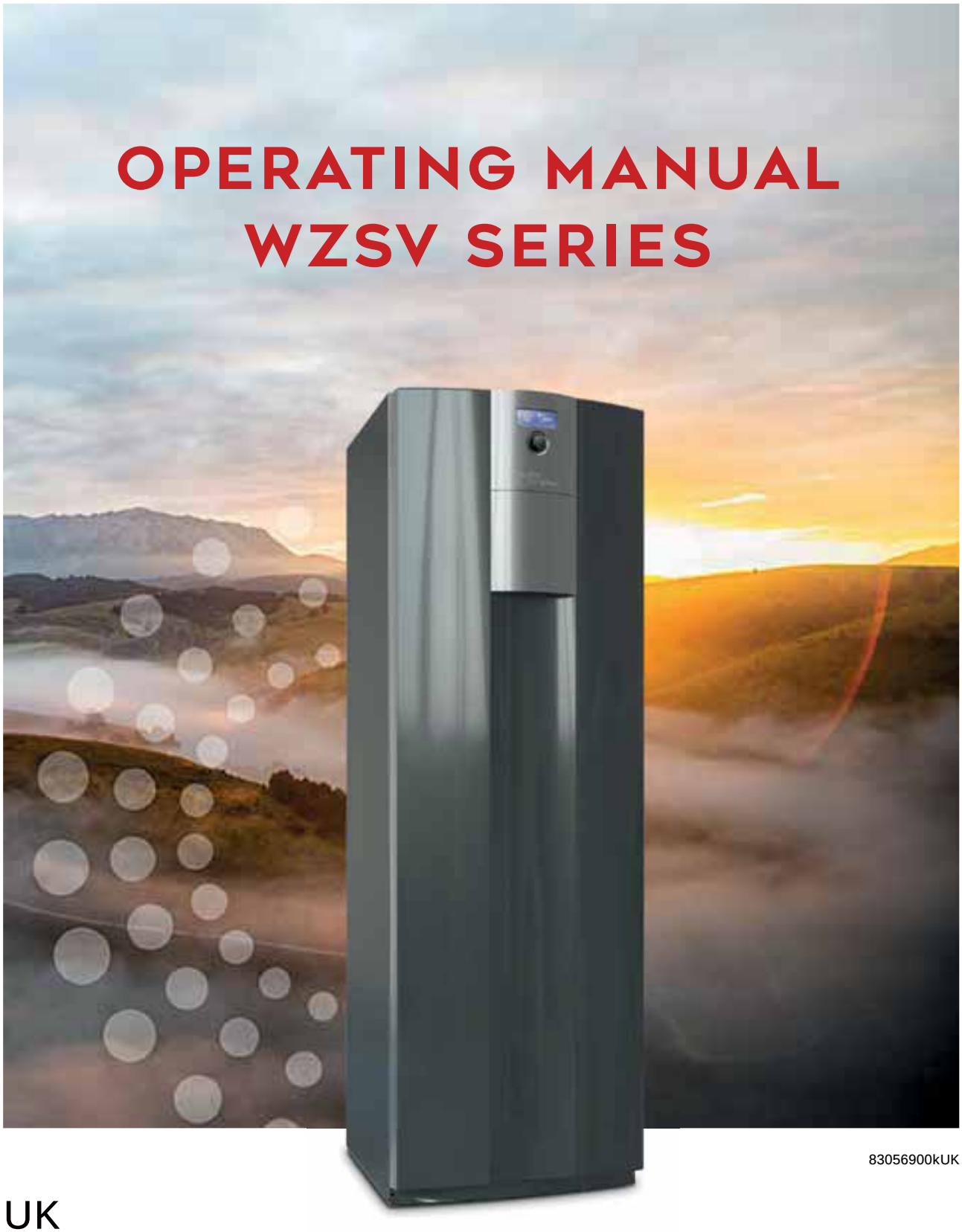
OPERATING MANUAL
WZSV SERIES



83056900kUK

UK

Brine/Water heat pumps
Brine heat station

www.alpha-innotec.com

Table of contents

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).

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

1.3 Symbols and identification markings

Identification of warnings

Symbol	Meaning
	Safety-relevant information. Warning of physical injuries.
	Safety-relevant information. Warning of physical injuries. Danger of fatal injury due to electric current.

Symbol	Meaning
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
▶	Procedural instructions: Single-step instruction for action
1., 2., 3., …	Procedural instructions: Numbered step within a multi-step instruction for action. Adhere to the given sequence.
	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
	Secure connections against twisting

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:

- 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 designed for household use and 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 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

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 procedural instructions in this operating manual are intended excusively for qualified and 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 are familiar with the local regulations, especially those relating to working safely and in awareness of the hazard risks.

► Ensure that the personnel are qualified to handle refrigerant.

- Work on the refrigerating circuit may only be carried out by qualified personnel with appropriate qualifications for refrigeration system installation.
- Work on the electrics and electronics may only be carried out by electrical technicians.
- Any other work on the system may only be carried out by qualified personnel (heating installer, plumbing installer).

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

2.3 Personal protective equipment

During transport and work on the unit, there is a risk of cuts due to the sharp edges of the unit.

► Wear cut-resistant protective gloves.

During transport and work on the unit, there is a risk of foot injuries.

► Wear safety shoes.

When working on liquid-conveying lines, there is a risk of injury to the eyes due to leakage of liquids.

► Wear safety goggles.

2.4 Residual risks

Injuries caused by electric current

Components in the device are live with fatal voltage. Before working on the unit:

► Disconnect unit from power supply.

► Protect unit against being switched back on again.

► Residual voltage at the inverter. Wait for 90 seconds before opening the unit.

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.

Injuries caused by high temperatures

► Before working on the unit, let it cool down.

Safety instructions and warning symbols

► Observe the safety instructions and warning symbols on the packaging and on and in the unit.

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

Environmentally hazardous substances

Improper disposal of environmentally hazardous substances (e.g. refrigerant, compressor oil) damages the environment:

► Collect substances safely.

► Dispose of the substances in an environmentally-friendly manner according to the local regulations.

2.6 Avoid damage to property

Cooling

If the heating surfaces are used for heating and cooling, the control valves must be suitable for heating and cooling.

By cooling with low flow temperatures, condensate can be expected to form on the heat distribution system as the temperature falls below the dew point. If the heat distribution system is not designed for these operating conditions, it must be protected by appropriate safety devices, e.g. dew point monitor (purchasable accessory).

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 with water corresponding to VDI 2035 only
- 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 drinking water, calcium and magnesium precipitate as mineral 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 VDI 2035 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-antifreeze mixture in the heat source

► Use of pure water in the heat source is not permitted

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

→ “7 Flushing, filling and venting“, from page 17

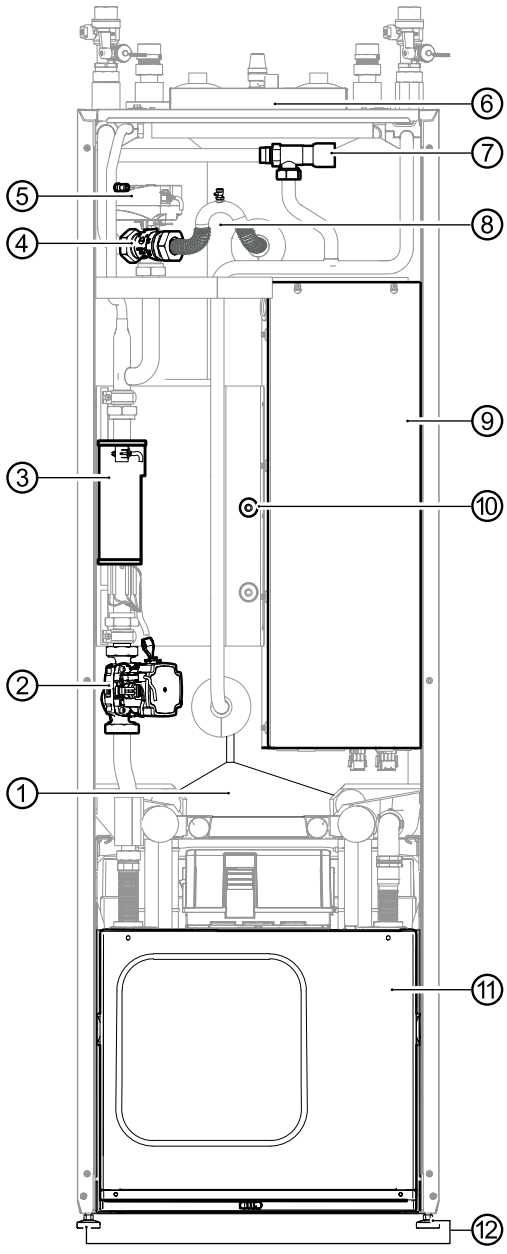
3 Description

3.1 Layout

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

Housing with unit components

NOTE
The figure shows a unit variant H (= without cooling).



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)

Rating plate

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

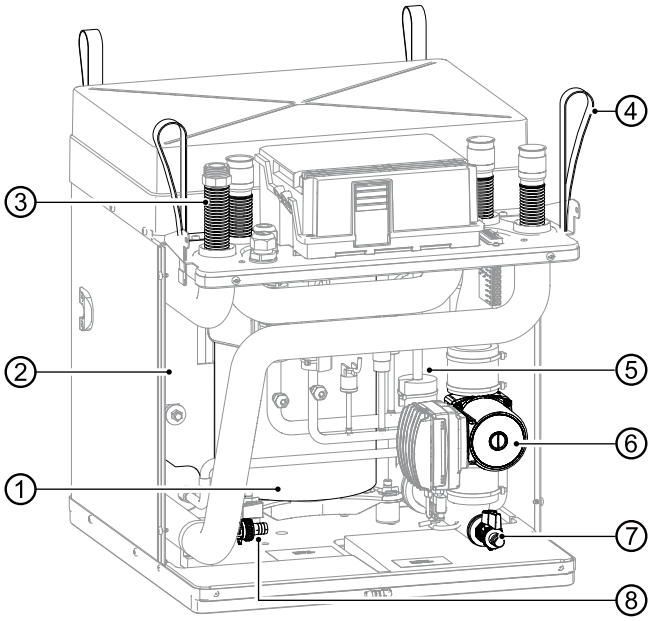
- at the top of the heating station
- left-hand side, on the module box

The rating plate contains the following information at the top:

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

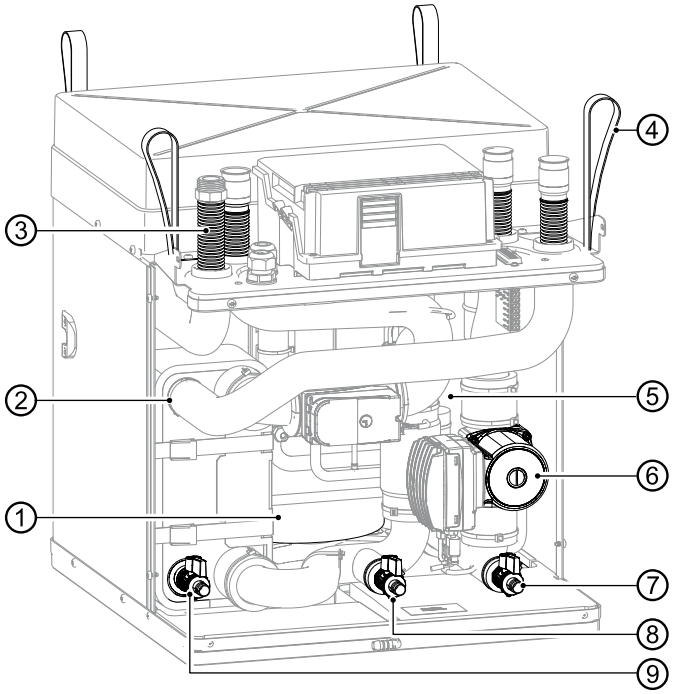
The rating plate also contains an overview of the most important technical data.

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

Module box – variant with cooling



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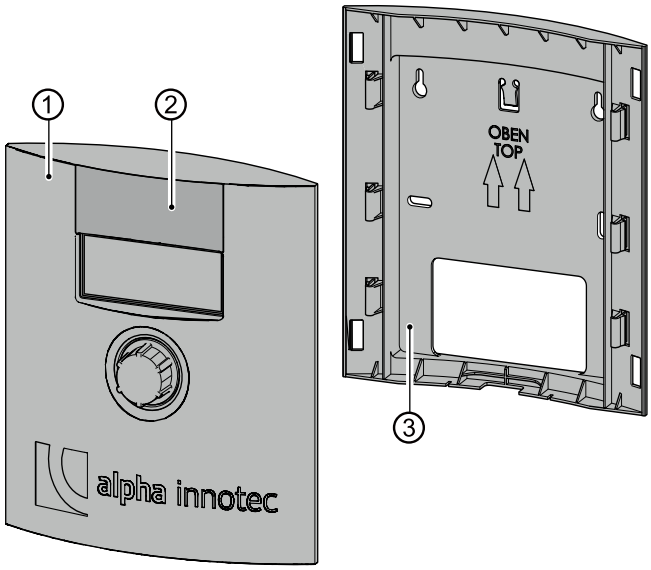
5 Evaporator
6 Heat source circulation pump
7 Heat source filling and drain tap
8 Heat source filling and drain tap
9 Heating filling and drain tap

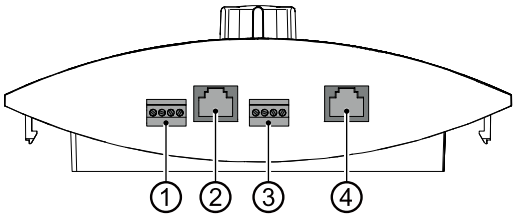
NOTE
The hose connectors are not part of the scope of delivery with all KFE ball valves.

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
- Air / magnetic sludge separator

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.

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
- Screws for the strain reliefs in the electrical switch box

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 11).

Notes on safe transport

The heating station and the module box are heavy (→ “Technical data / Scope of supply”, from page 24). 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.

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.

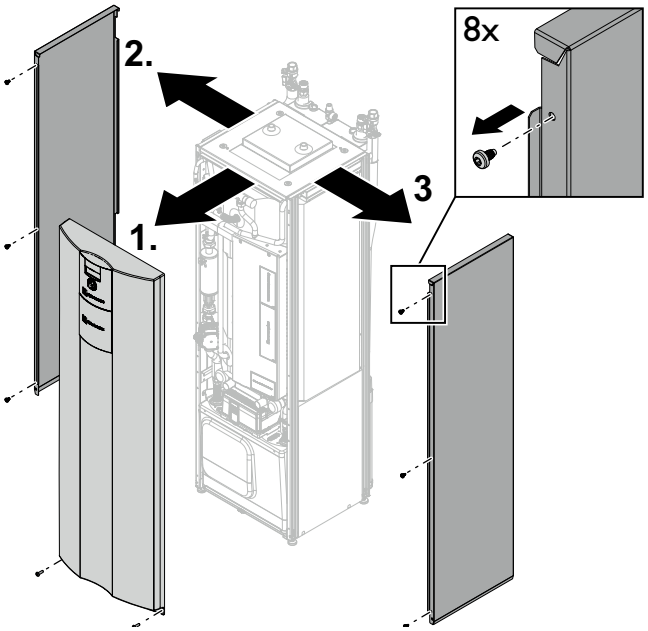
1. Remove plastic films. Ensure that you do not damage the unit.
2. Dispose of the mounting bracket, transport and packaging material in an environmentally friendly way according to local regulations.
3. Remove the film from the plastic element of the front panel in the place of installation.

Dismantle housing panels for transport with handcart or carrying the unit

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

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.

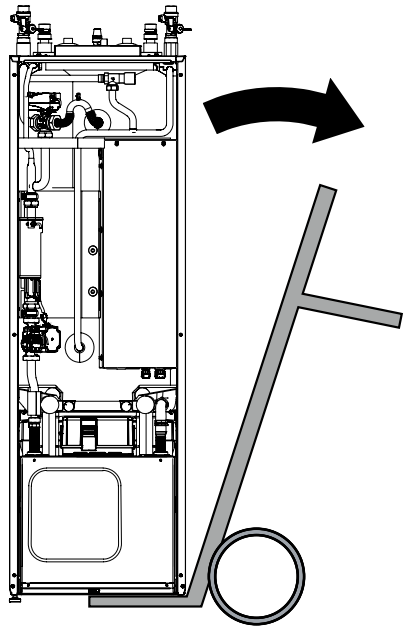


Transport with a handcart

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 11) 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
R 454B	0.358

→ “Technical data / Scope of supply”, from page 24

$$\textbf{Minimum room volume} = \frac{\text{Refrigerant capacity [kg]}}{\text{Limit [kg/m}^3\text{]}}$$

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 32).

✓ 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

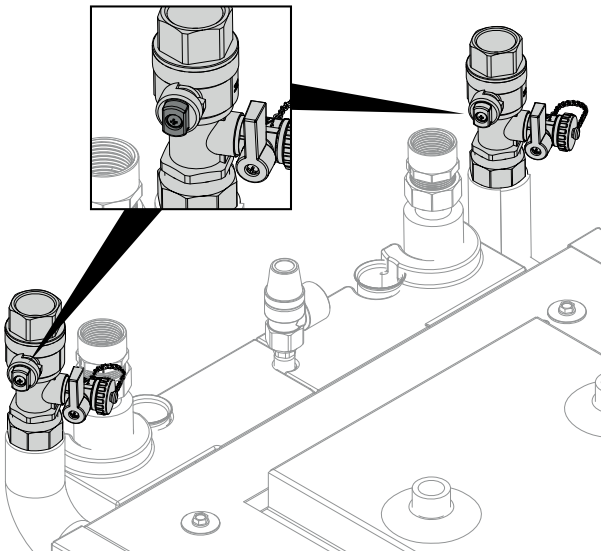
IMPORTANT
If the module box is tilted by more than 45°, compressor oil runs into the cooling circuit.

► 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.

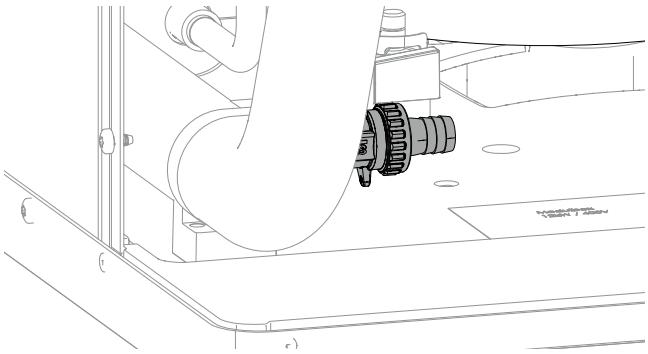
1. Remove the front panel of the module box (→ “7.1 Remove the front panel of the module box”, page 17).
2. Close shut-off valves to the heating circuit.



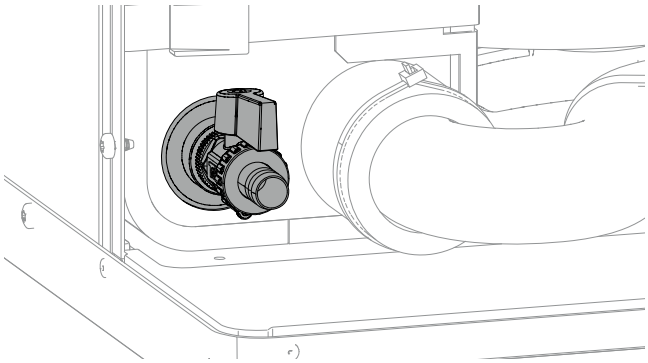
3. Drain the unit via the filling and drain tap of the heating.

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

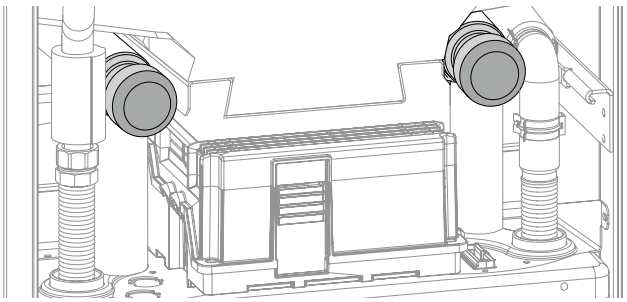
► Unit **without** cooling:



► Unit **with** cooling:

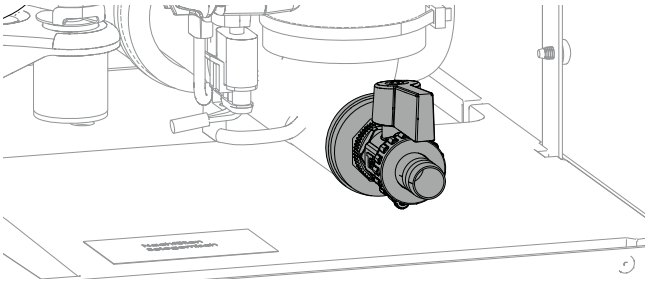


4. Use a spanner to close the shut-off valves of the heat source (behind the covers).

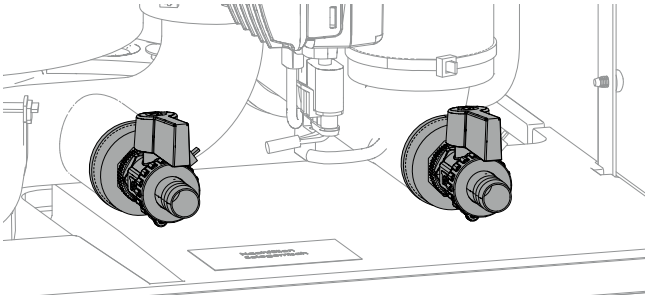


5. Drain the unit via the filling and drain tap of the heat source.

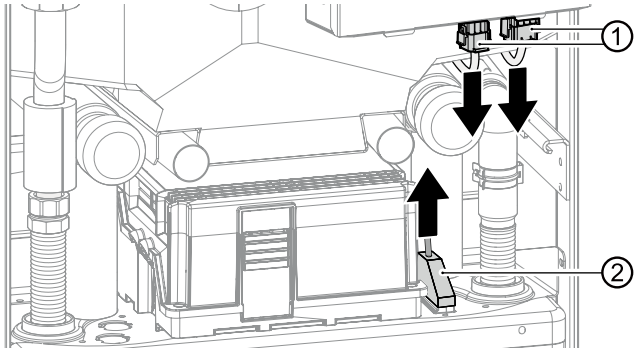
► Unit **without** cooling:



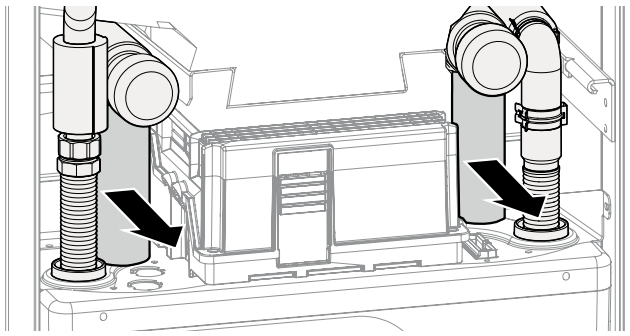
► Unit **with** cooling:



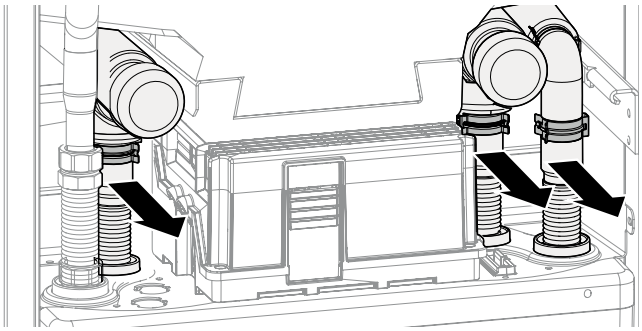
6. Disconnect the electrical connections:
   - Disconnect 2 white connectors (①) at the bottom of the electrical control cabinet. To do this, release the lugs by pressing on the sides of the connectors
   - Pull out the black rectangular connector (②) at the top of the module box



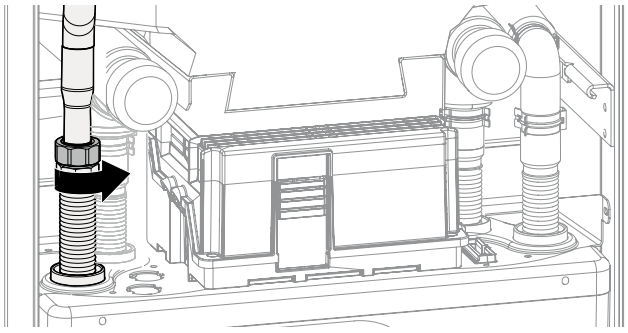
7. Remove the insulation on the hydraulic connections.



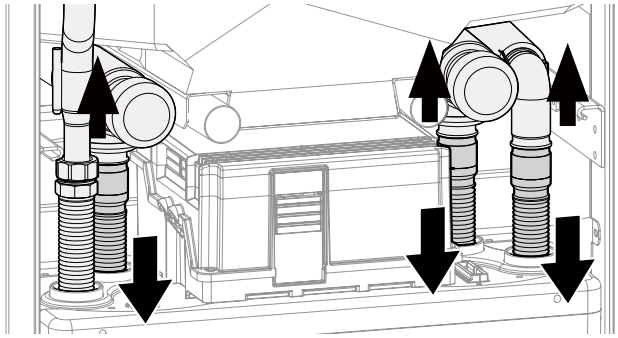
8. Remove 3 clips on the hydraulic connections.



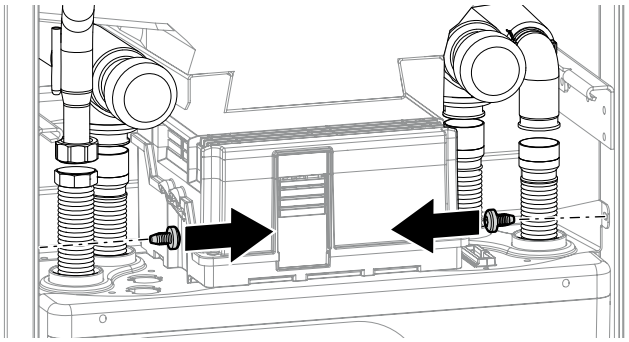
9. Use spanner size SW 37 to unscrew the heating flow.



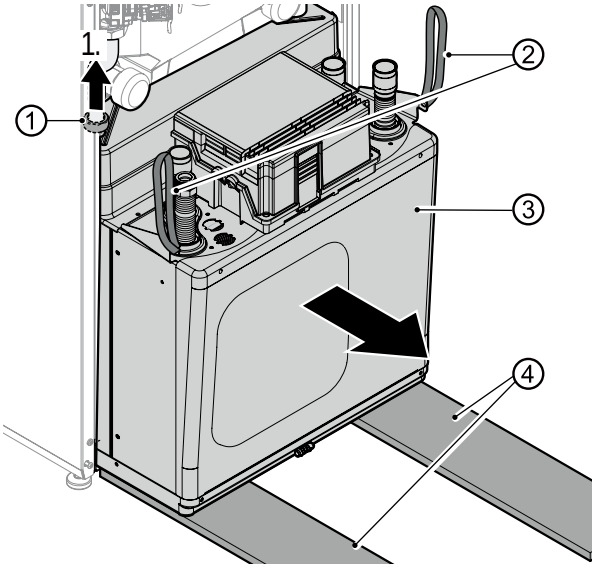
10. Disconnect the hydraulic connections; to do this, push the pipes apart as far as necessary.



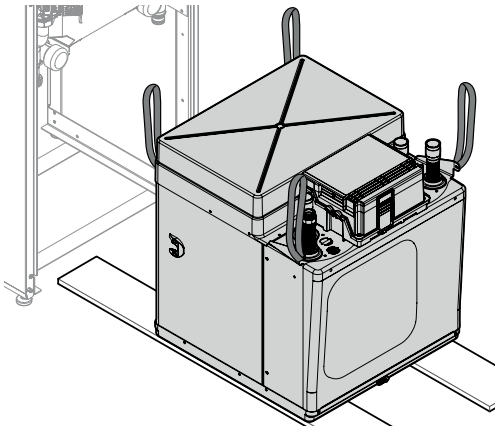
11. Remove the 2 side retaining screws.



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 (②). 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 safety valve that is integrated or included in delivery has a tolerance of plus / minus 10% for the set pressure. If local regulations, laws, standards or directives require a smaller tolerance range, the safety valve must be replaced on site with a safety valve that meets the requirements.

IMPORTANT
Avoid open heating systems and / or heating systems that are not oxygen diffusion-tight.
If this is not possible, a system separation must be installed.

Depending on the dimensioning of the heat exchanger and the additionally required circulation pump, the system separation worsens the energy efficiency of the system.

IMPORTANT
Dirt and deposits in the (existing) hydraulic system can cause damage to the heat pump.

► Ensure that a air / magnetic sludge separator is installed in the heating circuit.

► Rinse the hydraulic system thoroughly prior to establishing the hydraulic connection of the heat pump.

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 29).

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 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

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 ¾ 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 ⅛ to ¼ 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 24) 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 (only applies to units with 400V connection).

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

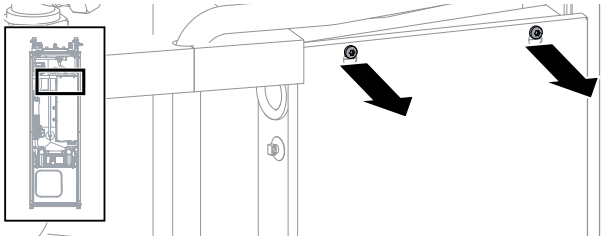
Basic information on the electrical connection

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.

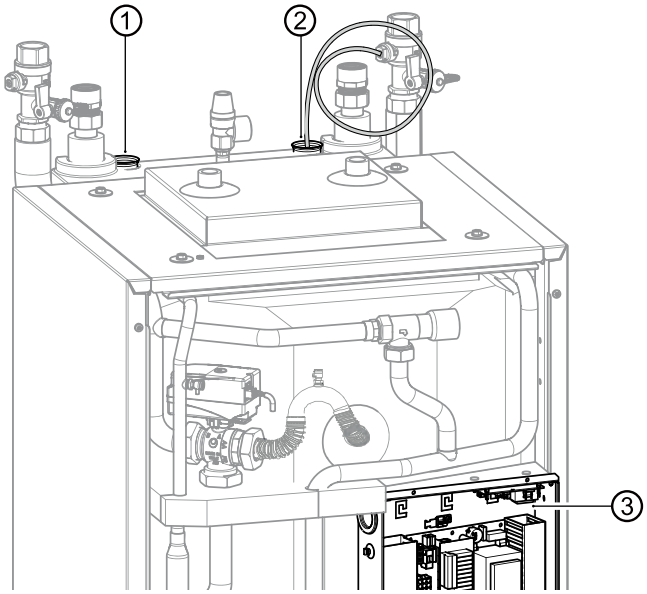
- The specifications of the local energy supply company may apply to electrical connections
- Fit the power supply for the heat pump with an all-pole miniature circuit-breaker with at least 3 mm contact spacing (per IEC 60947-2)
- Note the level of the tripping current (→ "Technical data / Scope of supply", from page 24)
- 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 switch box:
   - 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

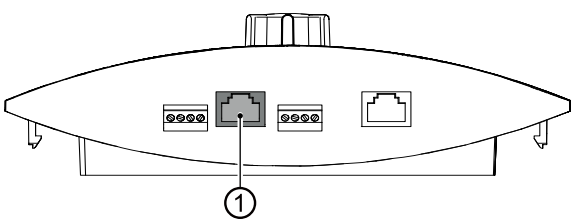


NOTE
The figure shows a unit variant without cooling.

4. Route cables from underneath through the cable openings in the control box (③)
5. Connect cables to the respective terminals (→ “Terminal diagrams”, from page 39).
6. Route all cables inserted into the switch box through the strain reliefs and screw the strain reliefs tight with the screws from the seperate pack.
7. Close the switch box by re-hooking the cover panel and screw the cover panel tight.

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).



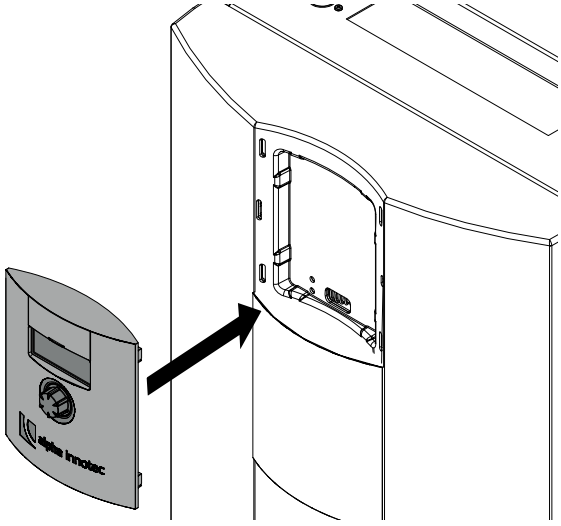
NOTE
The network cable can be retrofitted at any time.

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.

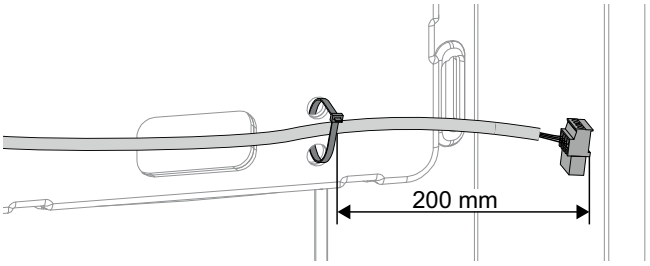
Insert the control in the unit and connect

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 10), 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).

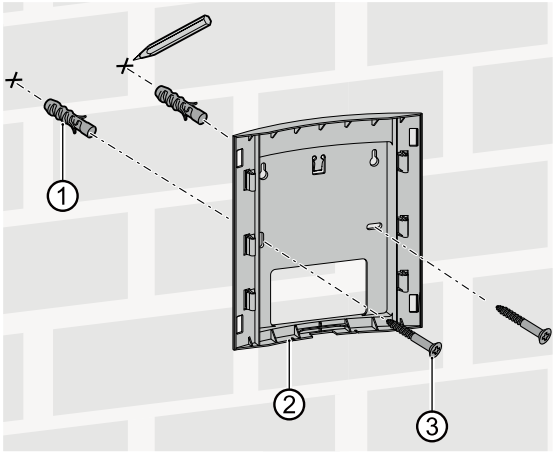


6. Push the cable through the opening in the front panel of the unit from below and into the control.
7. Press the lugs of the control into the openings in the front panel of the unit.
8. Insert cover in the free slot.

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 31).
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).

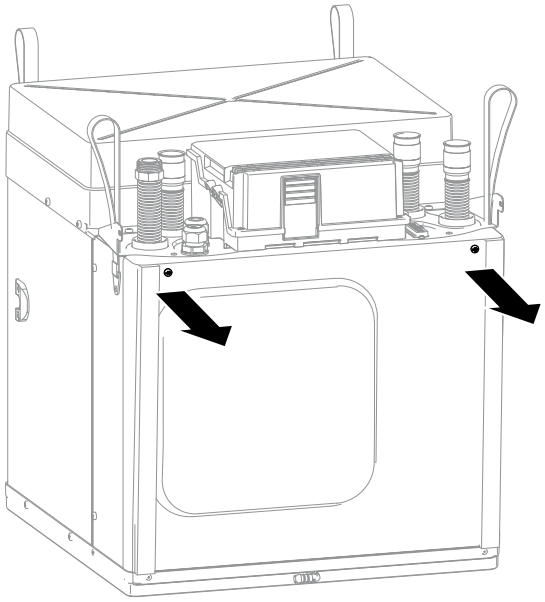


6. Feed in the cables from the wall (e.g. in-wall box) or from below.
7. Route the LIN bus cable from the top right-hand side at the rear from the heat pump and plug into the control at the bottom.
8. Push the control onto the wall-mounted bracket.
9. Push on cover. If applicable, position second cover (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 24

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

→ “Heating water quality”, page 19

✓ Drain pipe of the safety valve is connected.

✓ Room is ventilated.

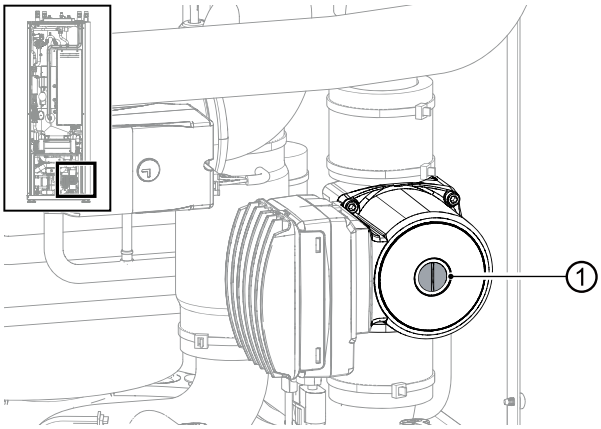
1. Flush the heat source system thoroughly.
2. Mix antifreeze with water thoroughly with the required ratio, before adding to the heat source.
3. Check the concentration of the water-antifreeze mixture.
4. Fill the heat source with the water-antifreeze mixture.
   Fill until the system is air-free.
5. 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” (preventing damage in hot water heating systems).

1. Ensure that the ph-value of the heating water is between 8.2 – 10, for aluminium materials between 8.2 – 9.
   Ideally, the pH value should already be in the required range after filling. After 6 weeks at the latest, it must have adjusted to the required range.
2. Ensure that the electrical conductivity is < 100 µS/cm.

NOTE
If the required water quality is not achieved, consult a company specialising in the treatment of heating water.

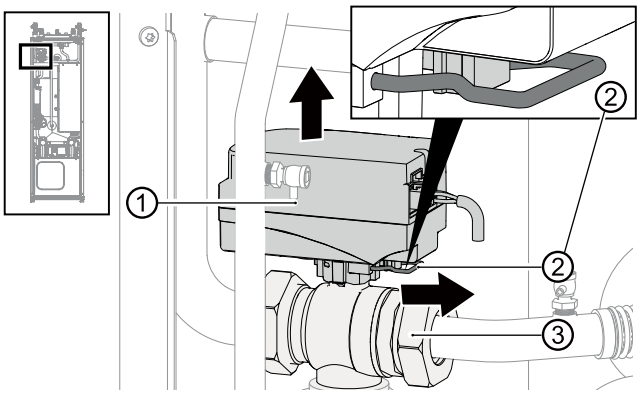
3. Fill the system with deionised heating water (VE water) or with water corresponding to the VDI 2035 norm only (low-salt operation of the system).
   Advantages of low-salt operation:
   - Low corrosion-promoting properties
   - No formation of mineral scale
   - Ideal for closed heating circuits
4. Keep a system log for hot water heating systems in which relevant planning data and the water quality are entered (VDI 2035).

✓ Drain pipe of the safety valve is connected.

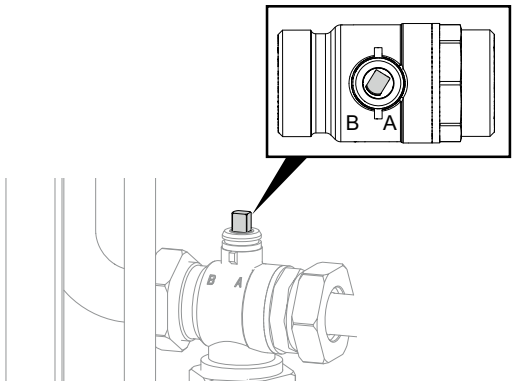
✓ The front panel of the module box is unscrewed.

► 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).

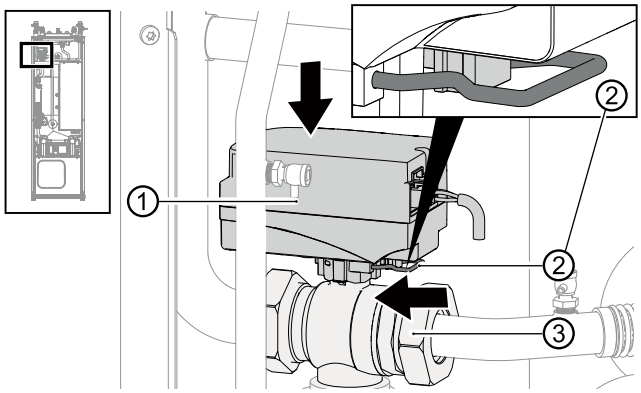


3. Turn the spindle of the 3-way changeover valve so that the rounded side of the spindle points in the direction of marking A of the connections of the 3-way changeover valve.



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 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!).

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

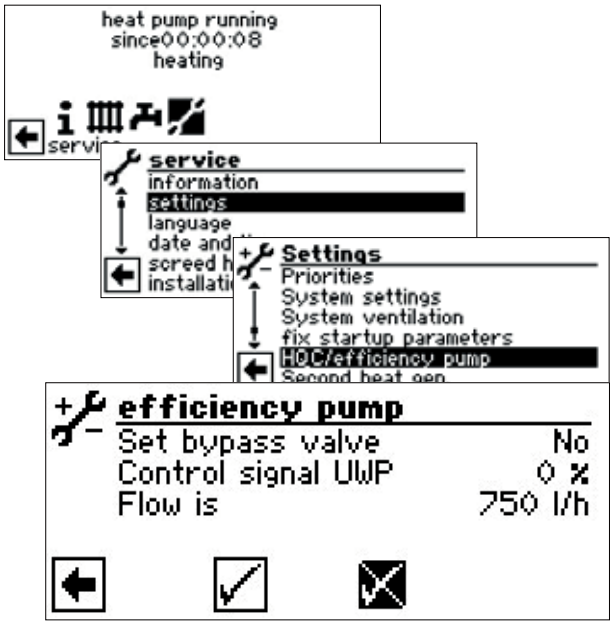
NOTE

- 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).

The IBN assistant already provides the option, in the event of the integration of the storage tank in series to adjust the overflow valve according to to the hydraulic system.

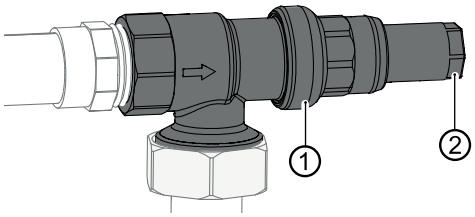
Confirm the IBN assistant or:



The “Set bypass valve” menu item is set by default to “No”. The overflow valve adjustment function is deactivated.

- The UWP control signal is the indication of the currently required pump capacity in %
- If the flow rate is the current flow rate (measuring accuracy +/- 200 l/h)

1. Fully open the overflow valve, close the heating circuits
2. If the “Set bypass valve” menu item is set from “No” to “Yes”, the circulation pump is activated with 100% – and the pump starts up.
3. If the control signal UWP reaches 100%, close the overflow valve to the extent that the maximum flow rate (→ “Technical data / Scope of supply”, from page 24) can be ensured.



1 Overflow valve
2 Rotary-push button

4. If you exit the “Set bypass valve” menu or at the latest after one hour, the circulation pump switches back to standard regulation
5. Open valves to heating circuit.

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.
- ✓ Clockwise rotating field is present for the load supply at the compressor (only applies to units with 400V connection)
- ✓ 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 24
- ✓ 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

1. Fill out carefully and sign the notice of completion for heat pump systems.
2. 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.
3. Arrange for the heat pump system to be commissioned by after-sales service authorised by the manufacturer; this is a chargeable service.

→ “11.2 Maintenance after commissioning“, page 22

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 does not require any regular maintenance.

Local regulations require, among other things, leak checks beforehand and/or for a logbook to be kept for certain heat pumps.

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

11.2 Maintenance after commissioning

Check all installed dirt traps for dirt at the latest one week after commissioning and clean them if necessary.

► Switch off the system while the check and cleaning is being carried out.

Next checking and cleaning at the latest 2 weeks after commissioning.

11.3 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
- Check at regular intervals the evaporator from all sides for dirt/clogging and clean as necessary

11.4 Cleaning and flushing the condenser

1. Clean and flush the condenser according to the manufacturer’s instructions.
2. After flushing the condenser with chemical cleaning agent: neutralise any residues and flush the condenser thoroughly with water.

11.5 Yearly maintenance

► Determine the quality of the heating water by analysis. In the event of deviations from the specifications, take suitable measures without delay

► Check all installed dirt traps for dirt and clean them if necessary

12 Faults

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

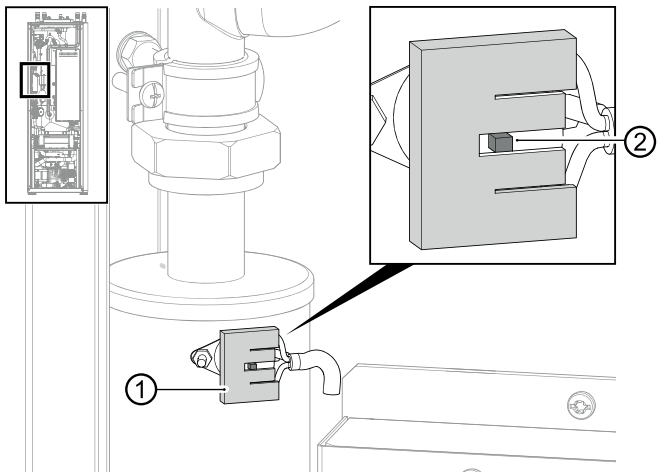
► Read out the cause of the fault via the diagnostics program of the heating and heat pump controller.

► Contact the local partner of the manufacturer or the factory's customer service. Have the fault message and unit number (→ “Rating plate”, page 7) 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.

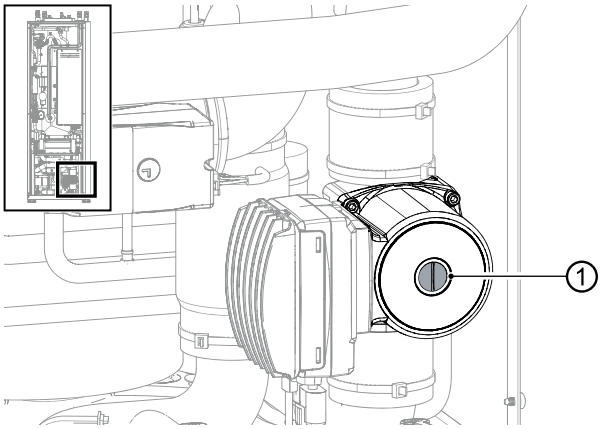
► If the safety temperature limiter trips again, contact the local partner of the manufacturer or the factory‘s customer service.

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

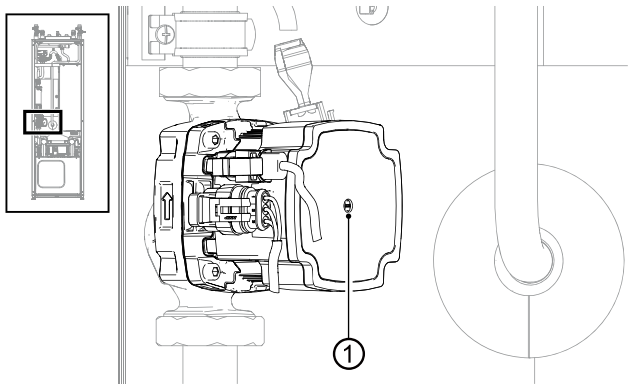
1. Unscrew the front panel of the module box.
2. Undo deflating screw (①) in the middle of the circulation pump of the heat source.



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

► Collect all substances safely.

► Separate components according to their materials.

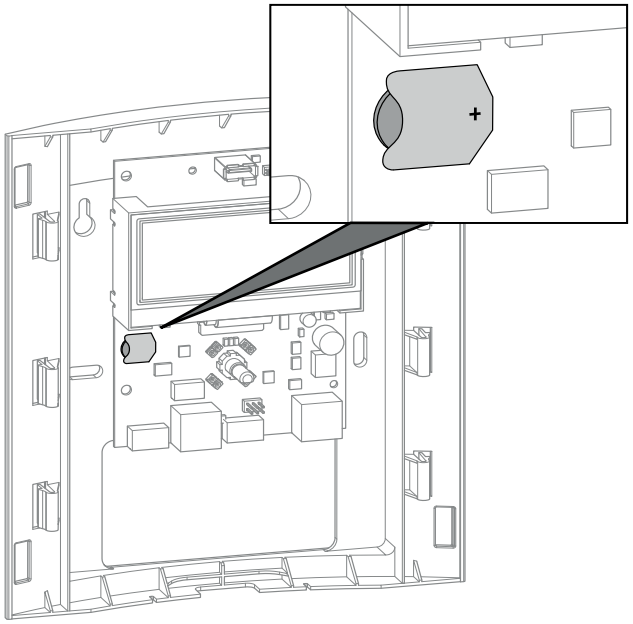
13.2 Disposal and recycling

► Dispose of environmentally hazardous substances (e.g. refrigerant, compressor oil) according to the local regulations.

► 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 (type: CR2032, lithium) on the processor board of the control



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

Technical data / Scope of supply

Performance data	Values in brackets: (1 Compressor)			WZSV 62(H)(K)3M	WZSV 92(H)(K)3M
Heating capacity | COP	for B0/W35 acc. to DIN EN 14511-x: 2013	Partial load operation	kW | COP	3.32 ı 4.86	4.00 ı 4.76
	for B0/W45 acc. to DIN EN 14511-x: 2013	Partial load operation	kW | COP	3.09 ı 3.76	3.82 ı 3.74
	for B0/W55 acc. to DIN EN 14511-x: 2013	Partial load operation	kW | COP	2.95 ı 3.13	3.41 ı 2.90
	for B7/W35 flow of B0/W35	Partial load operation	kW | COP	4.18 ı 5.94	4.91 ı 5.74
Heating capacity	for B0/W35	min. I max.	kW | kW	1.25 ı 5.95	1.77 ı 8.65
	for B0/W45	min. I max.	kW | kW	1.16 ı 5.50	1.79 ı 8.42
	for B0/W55	min. I max.	kW | kW	1.00 ı 5.17	1.96 ı 8.18
	for B7/W35	min. I max.	kW | kW	1.55 ı 7.20	2.31 ı 10.60
Cooling capacity at max. flow rate (B15/W25), units with passive cooling: Identifier K			kW	5.8	7.8
Operating limits					
Heating circuit return min. | Heating circuit flow max. Heating		within heat source min./max.	°C	20 ı 65	20 ı 65
Heating circuit return min. | Heating circuit flow max. Cooling		within heat source min./max.	°C	18	18
Heat source, heating		min. I max.	°C	-5 ı 30	-5 ı 30
Additional operating points			...	B-9/W60	B-9/W60
Sound					
Sound pressure level at 1 m distance from edge of unit		min. I max.	dB(A)	29 ı 36	29 ı 39
Sound power level		min. I max.	dB(A)	–	–
Sound power level acc. to DIN EN 12102-1: 2017			dB(A)	44 ı 51	44 ı 54
Tonality | Low-frequency			dB(A) | • yes – no	–	–
Heat source					
Flow rate (pipe dimensioning)			l/h	1450	2000
Max. free heat pump pressure Δp (with cooling ΔpK) ***) | Flow rate			bar (bar) | l/h	0.5 (0.47) ı 1450	0.56 (0.49) ı 2000
Approved anti-freeze mixture		Monoethylene glycol | Propylene glycol | Methanol | Ethanol		• ı • ı • ı •	• ı • ı • ı •
Anti-freeze concentration: Minimum frost protection down to			°C	-15	-15
Max. allowable operating pressure			bar	3	3
Circulation pump control range		min. I max.	l/h	300 | 3500	300 | 4000
Heating circuit					
Flow rate (pipe dimensioning) I Min. volume buffer tank in series I Min. volume separation buffer tank			l/h | l | l	1050 ı – ı –	1500 ı – ı –
Max. free heat pump pressure Δp (with cooling ΔpK) | Volume flow			bar (bar) | l/h	0.65 (0.63) ı 1050	0.46 (0.41) ı 1500
Max. allowable operating pressure			bar	3	3
General unit data					
Total weight (with cooling)			kg (kg)	240 (248)	244 (252)
Box weight (with cooling) ı Tower weight (with cooling)			kg (kg) | kg (kg)	80 (88) ı 160 (160)	84 (92) ı 160 (160)
Refrigerant type | Refrigerant capacity			... | kg	R407C ı 1.16	R407c ı 1.25
Domestic hot water tank					
Net volume			l	178	178
Magnesium sacrificial anode	Impressed current I Magnesium		• yes – no	• | –	• | –
Domestic hot water temperature, heating pump mode I Electric heating element			up to °C | up to °C	58 I 65	58 I 65
Mixed water quantity according to ErP: 2009/125/EC (at 40 °C, draw-off of 10 l/min)			l	240	240
Standing loss according to ErP: 2009/125/EC (at 65 °C)			W	60	60
Maximum pressure | Test pressure			bar | bar	10 | 13	10 | 13
Electrics					
Voltage code | all-pole fuse protection for heat pump *)**)			... | A	—	–
Voltage code | all-pole fuse protection for heat pump *) + electric heating element **)			... | A	3~N/PE/400V/50Hz ı C16	3~N/PE/400V/50Hz ı C16
Voltage code | Control voltage fuse protection **)			... | A	1~N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10
Voltage code | Electric heating element fuse protection **)			... | A	—	–
HP*): effect. Power consumption B0/W35 (partial load operation) DIN EN 14511-x: 2013 I Electric consumption I cosφ			kW | A | ...	0.68 ı 3.0 ı 1.0	0.84 ı 3.6 ı 1.0
HP*): effective power consumption B0/W35 acc. to DIN EN 14511-x: 2013: min. I max.			kW | kW	0.24 ı 1.4	0.3 ı 2.2
HP*): Max. machine current I Max. power consumption within the operating limits			A | kW	12 ı 2.6	12 ı 2.9
Starting current: direct | with soft starter			A | A	< 5 ı –	< 5 ı –
Degree of protection			IP	20	20
Residual current circuit breaker	if required		type	B	B
Electric heating element output	3 | 2 | 1 phase		kW | kW | kW	— ı 6 ı 3	– ı 6 ı 3
Circulation pump power consumption, heating circuit I heat source		min. I max.	W | W	2 – 60 ı 5 – 87	2 - 60 ı 3 - 140
Other unit information					
Safety valve Heating circuit | Response pressure		included in scope of supply: • yes – no | bar		• I 3	• I 3
Safety valve Heat source | Response pressure		included in scope of supply: • yes – no | bar		– | –	– I –
Buffer tank | Volume		included in scope of supply: • yes – no | l		– | –	— I —
Diaphragm expansion vessel Heating circuit | Volume | Prepressure		incl. in scope of supply: • yes – no | l | bar		– | –	– I –
Diaphragm expansion vessel Heat source | Volume | Prepressure		incl. in scope of supply: • yes – no | l | bar		– | –	– I –
Overflow valve | Changeover valve, heating -Domestic hot water		integrated: • yes – no		• I •	• I •
Vibration decoupling, Heating circuit | Heat source		included in scope of supply or integrated: • yes – no		• I •	• I •
Controller | Heat quantity recording | Extension board		included in scope of supply or integrated: • yes – no		• I • I –	• I • I –
*) Only compressor, **) Follow local regulations, ***) Figures for 25% mono-ethylene glycol				813596b	813590c

The performance data and the operating limits apply to clean heat exchangers

Technical data / Scope of supply

Performance data	Values in brackets: (1 Compressor)			**WZSV 122(H)(K)3M**
Heating capacity ı COP	for B0/W35 to DIN EN 14511-x: 2013	Partial load operation	kW ı COP	5.06 ı 4.87
	for B0/W45 to DIN EN 14511-x: 2013	Partial load operation	kW ı COP	4.78 ı 3.75
	for B0/W55 to DIN EN 14511-x: 2013	Partial load operation	kW ı COP	4.58 ı 3.13
	for B7/W35 flow of B0/W35	Partial load operation	kW ı COP	5.92 ı 6.08
Heating capacity	for B0/W35 to DIN EN 14511-x: 2013	min. l max.	kW ı kW	2.48 ı 13.56
	for B0/W45 to DIN EN 14511-x: 2013	min. l max.	kW ı kW	2.24 ı 12.88
	for B0/W55 to DIN EN 14511-x: 2013	min. l max.	kW ı kW	2.54 ı 12.53
	for B7/W35 to DIN EN 14511-x: 2013	min. l max.	kW ı kW	2.94 ı 15.82
Cooling capacity at max. volume flow (B15/W25), units with passive cooling: Identifier K			kW	12.3
Limits of use				
Heating circuit return min. | Heating circuit flow max. Heating		within heat source min./max.	°C	20 ı 65
Heating circuit return min. | Heating circuit flow max. Cooling		within heat source min./max.	°C	18
Heat source		min. l max.	°C	-5 ı 30
Additional operating points			…	B-9/W60
Sound				
Sound pressure level at 1 m distance from edge of unit		min. l max.	dB(A)	29 ı 38
Sound power level		min. l max.	dB(A)	–
Sound power level acc. to DIN EN 12102-1: 2017			dB(A)	44 ı 53
Tonality | Low-frequency			dB(A) | • yes – no	–
Heat source				
Flow rate (pipe dimensioning)			l/h	3200
Max. free heat pump pressure Δp (with cooling ΔpK) ***) | Flow rate			bar (bar) | l/h	1.08 (1.03) ı 1270
Approved anti-freeze mixture		Monoethylene glycol | Propylene glycol | Methanol | Ethanol		• ı • ı • ı •
Anti-freeze concentration: Minimum frost protection down to			°C	-15
Max. allowable operating pressure			bar	3
Circulation pump control range		min. l max.	l/h	
Heating circuit				
Flow rate (pipe dimensioning) l Min. volume buffer tank in series l Min. volume separation buffer tank			l/h | l | l	2300 ı – ı –
Max. free heat pump pressure Δp (with cooling ΔpK) | Volume flow			bar (bar) | l/h	0.69 (0.65) ı 870
Max. allowable operating pressure			bar	3
General unit data				
Total weight (with cooling)			kg (kg)	263 (271)
Box weight (with cooling) ı Tower weight (with cooling)			kg (kg) | kg (kg)	103 (111) ı 160 (160)
Refrigerant type | Refrigerant capacity			… | kg	R407c ı 2.0
Domestic hot water tank				
Net volume			l	178
Magnesium sacrificial anode	Impressed current l Magnesium		• yes – no	•
Domestic hot water temperature, heating pump mode l Electric heating element			up to °C | up to °C	58 l 65
Mixed water quantity according to ErP: 2009/125/EC (at 40 °C, draw-off of 10 l/min)			l	240
Standing loss according to ErP: 2009/125/EC (at 65 °C)			W	60
Maximum pressure | Test pressure			bar | bar	10
Electrics				
Voltage code | all-pole fuse protection for heat pump *)**)			… | A	3~N/PE/400V/50Hz ı C10
Voltage code | all-pole fuse protection for heat pump *) + electric heating element **)			… | A	–
Voltage code | Control voltage fuse protection **)			… | A	1~N/PE/230V/50Hz ı B10
Voltage code | Electric heating element fuse protection **)			… | A	3~N/PE/400V/50Hz ı B16
HP*): effect. Power consumption B0/W35 (partial load operation) DIN EN 14511-x: 2013 l Electric consumption l cosφ			kW | A | …	1.04 ı 1.7 ı 0.88
HP*): effective power consumption B0/W35 acc. to DIN EN 14511-x: 2013: min. l max.			kW | kW	0.53 ı 3.29
HP*): Max. machine current l Max. power consumption within the operating limits			A | kW	9.0 ı 5.5
Starting current: direct | with soft starter			A | A	< 5 ı –
Degree of protection			IP	20
Residual current circuit breaker	if required		type	B
Electric heating element output	3 | 2 | 1 phase		kW | kW | kW	9 ı 6 ı 3
Circulation pump power consumption, heating circuit l heat source		min. l max.	W | W	2 – 60 ı 3 – 180
Other unit information				
Safety valve Heating circuit | Response pressure			included in scope of supply: • yes – no | bar	• l 3
Safety valve Heat source | Response pressure			included in scope of supply: • yes – no | bar	– l –
Buffer tank | Volume			included in scope of supply: • yes – no | l	– l –
Diaphragm expansion vessel Heating circuit | Volume | Prepressure			incl. in scope of supply: • yes – no | l | bar	– l –
Diaphragm expansion vessel Heat source | Volume | Prepressure			incl. in scope of supply: • yes – no | l | bar	– l –
Overflow valve | Changeover valve, heating -Domestic hot water			integrated: • yes – no	• l •
Vibration decoupling, Heating circuit | Heat source			included in scope of supply or integrated: • yes – no	• l •
Controller | Heat quantity recording | Extension board			included in scope of supply or integrated: • yes – no	• l • l –

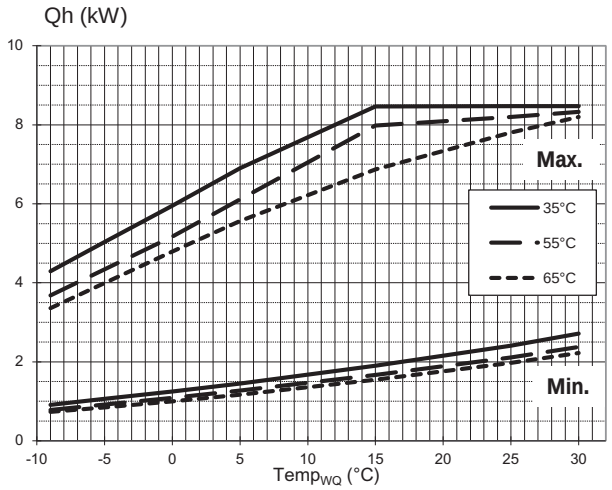
*) Only compressor, **) Follow local regulations, ***) Figures for 25% mono-ethylene glycol

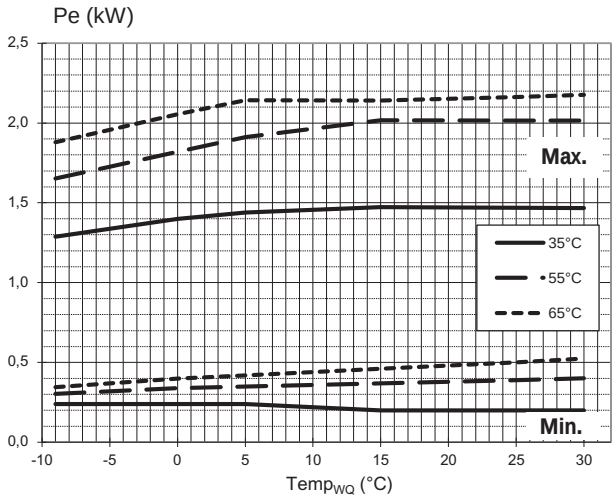
813496b

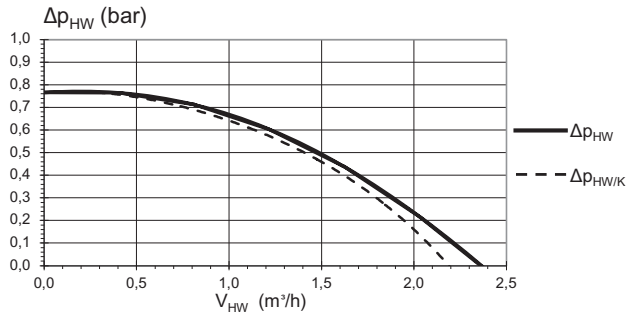
The performance data and the operating limits apply to clean heat exchangers

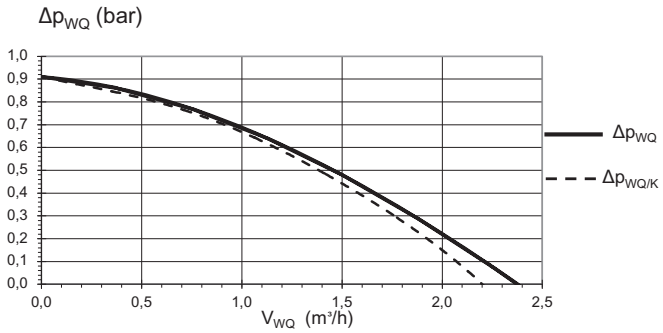
WZSV 62(H)(K)3M

Performance curves







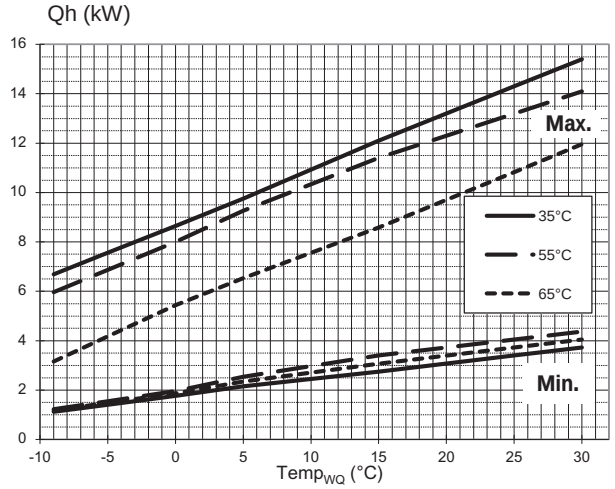


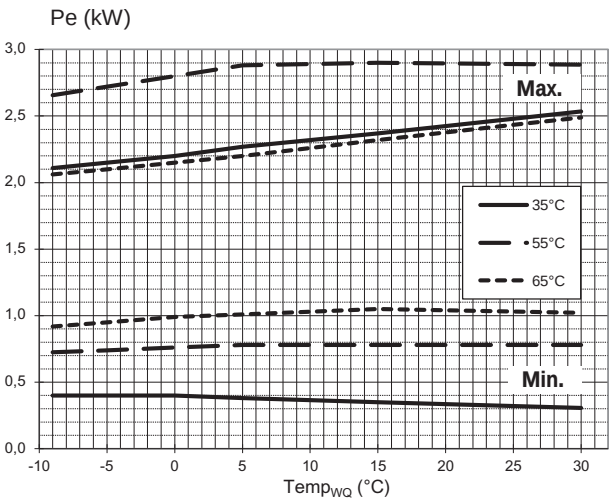
823255b

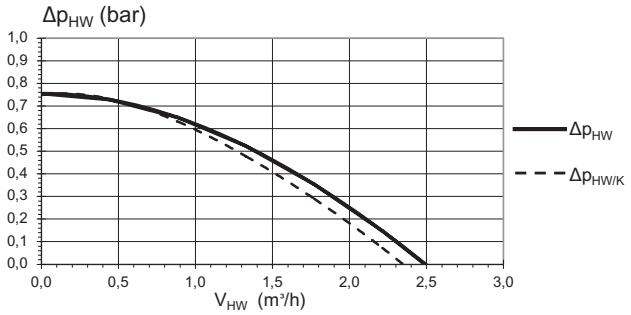
Keys:	UK823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}_{WQ}$	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with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

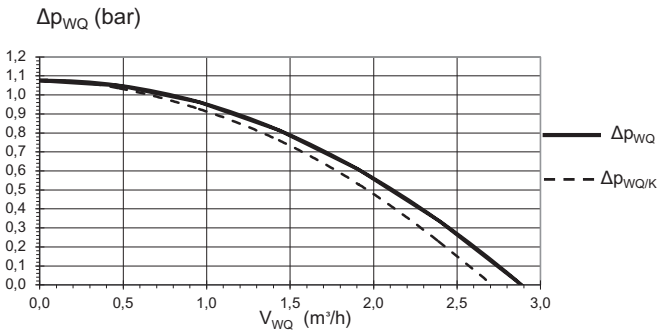
Performance curves

WZSV 92(H)(K)3M







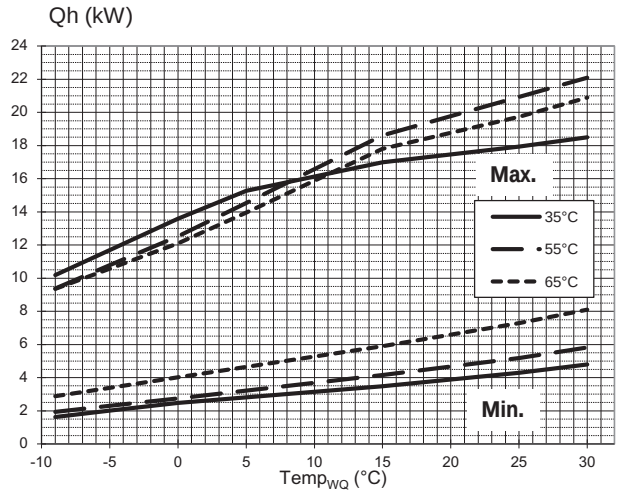


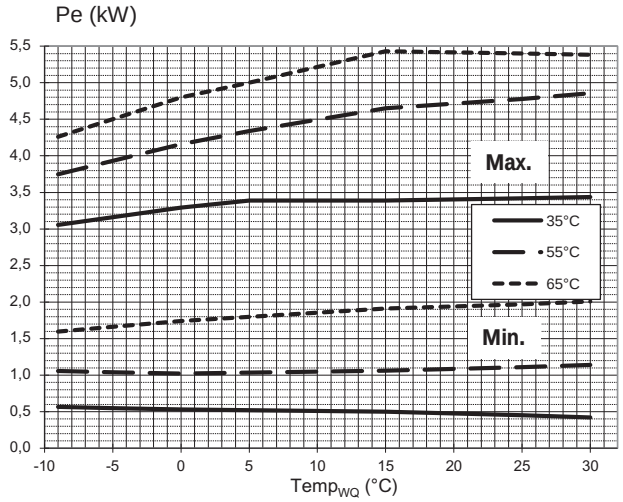
823277

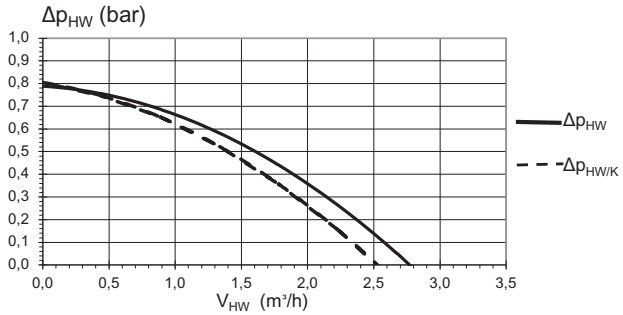
Keys:	UK823000L/170408
$\dot{V}_{HW}$	Heating water volume flow rate
$\dot{V}_{WQ}$	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
Δp_{HW} / $\Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with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

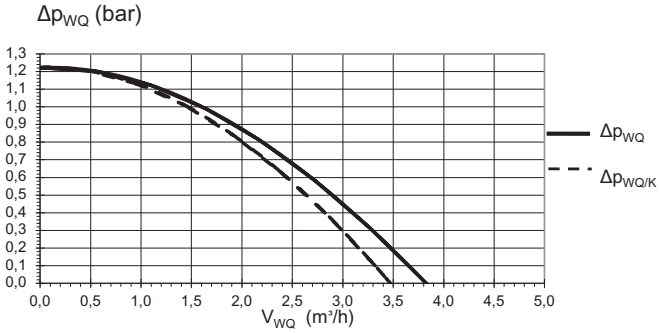
WZSV 122(H)(K)3M

Performance curves









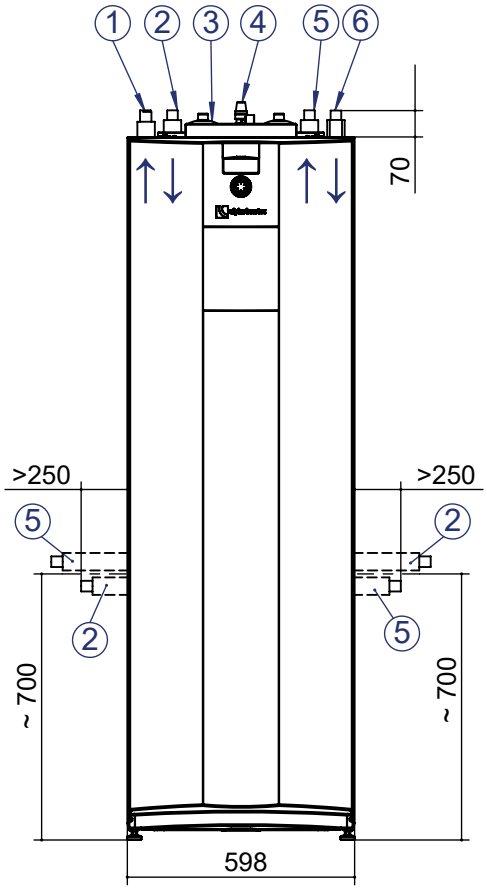
823274b

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
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

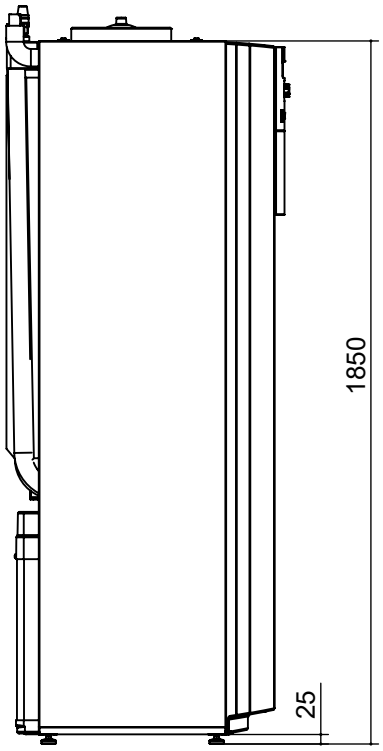
Dimensional drawings

WZSV 62(H)(K)3M – WZSV 122(H)(K)3M

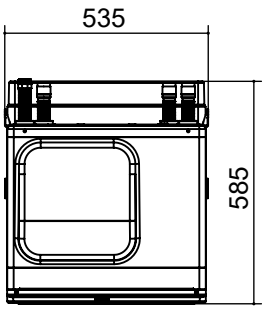
A



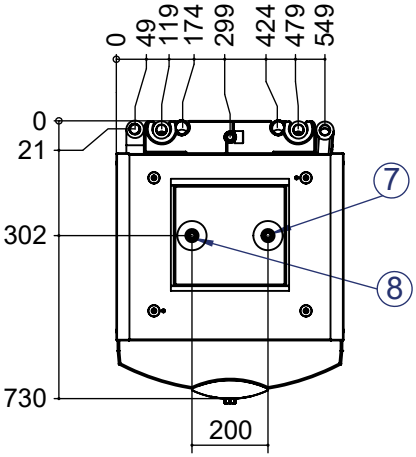
B



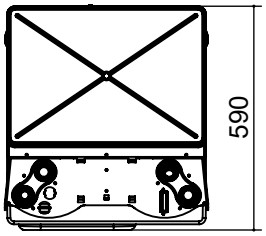
A1



C



C1



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

Keys: UK819447a

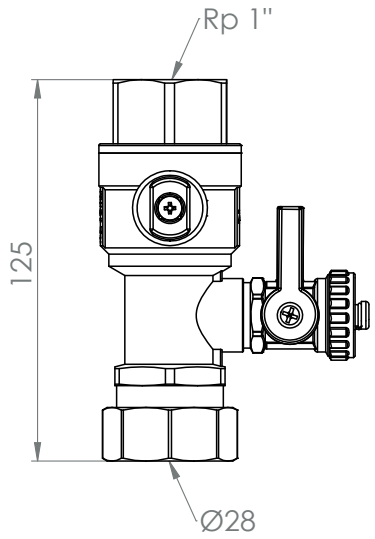
All dimensions in mm..

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

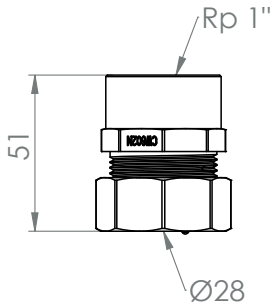
Connections

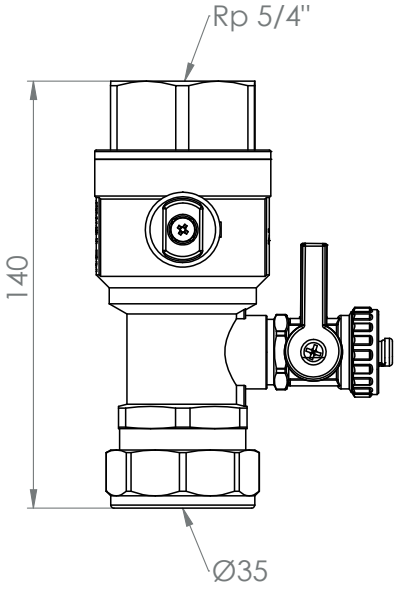
Heating circuit

Dimensional drawings



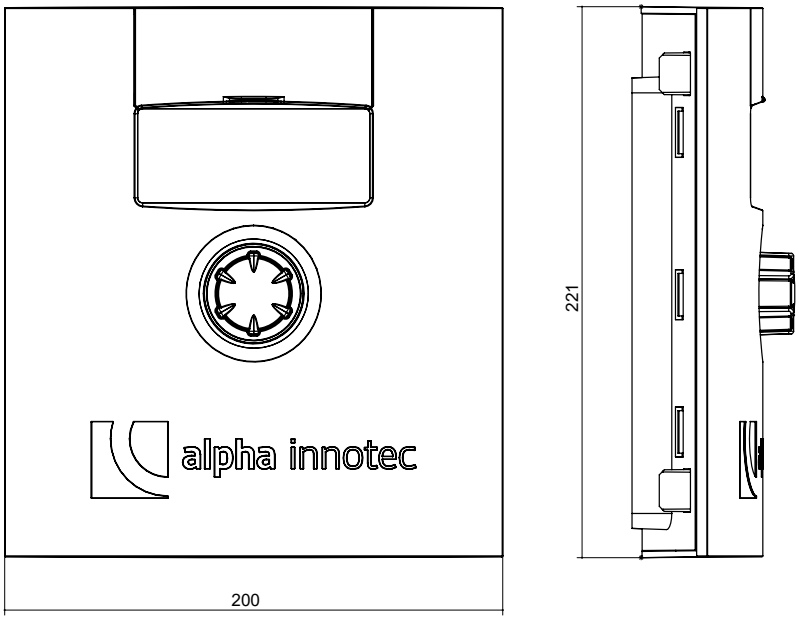
Heating source

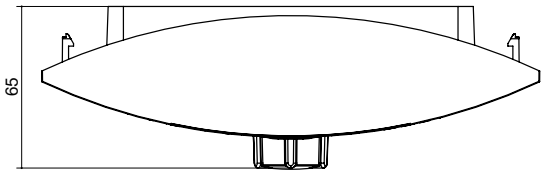




Dimensional drawings

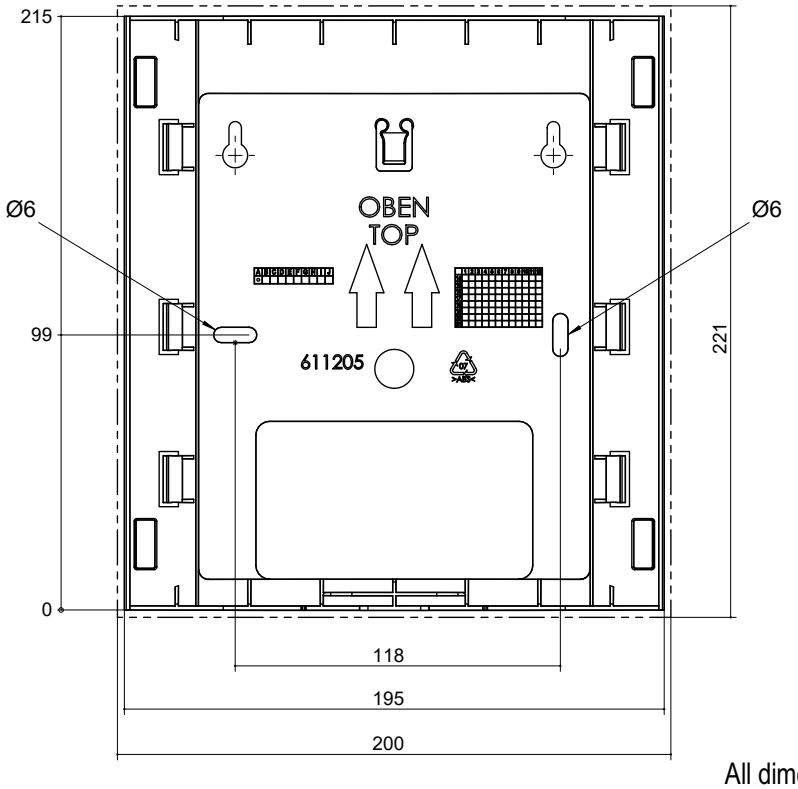
Control unit





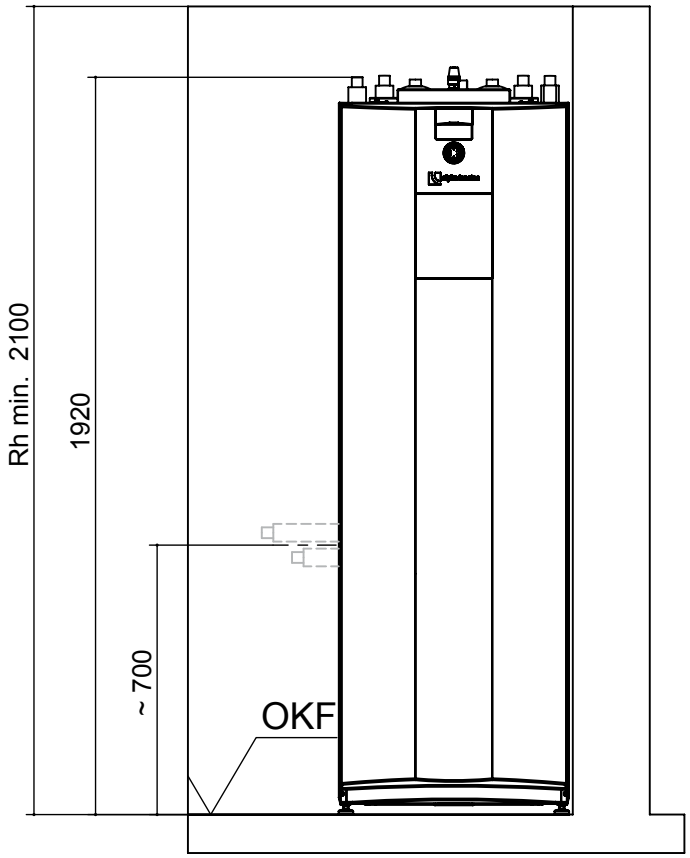
All dimensions in mm..

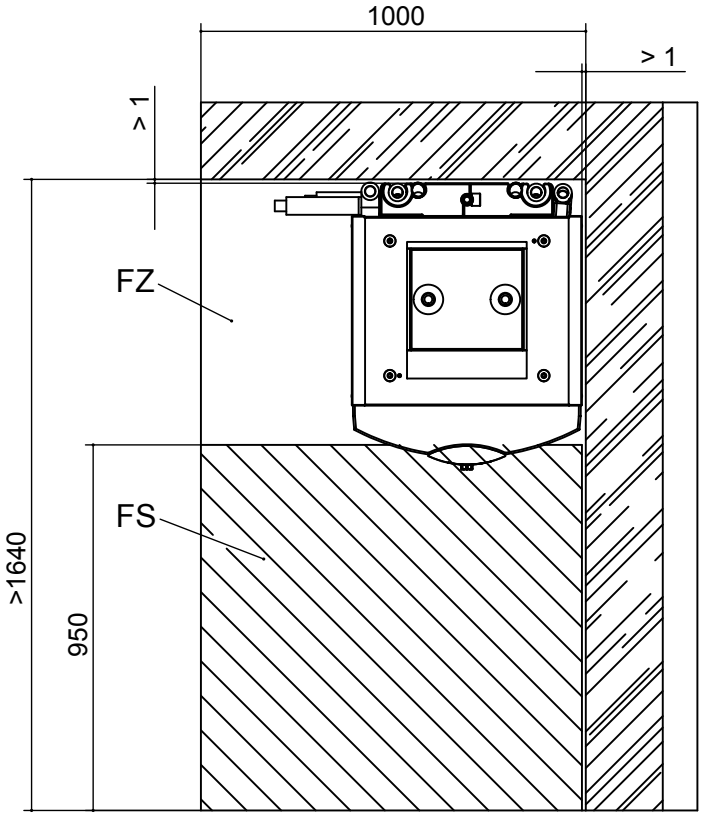
Wall-mounted bracket



All dimensions in mm..

V1





Keys: UK819448

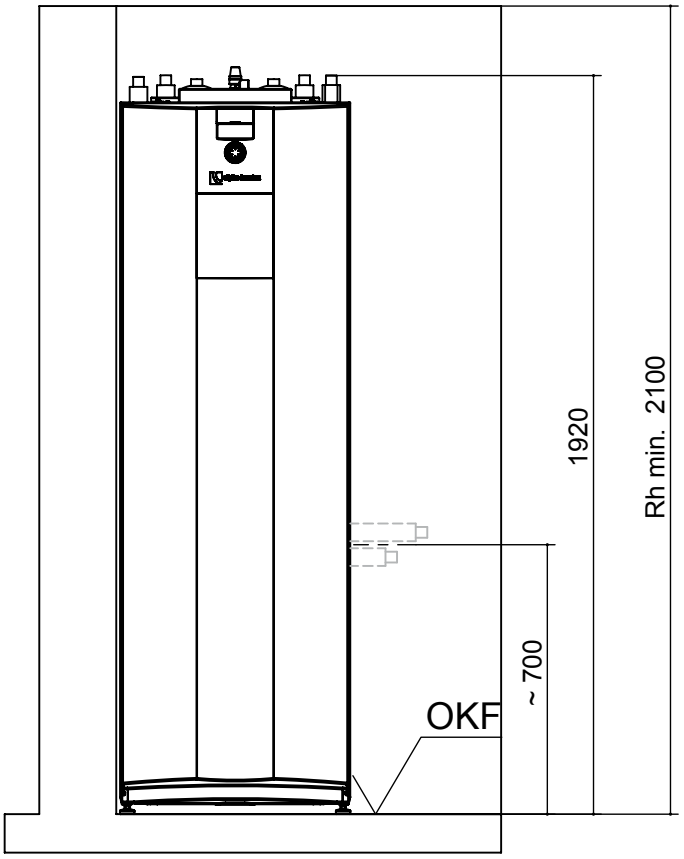
All dimensions in mm.

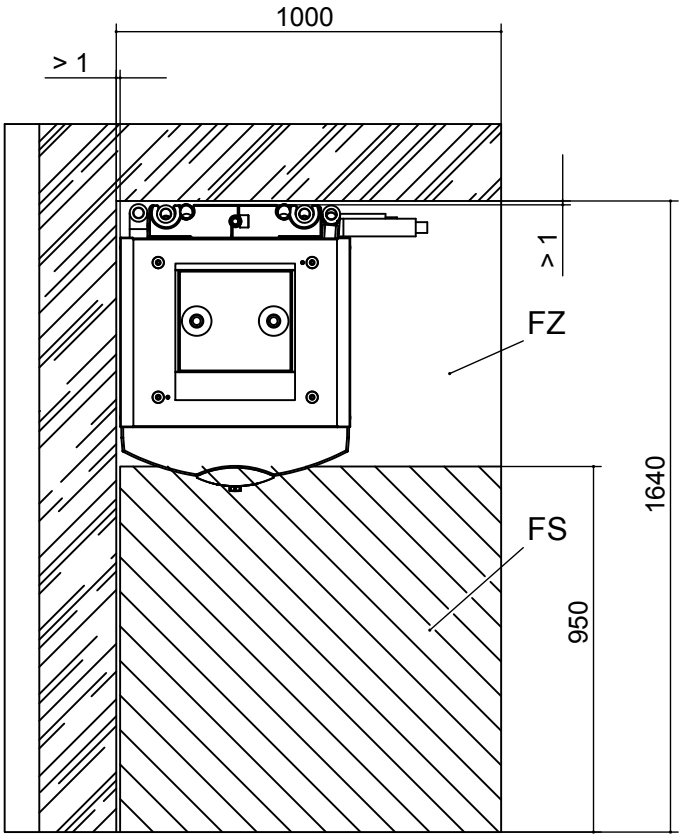
V1	Version 1
FS	Free space for service purposes
FZ	Free space for functionally necessary accessories
OKF	Finished floor level
Rh min.	minimum room height

Installation plan 2

V2

WZSV 62(H)(K)3M – WZSV 122(H)(K)3M



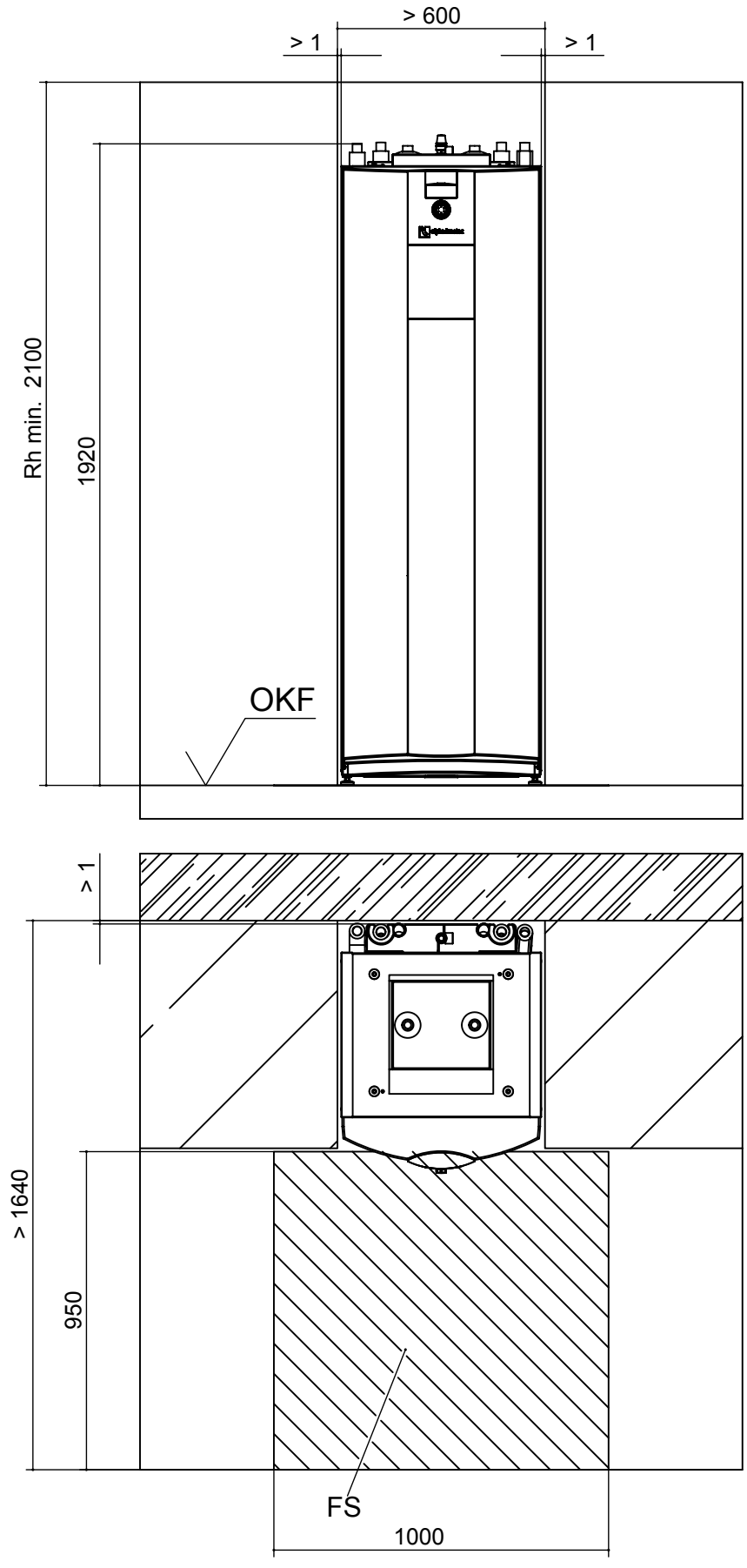


Keys: UK819448

All dimensions in mm.

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

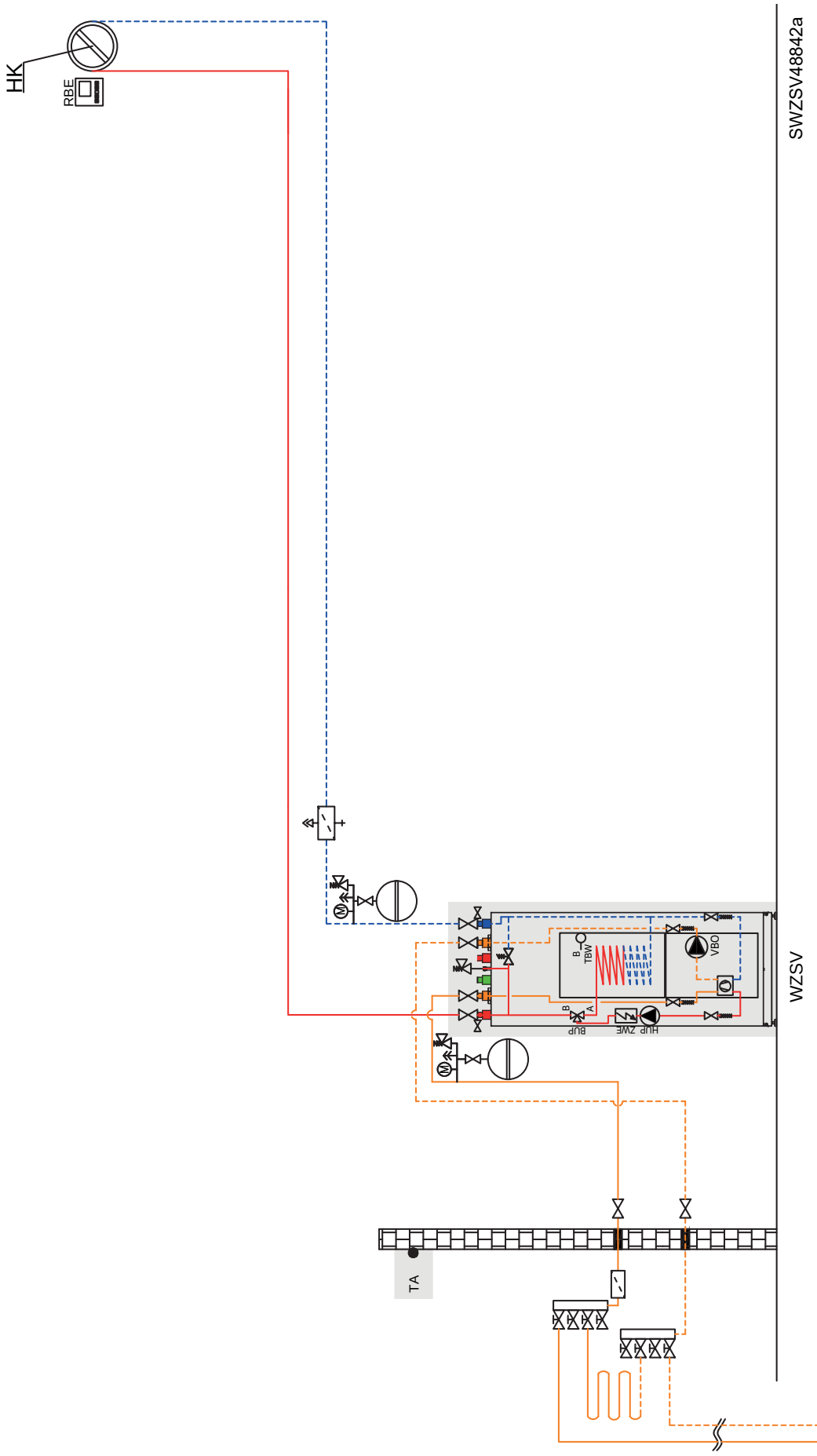
V3



Keys: UK819448

All dimensions in mm.

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

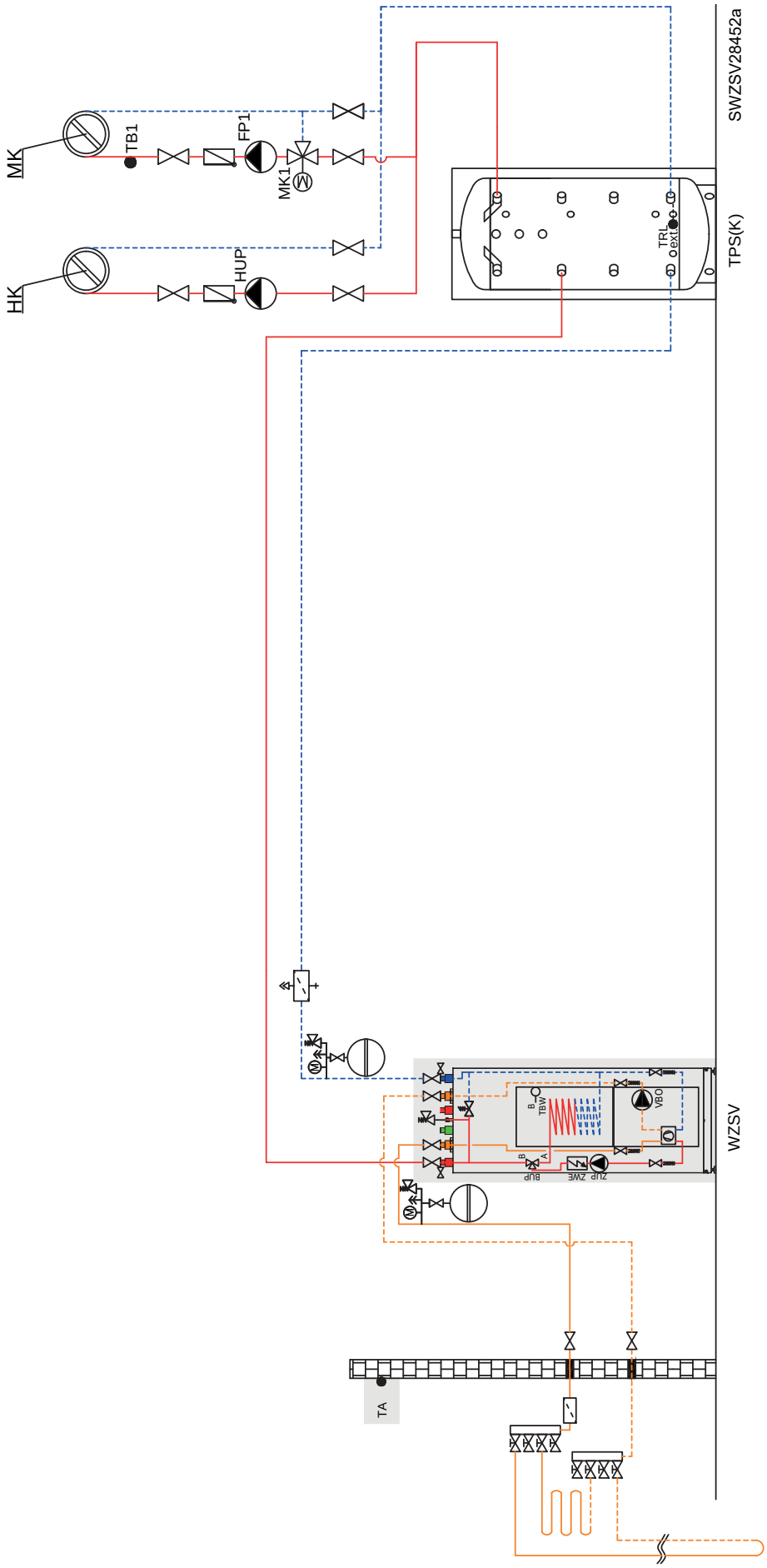


NOTE

This schematic diagram is an example of a system without shut-off and safety devices, and it does not replace the technical planning and design on site. All regional standards, laws and regulations must be observed. The pipe dimensions must be carefully planned and designed.

Unit variant H

with separate buffer tank

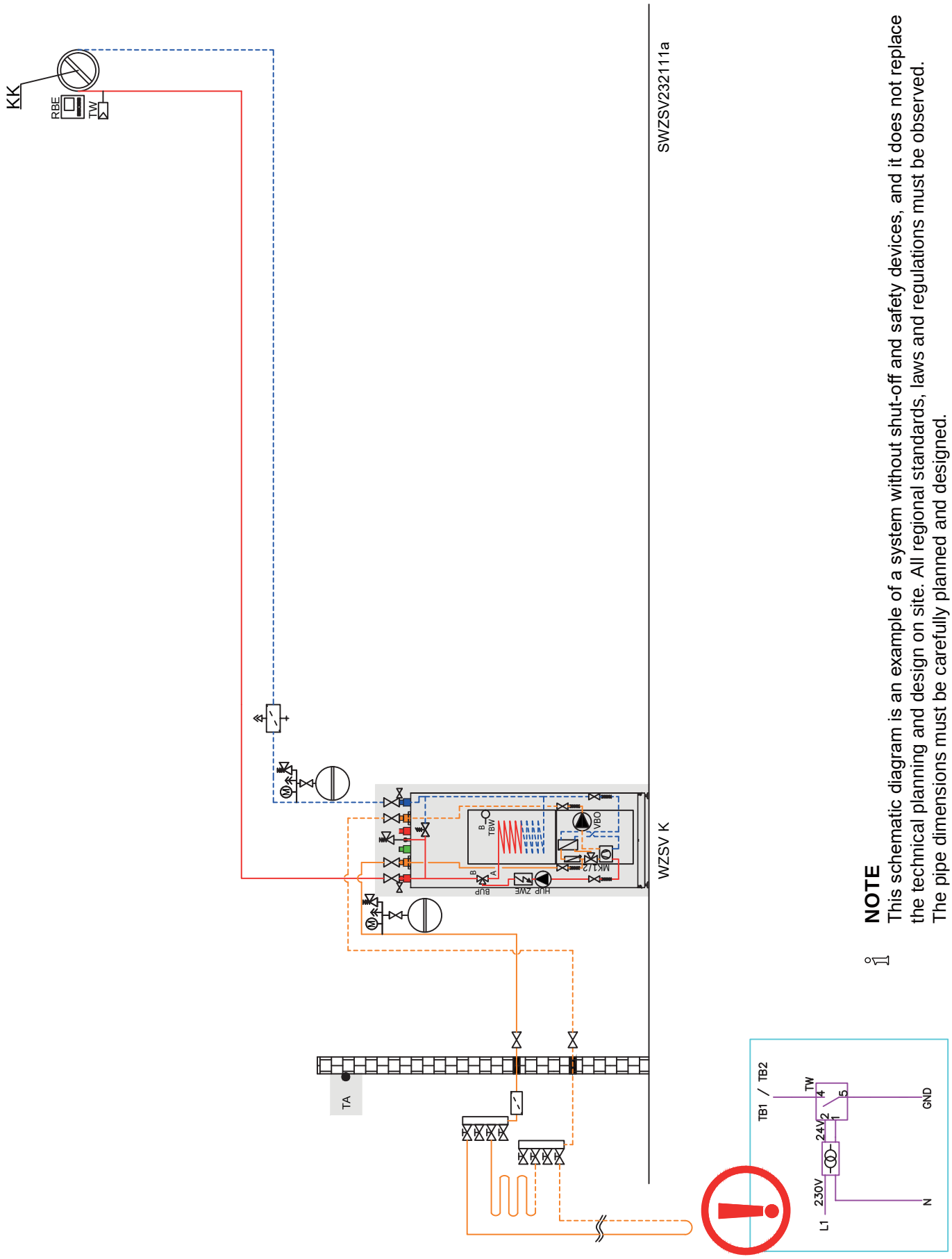


NOTE

This schematic diagram is an example of a system without shut-off and safety devices, and it does not replace the technical planning and design on site. All regional standards, laws and regulations must be observed. The pipe dimensions must be carefully planned and designed.

Hydraulic integration (cooling)

Unit variant K



NOTE

This schematic diagram is an example of a system without shut-off and safety devices, and it does not replace the technical planning and design on site. All regional standards, laws and regulations must be observed. The pipe dimensions must be carefully planned and designed.

Vibration isolation


Shut-off device and drainage


Shut-off device with dirt trap


Safety group


Shut-off device


Circulation pump

Non return valve/ one way valve


Overflow valve


Membrane expansion vessel


Second heat generator (ZWE)


3-way mixing valve / switching valve


4-way mixing valve / switching valve


Dirt-trap


Wall breakthrough


Brine manifuld


Ground slinkies


Ground collector

Flow switch


Groundwater spring pump with flow direction groundwater


Buffer tank:
- TPS Stratified storage tank
- RPS Series buffer tank
- TPSK Stratified storage tank (cooling)
- WTPSK Stratified storage tank, wall-mounted (cooling)


Multifunction tank


Domestic hot water tank


Volume flow meter


Heat meter


Gas- or oil-boiler


Wood boiler


Brine pressure switch


Swimming pool heat exchanger


Separation heat exchanger / intermediate heat exchanger


Solar domestic hot water tank


Pipe lead-in


Fresh water station (TWS)

Room control unit


Dew-point monitor


Supply heat pump

BUP	Circulation pump / switching valve domestic hot water
MK1/2/3	Mixer circuit 1/2/3 (heating or cooling function)
HUP	Circulation pump heating circuit
FP1/2/3	Circulation pump / switching valve
ZUP	Feed circulating pump
ZIP	Circulation pump
BLP	Domestic hot water charging pump
VBO	Heat source circulation pump
TA	Outdoor temperature sensor
TBW	Sensor domestic hot water
TFB/TB	Sensor mixer circuit
TRL ext.	Sensor external return
TRL	Sensor return
TVL	Flow sensor
TEH	Sensor desuperheater
HK	Heating circuit
HMK	Heating mixing circuit
KK	Cooling circuit
KMK	Cooling mixing circuit
SPP	Safety package primary
SPS	Safety package secondary
Ent.	Circulation pump desuperheater
101	Controls supplied by customer

Split:

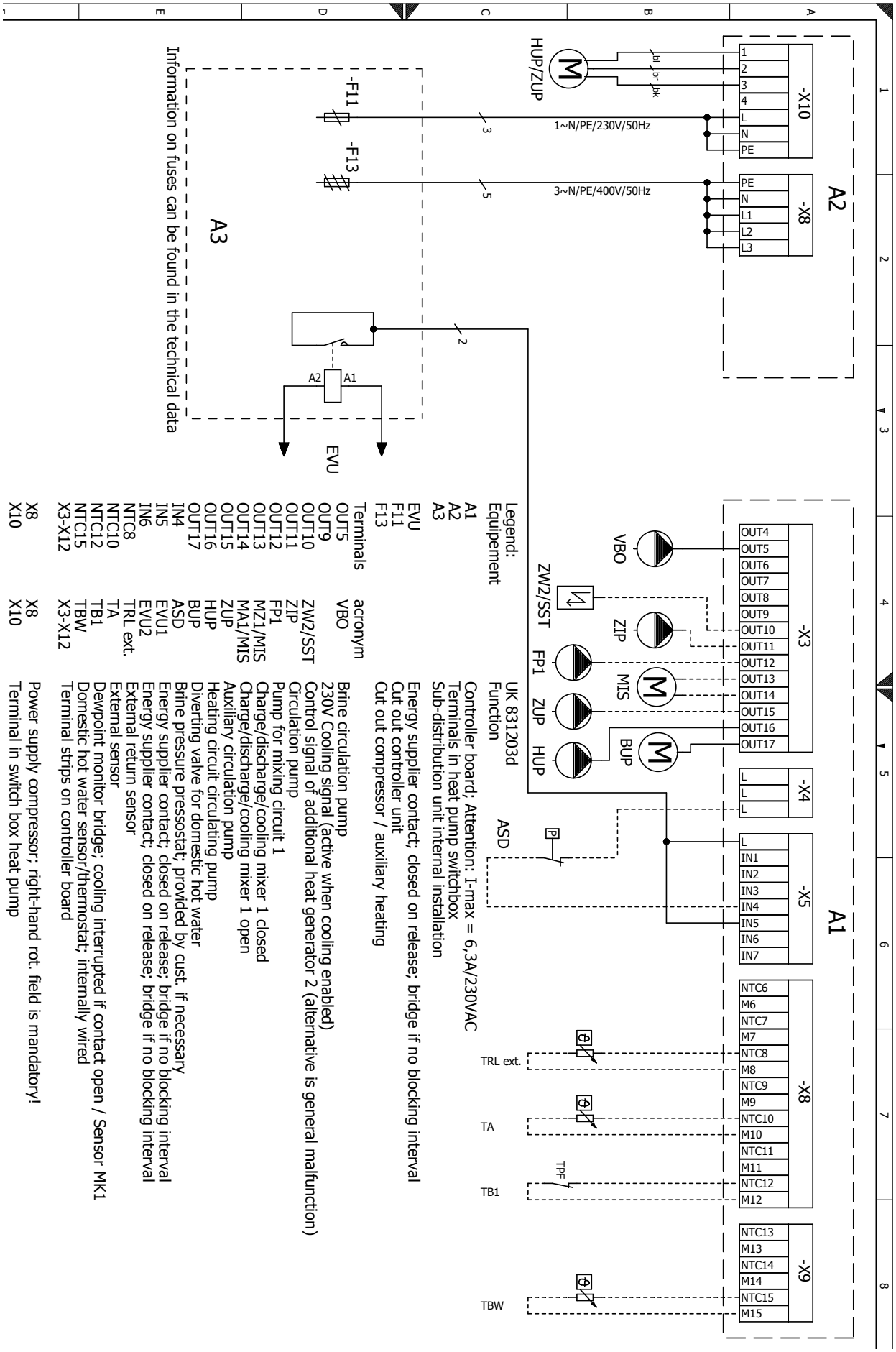
QN10	Switching valve domestic hot water / heating
QN12	Switching valve cooling / heating
QN11	Mixing valve additional heating
GP12	Circulation pump
BT1	Outdoor temperature sensor
BT7	upper domestic hot water (displayed value)
BT3	Sensor return
BT6	Sensor domestic hot water
BT64	Flow sensor cooling
BT15	Temperature sensor, liquid state
BT25	Flow temperature heating
BT71	Return temperature heating / cooling
BT52	Sensor heating boiler
BT50	Room temperature sensor
XL1	Flow heating
XL2	Return heating / cooling
XL3	Cold water
XL4	Domestic hot water
XL5	Circulation
Xl10	Flow cooling
XL13	Liquid refrigerant
XL14	Gaseous refrigerant
XL18	Flow second heat generator
XL19	Return second heat generator
X2	Terminal second heat generator
EP Split	Expansion board Split (not included in scope of delivery)

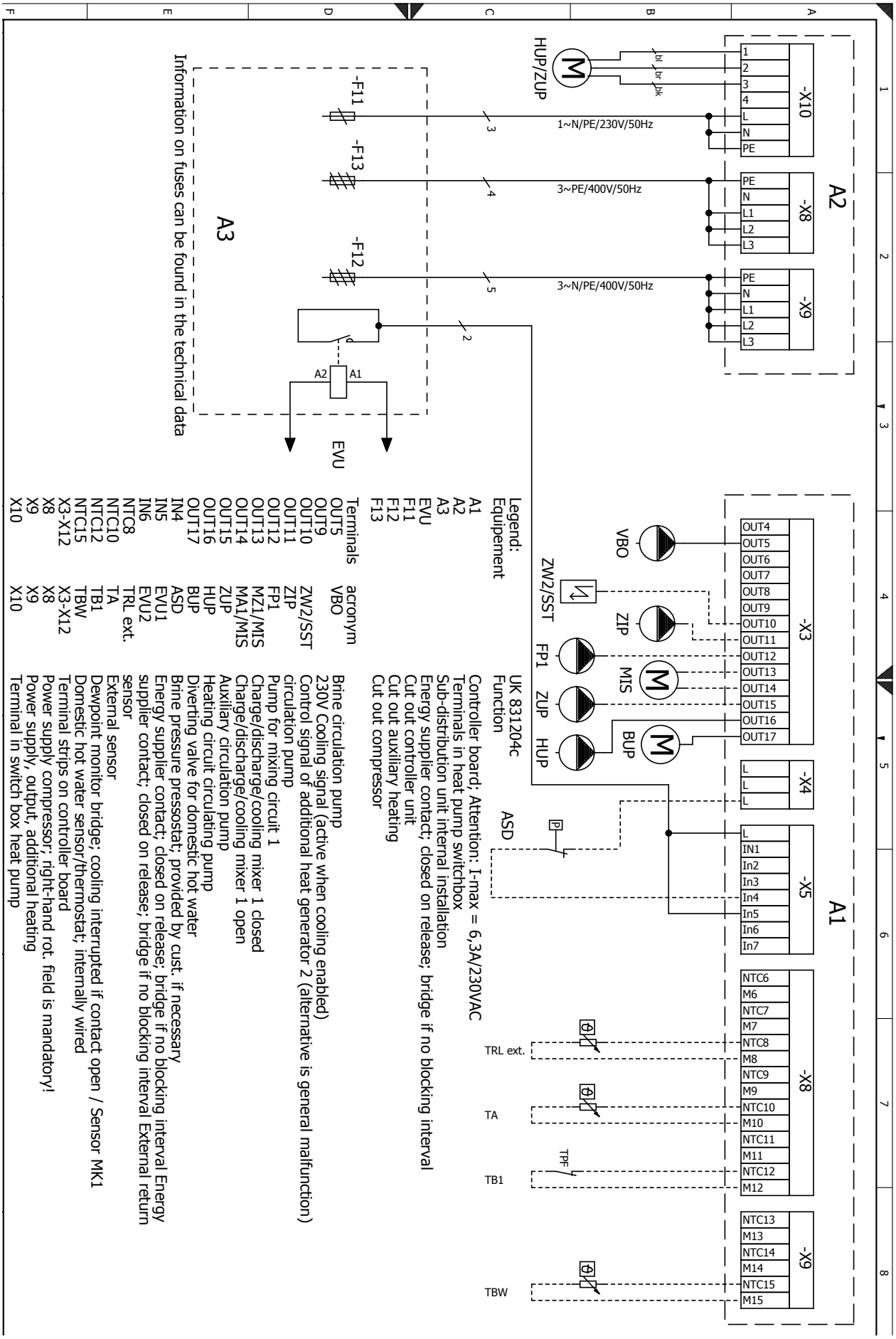
Controls supplied by customer / on-site components:


Parts and components shown in the colour "grey" must be provided by the customer and also operated with a regulation provided by the customer.
The temperature difference control SLP of the additional board is excepted from this.

General:

Pipes, fittings and fixtures must be designed and insulated in accordance with the current and valid standards, guidelines and recognised rules of technology (e.g.: vapour diffusion-tight insulation if the temperature falls below the dew point).


A1
A2
A3
-X1
-X2
-X3
-X4
-X5
-X8
-X9
-X10
-F11
-F13
HUP/ZUP
VBO
ZW2/SST
ZIP
FP1
MIS
ZUP
BUP
HUP
ASD
TRL ext.
TA
TB1
TBW
TPF
EVU
1~N/PE/230V/50Hz
3~N/PE/400V/50Hz
Information on fuses can be found in the technical data
Legend:
Equipement
A1 UK 831203d
A2 Function
A3 Controller board; Attention: I-max = 6,3A/230VAC
EVU Terminals in heat pump switchbox
F11 Sub-distribution unit internal installation
F13 Energy supplier contact; closed on release; bridge if no blocking interval
Terminals Cut out controller unit
OUT5 Cut out compressor / auxiliary heating
OUT9
OUT10 acronym
OUT11 VBO Brine circulation pump
OUT12 ZW2/SST 230V Cooling signal (active when cooling enabled)
OUT13 ZIP Control signal of additional heat generator 2 (alternative is general malfunction)
OUT14 FP1 Circulation pump
OUT15 MZ1/MIS Pump for mixing circuit 1
OUT16 MA1/MIS Charge/discharge/cooling mixer 1 closed
OUT17 ZUP Charge/discharge/cooling mixer 1 open
IN4 HUP Auxiliary circulation pump
IN5 BUP Heating circuit circulating pump
IN6 ASD Diverting valve for domestic hot water
NTC8 EVU1 Brine pressure pressostat; provided by cust. if necessary
NTC10 EVU2 Energy supplier contact; closed on release; bridge if no blocking interval
NTC12 TRL ext. Energy supplier contact; closed on release; bridge if no blocking interval
NTC15 TA External return sensor
X3-X12 TB1 External sensor
TBW Dewpoint monitor bridge; cooling interrupted if contact open / Sensor MK1
X8 X3-X12 Domestic hot water sensor/thermostat; internally wired
X10 X8 Terminal strips on controller board
X10 Power supply compressor; right-hand rot. field is mandatory!
Terminal in switch box heat pump

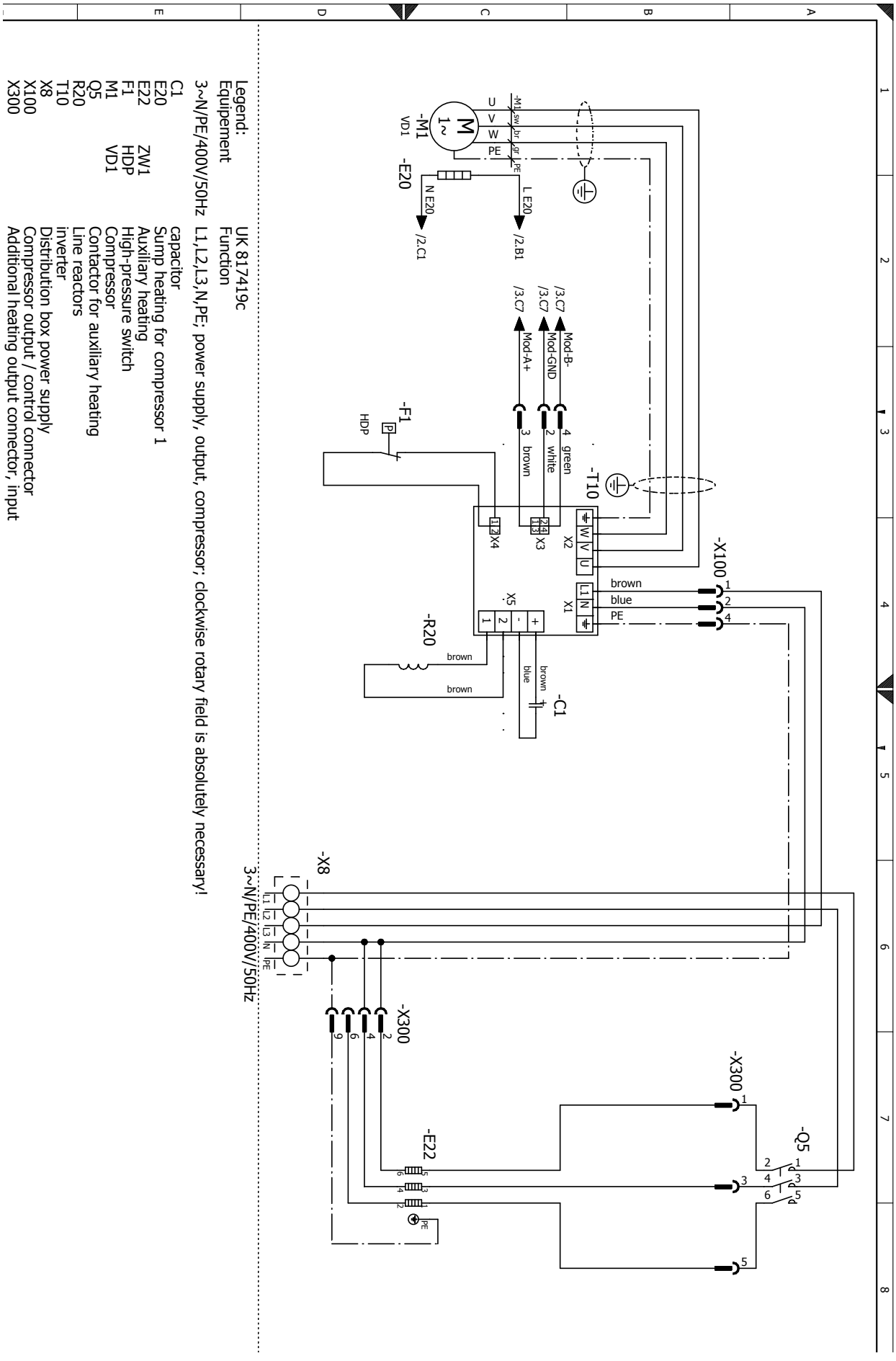


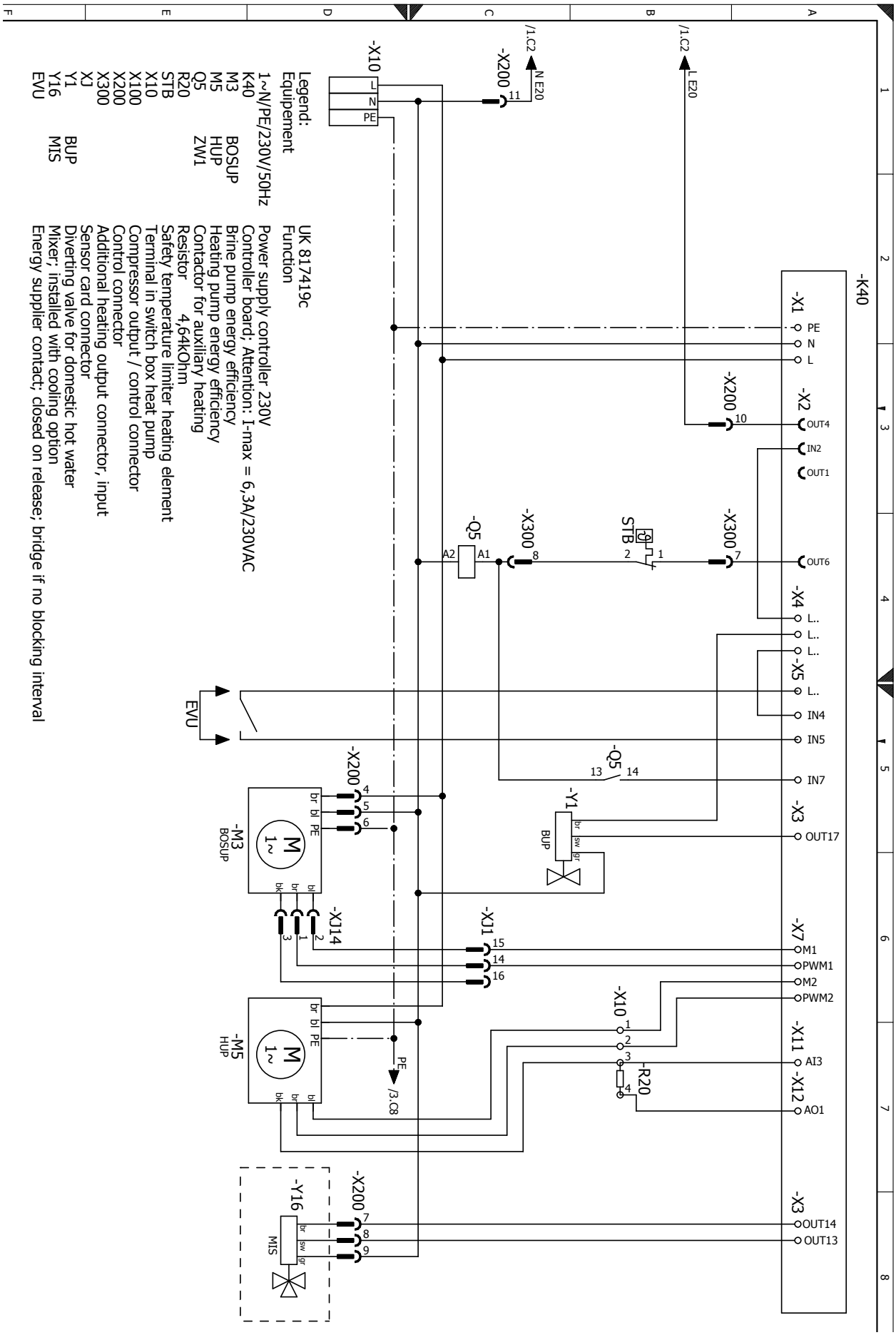
Legend:
Equipement

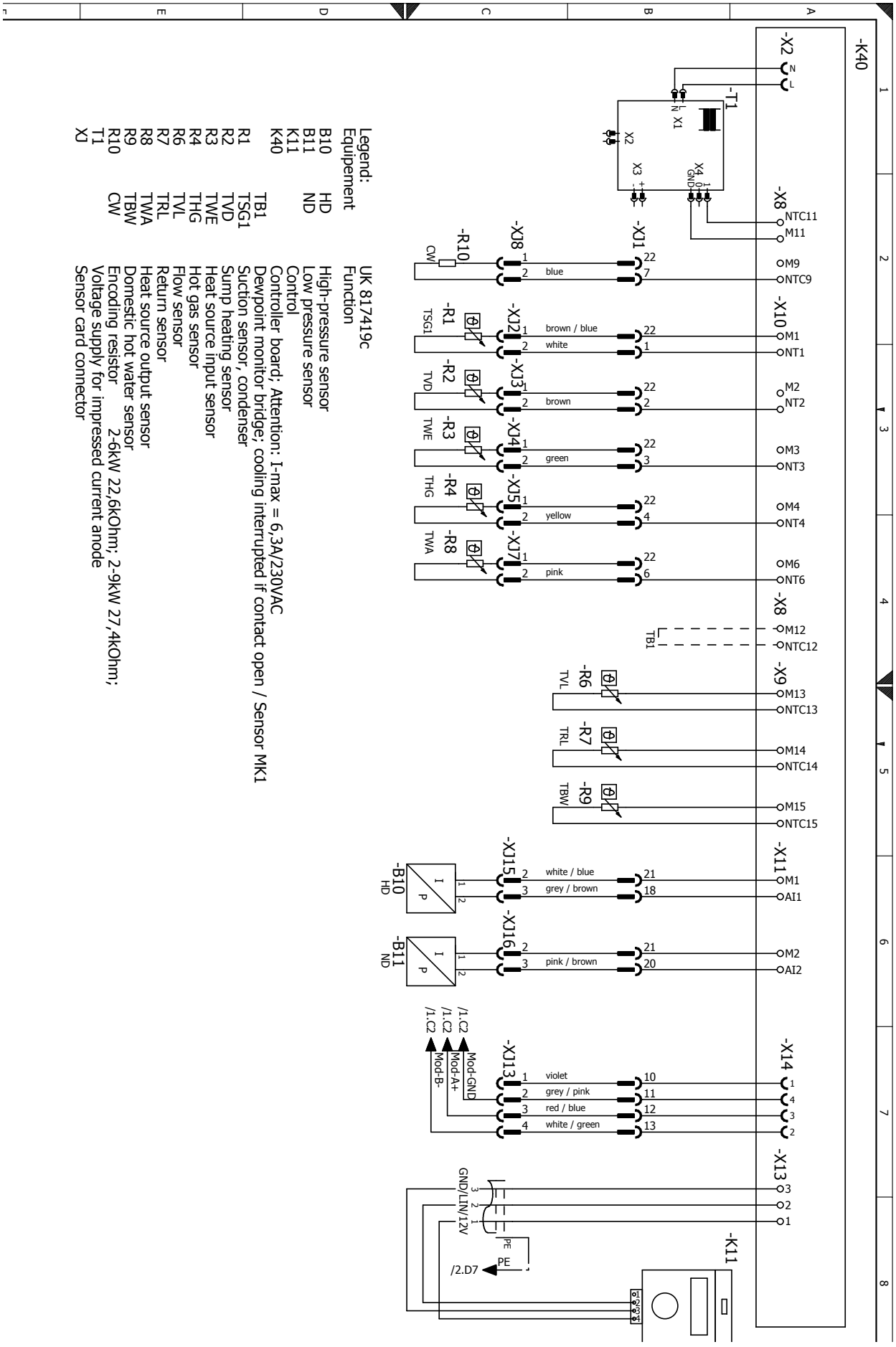
A1	Controller board; Attention: I-max = 6,3A/230VAC
A2	Terminals in heat pump switchbox
A3	Sub-distribution unit internal installation
EVU	Energy supplier contact; closed on release; bridge if no blocking interval
F11	Cut out controller unit
F12	Cut out auxiliary heating
F13	Cut out compressor

UK 831204c
Function

Terminals	acronym	
OUT5	VBO	Brine circulation pump
OUT9		230V Cooling signal (active when cooling enabled)
OUT10	ZW2/SST	Control signal of additional heat generator 2 (alternative is general malfunction)
OUT11	ZIP	circulation pump
OUT12	FP1	Pump for mixing circuit 1
OUT13	MZ1/MIS	Charge/discharge/cooling mixer 1 closed
OUT14	MA1/MIS	Charge/discharge/cooling mixer 1 open
OUT15	ZUP	Auxiliary circulation pump
OUT16	HUP	Heating circuit circulating pump
OUT17	BUP	Diverting valve for domestic hot water
IN4	ASD	Brine pressure pressostat; provided by cust. if necessary
IN5	EVU1	Energy supplier contact; closed on release; bridge if no blocking interval Energy
IN6	EVU2	supplier contact; closed on release; bridge if no blocking interval External return
NTC8	TRL ext.	sensor
NTC10	TA	External sensor
NTC12	TB1	Dewpoint monitor bridge; cooling interrupted if contact open / Sensor MK1
NTC15	TBW	Domestic hot water sensor/thermostat; internally wired
X3-X12	X3-X12	Terminal strips on controller board
X8	X8	Power supply compressor; right-hand rot. field is mandatory!
X9	X9	Power supply, output, additional heating
X10	X10	Terminal in switch box heat pump

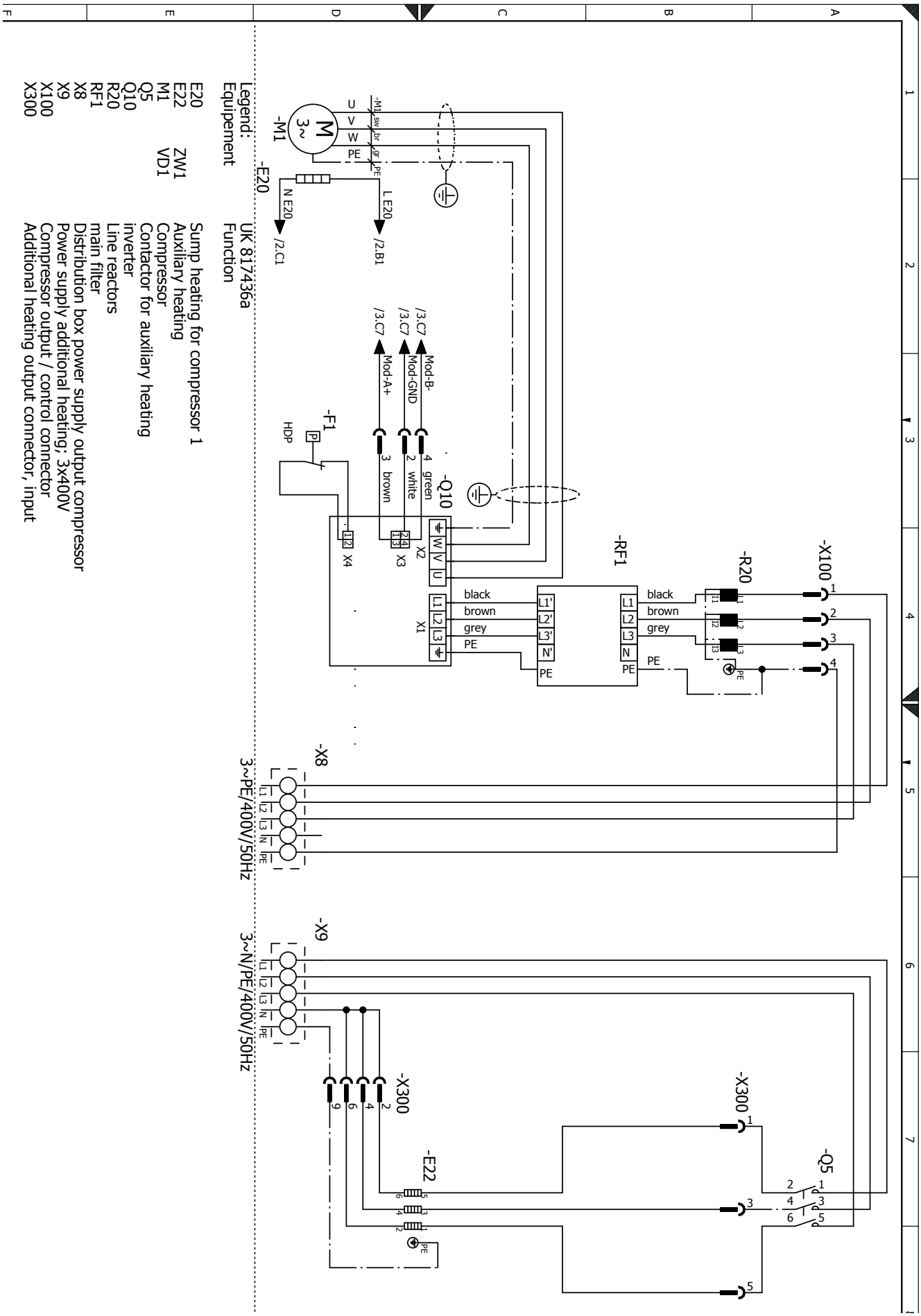

Legend:
Equipement UK 817419c
Function
3~N/PE/400V/50Hz L1,L2,L3,N,PE; power supply, output, compressor; clockwise rotary field is absolutely necessary!
C1 capacitor
E20 Sump heating for compressor 1
E22 Auxiliary heating
F1 HDP High-pressure switch
M1 Compressor
Q5 Contactor for auxiliary heating
R20 Line reactors
T10 inverter
X8 Distribution box power supply
X100 Compressor output / control connector
X300 Additional heating output connector, input
-M1 VD1
-E20
-F1 HDP
-T10
-X100
-R20
-C1
-X8
-X300
-E22
-Q5
3~N/PE/400V/50Hz
Mod-A+
Mod-GND
Mod-B-
brown
blue
PE
white
green


Legend:
Equipement
1~N/PE/230V/50Hz
K40
M3 BOSUP
M5 HUP
Q5 ZW1
R20
STB
X10
X100
X200
X300
XJ
Y1 BUP
Y16 MIS
EVU
UK 817419c
Function
Power supply controller 230V
Controller board; Attention: I-max = 6,3A/230VAC
Brine pump energy efficiency
Heating pump energy efficiency
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 OUT4 IN2 OUT1
-X4 L.. L.. L..
-X5 L.. IN4 IN5 IN7
-X3 OUT17
-X7 M1 PWM1 M2 PWM2
-X11 AI3
-X12 AO1
-X3 OUT14 OUT13
-X10 1 2 3 4
-X200 10 11
-X300 7 8
-Q5 A2 A1 13 14
STB 1 2
-R20
-Y1 BUP br sw gr
-Y16 MIS br sw gr
-M3 BOSUP M 1~ br bl PE bk br bl
-M5 HUP M 1~ br bl PE bk br bl
-XJ14 1 2 3
-XJ1 14 15 16
-X200 4 5 6 7 8 9
EVU
/1.C2
N E20
L E20
PE
/3.C8



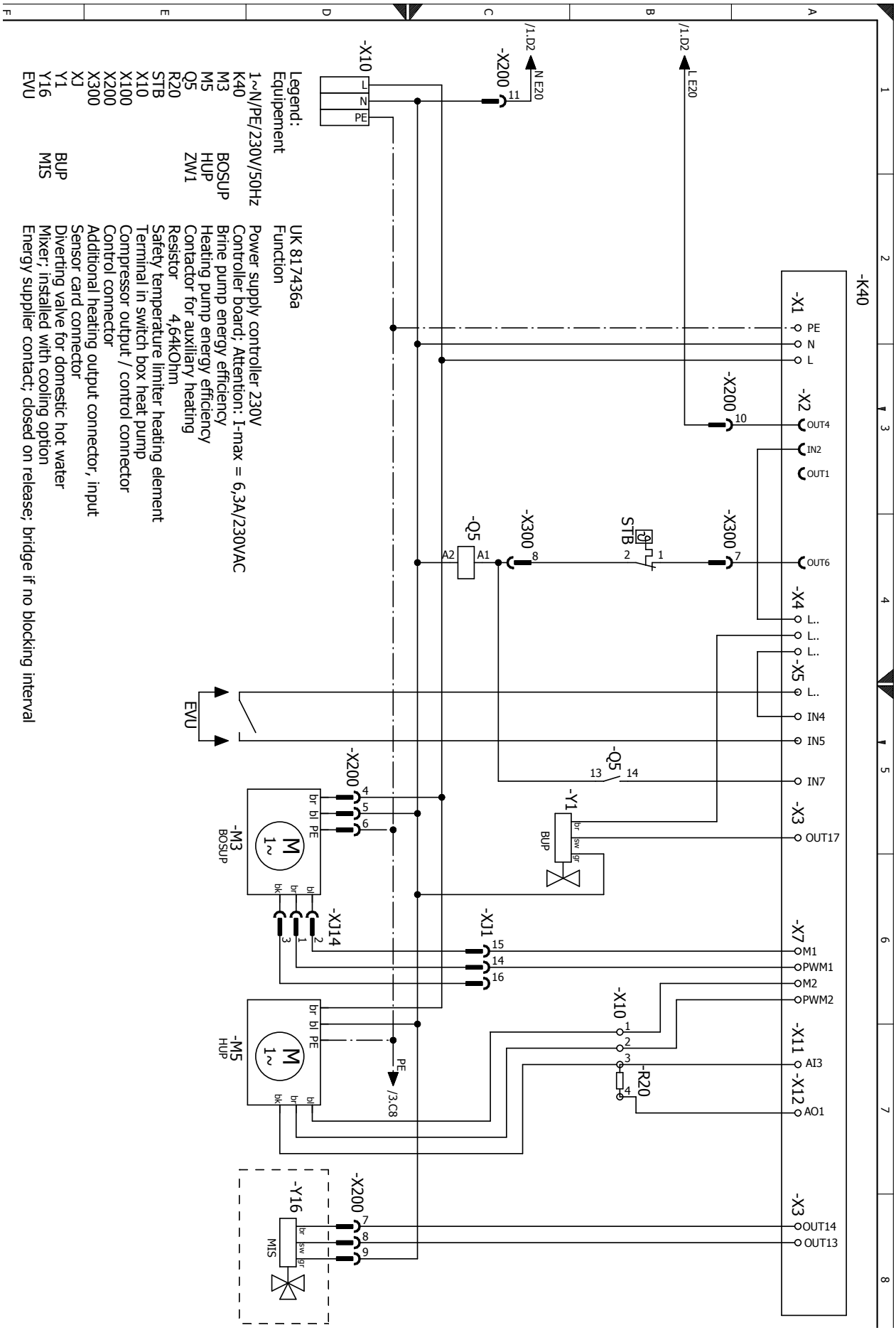
Legend:

Equipement	UK 817419c Function
B10 HD	High-pressure sensor
B11 ND	Low pressure sensor
K11	Control
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
R2 TVD	Sump heating sensor
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 2-6kW 22,6kOhm; 2-9kW 27,4kOhm;
T1	Voltage supply for impressed current anode
XJ	Sensor card connector

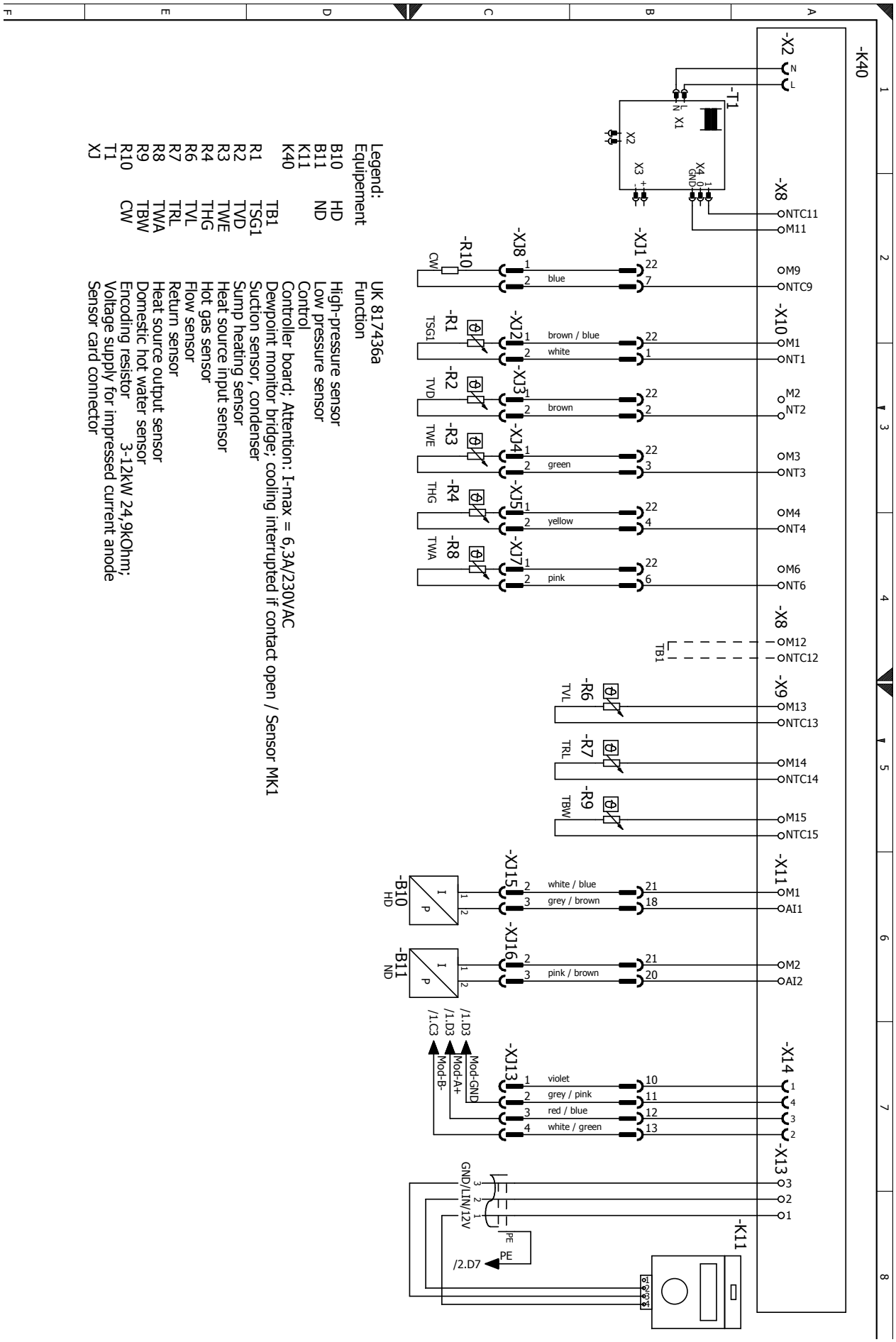

Legend:
Equipement
E20 Sump heating for compressor 1
E22 Auxiliary heating
M1 Compressor
Q5 Contactor for auxiliary heating
Q10 inverter
R20 Line reactors
RF1 main filter
X8 Distribution box power supply output compressor
X9 Power supply additional heating; 3x400V
X100 Compressor output / control connector
X300 Additional heating output connector, input
ZW1 Additional heating output connector, input
VD1
-E20
UK 817436a
Function
-M1
-F1
-Q10
-RF1
-R20
-X100
-X8
-X9
-X300
-E22
-Q5
3~PE/400V/50Hz
3~N/PE/400V/50Hz
black
brown
grey
PE
Mod-A+
Mod-GND
Mod-B-
HDP
/2.B1
/2.C1
/3.C7

Circuit diagram 2/3

WZSV 122(H)(K)3M



Circuit diagram 3/3



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