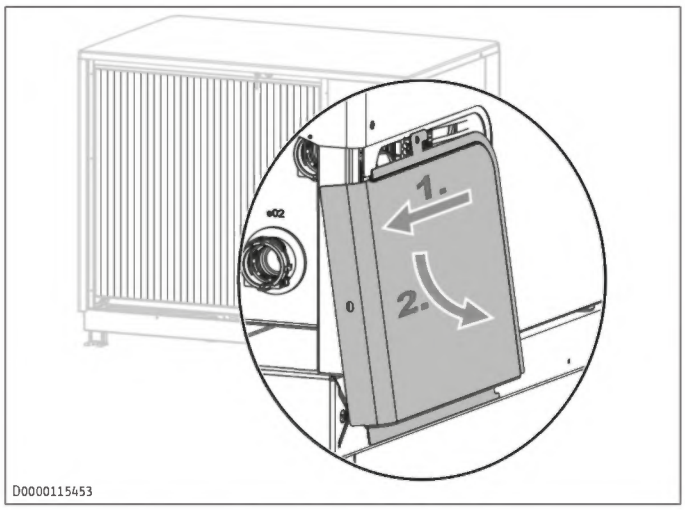
▶ Observe chapter *Preparing the electrical installation [▶ 18]*.

▶ Use appropriate electrical cables for the connections in accordance with local regulations.

Access to the terminal area



▶ Unscrew and remove the two screws.



▶ Remove the cover by pulling it backwards.

7.8.3 Terminal assignment

▶ Strip 10-11 mm of insulation from the wires of the electrical cables.

You can connect the appliance with either one electrical cable (for the compressor) or two electrical cables (for the compressor and the control unit).

The appliance is configured at the factory for connection with only one electrical cable. If connection with a separate power supply for the integral heat pump controller (IWS) is required, the two pre-installed jumpers must be removed. This is necessary if the power supply to the inverter is regularly interrupted (e.g. due to requirements of the power supply utility). The internal heat pump controller must be permanently energised.

▶ For electrical connection with two electrical cables, use the supplied plug with a hole for the cable entry.

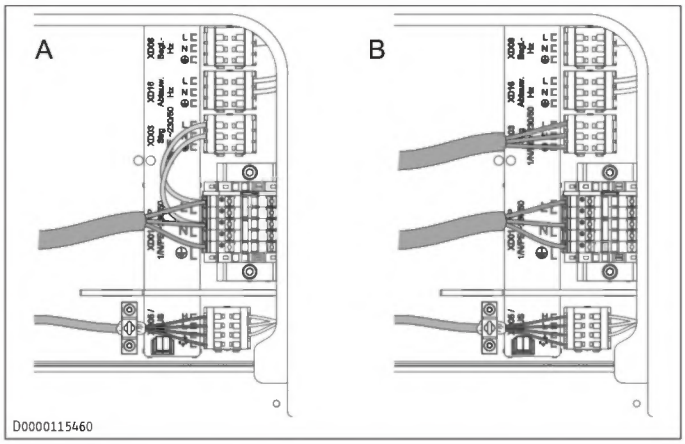
▶ Remove the jumpers if you are connecting the appliance with two electrical cables.

The following connection options are available in combination with power-OFF contactors and power-OFF signals.

Situation	Connection option
– The appliance is controlled via a power-OFF signal.	One electrical cable
– The appliance is controlled via a power-OFF signal. – The appliance is connected to a power-OFF contactor.	Two electrical cables

XD01	**Compressor (HP)**		
	L, N, PE		
XD01	**Compressor (HP)**		
	L1, L2, L3, N, PE		
XD03	**Control voltage (Strg)**		
	L, N, PE	Power supply	
XD05	**Safety extra low voltage (BUS)**		
	BUS	High	H
	BUS	Low	L
	BUS	Earth	⊥
	BUS	+	is not connected
XD06	**Pipe trace heating cable (Begl-Hz)**		
	L, N, PE	Output	
XD16	**Defrost pan heater (Abtauw.-Hz)**		
	L, N, PE	Output	

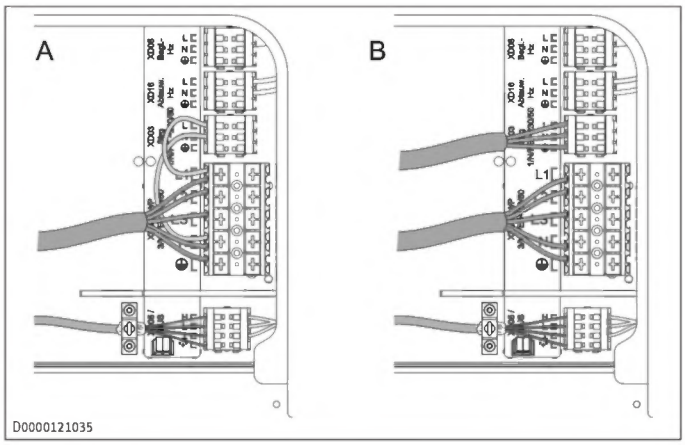
Connection of 1-phase appliances



A Connection with an electrical cable
B Connection with two electrical cables

- ▶ Connect the appliance electrically.
- ▶ Earth the bus cable by inverting the screen over the cable sheath and clamping it under the earth terminal.
- ▶ Earth the bus cable either at the appliance or at one of our indoor units.
- ▶ **WARNING: Strain relief fittings that are too tight may lead to a short circuit. Do not tighten strain relief fittings completely.** Check that the strain relief fittings are working as intended.

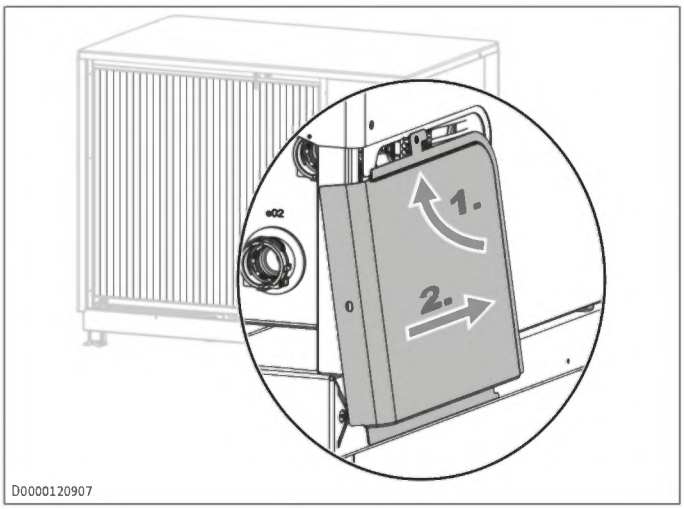
Connection of 3-phase appliances

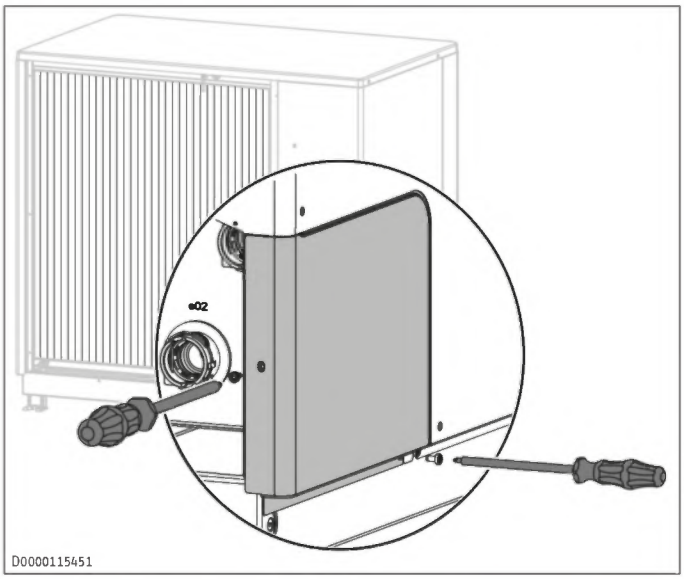


A Connection with an electrical cable
B Connection with two electrical cables

- ▶ Connect the appliance electrically.
- ▶ Earth the bus cable by inverting the screen over the cable sheath and clamping it under the earth terminal.
- ▶ Earth the bus cable either at the appliance or at one of our indoor units.
- ▶ **WARNING: Strain relief fittings that are too tight may lead to a short circuit. Do not tighten strain relief fittings completely.** Check that the strain relief fittings are working as intended.

7.8.4 Closing the terminal area





- ▶ Secure the cover with the two screws.
- ▶ 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)

7.8.5 Ribbon heater

- ✓ A condensate pan is installed in the appliance.
- ✓ The condensate is discharged from the condensate pan through an installed pipe (e.g. DN 50).
- ▶ If the pipe is heavily exposed to weather conditions or is not frost-free, install a pipe trace heating cable.
- ▶ Observe the installation instructions for the pipe trace heating cable.

7.9 Heating system

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.

Accessories for water softening

If you need to soften the fill water, you can use the following product:

- Water softening device HZEA
- HZEN replacement cartridge

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

Appliance in low-occupancy buildings

During regular operation, the connection lines and the system are protected by the frost protection function of the appliance.

If the appliance is disconnected from the power supply for a longer period of time (shutdown, prolonged power failure), drain the appliance on the water side. Otherwise the appliance is not protected against frost.

If it is not possible to detect power failures (for example if the system is in a holiday home left vacant for extended periods of time), the following protective measure can be taken:

▶ Add a suitable concentration of ethylene glycol to the fill water (20-40 % by vol.). Observe the instructions for the antifreeze. Only use antifreeze products which have been approved by us.

▶ Please note that antifreeze changes the density and viscosity of the fill water, and the flow rate reduces.

▶ Increase the pump rate.

Approved antifreeze:

Product designation	
MEG 10	Heat transfer medium as concentrate based on ethylene glycol
MEG 30	Heat transfer medium as concentrate based on ethylene glycol

7.9.1 Filling the heating system

▶ **NOTICE: Glycol residues in the hoses can lead to acidification of the heating water. This can result in corrosion and malfunction.** Use separate hoses for glycol and heating water.

You can fill the heating system in various ways.

After electrical connection:

If an indoor unit with multifunction assembly (MFG) is installed in the heating system, you must set the 3-way diverter valve to the centre position after the power supply has been established.

▶ Observe the instructions of the indoor unit.

- Filling after connection of power supply (see chapter *Filling after connection of power supply [▶ 22]*)
- Fill a cascade after electrical connection (see chapter *Filling a cascade after electrical connection [▶ 23]*)

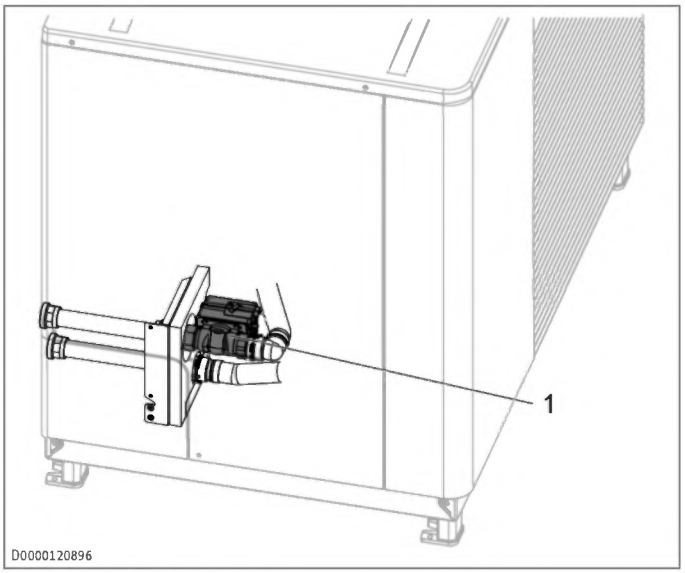
Before electrical connection:

- Fill with temporarily connected control voltage (see chapter *Filling with temporarily connected control voltage [▶ 22]*)
- Fill before electrical connection (see chapter *Filling before electrical connection [▶ 23]*)
- Fill cascade with temporarily connected control voltage (see chapter *Filling cascade with temporarily connected control voltage [▶ 23]*)
- Fill a cascade before electrical connection (see chapter *Filling a cascade before electrical connection [▶ 23]*)

The water can only flow in the direction of flow and can only be filled in the direction of flow.

We recommend first completing the electrical connection and then filling the heating system (see chapter *Electrical connection [▶ 18]*). If you fill the heating system after electrical connection, the internal shut-off valve can be opened via the WPM heat pump manager.

If you fill the heating system before electrical connection, water cannot flow through the appliance. The air will escape from the appliance via the automatic air vent valve, but only in the return up to the internal shut-off valve. The flow cannot be filled. An electrical connection is required to complete the filling process. Alternatively, a manual air vent valve can be installed in the heat pump flow directly on the appliance.



1 Internal shut-off valve

7.9.1.1 Filling after connection of power supply

When the appliance is electrically connected and supplied with power, the internal shut-off valve opens.

▶ Start filling mode via the heat pump manager (COMMISSIONING / FILLING MODE). Otherwise, the internal shut-off valve closes again as soon as gas bubbles are detected in the heating system.

⇨ If you do not end filling mode manually, the heat pump manager remains in filling mode for 60 minutes.

▶ When the heating system has been filled and vented, stop filling mode via the heat pump manager.

▶ After filling the heating system, check the connections for leaks.

If you need longer than 60 minutes for the filling process, you must briefly isolate the appliance from the power supply after the time has elapsed. When the appliance is supplied with power again, you can restart filling mode and continue filling the heating system.

7.9.1.2 Filling with temporarily connected control voltage

WARNING

Electrocution

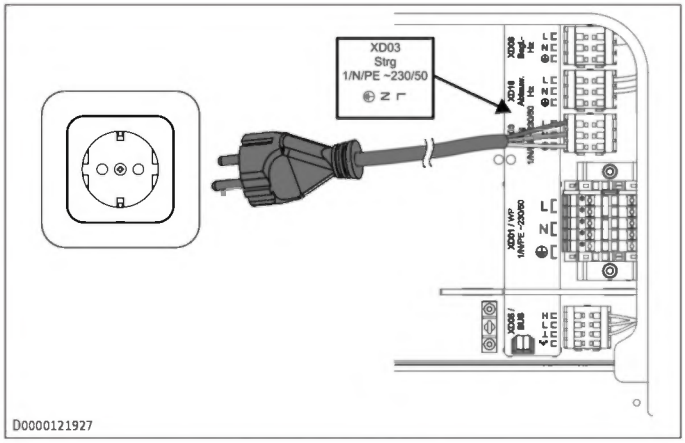
The button for starting the filling mode is located on a PCB. The PCB is energised when the control voltage is connected. There is no adequate protection against electric shock on the PCB.

▶ Use insulated tools.

▶ Wear protective clothing, (e.g. insulated gloves).

Only qualified electricians may carry out the work described in this chapter.

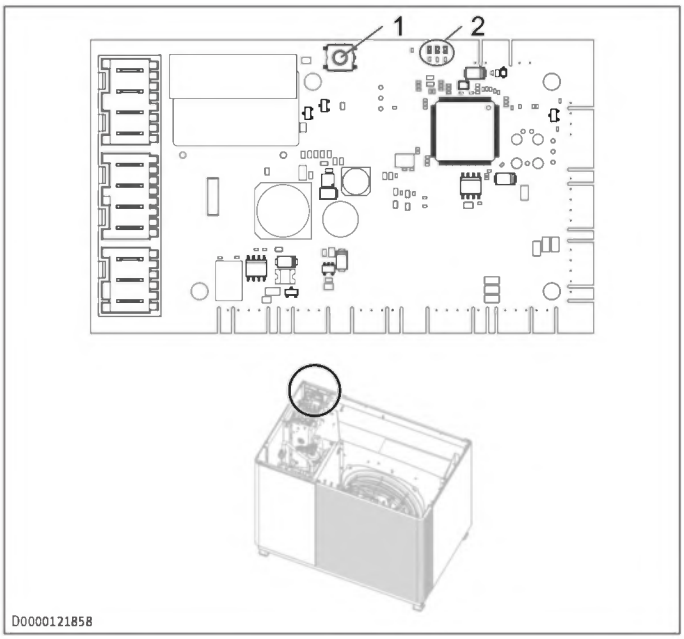
The appliance can also be filled if only the control voltage is briefly applied to the appliance.



▶ Connect 230 V to the terminal for the control voltage (see chapter *Terminal assignment [▸ 19]*). To do this, lay a temporary separate cable to a standard safety socket, for example.

▶ Open the appliance (see chapter *Troubleshooting (qualified contractors) [▸ 27]*).

⇨ When the green LED is constantly illuminated, the safety circuit board (EBPE) is ready for operation.



1 Button 2 LED

▶ Press the button for 5-10 seconds. Make sure that you do not press the button for longer than 10 seconds, as otherwise settings may be deleted, making subsequent commissioning more difficult.

▶ Release the button.

⇨ The yellow LED is constantly illuminated.

⇨ The internal shut-off valve is opened for 60 minutes.

▶ Fill and flush the heating system.

If you need longer than 60 minutes for the filling process, briefly disconnect the power supply. When the appliance is supplied with power again and the green LED is constantly illuminated, you can restart filling mode by pressing the button (5-10 s) (see above) and continue filling the heating system.

The yellow LED flashes briefly 5×

▶ Disconnect the power supply.

▶ Reconnect the power supply.

▶ Wait until the green LED is constantly illuminated. Press the button again for 5-10 seconds. Make sure that you do not press the button for longer than 10 seconds, as otherwise settings may be deleted, making subsequent commissioning more difficult.

▶ Release the button.

⇨ The yellow LED is constantly illuminated.

⇨ The internal shut-off valve is opened for 60 minutes.

▶ Fill and flush the heating system.

If you need longer than 60 minutes for the filling process, briefly disconnect the power supply. When the appliance is supplied with power again and the green LED is constantly illuminated, you can restart filling mode by pressing the button (5-10 s) (see above) and continue filling the heating system.

7.9.1.3 Filling before electrical connection

An electrical connection is required to complete the filling process.

The appliance has an internal shut-off valve that is closed when de-energised. When the internal shut-off valve is closed, only the heating return fills, as the air in the appliance can escape. When filling inside the building, the air in the heating flow cannot escape. We recommend installing an automatic air vent valve or drain valve in the flow of the appliance, preferably close to the appliance.

Heating system with indoor unit

- ▶ Install a manual air vent valve at a suitable location.
- ▶ Fill the heating system via the indoor unit until the required system pressure is reached.
- ▶ Vent the heat distribution system via the air vent valves in the pipework and via the indoor unit.
- ▶ Fill the pipework between the indoor unit and the appliance.
- ▶ If you have installed an air vent valve in the flow of the heat pump, vent this pipe.
  - ⇨ Any air present can escape via the separator.
- ▶ Close the air vent valves.

The filling and flushing process cannot be fully completed because the internal shut-off valve is closed. Final filling is only possible after electrical connection.

- ▶ Connect the appliance electrically (see chapter *Electrical connection [▶ 18]*).
- ▶ Carry out the steps as described in chapter *Filling after connection of power supply [▶ 22]*.

Heating system without indoor unit

- ▶ After filling the heating system, check the connections for leaks.

7.9.1.4 Filling a cascade after electrical connection

- ▶ To commission a heat pump cascade, observe the document "Installation instructions for heat pump cascade with WPM". You can find this document in the download area of the WPM on our website.
- ▶ Fill the heating system either via the flow (e01) or from the buffer cylinder.

7.9.1.5 Filling cascade with temporarily connected control voltage

The heat pump cascade can be filled with temporarily connected control voltage.

After the filling process, the internal heat pump controller (IWS) must be reset and reinitialised. Otherwise, communication between the heat pump manager and heat pumps in the cascade will not function correctly.

- ▶ Observe the information on resetting and initialising in the instructions for the heat pump manager.
- ▶ To commission a heat pump cascade, observe the document "Installation instructions for heat pump cascade with WPM". You can find this document in the download area of the WPM on our website.

7.9.1.6 Filling a cascade before electrical connection

- ▶ To commission a heat pump cascade, observe the document "Installation instructions for heat pump cascade with WPM". You can find this document in the download area of the WPM on our website.

Filling the heating system from the buffer cylinder

- ▶ Install a manual air vent valve or a drain in the heat pump flow (e01). Make sure that the drain is protected from frost.
- ▶ Fill the heating system.
- ▶ Vent the heat distribution system via the manual air vent valves in the pipework or via the drain.
- ▶ Close the manual air vent valves or the drain.

The filling and flushing process cannot be fully completed because the internal shut-off valve is closed. Final filling is only possible after electrical connection.

- ▶ Connect the appliance electrically (see chapter *Electrical connection [▶ 18]*).
- ▶ Carry out the steps as described in chapter *Filling after connection of power supply [▶ 22]*.

Filling the heating system individually via each heat pump

- ▶ If the circulation pump is located in the heat pump flow (d01), install an air vent valve at a suitable location. This ensures that the circulation pump has a hydraulic seal and does not run dry.

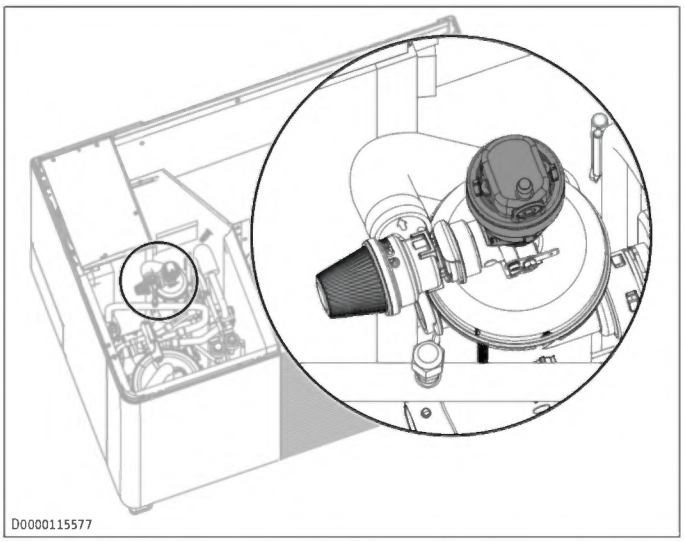
7.9.2 Venting the heating system

WARNING: If refrigerant has entered the heating circuit due to a leak, venting via an automatic air vent valve can create a flammable atmosphere. If possible, do not use automatic air vent valves 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.

Automatic air vent valve



The automatic air vent valve is factory-fitted in the open position. The heating system is ventilated automatically. The air vent valve must not and cannot be closed.

8 Commissioning (qualified contractors)

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

Carry out commissioning in accordance with these instructions, and the instructions for all the heat pump system components.

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

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).

8.1 Checks before commissioning

▶ Before commissioning, check the following:

8.1.1 Safety zone

- Did you observe the safety zone when installing the appliance?

8.1.2 Condensate drain pipe

Note whether the condensate is discharged into the interior of the building or into domestic waste water.

- Have you installed a ball siphon?

8.1.3 Heating system

- Have you filled the heating system to the correct pressure?

8.1.4 Air vent valve

- Have you closed any automatic air vent valves?

8.1.5 Temperature sensor

- Have you correctly connected and positioned the sensors?

8.1.6 Power supply

- Have you correctly connected the power supply?

8.2 Using the appliance with an external second heat generator

The appliance can be operated with an external second heat generator.

▶ Make the appropriate settings in the heat pump manager. Observe the instructions for the heat pump manager.

8.3 Ensuring a minimum flow rate

For trouble-free operation of the heat pump, it is important that the necessary flow rate for defrosting is always available. Depending on the heat distribution system, the operating flow rate must be determined and the components selected accordingly.

▶ Design the pipework system for the system-specific operating flow rate of each operating mode and not for the minimum flow rate. If the operating flow rate is not available, use the design flow rate (see chapter *Data table [▸ 51]*).

▶ Design the pipework system so that the "Min. flow rate, defrosting" is always guaranteed at the heat pump (see chapter *Data table [▸ 51]*).

When heating circuit temperatures are very low, in exceptional circumstances it is possible that the electric emergency/auxiliary heater will be activated during a defrost operation in order to provide the required defrost energy. An electric emergency/auxiliary heater is installed in the indoor units or can be installed in the heat pump flow with the booster heater module (see chapter *Required accessories [▸ 6]*). To ensure trouble-free operation of the heat pump, the electric emergency/auxiliary heater must not be disconnected from the power supply.

8.3.1 Sizing the heating circuits

For systems with a buffer cylinder, we recommend checking the sizing of the heating circuits in order to ensure that the system operates efficiently.

For systems without a buffer cylinder, you will need to check the sizing of the heating circuits in order to ensure that the flow rate is sufficient for defrosting and to avoid system failures due to defrosting faults.

The design of the underfloor heating system determines the possible flow rate through the permanently open heating circuits.

If the flow rate of the permanently open heating circuits is less than the "Min. flow rate, defrosting" of the heat pump, check whether the available external delivery head of the heating circulation pump is sufficient.

Delivery head test

$\Delta p_{UP}{}^{*} \geq (V_{min} / V_{HKo})^2 \times (\Delta p_{HK} + \Delta p_V) + \Delta p_{WP}$

Δp_{UP} *	External delivery head of the circulation pump at V_{min} If the circulation pump is integrated in an indoor unit, the available external head can be found in the specification for the indoor unit.
V_{min}	Min. flow rate, defrosting
V_{HKo}	Design flow rate of the permanently open heating circuits
Δp_{HK}	Design pressure drop of the permanently open heating circuits
Δp_V	Design pressure drop to and from floor distributors
Δp_{WP}	Pressure drop in the heat pump at V_{min}

For heat pumps with an integral circulation pump, the pressure drop of the heat pump (Δp_{WP}) is not taken into account.

If the external delivery head is not sufficient for the "Min. flow rate, defrosting", additional heating circuits for the underfloor heating must be permanently opened.

8.3.2 System with buffer cylinder

The system-dependent operating flow rate or at least the "Min. flow rate, defrosting" must be ensured between the heat pump and the buffer cylinder (see chapter *Data table [▸ 51]*). The buffer cylinder ensures hydraulic separation between the heat distribution system and the heat pump circuit.

No further measures required.

8.3.3 System without buffer cylinder

✓ The appliance is operated solely with the WPM heat pump manager and an external pump controlled by the WPM is used as the circulation pump.

✓ The appliance is operated with hydraulic module HM(S) (Trend) or integral cylinder HSBB 180 (S) Plus without an additional buffer cylinder.

▶ Set the circulation pump manually.

For systems without a buffer cylinder, one or more heating circuits in the system must remain open. The open heating circuit(s) must be installed in the lead room (room in which the external programming unit is installed, e.g. living room or bath-

room). The lead room can be individually controlled using the external programming unit, or indirectly by adjusting the heating curve or activating room influence.

▶ Operate the appliance in heating mode.

▶ When designing underfloor heating in the lead room, observe our recommendations. The table applies if individual room control is installed.

	WPL-A 07.2 Plus HK 230	WPL-A 10.2 Plus HK 400	WPL-A 13.2 Plus HK 400
Heat pump min. flow rate, defrosting			
l/h	530	720	900
Minimum water content of the open heating circuits during operation without buffer cylinder			
l	24	27	39
Composite pipework 16x2 mm / installation spacing 10 cm			
Lead room floor area [m²]	28	28	-
Number of circuits [n × m]	4 x 70	4 x 70	-
Composite pipework 20x2.25 mm / installation spacing 15 cm			
Lead room floor area [m²]	21	32	32
Number of circuits [n × m]	2 x 70	3 x 70	3 x 70
Buffer cylinder essential			
	no	no	no
Buffer cylinder volume in relation to product range			
l	-	-	-
Activate the integral emergency/auxiliary heater			
	-	-	-

8.3.4 Minimum flow rate in cooling mode

For trouble-free operation without a buffer cylinder, the "Min. flow rate, cooling" must be ensured.

If the buffer cylinder is bypassed in cooling mode, the "Min. flow rate, cooling" must be checked for cooling mode in the same way as for heating mode.

▶ Observe chapter *System without buffer cylinder [▸ 24]*.

9 Settings

9.1 Reduced night mode (Silent mode)

To reduce the sound power level of the appliance for a specified period, you can set the appliance to night mode if required.

You can specify the times during which the appliance is set to night mode using the time programs.

Program	Meaning
Silent program 1	reduced night mode
Silent program 2	Appliance switched off

Two versions of night mode are available for you to use.

Version	Meaning
Version 1: reduced night-time operation	You can reduce the maximum sound power level of the appliance (see chapter *Data table [▸ 51]*).
Version 2: appliance switched off	You can switch the appliance off. When the appliance is switched off, heating and DHW are provided exclusively via the emergency/auxiliary heater in the indoor unit or via the booster heater module, which is available separately (see chapter *Required accessories [▸ 6]*). If the emergency/auxiliary heater cuts in, this will result in higher running costs.

Version 1: reduced night-time operation

▶ Open the menu in the heat pump manager.
- WPMsystem: COMMISSIONING / SILENT MODE / NOISE REDUCTION

▶ Refer to the tables to see what influence the reduction has on the maximum available output (see chapter *Sound reduction [▸ 49]*).

▶ Reduce the maximum sound power level by the required value.

▶ Open the menu in the heat pump manager.
- WPMsystem: PROGRAMS / SILENT PROGRAM 1

▶ In the time program, define the time at which the reduced night program is active.

Version 2: appliance switched off

When the appliance is switched off, heating and DHW are provided exclusively via the emergency/auxiliary heater in the indoor unit or via the booster heater module, which is available separately (see chapter *Required accessories [▸ 6]*). This will result in higher running costs.

▶ Open the menu in the heat pump manager.
- WPMsystem: COMMISSIONING / SILENT MODE / HEAT PUMP OFF

▶ Activate the function if the appliance is to be switched off, and the emergency/auxiliary heater or the booster heater module is to take over heating, cooling and DHW.

▶ Open the menu in the heat pump manager.
- WPMsystem: PROGRAMS / SILENT PROGRAM 2

▶ Define the time at which the appliance is switched off in the time program.

9.2 Setting the buffer cylinder

▶ In the WPM heat pump manager, set whether or not there is a buffer cylinder in the heating system.

▶ Observe the commissioning instructions for the WPM heat pump manager.

9.3 Using the screed drying program

The WPM heat pump manager offers you a screed drying program which you can use with a defined temperature profile to dry the screed.

▶ Observe the information in the instructions for the WPM heat pump manager.

10 Cleaning

▶ To prevent insects or small animals from nesting in the appliance, keep the area around and under it clean.

Cleaning the enclosure

▶ **NOTICE: To prevent damage to components, never use abrasive or corrosive cleaning agents.** Clean the enclosure components every 2-3 months with a pH-neutral cleaning agent and a soft cloth.

▶ **NOTICE: To prevent damage to the appliance, do not use high pressure cleaners.** Clean plastic and sheet metal parts with a damp cloth.

Cleaning the condensate pan

✓ A condensate pan is installed in the appliance.

▶ Check the condensate pan regularly (visual inspection).

▶ **CAUTION: The sharp-edged fins of the evaporator can cause injury. Wear protective gloves.** Remove any contaminants and blockages immediately.

Cleaning the evaporator fins

▶ **NOTICE: If the air intake and discharge of the appliance are obstructed, this may cause a thermal short circuit.** Keep the air intake and discharge apertures free from snow and leaves.

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

▶ **CAUTION: The sharp-edged fins of the evaporator can cause injury. Wear protective gloves.** Clean the evaporator fins with water and a soft brush.

11 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.
One or more radiators remain cold.	Air has collected in the radiator.	The radiator must be bled. Observe the information in chapter *Bleeding radiators [▶ 27]*.
Water is leaking from the appliance.	The condensate pan might be blocked.	Clean the condensate pan as described in chapter *Cleaning [▶ 26]*.
The heater gets warm, but the rooms are not heated to the required temperature.	The energy input into the heating system is too low.	Increase the set values (e.g. set room temperature, heating curve, etc.).
	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.
There is a loss of pressure in the heating system.	Water drips from the safety valve.	Check whether water is running out of the safety valve hose. Call your qualified contractor.
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 5 °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 *Fan noise [▶ 29]*).

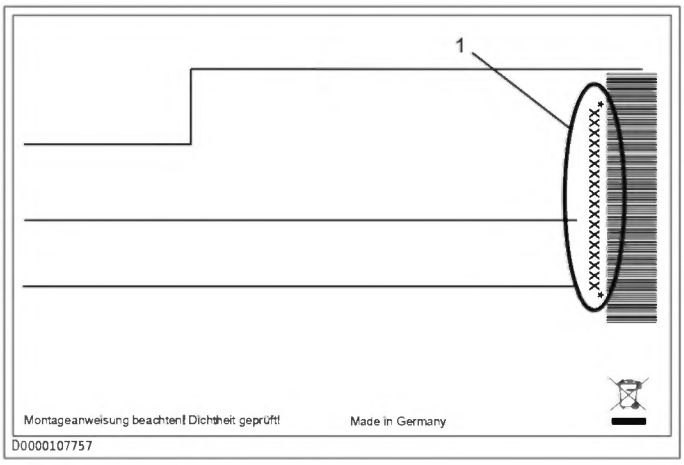
Even if the condensate drain is installed correctly, water may drip from the appliance onto the floor.

▶ 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 above the hydraulic connection at the back of the appliance.

Example type plate



1 Number on the type plate

11.1 Bleeding radiators

If radiators or other points in the heating system need to be bled or vented, proceed as follows.

▶ Open the notification list in the heat pump manager.
– WPMsystem: DIAGNOSIS / NOTIFICATIONLIST

▶ Check whether one of the following messages appears.

Message code	Reason for fault code being triggered
10047	Low pressure (LP) fault
10048	
50047	
50048	
20100	
10029	Refrigerant shortage
50029	
--	Gas bubble detection response

No message present

▶ Open at least one window in the room in which the radiator is being bled. Opening the window in its tilt position is not sufficient. We recommend opening two windows to create a draught.

▶ Bleed the radiator.

▶ Do not close the window until 30 minutes after bleeding.

Message present

▶ Notify the service department.

12 Troubleshooting (qualified contractors)

WARNING

Electrocution

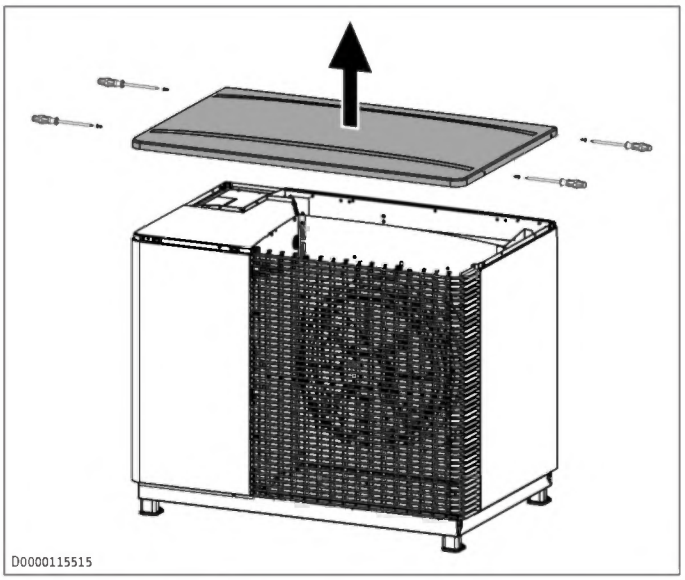
If you work on the appliance while it is still live, you are at risk of electrocution.
Following disconnection from the power supply, parts of the appliance may remain energised for 5 minutes until the inverter capacitors have discharged.

▶ Before working on the appliance, isolate it from the power supply.

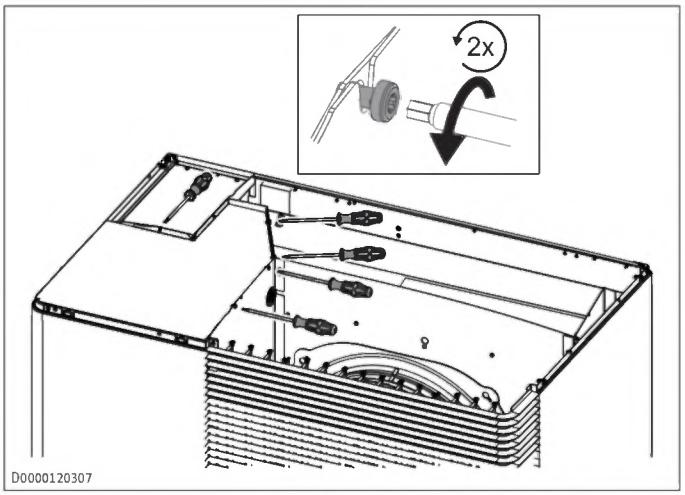
Fault	Possible cause	Remedy
There is a loss of pressure in the heating system.	The internal safety valve or the internal automatic air vent valve is defective.	Call customer service.

▶ Please observe the instructions for the heat pump manager.

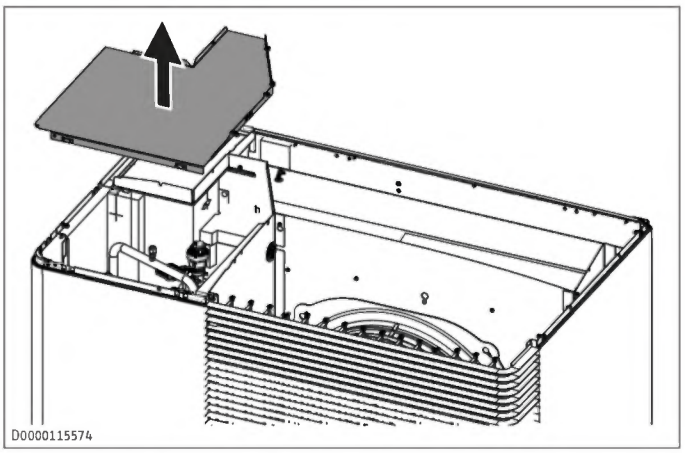
▶ If the fault cannot be located using the heat pump manager, open the control panel and check the settings of the IWS (integral heat pump controller).



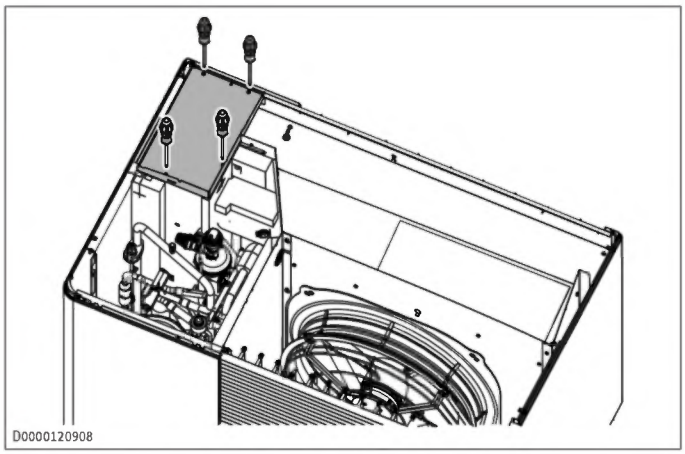
▶ Remove the appliance cover.



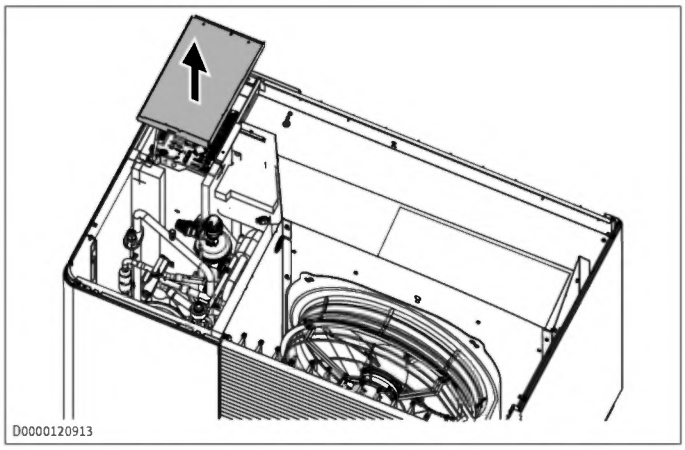
▶ Loosen the screws for the cover.



▶ Remove the refrigerant circuit cover.

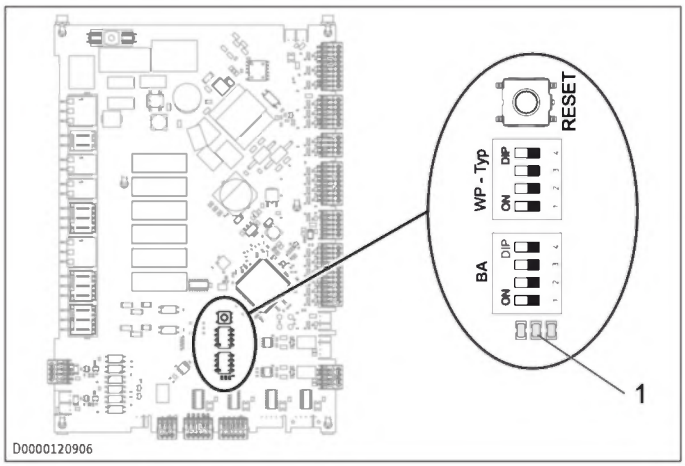


▶ Loosen the screws for the cover.



▶ Remove the cover from the integral heat pump controller (IWS).

12.1 Light emitting diodes (LEDs)



1 LEDs

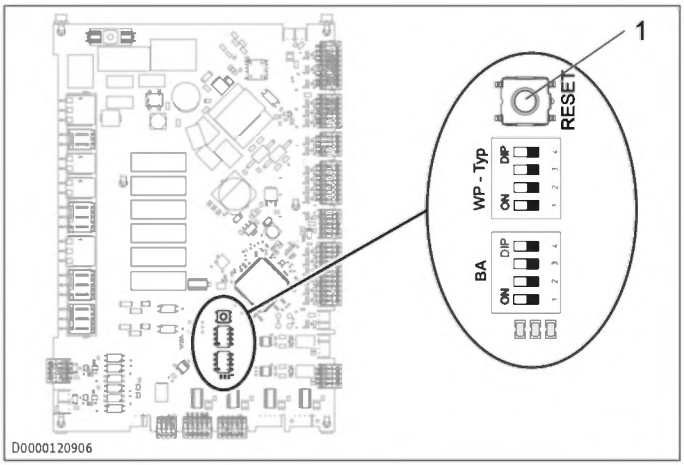
The following table shows the meaning of the LEDs on the integral heat pump controller (IWS).

LED indicator	Meaning
Red LED flashes	Single fault. The appliance is shut down and restarts after 10 minutes. The LED goes off.
Red LED illuminates	More than 5 faults within 2 hours run. The appliance is switched off permanently and only restarts after a reset of the heat pump via the heat pump manager. Observe the information in the instructions for the WPM heat pump manager. This also resets the internal fault counter. The appliance can be restarted after 10 minutes. The LED goes off.
Green LED (centre) flashes	The heat pump is initialising.
Green LED (centre) illuminates	The heat pump has been successfully initialised. The connection to the WPM heat pump manager is active.

Faults indicated by the red LED:

- High pressure fault
- Low pressure fault
- Central fault
- Hardware faults on the IWS (see Notification list on the WPM heat pump manager)

12.2 Reset button

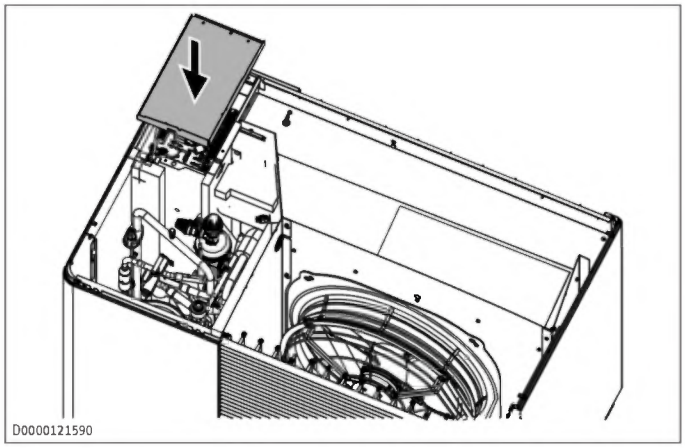


1 Reset button

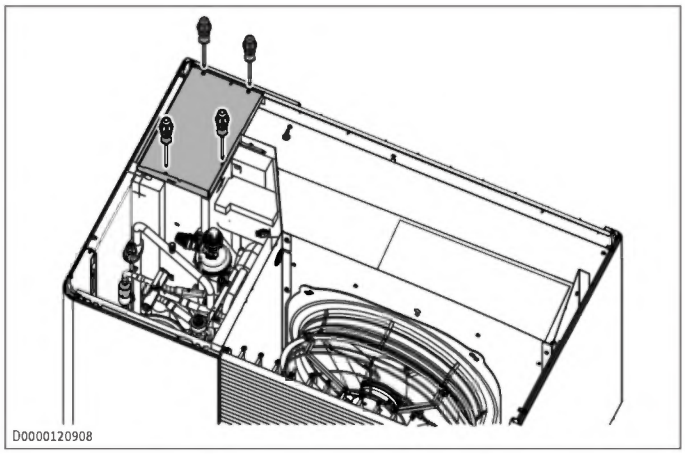
If the integral heat pump controller (IWS) has been initialised incorrectly, you can reset it using the reset button on the IWS.

▶ Observe chapter "Reinitialising the IWS" in the heat pump manager instructions.

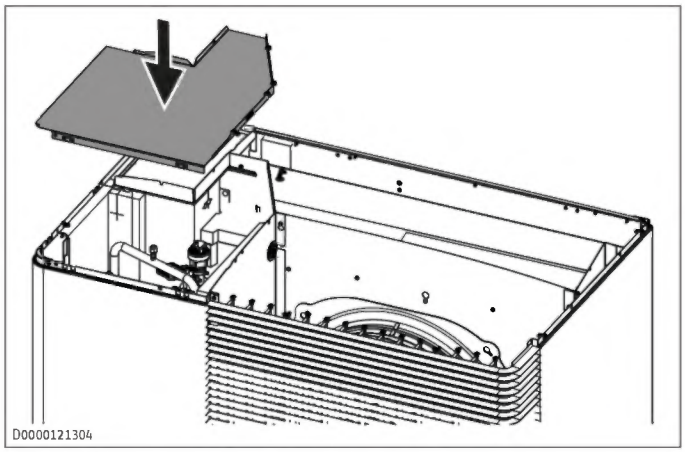
12.3 Fitting the appliance cover



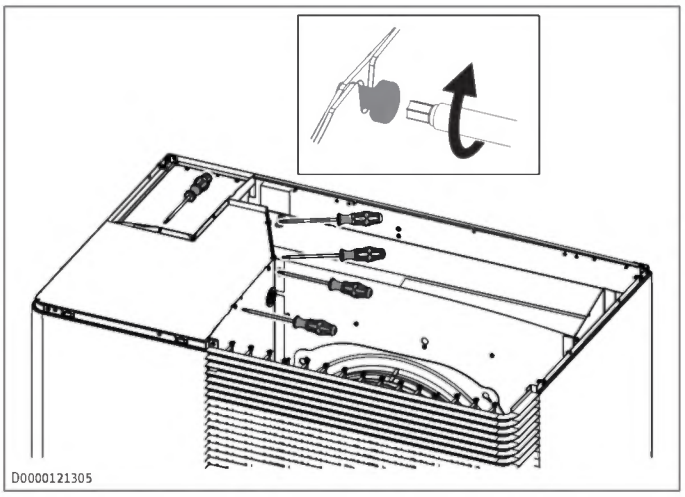
▶ Fit the cover on the integral heat pump controller (IWS).



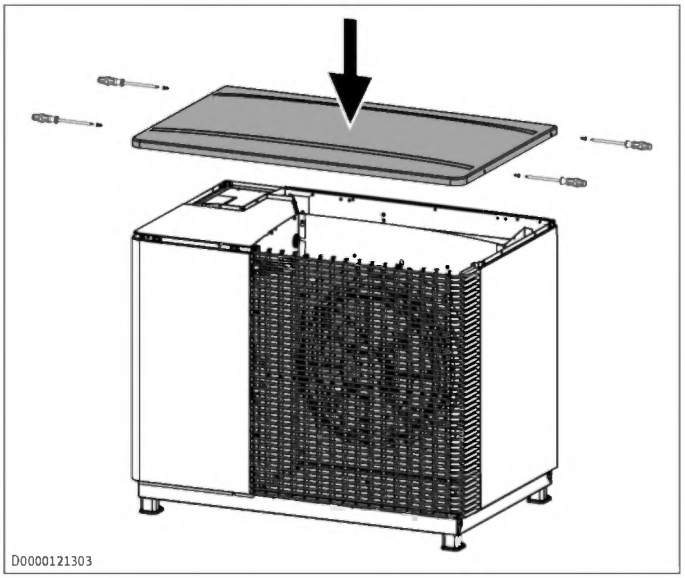
▶ Screw the cover tight.



▶ Fit the cover on the refrigerant circuit.



▶ Screw the cover tight.



▶ Position the appliance cover on the appliance.

▶ Screw the appliance cover tight.

12.4 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, noise develops.

If defrosting is initiated manually, intensive defrosting is carried out. During an intensive defrost, higher operating costs may be incurred.

If you need to carry out manual defrosting more often, perform the following steps:

▶ Check that the appliance is installed in line with the installation requirements.

▶ Adjust the setting for intensive defrosting in the heat pump manager. Observe the information in the instructions for the WPM heat pump manager.

▶ If noise continues to occur frequently, notify the service department.

How to remedy rhythmic scratching or grinding noises:

- ▶ 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 the 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.

13 Shutting down the system

The heat pump manager automatically switches the heat pump to summer or winter mode. System frost protection is guaranteed.

- ▶ Never interrupt the power supply to the heat pump, even outside the heating season.

13.1 Standby mode

- ▶ If you want to switch off the appliance, you must set the heat pump manager to STANDBY MODE.

The safety functions that protect the system as well as frost protection remain enabled.

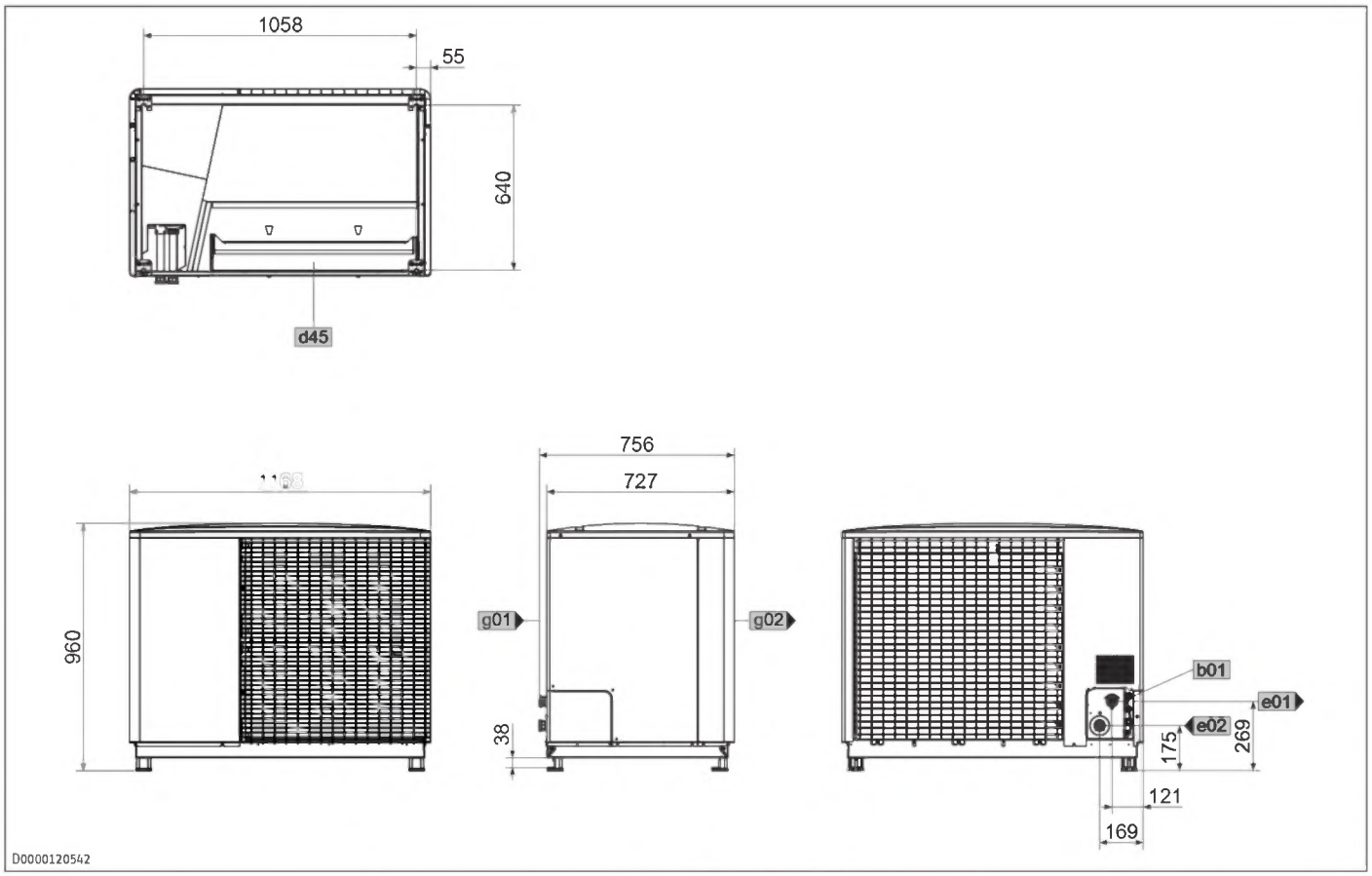
13.2 Power interruption

- ✓ The appliance is permanently isolated from the power supply.
- ▶ **NOTICE: When the appliance is isolated from the power supply, the water in the appliance and the pipes may freeze. This may damage the appliance and pipes.** If the heat pump is completely switched OFF and there is a risk of frost, drain the system on the water side.

14 Specification

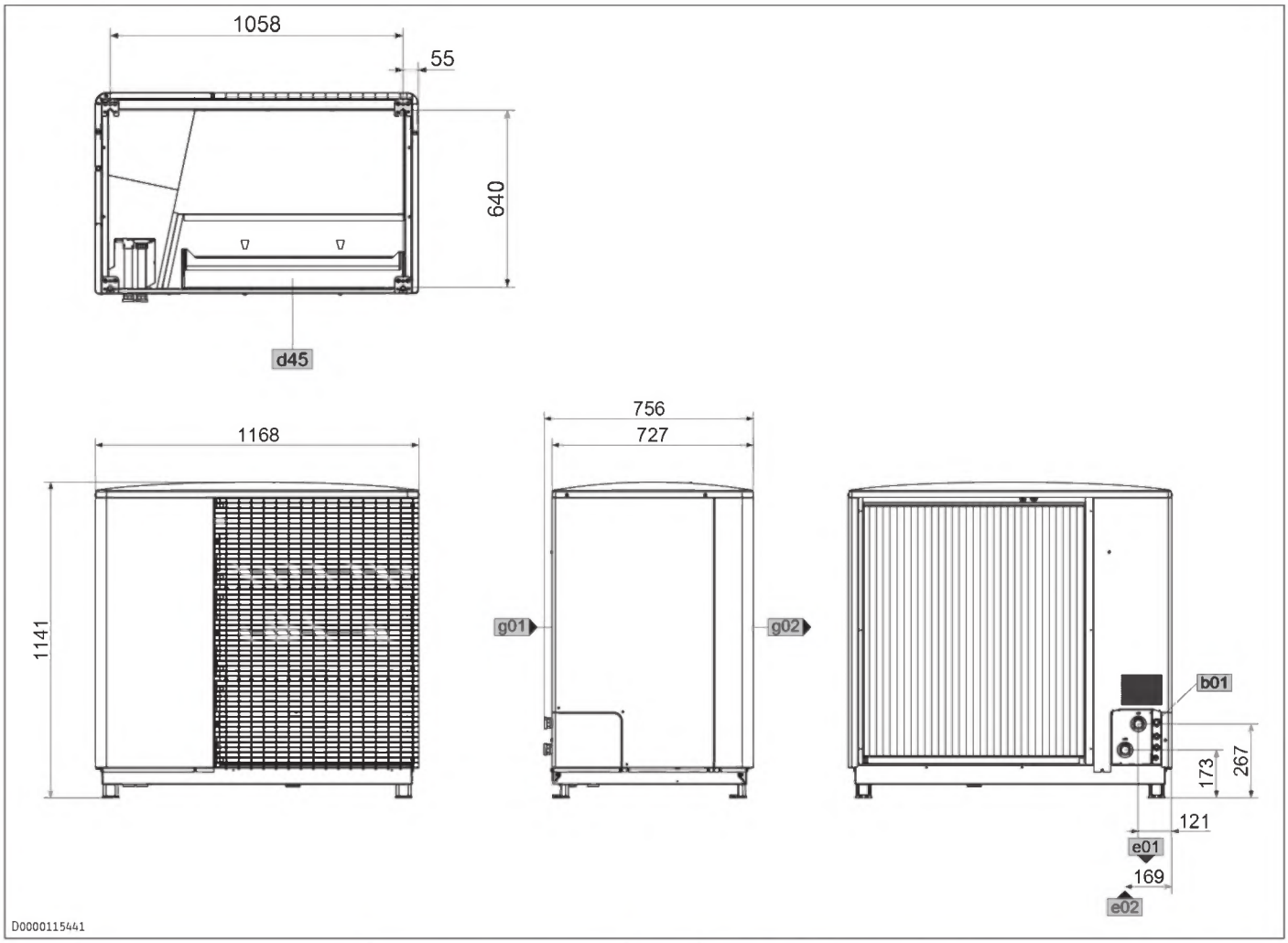
14.1 Dimensions and connections

WPL-A 07.2 Plus HK 230



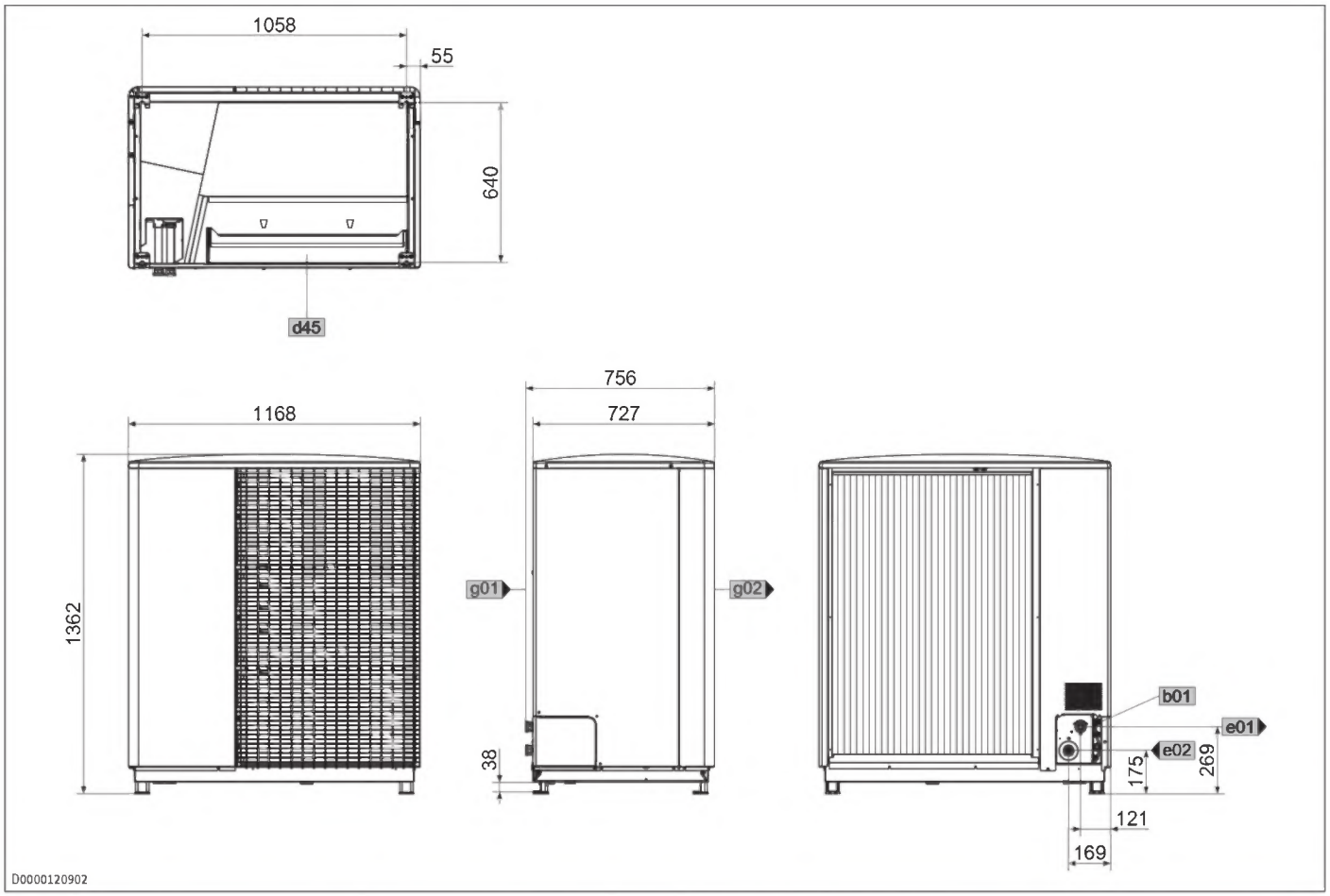
				WPL-A 07.2 Plus HK 230
b01	Entry electrical cables			
d45	Condensate drain	Diameter		DN50
e01	Heating flow	Connection type		G 1 1/4"
		Diameter	mm	28
e02	Heating return	Connection type		G 1 1/4"
		Diameter	mm	28
g01	Air intake			
g02	Air discharge			

WPL-A 10.2 Plus HK 400



				WPL-A 10.2 Plus HK 400
b01	Entry electrical cables			
d45	Condensate drain	Diameter		DN50
e01	Heating flow	Connection type		G 1 1/4"
		Diameter	mm	28
e02	Heating return	Connection type		G 1 1/4"
		Diameter	mm	28
g01	Air intake			
g02	Air discharge			

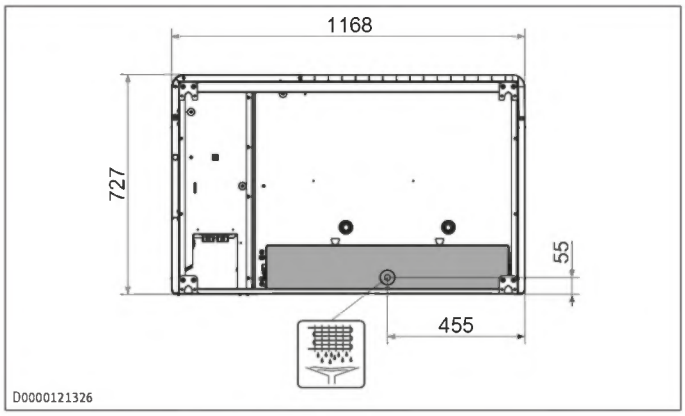
WPL-A 13.2 Plus HK 400



				WPL-A 13.2 Plus HK 400
b01	Entry electrical cables			
d45	Condensate drain	Diameter		DN50
e01	Heating flow	Connection type		G 1 1/4"
		Diameter	mm	28
e02	Heating return	Connection type		G 1 1/4"
		Diameter	mm	28
g01	Air intake			
g02	Air discharge			

14.1.1 Other connections

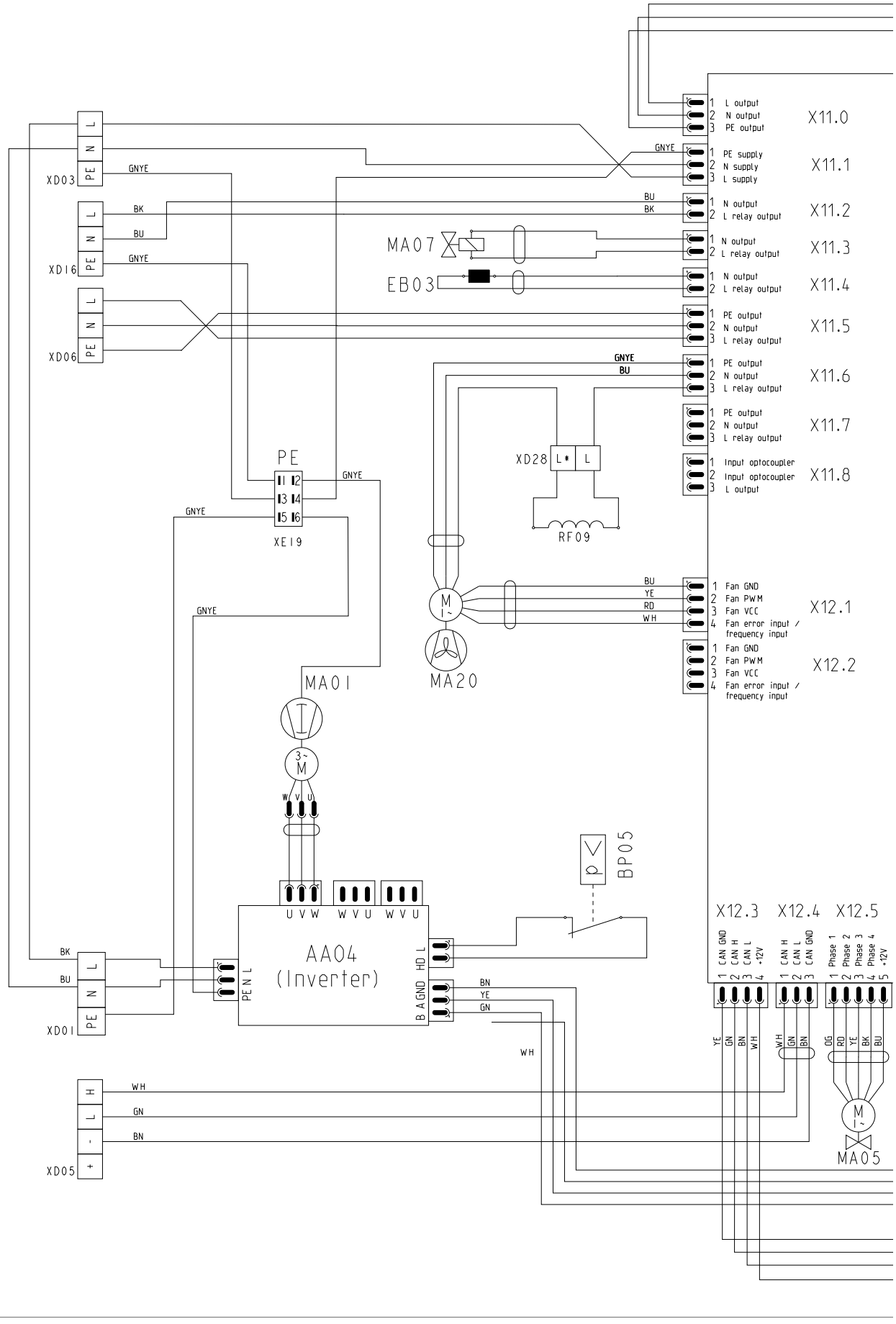
Condensate pan AHP-DT.1



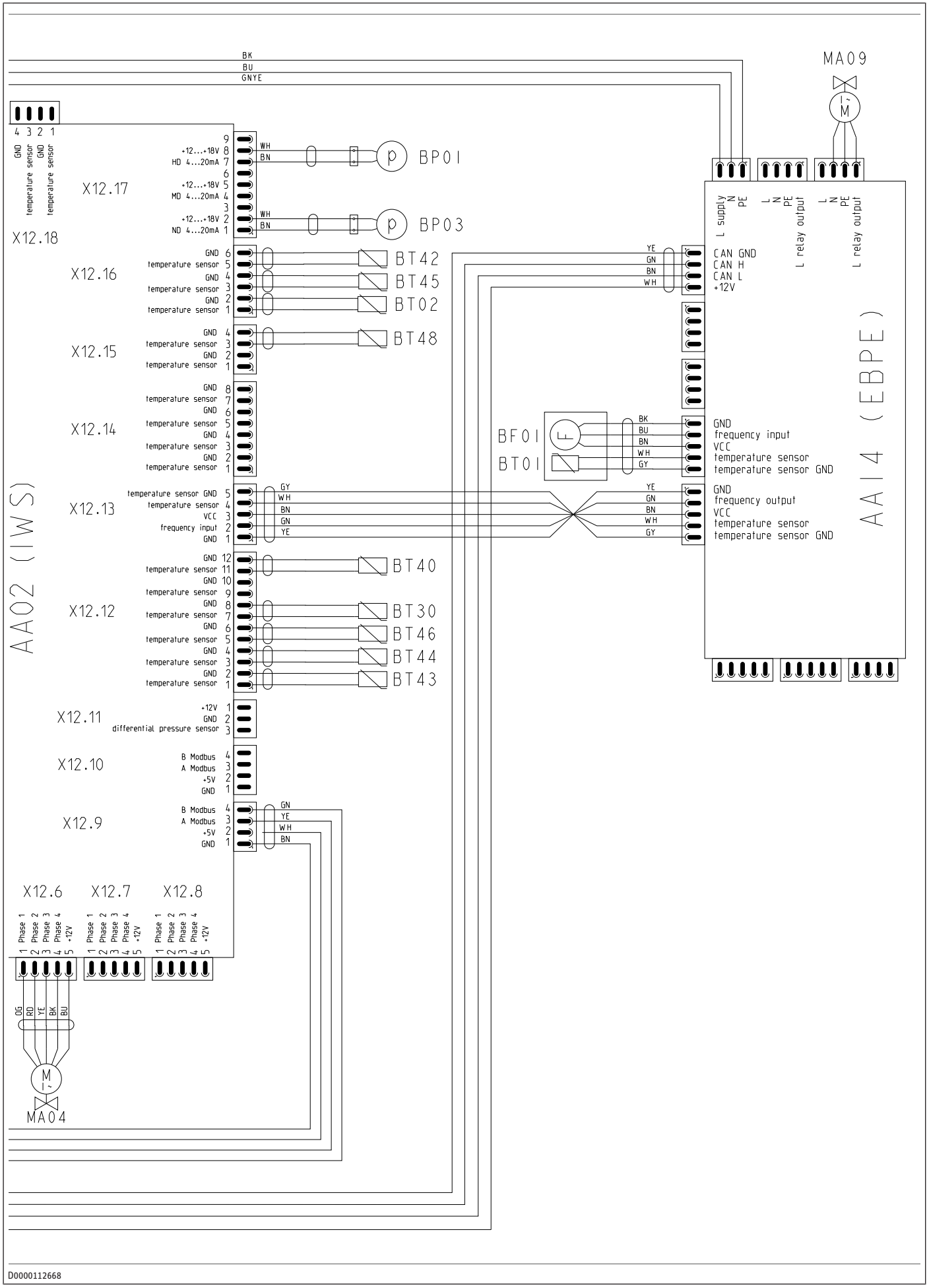
14.2 Wiring diagram

Terminal	Designation
AA02	Integral heat pump controller (IWS)
AA04	Inverter, compressor
AA14	Electronic propane detection assembly (EBPE)
BF01	Flow sensor, heating
BP01	Pressure sensor, high pressure (34 bar)
BP03	Pressure sensor, low pressure (16 bar)
BP05	Pressure switch, high pressure (34 bar)
BT01	Heating flow temperature sensor - PT1000
BT02	Heating return temperature sensor - PT1000
BT30	Outdoor air temperature sensor - Pt1000
BT40	Hot gas temperature sensor - Pt1000
BT42	Frost protection temperature sensor - Pt1000
BT43	Condenser outlet temperature sensor - Pt1000
BT44	Evaporator inlet temperature sensor - Pt1000
BT45	Evaporator discharge temperature sensor - PT 1000
BT46	Temperature sensor, compressor intake - PT 1000
BT48	Oil sump temperature sensor - Pt1000
EB03	Oil sump heater
MA01	Compressor motor
MA04	Motor, expansion valve (superheating)
MA05	Motor, expansion valve (supercooling)
MA07	Motor, diverter valve, defrost
MA09	Shut-off valve motor
MA20	Motor, heat pump, fan 1
MA23	Motor, heat pump, fan 2
RF09	Restrictor
XD01	Heat pump terminal
XD03	Mains terminal, integral heat pump controller (IWS)
XD05	BUS
XD06	Mains terminal, auxiliary heater
XD16	Defrost pan, heating
XD28	Terminal, fan 1
XE19	Stud 1, control panel

WPL-A 07.2 Plus HK 230

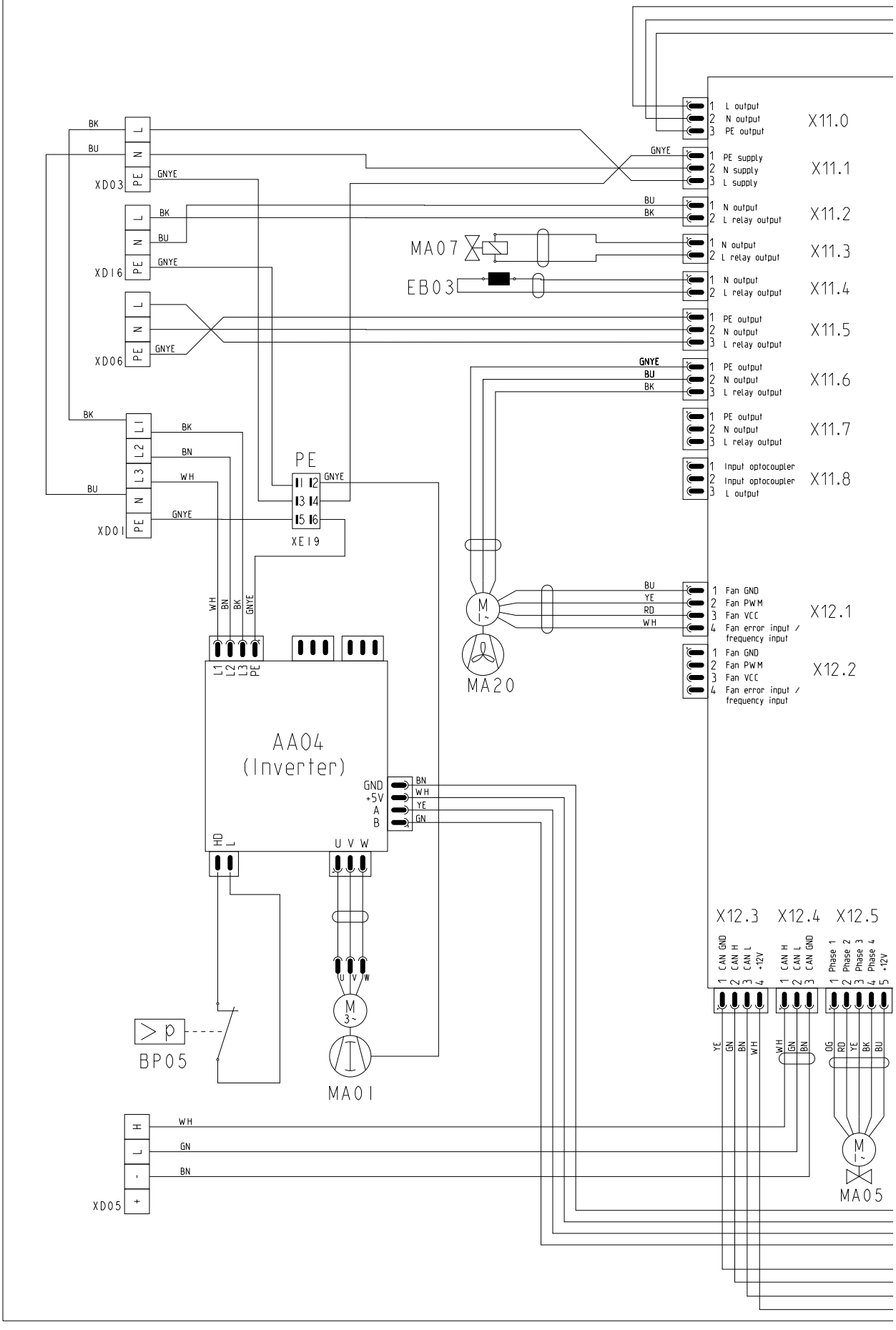


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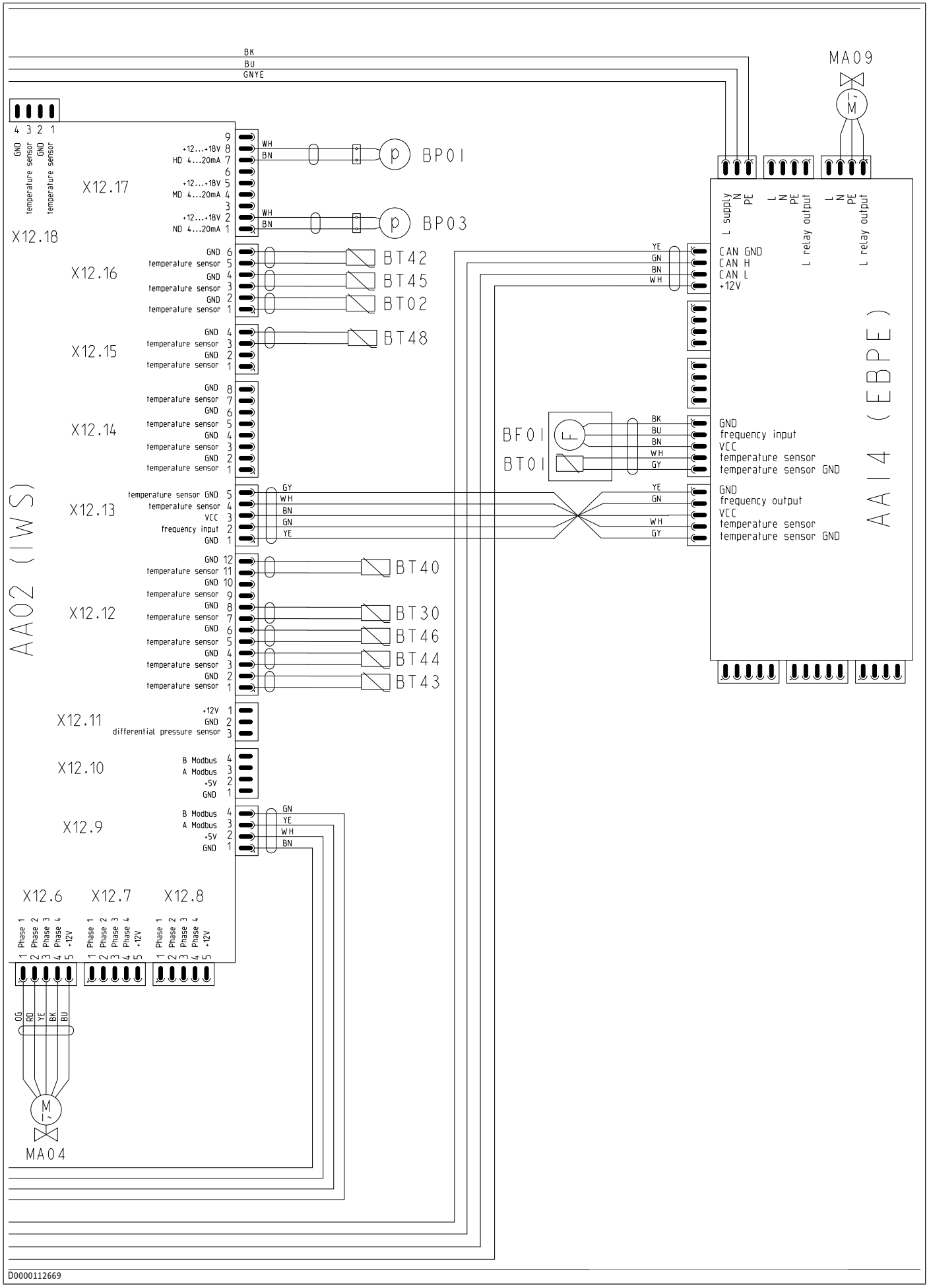


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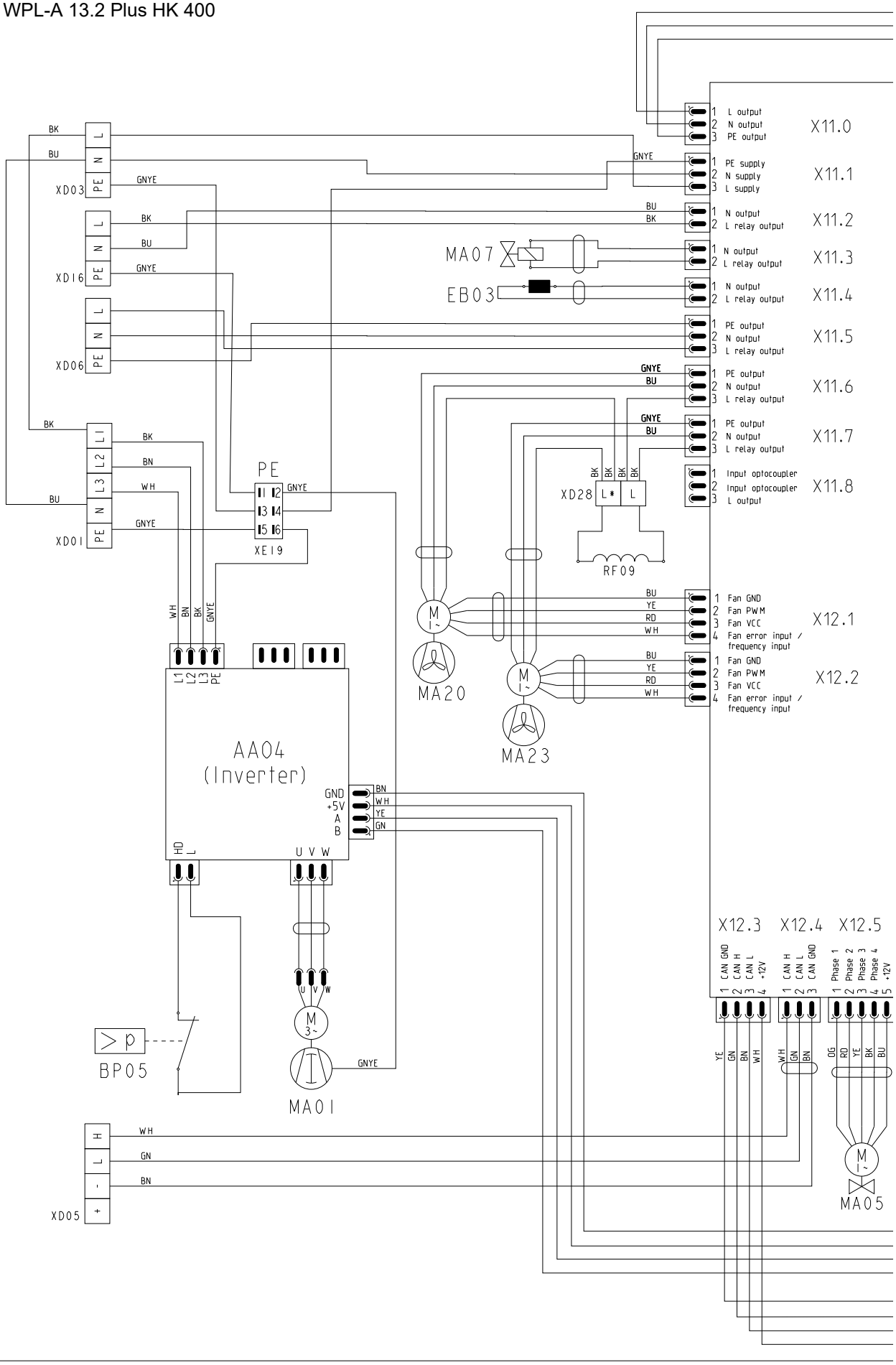
WPL-A 10.2 Plus HK 400



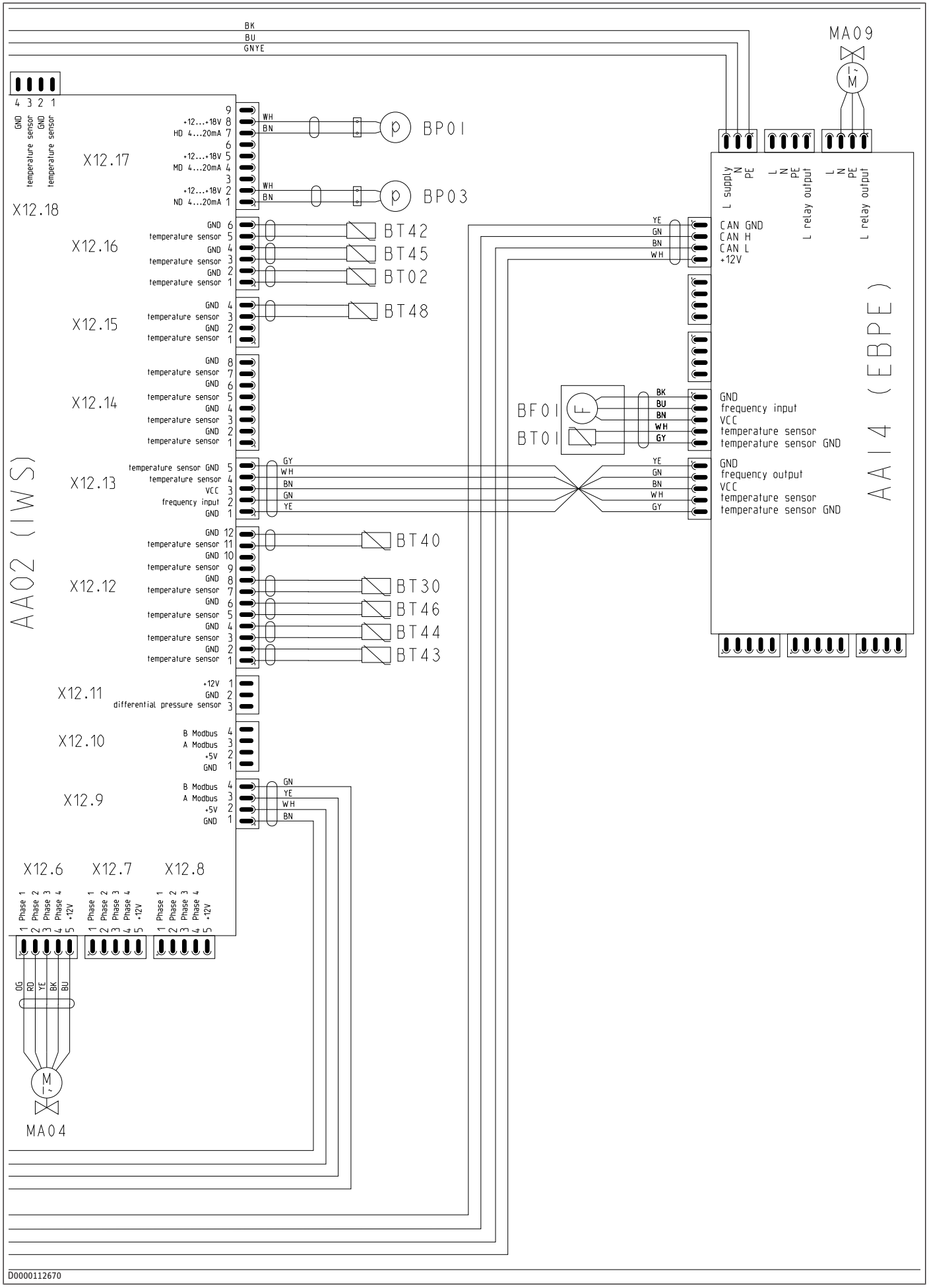
D0000112669


BK
BU
GNYE
MA09
AA02 (IWS)
X12.17
X12.18
X12.16
X12.15
X12.14
X12.13
X12.12
X12.11
X12.10
X12.9
X12.6
X12.7
X12.8
BP01
BP03
BT42
BT45
BT02
BT48
BT40
BT30
BT46
BT44
BT43
BF01
BT01
MA04
AA14 (EBPE)
CAN GND
CAN H
CAN L
+12V
L supply
L relay output
GND
frequency input
VCC
temperature sensor
temperature sensor GND
frequency output
D0000112669

WPL-A 13.2 Plus HK 400

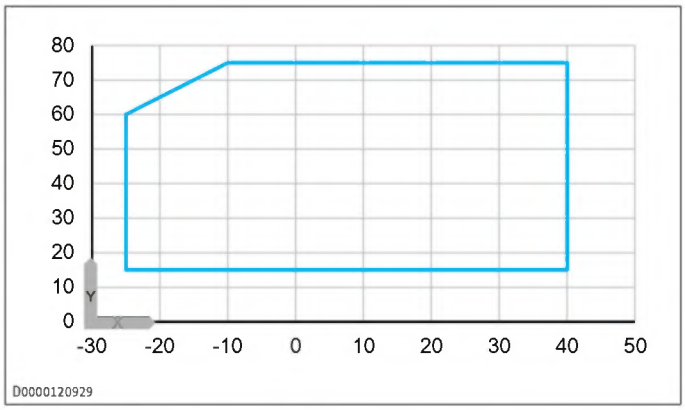


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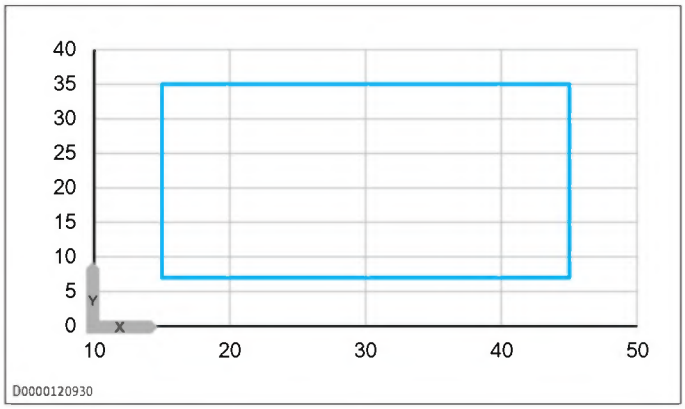

BK
BU
GNYE
MA09
L supply
N
PE
L relay output
CAN GND
CAN H
CAN L
+12V
AA14 (EBPE)
BP01
BP03
BT42
BT45
BT02
BT48
BT40
BT30
BT46
BT44
BT43
BF01
BT01
GND
frequency input
VCC
temperature sensor
temperature sensor GND
frequency output
AA02 (IWS)
X12.17
X12.18
X12.16
X12.15
X12.14
X12.13
X12.12
X12.11
X12.10
X12.9
X12.6
X12.7
X12.8
MA04
D0000112670

14.3 Application limit

14.3.1 Heating



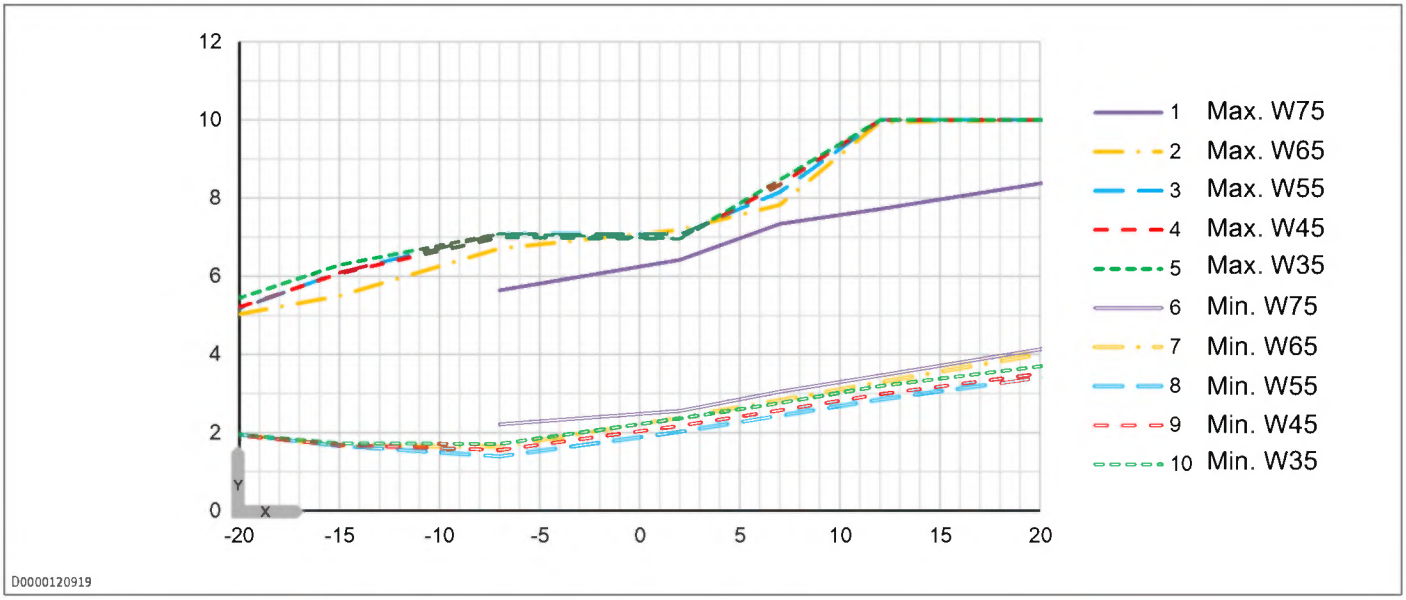
14.3.2 Cooling



14.4 Output diagrams

14.4.1 WPL-A 07.2 Plus HK 230

Heating output



X Outside temperature [°C]
Y Heating output [kW]

35 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	4.12	5.44	6.29	7.09	6.96	8.47	10.00	10.00	9.96	9.50
Rated heating output	kW	4.12	5.44	6.29	7.09	3.29	3.05	3.27	3.69	4.65	5.00
Nominal power consumption	kW	1.75	2.09	2.19	2.18	0.72	0.56	0.49	0.46	0.39	0.35
Nominal COP		2.35	2.61	2.87	3.25	4.57	5.50	6.75	7.99	11.99	14.19
Min. heating output	kW	2.18	1.95	1.73	1.71	2.36	2.76	3.27	3.69	4.65	5.00

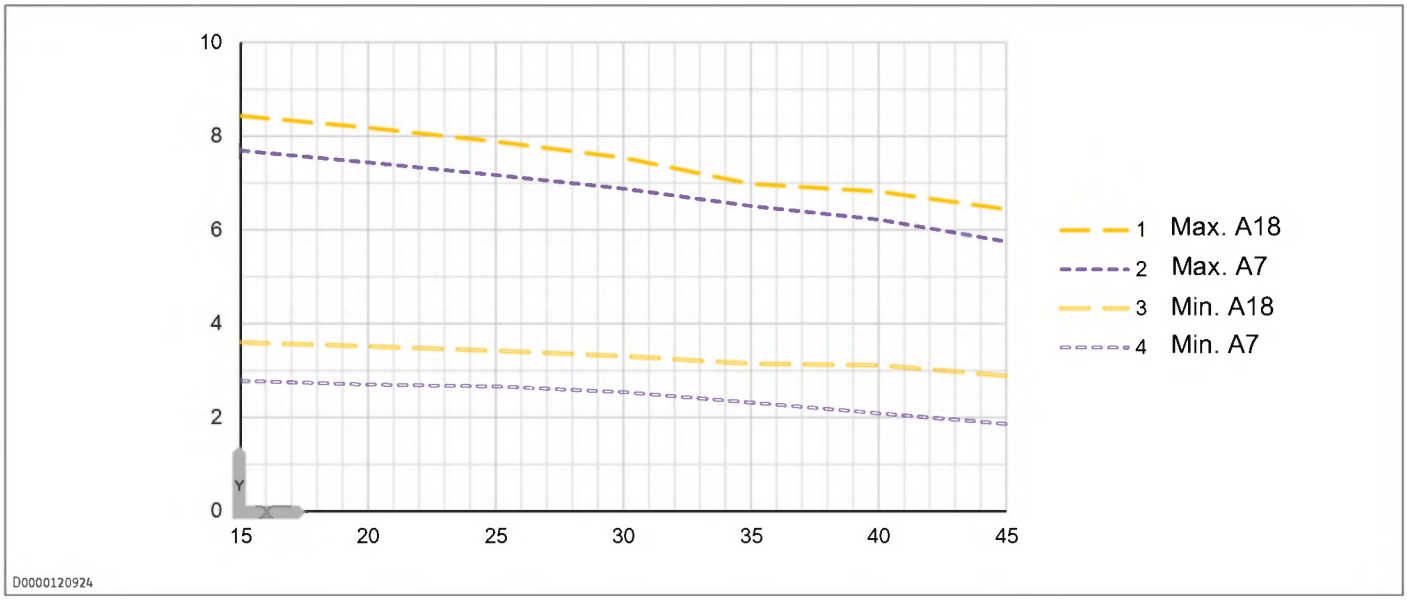
45 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	4.00	5.21	6.07	6.99	6.96	8.35	10.00	10.00	10.00	10.00
Rated heating output	kW	4.00	5.21	6.07	6.99	3.38	3.38	4.04	3.51	4.46	4.80
Nominal power consumption	kW	1.97	2.30	2.45	2.52	0.94	0.82	0.83	0.63	0.58	0.55
Nominal COP		2.03	2.26	2.47	2.77	3.61	4.11	4.90	5.60	7.73	8.74
Min. heating output	kW	2.21	1.93	1.68	1.55	2.18	2.57	3.10	3.51	4.46	4.80

55 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	3.96	5.17	6.10	7.09	7.08	8.16	10.00	10.00	10.00	10.00
Rated heating output	kW	3.96	5.17	6.10	7.09	3.45	3.70	4.81	3.40	4.36	4.59
Nominal power consumption	kW	2.15	2.49	2.71	2.74	1.16	1.11	1.24	0.80	0.78	0.76
Nominal COP		1.84	2.08	2.25	2.58	2.98	3.33	3.89	4.26	5.59	6.07
Min. heating output	kW	2.32	1.95	1.66	1.39	2.02	2.43	3.00	3.40	4.36	4.59

65 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	5.03	5.50	6.71	7.19	7.83	10.00	10.00	10.00	10.00
Rated heating output	kW	-	5.03	5.50	6.71	3.46	4.43	4.89	4.00	5.10	5.42
Nominal power consumption	kW	-	2.80	2.92	3.37	1.40	1.63	1.56	1.18	1.22	1.20
Nominal COP		-	1.80	1.88	1.99	2.47	2.72	3.12	3.38	4.19	4.51
Min. heating output	kW	-	1.95	1.65	1.64	2.38	2.83	3.51	4.00	5.10	5.42

75 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	-	-	5.64	6.42	7.34	7.95	8.38	9.84	10.00
Rated heating output	kW	-	-	-	5.64	6.42	7.34	7.95	4.13	5.71	5.99
Nominal power consumption	kW	-	-	-	3.57	3.47	3.58	3.58	1.64	2.12	2.15
Nominal COP		-	-	-	1.58	1.85	2.05	2.22	2.52	2.70	2.78
Min. heating output	kW	-	-	-	2.21	2.55	3.05	3.71	4.13	5.71	5.99

Cooling capacity



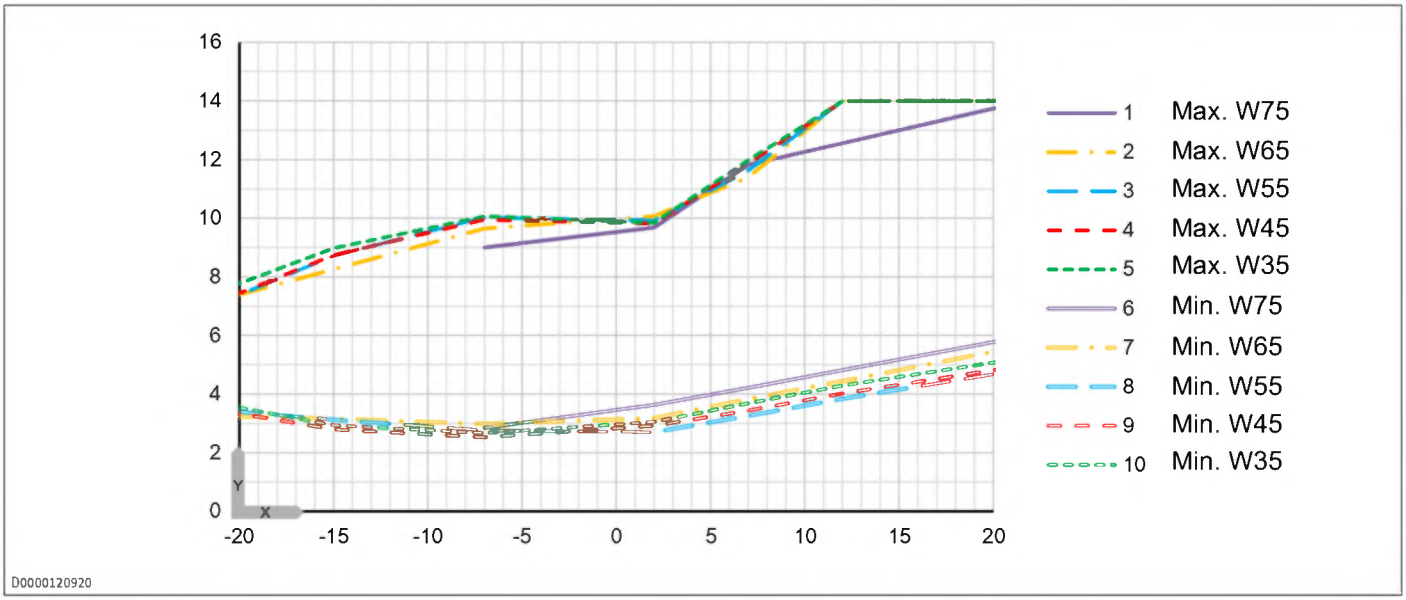
X Outside temperature [°C]
Y Cooling capacity [kW]

7 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	7.69	7.44	7.17	6.88	6.51	6.22	5.75
Min. cooling capacity	kW	2.78	2.70	2.66	2.54	2.32	2.09	1.86

18 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	8.43	8.18	7.88	7.54	6.98	6.82	6.44
Min. cooling capacity	kW	3.60	3.52	3.42	3.31	3.15	3.11	2.89

14.4.2 WPL-A 10.2 Plus HK 400

Heating output



X Outside temperature [°C]
Y Heating output [kW]

35 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	5.36	7.78	8.98	10.07	9.84	11.97	14.00	14.00	13.80	13.00
Rated heating output	kW	5.36	7.78	8.98	10.07	4.09	4.32	4.47	5.07	6.36	6.47
Nominal power consumption	kW	2.30	3.10	3.23	3.20	0.90	0.80	0.67	0.63	0.54	0.53
Nominal COP		2.33	2.51	2.78	3.15	4.54	5.40	6.73	8.01	11.80	12.31
Min. heating output	kW	4.11	3.53	2.94	2.67	3.05	3.69	4.47	5.07	6.36	6.47

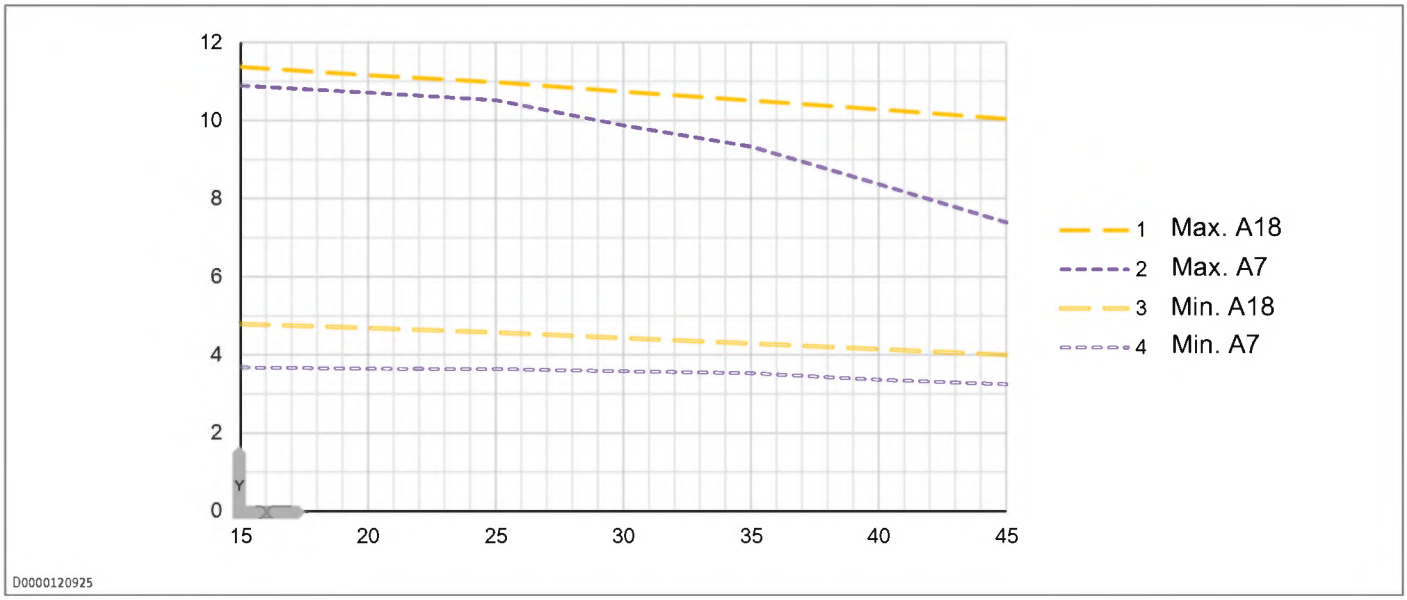
45 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	5.10	7.44	8.74	9.95	9.82	11.85	14.00	14.00	14.00	14.00
Rated heating output	kW	5.10	7.44	8.74	9.95	4.54	4.89	5.09	4.82	5.98	6.22
Nominal power consumption	kW	2.52	3.38	3.59	3.70	1.27	1.20	1.04	0.86	0.80	0.78
Nominal COP		2.02	2.20	2.43	2.69	3.58	4.08	4.91	5.64	7.51	7.99
Min. heating output	kW	3.86	3.34	2.79	2.52	2.92	3.44	4.24	4.82	5.98	6.22

55 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	4.97	7.39	8.72	10.02	9.92	11.63	14.00	14.00	14.00	14.00
Rated heating output	kW	4.97	7.39	8.72	10.02	4.62	5.63	6.11	4.68	5.78	5.98
Nominal power consumption	kW	2.72	3.61	3.90	4.04	1.55	1.69	1.56	1.08	1.06	1.04
Nominal COP		1.83	2.05	2.23	2.48	2.98	3.33	3.91	4.31	5.44	5.74
Min. heating output	kW	3.66	3.39	3.13	2.76	2.70	3.26	4.11	4.68	5.78	5.98

65 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	7.39	8.25	9.65	10.07	11.40	14.00	14.00	14.00	14.00
Rated heating output	kW	-	7.39	8.25	9.65	4.65	6.24	6.94	5.45	6.97	7.12
Nominal power consumption	kW	-	4.07	4.28	4.79	1.86	2.26	2.19	1.59	1.64	1.62
Nominal COP		-	1.82	1.93	2.02	2.50	2.77	3.17	3.43	4.25	4.41
Min. heating output	kW	-	3.23	3.16	2.98	3.18	3.83	4.78	5.45	6.97	7.12

75 °C flow temperature		Outside temperature [°C]								
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	-	-	9.00	9.68	11.82	13.00	13.74	14.00	14.00
Rated heating output	kW	-	-	-	9.00	8.00	10.93	11.74	5.78	7.19	7.43
Nominal power consumption	kW	-	-	-	5.88	4.23	5.36	4.97	2.18	2.50	2.53
Nominal COP		-	-	-	1.53	1.89	2.04	2.36	2.65	2.87	2.94
Min. heating output	kW	-	-	-	2.85	3.63	4.22	5.18	5.78	7.19	7.43

Cooling capacity



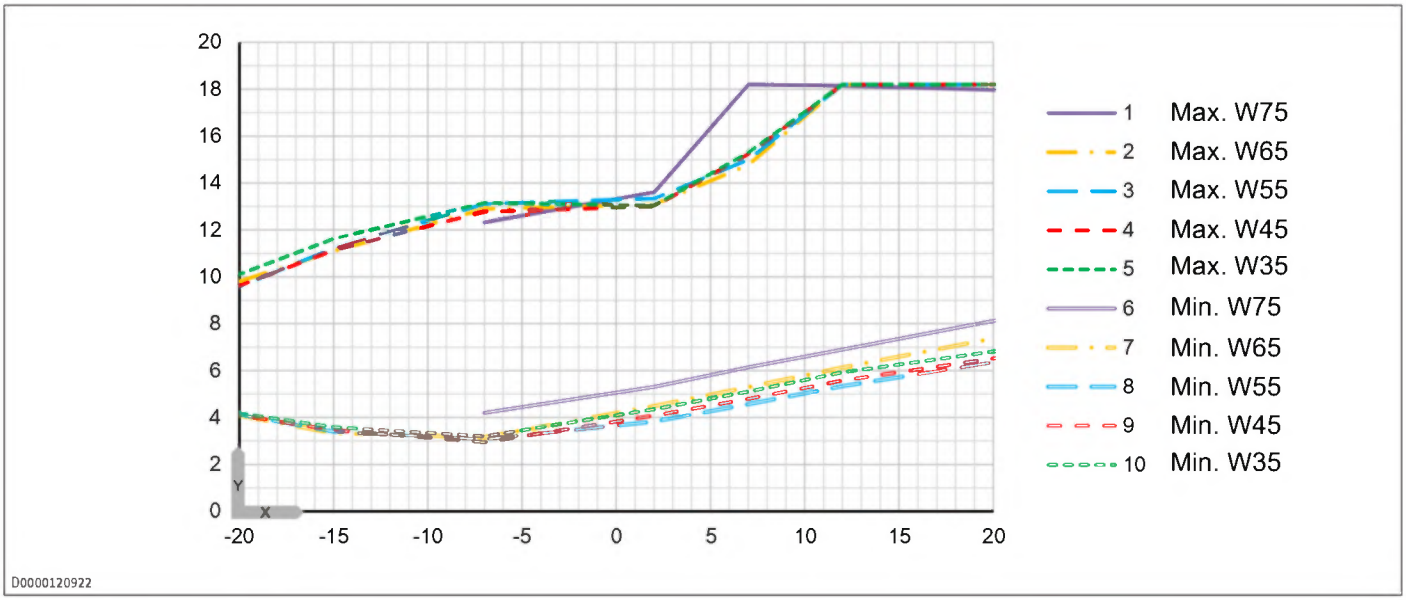
X Outside temperature [°C]
Y Cooling capacity [kW]

7 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	10.89	10.71	10.52	9.87	9.33	8.37	7.39
Min. cooling capacity	kW	3.68	3.65	3.64	3.58	3.53	3.36	3.25

18 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	11.37	11.16	10.98	10.74	10.51	10.28	10.04
Min. cooling capacity	kW	4.79	4.69	4.58	4.43	4.29	4.15	4.00

14.4.3 WPL-A 13.2 Plus HK 400

Heating output



X Outside temperature [°C]
Y Heating output [kW]

35 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	7.34	10.10	11.64	13.15	13.04	15.31	18.20	18.20	18.20	17.68
Rated heating output	kW	7.34	10.10	11.64	13.15	4.82	5.79	6.08	6.82	8.46	8.85
Nominal power consumption	kW	3.31	4.10	4.25	4.23	1.09	1.07	0.92	0.87	0.73	0.70
Nominal COP		2.22	2.46	2.74	3.11	4.41	5.41	6.63	7.84	11.55	12.71
Min. heating output	kW	4.86	4.18	3.58	3.21	4.36	5.11	6.08	6.82	8.46	8.85

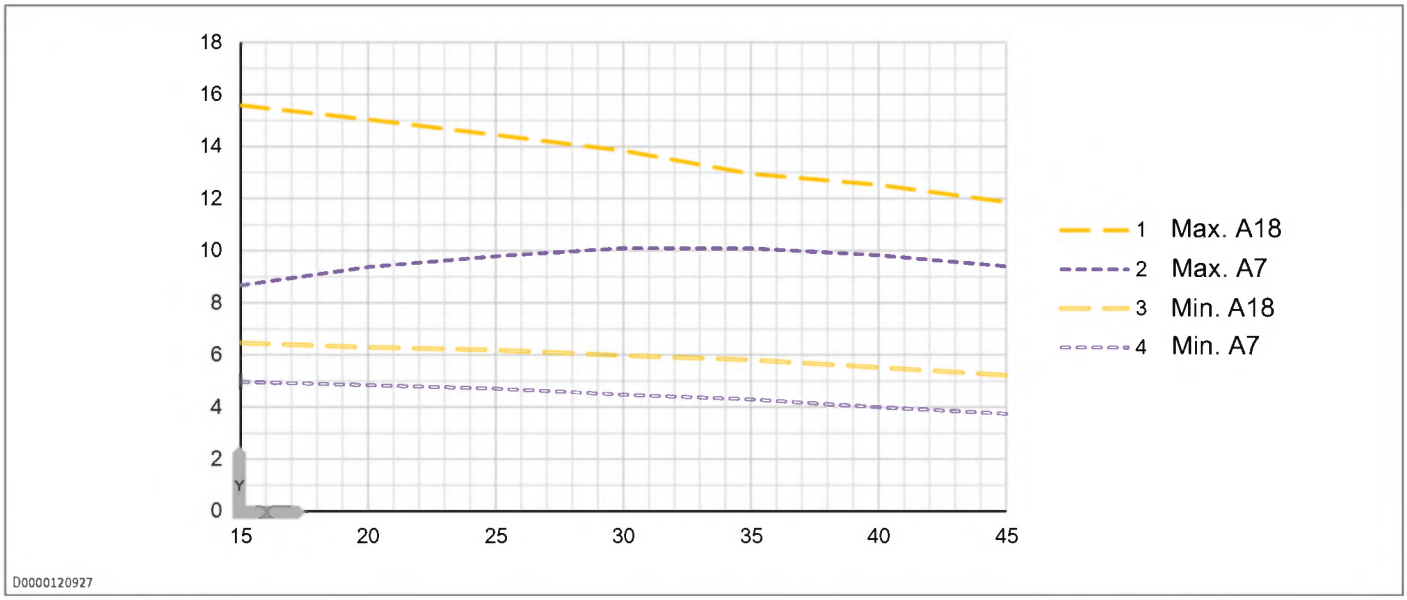
45 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	6.94	9.62	11.13	12.77	13.00	15.24	18.20	18.20	18.20	18.20
Rated heating output	kW	6.94	9.62	11.13	12.77	4.99	6.30	6.90	6.53	8.18	8.38
Nominal power consumption	kW	3.56	4.41	4.64	4.85	1.43	1.55	1.44	1.19	1.10	1.08
Nominal COP		1.95	2.18	2.40	2.63	3.50	4.07	4.80	5.49	7.43	7.75
Min. heating output	kW	4.83	4.09	3.47	2.95	4.08	4.80	5.80	6.53	8.18	8.38

55 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	7.11	9.59	11.22	13.11	13.34	14.99	18.20	18.20	18.20	18.20
Rated heating output	kW	7.11	9.59	11.22	13.11	5.20	6.95	8.36	6.36	8.05	8.07
Nominal power consumption	kW	3.88	4.71	5.00	5.24	1.78	2.09	2.15	1.48	1.46	1.43
Nominal COP		1.83	2.04	2.24	2.50	2.92	3.33	3.88	4.29	5.51	5.62
Min. heating output	kW	4.95	4.12	3.40	3.07	3.83	4.56	5.62	6.36	8.05	8.07

65 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	9.81	11.09	12.89	13.09	14.76	18.20	18.20	18.20	18.20
Rated heating output	kW	-	9.81	11.09	12.89	5.27	7.86	9.06	7.38	9.41	9.54
Nominal power consumption	kW	-	5.43	5.76	6.41	2.15	2.82	2.81	2.10	2.17	2.14
Nominal COP		-	1.81	1.92	2.01	2.45	2.79	3.22	3.51	4.35	4.47
Min. heating output	kW	-	4.08	3.33	3.17	4.49	5.30	6.50	7.38	9.41	9.54

75 °C flow temperature		Outside temperature [°C]								
		-25	-20	-15	-7	2	7	15	20	30	40
Max. heating output	kW	-	-	-	12.32	13.61	18.20	18.09	17.98	17.89	18.00
Rated heating output	kW	-	-	-	12.32	10.00	14.18	15.00	8.12	9.79	10.14
Nominal power consumption	kW	-	-	-	7.63	5.21	6.48	6.10	3.08	3.37	3.38
Nominal COP		-	-	-	1.62	1.92	2.19	2.46	2.64	2.90	3.00
Min. heating output	kW	-	-	-	4.20	5.31	6.14	7.36	8.12	9.79	10.14

Cooling capacity



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

7 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	8.67	9.37	9.79	10.10	10.09	9.82	9.40
Min. cooling capacity	kW	4.97	4.84	4.71	4.48	4.29	3.99	3.74

18 °C flow temperature		Outside temperature [°C]						
		15	20	25	30	35	40	45
Max. cooling capacity	kW	15.58	15.04	14.44	13.84	12.95	12.53	11.87
Min. cooling capacity	kW	6.46	6.30	6.18	5.98	5.81	5.52	5.22

14.5 Output reduction in the case of reduced compressor fuse protection

14.5.1 WPL-A 07.2 Plus HK 230

35 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Maximum power consumption [A]	16	4.12	5.44	6.29	7.09	6.96	8.47	10.00	10.00	9.96	9.50
	10	4.12	5.44	6.29	6.96	6.96	8.03	10.00	10.00	9.96	9.50

45 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Maximum power consumption [A]	16	4.00	5.21	6.07	6.99	6.96	8.35	10.00	10.00	10.00	10.00
	10	4.00	5.08	5.64	6.17	6.39	6.95	9.86	10.00	10.00	10.00

55 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Maximum power consumption [A]	16	3.96	5.17	6.10	7.09	7.08	8.16	10.00	10.00	10.00	10.00
	10	3.96	4.61	5.13	5.63	5.64	6.61	8.09	8.94	10.00	10.00

65 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Maximum power consumption [A]	16		5.03	5.50	6.71	7.19	7.83	10.00	10.00	10.00	10.00
	10		3.94	4.17	4.85	4.95	6.01	6.85	7.42	9.01	10.00

75 °C flow temperature		Outside temperature [°C]									
		-25	-20	-15	-7	2	7	15	20	30	40
Maximum power consumption [A]	16				5.64	6.42	7.34	7.95	8.38	9.84	10.00
	10				3.35	3.81	4.36	4.72	4.98	5.85	6.31

14.6 Sound reduction

14.6.1 WPL-A 07.2 Plus HK 230

Max. heating output [kW] 35 °C	A-15/W35	A-7/W35	A2/W35	A7/W35	A15/W35	A20/W35	A40/W35
0 dB	6.29	7.09	6.96	8.47	10.00	10.00	9.50
1 dB	6.27	7.04	6.96	8.47	10.00	10.00	9.50
2 dB	6.10	6.87	6.96	8.43	10.00	10.00	9.50
3 dB	5.57	6.34	6.93	7.89	10.00	10.00	9.50
4 dB	5.08	5.84	6.65	7.41	10.00	10.00	9.50
5 dB	4.63	5.37	6.20	6.94	9.87	10.00	9.50
6 dB	4.22	4.94	5.77	6.48	9.00	9.62	9.50
7 dB	3.86	4.56	5.38	6.11	8.36	8.89	9.50
8 dB	3.53	4.20	5.02	5.82	7.75	8.23	9.50
9 dB		3.87	4.68	5.65	7.18	7.61	9.50
10 dB		3.56	4.35	5.58	6.63	7.06	9.50

Max. heating output [kW] 55 °C	A-15/W55	A-7/W55	A2/W55	A7/W55	A15/W55	A20/W55	A40/W55
0 dB	6.10	7.09	7.08	8.16	10.00	10.00	10.00
1 dB	6.09	7.06	7.08	8.16	10.00	10.00	10.00
2 dB	5.91	6.88	7.07	7.99	10.00	10.00	10.00
3 dB	5.33	6.29	6.76	7.44	10.00	10.00	10.00
4 dB	4.80	5.74	6.29	6.96	9.92	10.00	10.00
5 dB	4.32	5.22	5.83	6.50	9.04	9.92	10.00
6 dB	3.89	4.76	5.41	6.21	8.29	9.11	10.00
7 dB	3.53	4.36	5.04	5.91	7.71	8.41	10.00
8 dB	3.21	4.00	4.69	5.71	7.16	7.80	10.00
9 dB		3.66	4.36	5.51	6.64	7.23	10.00
10 dB		3.47	4.04	5.09	6.14	6.68	9.68

14.6.2 WPL-A 10.2 Plus HK 400

Max. heating output [kW] 35 °C	A-15/W35	A-7/W35	A2/W35	A7/W35	A15/W35	A20/W35	A40/W35
0 dB	8.98	10.07	9.84	11.97	14.00	14.00	13.00
1 dB	6.66	7.73	8.90	9.96	14.00	14.00	13.00
2 dB	6.33	7.37	8.54	9.64	13.38	14.00	13.00
3 dB	6.01	7.03	8.19	9.30	12.82	13.58	13.00
4 dB	5.71	6.70	7.85	8.97	12.29	12.89	13.00
5 dB	5.43	6.39	7.54	8.68	11.77	12.26	13.00
6 dB	5.17	6.09	7.23	8.64	11.26	11.69	13.00
7 dB		5.80	6.93	8.61	10.75	11.10	13.00
8 dB		5.51	6.64	8.57	10.26	10.56	13.00
9 dB		5.24	6.35	8.20	9.79	10.03	13.00
10 dB		4.98	6.08	7.85	9.30	9.52	13.00

Max. heating output [kW] 55 °C	A-15/W55	A-7/W55	A2/W55	A7/W55	A15/W55	A20/W55	A40/W55
0 dB	8.72	10.02	9.92	11.63	14.00	14.00	14.00
1 dB	6.25	7.47	8.27	9.73	12.76	14.00	14.00
2 dB	5.91	7.09	7.95	9.45	12.17	13.74	14.00
3 dB	5.58	6.73	7.63	9.09	11.68	13.07	14.00
4 dB	5.27	6.39	7.32	8.73	11.20	12.42	14.00
5 dB	5.00	6.08	7.03	8.39	10.75	11.88	14.00
6 dB	4.74	5.78	6.75	8.29	10.31	11.37	14.00
7 dB		5.50	6.47	8.19	9.89	10.85	14.00
8 dB		5.22	6.20	7.84	9.47	10.36	14.00
9 dB		4.96	5.94	7.50	9.06	9.86	14.00
10 dB		4.71	5.68	7.17	8.65	9.39	13.41

14.6.3 WPL-A 13.2 Plus HK 400

Max. heating output [kW] 35 °C	A-15/W35	A-7/W35	A2/W35	A7/W35	A15/W35	A20/W35	A40/W35
0 dB	11.64	13.15	13.04	15.31	18.20	18.20	17.68
1 dB	11.63	13.14	13.04	15.31	18.20	18.20	17.68
2 dB	11.37	12.85	13.04	15.26	18.20	18.20	17.68
3 dB	10.65	12.12	13.03	14.85	18.20	18.20	17.68
4 dB	9.96	11.41	12.81	14.19	18.20	18.20	17.68
5 dB	9.31	10.74	12.23	13.53	18.20	18.20	17.68
6 dB	8.70	10.09	11.58	12.79	18.20	18.20	17.68
7 dB	8.12	9.48	10.95	12.23	17.38	18.20	17.68
8 dB	7.61	8.91	10.37	11.70	16.42	17.30	17.68
9 dB	7.11	8.37	9.81	11.22	15.47	16.25	17.67
10 dB		7.86	9.27	10.74	14.55	15.31	17.65

Max. heating output [kW] 55 °C	A-15/W55	A-7/W55	A2/W55	A7/W55	A15/W55	A20/W55	A40/W55
0 dB	11.22	13.11	13.34	14.99	18.20	18.20	18.20
1 dB	11.22	13.10	13.34	14.99	18.20	18.20	18.20
2 dB	10.94	12.83	13.30	14.80	18.20	18.20	18.20
3 dB	10.16	12.07	13.01	13.93	18.20	18.20	18.20
4 dB	9.43	11.30	12.34	13.23	18.20	18.20	18.20
5 dB	8.75	10.56	11.70	12.56	18.20	18.20	18.20
6 dB	8.11	9.87	11.09	12.02	16.97	18.20	18.20
7 dB	7.52	9.21	10.50	11.70	15.88	17.47	18.20
8 dB	7.01	8.63	9.96	11.17	15.01	16.35	18.20
9 dB	6.53	8.09	9.44	10.66	14.17	15.41	18.20
10 dB		7.57	8.93	10.15	13.40	14.45	18.20

14.7 Data table

		WPL-A 07.2 Plus HK 230	WPL-A 10.2 Plus HK 400	WPL-A 13.2 Plus HK 400
Product number		206122	206125	206127
Energy data				
Energy efficiency class, heat pump W35		A+++	A+++	A+++
Energy efficiency class, heat pump W55		A+++	A+++	A+++
Energy efficiency class, composite system (heat pump + controller) W35		A+++	A+++	A+++
Energy efficiency class, composite system (heat pump + controller) W55		A+++	A+++	A+++
Heating outputs				
Heating output at A7/W35 (min./max.)	kW	2.76 / 8.47	3.69 / 11.97	5.11 / 15.31
Heating output at A2/W35 (min./max.)	kW	2.36 / 6.96	3.05 / 9.84	4.36 / 13.04
Heating output at A-7/W35 (min./max.)	kW	1.71 / 7.09	2.67 / 10.07	3.21 /13.15
Heating output at A7/W35 (EN 14511)	kW	3.05	4.32	5.79
Heating output at A7/W55 (EN 14511)	kW	2.65	4.05	5.10
Heating output at A2/W35 (EN 14511)	kW	3.29	4.09	4.82
Heating output at A2/W35 (EN 14511) with defrosting	kW	4.30	5.92	8.10
Heating output at A2/W55 (EN 14511)	kW	4.43	6.14	8.14
Heating output at A-7/W35 (EN 14511)	kW	7.09	10.07	13.15
Heating output at A-7/W55 (EN 14511)	kW	7.09	10.02	13.11
Heating output at A-7/W65 (EN 14511)	kW	6.71	9.65	12.89
Heating output at A-7/W75 (EN 14511)	kW	5.64	9.00	12.32
Cooling capacity at A35/W7 partial load	kW	2.32	3.53	4.29
Max. cooling capacity at A35/W7	kW	6.51	9.33	10.09
Cooling capacity at A35/W18 partial load	kW	3.15	4.29	5.81
Max. cooling capacity at A35/W18	kW	6.98	10.51	12.95
Power consumption				
Power consumption at A7/W35 (EN 14511)	kW	0.56	0.80	1.07
Power consumption at A7/W55 (EN 14511)	kW	0.83	1.27	1.56
Power consumption at A2/W35 (EN 14511)	kW	0.72	0.90	1.09
Power consumption at A2/W35 (EN 14511) with defrosting	kW	1.01	1.41	1.97
Power consumption at A2/W55 (EN 14511)	kW	1.56	2.12	2.82
Power consumption at A-7/W35 (EN 14511)	kW	2.18	3.20	4.23
Power consumption at A-7/W55 (EN 14511)	kW	2.74	4.04	5.24
Power consumption at A-7/W65 (EN 14511)	kW	3.37	4.79	6.41
Power consumption at A-7/W75 (EN 14511)	kW	3.57	5.88	7.63
Coefficients of performance				
COP at A7/W35 (EN 14511)		5.50	5.40	5.41
COP at A7/W55 (EN 14511)		3.19	3.18	3.26
COP at A2/W35 (EN 14511)		4.57	4.54	4.41
COP at A2/W35 (EN 14511) with defrosting		4.26	4.21	4.10
COP at A2/W55 (EN 14511)		2.84	2.90	2.89
COP at A-7/W35 (EN 14511)		3.25	3.15	3.11
COP at A-7/W55 (EN 14511)		2.58	2.48	2.50
COP at A-7/W65 (EN 14511)		1.99	2.02	2.01
COP at A-7/W75 (EN 14511)		1.58	1.53	1.62
Energy efficiency ratio at A35/W7 partial load		3.83	3.87	3.95
Max. cooling capacity factor at A35/W7		2.97	2.76	3.14
Energy efficiency ratio at A35/W18 partial load		5.29	5.46	5.41
Energy efficiency ratio at A35/W18 max.		4.28	4.01	4.11
SCOP 35 °C (EN 14825), warmer climate		6.39	6.27	6.45
SCOP 35 °C (EN 14825), medium climate		5.09	4.96	4.89
SCOP 35 °C (EN 14825), colder climate		4.62	4.46	4.35
SCOP 55 °C (EN 14825), warmer climate		4.58	4.58	4.57
SCOP 55 °C (EN 14825), medium climate		4.02	3.99	4.01
SCOP 55 °C (EN 14825), colder climate		3.68	3.66	3.56
Sound emissions				
Sound power level (EN 12102)	dB(A)	43	46	45
Max. sound power level	dB(A)	57	59	60

		WPL-A 07.2 Plus HK 230	WPL-A 10.2 Plus HK 400	WPL-A 13.2 Plus HK 400
Sound power level, max. reduced night mode	dB(A)	47	49	50
Application limits				
Min. application limit, heat source	°C	-25	-25	-25
Max. application limit, heat source	°C	40	40	40
Min. application limit on heating side	°C	15	15	15
Max. application limit on the heating side	°C	75	75	75
Min. cooling mode application limit for outside temperature	°C	15	15	15
Max. cooling mode application limit for outside temperature	°C	45	45	45
Permissible operating pressure, heating circuit	MPa	0.25	0.25	0.25
Min./max. heating application limit for outside temperature	°C	-25 / 40 °C	-25 / 40 °C	-25 / 40 °C
Min./max. heating application limit for flow temperature	°C	15 / 75 °C	15 / 75 °C	15 / 75 °C
Min./max. cooling application limit for outside temperature	°C	15 / 45 °C	15 / 45 °C	15 / 45 °C
Dimensions				
Height	mm	960	1144	1365
Width	mm	1170	1170	1170
Depth	mm	727	727	727
Weights				
Weight	kg	145	166	205
Electrical data				
Rated voltage, compressor	V	230	400	400
Rated voltage, control unit	V	230	230	230
Phases, compressor		1/N/PE	3/N/PE	3/N/PE
Phases, control unit		1/N/PE	1/N/PE	1/N/PE
Compressor fuse protection	A	1 x B 16	3 x B 10	3 x B 16
Control unit fuse protection	A	1 x B 16	1 x B 16	1 x B 16
Max. power consumption excl. emergency/auxiliary heater	kW	3.68	6.83	8.61
Starting current	A	15.5	9.7	13
Max. operating current	A	15.5	9.7	13
Frequency	Hz	50	50	50
Values				
Design flow rate at A-7/W35 7K	m³/h	0.92	1.31	1.74
Min. flow rate, heating	m³/h	0.30	0.42	0.54
Min. flow rate, defrosting	m³/h	0.53	0.72	0.90
Min. flow rate, cooling	m³/h	0.53	0.72	0.90
Standard flow rate according to EN 14511 low temperature application	m³/h	0.53	0.75	0.98
Standard flow rate according to EN 14511 medium-temperature application	m³/h	0.31	0.44	0.55
Internal pressure loss at design flow rate	hPa	102	137	207
kVS value	m³/h	2.87	3.53	3.83
Flow rate on heat source side	m³/h	2990	4600	5780
Versions				
Refrigerant		R290	R290	R290
Refrigerant charge	kg	1.4	1.6	2.15
Global warming potential of the refrigerant (GWP100)		3	3	3
CO2 equivalent (CO2e)	t	0.0042	0.0048	0.00645
IP rating		IP14B	IP14B	IP14B
Defrost type		Circuit reversal	Circuit reversal	Circuit reversal
Frost protection		•	•	•
Condenser material		1.4401/Cu	1.4401/Cu	1.4401/Cu
Connection, heating flow/return		G 1 1/4 A	G 1 1/4 A	G 1 1/4 A
Enclosure colour		Dark grey RAL 7021	Dark grey RAL 7021	Dark grey RAL 7021
Additional data				
Maximum height for installation	m	2000	2000	2000

15 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.

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.

Comfort through Technology

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