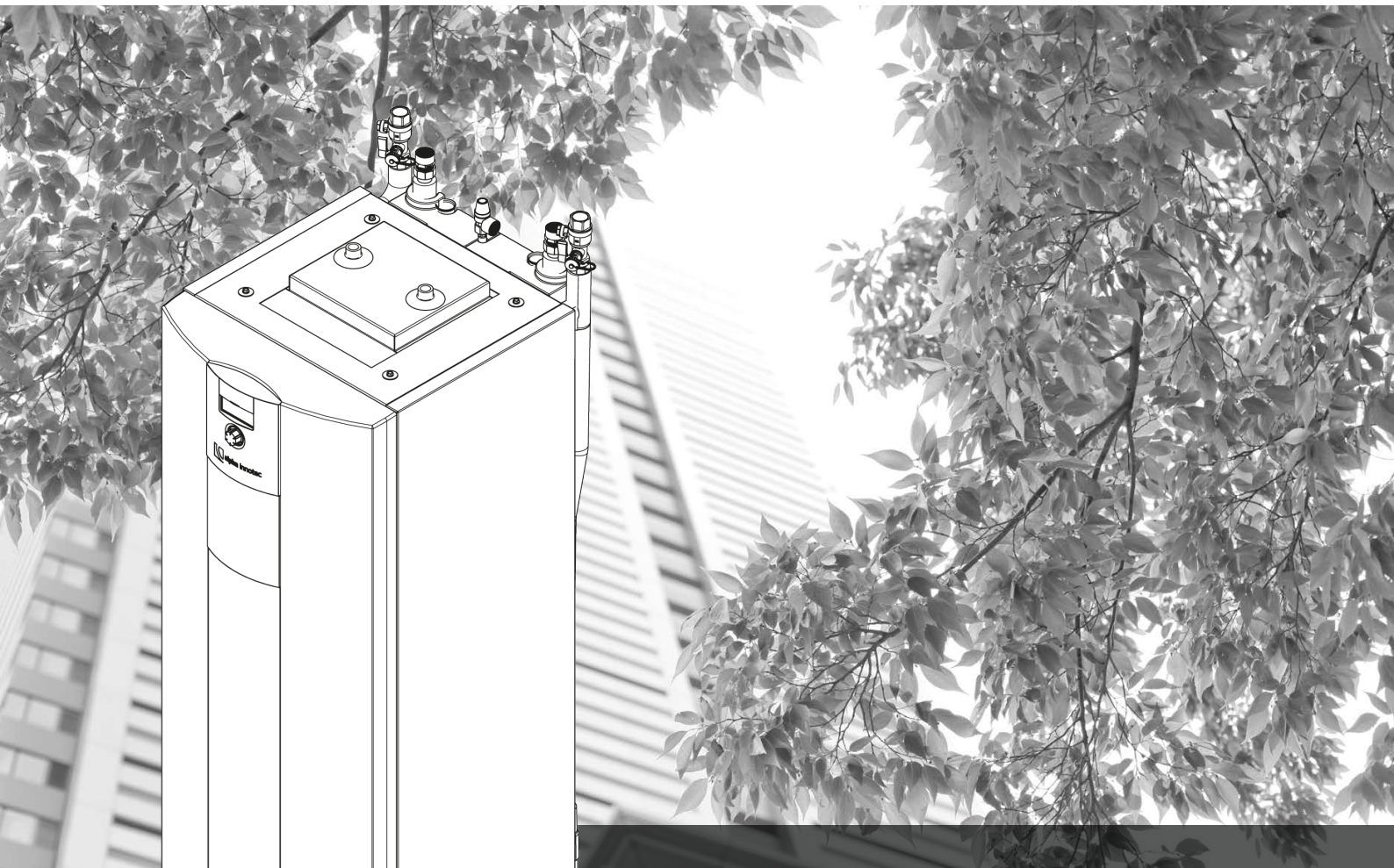


the better way to heat



Brine/Water Heat Pumps
Brine heat station

Operating Manual

WZS series





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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", page 7 and "Unit sticker", 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 (accessories)
- 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.
IMPORTANT	Indicates a potentially dangerous situation, which can result in property damage.

Symbols in the document

Symbol	Meaning
	Information for qualified personnel
	Information for the owner/operator
✓	Requirement for 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. a tip on making work easier, information on standards
→	Reference to further information elsewhere in the operating manual or in another document
•	Listing



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.com

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”, from page 28) 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

The operating manuals supplied with the product are intended for all users of the product.

The operation of the product via the heating and heat pump control and work on the product which is intended for end customers / operators is suitable for all age groups of persons who are able to understand the activities and the resulting consequences and can carry out the necessary activities.

Children and adults who are not experienced in handling the product and do not understand the necessary activities and the resulting consequences must be instructed and, if necessary, supervised by persons experienced in handling the product and who are responsible for safety.

Children must not play with the product.

The product may only be opened by qualified personnel.

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 safely 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 qualified, 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.

Existing earthing connections within housings or on mounting plates must not be altered. If this should nevertheless be necessary in the course of repair or assembly work:

- ▶ Restore earthing connections to their original condition after completion of the work.



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

Decommissioning/draining the heating

If the system/heat pump is decommissioned or drained after already being filled, it must be ensured that the condenser and any heat exchangers have been drained completely for the event of freezing temperatures. Residual water in heat exchangers and condensers can result in damage to the components.

- ▶ Completely drain the system and the condenser, and open vent valves.
- ▶ Blow them clear with compressed air, if required.

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 retention
- Use of deionised heating water (VE water) or water corresponding to the VDI 2035 norm
- Regular servicing and maintenance

If a system is not planned, designed, started up and operated according to the given 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 the system with deionised heating water (VE water) or with water corresponding to the VDI 2035 norm only (low-salt operation of the system).



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 and that the drinking water is of drinking water quality.

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

- Use of pure water in a flat-plate collector or a bore-hole heat exchanger (vertical collector) is not permitted
- For operation of the heat source with water or water-antifreeze mixture, ensure that the water used fulfils the quality specifications of the heating water side.

→ “7 Flushing, filling and venting“, from page 19

Using groundwater

- If using groundwater install an intermediate exchanger.

3 Description

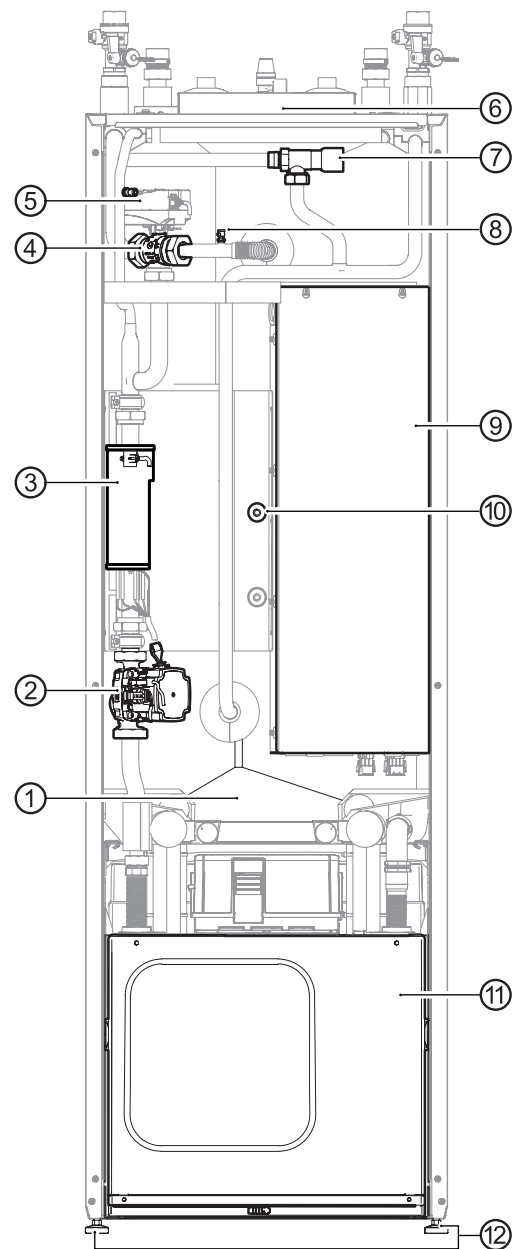
3.1 Layout



NOTE

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

Housing with unit components





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



NOTE

The figure shows a unit variant without cooling.

Rating plate

Rating plates are attached to the following places on the unit:

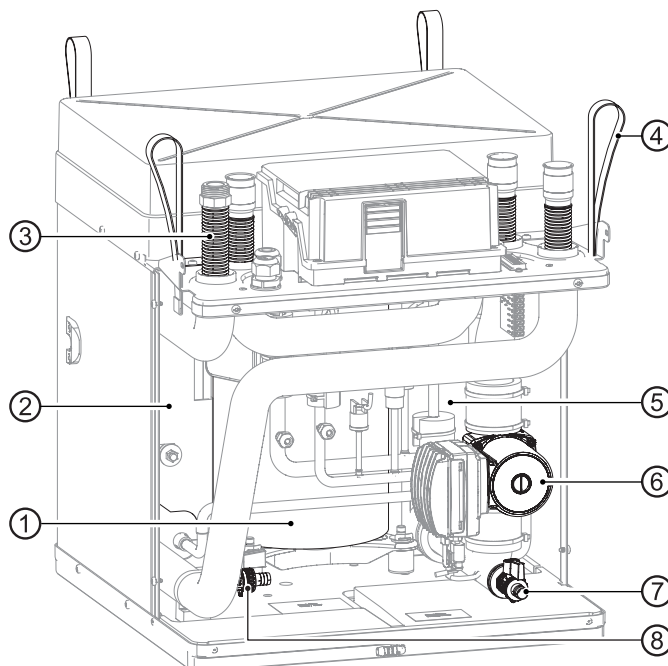
- at the top of the heating station
- left-hand side, on the module box

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

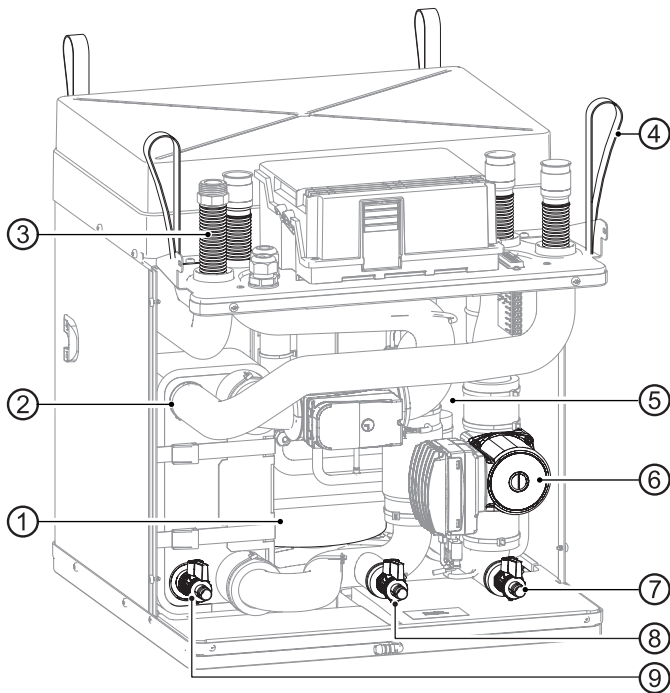


NOTE

The hose connectors are not part of the scope of delivery with all KFE ball valves.



Module box – variant with cooling



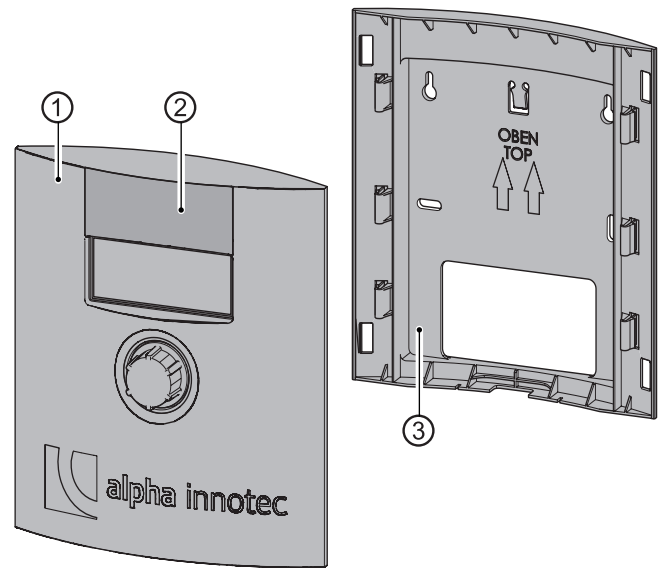
- 1 Compressor
- 2 Condenser
- 3 Vibration isolator (4x)
- 4 Lifting lug (4x)
- 5 Evaporator
- 6 Heat source circulation pump
- 7 Heat source filling and drain tap
- 8 Heat source filling and drain tap
- 9 Heating filling and drain tap



NOTE

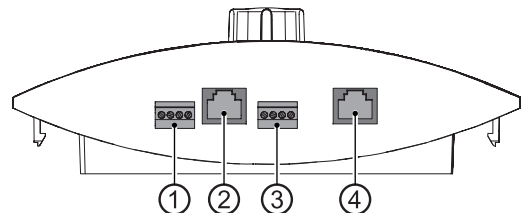
The hose connectors are not part of the scope of delivery with all KFE ball valves.

Control unit



- 1 Control panel
- 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 the control panel



- 1 Connection room control unit RBE RS 485 (accessory)
- 2 RJ45 connection cable to the network link
- 3 Connection LIN bus to the regulator board
- 4 RJ45 connection not assigned

3.2 Accessories

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

- Additional masking plate for the front cover panel, if the control is mounted on the wall
- Room thermostat for switching the cooling function (if included)
- Dew point monitor for protecting a system with cooling function at low flow temperatures
- Expansion board



- “Cooling package” for retrofitting type H units with a cooling function
- Heating circuit safety package
- Heat source circuit safety package

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
- Automatic switching between heating and cooling mode

Network connection on the control

The control 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 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

IMPORTANT

Damage to the housing and the unit components due to heavy objects.

- ▶ Do not place any objects on the unit which are heavier than 30 kg.

5.1 Scope of supply



NOTE

On delivery the accessories are enclosed in two packages on the housing.

- ▶ 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 the control, wall bracket and masking plate
- 6-mm anchors with screws (2x each) for wall-mounting the control unit
- Safety valve, outdoor sensor
- for units up to 12 kW capacity: Compression fittings (2x)
- for unit variant K, 14 kW capacity and higher: Insulation material for venting valve on the cold exchanger
- for unit variant K, 14 kW capacity and higher: Handle for cooling drain tap
- Replacement material after dismantling the module box:
 - Insulation hoses (2x)
 - Cable ties (4x)
 - O-rings (6x)
- Ball valves with filling and drain device

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



NOTE

The module box can be removed for transport (→ “Dismantle the module box”, page 12).

Notes on safe transport

The heating station and the module box are heavy (→ “Technical data / Scope of supply”, from page 28). There is a risk of injuries or damage to property if the housing with the unit components 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.

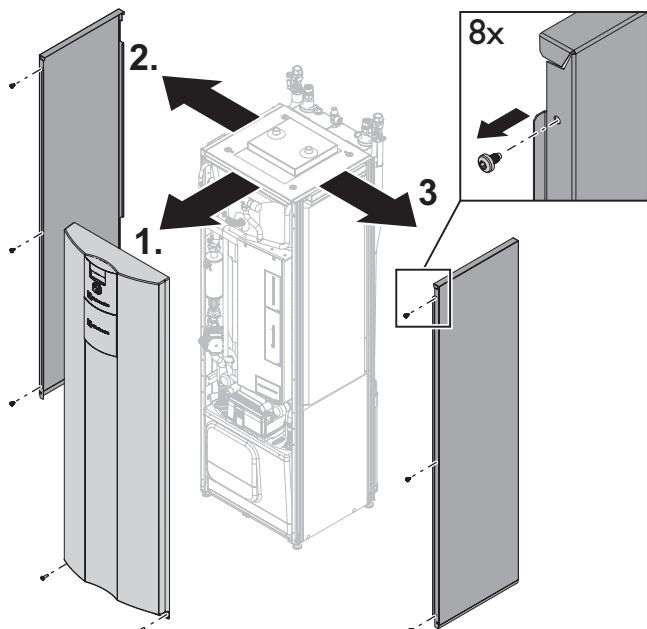
1. Remove plastic films. Ensure that you do not damage the unit.
2. Dispose of the mounting bracket, transport and packaging material in an environmentally friendly way according to local regulations.
3. Remove the film from the plastic element of the front panel in the place of installation.

Dismantle housing panels for transport with handcart or carrying the unit

✓ Unit is unpacked (→ “Unpacking”, page 11).

To avoid damage to the housing panels:

1. Undo 2 screws at the bottom of the front panel.
Lift up the front panel and put it down in safe place.
2. Undo 3 screws at the right panel.
Lift up the side panel and put it down in safe place.
3. Undo 3 screws at the left panel.
Lift up the side panel and put it down in safe place.



Transport with a handcart

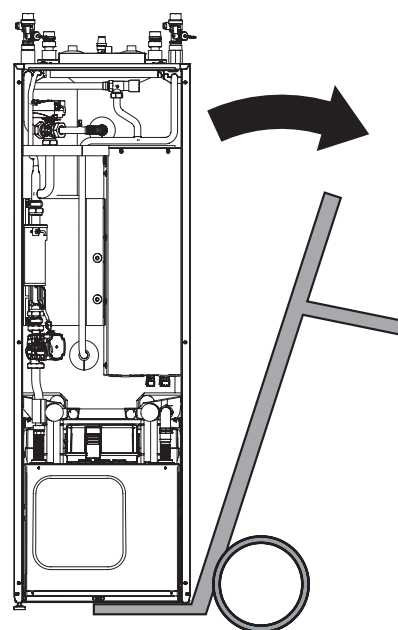


NOTE

- If transporting with a handcart the module box must be pushed in.
- The following 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.

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



Transport unit on the handcart.

Carrying the unit

✓ Housing panels are dismantled.

1. Dismantle module box (→ “Dismantle the module box”, page 12) and carry it by the support lugs to the place of installation.
2. Carry the housing with the unit components separately to the place of installation.



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 as per EN 378-1 relevant in Germany.

Refrigerant	Limit [kg/m³]
R 134a	0.25
R 404A	0.52
R 407C	0.31
R 410A	0.44
R 448A	0.39

→ “Technical data / Scope of supply”, from page 28

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



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”, from page 37).
- ✓ 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 mm.

6 Installation and connection

6.1 Dismantle the module box

IMPORTANT

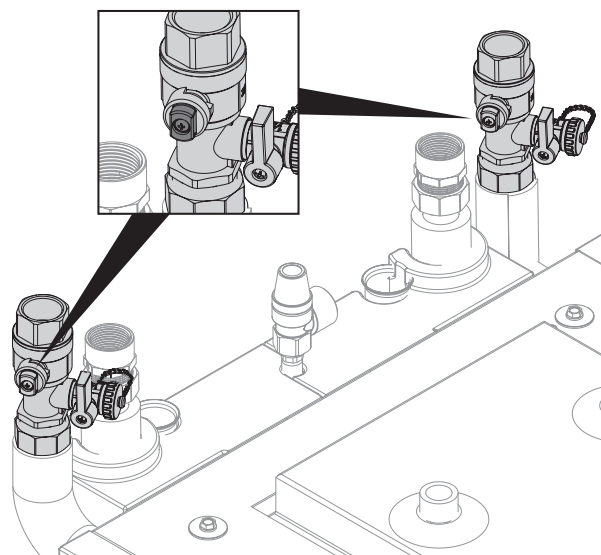
If the module box is tilted by more than 45°, compressor oil runs into the cooling circuit.

- 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”, page 19).
 2. Close shut-off valves to the heating circuit.



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

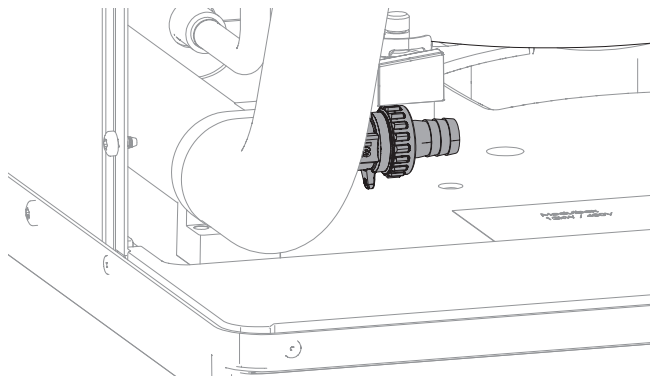


NOTE

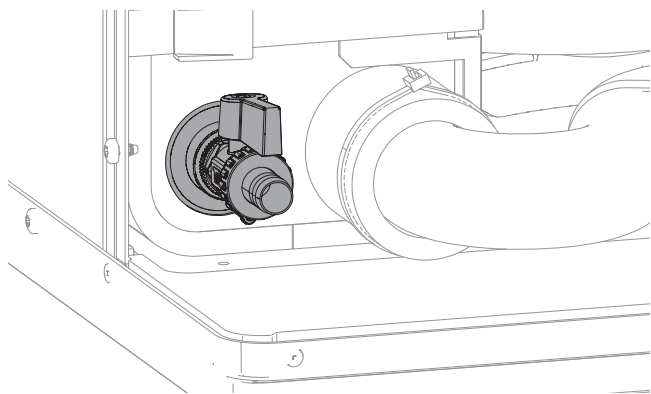
The hose connectors are not part of the scope of delivery with all KFE ball valves.



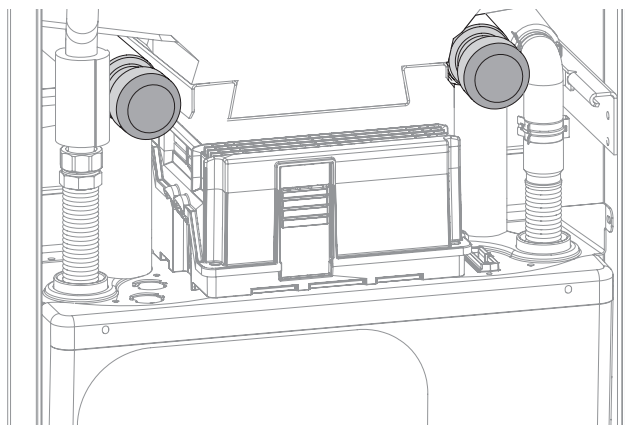
► Unit **without** cooling:



► Unit **with** cooling:

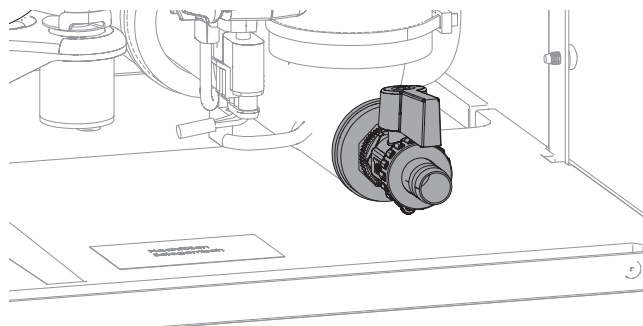


4. Use a spanner to close the shut-off valves of the heat source (behind the covers).

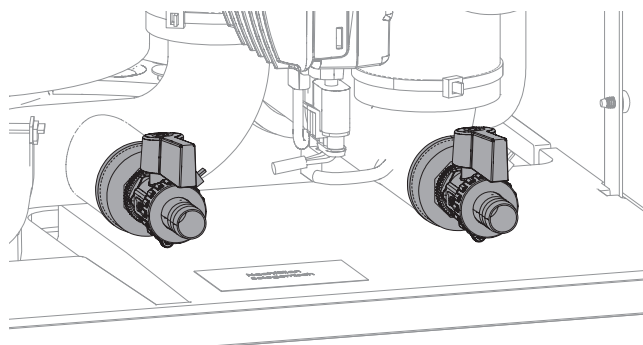


5. Drain the unit via the filling and drain tap of the heat source.

► Unit **without** cooling:

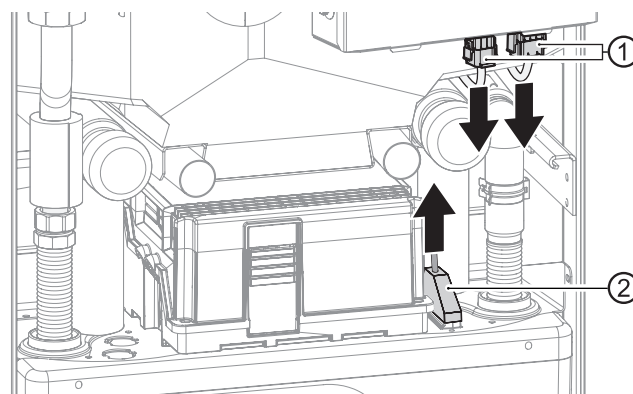


► Unit **with** cooling:



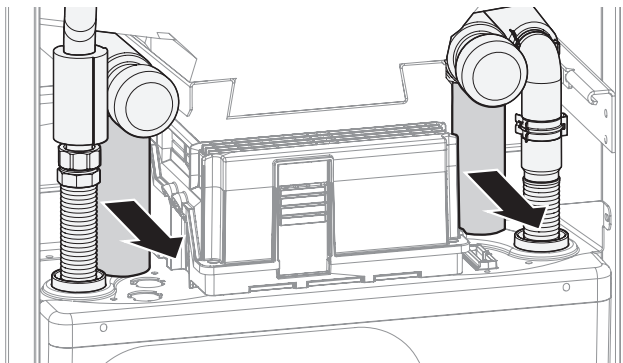
6. Disconnect the electrical connections:

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

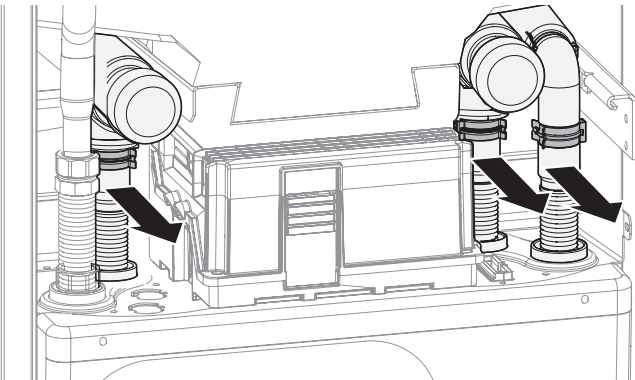




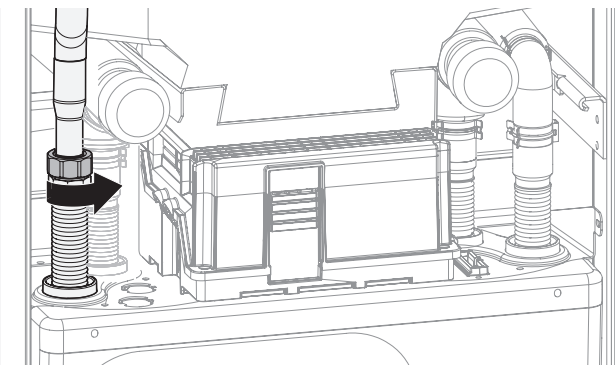
7. Remove the insulation on the hydraulic connections.



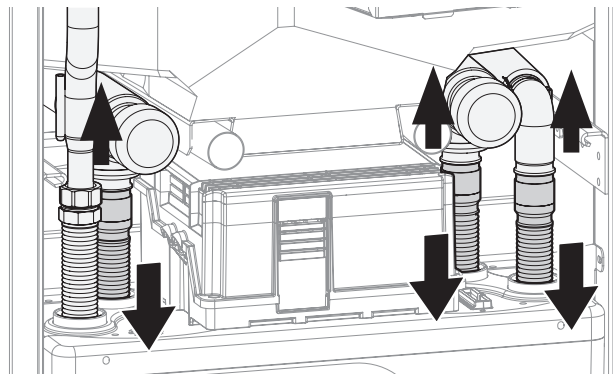
8. Remove 3 clips on the hydraulic connections.



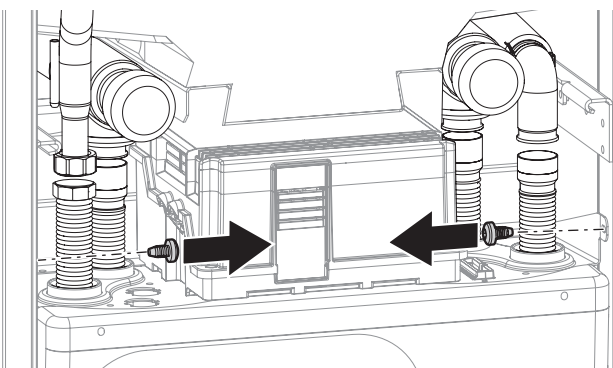
9. Use spanner size SW 37 to unscrew the heating flow.



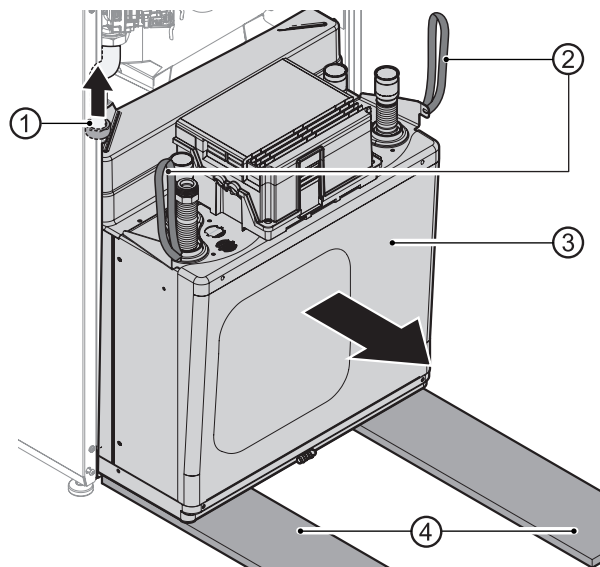
10. Disconnect the hydraulic connections; to do this, push the pipes apart as far as necessary.



11. Remove the 2 side retaining screws.



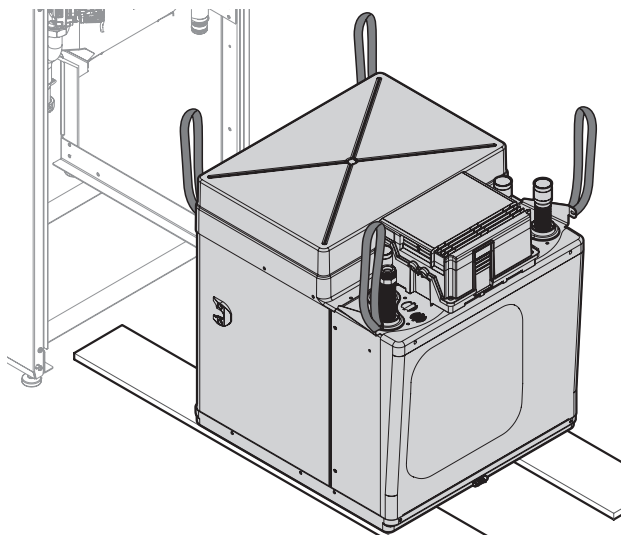
12. To protect the floor and move the module box (③) more easily: place boards (④) under it, e.g. from the packaging material.



13. Lift and hold nut (①) on the heating flow.



14. Slowly and carefully pull out the module box by the carrying lugs (Ⓢ). Ensure that none of the pipes are damaged
15. Pull out the module box completely and place it on the boards.



6.2 Install the module box

1. Place the module box carefully in the bottom of the heating station and slowly and carefully push it in.
 - Lift and hold nut on the heating flow
 - Lift up pipes so that they do not get damaged
2. Attach the two side retaining screws.
3. Connect the 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 cables:
 - 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



NOTE

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

If the heat source will be connected at the side, the cables can be cut to a residual length of at least 250 mm from the edge of the device (→ “Dimensional drawings”, page 34).

IMPORTANT

Damage to the copper pipes due to unacceptable loading!

- ▶ Secure all connections against twisting.
- ✓ 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”, from page 28).
- ✓ 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

IMPORTANT

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

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 $\frac{3}{4}$ 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 $\frac{1}{8}$ to $\frac{1}{4}$ 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 at the connections of the heat source and 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”, from page 28) are not exceeded. Install pressure reducer if necessary.

6.4 Connect the electrical cables

IMPORTANT

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

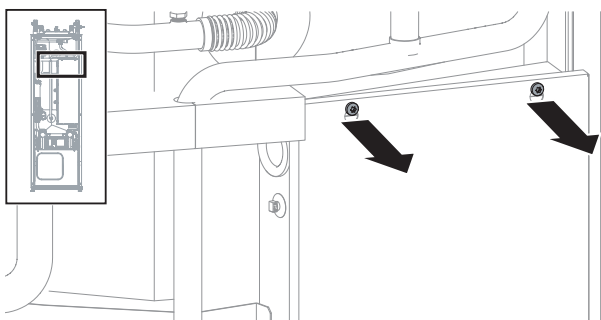
Ensure that the unit is supplied with electricity at all times. After working inside the unit and attaching the unit panelling, switch the power supply back on immediately.

- The specifications of the local energy 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 (per IEC 60947-2)
- Note the level of the tripping current (→ “Technical data / Scope of supply”, from page 28)
- Comply with the electromagnetic compatibility regulations (EMC regulations)
- Lay unshielded power supply cables and shielded cables (bus cable) sufficiently far apart (> 100 mm)
- Maximum line length: 30 m.
The LIN-bus cable must be a shielded cable of at least 4 x 0.5 mm²

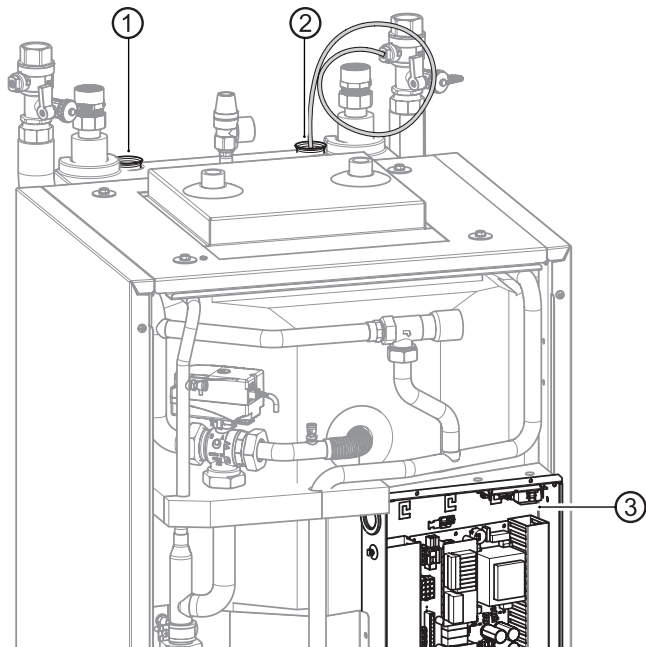


Pull in the cables and conductors and make the connections

1. Strip the sheathing of all cables to the external loads 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



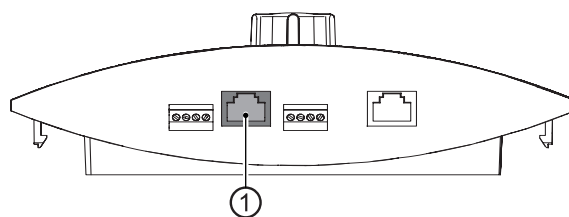
NOTE

The figure shows a unit variant without cooling.

4. Route cables from underneath through the cable openings in the control box (③)
5. Connect cables to the respective terminals (→ "Terminal diagram", page 44).

Operate the controller via a PC /network

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 socket of the control unit (①).



NOTE

The network cable can be retrofitted at any time.



6.5 Installing the control panel

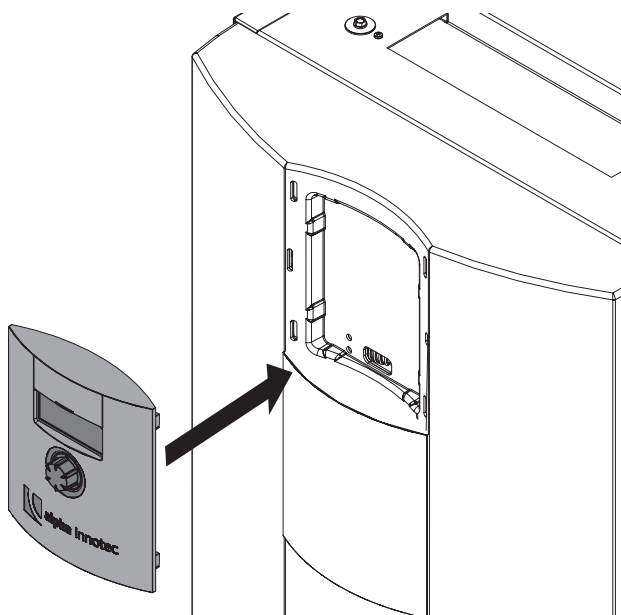


NOTE

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

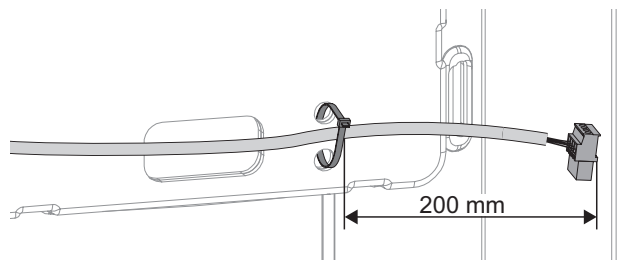
Insert the control in the unit and connect

1. If required: Remove masking plate from the slot. To do this, dismantle the front panel (→ “Dismantle housing panels for transport with handcart or carrying the unit”, page 11), press the 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 (→ separate pack) to fix the LIN bus cable to a web of the masking plate around 20 cm in front of the connector (strain relief).



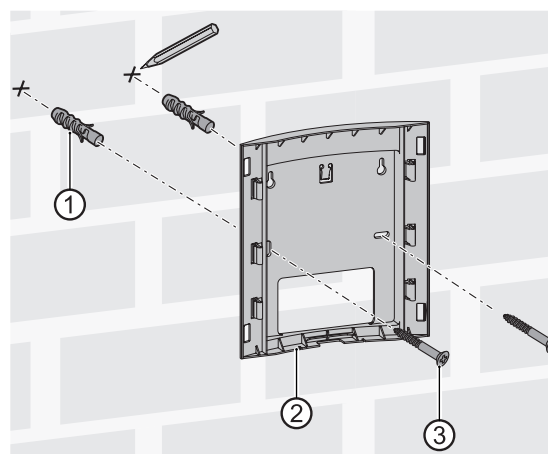
6. Push the cable through the opening in the front panel of the unit from below and into the control.
7. Press the lugs of the control into the openings in the front panel of the unit.
8. Insert cover in the free slot.

Mount the control on the wall and connect

IMPORTANT

Mount the wall bracket with control panel **only vertically** on a wall!

1. Release the rear bracket from the control.
2. If visually unattractive: Cut off the lugs on the rear of the control (are only needed to insert in the front panel).
3. Mark 2 drillholes (→ Dimensional drawing “Wall-mounted bracket”, page 36).
4. If cables are fed in from underneath: Break out the web at the bottom in the middle of the wall bracket. Use side-cutters if necessary.
5. Fix the wall-mounted bracket (②) with 2 wall plugs (①) and 2 screws (③).



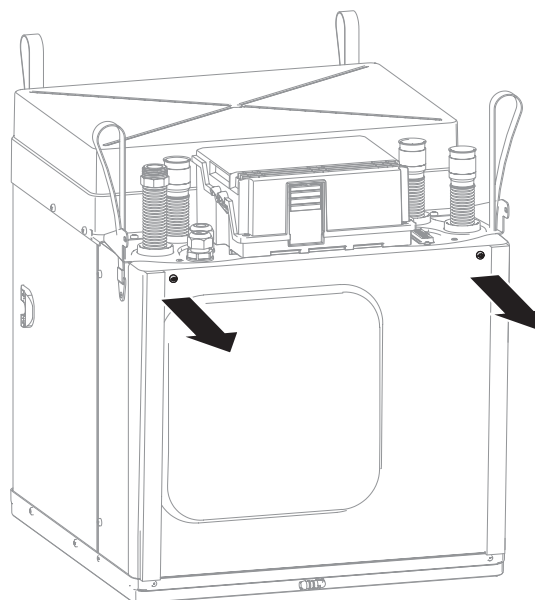


6. Feed in the cables from the wall (e.g. in-wall box) or from below.
7. Route the LIN bus cable from the top right-hand side at the rear from the heat pump and plug into the control at the bottom.
8. Push the control onto the wall-mounted bracket.
9. Push on cover. If applicable, position second cover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

Frost protection must be provided in the heat source. Below are the approved antifreeze agents based on:

- Monopropylene glycol
- Monoethylene glycol
- Ethanol
- Methanol

Antifreeze agents based on salt are not permitted.

- When selecting the antifreeze agent, it must be ensured that it is compatible with the following materials:
 - Brass (CW602N and CW614N)
 - Stainless steel (AISI304, AISI316 and AISI316L)
 - Copper (Cu-DHP CW024A - EN1652)
 - Cast iron (EN-GJL-150)
 - Composite (PES 30% GF)
 - EPDM (ethylene propylene diene rubber)
 - PTFE (Polytetrafluoroethylene)
 - FKM (fluororubber)



If an antifreeze agent is not compatible with one of these materials, it may not be used.

Antifreeze agents from our product range are safe with regard to our units and the accessories purchased from us and guarantee compatibility with the listed materials.

- ▶ Pressure losses must be observed when selecting the antifreeze agent.
- ▶ The antifreeze agent that is selected and used must comply with the specifications and requirements of the local authorities and water management authorities.



WARNING

Methanol and ethanol can give off flammable and explosive gases. Therefore, the safety provisions for the anti-freeze must be noted and followed!

The hazard markings of all anti-freezes used must be noted and the relevant safety provisions must be followed.

- ▶ Make sure that the mixing ratio of water and antifreeze agent meets the required minimum antifreeze temperature in the heat source.
- “Technical data / Scope of supply“, from page 28
- ▶ For operation of the heat source with water or water-antifreeze mixture, ensure that the water used fulfils the quality specifications of the heating water side.
- “Heating water quality“, page 21
- ✓ Drain pipe of the safety valve is connected.
 - ✓ Room is ventilated.
1. Flush the heat source system thoroughly.
 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.
 4. Fill the heat source with the water-antifreeze mixture.
Fill until the system is air-free.
 5. Fill the unit via the ball valves in the module box.

7.3 Vent the circulation pump of the heat source

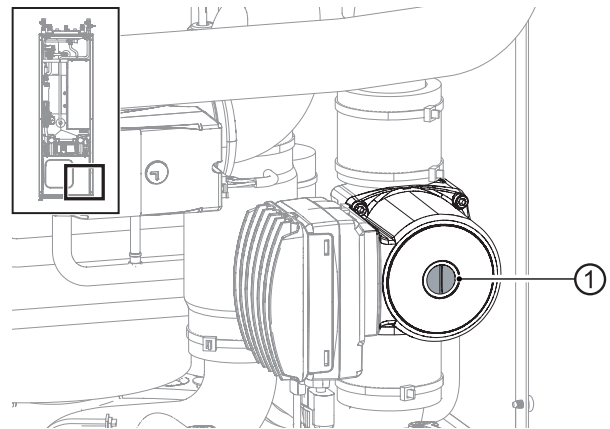
- ✓ The front panel of the module box is unscrewed.



NOTE

The figure 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 deflating screw (①) in the middle of the circulation pump of the heat source.



NOTE

The hose connectors are not part of the scope of delivery with all KFE ball valves.

3. Wait until liquid is discharged uniformly.
4. Screw the deflating screw (①) of the circulation pump of the heat source back on tightly.
5. Screw the front panel of the module box.
6. Dispose of collected liquid according to the local regulations.
7. Set system pressure to 1 bar.



7.4 Flush and fill the heating and domestic hot water charging circuit

Heating water quality



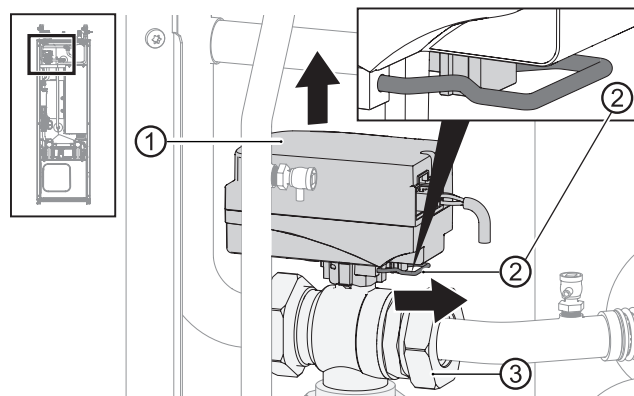
NOTE

- For detailed information refer, among other things, to the VDI Guidelines 2035 “Vermeidung von Schäden in Warmwasserheizanlagen”
 - Required pH value: 8.2 ... 10;
for aluminium materials:
pH value: 8.2 ... 8.5
- Fill the system with deionised heating water (VE water) or with water corresponding to VDI 2035 only (low-salt operation of the system).

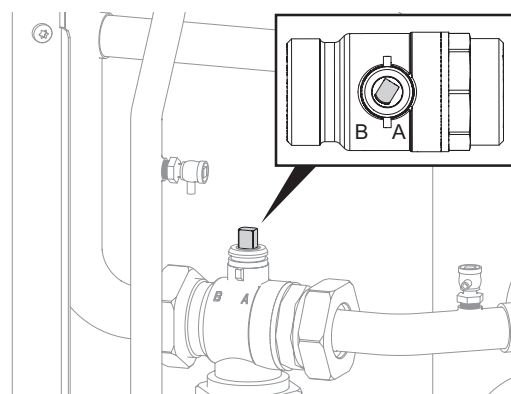
Advantages of low-salt operation:

- Low corrosion-promoting properties
 - No formation of mineral scale
 - Ideal for closed heating circuits
 - Ideal pH value due to self-alkalisation after filling the system
- If the required water quality is not achieved, consult a company specialising in the treatment of heating water.
- Keep a system log for hot water heating systems in which relevant planning data is entered (VDI 2035).

- ✓ Drain pipe of the safety valve is connected.
 - ✓ The front panel of the module box is unscrewed.
- 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).



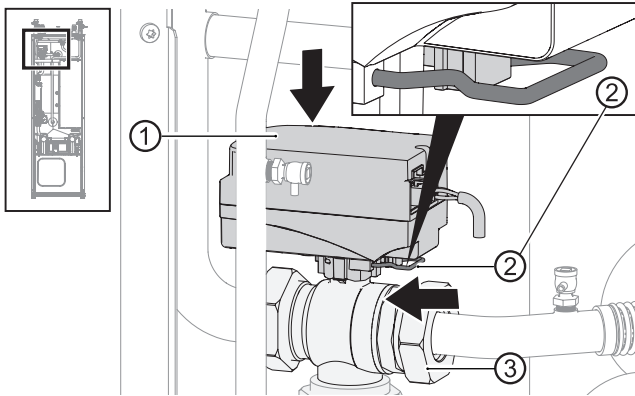
3. Turn the spindle of the 3-way changeover valve so that the rounded side of the spindle points in the direction of marking A of the connections of the 3-way changeover valve.



4. Flush the domestic hot water charging 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 change-over 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 change-over 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!).
10. Screw the front panel of the module box.

7.5 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.

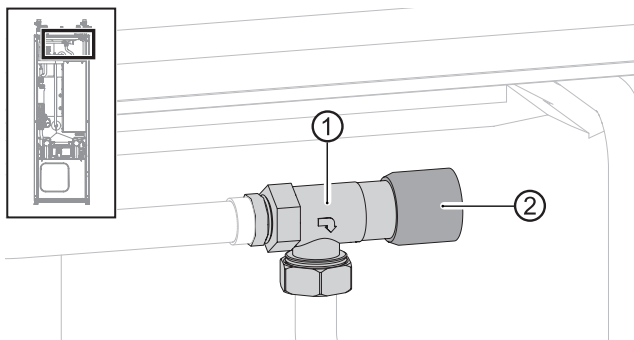


9 Set the overflow valve



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 rough checklist has been completed successfully.
1. Ensure that the following points are fulfilled completely:
 - Clockwise rotating load infeed field is present at the compressor
 - Heating station is installed and mounted according to this operating manual
 - The electrical installation has been carried out properly in accordance with this operating manual and local regulations
 - The power supply for the heat pump is equipped with an all-pole circuit-breaker with at least 3 mm contact spacing (IEC 60947-2)
 - The level of the tripping current is compliant
 - Heating circuit is flushed and vented
 - Frost protection of the heat source meets the requirements
→ “Technical data / Scope of supply“, from page 28
 - 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 leak-tight
 2. Fill out carefully and sign the notice of completion for heat pump systems.
 3. In Germany: Send notice of completion for heat pump systems and rough checklist to the manufacturer's factory customer service department.
In other countries: Send notice of completion for heat pump systems and rough checklist to the manufacturer's local partner.



4. Arrange for the heat pump system to be commissioned by after-sales service authorised by the manufacturer; this is a chargeable service.

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) 517/2014 – among other things, require leak checks beforehand and/or for a logbook to be kept for certain heat pumps.

The hermetic tightness 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

- 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 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.

11.4 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.



12 Faults



NOTE

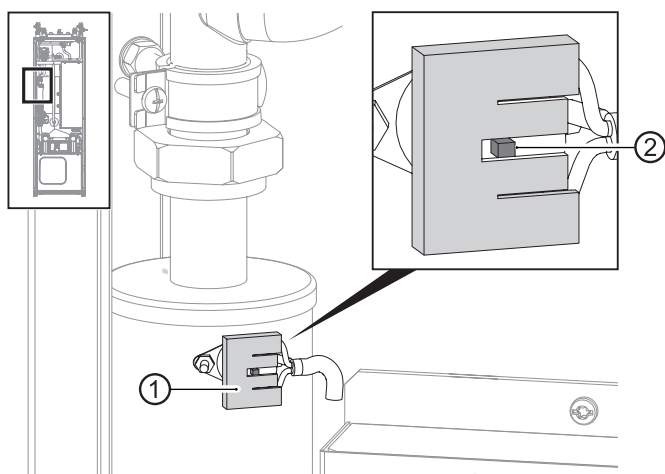
If the safety temperature limiter on the electric heating element has tripped, no fault is displayed.

- 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", 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 (②) of the safety temperature limiter (①) has jumped out (by approx. 2 mm).



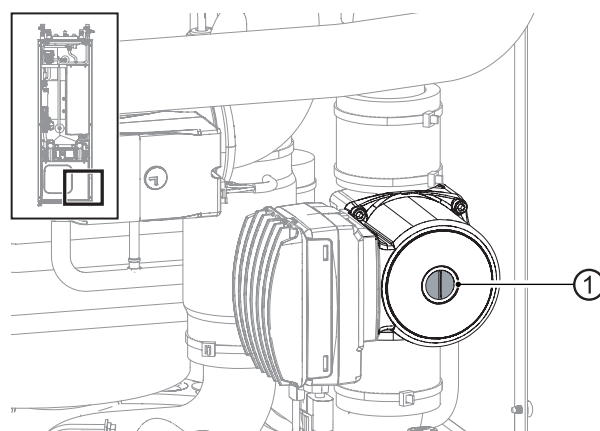
- Press the reset button (②) back in again.
- If the safety temperature limiter trips again, contact the local partner of the manufacturer or the factory's customer service.

12.2 Manually unblock the circulating pumps

Circulating pumps can block due to sediments or longer standstill periods. This blockage can be removed manually.

Release the blockage of the heat source circulation pump

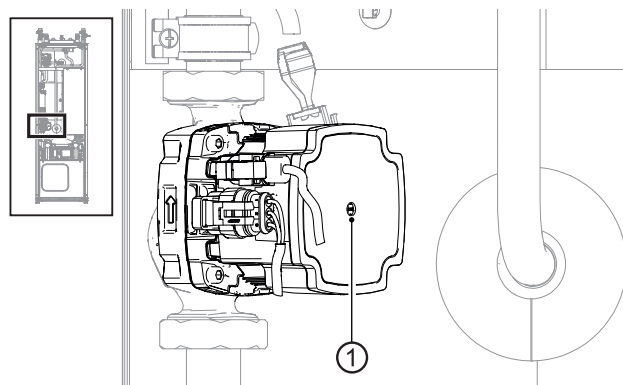
1. Unscrew the front panel of the module box.
2. Undo deflating screw (①) in the middle of the circulation pump of the heat source.



3. Insert a screwdriver into the opening and release the blocked shaft in the direction of rotation of the circulating pump.
4. Reinsert and tighten the deflating screw (①).
5. Screw the front panel of the module box.

Release the blockage of the heating circulating pump

- Insert the screwdriver into the hole (①), press the plunger in the circulating pump against the shaft and release the blocked shaft in the direction of rotation of the circulating pump.





13 Dismantling and Disposal

13.1 Dismantling

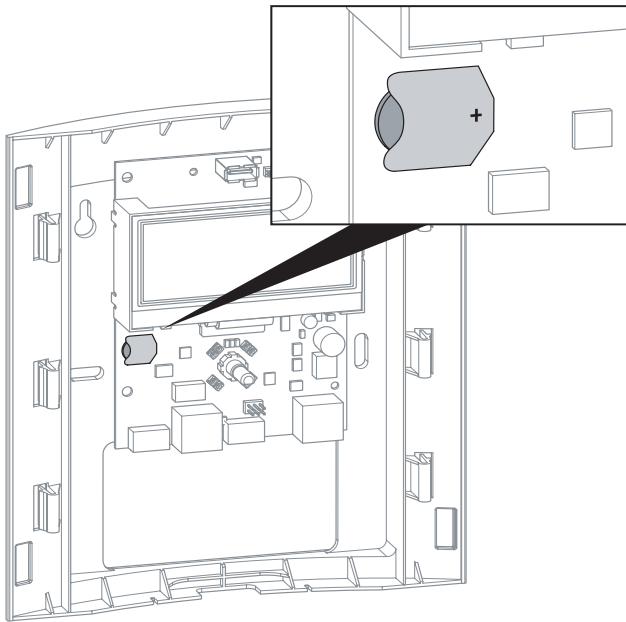
- ✓ Unit is safely disconnected from the power supply and protected against being switched back on again.
- ▶ Collect all media safely.
- ▶ Separate components by their materials.

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.

13.3 Removal of the buffer battery

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



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





Technical data / Scope of supply

Performance data: Heating output / COP			WZS 42(H)(K)3M	WZS 82(H)(K)3M
Heating capacity COP	at B0/W35 operating point to EN14511	kW COP	4,70 4,70	7,70 4,90
	at B0/W45 operating point to EN14511	kW COP	4,42 3,42	6,84 3,61
	at B0/W55 operating point to EN14511	kW COP	4,16 2,58	6,49 2,91
	at B7/W35 flows analogous to B0/W35	kW COP	5,83 5,70	9,20 5,96
Cooling capacity at max. flow rate (B15/W25), units with passive cooling: Identifier K		kW	4,3	7
Limits of use				
Heating circuit return min. Heating circuit flow max.		°C	20 60	20 60
Heat source return		min. max. °C	-5 – 25	-5 – 25
additional operating points		...	B0W65	B0W65
Sound				
Sound pressure level at 1m distance from edge of unit		dB(A)	31	31
Sound power level to EN12102		dB(A)	43	43
Heat source				
Flow rate: minimum nominal analogous to B0/W35 maximum		l/h	700 1050 1575	1200 1750 2600
Max. free heat pump pressure Δp (with cooling Δp_K ***) Flow rate		bar (bar) l/h	0,74 (0,72) 1050	0,76 (0,7) 1750
Approved anti-freeze		Monoethylene glycol Propylene glycol Methanol Ethanol	• • • •	• • • •
Anti-freeze concentration: Minimum frost protection down to		°C	-13	-13
max. allowable operating pressure		bar	3	3
Heating circuit				
Flow rate: minimum nominal analogous to B0/W35 maximum		l/h	450 850 1300	650 1300 1600
Max. free heat pump pressure Δp (with cooling Δp_K) Volume flow		bar (bar) l/h	0,72 (0,70) 850	0,55 (0,52) 1300
Pressure losses, heat pump Δp Volume flow		bar l/h	— (—) —	— (—) —
max. allowable operating pressure		bar	3	3
General unit data				
Total weight (with cooling)		kg (kg)	250 (258)	270 (278)
Box weight (with cooling) Tower weight (with cooling)		kg (kg) kg (kg)	90 (98) 160 (160)	110 (118) 160 (160)
Refrigerant type Refrigerant capacity		... kg	R410A 1,05	R410A 1,72
Domestic hot water tank				
Net volume		l	178	178
Impressed current anode		integrated: • yes — no	•	•
Domestic hot water temperature, heating pump mode Electric heating element		up to °C up to °C	58 65	56 65
Mixed water quantity according to ErP: 2009/125/EC (at 40°C, draw-off of 10 l/min)		l	280	280
Standing loss according to ErP: 2009/125/EC (at 65°C)		W	54	54
Maximum pressure		bar	10	10
Electrics				
Voltage code all-pole heat pump fusing *)**)		... A	3~PE/400V/50Hz C10	3~PE/400V/50Hz C10
Voltage code Control voltage fusing **)		... A	1~N/PE/230V/50Hz B10	1~N/PE/230V/50Hz B10
Voltage code Electric heating element fusing **)		... A	3~N/PE/400V/50Hz B16	3~N/PE/400V/50Hz B16
Voltage code all-pole fusing for connection via a joint supply cable*)**)		... A	— —	— —
WP*): effect. Power input at B0/W35 to EN14511 Current input $\cos\phi$		kW A ...	1,00 2,44 0,59	1,57 3,02 0,75
WP*): Max. machine current Max. power input within the limits of use		A kW	4,8 2,3	6,01 3,10
Starting current: direct with soft starter		A A	22,0 —	30,0 —
Degree of protection		IP	20	20
Electric heating element output		kW	9 6 3	9 6 3
Circulation pump power consumption, heating circuit heat source		min. — max. W W	2 – 60 5 – 87	2 – 60 3 – 140
Other unit information				
Safety valve, heating circuit Heat source		included in scope of supply: • yes — no	— —	— —
Expansion valve, heating circuit Heat source		included in scope of supply: • yes — no	— —	— —
Overflow valve Changeover valve, heating -Domestic hot water		integrated: • yes — no	• •	• •
Vibration isolators, heating circuit Heat source		integrated: • yes — no	• •	• •
*) Only compressor, **) Follow local regulations, ***) Figures for 25% mono-ethylene glycol			813460a	813462a



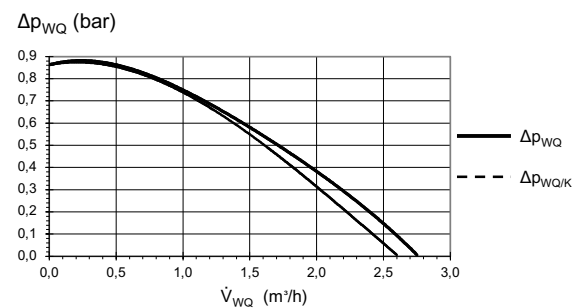
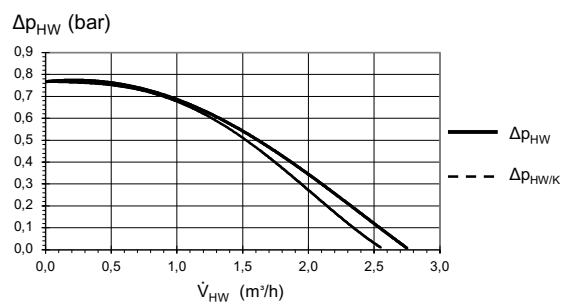
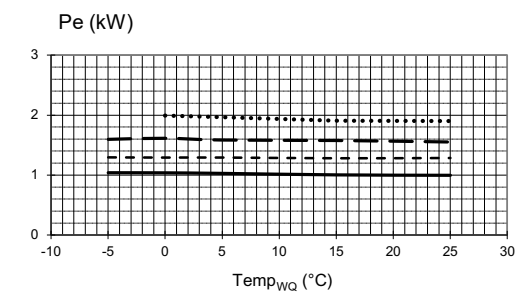
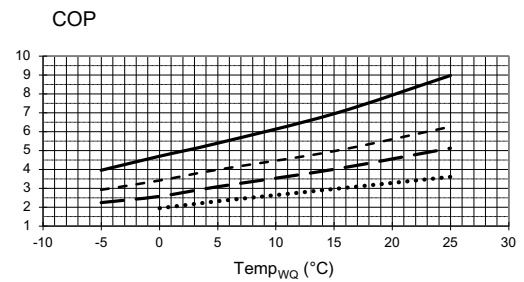
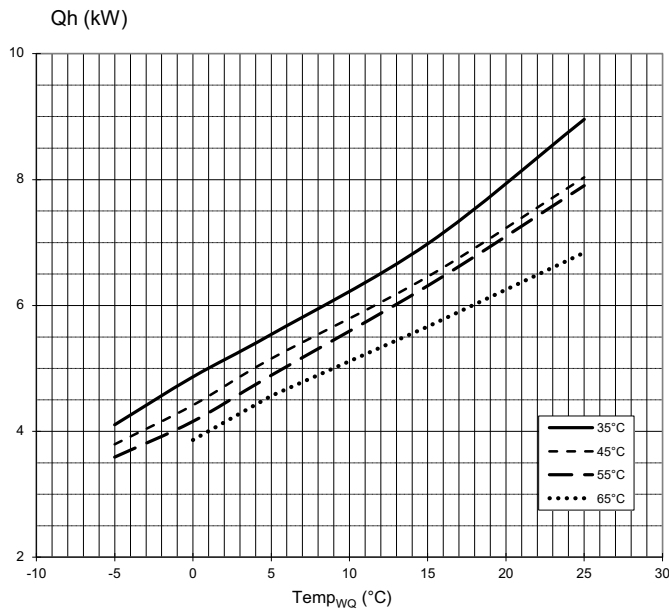
Technical data / Scope of supply

Performance data: Heating output / COP			WZS 102(H)(K)3M	WZS 122(H)(K)3M
Heating capacity COP	at B0/W35 operating point to EN14511	kW COP	9,34 5,05	12,18 5,00
	at B0/W45 operating point to EN14511	kW COP	8,84 3,80	11,24 3,76
	at B0/W55 operating point to EN14511	kW COP	8,30 2,82	10,63 2,97
	at B7/W35 flows analogous to B0/W35	kW COP	11,19 6,30	14,55 6,06
Cooling capacity at max. flow rate (B15/W25), units with passive cooling: Identifier K		kW	8,6	10,8
Limits of use				
Heating circuit return min. Heating circuit flow max.		°C	20 60	20 60
Heat source return		min. max.	°C	-5 – 25
additional operating points		...	B0W65	B0W65
Sound				
Sound pressure level at 1m distance from edge of unit		dB(A)	32	31
Sound power level to EN12102		dB(A)	44	43
Heat source				
Flow rate: minimum nominal analogous to B0/W35 maximum		l/h	1500 2200 3300	1900 2800 4200
Max. free heat pump pressure Δp (with cooling ΔpK) ***) Flow rate		bar (bar) l/h	0,93 (0,87) 2200	0,75 (0,63) 2800
Approved anti-freeze		Monoethylene glycol Propylene glycol Methanol Ethanol	• • • •	• • • •
Anti-freeze concentration: Minimum frost protection down to		°C	-13	-13
max. allowable operating pressure		bar	3	3
Heating circuit				
Flow rate: minimum nominal analogous to B0/W35 maximum		l/h	800 1600 2000	1050 2050 2600
Max. free heat pump pressure Δp (with cooling ΔpK) Volume flow		bar (bar) l/h	0,52 (0,48) 1600	0,38 (0,30) 2050
Pressure losses, heat pump Δp Volume flow		bar l/h	— (—) —	— (—) —
max. allowable operating pressure		bar	3	3
General unit data				
Total weight (with cooling)		kg (kg)	275 (283)	280 (288)
Box weight (with cooling) Tower weight (with cooling)		kg (kg) kg (kg)	115 (123) 160 (160)	120 (128) 160 (160)
Refrigerant type Refrigerant capacity		... kg	R410A 1,98	R410A 2,25
Domestic hot water tank				
Net volume		l	178	178
Impressed current anode		integrated: • yes — no	•	•
Domestic hot water temperature, heating pump mode Electric heating element		up to °C up to °C	56 65	55 65
Mixed water quantity according to ErP: 2009/125/EC (at 40°C, draw-off of 10 l/min)		l	260	260
Standing loss according to ErP: 2009/125/EC (at 65°C)		W	54	54
Maximum pressure		bar	10	10
Electrics				
Voltage code all-pole heat pump fusing *)**)		... A	3~PE/400V/50Hz C10	3~PE/400V/50Hz C10
Voltage code Control voltage fusing **)		... A	1~N/PE/230V/50Hz B10	1~N/PE/230V/50Hz B10
Voltage code Electric heating element fusing **)		... A	3~N/PE/400V/50Hz B16	3~N/PE/400V/50Hz B16
Voltage code all-pole fusing for connection via a joint supply cable*)**)		... A	— —	— —
WP*): effect. Power input at B0/W35 to EN14511 Current input cosφ		kW A ...	1,87 3,73 0,72	2,44 4,70 0,75
WP*): Max. machine current Max. power input within the limits of use		A kW	7,63 4,00	9,44 4,80
Starting current: direct with soft starter		A A	— 22,0	— 26,0
Degree of protection		IP	20	20
Electric heating element output		kW	9 6 3	9 6 3
Circulation pump power consumption, heating circuit heat source		min. — max. W W	2 – 60 2 – 180	2 – 60 2 – 180
Other unit information				
Safety valve, heating circuit Heat source		included in scope of supply: • yes — no	— —	— —
Expansion valve, heating circuit Heat source		included in scope of supply: • yes — no	— —	— —
Overflow valve Changeover valve, heating -Domestic hot water		integrated: • yes — no	• •	• •
Vibration isolators, heating circuit Heat source		integrated: • yes — no	• •	• •
*) Only compressor. **) Follow local regulations. ***) Figures for 25% mono-ethylene glycol			813463a	813464a



WZS 42(H)(K)3M

Performance curves



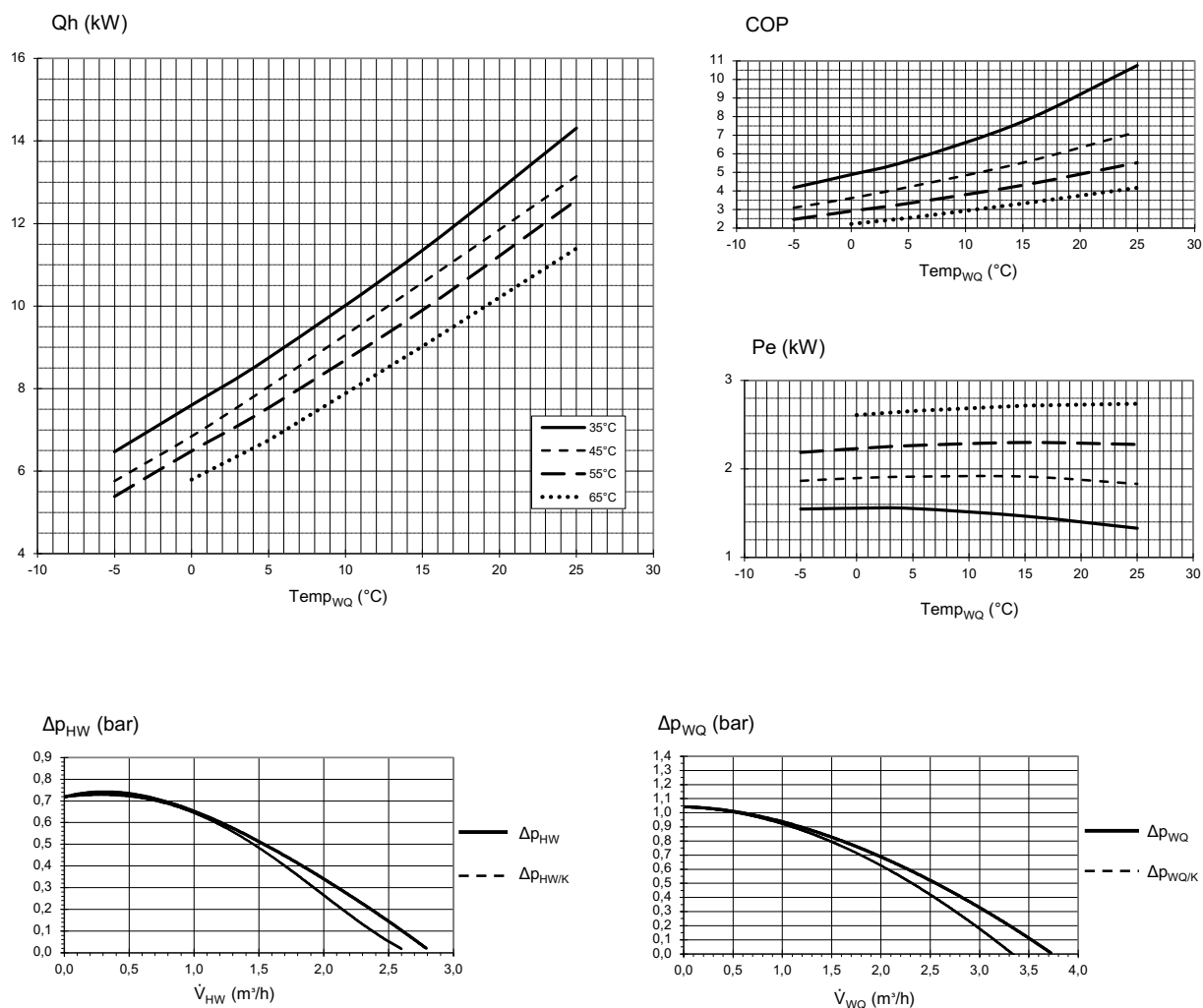
823234

Keys:	UK823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}_{WQ}	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Q _h	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp _{HW} / Δp _{HW/K}	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp _{WQ} / Δp _{WQ/K}	Heat source free pressure / Heat source with cooling free pressure



Performance curves

WZS 82(H)(K)3M



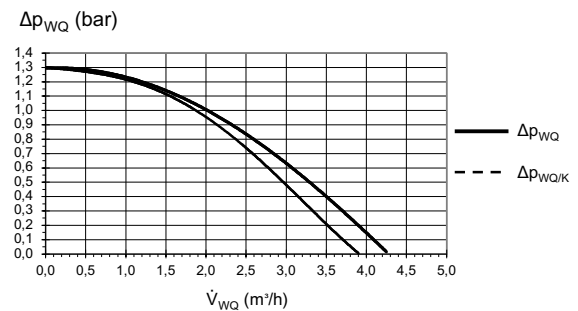
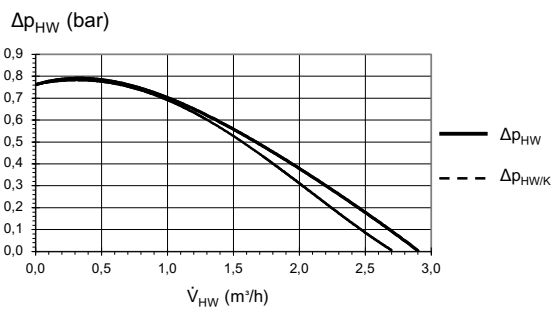
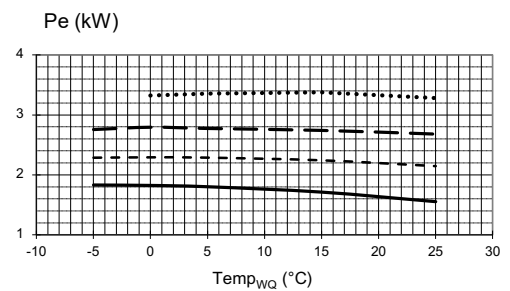
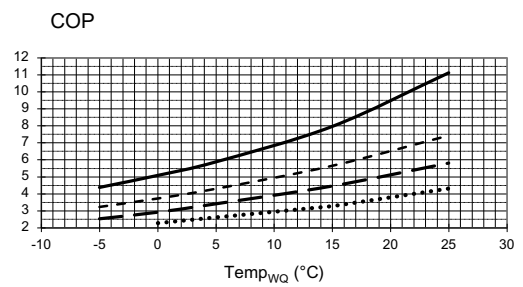
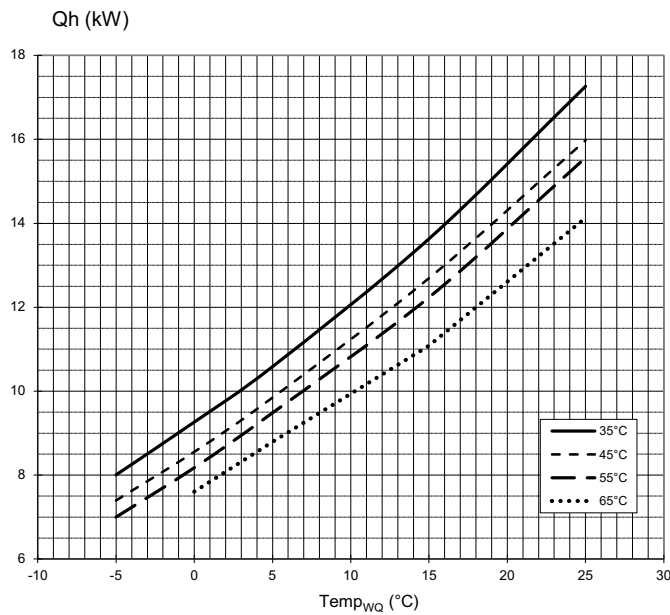
823236

Keys:	UK823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}_{WQ}	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
$\Delta p_{WQ} / \Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure



WZS 102(H)(K)3M

Performance curves



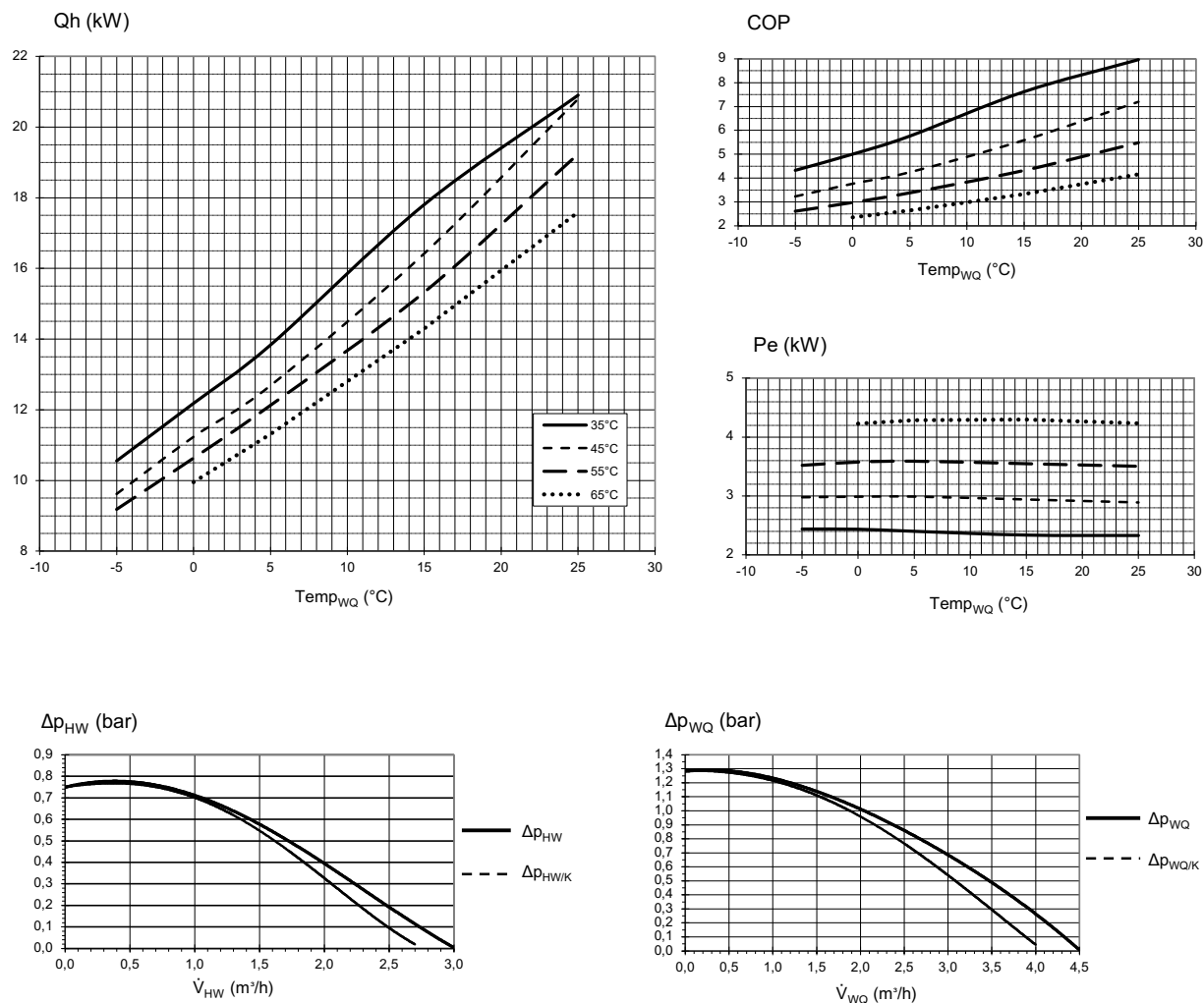
823327

Keys:	UK823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}_{WQ}	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Q _h	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp _{HW} / Δp _{HW/K}	Heating circuit free pressure / Heating circuit with cooling free pressure
Δp _{WQ} / Δp _{WQ/K}	Heat source free pressure / Heat source with cooling free pressure



Performance curves

WZS 122(H)(K)3M



823238

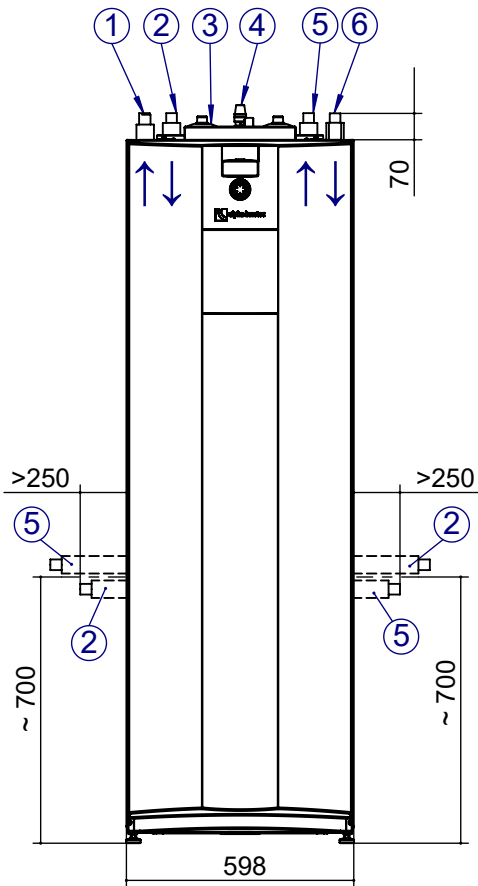
Keys:	UK823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}_{WQ}	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling free pressure
$\Delta p_{WQ} / \Delta p_{WQ/K}$	Heat source free pressure / Heat source with cooling free pressure



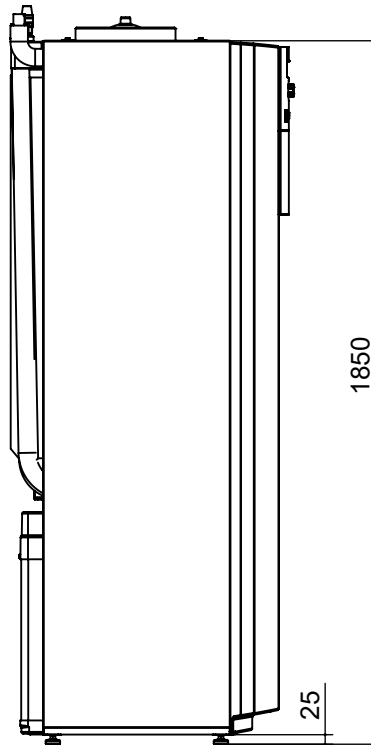
Dimensional drawings

WZS 42(H)(K)3M – WZS 122(H)(K)3M

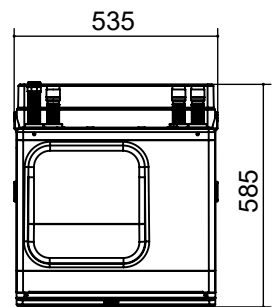
A



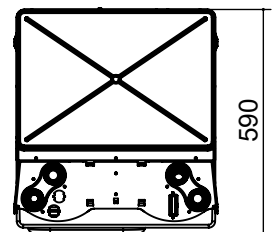
B



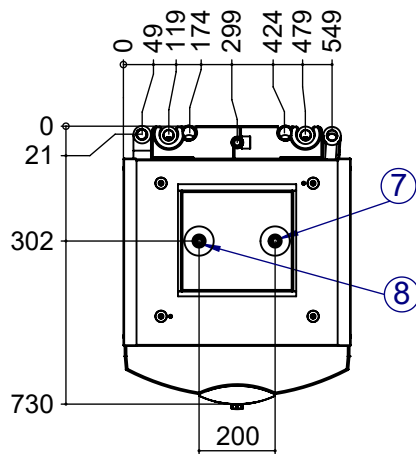
A1



C1



C



Keys: UK819447a

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

Pos.	Name	Dim.
1	Heating water outlet (flow)	Ø 28 *)
2	Heat source inlet (in heat pump) optionally at the top, on the right or left	Ø 28 *)
3	Heating water inlet (return)	Ø 33 **)
4	Heating circuit safety valve (in the separate package)	Rp ¾" internal thread
5	Heat source outlet (from heat pump) optionally at top, right or left	Ø 28 *)
6	Domestic hot water charging circuit inlet (Return)	Ø 28 *)
7	Drinkwater warm	R ¾" external thread
8	Drinkwater cold	R ¾" external thread

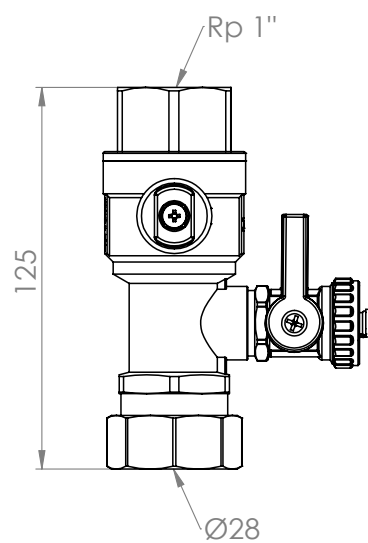
*) outside diameter **) inside diameter



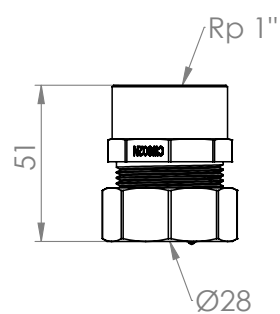
Connections

Heating circuit

Dimensional drawings



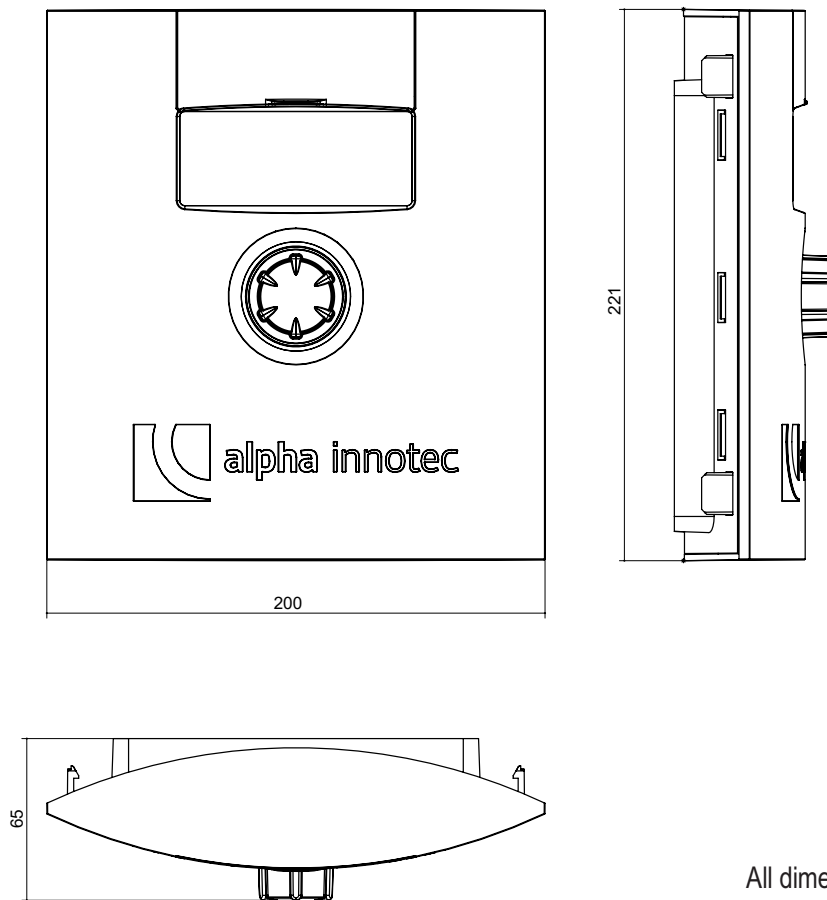
Heating source





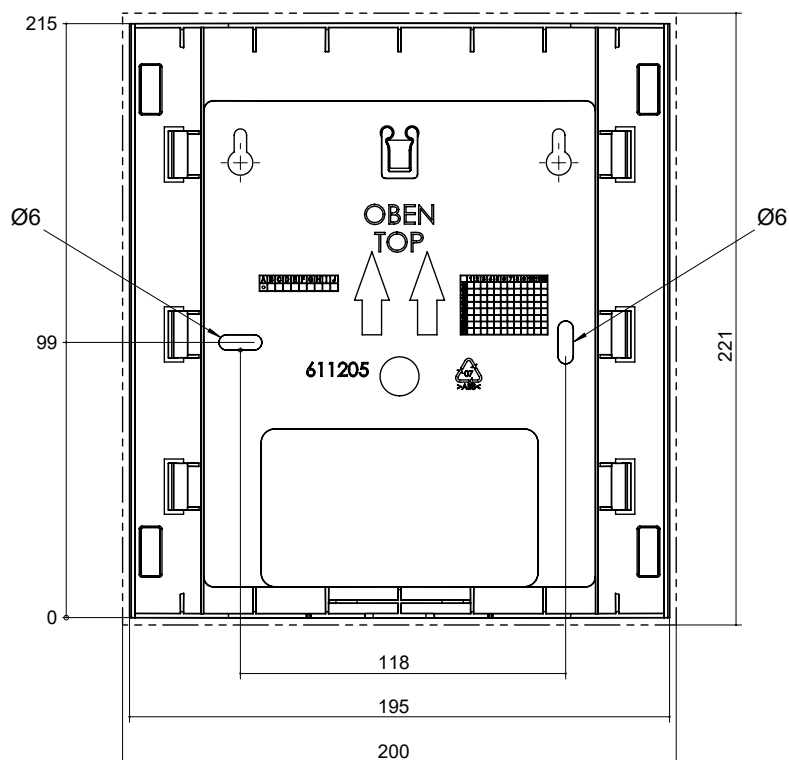
Dimensional drawings

Control unit



All dimensions in mm..

Wall-mounted bracket



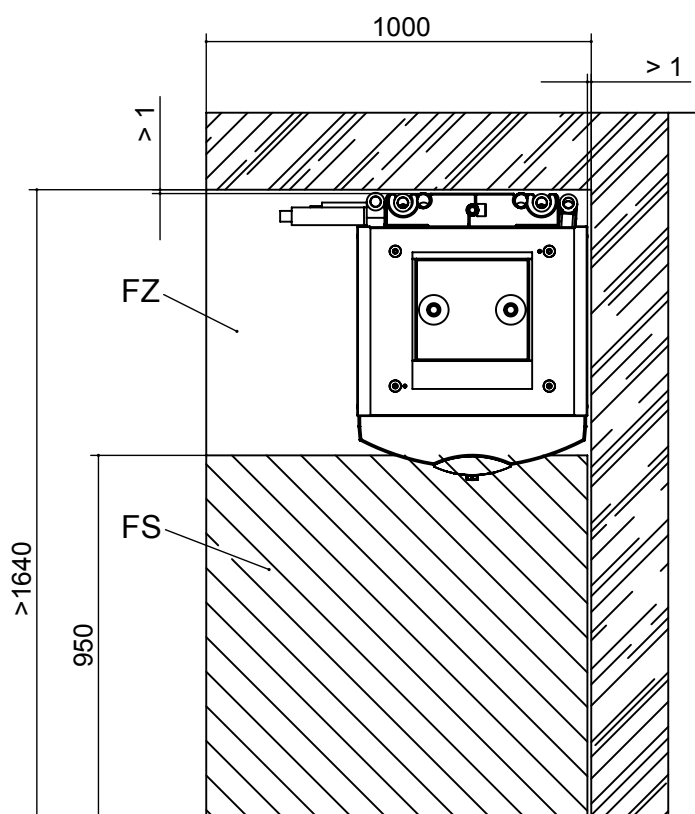
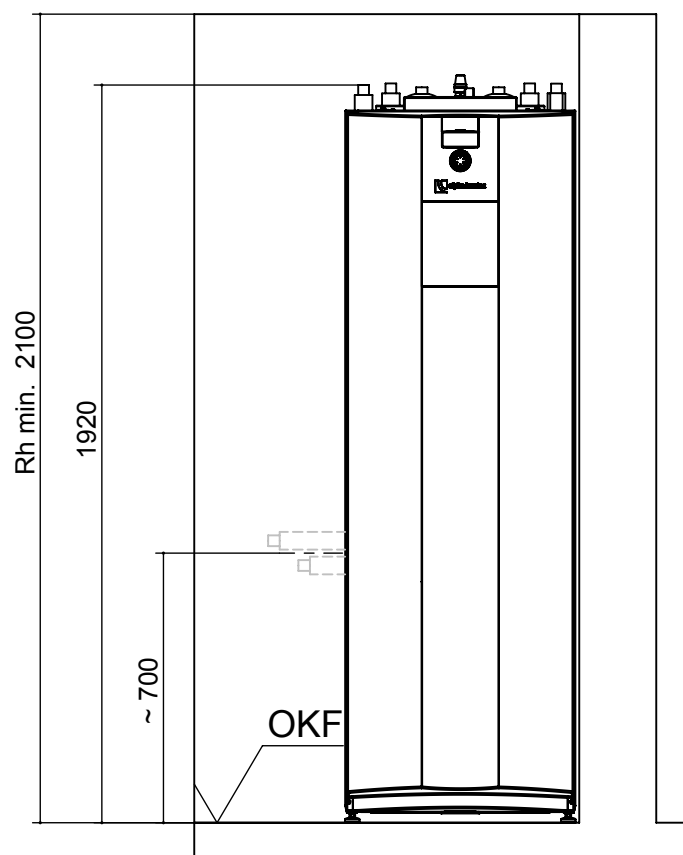
All dimensions in mm..



WZS 42(H)(K)3M – WZS 122(H)(K)3M

Installation plan 1

V1



Keys: UK819448

All dimensions in mm.

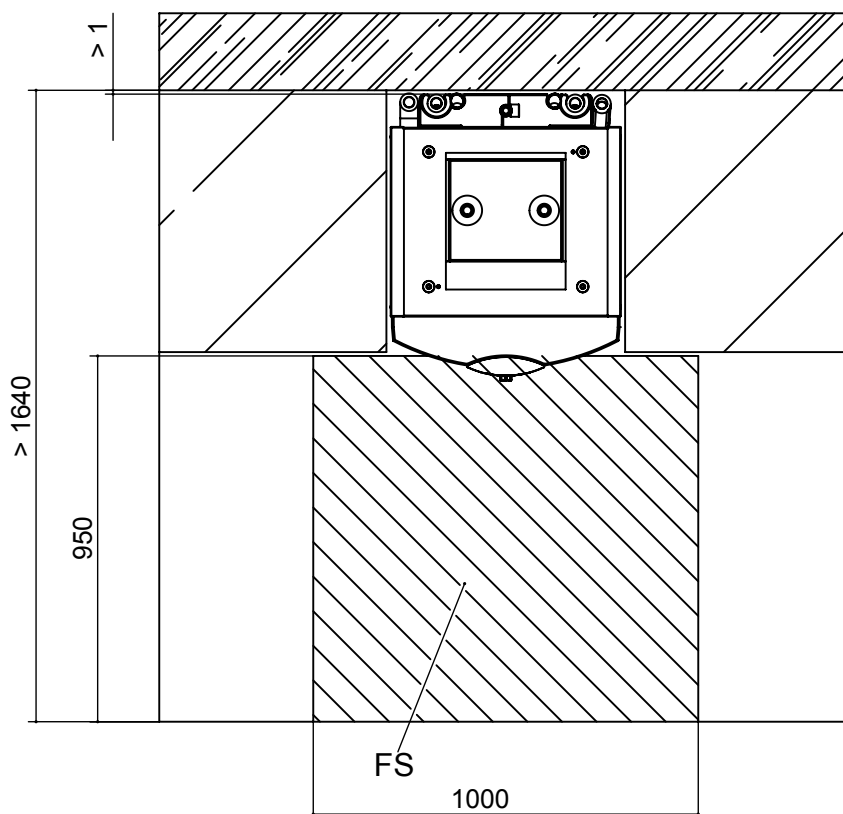
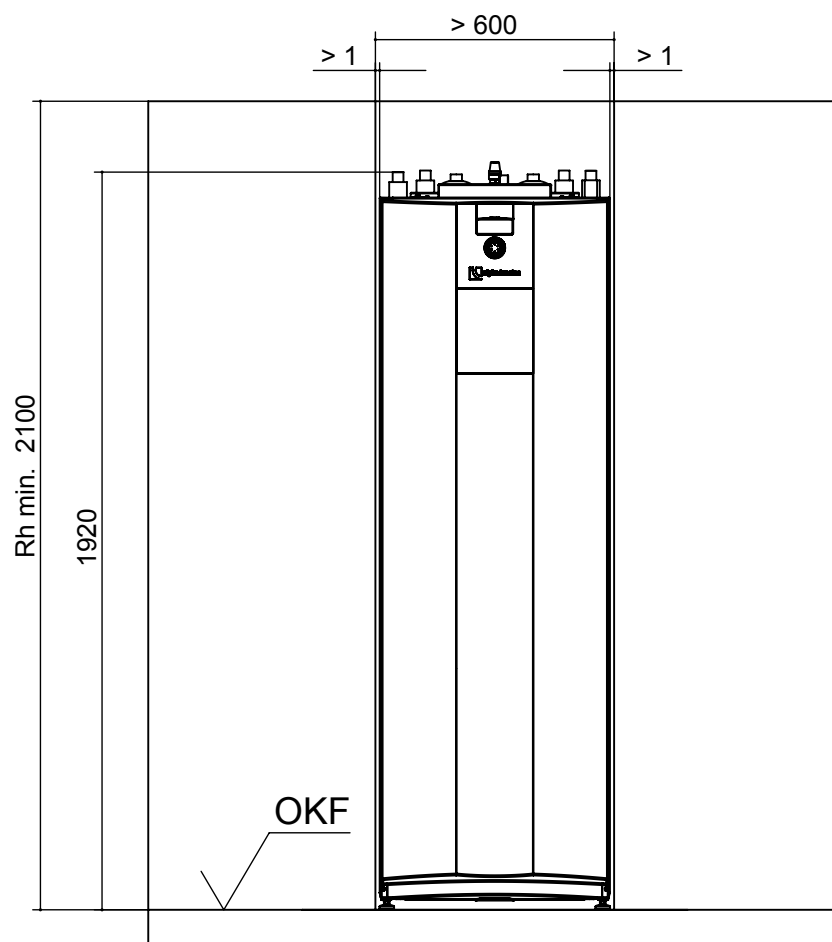
V1	Version 1
FS	Free space for service purposes
FZ	Free space for functionally necessary accessories
OKF	Finished floor level
Rh min.	minimum room height



WZS 42(H)(K)3M – WZS 122(H)(K)3M

Installation plan 3

V3



Keys: UK819448

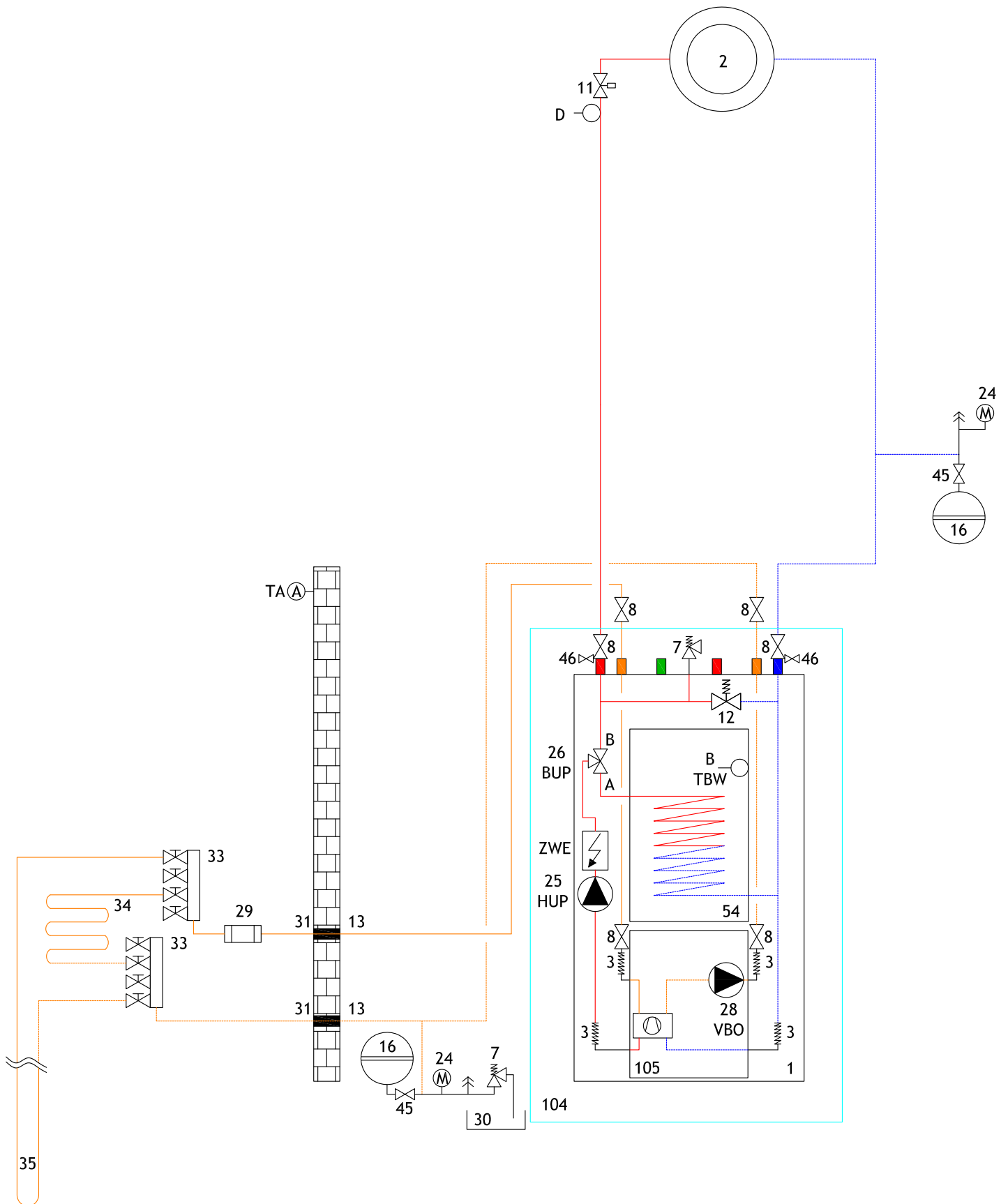
All dimensions in mm.

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



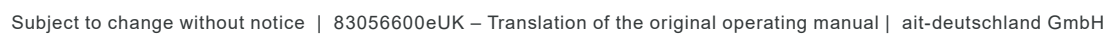
Hydraulic integration (heating)

Unit variant H





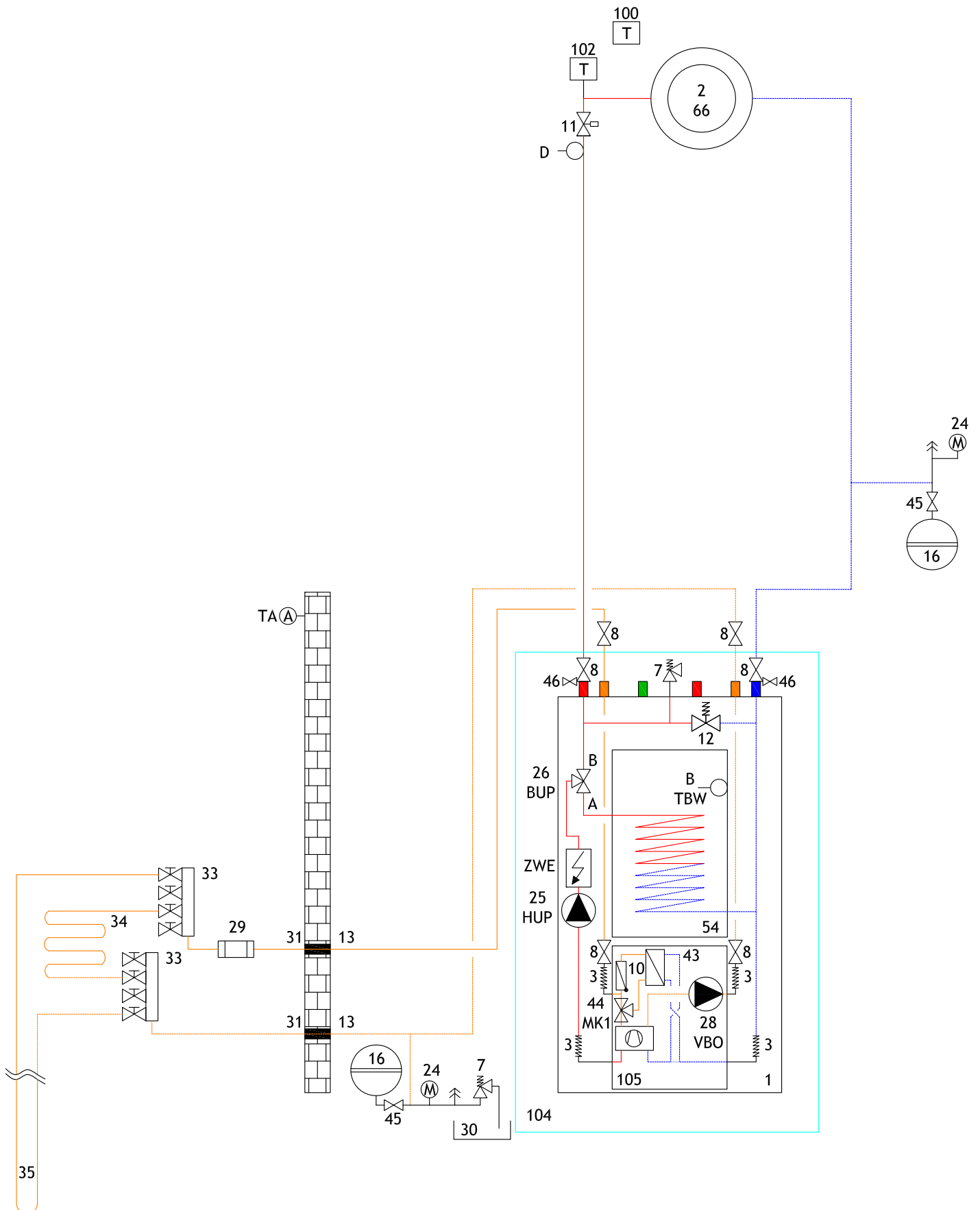
with separate buffer tank





Hydraulic integration (cooling)

Unit variant K





140304

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	Manifold
25	Heating circulation pump
26	Switching valve (heating/service water)(B = normally open)
27	Heating element
28	Brine circulation pump
29	Drift-trap 0.6 mm mesh
30	Spill-tray for brine mix
31	Wall breakthrough
32	Inlet pipe
33	Brine manifold
34	Ground collector
35	Ground sinkies
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 removable 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

TAV	External sensor
TBW/B	Domestic hot water sensor
TB1/C	Feedwater sensor mixer circuits 1
D	Floor temperature 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 / Expansion 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 separation 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

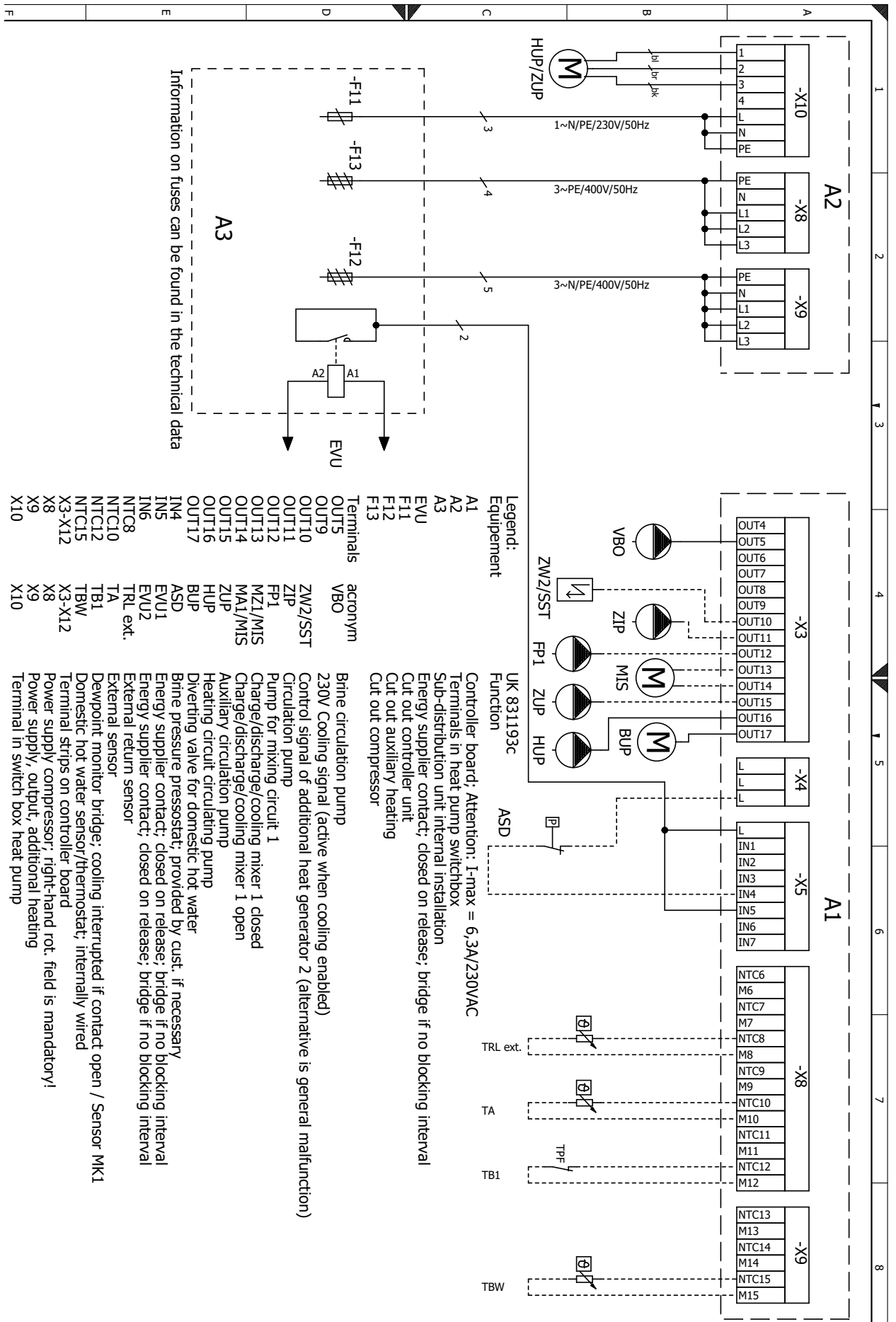
Important notice.!

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!



WZS 42(H)(K)3M – WZS 192(H)(K)3M

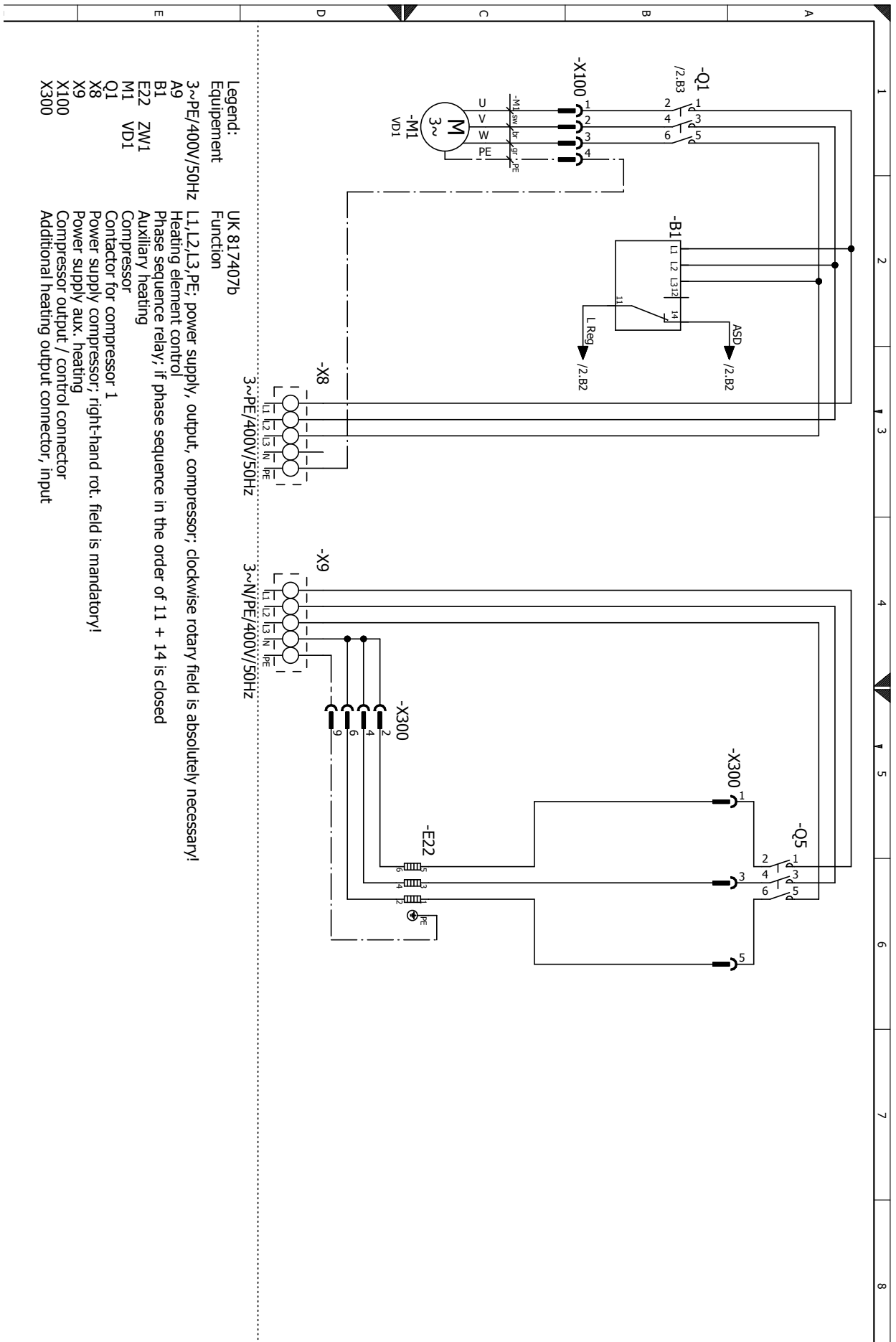
Terminal diagram





Circuit diagram 1/3

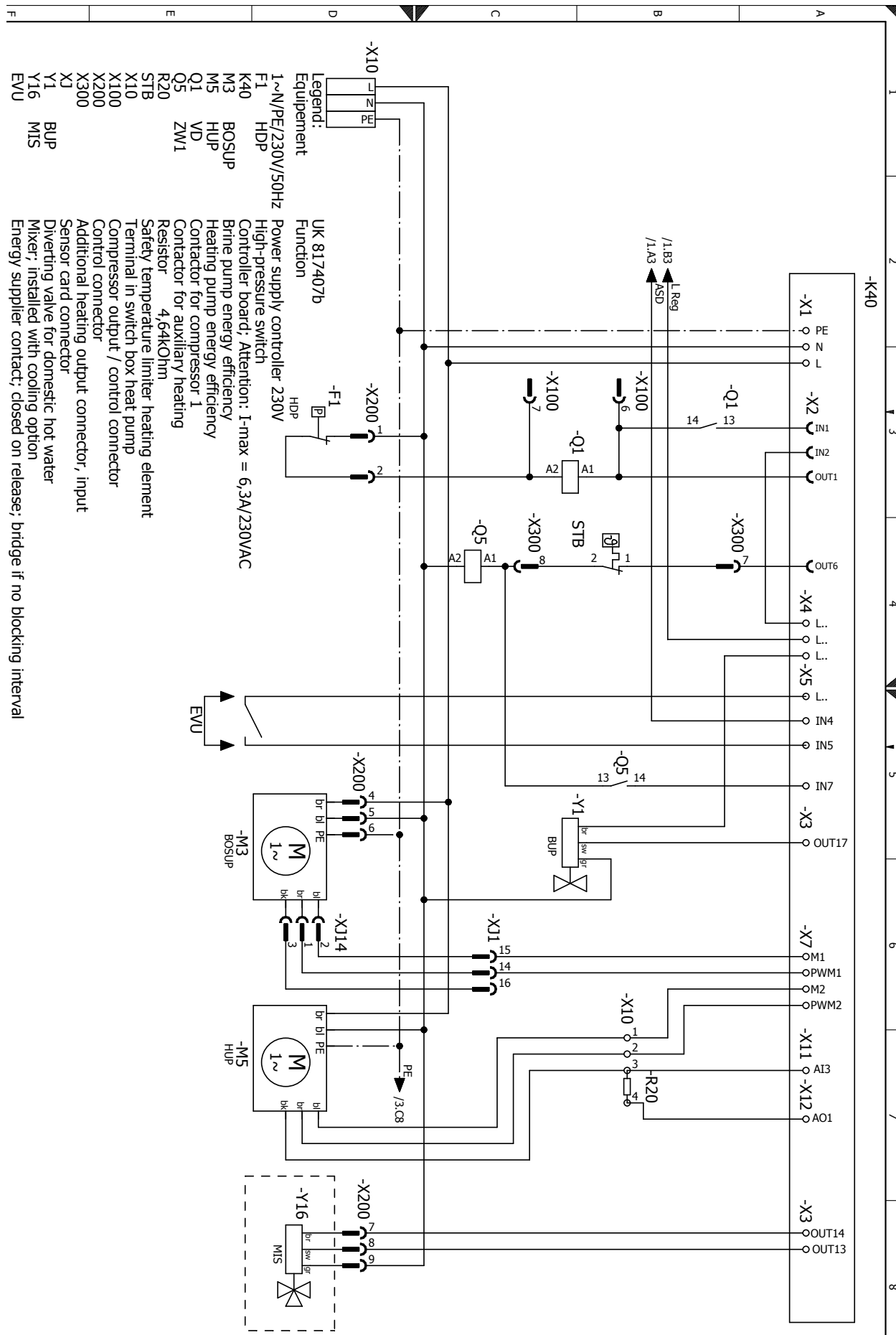
WZS 42(H)(K)3M – WZS 82(H)(K)3M





WZS 42(H)(K)3M – WZS 82(H)(K)3M

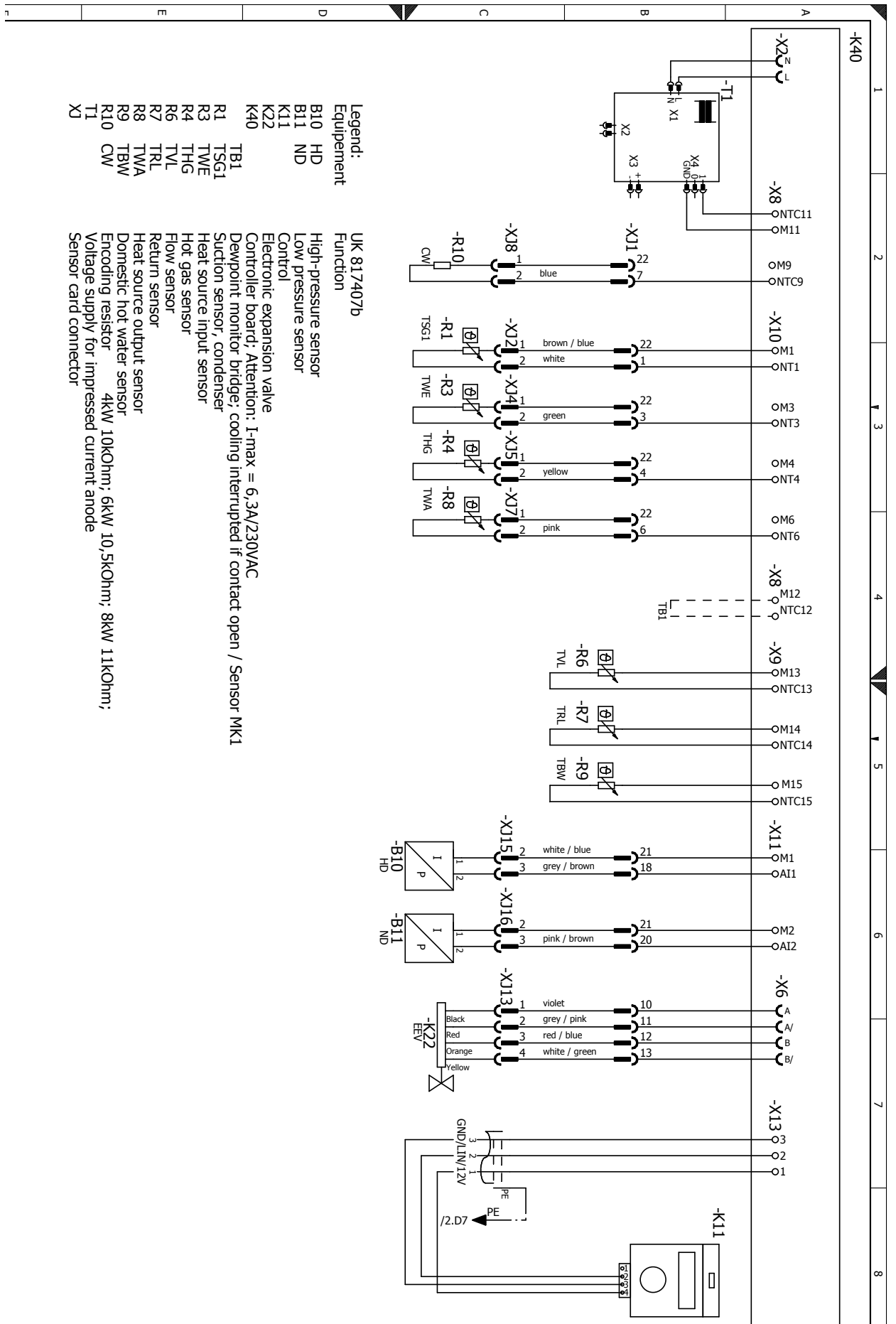
Circuit diagram 2/3





Circuit diagram 3/3

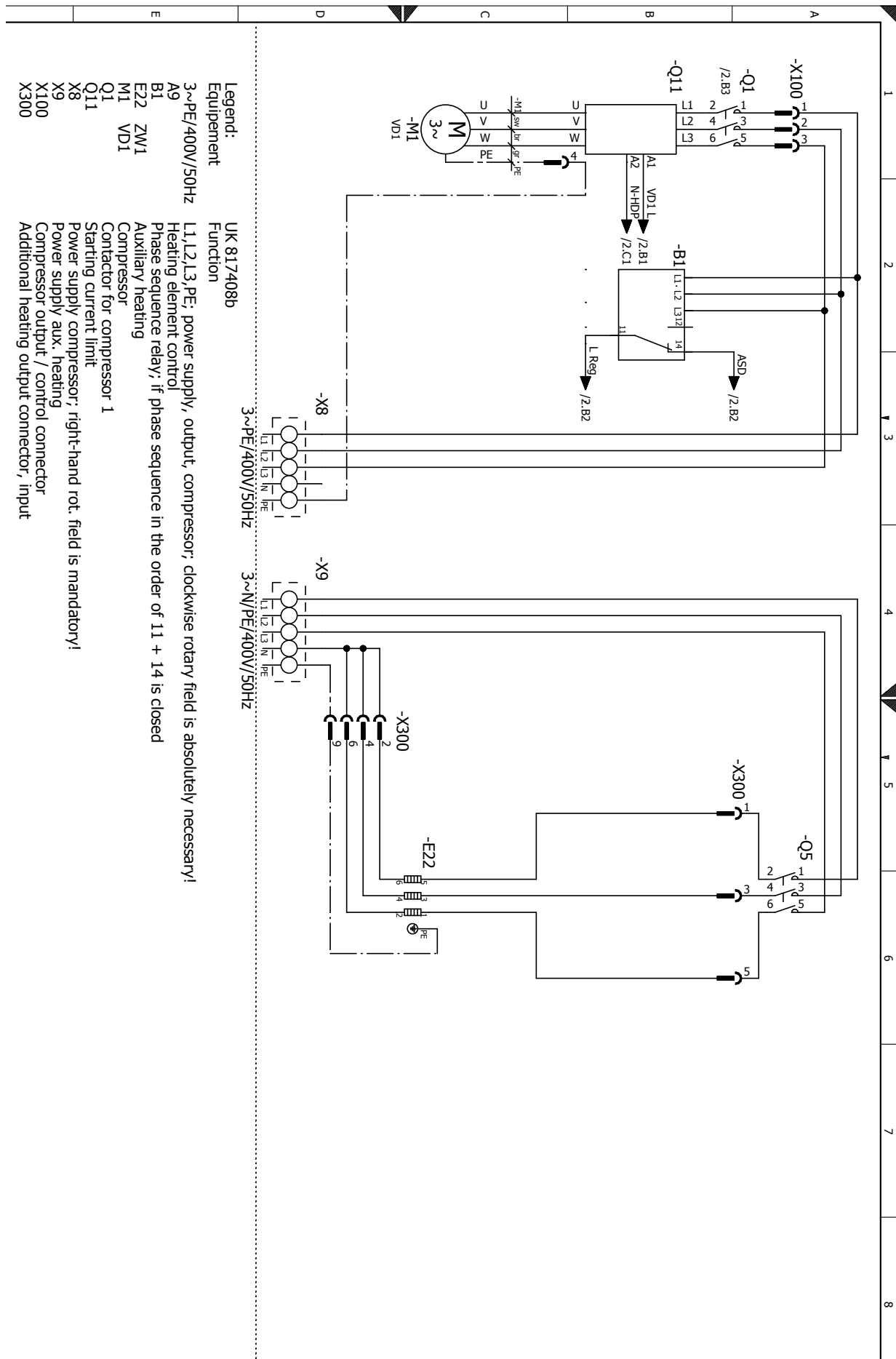
WZS 42(H)(K)3M – WZS 82(H)(K)3M

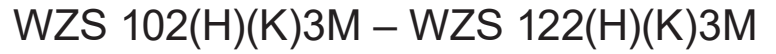


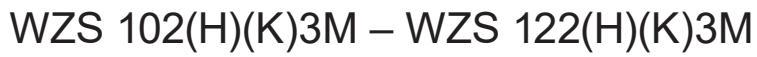


WZS 102(H)(K)3M – WZS 122(H)(K)3M

Circuit diagram 1/3







Legend:

Equipment

B10 HD High-pressure sensor
B11 ND Low pressure sensor
K11 Control
K22 Electronic expansion valve

Function

UK 817408b
High-pressure sensor
Low pressure sensor
Control
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
Flow sensor
Return sensor
Heat source output sensor
Domestic hot water sensor
Encoding resistor 10kW 11,5kOhm; 12kW 12,1kOhm;
Voltage supply for impressed current anode
Sensor card connector

T1 TB1
R1 TSG1
R3 TWE
R4 THG
R6 TVL
R7 TRL
R8 TWA
R9 TBW
R10 CW
T1 XJ



EC Declaration of Conformity



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



alpha innotec

Unit model	Number	Unit model	Number
WZS 42H3M	10066041	WZSV 122H3M	10073641
WZS 62H3M	10066141	WZSV 122K3M	10073741
WZS 82H3M	10066241	WZSV 92H3M	10076341
WZS 102H3M	10066342	WZSV 92K3M	10076441
WZS 122H3M	10066442	WZSV 62H3M	10072441
WZS 42K3M	10066541	WZSV 162H3M	10072541
WZS 62K3M	10066641	WZSV 62K3M	10072641
WZS 82K3M	10066741	WZSV 162K3M	10072741
WZS 102K3M	10066842	WZSV 122H3M	10073841
WZS 122K3M	10066942	WZSV 122K3M	10073941
WZSV 62H3M	10072041	WZSV 92H3M	10076541
WZSV 162H3M	10072141	WZSV 92K3M	10076641
WZSV 62K3M	10072241		
WZSV 162K3M	10072341		

EC Directives

2014/35/EU 813/2013

2014/30/EU 814/2013

2011/65/EG

*2014/68/EU

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

EN 14825

* Pressure equipment component

Category II

Module A1

Designated position:

TÜV-SÜD

Industrie Service GmbH (Nr.:0036)

Company:

ait-deutschland GmbH

Industrie Str. 3

93359 Kasendorf

Germany

Place, date:

Kasendorf, 08.05.2019

Signature:

UK818171e

Jesper Stannow
Head of Heating Development



ait-deutschland GmbH
Industriestraße 3
D-95359 Kasendorf

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