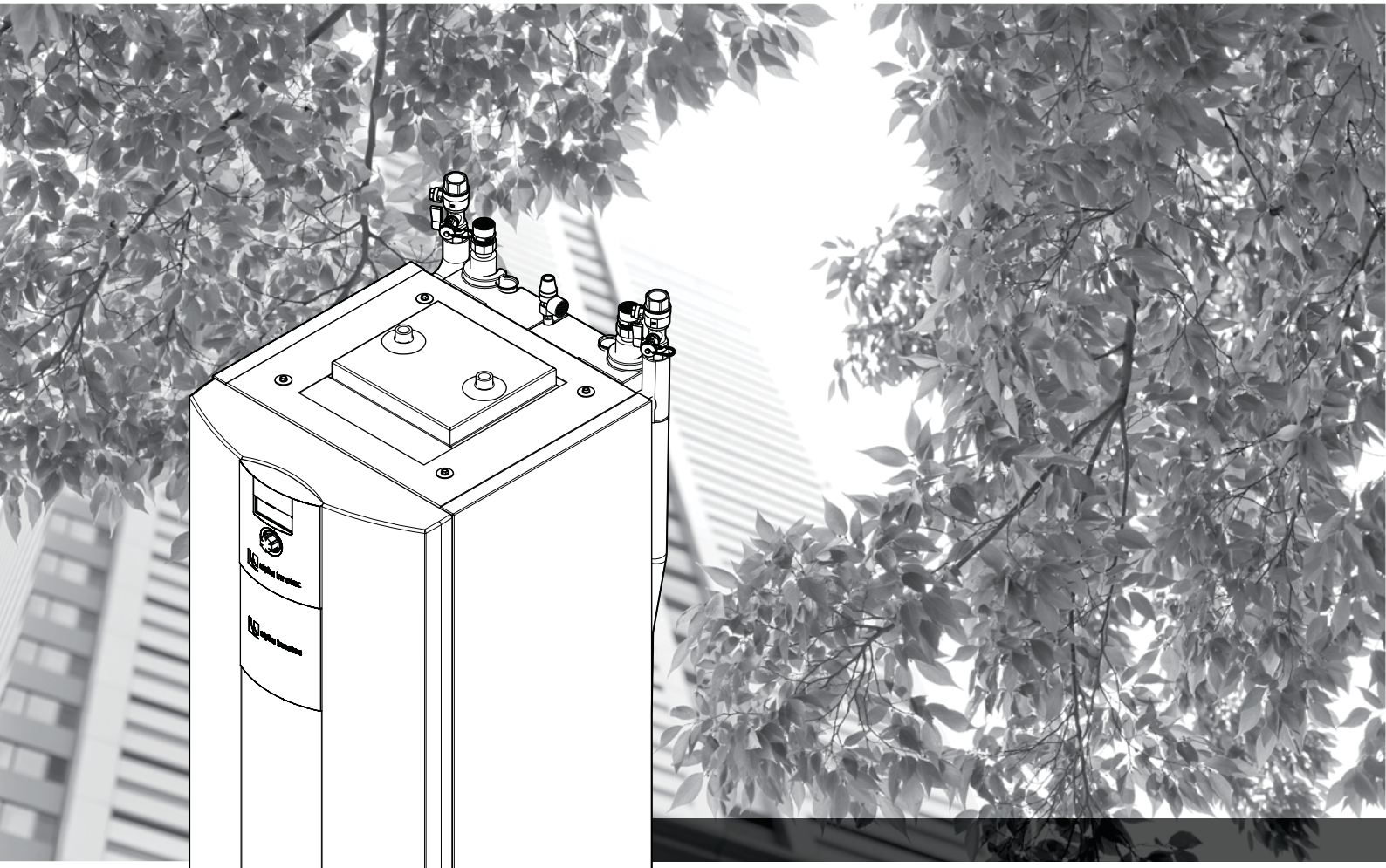
the better way to heat

alpha innotec



Brine/water heat pumps

Operating Manual

WZS series

83056600aUK – Translation into English of the original German operating manual

UK

Contents

Appendix

1 About this operating manual

This operating manual is part of the unit.

- ► Before working on or with the unit read the operating manual carefully and follow it for all activities at all times, especially the warnings and safety instructions.
- ► Keep the operating manual to hand at the unit and hand over to the new owner if the unit changes hands.
- ► If you have any questions or anything is unclear, ask the local partner of the manufacturer or the factory's customer service.
- ► Note and follow all reference documents.

1.1 Validity

This operating manual refers solely to the unit identified by the nameplate and unit sticker (→ “Rating plate” on page 6 and “Unit sticker” on page 3).

1.2 Reference documents

The following documents contain additional information to this operating manual:

- Planning & design manual, hydraulic integration
- Operating manual of the heating and heat pump controller
- Brief description of the heat pump controller
- Operating manual of the expansion board
- Logbook, if included with this unit by the manufacturer

Unit sticker

The unit sticker contains important information for contact with the manufacturer or the local partner of the manufacturer.

- ► Stick on the unit sticker (barcode with serial and product number) here.

1.3 Symbols and identification markings

Identification of warnings

Symbol	Meaning
	Safety-relevant information. Warning of physical injuries.
DANGER	Indicates imminent danger resulting in severe injuries or death.
WARNING	Indicates a potentially dangerous situation, which can result in severe injuries or death.
CAUTION	Indicates a potentially dangerous situation, which can result in moderate or minor injuries.
ATTENTION	Indicates a potentially dangerous situation, which can result in property damage.

Symbols in the document

Symbol	Meaning
	Information for the professional
	Information for the owner/operator
✓	Requirement for an action
▶	Single step action prompt
1., 2., 3. ...	Numbered step within a multi-step action prompt. Keep to the given order.
	Additional information, e.g. note on easier work, information on standards
→	Reference to further information elsewhere in the operating manual or in another document

1.4 Contact

Addresses for purchasing accessories, for service cases or for answers to questions about the unit and this operating manual can be found on the internet at any time and is kept up to date:

- Germany: www.alpha-innotec.de
- EU: www.alpha-innotec.eu

2 Safety

Only use the unit if it is in proper technical condition and only use it as intended, safely and aware of the hazards, and follow this operating manual.

2.1 Intended use

The unit is solely intended for the following functions:

- Heating
- Domestic water heating
- Cooling (optional, with accessories or unit type ...K3M)

► Proper use includes complying with the operating conditions (→ “Technical data/Scope of supply” on page 24) and the operating manual and noting and following the reference documents.

► When using the local regulations note: laws, standards, guidelines, directives.

All other uses of the unit are not as intended.

2.2 Personnel qualifications

All instructional information in this operating manual is solely directed at qualified, skilled personnel.

Only qualified, skilled personnel is able to carry out the work on the unit safety and correctly. Interference by unqualified personnel can cause life-threatening injuries and damage to property.

► Ensure that the personnel is familiar with the local regulations, especially those on safe and hazard-aware working.

► Only allow qualified personnel with “electrical” training to carry out work on the electrics and electronics.

► Only allow skilled personnel to do any other work on the system, e.g.

- Heating installer
- Plumbing installer
- Refrigeration system installer (maintenance work)

During the warranty and guarantee period, service work and repairs may only be carried out by personnel authorised by the manufacturer.

2.3 Personal protective equipment

There is a risk of cutting your hands on sharp edges of the unit.

► Wear cut-resistant protective gloves during transport.

2.4 Residual risks

Electric shock

Components in the unit are live with life-threatening voltage. Before opening the unit panelling:

► Disconnect unit from power supply.

► Protect unit against being switched back on again.

Injury due to flammable liquids and potentially explosive atmospheres

Constituents of antifreeze mixtures, e.g. ethanol, methanol, are highly flammable and form an explosive atmosphere:

► mix antifreeze in well-ventilated rooms.

► Note the hazardous substance markings and comply with the relevant safety regulations.

Injuries and environmental damage due to refrigerant

The unit contains harmful and environmentally dangerous refrigerant. If refrigerant leaks from the unit:

1. Switch off unit.
2. Thoroughly ventilate installation room.
3. Notify authorised customer service.

2.5 Disposal

Batteries

Improper disposal of the buffer battery damages the environment.

► Dispose of the buffer battery in an environmentally compatible way according to the local regulations.

Media harmful to the environment

Improper disposal of environmentally harmful media (antifreeze, refrigerant) damages the environment:

► Collect media safely.

► Dispose of the media in an environmentally compatible way according to the local regulations.

2.6 Avoid damage to property

Improper action

Requirements for minimum scale and corrosion damage in hot water heating systems:

- Proper planning, design and start-up
- Closed system with regard to corrosion
- Integration of adequately dimensioned pressure generation
- Use of deionised heating water (VE water)
- Regular servicing and maintenance

If a system is not planned, designed, started up and operated according to the named requirements, there is a risk that the following damage and faults will occur:

- Malfunctions and the failure of components, e.g. pumps, valves
- Internal and external leaks, e.g. from heat exchangers
- Cross-section reduction and blockages in components, e.g. heat exchanger, pipes, pumps
- Material fatigue
- Gas bubbles and gas cushion formation (cavitation)
- Negative effect on heat transfer, e.g. formation of coatings, deposits, and associated noises, e.g. boiling noises, flow noises

► Note and follow the information in this operating manual for all work on and with the unit.

Unsuitable quality of the fill and make-up water in the heating circuit

The efficiency of the system and the life of the heat generator and the heating components depend decisively on the quality of the heating water.

If the system is filled with untreated domestic water, calcium precipitates as scale. Limescale deposits form on the heat transfer surfaces of the heating. The efficiency drops and energy costs rise. In extreme cases the heat exchangers are damaged.

► Fill system with deionised heating water (VE water) only.

Unsuitable quality of the water in the domestic hot water tank

► Ensure that the electrical conductivity of the domestic water is at least 100 µS/cm.

Unsuitable quality of the water or the water-antifreeze mixture in the heat source

► For operation of the heat source with water or water-antifreeze mixture, ensure that the water fulfils the quality specifications of the heating water side.

Using groundwater

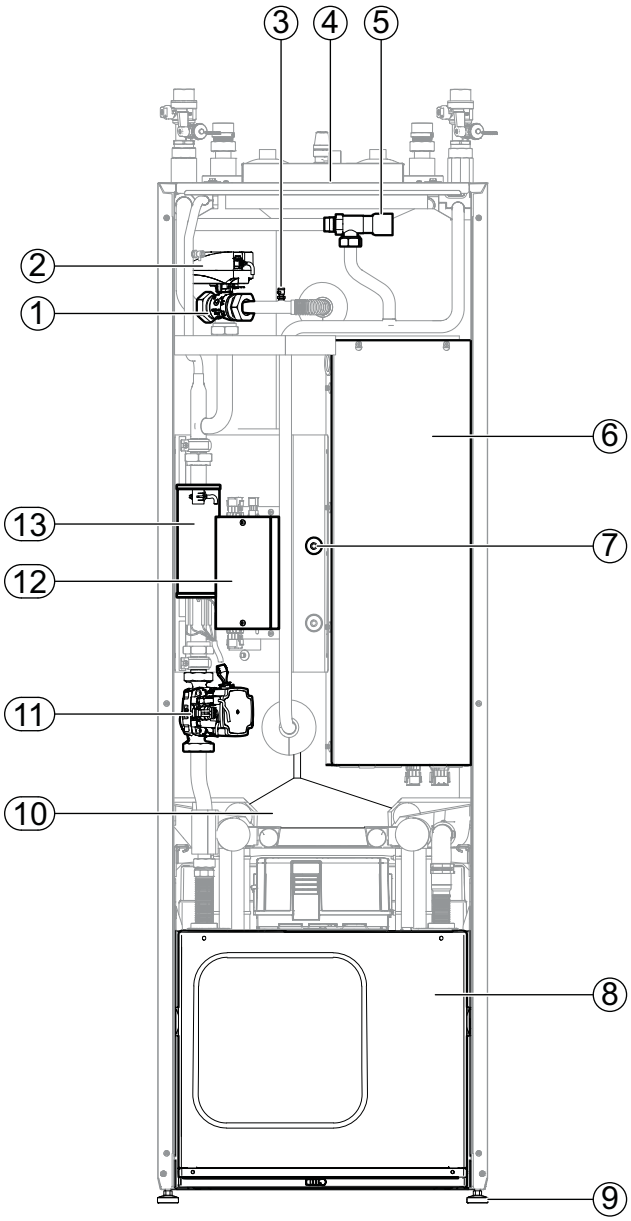
► If using groundwater install an intermediate exchanger.

3 Description

3.1 Layout

NOTE
This section essentially names the components relevant for fulfilling the tasks described in this operating manual.

Heat station



1 3-way changeover valve, heating circuit/domestic hot water
2 Valve motor
3 Venter
4 Position of rating plate
5 Overflow valve
6 Electrical switch cabinet
7 Domestic hot water tank sensor
8 Module box
9 Height-adjustable foot (4x)
10 Domestic hot water tank
11 Heating circuit/hot water circulation pump
12 Manual output control heating element (MLRH), accessories
13 Heating element

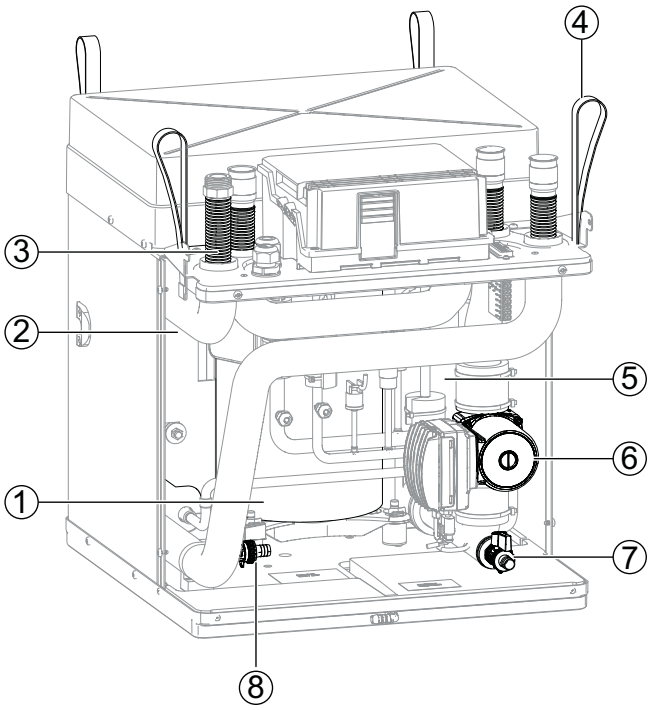
Rating plate

One rating plate is attached at the top of the heating station, a second one on the left on the module box. The rating plate contains the following information at the top:

- Unit type, product number
- Serial number, unit index

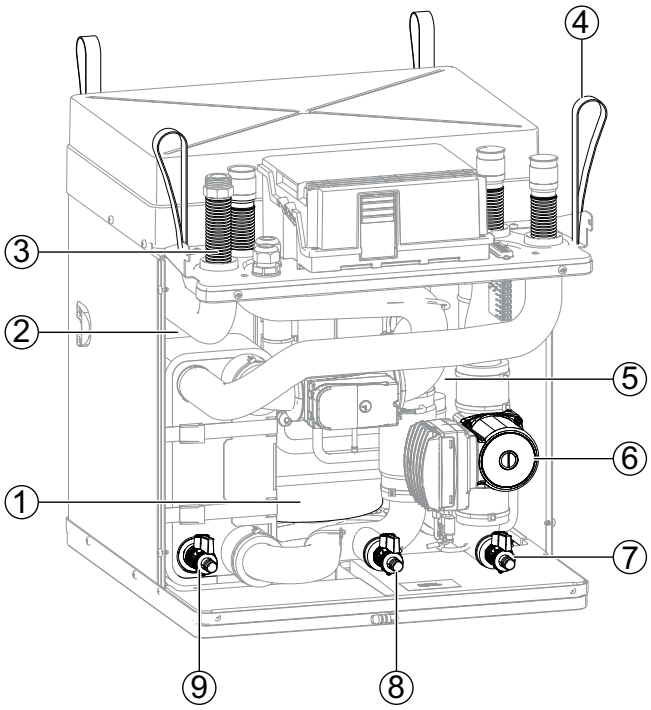
The rating plate also contains an overview of the most important technical data.

Module box, variant without cooling



1 Compressor
2 Condenser
3 Vibration isolator (4x)
4 Lifting lug (4x)
5 Evaporator
6 Heat source circulation pump
7 Heat source filling and drain tap
8 Heating filling and drain tap

Module box, variant with cooling



1 Compressor
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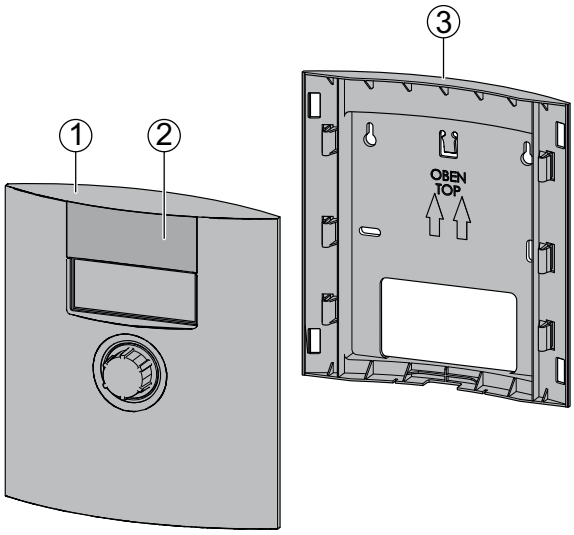
Control unit

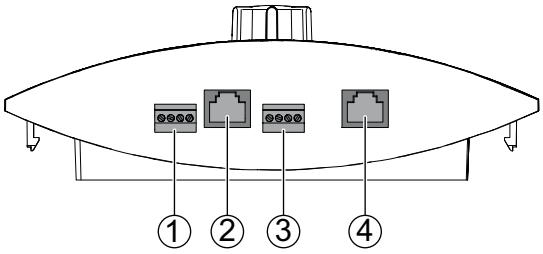


1 Control unit

2 Push up flap upstream of USB connection (for qualified personnel for software updates and for data logging)

3 Wall-mounted bracket (only necessary for wall-mounted installation)

Underside of control unit



1 RBE (RS 485)

2 Network cable connection

3 LIN bus cable connection to the heat pump

4 not used

3.2 Accessories

The following accessories are available for the unit through the manufacturer's local partner:

- Additional cover for the front cover panel, if the control unit is mounted on the wall
- Room thermostat for switching the cooling function (if available)
- Dew point monitor for protecting a system with cooling function at low flow temperatures
- Expansion board for automatic changeover between heating and cooling mode
- Manual output control heating element (MLRH) for limiting the output of the electric heating element
- “Cooling package” for retrofitting type H units with a cooling function

3.3 Function

Liquid refrigerant is evaporated (evaporator), the energy for this process is environmental heat and comes from the “ground” heat source (collector, borehole heat exchanger or groundwater via intermediate exchanger). The gaseous refrigerant is compressed (compressor), this causes the pressure to rise and therefore the temperature too. The gaseous refrigerant with high temperature is liquefied (condenser).

Here the high temperature is discharged to the heating water and is used in the heating circuit. The liquid refrigerant with high pressure and high temperature is expanded (expansion valve). The pressure and temperature drop and the process begins again.

Due to the integrated changeover valve and the integrated energy efficiency circulation pump the heated heating water can be used for charging the domestic hot water or for heating the building. The temperatures required and use are controlled by the heat pump controller. Reheating, drying out screed or increasing the domestic hot water temperature can be carried out using the integrated electric heating element, which is activated by the heat pump controller as and when necessary.

An integrated overflow valve ensures that the heat pump does not switch to high-pressure fault if all heating circuits are closed. The integrated vibration isolators for the heating circuit and heat source prevent structure-borne sound and vibrations from being transferred onto the fixed pipes and therefore into the building.

Cooling

Cooling is integrated in type K units. Type H units can be retrofitted with the “Cooling package” accessories. The following options are possible for units with cooling function (→ operating manual of the heating and heat pump controller):

- Passive cooling (without compressor)
- Control of the cooling function via the heating and heat pump controller
- Switching between heating and cooling mode; automatically with expansion board (accessories)

Network connection on the control unit

The control unit can be connected to a computer or network via a network cable. The heating and heat pump controller can then be controlled from the computer or from the network.

4 Operation and care

NOTE
The unit is operated via the control unit of the heating and heat pump controller (→ operating manual of the heating and heat pump controller).

4.1 Energy and environmentally aware operation

The generally accepted requirements for energy-aware and environmentally-aware operation of a heating system also apply to use of a brine/water heat pump. The most important measures include:

- No unnecessarily high flow temperature
- No unnecessarily high domestic hot water temperature (note and follow local regulations)
- Do not open windows with gap /tilt open (continuous ventilation), but instead open wide for a short time (purge ventilation).

4.2 Maintenance

Wipe down the outside of the unit only using a damp cloth or cloth with mild cleaning product (washing-up liquid, neutral cleaning product). Do not use any harsh, abrasive, acid or chlorine-based cleaning products.

5 Delivery, storage, transport and installation

5.1 Scope of supply

NOTE
On delivery the accessories are enclosed in two packages on the heating station.

► Check delivery immediately after receipt for outwardly visible damage and completeness.

► Notify supplier of any defects immediately.

The separate pack included contains:

- Sticker with the unit number for attaching to page 3 of this manual
- Control unit consisting of wall bracket, cover, control with rear bracket
- 6-mm anchors with screws (2x each) for wall-mounting the control unit
- Safety valve, outdoor sensor
- Compression fittings
- Replacement material after dismantling the module box: Insulation hoses (2x), cable ties (4x), O-rings (6x)

5.2 Storage

► Where possible do not unpack the unit until directly before installation.

► Store unit protected against:

  – Moisture/damp
  – Frost
  – Dust and dirt

5.3 Unpacking and transport

Notes on safe transport

The heating station and the module box are heavy (→ “Technical data/Scope of supply” on page 24). There is a risk of injuries or damage to property if the heating station falls or overturns or if the module box falls.

► The heating station and module box must be transported and installed by several persons.

► Secure the heating station during transport. Carry the module box by the carrying lugs.

There is a risk of cutting your hands on sharp edges of the unit.

► Wear cut resistant protective gloves.

The hydraulic connections are not designed for mechanical loads.

► Do not lift or transport the unit by the hydraulic connections.

If the module box is tilted by more than 45°, compressor oil runs into the cooling circuit.

► Do not tilt the unit with installed module box by more than 45°.

Transport the unit preferably with a pallet truck, alternatively with a handcart.

Transport with a pallet truck

► Transport the unit to the place of installation packaged and secured on a wooden pallet.

Unpacking

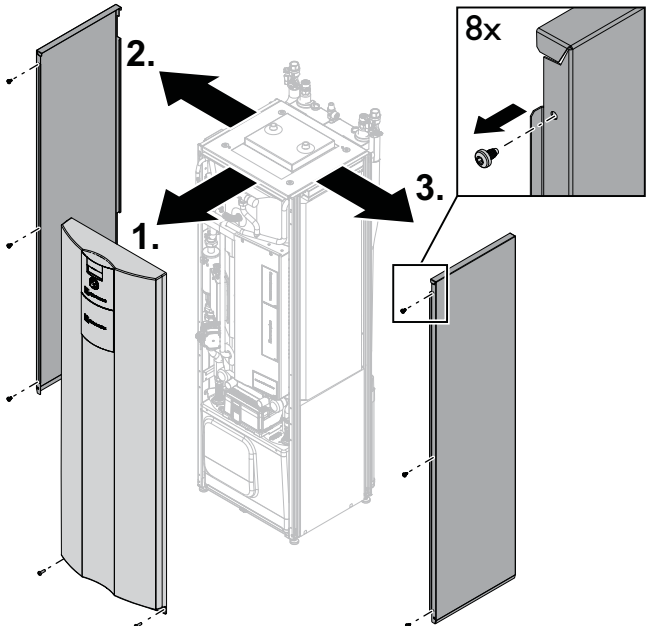
NOTE
If the unit is not transported by a pallet truck: Do not lift off the pallet until after unpacking and dismantling the housing panels.

1. Remove plastic films. Ensure that you do not damage the unit.
2. Dispose of the mounting bracket, transport and packaging material in an environmentally friendly way according to local regulations.
3. Remove the film from the plastic element of the front panel in the place of installation.

Dismantle housing panels for transport with handcart or carrying the unit

✓ Unit is unpacked (→ “Unpacking” on page 10).

1. To avoid damage to the housing panels:
   – Undo 2 screws at the bottom of the front panel.
   – Lift up the front panel and put down in safe place.
   – Undo 3 screws in each side panel.
   – Lift up side panels and put down in safe place.

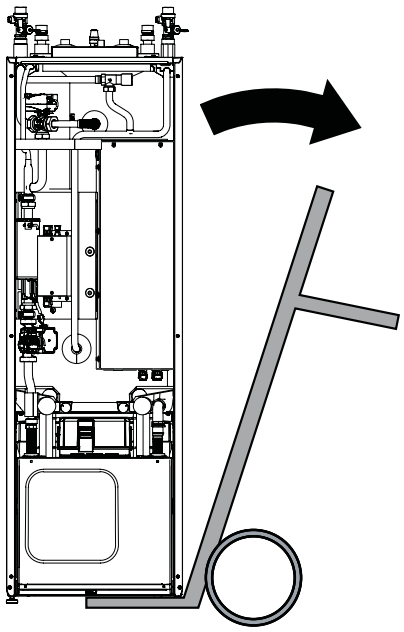


Transport with a handcart

NOTE
- If transporting with a handcart the module box must be pushed in.
- This figure with the handcart shows transporting the unit on its left-hand side; it can also be transported on its right-hand side.

✓ Housing panels are dismantled.

1. To avoid damage: On a handcart, load the unit on its side only.



2. Transport unit on the handcart.

Carrying the unit

✓ Housing panels are dismantled.

1. Dismantle module box and carry it by the support lugs to the place of installation.
2. Carry the unit horizontally wherever possible.

5.4 Installation

Installation room and space requirements

NOTE
Note and follow the local regulations and standards regarding the installation room and space requirements. The table shows the regulations to EN 378-1 relevant in Germany.

Refrigerant	Limit value [kg/m³]
R 134a	0.25
R 404A	0.48
R 407C	0.31
R 410A	0.44

(→ “Technical data/Scope of supply” on page 24).

$$\text{Minimum room volume} = \frac{\text{Refrigerant capacity [kg]}}{\text{Limit value [kg/m³]}}$$

NOTE
If several heat pumps of the same type are installed only one heat pump need to be taken into account. If several heat pumps of different types are installed, only the heat pump with the largest refrigerant volume needs to be taken into account.

✓ Minimum volume corresponds to the requirements for the refrigerant used.

✓ Installation inside the building only.

✓ Installation room is dry and frost-free.

✓ Clearance dimensions are met (→ “Installation plans” on page 33).

✓ The surface/floor is suitable for installation of the unit:

– level and horizontal
– load-bearing capacity for the unit's weight

Aligning the unit

► Align the unit horizontally and stably in the installation site using the height-adjustable feet and a spanner size SW 13. Adjustment range: 25 to 50 mm.

6 Installation and connection

6.1 Dismantle the module box

ATTENTION

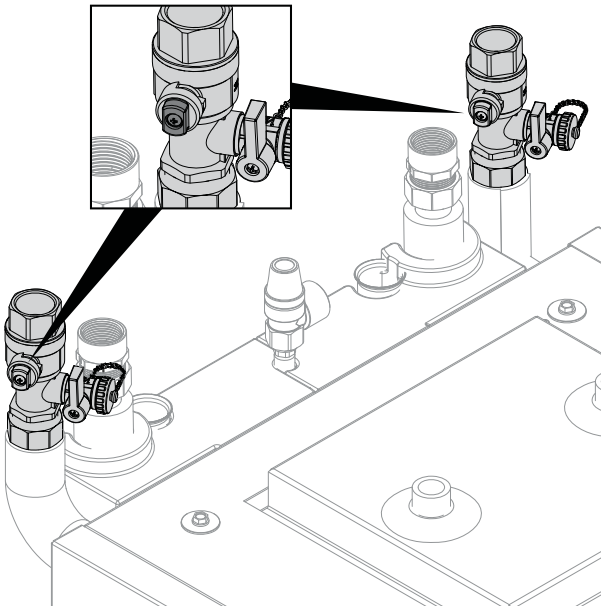
If the module box is tilted by more than 45°, compressor oil runs into the cooling circuit.

► Do not tilt the module box by more than 45°.

NOTE
- If necessary the module box can be dismantled for easier transport of the unit or for service reasons.
- Steps 1 to 5 are only required if the module box is connected and filled.

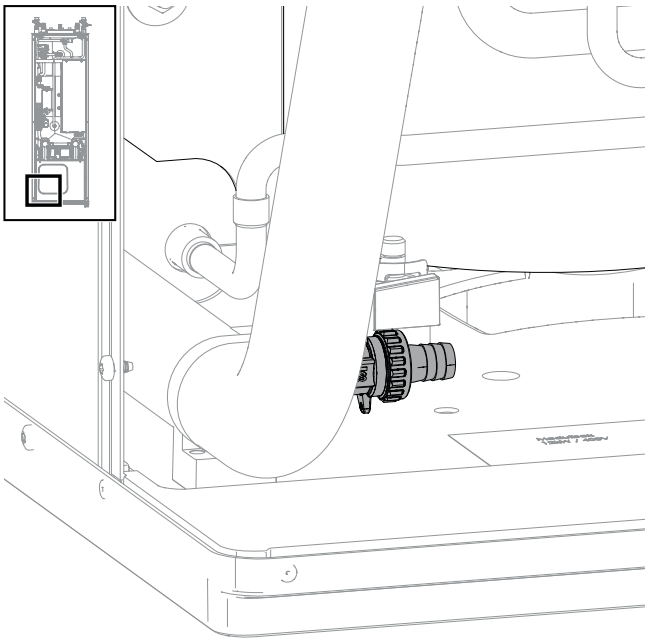
✓ Unit is safely disconnected from the power supply and protected against being switched back on again.

1. Remove the front panel of the module box (→ “7.1 Remove the front panel of the module box” on page 18).
2. Close shut-off valves to the heating circuit.

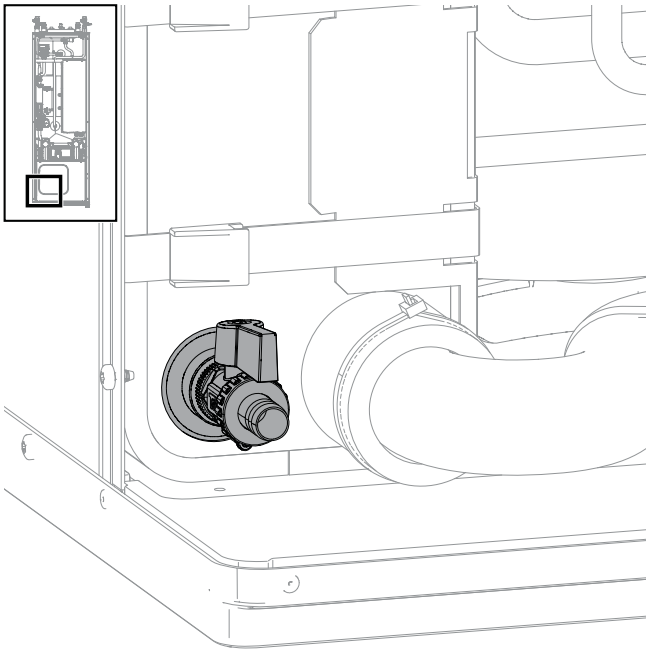


3. Drain the unit via the filling and drain tap of the heating.

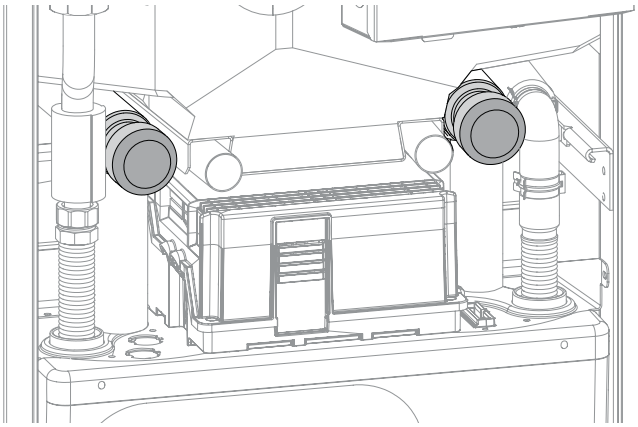
► Unit **without** cooling:



► Unit **with** cooling:

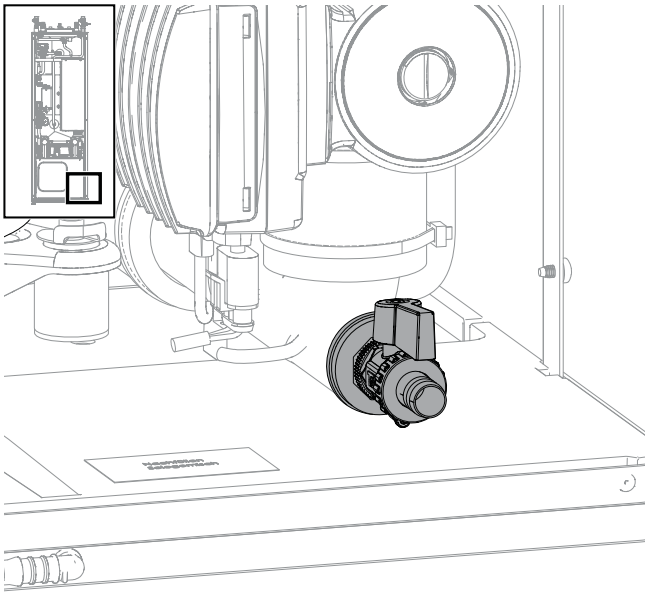


4. Use a spanner to close the shut-off valves of the heat source (behind the covers).

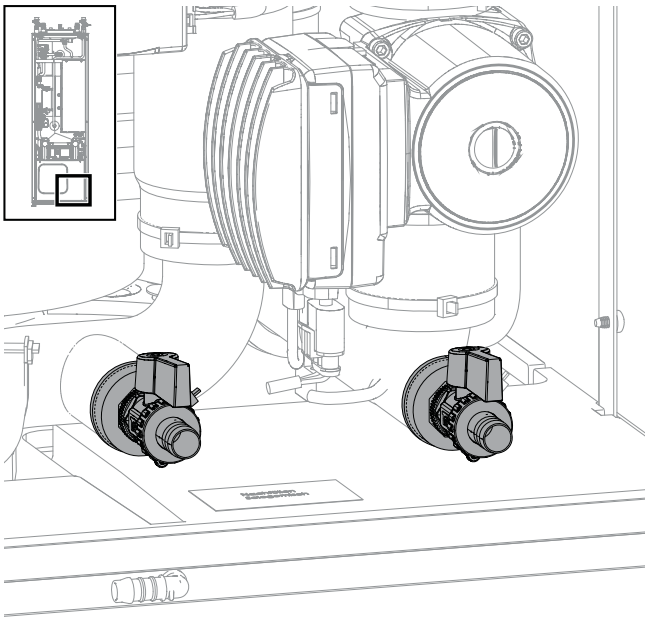


5. Drain the unit via the filling and drain tap of the heat source.

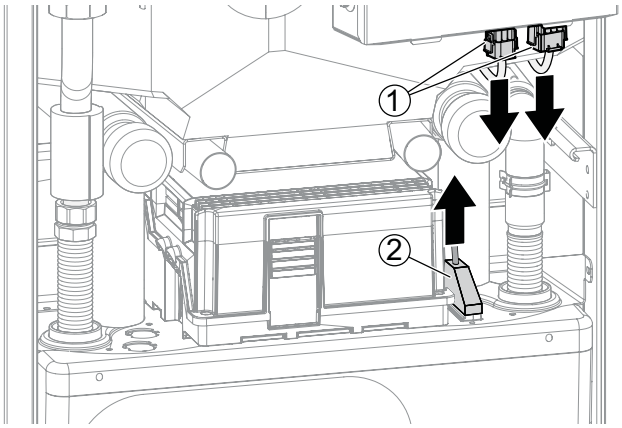
► Unit **without** cooling:



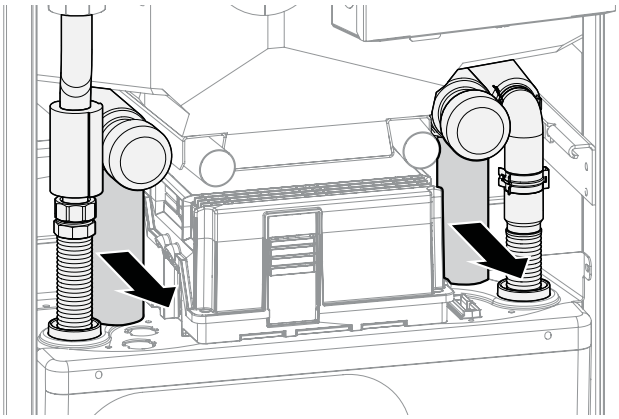
► Unit **with** cooling:



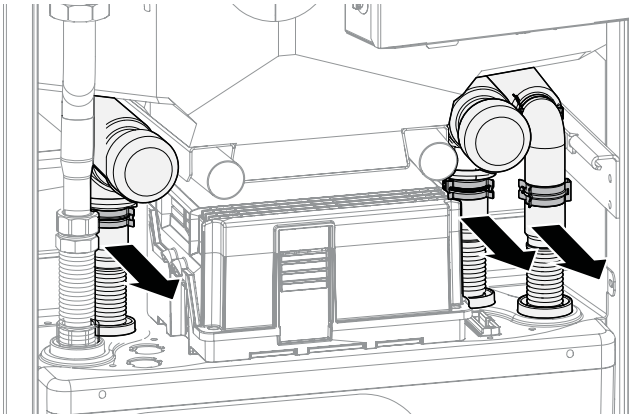
6. Disconnect the electrical connections.
   - Disconnect 2 white connectors (1) at the bottom of the electrical control cabinet. To do this, release the latching lugs by pressing on the sides of the connectors.
   - Pull out the black rectangular connector (2) at the top of the module box.



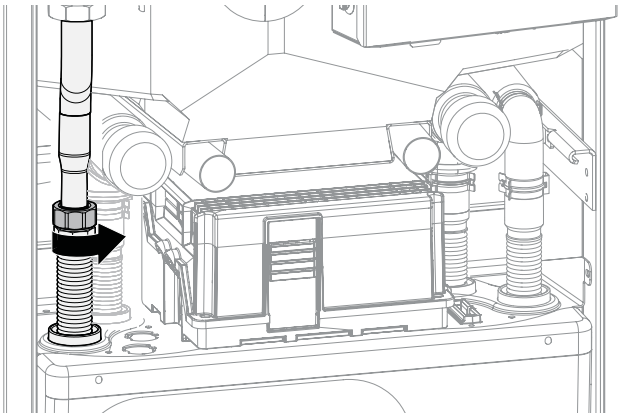
7. Remove the insulation on the hydraulic connections.



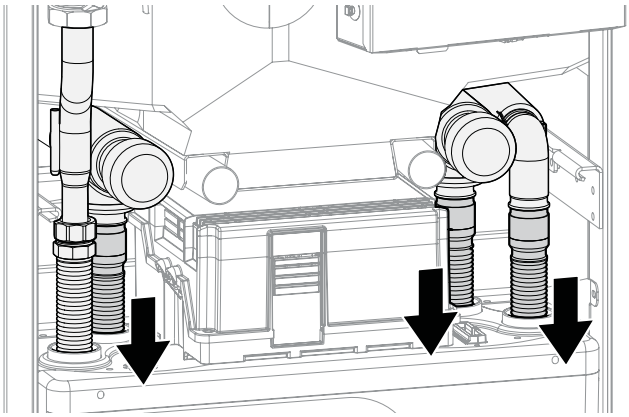
8. Remove 3 clips on the hydraulic connections.



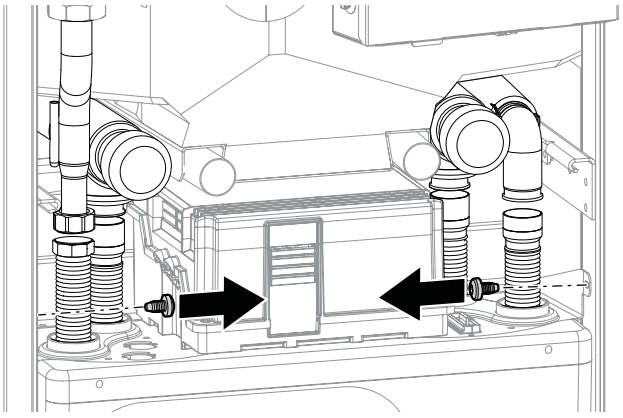
9. Use spanner size SW 52 to unscrew the heating flow.



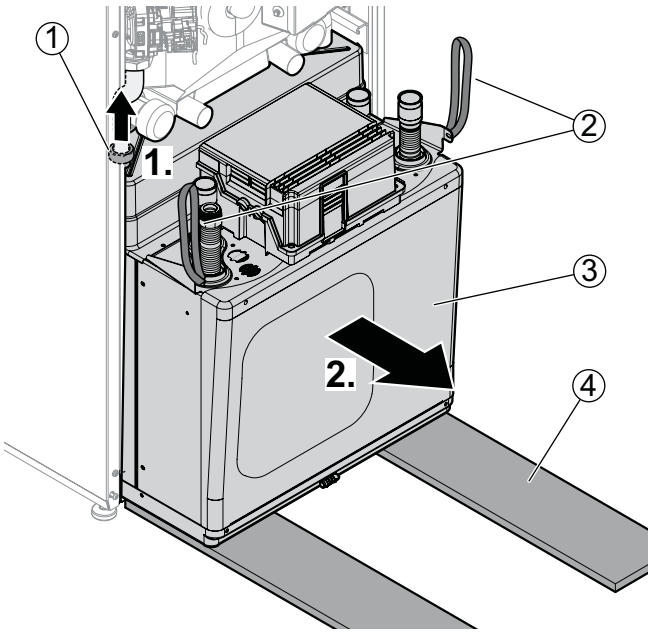
10. Disconnect the hydraulic connections; to do this, push the pipes downwards as far as necessary.



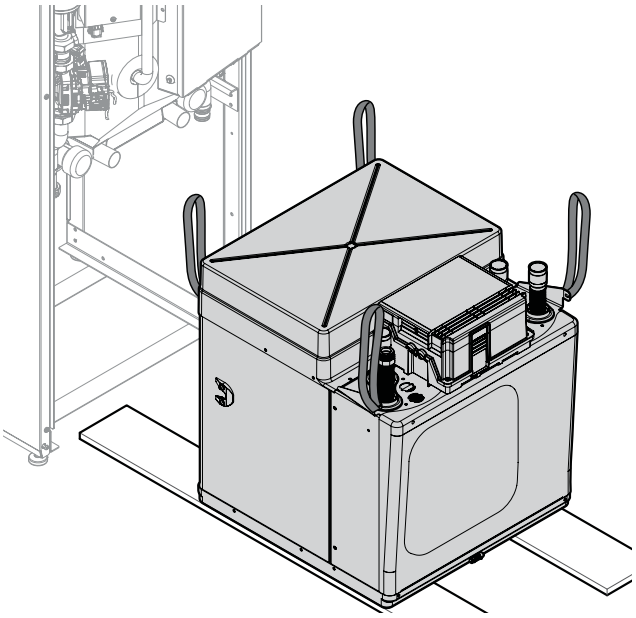
11. Remove the 2 side retaining screws.



12. To protect the floor and move the module box (3) more easily: place boards (4) under it, e.g. from the packaging material.
13. Lift and hold nut (1) on the heating flow.
14. Slowly and carefully pull out the module box by the retaining loops (2). Ensure that none of the pipes are damaged



15. Pull out the module box completely and place it on the boards.



6.2 Installing the module box

1. Place the module box carefully in the bottom in the heating station and slowly and carefully push it in.
   - At the same time, lift and hold the nut on the heating flow.
   - Ensure that none of the pipes are damaged.
2. Attach the two side retaining screws.
3. Connect the heating flow and hydraulic connections. At the same time, replace O-rings on the heat pump connections (→ separate pack included).
4. Perform pressure test and insulate pipes with the enclosed insulation hoses (→ separate pack).
5. Connect the electrical connections.
   - Plug in 2 white connectors at the bottom of the electrical control cabinet. Ensure that the connectors move easily and the lugs latch into position.
   - Plug in the black rectangular connector at the top of the module box.

6.3 Install the hydraulic connections

ATTENTION

Damage to the copper pipes due to unacceptable loading!

► Secure all connections against twisting.

NOTE
The heat source can be connected from the top, right or left.

✓ The heat source system has been installed in accordance with the specifications (→ planning & design manual, dimensioned diagrams, installation plans).

✓ Cross-sections and lengths of the pipes for the heating circuit and heat source are dimensioned adequately.

✓ The free pressure of the circulation pumps produces at least the minimum throughput required for the unit type (→ “Technical data/ Scope of supply” on page 24).

✓ The cables for the heat source and the heating are fixed to the wall or ceiling via a fixed point.

Install the compression fittings and ball valves

ATTENTION

Leaks or fracture of the union nut due to excessive force!

► Tighten the union nut only as far as described here.

1. Check pipe ends for scratches, dirt and deformation.
2. Check proper position of the clamping ring on the fitting.
3. Push the pipe through the clamping ring up to the limit stop in the fitting.
4. Tighten the union nut hand-tight and attach waterproof marking.
5. Tighten union nut with 3/4 rotation.
6. Check connection for leaks.

If the connection leaks:

1. Undo connection and check pipe for damage.
2. Tighten the union nut hand-tight and retighten with the open-ended spanner with 1/8 to 1/4 turn, as the clamping ring is already in a clamping position.

Connect the unit to the heat source, domestic water pipes and heating circuit

1. Install shut-off devices in the heating circuit.
2. Insert the vent at the highest point of the heat source and the heating circuit.
3. Recommendation: Fit a dirt filter with mesh size 0.9 mm onto the heat source inlet.
4. Connect the domestic hot water tank according to the local regulations.
5. Recommendation: To balance out pressure fluctuations and water hammers and avoid unnecessary loss of water, install an expansion vessel with through-flow fitting.
6. Ensure that the operating overpressures (→ “Technical data/Scope of supply” on page 24) are not exceeded. Install pressure reducer if necessary.

6.4 Connect the electrical cables

ATTENTION

Irreparable damage to the compressor due to wrong rotating field!

► Ensure that there is a clockwise rotating field for the compressor load infeed.

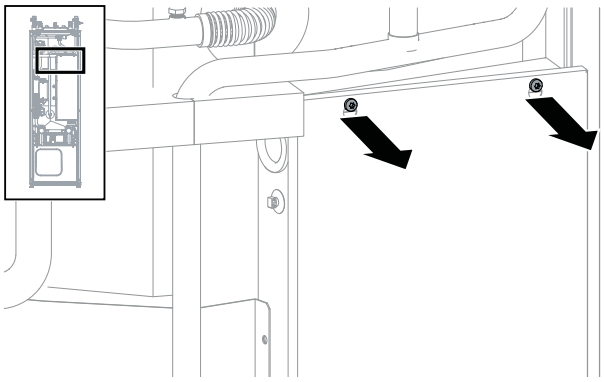
Basic information on the electrical connection

NOTE
Ensure that the unit is supplied with electricity at all times. After working inside the unit and attaching the unit panelling, switch the power supply back on immediately.

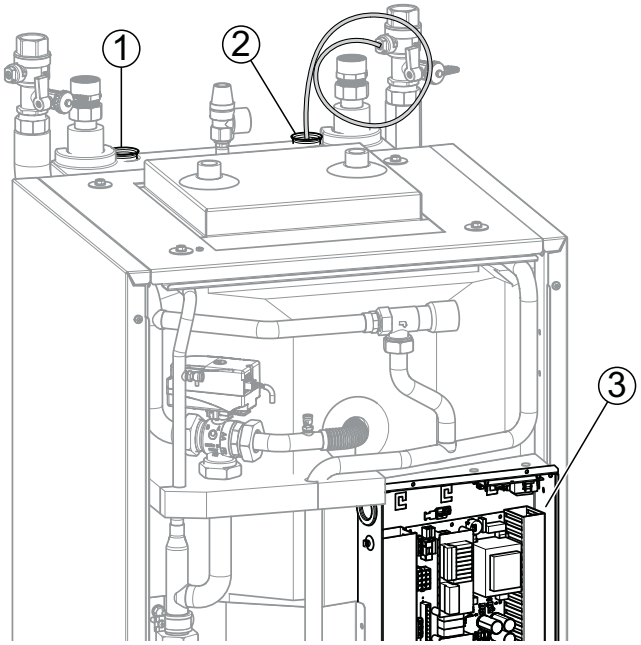
- The specifications of the local power supply company may apply to electrical connections.
- Fit the power supply for the heat pump with an all-pole miniature circuit-breaker with at least 3 mm contact spacing (IEC 60947-2).
- Note the level of the tripping current (→ “Technical data/Scope of supply” on page 24).
- Comply with the electromagnetic compatibility regulations (EMC regulations).
  - Lay the control/sensor cables and unit supply cable sufficiently far apart (> 100 mm).
  - Lay unshielded power supply cables and shielded cables (LIN bus cable) with sufficient distance between them.
- Do not lengthen the patch cable and LIN bus cable. LIN bus cables up to 30 m long can be used.

Pull in the cables and conductors and make the connections

1. Strip the sheathing of electrical cables before laying in the cable duct of the control box.
2. Open electrical switchbox:
   - Undo 2 screws at the top of the cover panel of the electrical control box.
   - Unhook cover panel.



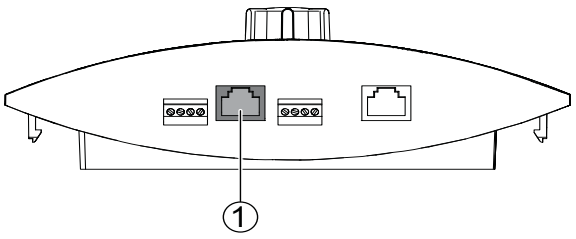
3. Lay the control / sensor cables and unit supply cable and connect:
   - Route cables through the reserve conduits (1) and (2) only, from above into the inside of the unit.
   - Route cables from underneath through the cable openings in the control box (3).



   - Connect cables to the respective terminals (→ “Terminal diagram” on page 40).

Control the controller via a PC

1. During installation lay a shielded network cable (category 6) through the unit.
2. Plug the RJ-45 connector of the network cable into the bush of the control unit (1).



NOTE

The network cable can be retrofitted at any time. To do this, dismantle the masking plate.

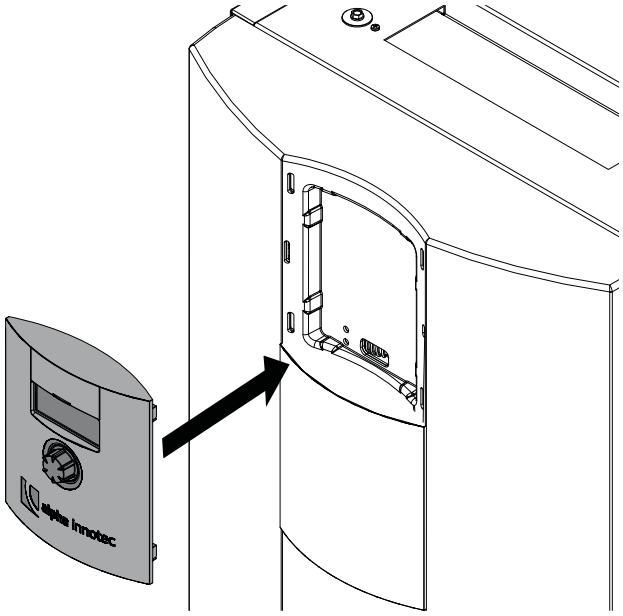
6.5 Installing the control unit

NOTE

The control unit can be inserted in a recess in the front panel of the unit or can be installed on the wall.

Insert the control unit in the unit and connect

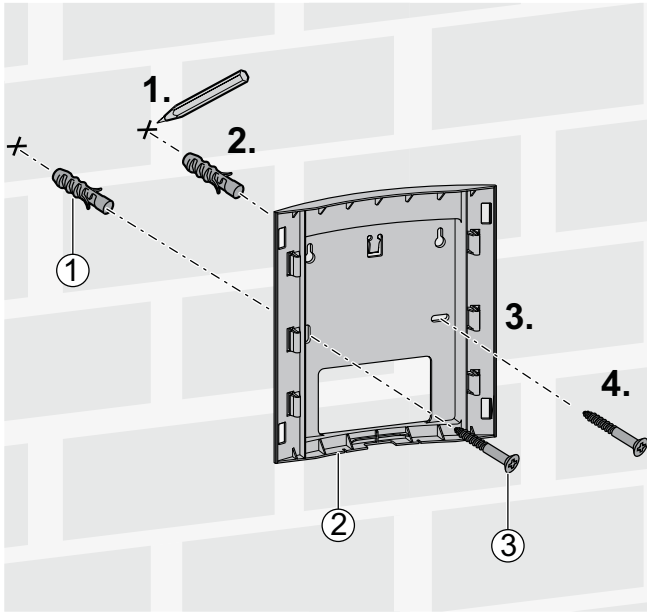
1. If required: Remove masking plate from the slot provided. To do this, press the latching lugs together and push out of the openings.
2. Remove film from the plastic element of the front panel.
3. Position the control unit in the recess in the front panel of the unit and press the latching lugs into the openings.



4. Cut the cable to length generously so that the front panel can be removed and placed to the side of the unit. Do not cut the cable ties for strain relief of the LIN bus cable at the electric control box.
   - LIN bus cable approx. 1.1 m from the fixing of the strain relief at the electrical control box
   - All other cables approx. 1.2 m
5. Use cable ties to fix the LIN bus cable to a web of the cover around 20 cm in front of the connector (strain relief).
6. Push the cable through the opening in the front panel of the unit from below and into the control unit.
7. Insert cover in the free slot.

Mount the control unit on the wall and connect

1. Release the rear bracket from the control unit.
2. Cut off latching lugs (if visually obtrusive).
3. Mark 2 drillholes (→ “Dimensioned drawing of control unit, wall-mounted bracket” on page 32).
4. Fix the wall-mounted bracket (2) with 2 wallplugs (1) and 2 screws (3).

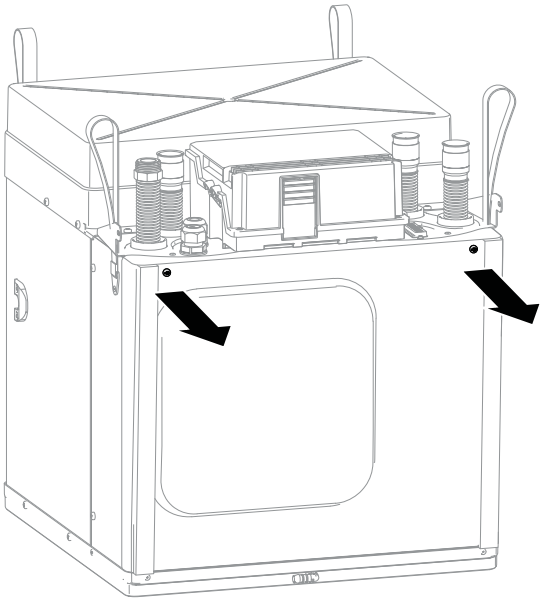


5. Feed in the cables from the wall (e.g. in-wall box) or from below.
6. Push the control unit onto the wall-mounted bracket.
7. Route the LIN bus cable from the top right-hand side at the rear from the heat pump and plug into the control unit at the bottom.
8. Push on cover. If applicable, position second cover (accessories) on the second unused slot.

7 Flushing, filling and venting

7.1 Remove the front panel of the module box

► Unscrew the front panel of the module box.



7.2 Heating water quality

NOTE

- For detailed information refer, among other things, to the VDI Guidelines 2035 “Vermeidung von Schäden in Warmwasserheizanlagen” (preventing damage in hot water heating systems).
- Required pH value: 8.2 ... 10
- for aluminium materials: pH value: 8.2 ... 8.5

► Fill the system with deionised heating water (VE water) only (low-salt operation of the system).

Advantages of low-salt operation:

- Low corrosion-promoting properties
- No formation of mineral scale
- Ideal for closed heating circuits
- ideal pH value due to self-alkalinisation after filling the system
- If necessary, simple alkalinisation to pH value 8.2 by adding chemicals

7.3 Fill, flush and vent heat source

Water and the following antifreeze products are approved for filling the brine circuit:

- Monopropylene glycol
- Monoethylene glycol
- Ethanol
- Methanol

► For operation of the heat source with water or water-antifreeze mixture, ensure that the water fulfils the quality specifications of the heating water side.

► Check that frost protection to –13 °C is ensured.

► Ensure that the antifreeze is compatible with the pipe, seal and other component materials used on site.

✓ Drain pipe of the safety valve is connected.

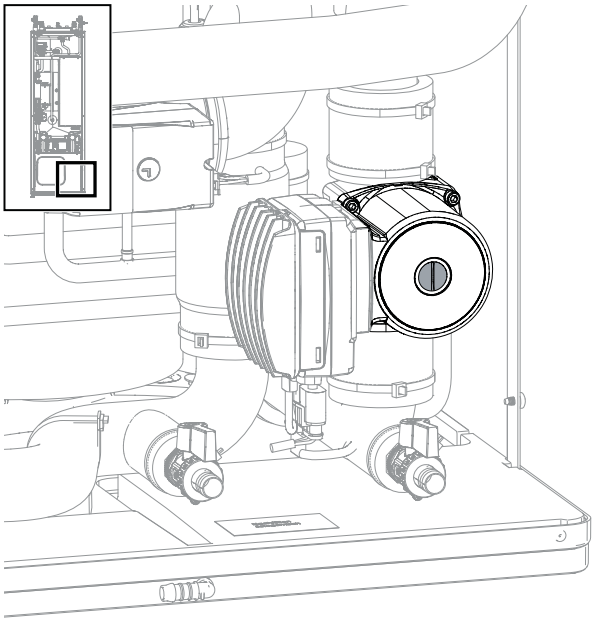
✓ Room is ventilated.

1. Flush heat source system.
2. Mix antifreeze with water thoroughly with the required ratio, before adding to the heat source.
3. Check the concentration of the water-antifreeze mixture. Frost protection: –13 °C
4. Fill the heat source with the water-antifreeze mixture.
5. Flush until the system is air-free.

7.4 Vent the circulation pump of the heat source

NOTE
The diagram shows the unit variant with cooling. In the unit variant without cooling the circulation pump is located in the same place.

1. Place vessel for collecting discharging liquid under the outlet.
2. Undo screw-on cap in the middle of the circulation pump.



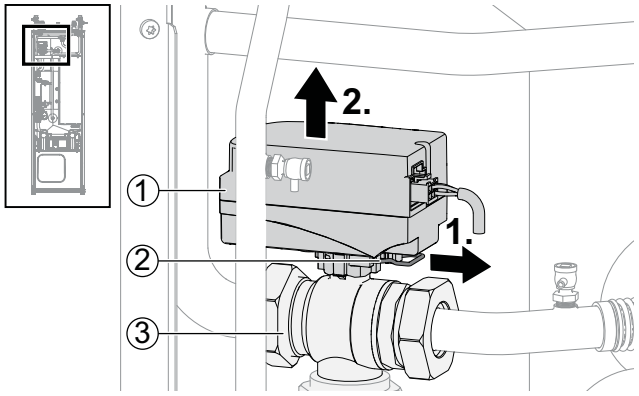
3. Wait until liquid is discharged uniformly.
4. Screw the cap back on tightly.
5. Unscrew the front panel of the module box.
6. Dispose of collected liquid according to the local regulations.
7. Set system pressure to 1 bar.

7.5 Flush and fill the heating and domestic hot water charge circuit

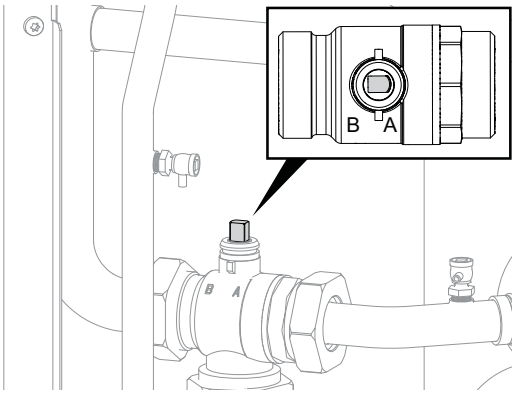
✓ Drain pipe of the safety valve is connected.

► Ensure that the set pressure of the safety valve is not exceeded.

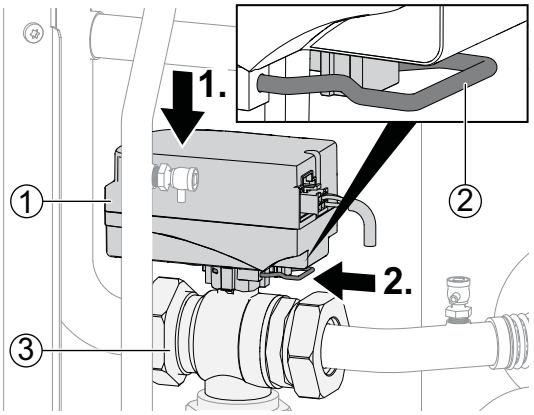
1. Pull the U-clip (2) off the floor of the valve motor (1).
2. Pull the valve motor carefully upwards and off the 3-way changeover valve (3).



3. Turn the spindle of the 3-way changeover valve so that the rounded side of the spindle points in the direction of marking A of the connections of the 3-way changeover valve.



4. Flush the domestic hot water charge circuit for approx. 1 minute.
5. Turn the spindle so that the rounded side of the spindle points in the direction of marking B of the connections of the 3-way changeover valve.
6. Flush heating circuit thoroughly, until no more air is discharged.
7. Position the valve motor (1) on the 3-way changeover valve (3).
8. Insert the U-clip (2) into the floor of the valve motor.



9. Ensure that the U-clip has latched into position correctly:
   - Valve motor sits securely on the 3-way changeover valve.
   - Both prongs of the U-clip sit on the lug.
   - The tips of the U-clip are visible by approx. 2 mm (not significantly more!).

7.6 Flush, fill and vent the domestic hot water tank

✓ Drain pipe of the safety valve is connected.

► Ensure that the set pressure of the safety valve is not exceeded.

1. Open the domestic water inlet valve at the domestic hot water tank.
2. Open taps for domestic hot water.
3. Flush the domestic hot water tank until no more air discharges from the valves at the taps.
4. Close taps for domestic hot water.

8 Insulate hydraulic connections

1. Insulate heating circuit, heat source and domestic water pipes according to the local regulations.
2. Open shut-off devices.
3. Perform a pressure test and check for leaks.
4. Insulate the internal piping of the module box with the insulation material from the separate pack included.
5. Insulate external piping on site.
6. Insulate all connections, fittings and pipes.
7. Insulate heat source so that it is vapour-diffusion tight.
8. Insulate the heating circuit of units with cooling vapour-diffusion tight too.

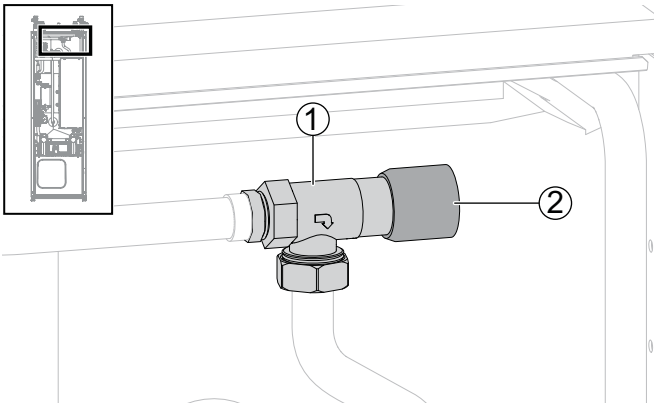
9 Set the overflow valve

NOTE

- The activities in this section are only necessary for in-line tank integration.
- Complete the worksteps quickly, otherwise the maximum return temperature can be exceeded and the heat pump switches to high-pressure fault.
- Turn the adjusting knob at the overflow valve to the right to increase the temperature difference (the temperature drop), turn it to the left to reduce it.

✓ System is running in heating mode (ideally in cold condition).

1. In case of low heating curve: Set the system to “Forced heating” (→ operating manual of the heating and heat pump controller).
2. Shut off valves to the heating circuit.
3. Ensure that the total flow is routed via the overflow valve.
4. Read out the flow and return temperature at the heating and heat pump controller (→ operating manual of the heating and heat pump controller).
5. Turn the adjusting knob (2) of the overflow valve (1) until the temperature drop between the flow and return temperature is set as follows:
   - at heat source temperature 0 °C: 8 K
   - at heat source temperature 10 °C: 10 K



6. Open valves to heating circuit.
7. Reset the heating and heat pump controller.

10 Commissioning

NOTE

The first filling and initial startup of the domestic hot water tank must be carried out by qualified personnel.

✓ Relevant planning & design data of the system is documented in full.

✓ The competent energy supplier has been notified of operation of the heat pump system.

✓ System is air-free.

✓ Installation check using the general checklist has been completed successfully.

1. Ensure that the following points are fulfilled completely:
   - Right-hand (clockwise) rotating load infeed field is available at the compressor.
   - Heating station is installed and mounted according to this operating manual.
   - The electrical installation has been carried out properly according to this operating manual and local regulations.

– The power supply for the heat pump is equipped with an all-pole miniature circuit-breaker with at least 3 mm contact spacing (IEC 60947-2).
– The level of the tripping current is compliant.
– The heating circuit and heat source are flushed and vented.
– The frost protection of the heat source liquid is at –13 °C.
– All shut-off devices of the heating circuit are open.
– All shut-off devices of the heat source are open.
– The pipe systems and components of the system are leaktight.

2. Fill out carefully and sign the completion report for heat pump systems.
3. In Germany and Austria: Send completion report for heat pump systems and general checklist to the manufacturer's factory customer service department. In other countries: Send completion report for heat pump systems and general checklist to the manufacturer's local partner.
4. Arrange for the heat pump system to be started up by customer service personnel authorised by the manufacturer; this is a chargeable service.
5. Ensure that the water supply to the domestic hot water tank is open.

11 Maintenance

NOTE
We recommend that you sign a maintenance agreement with an accredited heating company.

11.1 Basic principles

The cooling circuit of the heat pump requires no regular maintenance.

Local regulations– e.g. EU Regulation (EC) 842/2006 – among other things, require leak checks beforehand and/or for a logbook to be kept for certain heat pumps.

The hermetic leaktightness and refrigerant fill quantity are criteria for whether a logbook has to be kept and leak tests performed or not, and at what time intervals.

► Ensure compliance with local regulations with regard to the specific heat pump system.

11.2 Maintenance as required

- Yearly, more frequently if necessary:
  – Checking and cleaning the components of the heating circuit and the heat source, e.g. valves, expansion vessels, circulation pumps, filters, dirt traps.
  – Checking the function of the safety valve (on site) for the domestic hot water tank and the safety valve for the heating circuit.

11.3 Yearly maintenance

► Record the quality of the heating water analytically. In case of deviations from the specifications, take suitable measures without delay.

Clean unit variant with SVGW storage tank (SVGW: Swiss gas and water association (Schweizerischer Verein des Gas- und Wasserverbands)):

1. Drain the domestic hot water tank via the drain valve at the domestic cold water inlet.
2. Vent the domestic hot water tank and pipes via the hot water taps in the apartments.
3. Check the domestic hot water tank and clean via the cleaning opening on the underside of the tank.
4. After cleaning and testing, refill the domestic hot water tank.
5. Vent the domestic hot water tank and pipes via the hot water taps in the apartments.

11.4 Clean and flush the evaporator and condenser

► Clean and flush the evaporator/condenser strictly according to the manufacturer's regulations.

► After flushing the evaporator/condenser with chemical cleaning product: Neutralise any residues and flush the evaporator/condenser thoroughly with water.

12 Faults

NOTE
If the safety temperature limiter on the electric heating element has tripped, no fault is displayed.

► Read out the cause of the fault via the diagnostics program of the heating and heat pump controller.

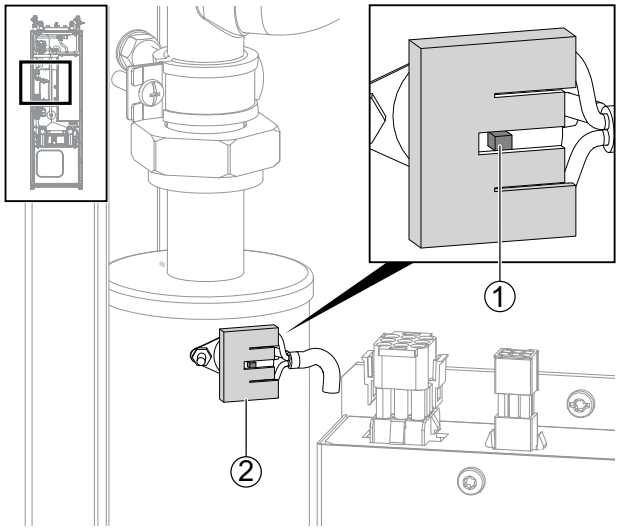
► Contact the local partner of the manufacturer or the factory's customer service. Have the fault message and unit number (→ “Unit sticker” on page 3) to hand.

12.1 Unlock the safety temperature limiter

A safety temperature limiter is installed in the electric heating element. If the heat pump fails or there is air in the system:

► Check whether the Reset button (1) of the safety temperature limiter (2) has jumped out (by approx. 2 mm).

► Press the reset button back in again.



► If the safety temperature limiter trips again, contact the local partner of the manufacturer or the factory's customer service.

13 Dismantling and Disposal

13.1 Dismantling

✓ Unit is safely disconnected from the power supply and protected against being switched back on again.

► Collect all media safely.

► Separate components by their materials.

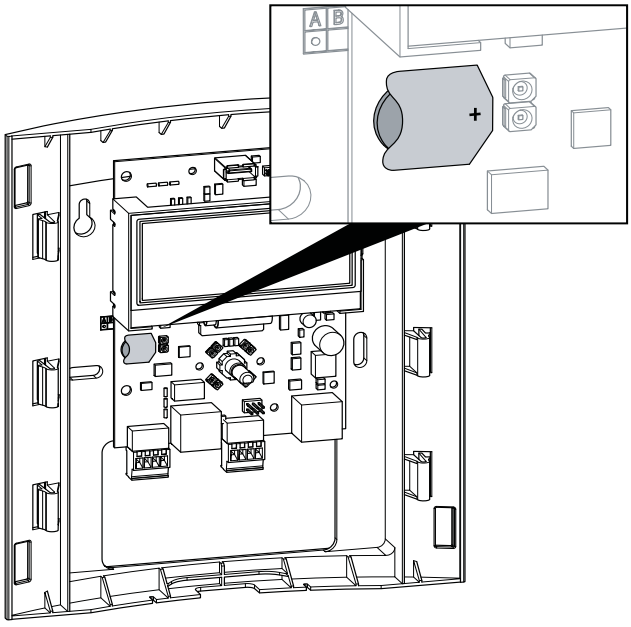
13.2 Disposal and Recycling

► Dispose of media harmful to the environment according to local regulations, e.g. antifreeze mixture, refrigerant.

► Recycle or ensure proper disposal of unit components and packaging materials according to local regulations.

Buffer (standby) battery

1. Use a screwdriver to push out the buffer battery on the processor board of the control unit



2. Dispose of the buffer battery according to local regulations.

Technical data/Scope of supply WZS 42(H)(K)3M – WZS 122(H)(K)3M

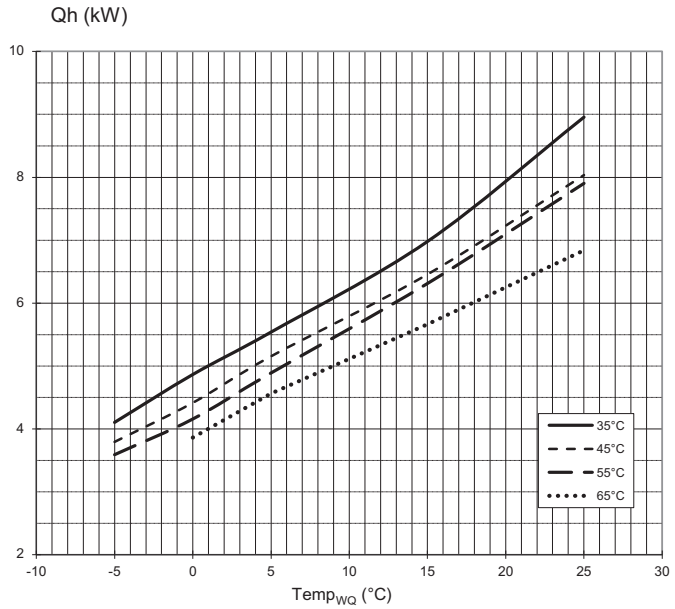
Heat pump type	Brine/Water ı Air/Water ı Water/Water	• applicable ı — not applicable
Installation location	Indoor ı Outdoor	• applicable ı — not applicable
Conformity		CE
Performance data	Heating capacity ı COP for B0/W35, standard nominal operating point to EN14511	kW ı ...
	Heating capacity ı COP for B0/W45, standard nominal operating point to EN14511	kW ı ...
	Heating capacity ı COP for B0/W55, standard nominal operating point to EN14511	kW ı ...
	Heating capacity ı COP for B7/W35, flows analogous to B0W35	kW ı ...
Limits of use	Heating circuit return min. I Heating circuit flow max.	°C
	Heat source	°C
	additional operating points	...
Sound	Sound pressure level at 1m distance from the edge of the unit	dB(A)
	Sound power level to EN12102	dB
Heat source	Volume flow: minimum throughput ı nominal throughput analogous to B0W35 ı maximum throughput	l/h
	Free heat pump pressure Δp (with cooling ΔpK) with monoethylene glycol (25%) ı Volume flow	bar (bar) ı l/h
	Approved anti-freeze	
	Frostproof up to	°C
	Maximum operating pressure	bar
Heating circuit	Volume flow: minimum throughput ı nominal throughput analogous to B0W35 ı maximum throughput	l/h
	Free heat pump pressure Δp (with cooling ΔpK) ı Volume flow	bar (bar) ı l/h
	Pressure losses, heat pump Δp (with cooling ΔpK) ı Flow rate	bar (bar) ı l/h
	Maximum operating pressure	bar
General unit data	Total weight (with cooling)	kg (kg)
	Box weight (with cooling) ı Tower weight (with cooling)	kg (kg) ı kg (kg)
	Refrigerant type ı Refrigerant capacity	... ı kg
Domestic hot water tank	Net volume	l
	Impressed current anode	integrated:
	Domestic hot water temperature in heat pump mode	up to °C
	Domestic hot water temperature with electric heating element	up to °C
	Mixed water quantity to ErP (at 40°C, draw-off of 10 l/min)	l
	Standing loss according to ErP (at 65°C)	W
	Maximum pressure	bar
Electrics	Fusing for connection via a joint supply cable	
	Voltage code I all-pole fusing	... ı A
	Fusing for connection via 3 separate supply cables	
	Voltage code ı all-pole heat pump fusing *)	... ı A
	Voltage code ı Control voltage fusing *)	... ı A
	Voltage code ı Electric heating element fusing *)	... ı A
Heat pump	Effective power consumption at standard point B0/W35 to EN14511: Power consumption ı Current input ı cosφ	kW ı A ı ...
	Maximum machine current ı Maximum power consumption within the limits of use	A ı kW
	Starting current: direct ı with soft starter	A ı A
	Degree of protection	IP
	Electric heating element output	kW
Components	Heating circuit circulation pump at nominal throughput: Power consumption ı Current input	kW ı A
	Heat source circulation pump at nominal throughput: Power consumption ı Current input	kW ı A
Passive cooling function	Figures apply to units with identifier K only: Cooling capacity at nominal volume flows (15 °C heat source, 25 °C heating water)	kW
Safety equipment	Safety assembly, heating circuit ı Safety assembly, heat source	included in scope of supply: • yes — no
Heating and heat pump controller		included in scope of supply: • yes — no
Electronic soft starter		integrated: • yes — no
Expansion vessels	Heat source: Scope of supply ı Volume ı Initial pressure	• yes — no ı l ı bar
	Heating circuit: Scope of supply ı Volume ı Initial pressure	• yes — no ı l ı bar
Overflow valve		integrated: • yes — no
Vibration isolators	Heating circuit ı Heat source	integrated: • yes — no

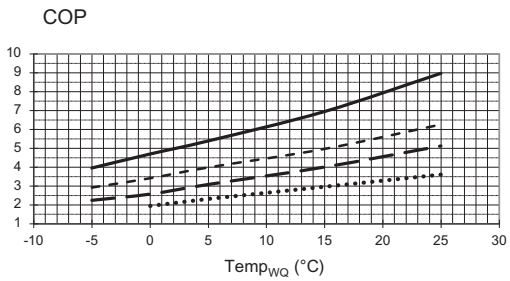
*) note and follow local regulations n.n. = undetectable

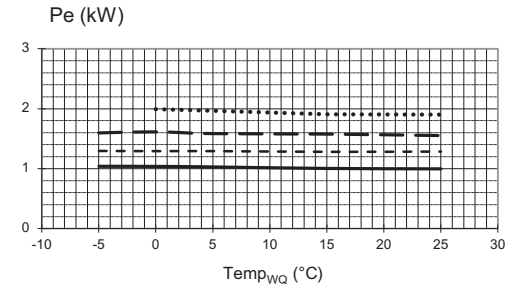
	WZS 42(H)(K)3M	WZS 62(H)(K)3M	WZS 82(H)(K)3M	WZS 102(H)(K)3M	WZS 122(H)(K)3M
	• ı — ı —	• ı — ı —	• ı — ı —	• ı — ı —	• ı — ı —
	• ı —	• ı —	• ı —	• ı —	• ı —
	•	•	•	•	•
	4.70 ı 4.70	6.00 ı 4.80	7.70 ı 4.90	9.50 ı 5.09	12.18 ı 5.00
	4.42 ı 3.42	5.08 ı 3.60	6.84 ı 3.61	8.55 ı 3.73	11.24 ı 3.76
	4.16 ı 2.58	4.37 ı 2.82	6.49 ı 2.91	8.17 ı 2.93	10.63 ı 2.97
	5.83 ı 5.70	7.18 ı 5.61	9.20 ı 5.96	11.19 ı 6.30	14.55 ı 6.06
	20 ı 60	20 ı 60	20 ı 60	20 ı 60	20 ı 60
	-5 – 25	-5 – 25	-5 – 25	-5 – 25	-5 – 25
	B0W65	B0W65	B0W65	B0W65	B0W65
	31	31	31	31	31
	43	43	43	43	43
	700 ı 1050 ı 1575	900 ı 1350 ı 2000	1200 ı 1750 ı 2600	1500 ı 2200 ı 3300	1900 ı 2800 ı 4200
	0.74 (0.72) ı 1050	0.65 (0.62) ı 1350	0.76 (0.7) ı 1750	0.93 (0.87) ı 2200	0.75 (0.63) ı 2800
	• ı • ı • ı •	• ı • ı • ı •	• ı • ı • ı •	• ı • ı • ı •	• ı • ı • ı •
	-13	-13	-13	-13	-13
	3	3	3	3	3
	450 ı 850 ı 1300	500 ı 1000 ı 1250	650 ı 1300 ı 1600	800 ı 1600 ı 2000	1050 ı 2050 ı 2600
	0.72 (0.70) ı 850	0.68 (0.66) ı 1000	0.55 (0.52) ı 1300	0.52 (0.48) ı 1600	0.38 (0.30) ı 2050
	—(—) ı —	—(—) ı —	—(—) ı —	—(—) ı —	—(—) ı —
	3	3	3	3	3
	250 (258)	255 (263)	270 (278)	275 (283)	280 (288)
	90 (98) ı 160 (160)	95 (103) ı 160 (160)	110 (118) ı 160 (160)	115 (123) ı 160 (160)	120 (128) ı 160 (160)
	R410A ı 1.05	R410A ı 1.37	R410A ı 1.72	R410A ı 1.98	R410A ı 2.25
	178	178	178	178	178
	•	•	•	•	•
	58	58	57	56	55
	65	65	65	65	65
	250	250	245	240	230
	60	60	60	60	60
	10	10	10	10	10
	— ı —	— ı —	— ı —	— ı —	— ı —
	3~N/PE/400V/50Hz ı C10	3~N/PE/400V/50Hz ı C10	3~N/PE/400V/50Hz ı C10	3~N/PE/400V/50Hz ı C10	3~N/PE/400V/50Hz ı C10
	1~/N/PE/230V/50Hz ı B10	1~/N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10
	3~/N/PE/400V/50Hz ı B16	3~/N/PE/400V/50Hz ı B16	3~N/PE/400V/50Hz ı B16	3~N/PE/400V/50Hz ı B16	3~N/PE/400V/50Hz ı B16
	1.00 ı 2.44 ı 0.59	1.25 ı 2.5 ı 0.72	1.57 ı 3.02 ı 0.75	1.87 ı 3.73 ı 0.72	2.44 ı 4.70 ı 0.75
	4.8 ı 2.3	5.0 ı 2.5	6.01 ı 3.10	7.63 ı 4.00	9.44 ı 4.80
	22.0 ı —	23.0 ı —	30.0 ı —	— ı 22.0	— ı 26.0
	20	20	20	20	20
	9 ı 6 ı 3	9 ı 6 ı 3	9 ı 6 ı 3	9 ı 6 ı 3	9 ı 6 ı 3
	0.06 ı n.n.	0.06 ı n.n.	0.06 ı n.n.	0.06 ı n.n.	0.06 ı n.n.
	0.09 ı n.n.	0.09 ı n.n.	0.14 ı n.n.	0.18 ı n.n.	0.18 ı n.n.
	4.3	5.4	7.0	8.6	10.8
	— ı —	— ı —	— ı —	— ı —	— ı —
	•	•	•	•	•
	—	—	—	•	•
	— ı — ı —	— ı — ı —	— ı — ı —	— ı — ı —	— ı — ı —
	— ı — ı —	— ı — ı —	— ı — ı —	— ı — ı —	— ı — ı —
	•	•	•	•	•
	• ı •	• ı •	• ı •	• ı •	• ı •
	813460	813461	813462	813463	813464

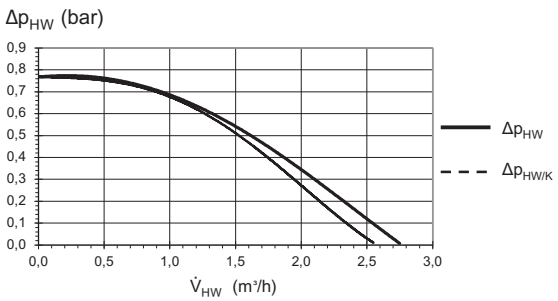
Performance curves

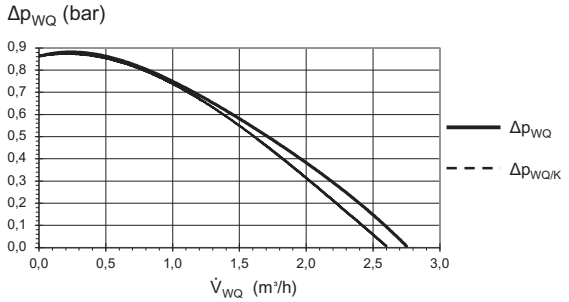
WZS 42(H)(K)3M





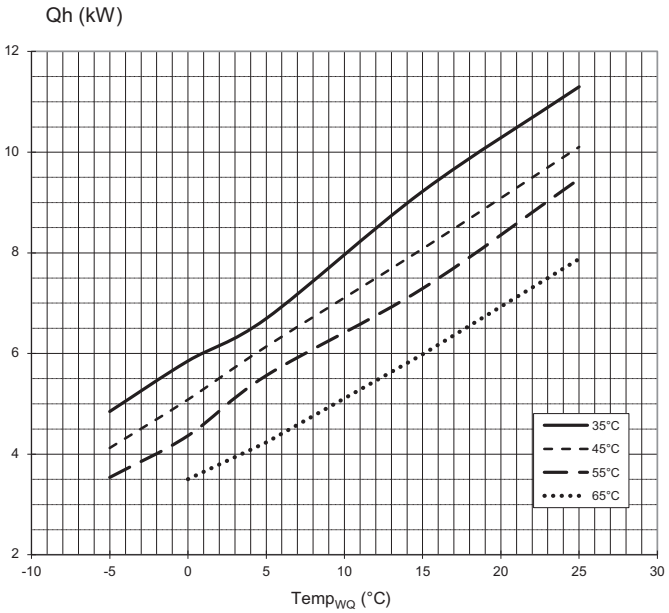


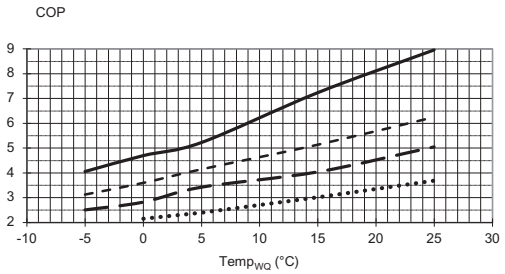


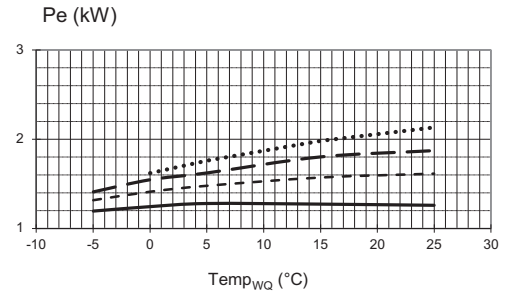


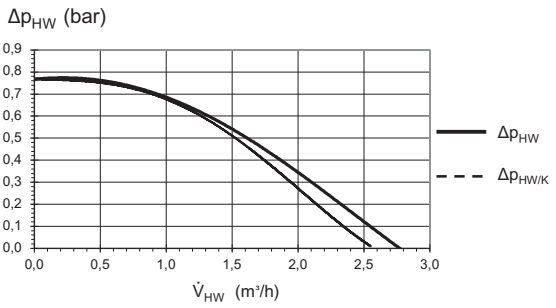
823234

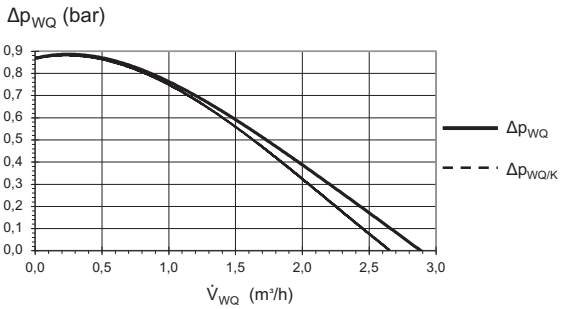
Key:	DE823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}$"	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp_{WQ} / $\Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure









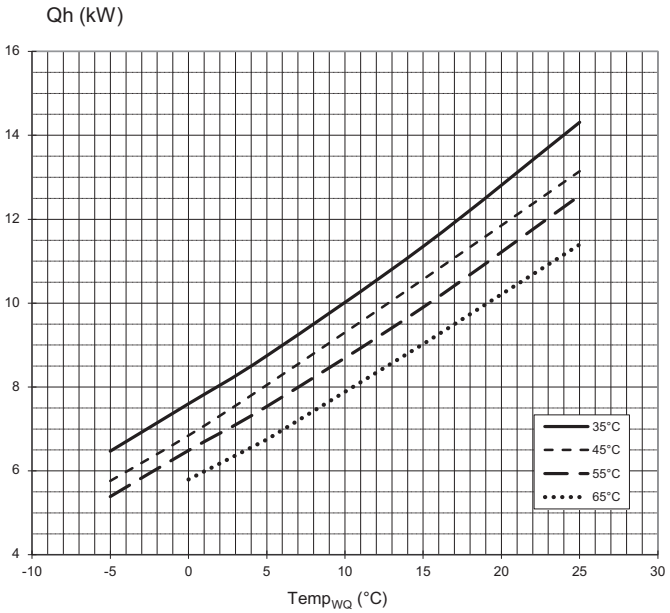


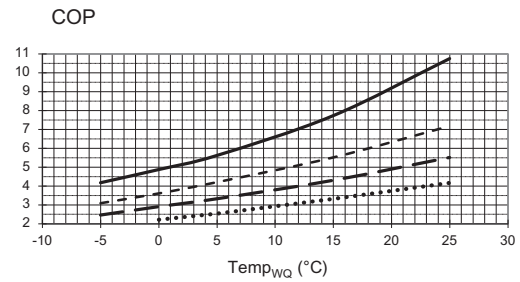
823235

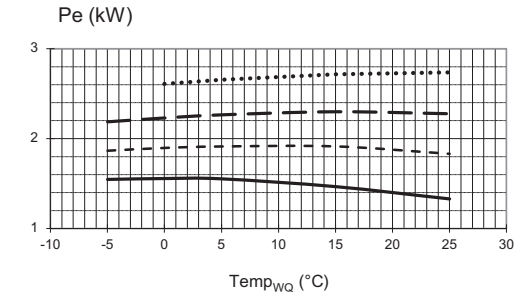
Key:	DE823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}$"	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp_{WQ} / $\Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure

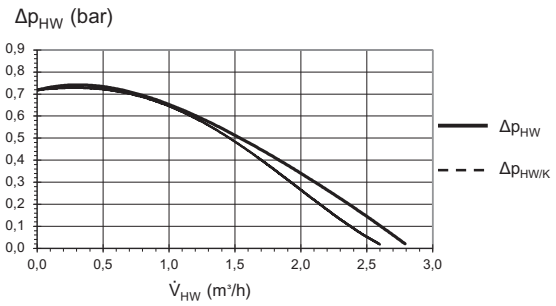
Performance curves

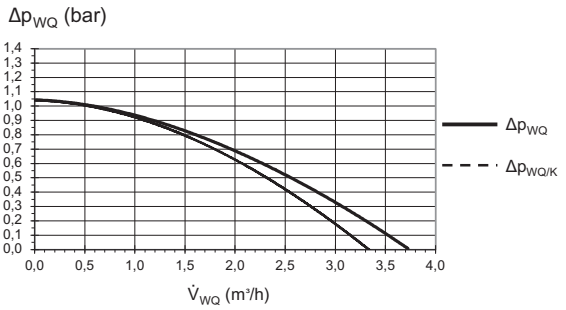
WZS 82(H)(K)3M





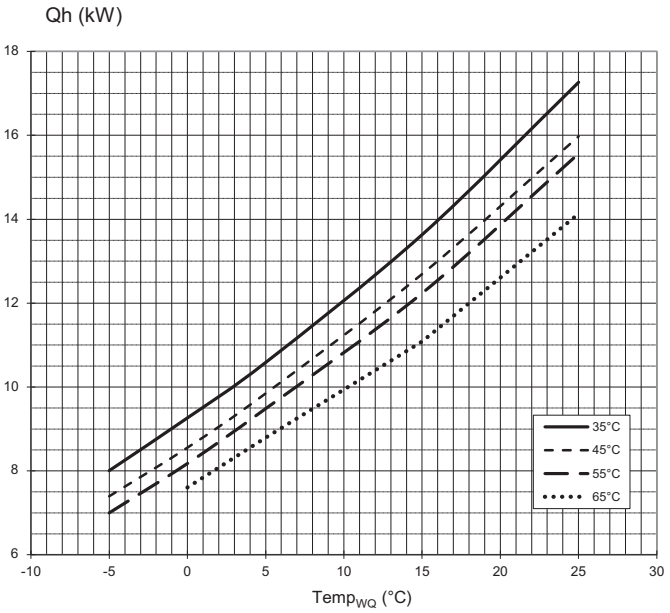


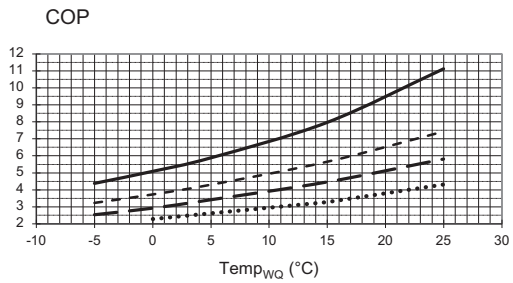


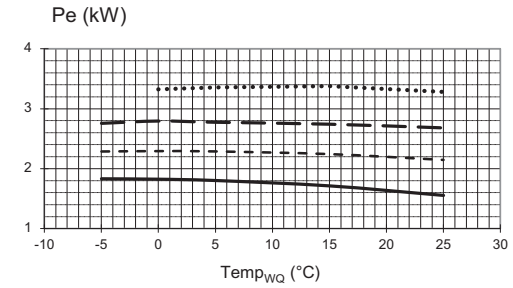


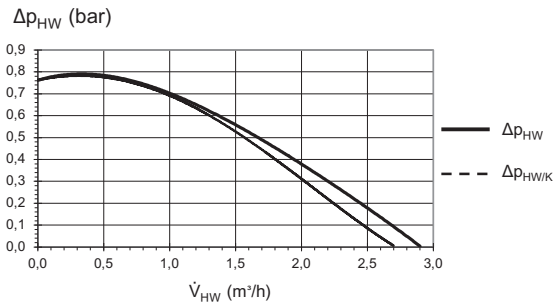
823236

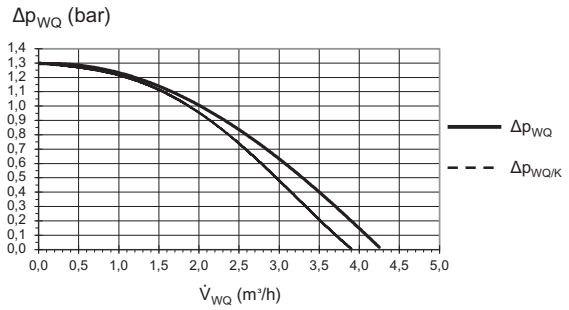
Key:	DE823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}$"	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp_{WQ} / $\Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure









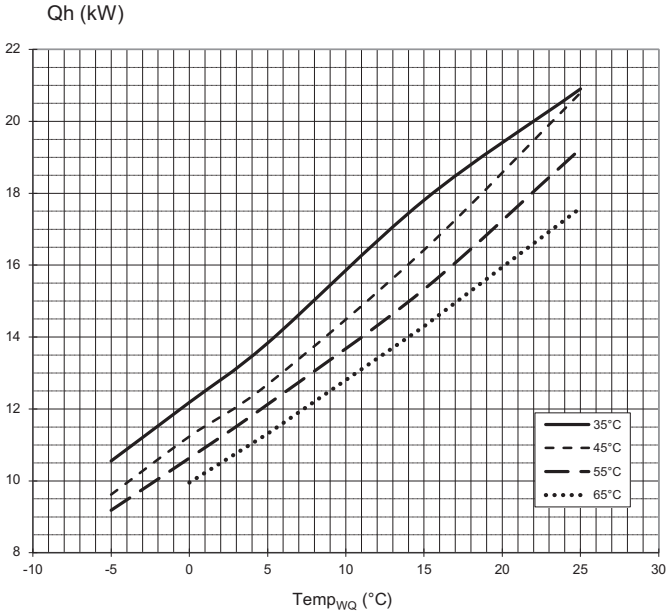


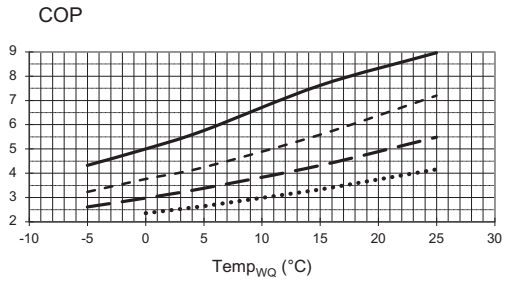
823327

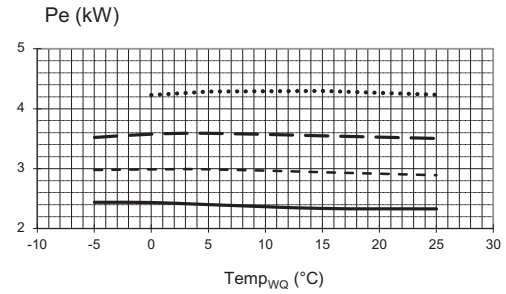
Key:	DE823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}$"	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp_{WQ} / $\Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure

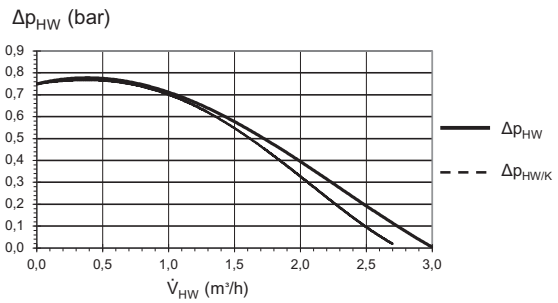
Performance curves

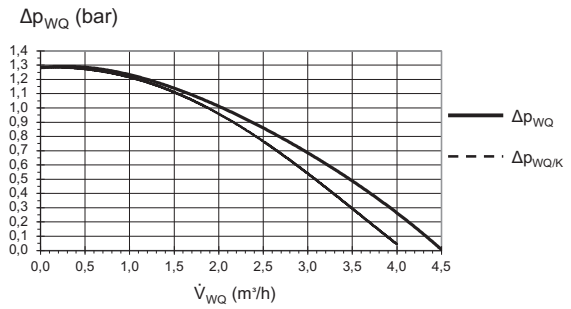
WZS 122(H)(K)3M







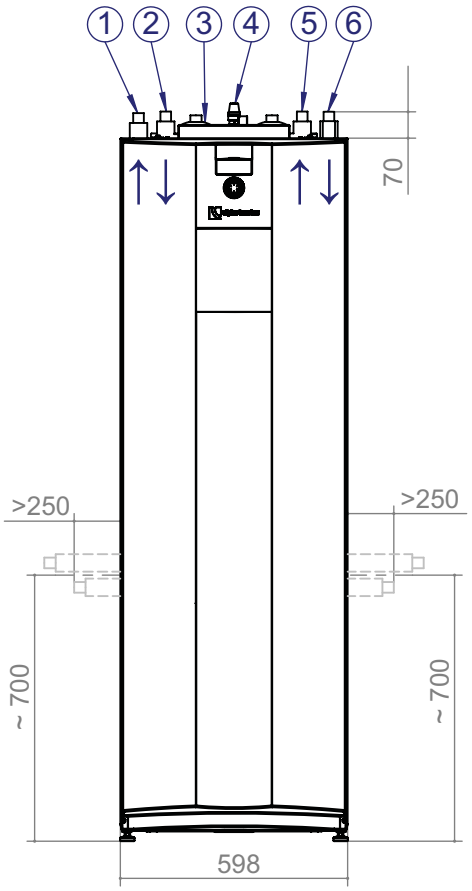




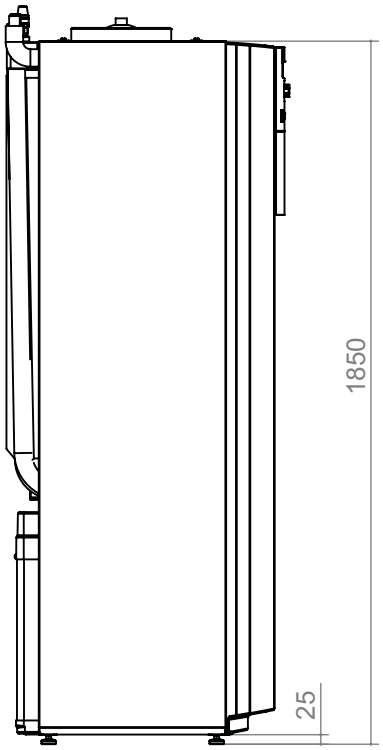
823238

Key:	DE823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}$''	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp_{WQ} / $\Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure

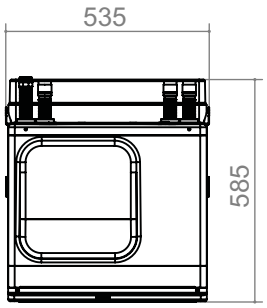
A



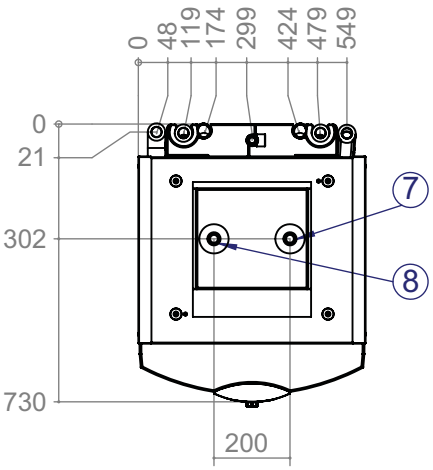
B



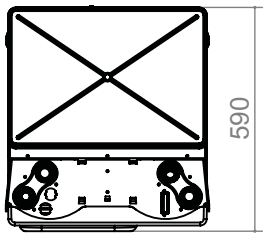
A1



C



C1



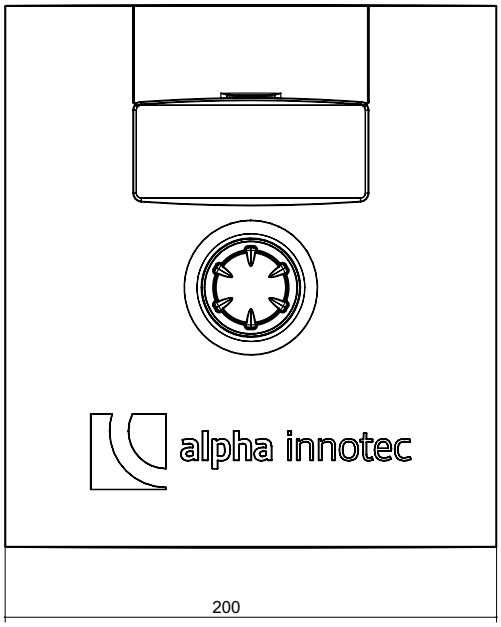
Key: D819447

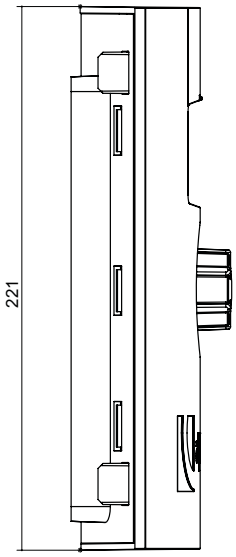
All dimensions in mm.

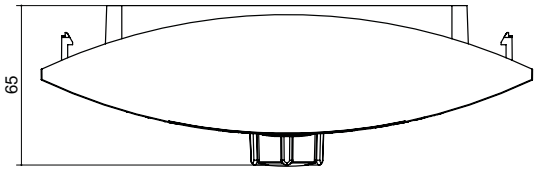
A Front view
B Side view from left
C Plan view
A1 Front view of module box
C1 Top view of module box

Item	Name	Dim.
1	Heating water outlet (flow)	Ø28 Outside diameter
2	Heat source inlet (in heat pumps) optionally at top, on right or left	Ø28 Outside diameter
3	Reserve conduit for electric/sensor cables	Ø33 Inside diameter
4	Heating circuit safety valve (in the separate package)	Rp 3/4" internal thread
5	Heat source outlet (from heat pump) optionally at top, right or left	Ø28 Outside diameter
6	Heating water inlet (return)	Ø28 Outside diameter
7	Domestic hot water	R 3/4" external thread
8	Cold domestic water	R 3/4" external thread

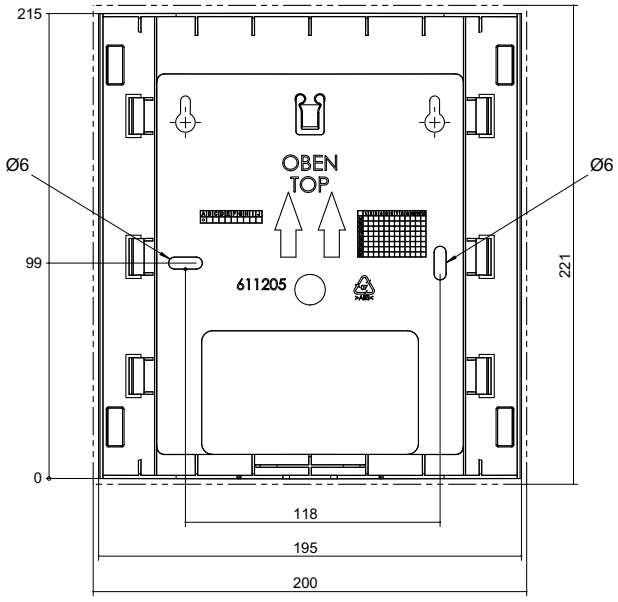
Dimensioned drawing of control unit, wall-mounted bracket



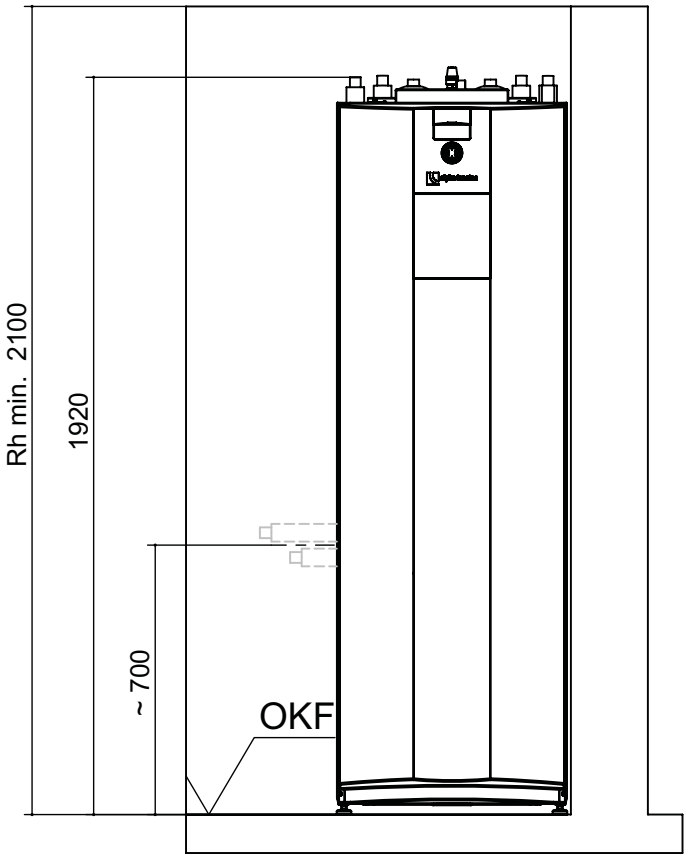


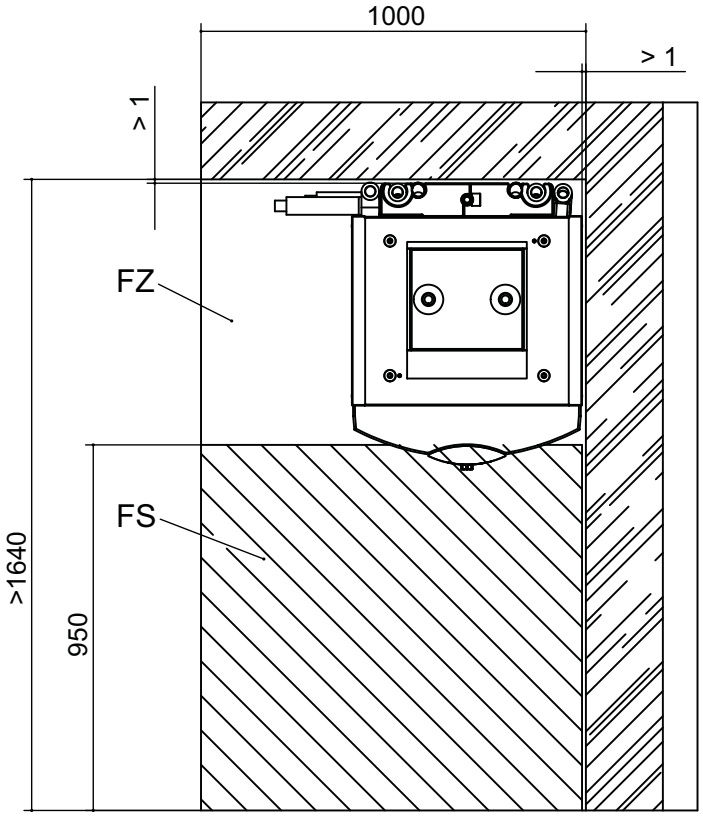


Wall mounted



V1





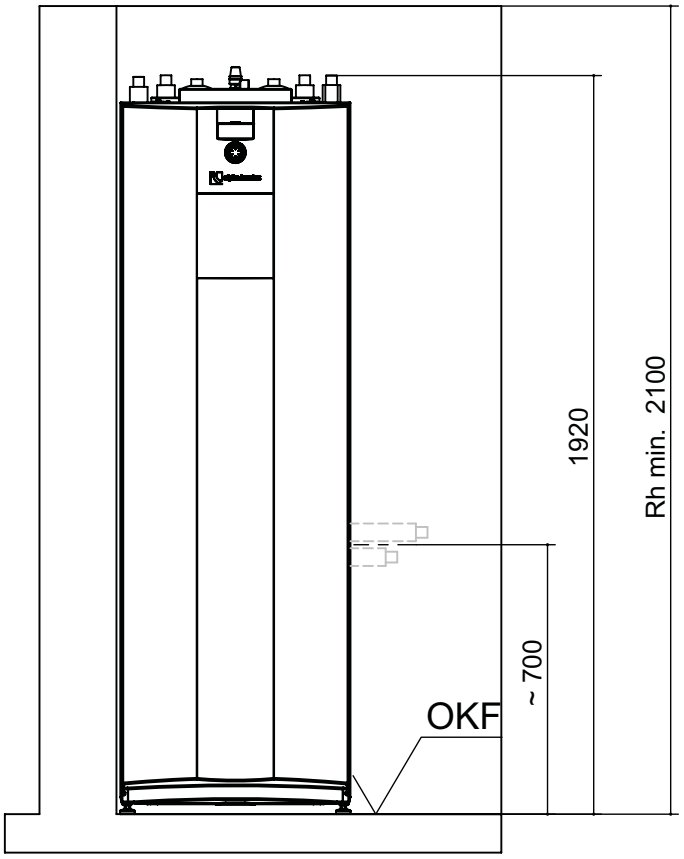
Key: DE819448

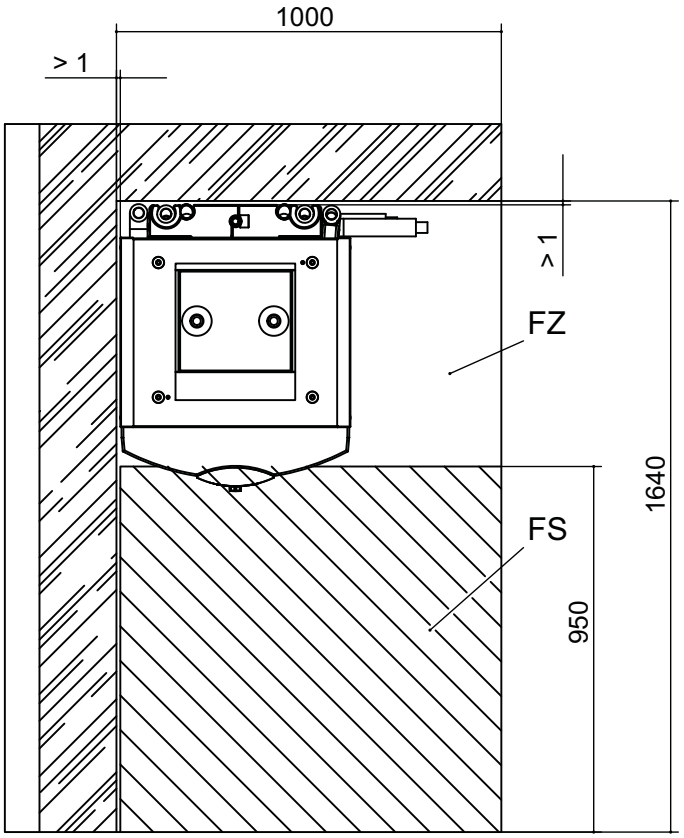
V1	Version 1
Rh min.	Minimum room height
FS	Free space for service purposes
FZ	Free space for functionally necessary accessories
OKF	Finished floor level

All dimensions in mm.

Installation plans

V2



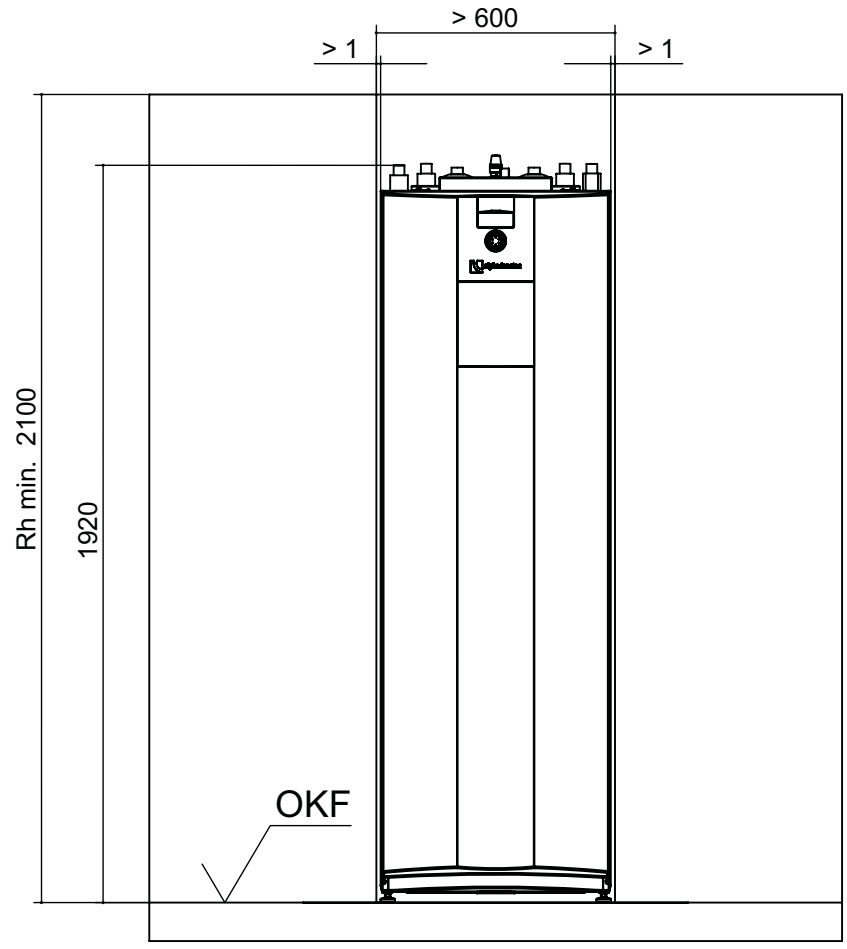


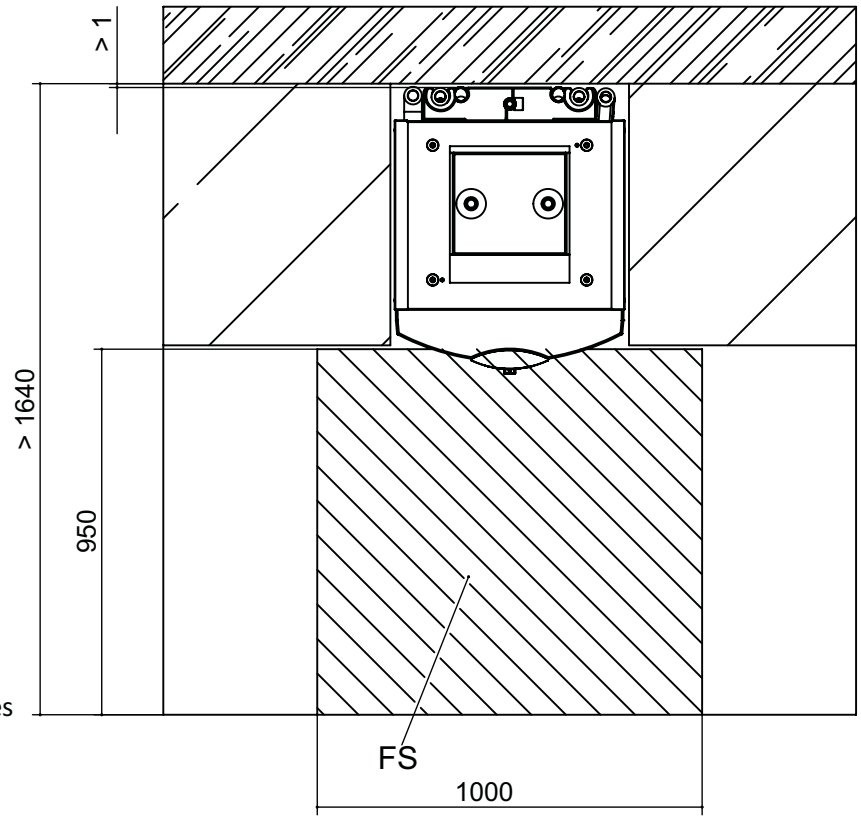
Key: DE819448

V2	Version 2
Rh min.	Minimum room height
FS	Free space for service purposes
FZ	Free space for functionally necessary accessories
OKF	Finished floor level

All dimensions in mm.

V3



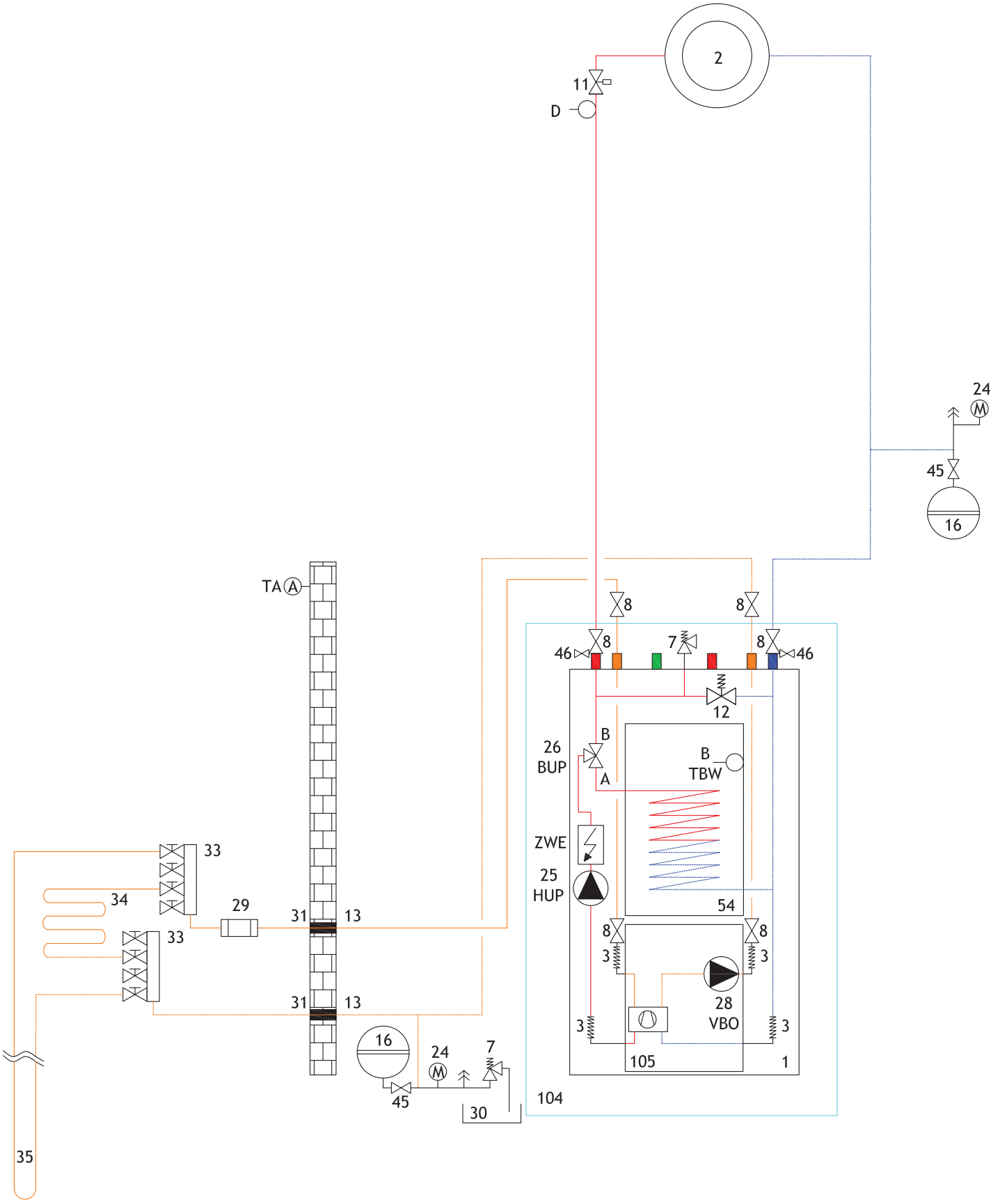


Key: DE819448

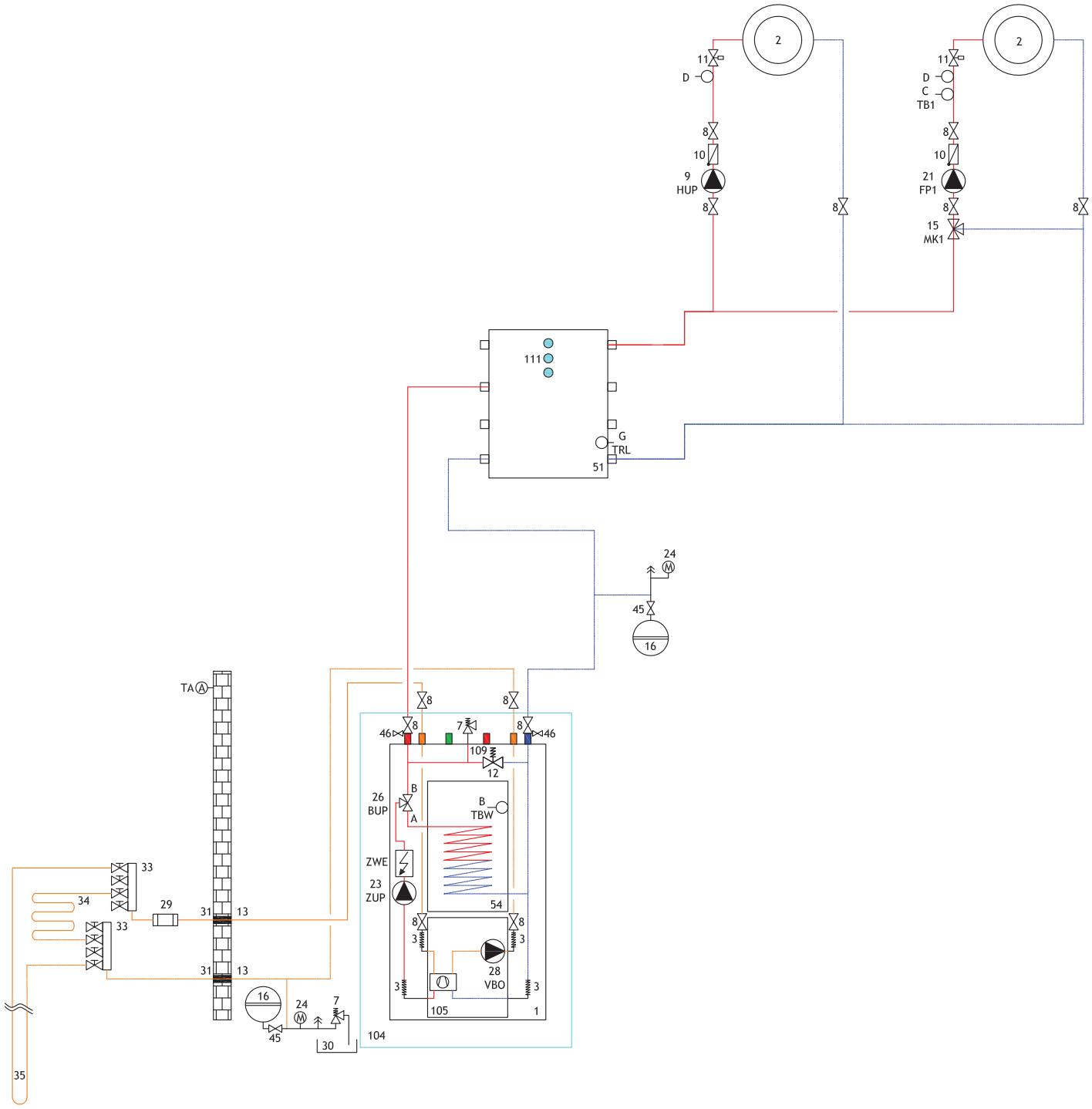
V3 Version 3
Rh min. Minimum room height
FS Free space for service purposes
OKF Finished floor level

All dimensions in mm.

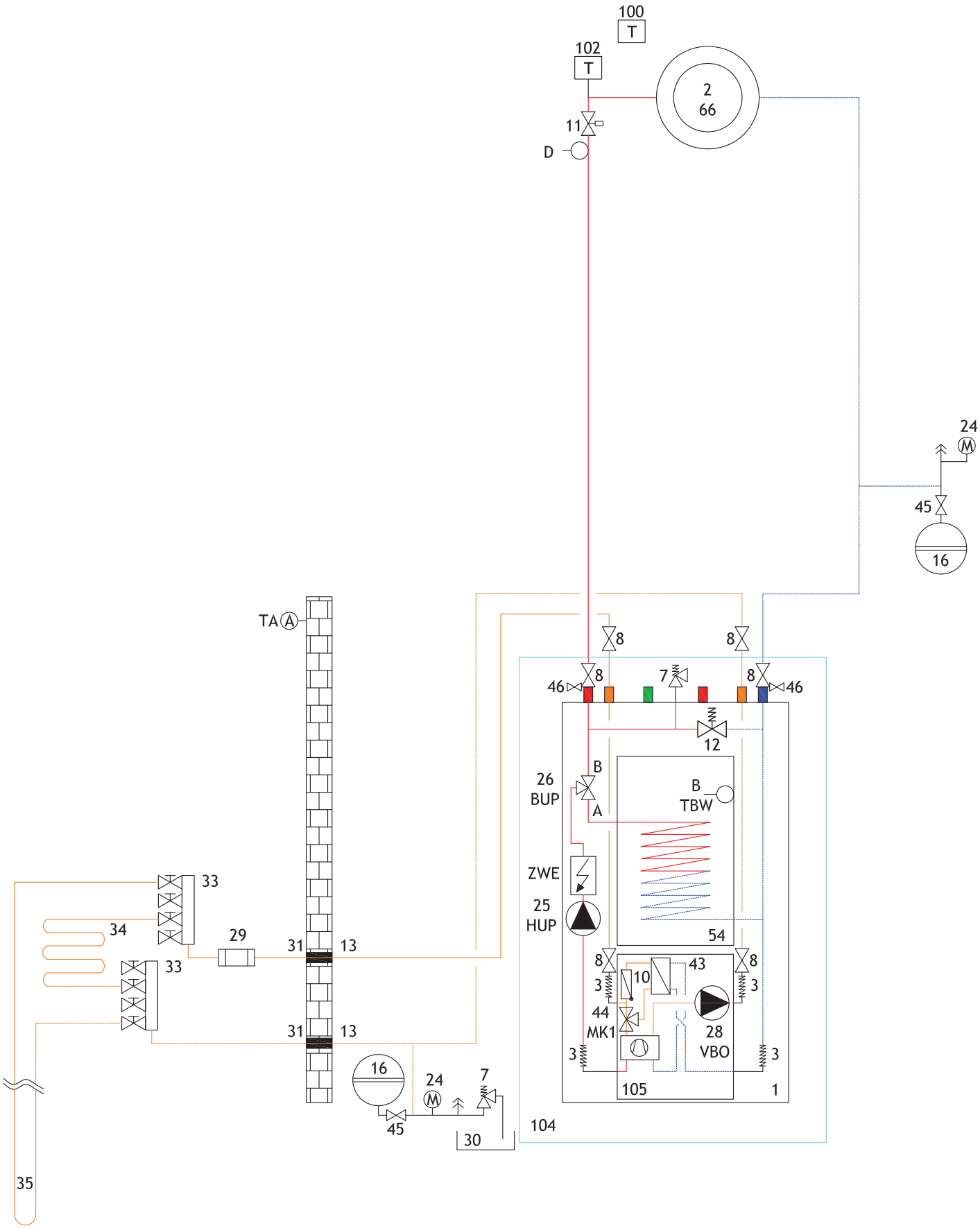
Hydraulic integration, unit variant H (heating)



Hydraulic integration, separate buffer tank



Hydraulic integration, unit variant K (cooling)



Legend hydraulic diagramm

1	Heat pump
2	Underfloor heating / radiators
3	Vibration isolation
4	Sylomer strip machine underlay
5	Closure and drainage
6	Expansion vessel packing list
7	Safety valve
8	Closure
9	Heating circulation pump
10	Non return valve/ one way valve
11	Individual room regulation
12	Overflow valve
13	Steamtight insulation
14	Service water circulation pump
15	Mixer circuit three-way mixer (MK1 discharge)
16	Expansion vessel supplied by customer
18	Heating rod (heating)
19	Mixer circuit four-way mixer (MK1 charge)
20	Heating rod (SW)
21	Mixer circuit circulation pump (FP1)
23	Feed circulating pump (reconnect the integrated circulating pump in the heat pump)
24	Manifuld
25	Heating circulation pump
26	Switching valve (heating/service water)(B = normally open)
27	Heating element
28	Brine circulation pump
29	Dirt-trap 0.6 mm mesh
30	Spill-tray für brine mix
31	Wall breakthrough
32	Inlet pipe
33	Brine manifuld
34	Ground collector
35	Ground slinkies
36	Groundwater spring pump
37	Wall bracket
38	Flow switch
39	Suction well
40	Inverted well
41	Rinse fitting heating circuit
42	Circulation pump
43	Brine / Water heat exchanger (cooling function)
44	Three-way mixer valve (cooling function MK1)
45	Cap valve
46	Filler and drainage valve
48	Domestic hot water charging pump
49	Direction of groundwater flow
50	Buffer storage
51	Seperation tank
52	Gas- or oil-boiler
53	Wood boiler
54	Hot water cylinder
55	Brine pressure switch
56	Swimming pool heat exchanger
57	Geothermal heat exchanger
58	Ventilation system
59	Plate heat exchanger
61	Cooling cylinder
65	Compact distributor
66	Fancoils
67	Solar/ service water cylinder
68	Solar/ service water cylinder
69	Multifunction tank
71	Dual hydraulic module
72	Buffer tank wall mounted
73	Pipe lead-in
74	Ventower
75	Scope of delivery, hydraulic tower, dual
76	Fresh water station
77	Scope of supply water/water booster
78	Accessories water/water booster optional
100	Room thermostat for cooling (optional)
101	Controls supplied by customer
102	Dew-point monitor (optional)
103	Room thermostat for reference space in packing list
104	Supply heat pump
105	Cooling circuit module box removeable for installation
106	Specific glycole mixture
107	Scald protection / thermostatic mixer valve
108	Solar pump assembly
109	Overflow valve must be closed
110	Packing list hydraulic tower
111	Mounting for additional heating element
112	Minimum distance to thermal decoupling of the mixing valve
TA/A	External sensor
TBW/B	Domestic hot water sensor
TB1/C	Feedwater sensor mixer circuits 1
D	Floor tmperature limiter
TRL/G	Sensor external return
STA	Line pressure regulator valve
TRL/H	Sensor return (hydraulic module, dual)
79	Motor valve
80	Mixing valve
81	Split heat pump outdoor unit
82	Split heat pump indoor unit
83	Circulation pump
84	Switching valve
113	Connection 2nd heat generator
BT1	Outdoor temperature sensor
BT2	Flow temperature sensor
BT3	Return temperature sensor
BT6	Domestic hot water temperature sensor
BT12	Flow temperature liquefier
BT19	Temperature sensor immersion heater
BT24	Temperature sensor 2nd heat generator

Comfort board:

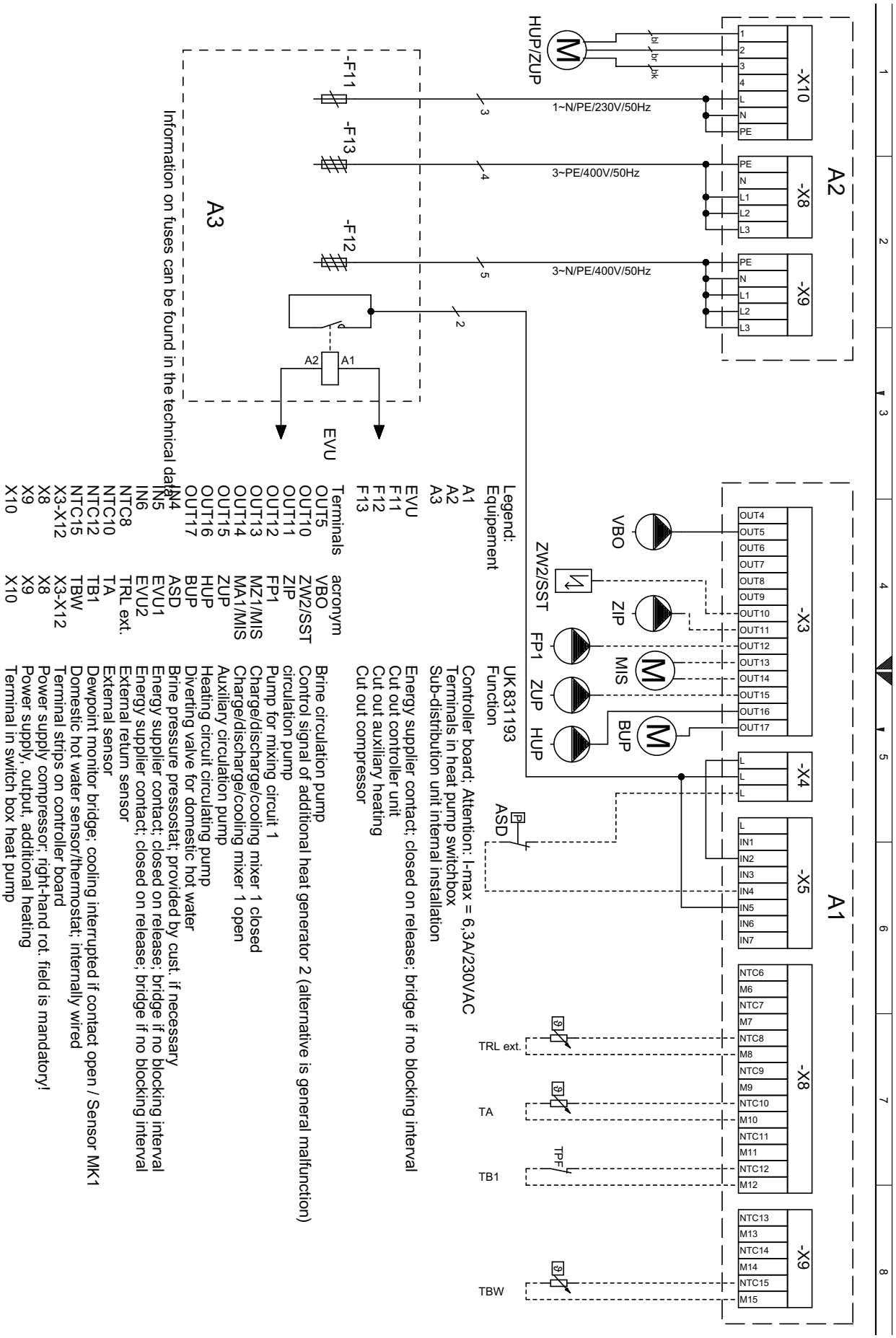
15	Mixer circuit three-way mixer (MK2-3 discharge)
17	Temperature difference regulator
19	Mixer circuit four-way mixer (MK2 charge)
21	Mixer circuit circulation pump (FP2-3)
22	Swimming pool circulating pump
44	Three-way mixer valve (cooling function MK2)
47	Changeover valve swimming bath preparation(B = normally open)
60	Changeover valve cooling operation(B = normally open)
62	Heat meter (optional)
63	Changeover valve solar circuit(B = normally open)
64	Cooling circulation pump
70	Solar seperation module
TB2-3/C	Feedwater sensor mixer circuits 2-3
TSS/E	Sensor, temperature difference control (low temperature)
TSK/E	Sensor, temperature difference control (high temperature)
TEE/F	Sensor external energy source

Important notice !

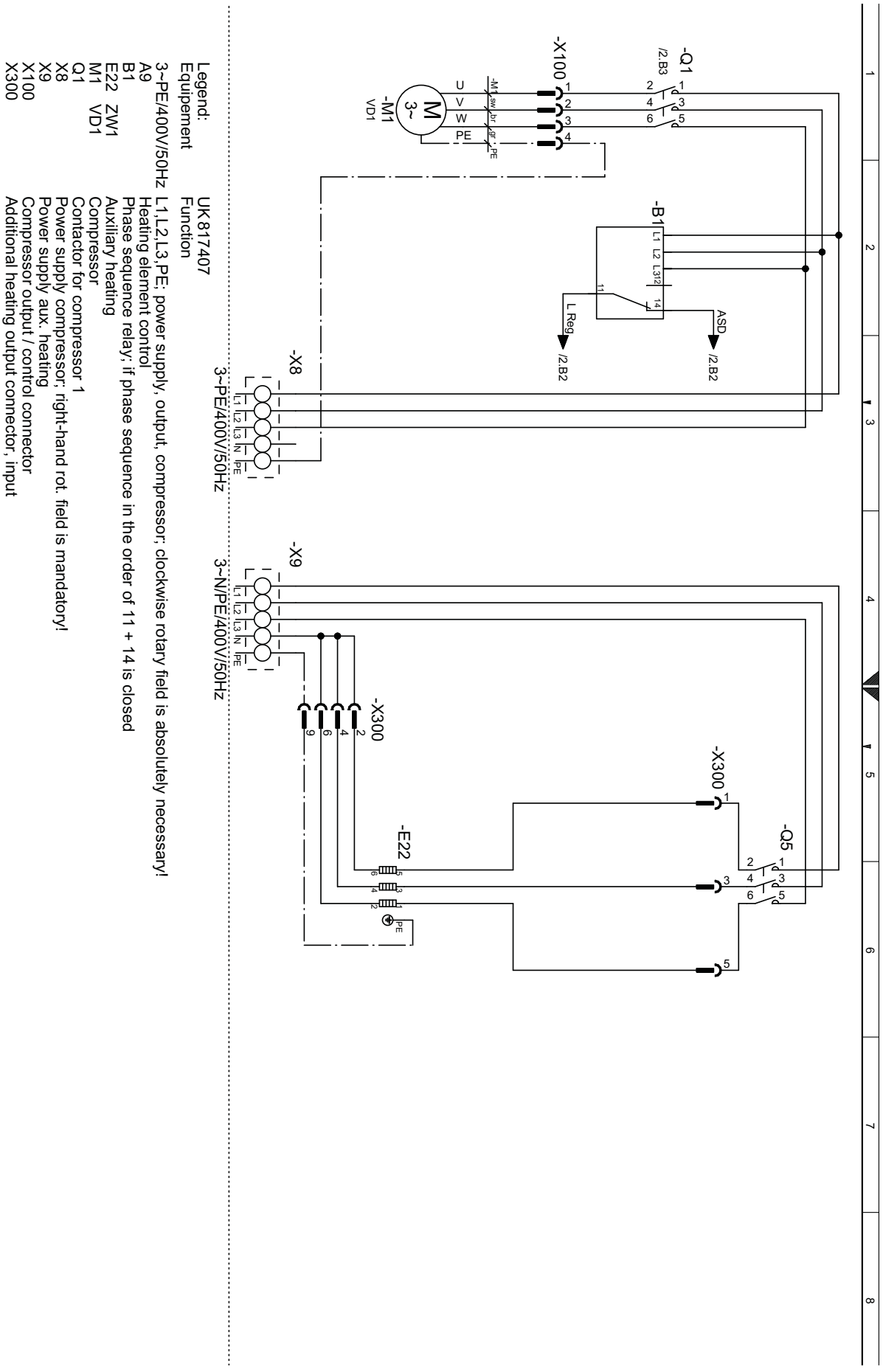
These hydraulic diagrams are schematic representations and are for assistance only. They do not relieve of the obligation to carry out appropriate planning! They do not include all necessary shut-off valves, ventilator fittings or safety devices. These must be incorporated in accordance with the standards and regulations applicable to the respective installation. All country-specific standards, laws and regulations must be observed! The tubes have to be dimensioned according to the nominal volume flow of the heat pump resp. the free pressing of the integrated circulating pump. For detailed information and advice please contact our local sales partner!

Terminal diagram

WZS 42(H)(K)3M – WZS 122(H)(K)3M



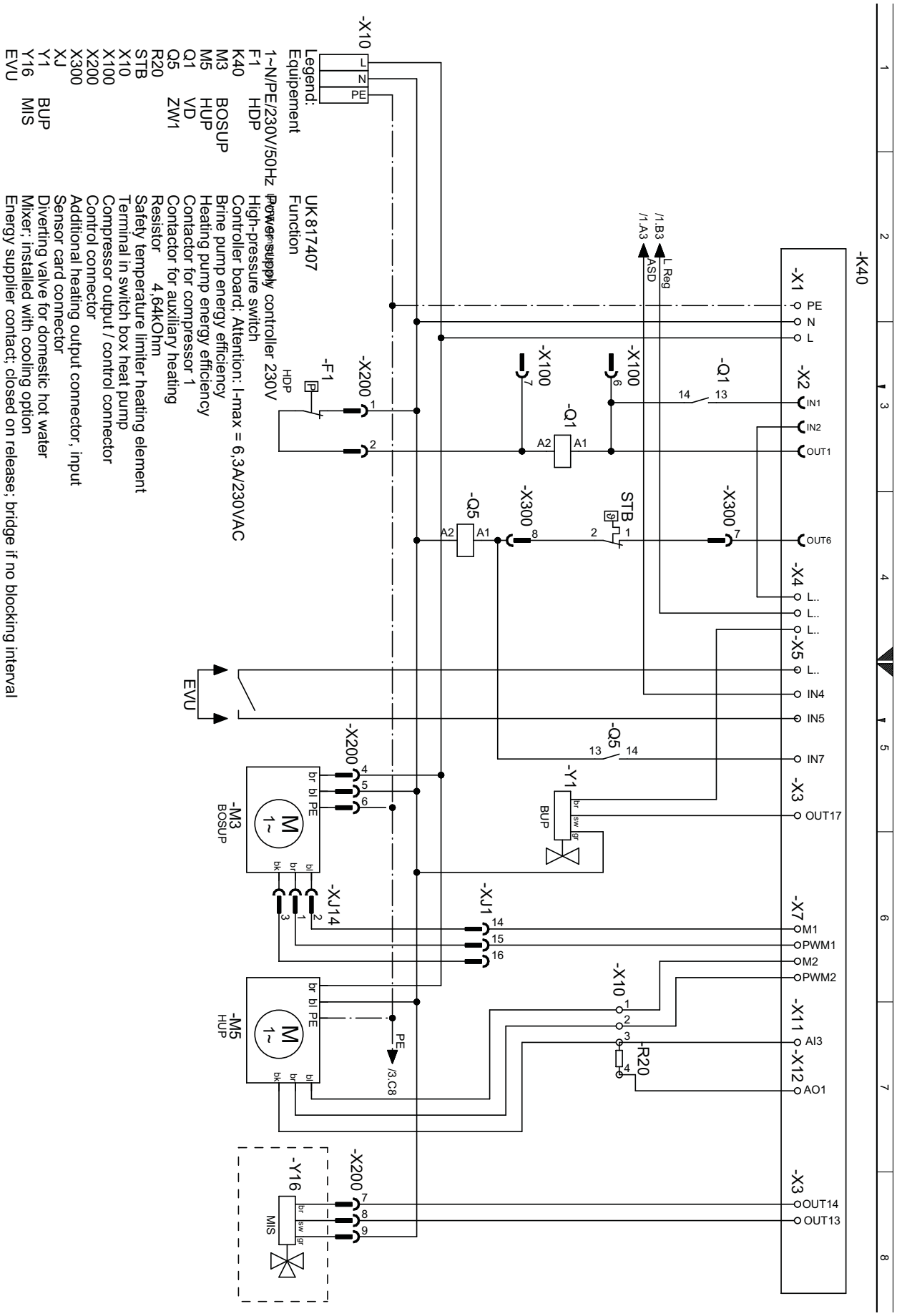
Circuit diagram 1/3

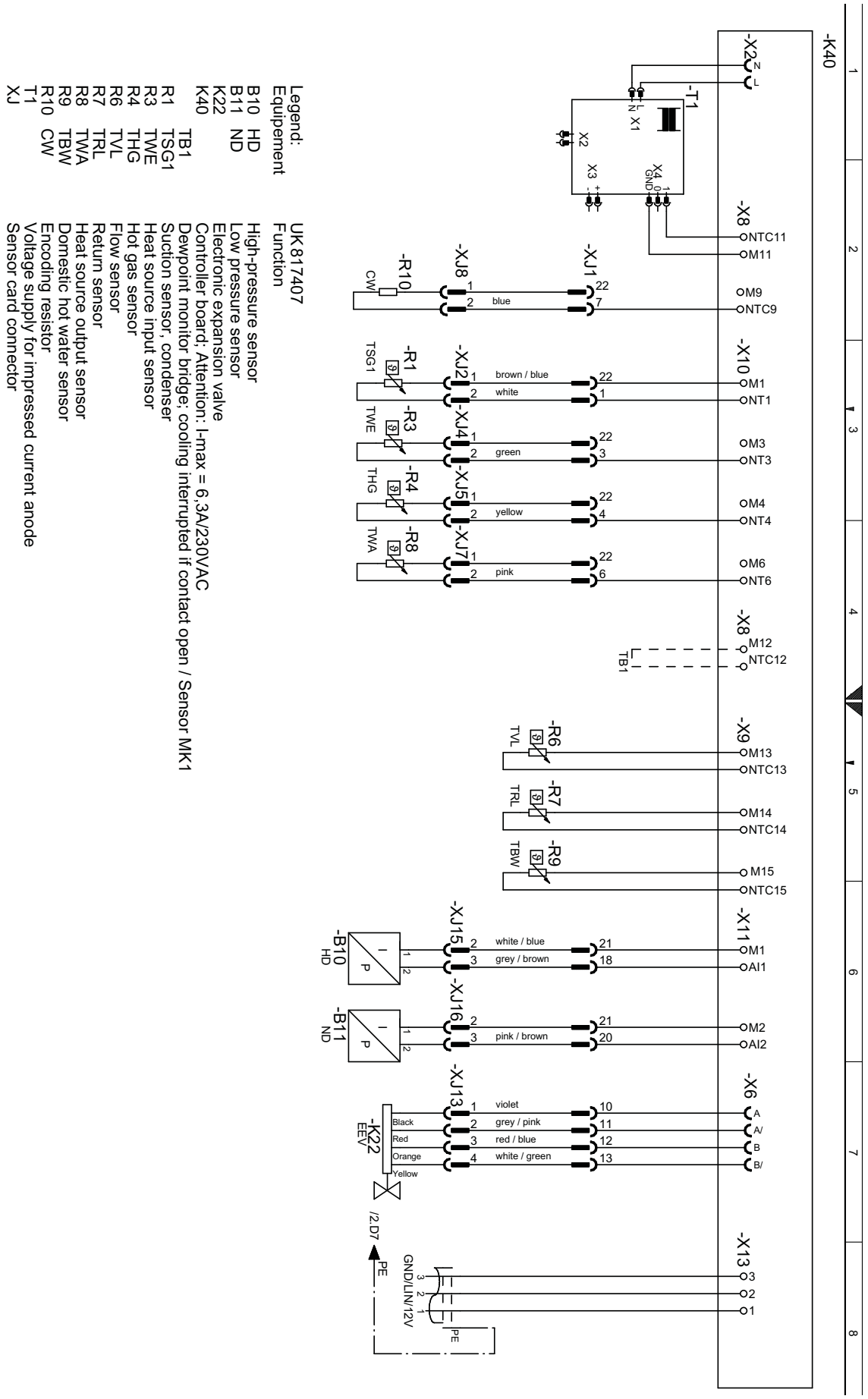


Legend:

Equipement	Function
	UK 817407
3~PE/400V/50Hz	L1,L2,L3,PE; power supply, output, compressor; clockwise rotary field is absolutely necessary!
A9	Heating element control
B1	Phase sequence relay; if phase sequence in the order of 11 + 14 is closed
E22 ZW1	Auxiliary heating
M1 VD1	Compressor
Q1	Contactor for compressor 1
X8	Power supply compressor; right-hand rot. field is mandatory!
X9	Power supply aux. heating
X100	Compressor output / control connector
X300	Additional heating output connector, input

WZS 42(H)(K)3M – WZS 82(H)(K)3M





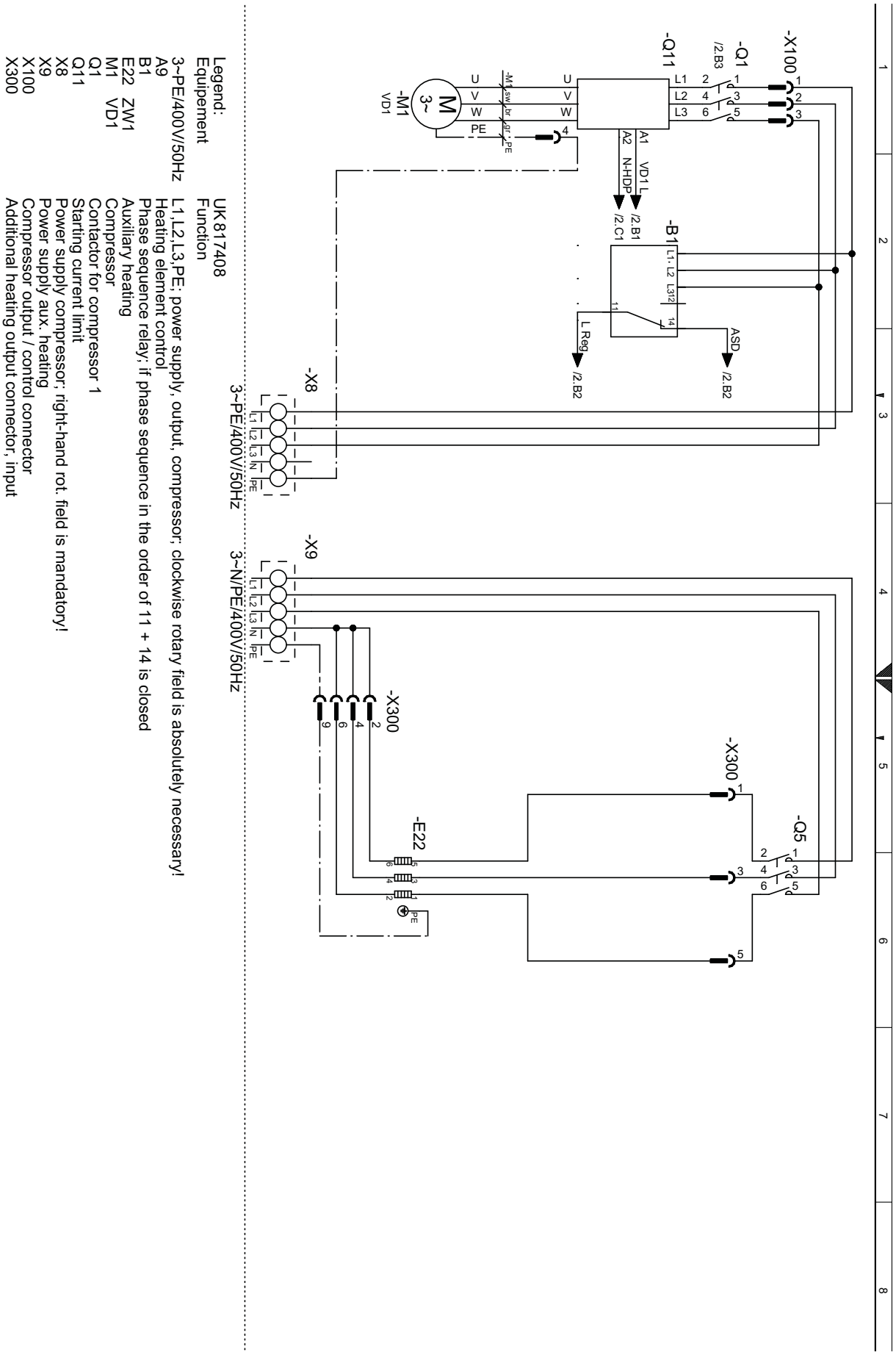
Legend:

Equipement	
B10	HD
B11	ND
K22	
K40	
TB1	
R1	TSG1
R3	TWE
R4	THG
R6	TVL
R7	TRL
R8	TWA
R9	TBW
R10	CW
T1	
XJ	

UK 817407 Function
High-pressure sensor
Low pressure sensor
Electronic expansion valve
Controller board; Attention: I-max = 6,3A/230VAC
Dewpoint monitor bridge; cooling interrupted if contact open / Sensor MK1
Suction sensor, condenser
Heat source input sensor
Hot gas sensor
Flow sensor
Return sensor
Heat source output sensor
Domestic hot water sensor
Encoding resistor
Voltage supply for impressed current anode
Sensor card connector

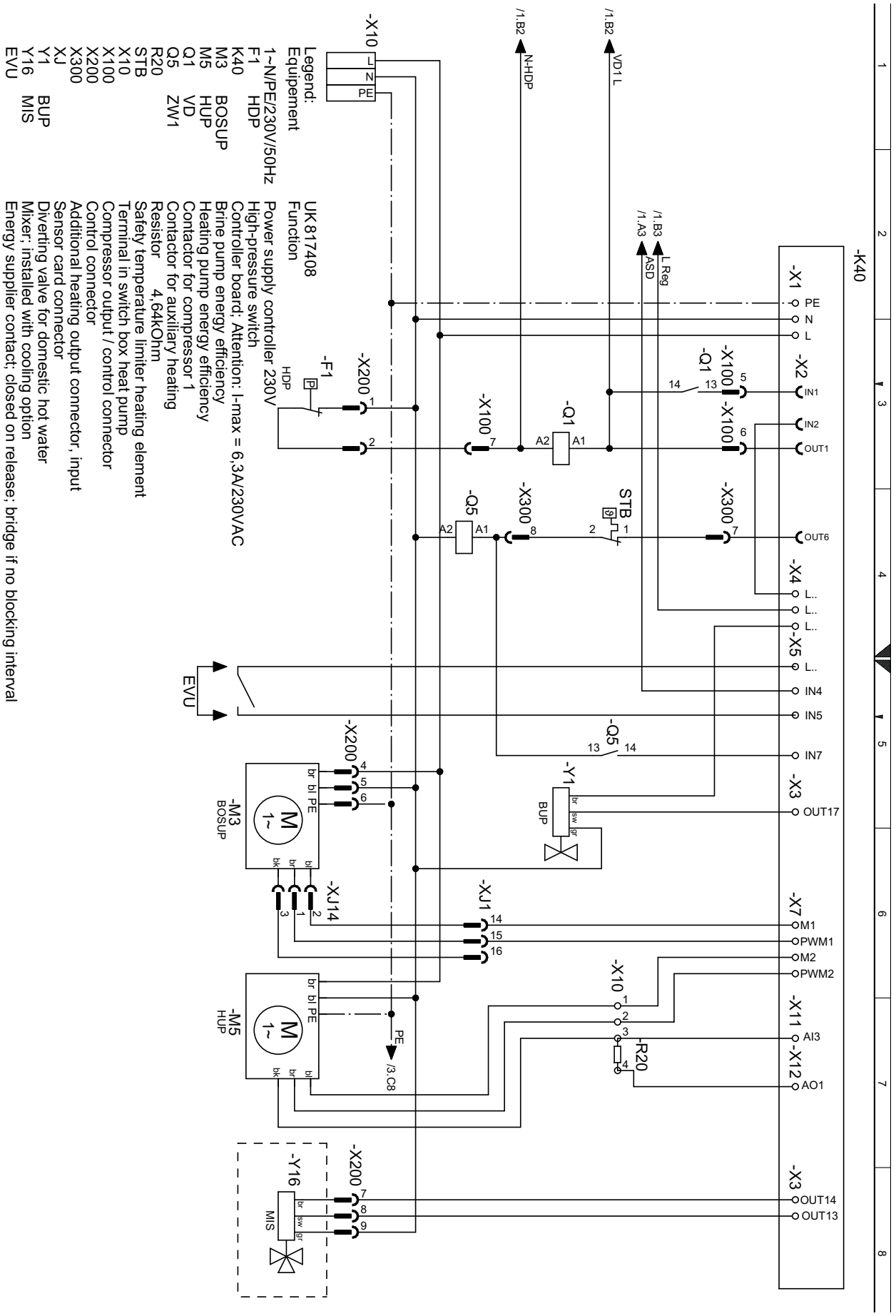
Circuit diagram 1/3

WZS 102(H)(K)3M – WZS 122(H)(K)3M

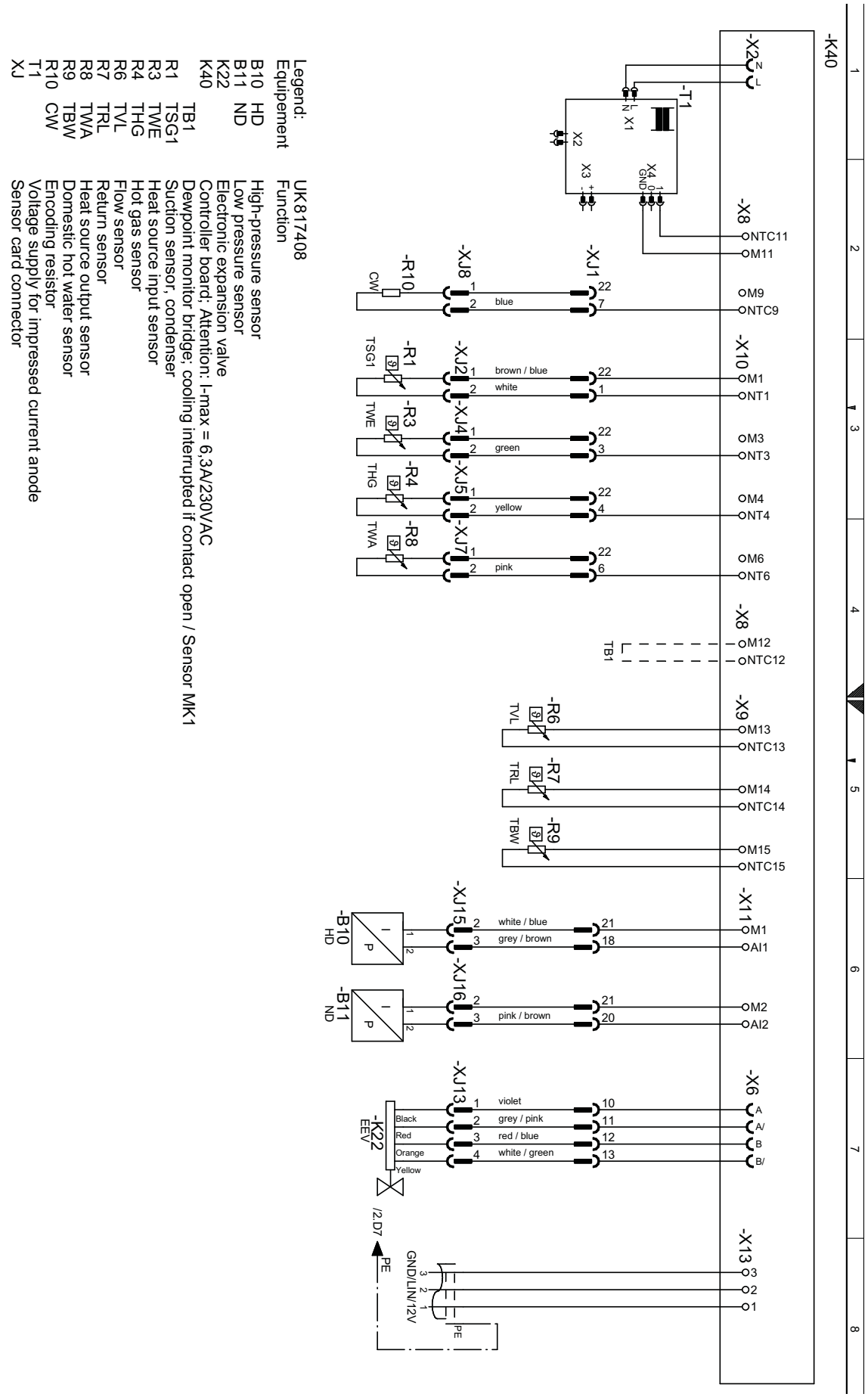


Legend:

Equipement	UK 817408 Function
3~PE/400V/50Hz	L1,L2,L3,PE; power supply, output, compressor; clockwise rotary field is absolutely necessary!
A9	Heating element control
B1	Phase sequence relay; if phase sequence in the order of 11 + 14 is closed
E22 ZW1	Auxiliary heating
M1 VD1	Compressor
Q1	Contactor for compressor 1
Q11	Starting current limit
X8	Power supply compressor; right-hand rot. field is mandatory!
X9	Power supply aux. heating
X100	Compressor output / control connector
X300	Additional heating output connector, input


Legend:
Equipement
1~N/PE/230V/50Hz
F1 HDP
K40
M3 BOSUP
M5 HUP
Q1 VD
Q5 ZW1
R20
STB
X10
X100
X200
X300
XJ
Y1 BUP
Y16 MIS
EVU
UK 817408
Function
Power supply controller 230V
High-pressure switch
Controller board; Attention: I-max = 6,3A/230VAC
Brine pump energy efficiency
Heating pump energy efficiency
Contactor for compressor 1
Contactor for auxiliary heating
Resistor 4,64kOhm
Safety temperature limiter heating element
Terminal in switch box heat pump
Compressor output / control connector
Control connector
Additional heating output connector, input
Sensor card connector
Diverting valve for domestic hot water
Mixer; installed with cooling option
Energy supplier contact; closed on release; bridge if no blocking interval
-K40
-X1
PE
N
L
-X2
IN1
IN2
OUT1
OUT6
-X4
-X5
IN4
IN5
IN7
-X3
OUT17
OUT14
OUT13
-X7
M1
PWM1
M2
PWM2
-X11
AI3
-X12
AO1
-X10
-R20
-F1
HDP
-Q1
-Q5
STB
-X100
-X200
-X300
-XJ1
-XJ14
-M3
BOSUP
-M5
HUP
-Y1
BUP
-Y16
MIS
EVU
/1.B2 N-HDP
/1.B2 VD1 L
/1.B3
/1.A3
L Reg
ASD
/3.C8

WZS 102(H)(K)3M – WZS 122(H)(K)3M



Legend:

Equipement	UK817408 Function
B10 HD	High-pressure sensor
B11 ND	Low pressure sensor
K22	Electronic expansion valve
K40	Controller board; Attention: I-max = 6,3A/230VAC
TB1	Dewpoint monitor bridge; cooling interrupted if contact open / Sensor MK1
R1 TSG1	Suction sensor, condenser
R3 TWE	Heat source input sensor
R4 THG	Hot gas sensor
R6 TVL	Flow sensor
R7 TRL	Return sensor
R8 TWA	Heat source output sensor
R9 TBW	Domestic hot water sensor
R10 CW	Encoding resistor
T1	Voltage supply for impressed current anode
XJ	Sensor card connector

EC Declaration of Conformity in accordance with the EC Machinery Directive 2006/42/EC, Annex IIA

The undersigned
confirms that the following designated device(s) as designed and marketed by us fulfill the standardized EC directives, the EC safety standards and the product-specific EC standards.
In the event of modification of the device(s) without our approval, this declaration shall become invalid.

Designation of the device(s)

Heat Pump

Unit model	Number	Unit model	Number
WZS 42H3M	10066041	WZS 42H3M	10067041
WZS 62H3M	10066141	WZS 62H3M	10067141
WZS 82H3M	10066241	WZS 82H3M	10067241
WZS 102H3M	10066342	WZS 102H3M	10067342
WZS 122H3M	10066442	WZS 122H3M	10067442
WZS 42K3M	10066541	WZS 42K3M	10067541
WZS 62K3M	10066641	WZS 62K3M	10067641
WZS 82K3M	10066741	WZS 82K3M	10067741
WZS 102K3M	10066842	WZS 102K3M	10067842
WZS 122K3M	10066942	WZS 122K3M	10067942

EC Directives
2006/42/EG
2006/95/EG
2004/108/EG
*97/23/EG
2011/65/EG
*** Pressure equipment component**
Category II
Module A1
Designated position:
TÜV-SÜD
Industrie Service GmbH (Nr.:0036)

Standardized EN

EN 378	EN 349
EN 60529	EN 60335-1/-2-40
EN ISO 12100-1/2	EN 55014-1/-2
EN ISO 13857	EN 61000-3-2/-3-3

Company:
ait-deutschland GmbH
Industrie Str. 3
93359 Kasendorf
Germany

Place, date: Kasendorf, 12.01.2015

Signature:

Jesper Stannow
Head of Heating Development

UK818171

UK

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Industriestraße 3
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