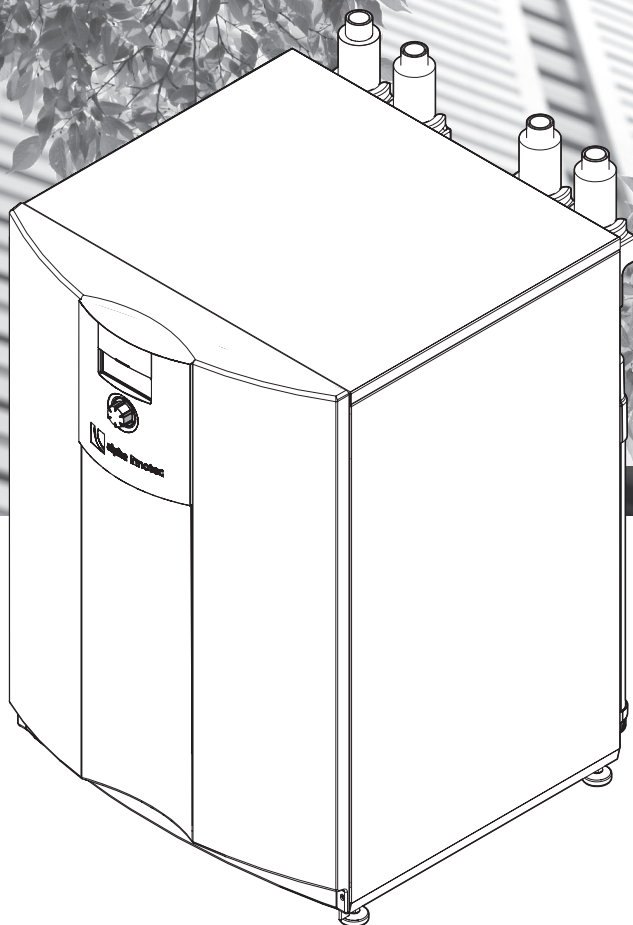
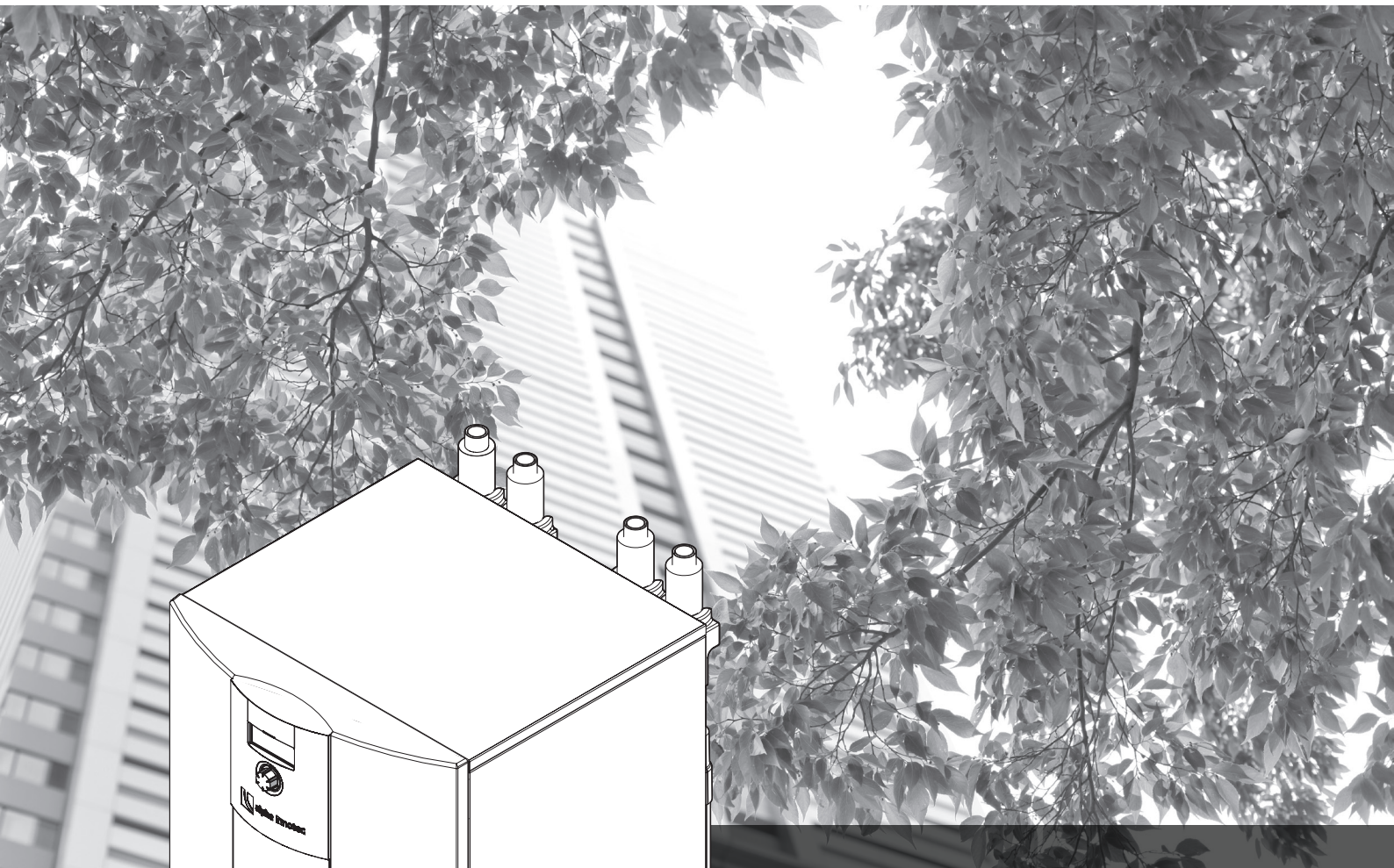


the better way to heat



Brine/water heat pumps

Operating Manual

SW series

83056800aUK – Translation into English of the original German operating manual





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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" on page 6 and "Unit sticker" on page 3).

1.2 Reference documents

The following documents contain additional information to this operating manual:

- Planning & design manual, hydraulic integration
- Operating manual of the heating and heat pump controller
- Brief description of the heat pump controller
- Operating manual of the expansion board (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 serious injuries or death.
WARNING	Indicates a potentially dangerous situation, which can result in serious injuries or death.
CAUTION	Indicates a potentially dangerous situation, which can result in moderate or minor injuries.
ATTENTION	Indicates a potentially dangerous situation, which can result in property damage.

Symbols in the document

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



1.4 Contact

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

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

2 Safety

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

2.1 Intended use

The unit is solely intended for the following functions:

- Heating
- Domestic water heating (optional, with accessories)
- Cooling (optional, with accessories)
- ▶ Proper use includes complying with the operating conditions (→ “Technical data/Scope of supply” on page 22) and the operating manual and noting and following the reference documents.
- ▶ When using the local regulations note: laws, standards, guidelines, directives.

All other uses of the unit are not as intended.

2.2 Personnel qualifications

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

Only qualified, skilled personnel is able to carry out the work on the unit 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.

Injury due to flammable liquids and potentially explosive atmospheres

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

- ▶ mix antifreeze in well-ventilated rooms.
- ▶ Note the hazardous substance markings and comply with the relevant safety regulations.



Injuries and environmental damage due to refrigerant

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

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

2.5 Disposal

Batteries

Improper disposal of the buffer battery damages the environment.

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

Media harmful to the environment

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

- ▶ Collect media safely.
- ▶ Dispose of the media in an environmentally compatible way according to the local regulations.

2.6 Avoid damage to property

Improper action

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

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

If a system is not planned, designed, started up and operated according to the 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 system with deionised heating water (VE water) only.

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

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

Using groundwater

- ▶ If using groundwater install an intermediate exchanger.



3 Description

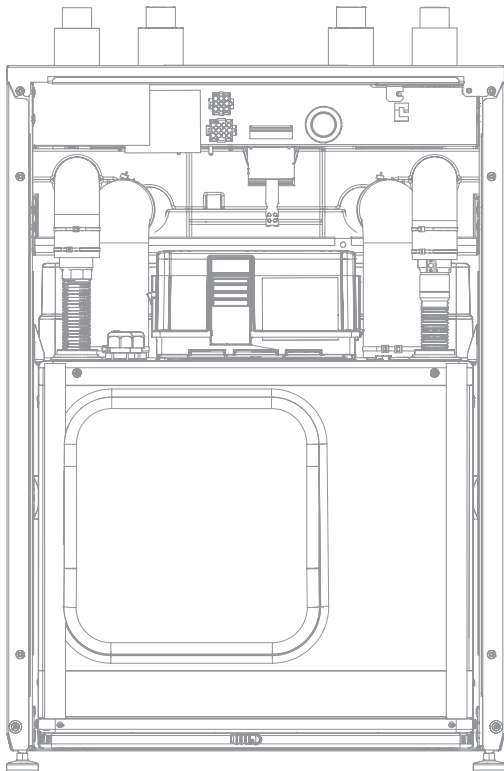
3.1 Layout



NOTE

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

Housing with unit components



The module box is inserted in the bottom of the housing. The electrical control box is at the top.

Rating plate

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

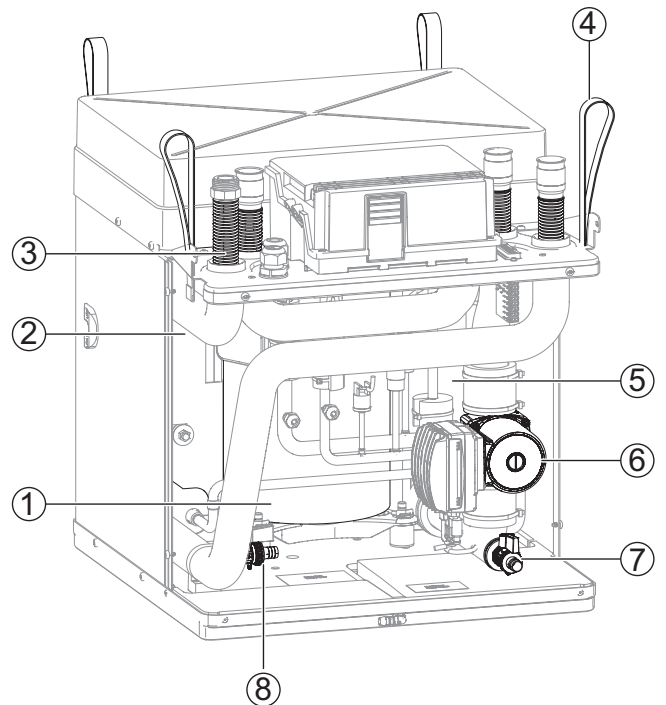
- at the rear on the outer panel
- left-hand side, on the module box

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.

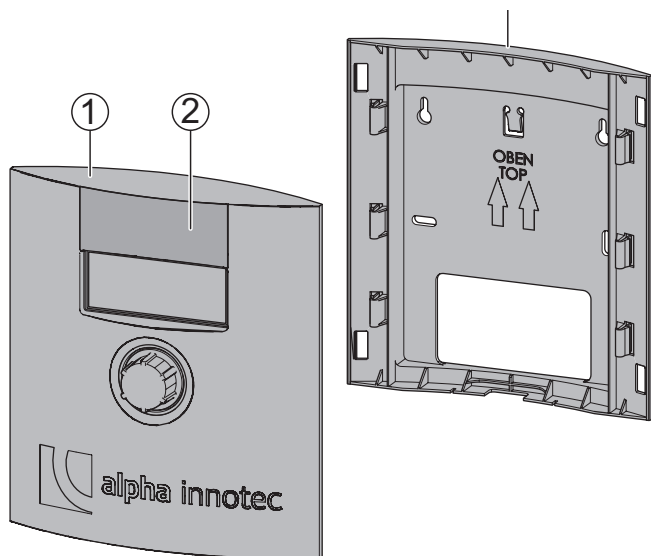
Module box



- 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

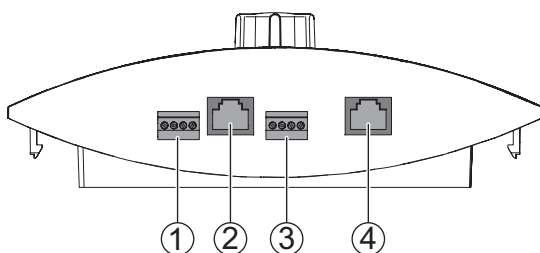


Control unit



- 1 Control
- 2 Push up flap upstream of USB connection (for qualified personnel for software updates and for data logging)
- 3 Wall-mounted bracket (only necessary for wall-mounted installation)

Underside of control



- 1 RBE (RS 485)
- 2 Network cable connection
- 3 LIN bus cable connection to the heat pump
- 4 not used

3.2 Accessories

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

- Additional masking plate for the front cover panel, if the control is mounted on the wall
- Domestic hot water tank
- Changeover valve, domestic hot water
- Room thermostat for switching the cooling function (if included)
- Dew point monitor for protecting a system with cooling function at low flow temperatures (if available)
- Expansion board for automatic changeover between heating and cooling mode (if available)
- "Cooling package" for use of the cooling function
- for units without cooling: Pump assemblies for separate storage tank and in-line tank integration (heating circuit)
- 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.

The heated heating water can be used for the domestic hot water charging or for the building heating. The temperatures required and use are controlled by the heat pump controller.

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

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

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

Network connection on the control

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

ATTENTION

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
- Outdoor sensor
- Replacement material after dismantling the module box:
 - Insulation hoses (2x)
 - Cable ties (4x)
 - for units up to 12 kW capacity: O-rings (6x), flat seal (1x)
 - for units with 14 kW capacity and higher: O-rings (8x)

5.2 Storage

- ▶ Where possible do not unpack the unit until directly before installation.
- ▶ Store unit protected against:
 - Moisture/damp
 - Frost
 - Dust and dirt



5.3 Unpacking and transport

Notes on safe transport

The housing with the unit components and the module box are heavy (→ “Technical data/Scope of supply” on page 22). 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 housing with the unit components and module box must be transported and installed by several persons.
- ▶ Secure the housing with the unit components during transport. Carry the module box by the carrying lugs.

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

- ▶ Wear cut resistant protective gloves.

The hydraulic connections are not designed for mechanical loads.

- ▶ Do not lift or transport the unit by the hydraulic connections.

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

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

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

Transport with a pallet truck

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

Unpacking



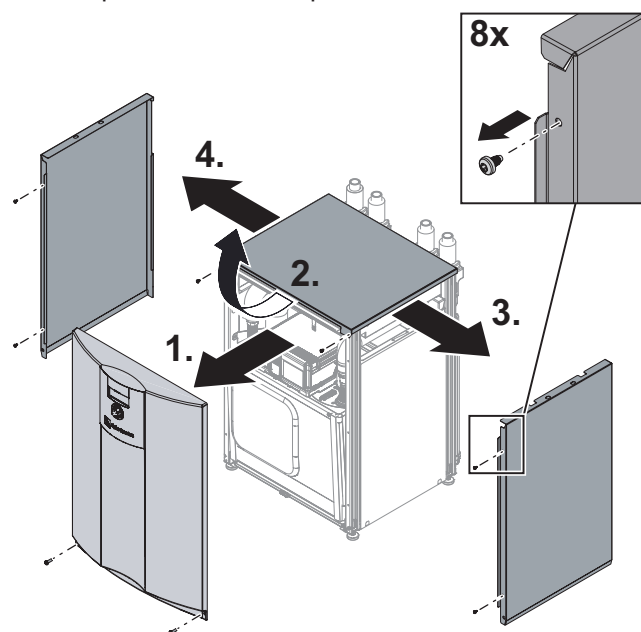
NOTE

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

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

Dismantle housing panels for transport with handcart or carrying the unit

- ✓ Unit is unpacked (→ “Unpacking” on page 9).
- 1. To avoid damage to the housing panels:
 - Undo 2 screws at the bottom of the front panel.
 - Lift up the front panel and put down in safe place.
 - Undo the 2 screws at the front of the cover.
 - Lift the cover slightly, push back by approx. 1 cm and remove.
 - Undo 2 screws in each side panel.
 - Lift up each of the side panels to the side and put down in safe place.



Transport with a handcart

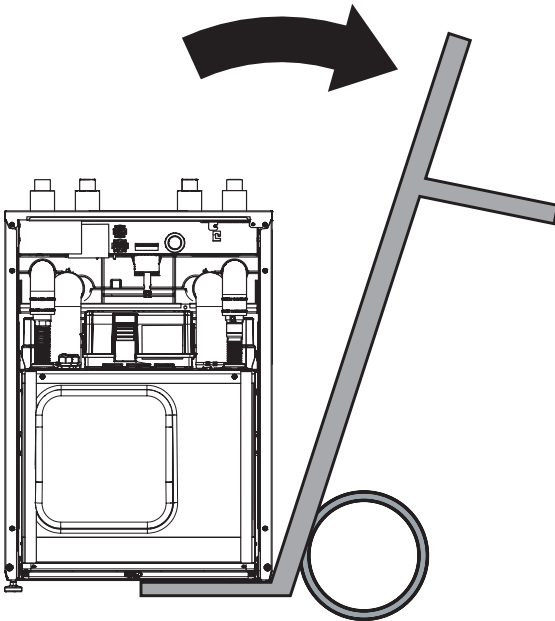


NOTE

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



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



2. Transport unit on the handcart.

Carrying the unit

- ✓ Housing panels are dismantled.
1. Dismantle module box and carry it by the support lugs to the place of installation.
 2. Carry the 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 value [kg/m ³]
R 134a	0.25
R 404A	0.48
R 407C	0.31
R 410A	0.44

(→ “Technical data/Scope of supply” on page 22).

Minimum room
volume =

Refrigerant capacity [kg]
Limit value [kg/m³]



NOTE

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

- ✓ Minimum volume corresponds to the requirements for the refrigerant used.
- ✓ Installation inside the building only.
- ✓ Installation room is dry and frost-free.
- ✓ Clearance dimensions are met (→ “Installation plans” on page 36).
- ✓ 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

ATTENTION

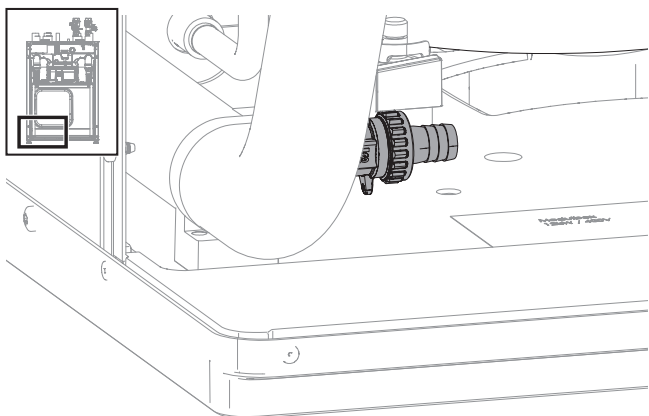
If the module box is tilted by more than 45°, compressor oil runs into the cooling circuit.

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

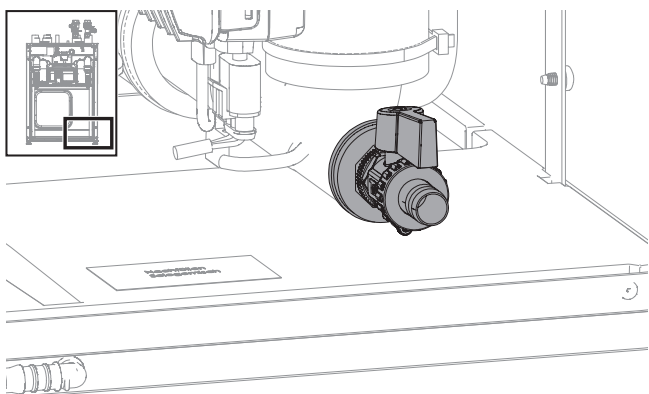


NOTE

- If necessary the module box can be dismantled for easier transport of the unit or for service reasons.
 - Steps 1 to 5 are only required if the module box is connected and filled.
- ✓ Unit is safely disconnected from the power supply and protected against being switched back on again.
1. Remove the front panel of the module box (→ “7.1 Remove the front panel of the module box” on page 17).
 2. Close shut-off valves to the heating circuit.
 3. Drain the unit via the filling and drain tap of the heating.



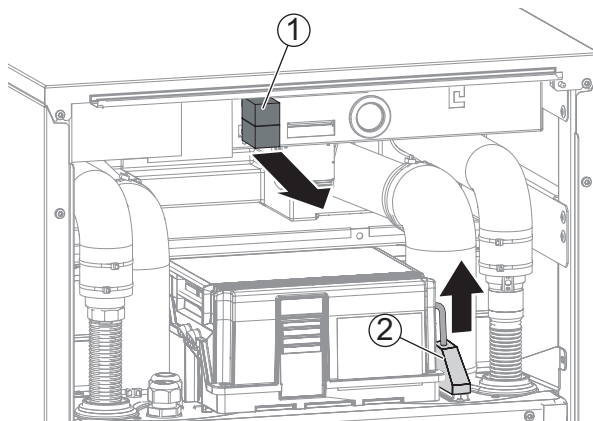
4. Close shut-off valves to the heat source.
5. Drain the unit via the filling and drain tap of the heat source.



6. Disconnect the electrical connections:

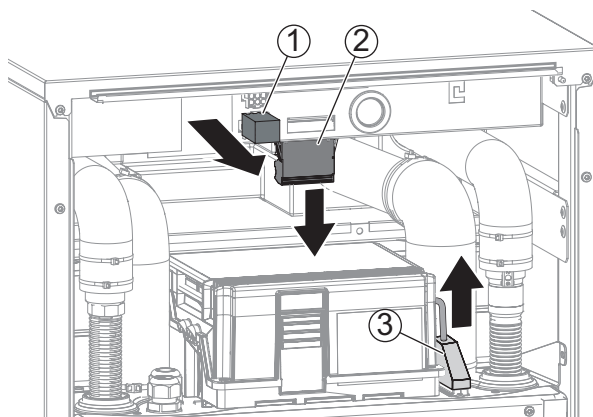
► Unit up to 12 kW capacity:

- Disconnect 2 white connectors (1) at 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.



► Unit with 14 kW capacity and higher:

- Disconnect connector (1) at the front of the electrical control cabinet.
- Disconnect connector (2) at the bottom of the electrical control cabinet. To do this, remove the control cabinet cover and undo the connector from the inside.
- Pull out the black rectangular connector (3) at the top of the module box.



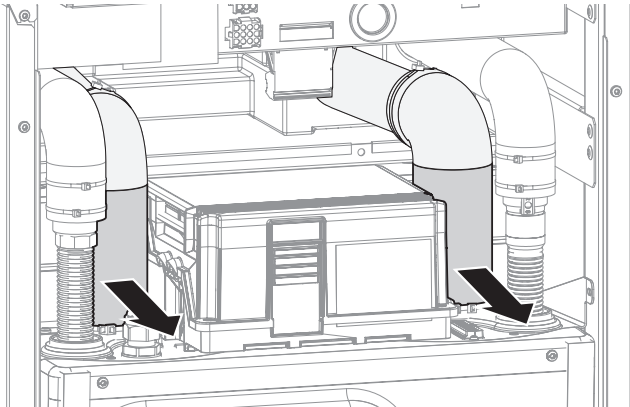


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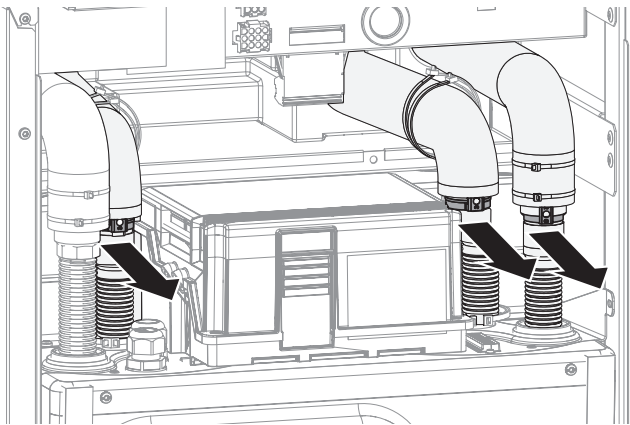
NOTE

The following diagrams show the connections of units with up to 12 kW capacity. In units with 14 kW capacity and higher all connections are installed with clips and without valves.

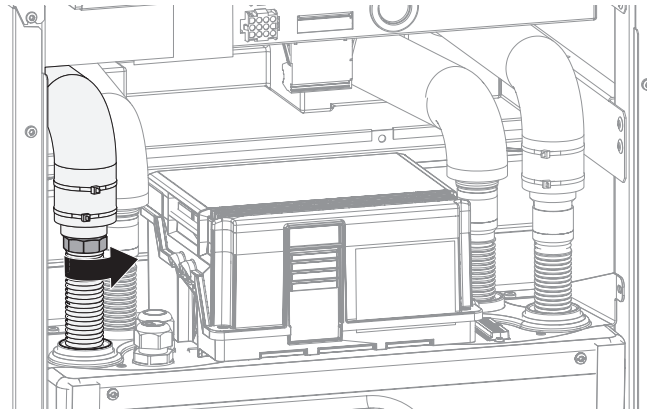
7. Remove the insulation on the hydraulic connections.



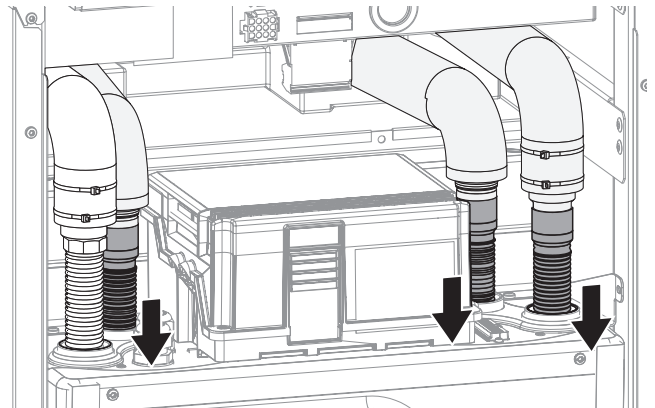
8. Remove 3 clips on the hydraulic connections.



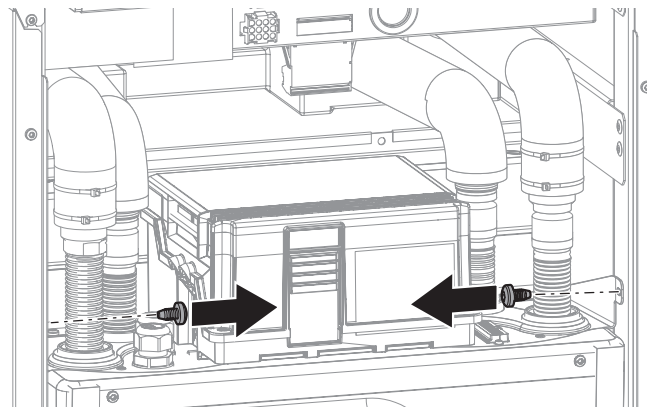
9. Use spanner size SW 37 to unscrew the heating flow.



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

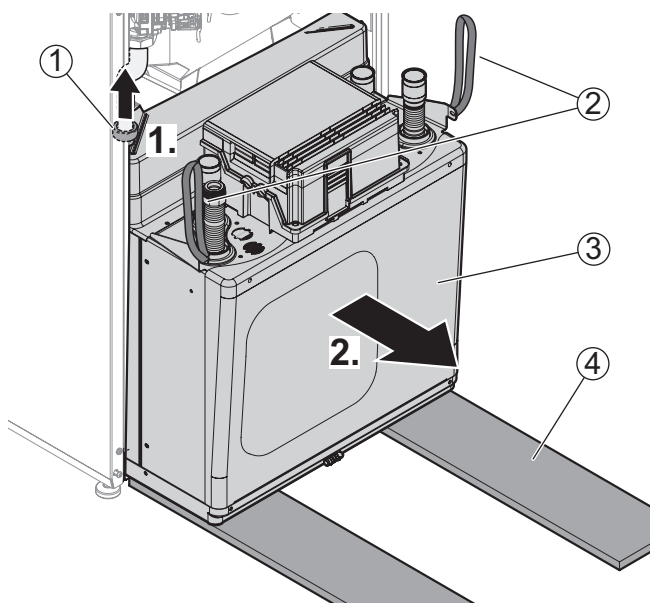


11. Remove the 2 side retaining screws.

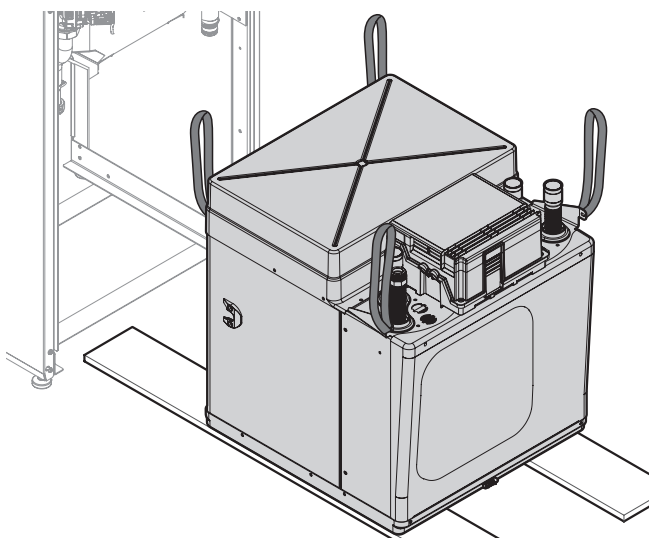




12. To protect the floor and move the module box (3) more easily: place boards (4) under it, e.g. from the packaging material.
13. Lift and hold nut (1) on the heating flow.
14. Slowly and carefully pull out the module box by the carrying lugs (2). Ensure that none of the pipes are damaged



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 housing and slowly and carefully push it in.
 - At the same time, lift and hold the 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 heating flow and hydraulic connections. At the same time, replace O-rings on the heat pump connections (→ separate pack included).
4. Perform pressure test and insulate pipes with the enclosed insulation hoses (→ separate pack).
5. Connect the electrical cables:
 - Plug both connectors into the electrical control cabinet. Ensure that the connectors move easily and the lugs latch into position.
 - Plug in the black rectangular connector at the top of the module box.



6.3 Install the hydraulic connections

ATTENTION

Damage to the copper pipes due to unacceptable loading!

- ▶ Secure all connections against twisting.

- ✓ The heat source system has been installed in accordance with the specifications (→ planning & design manual, dimensioned diagrams, installation plans).
- ✓ Cross-sections and lengths of the pipes for the heating circuit and heat source are dimensioned adequately.
- ✓ The free pressure of the circulation pumps produces at least the minimum throughput required for the unit type (→ “Technical data/Scope of supply” on page 22).
- ✓ The cables for the heat source and the heating are fixed to the wall or ceiling via a fixed point.

Connect the unit to the heat source 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. Ensure that the operating overpressures (→ “Technical data/Scope of supply” on page 22) are not exceeded.

6.4 Connect the electrical cables

ATTENTION

Irreparable damage to the compressor due to wrong rotating field!

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

Basic information on the electrical connection



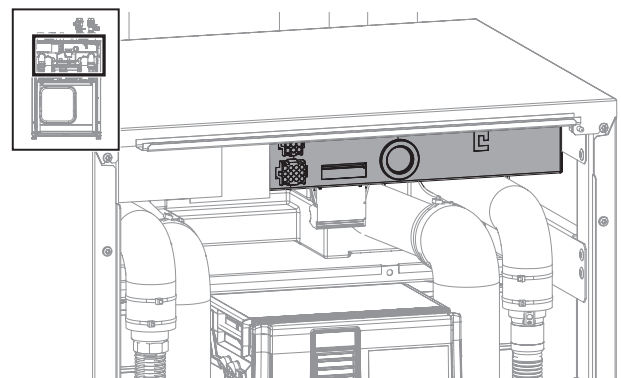
NOTE

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

- The specifications of the local power supply company may apply to electrical connections.
- Fit the power supply for the heat pump with an all-pole miniature circuit-breaker with at least 3 mm contact spacing (IEC 60947-2).
- Note the level of the tripping current (→ “Technical data/Scope of supply” on page 22).
- Comply with the electromagnetic compatibility regulations (EMC regulations).
 - Lay the control/sensor cables and unit supply cable sufficiently far apart (> 100 mm).
 - Lay unshielded power supply cables and shielded cables (LIN bus cable) with sufficient distance between them.
- Do not lengthen the patch cable and LIN bus cable. LIN bus cables up to 30 m long can be used if the quality of the cable is the same as that of the original cable.

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. Dismantle the cover of the electrical control box.

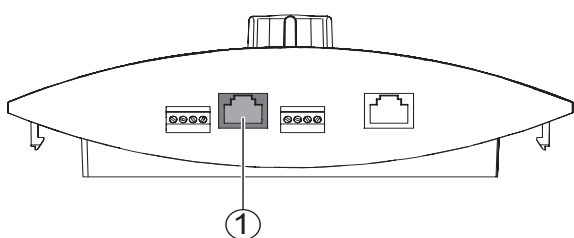




3. Feed the control/sensor cables and unit supply cable into the housing from the rear.
4. Route cables from underneath through the cable openings in the control box.
5. Connect cables to the respective terminals (→ "Terminal diagram" on page 42).

Control the controller via a PC

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



NOTE

The network cable can be retrofitted at any time.

6.5 Installing the control

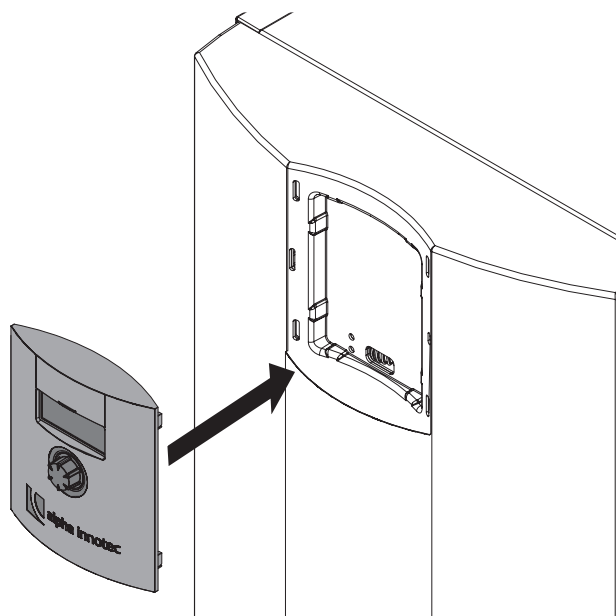


NOTE

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

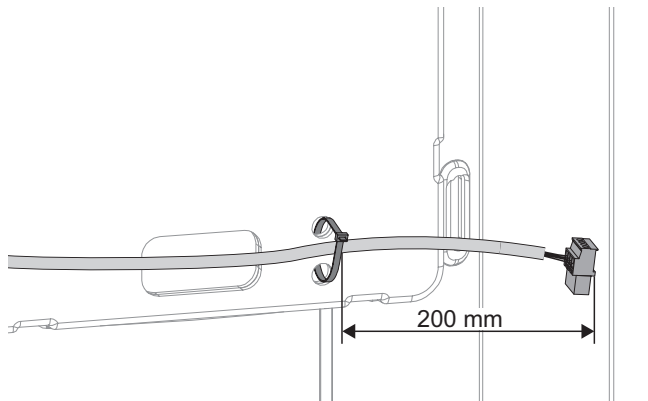
1. If required: Remove masking plate from the slot. To do this, dismantle the front panel (→ "Dismantle housing panels for transport with handcart or carrying the unit" on page 9), press the lugs together and push out of the openings.
2. Remove film from the plastic element of the front panel.
3. Position the control in the recess in the front unit panel.



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



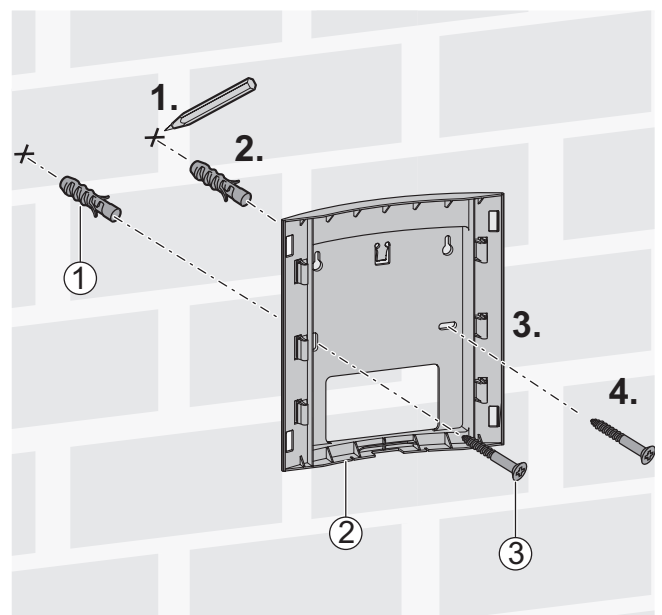
5. Use cable ties (→separate pack) to fix the LIN bus cable to a web of the masking plate around 20 cm in front of the connector (strain relief).



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.

Mount the control on the wall and connect

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 (→ “Dimensioned drawing of control, wall-mounted bracket” on page 35).
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).



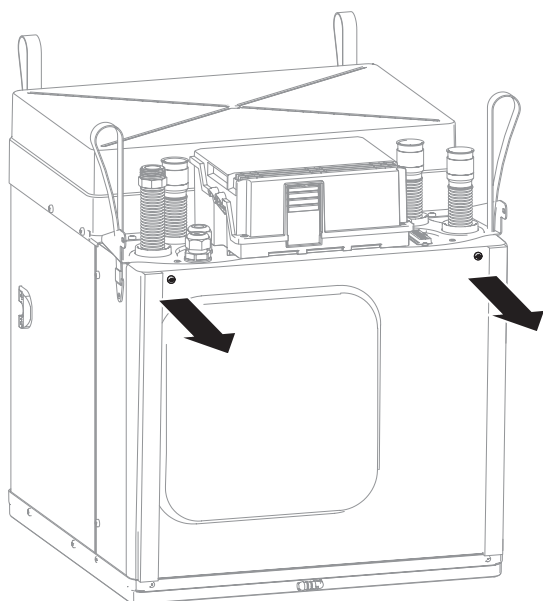
6. Feed in the cables from the wall (e.g. in-wall box) or from below.
7. Route the LIN bus cable from the top right-hand side at the rear from the heat pump and plug into the control at the bottom.
8. Push the control onto the wall-mounted bracket.
9. Put on the masking plate if applicable (accessories).



7 Flushing, filling and venting

7.1 Remove the front panel of the module box

- ▶ Unscrew the front panel of the module box.



7.2 Heating water quality



NOTE

- For detailed information refer, among other things, to the VDI Guidelines 2035 “Vermeidung von Schäden in Warmwasserheizanlagen” (preventing damage in hot water heating systems).
 - Required pH value: 8,2 ... 10
 - for aluminium materials: pH value: 8,2 ... 8.5
- ▶ Fill the system with deionised heating water (VE water) only (low-salt operation of the system).

Advantages of low-salt operation:

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

7.3 Fill, flush and vent heat source

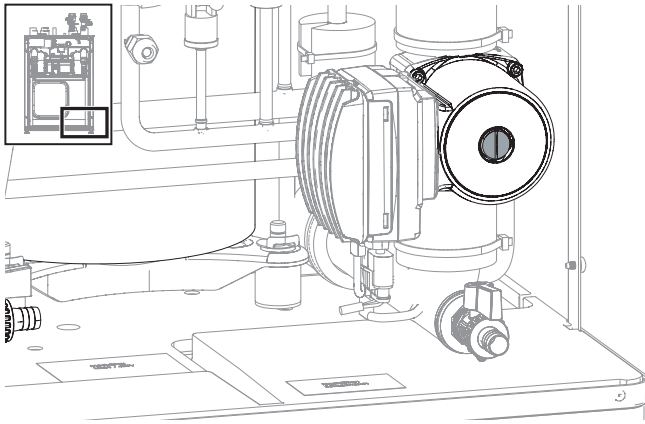
Water and the following antifreeze products are approved for filling the brine circuit:

- Monopropylene glycol
 - Monoethylene glycol
 - Ethanol
 - Methanol
- ▶ For operation of the heat source with water or water-antifreeze mixture, ensure that the water fulfils the quality specifications of the heating water side.
 - ▶ Check that frost protection to -13 °C is ensured.
 - ▶ Ensure that the antifreeze is compatible with the pipe, seal and other component materials used on site.
- ✓ Drain pipe of the safety valve is connected.
 - ✓ Room is ventilated.
1. Mix antifreeze with water thoroughly with the required ratio, before adding to the heat source.
 2. Check the concentration of the water-antifreeze mixture. Frost protection: -13 °C
 3. Fill the heat source with the water-antifreeze mixture.
 4. Flush heat source system.
 5. Flush until the system is air-free.
 6. Fill the unit via the ball valves in the module box.



7.4 Vent the circulation pump of the heat source

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



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

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

- ✓ 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. If installed: Flush the domestic hot water charging circuit for approx. 1 minute.
 2. Flush heating circuit thoroughly, until no more air is discharged.
 3. Unscrew the front panel of the module box.

8 Insulate hydraulic connections

1. Insulate heating circuit and heat source 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 Commissioning

- ✓ Relevant planning & design data of the system is documented in full.
 - ✓ The competent energy supplier has been notified of operation of the heat pump system.
 - ✓ System is air-free.
 - ✓ Installation check using the general checklist has been completed successfully.
1. Ensure that the following points are fulfilled completely:
 - Right-hand (clockwise) rotating load infeed field is available at the compressor.
 - Housing with the unit components is installed and mounted according to this operating manual.
 - The electrical installation has been carried out properly according to this operating manual and local regulations.
 - The power supply for the heat pump is equipped with an all-pole miniature circuit-breaker with at least 3 mm contact spacing (IEC 60947-2).
 - The level of the tripping current is compliant.
 - The heating circuit and heat source are flushed and vented.
 - The frost protection of the heat source liquid is at -13 °C .
 - All shut-off devices of the heating circuit are open.
 - All shut-off devices of the heat source are open.
 - The pipe systems and components of the system are leaktight.
 2. Fill out carefully and sign the completion report for heat pump systems.
 3. In Germany and Austria: Send completion report for heat pump systems and general checklist to the manufacturer's factory customer service department. In other countries: Send completion report for heat pump systems and general checklist to the manufacturer's local partner.
 4. Arrange for the heat pump system to be started up by customer service personnel authorised by the manufacturer; this is a chargeable service.

10 Maintenance



NOTE

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

10.1 Basic principles

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

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

The hermetic 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.

10.2 Maintenance as required

- Yearly, more frequently if necessary:
 - Checking and cleaning the components of the heating circuit and the heat source, e.g. valves, expansion vessels, circulation pumps, filters, dirt traps.
 - Test the function of the safety valve for the heating circuit.

10.3 Yearly maintenance

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

10.4 Clean and flush the evaporator und 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 Faults

- ▶ Read out the cause of the fault via the diagnostics program of the heating and heat pump controller.
- ▶ Contact the local partner of the manufacturer or the factory's customer service. Have the fault message and unit number (→ "Unit sticker" on page 3) to hand.

12 Dismantling and Disposal

12.1 Dismantling

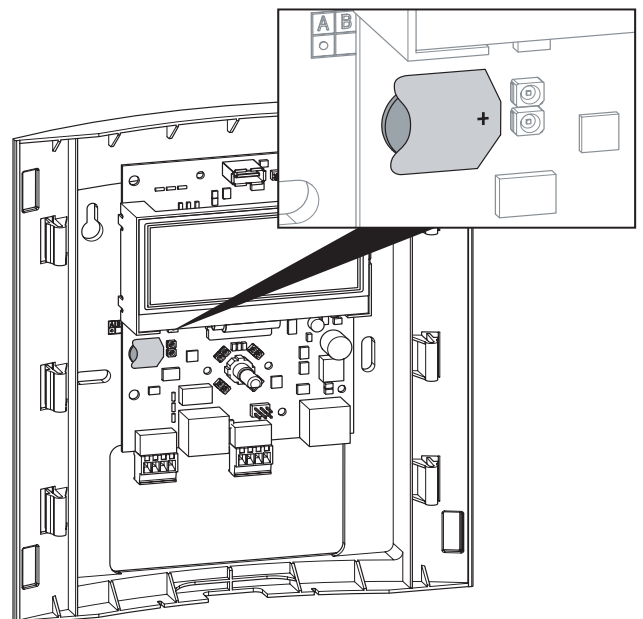
- ✓ Unit is safely disconnected from the power supply and protected against being switched back on again.
- ▶ Collect all media safely.
- ▶ Separate components by their materials.

12.2 Disposal and Recycling

- ▶ Dispose of media harmful to the environment according to local regulations, e.g. antifreeze mixture, refrigerant.
- ▶ Recycle or ensure proper disposal of unit components and packaging materials according to local regulations.

Buffer (standby) battery

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



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





Technical data/Scope of supply

SW 42H3 – SW 122H3

Heat pump type	Brine/Water Air/Water Water/Water	• applicable — not applicable
Installation location	Indoor Outdoor	• applicable — not applicable
Conformity		CE
Performance data	Heating capacity COP for B0/W35, standard nominal operating point as per EN14511	kW ...
	Heating capacity COP for B0/W45, standard nominal operating point as per EN14511	kW ...
	Heating capacity COP for B0/W55, standard nominal operating point as per EN14511	kW ...
	Heating capacity COP for B7/W35, flows analogous to B0W35	kW ...
Limits of use	Heating circuit return min. Heating circuit flow max.	°C
	Heat source	°C
	Additional operating points	...
Sound	Sound pressure level at 1 m distance from the edge of the unit	dB(A)
	Sound power level as per EN12102	dB
Heat source	Volume flow: minimum throughput nominal throughput analogous to B0W35 maximum throughput	l/h
	Free heat pump pressure Δp (with cooling Δp_K) with monoethylene glycol (25 %) Volume flow	bar (bar) l/h
	Approved anti-freeze	
	Frostproof to	°C
	Maximum operating pressure	bar
Heating circuit	Volume flow: minimum throughput nominal throughput analogous to B0W35 maximum throughput	l/h
	Free heat pump pressure Δp (with cooling Δp_K) Volume flow	bar (bar) l/h
	Pressure losses, heat pump Δp (with cooling Δp_K) Flow rate	bar (bar) l/h
	Maximum operating pressure	bar
General unit data	Total weight (with cooling)	kg (kg)
	Box weight (with cooling) Tower weight (with cooling)	kg (kg) kg (kg)
	Refrigerant type Refrigerant capacity	... kg
Domestic hot water tank	Net volume	l
	Impressed current anode	integrated:
	Domestic hot water temperature in heat pump mode	up to °C
	Domestic hot water temperature with electric heating element	up to °C
	Delivery rate as per EN 16147 (at 40 °C, withdrawal of 10 l/min)	l
	Standby heat loss as per EN 12897 (at 65 °C)	W
	Maximum pressure	bar
Electrics	Fusing for connection via a joint supply cable	
	Voltage code all-pole fusing	... A
	Fusing for connection via 3 separate supply cables	
	Voltage code all-pole heat pump fusing *)	... A
	Voltage code Control voltage fusing *)	... A
	Voltage code Electric heating element fusing *)	... A
Heat pump	Effective power consumption at standard point B0/W35 as per EN14511: Power consumption Current input $\cos\phi$	kW A ...
	Maximum machine current Maximum power consumption within the limits of use	A kW
	Starting current: direct with soft starter	A A
	Degree of protection	IP
Components	Electric heating element output	kW
	Heating circuit circulation pump at nominal throughput: Power consumption Current input	kW A
	Heat source circulation pump at nominal throughput: Power consumption Current input	kW A
Passive cooling function	Figures apply to units with identifier K only: Cooling capacity at nominal volume flows (15 °C heat source, 25 °C heating water)	kW
Safety equipment	Safety assembly, heating circuit Safety assembly, heat source	included in scope of supply: • yes — no
Heating and heat pump controller		included in scope of supply: • yes — no
Electronic soft starter		integrated: • yes — no
Expansion vessels	Heat source: Scope of supply Volume Initial pressure	• yes — no l bar
	Heating circuit: Scope of supply Volume Initial pressure	• yes — no l bar
Overflow valve		integrated: • yes — no
Vibration isolators	Heating circuit Heat source	integrated: • yes — no

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



SW 42H3	SW 62H3	SW 82H3	SW 102H3	SW 122H3
• — —	• — —	• — —	• — —	• — —
• —	• —	• —	• —	• —
•	•	•	•	•
4.70 4.70	6.00 4.80	7.70 4.90	9.50 5.09	12.18 5.00
4.42 3.42	5.08 3.60	6.84 3.61	8.55 3.73	11.24 3.76
4.16 2.58	4.37 2.82	6.49 2.91	8.17 2.93	10.63 2.97
5.83 5.70	7.18 5.61	9.20 5.96	11.19 6.30	14.55 6.06
20 60	20 60	20 60	20 60	20 60
-5 - 25	-5 - 25	-5 - 25	-5 - 25	-5 - 25
BOW65	BOW65	BOW65	BOW65	BOW65
31	31	31	31	31
43	43	43	43	43
700 1050 1575	900 1350 2000	1200 1750 2600	1500 2200 3300	1900 2800 4200
0.75 (—) 1050	0.6 (—) 1350	0.84 (—) 1750	0.87 (—) 2200	0.7 (—) 2800
• • • •	• • • •	• • • •	• • • •	• • • •
-13	-13	-13	-13	-13
3	3	3	3	3
450 850 1300	500 1000 1250	650 1300 1600	800 1600 2000	1050 2050 2600
— (—) —	— (—) —	— (—) —	— (—) —	— (—) —
0.03 (—) 850	0.04 (—) 1000	0.06 (—) 1300	0.09 (—) 1600	0.13 (—) 2050
3	3	3	3	3
135 (—)	140 (—)	155 (—)	160 (—)	165 (—)
90 (—) 45 (—)	95 (—) 45 (—)	110 (—) 45 (—)	115 (—) 45 (—)	90 (—) 45 (—)
R410A 1.05	R410A 1.37	R410A 1.72	R410A 1.98	R410A 2.25
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
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—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
— —	— —	— —	— —	— —
3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10	3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10	3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10	3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10	3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10
— —	— —	— —	— —	— —
1.00 2.44 0.59	1.25 2.5 0.72	1.57 3.02 0.75	1.87 3.73 0.72	2.44 4.70 0.75
4.8 2.3	5.0 2.5	6.01 3.10	7.63 4.00	9.44 4.80
22.0 —	23.0 —	30.0 —	— 22.0	— 26.0
20	20	20	20	20
—	—	—	—	—
— —	— —	— —	— —	— —
0.09 n.n.	0.09 n.n.	0.14 n.n.	0.18 n.n.	0.18 n.n.
—	—	—	—	—
— —	— —	— —	— —	— —
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—	—	—	•	•
— — —	— — —	— — —	— — —	— — —
— — —	— — —	— — —	— — —	— — —
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• •	• •	• •	• •	• •
813473	813474	813475	813476	813477



Technical data/Scope of supply

SW 142H3 – SW 192H3

Heat pump type	Brine/Water Air/Water Water/Water	• applicable — not applicable	
Installation location	Indoor Outdoor	• applicable — not applicable	
Conformity		CE	
Performance data	Heating capacity COP for B0/W35, standard nominal operating point as per EN14511	kW ...	
	Heating capacity COP for B0/W45, standard nominal operating point as per EN14511	kW ...	
	Heating capacity COP for B0/W55, standard nominal operating point as per EN14511	kW ...	
	Heating capacity COP for B7/W35, flows analogous to B0W35	kW ...	
Limits of use	Heating circuit return min. Heating circuit flow max.	°C	
	Heat source	°C	
	Additional operating points	...	
Sound	Sound pressure level at 1 m distance from the edge of the unit	dB(A)	
	Sound power level as per EN12102	dB	
Heat source	Volume flow: minimum throughput nominal throughput analogous to B0W35 maximum throughput	l/h	
	Free heat pump pressure Δp (with cooling Δp_K) with monoethylene glycol (25 %) Volume flow	bar (bar) l/h	
	Approved anti-freeze		
	Frostproof to	°C	
	Maximum operating pressure	bar	
Heating circuit	Volume flow: minimum throughput nominal throughput analogous to B0W35 maximum throughput	l/h	
	Free heat pump pressure Δp (with cooling Δp_K) Volume flow	bar (bar) l/h	
	Pressure losses, heat pump Δp (with cooling Δp_K) Flow rate	bar (bar) l/h	
	Maximum operating pressure	bar	
General unit data	Total weight (with cooling)	kg (kg)	
	Box weight (with cooling) Tower weight (with cooling)	kg (kg) kg (kg)	
	Refrigerant type Refrigerant capacity	... kg	
Domestic hot water tank	Net volume	l	
	Impressed current anode	integrated:	
	Domestic hot water temperature in heat pump mode	up to °C	
	Domestic hot water temperature with electric heating element	up to °C	
	Delivery rate as per EN 16147 (at 40 °C, withdrawal of 10 l/min)	l	
	Standby heat loss as per EN 12897 (at 65 °C)	W	
	Maximum pressure	bar	
Electrics	Fusing for connection via a joint supply cable		
	Voltage code all-pole fusing	... A	
	Fusing for connection via 3 separate supply cables		
	Voltage code all-pole heat pump fusing *)	... A	
	Voltage code Control voltage fusing *)	... A	
	Voltage code Electric heating element fusing *)	... A	
	Heat pump	Effective power consumption at standard point B0/W35 as per EN14511: Power consumption Current input $\cos\phi$	kW A ...
		Maximum machine current Maximum power consumption within the limits of use	A kW
		Starting current: direct with soft starter	A A
		Degree of protection	IP
Components	Electric heating element output	kW	
	Heating circuit circulation pump at nominal throughput: Power consumption Current input	kW A	
	Heat source circulation pump at nominal throughput: Power consumption Current input	kW A	
Passive cooling function	Figures apply to units with identifier K only: Cooling capacity at nominal volume flows (15 °C heat source, 25 °C heating water)	kW	
Safety equipment	Safety assembly, heating circuit Safety assembly, heat source	included in scope of supply: • yes — no	
Heating and heat pump controller		included in scope of supply: • yes — no	
Electronic soft starter		integrated: • yes — no	
Expansion vessels	Heat source: Scope of supply Volume Initial pressure	• yes — no l bar	
	Heating circuit: Scope of supply Volume Initial pressure	• yes — no l bar	
Overflow valve		integrated: • yes — no	
Vibration isolators	Heating circuit Heat source	integrated: • yes — no	

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

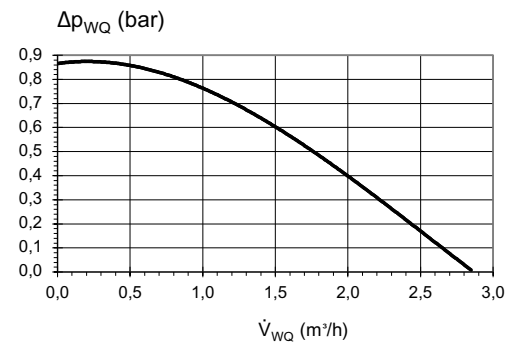
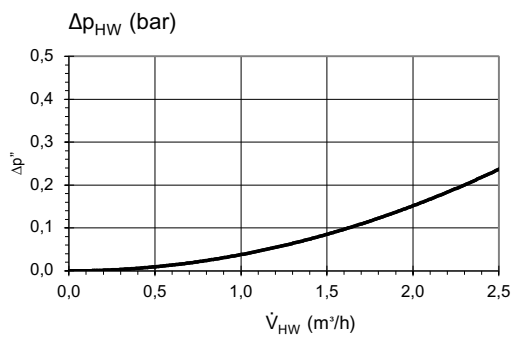
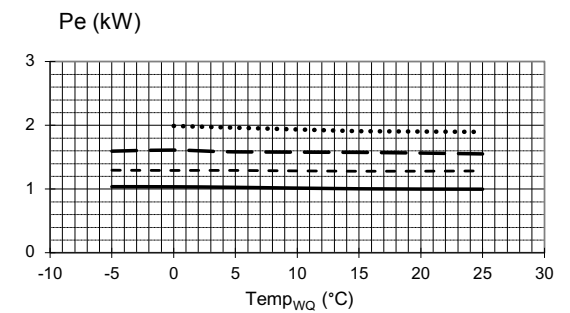
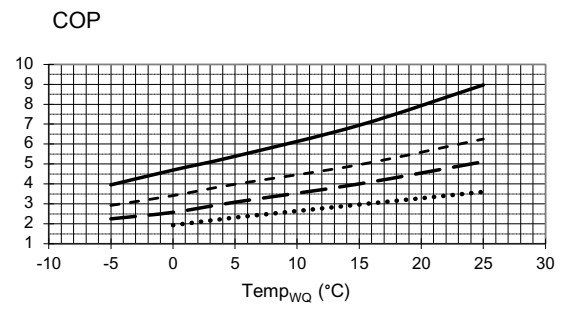
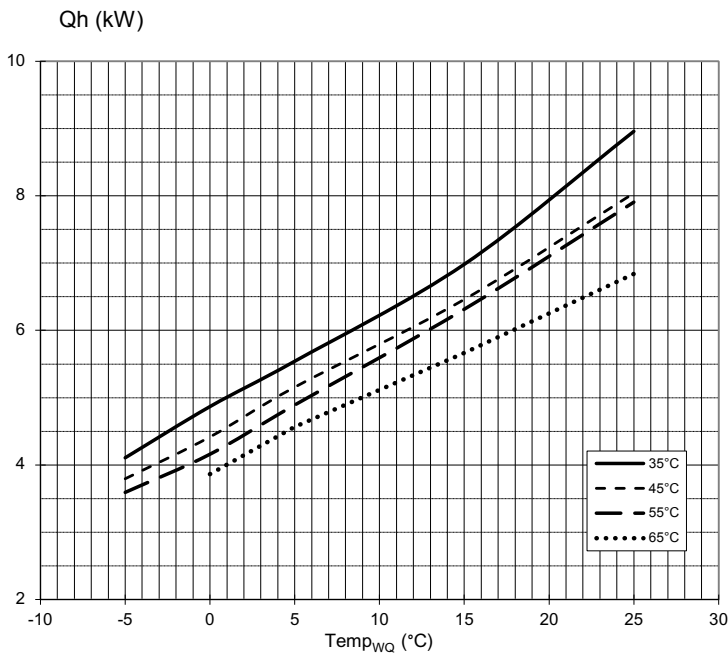


	SW 142H3	SW 172H3	SW 192H3
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	• —	• —	• —
	•	•	•
	13.50 5.08	16.57 4.95	18.60 4.87
	12.29 3.76	15.57 3.75	17.08 3.73
	11.76 2.94	15.13 3.01	16.36 2.88
	16.07 6.31	19.80 5.88	21.80 5.84
	20 60	20 60	20 60
	-5 - 25	-5 - 25	-5 - 25
	B0W65	B0W65	B0W65
	32	33	34
	44	45	46
	2100 3150 4750	2700 4000 6000	3000 4400 6600
	0.74 (—) 3150	0.53 (—) 4000	0.43 (—) 4400
	• • • •	• • • •	• • • •
	-13	-13	-13
	3	3	3
	1150 2300 2900	1450 2850 3600	1600 3200 4000
	— (—) —	— (—) —	— (—) —
	0.06 (—) 2300	0.07 (—) 2850	0.12 (—) 3200
	3	3	3
	175 (—)	180 (—)	185 (—)
	130 (—) 45 (—)	135 (—) 45 (—)	140 (—) 45 (—)
	R410A 2.38	R410A 2.65	R410A 2.78
	—	—	—
	—	—	—
	—	—	—
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	—	—	—
	—	—	—
	—	—	—
	— —	— —	— —
	3~N/PE/400V/50Hz C10 1~N/PE/230V/50Hz B10	3~PE/400V/50Hz C16 1~N/PE/230V/50Hz B10	3~PE/400V/50Hz C16 1~N/PE/230V/50Hz B10
	— —	— —	— —
	2.66 4.84 0.79	3.35 7.90 0.61	3.82 8.71 0.63
	10.62 5.60	19.0 6.90	18.0 7.50
	— 27.0	— 30.0	— 33.0
	20	20	20
	—	—	—
	— —	— —	— —
	0.18 n.n.	0.18 n.n.	0.18 n.n.
	—	—	—
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Performance curves

SW 42H3



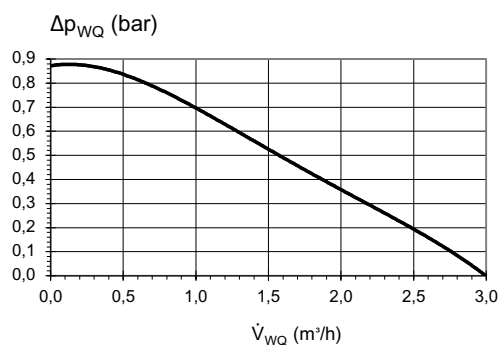
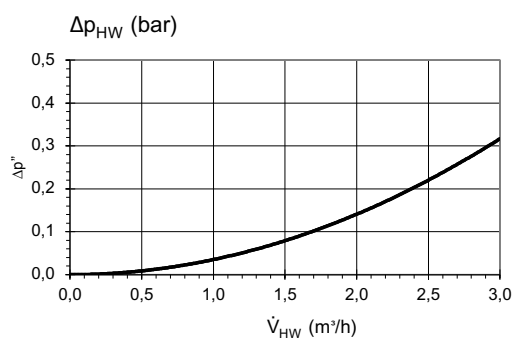
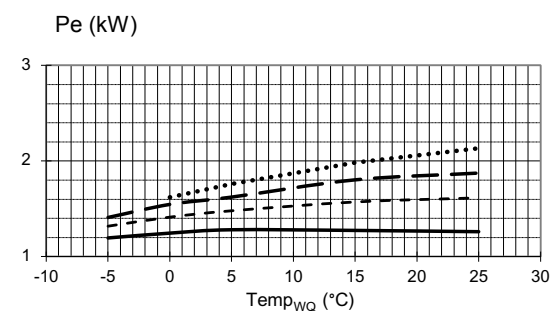
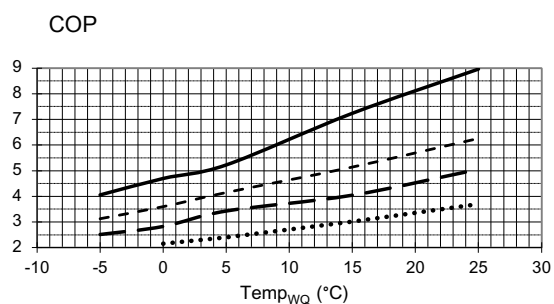
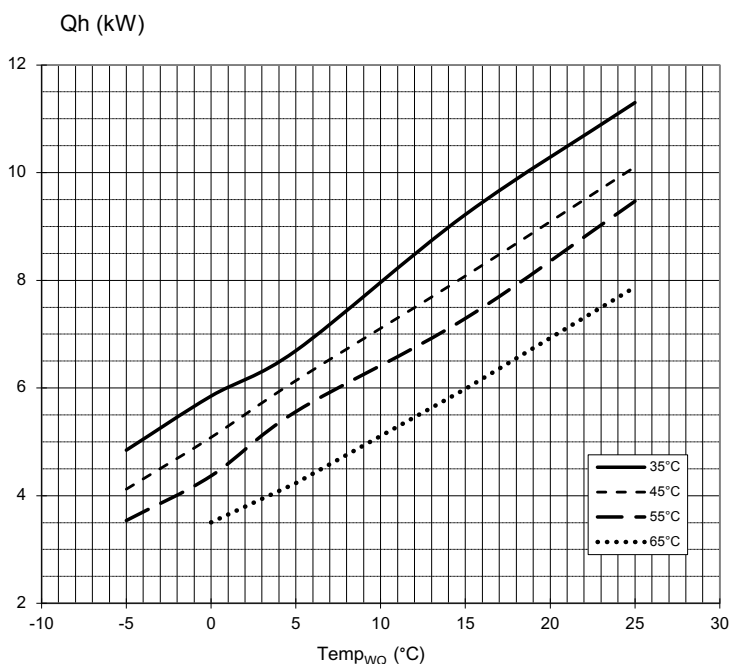
823247

Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Q _h	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



SW 62H3

Performance curves



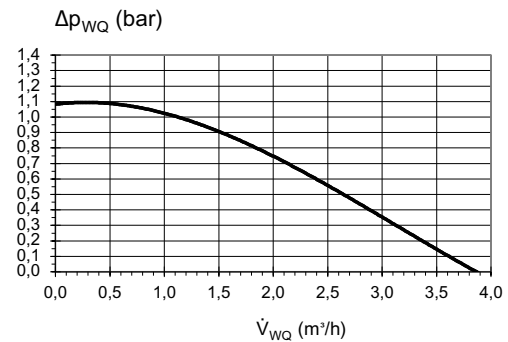
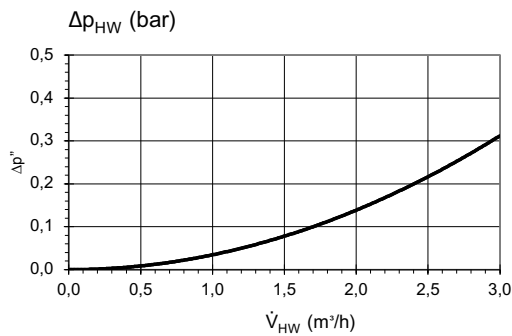
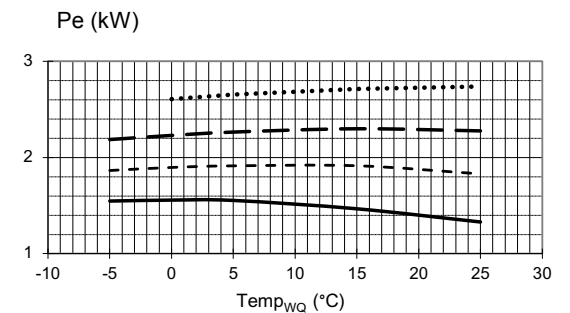
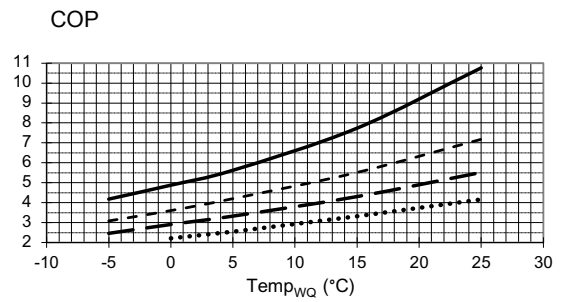
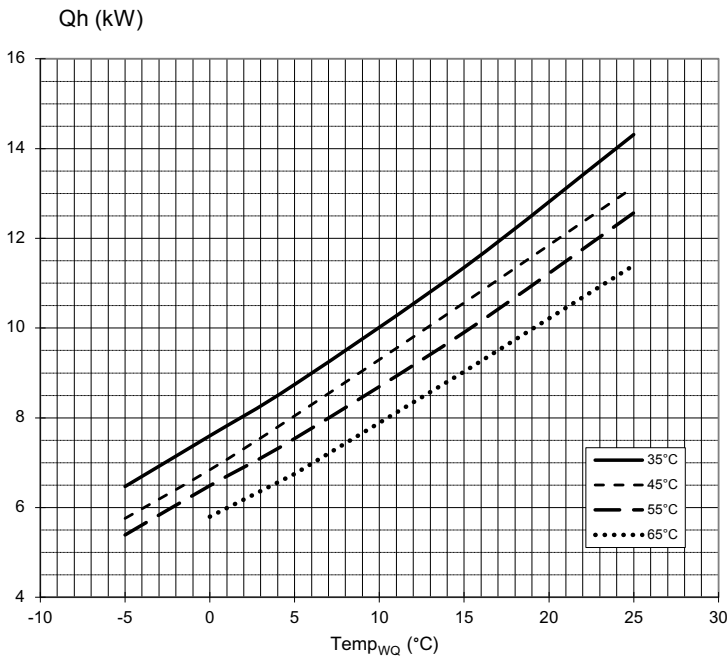
823248

Key:	DE823000L/170408
V̇ _{HW}	Heating water volume flow rate
V̇"	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	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

SW 82H3



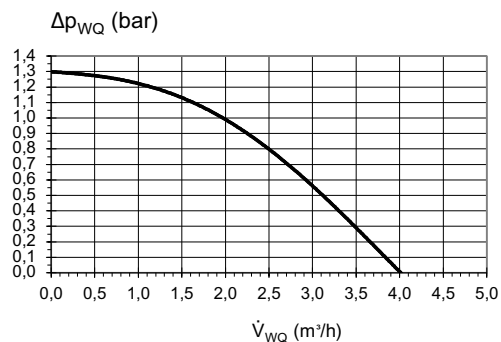
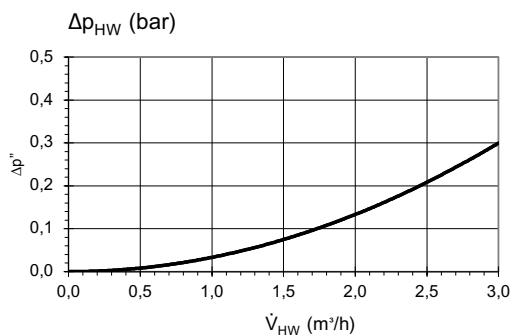
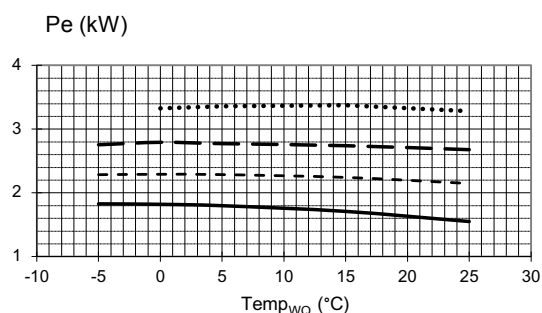
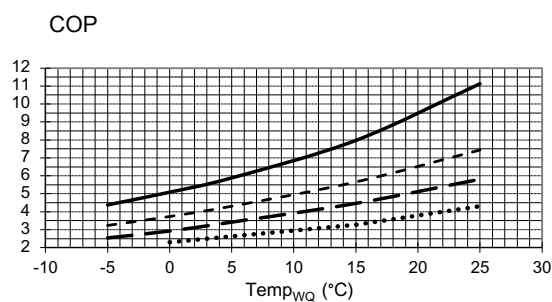
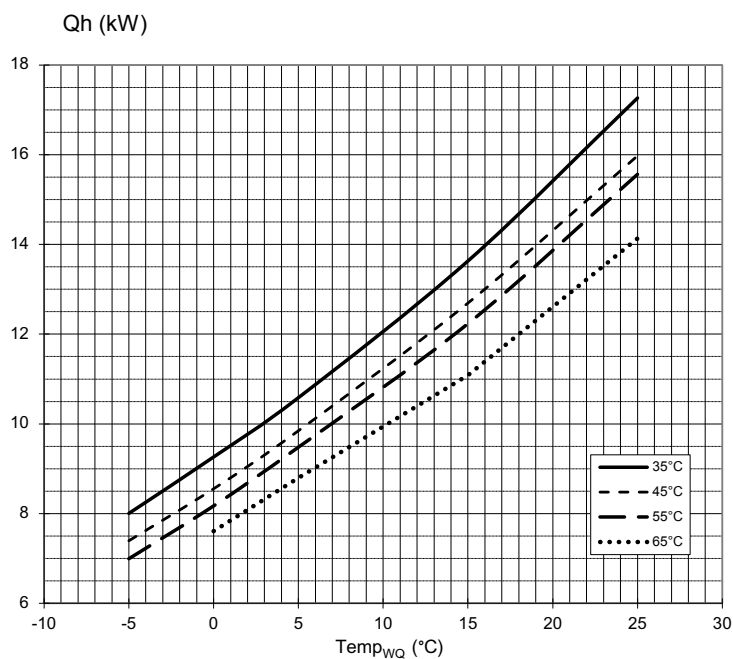
823249

Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Q _h	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



SW 102H3

Performance curves



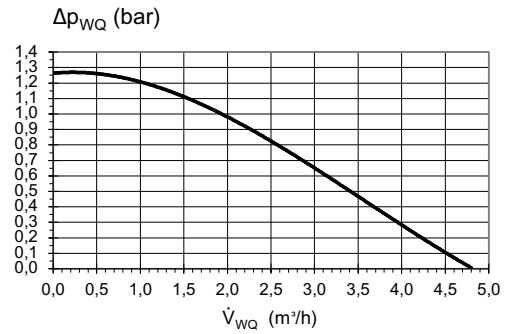
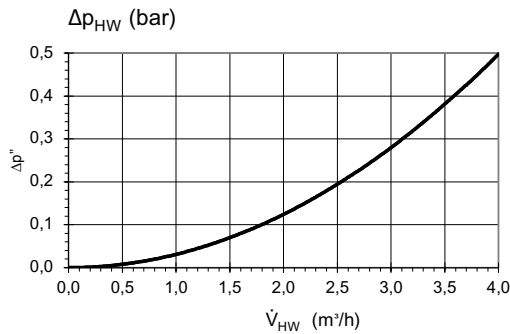
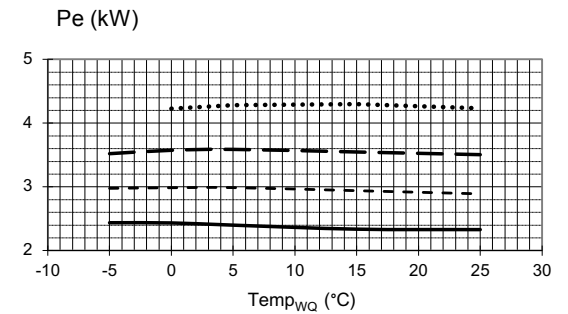
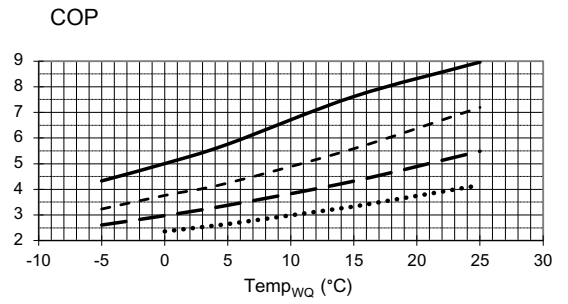
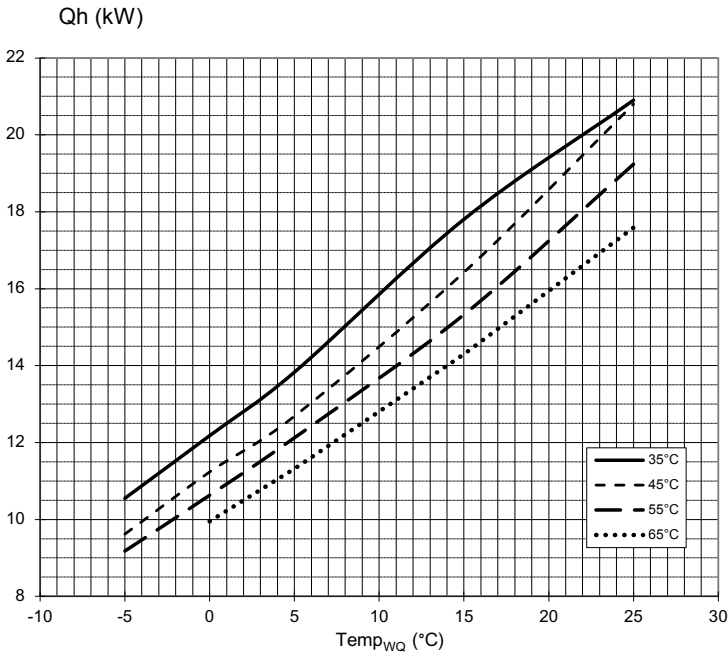
823250

Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
$Temp_{WQ}$	Heat source temperature
Q_h	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



Performance curves

SW 122H3



823251

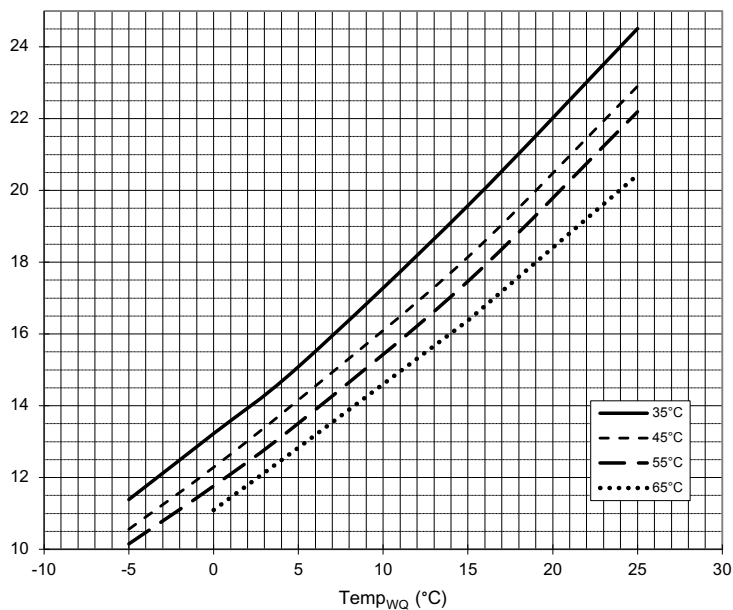
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\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Q _h	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating circuit free pressure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



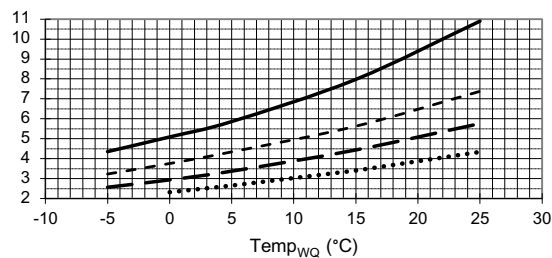
SW 142H3

Performance curves

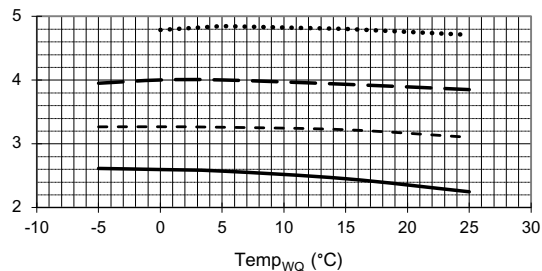
Qh (kW)



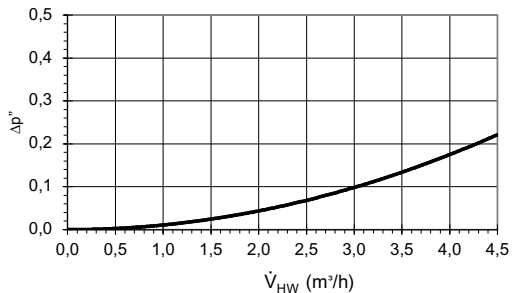
COP



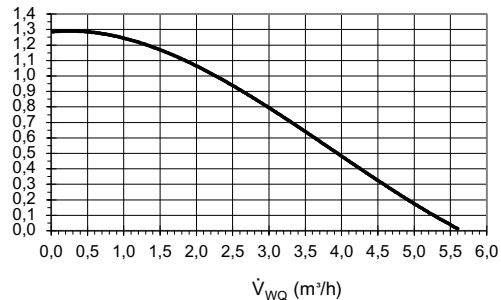
Pe (kW)



Δp_{HW} (bar)



Δp_{WQ} (bar)



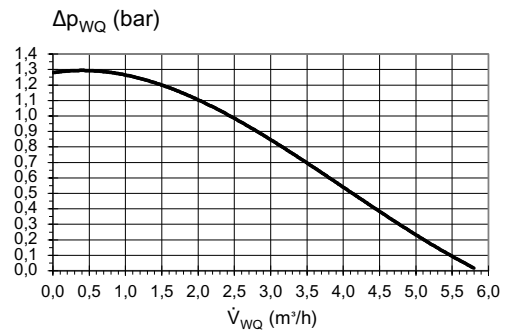
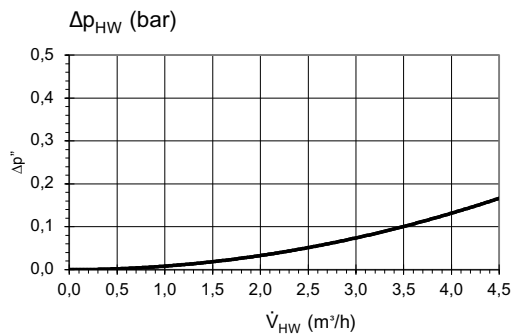
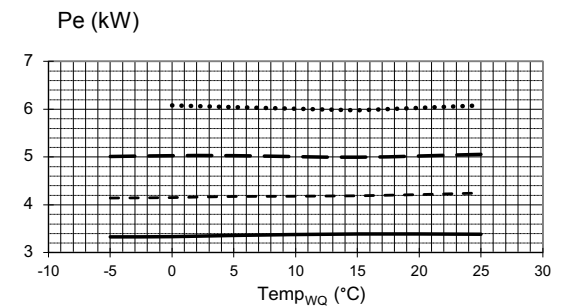
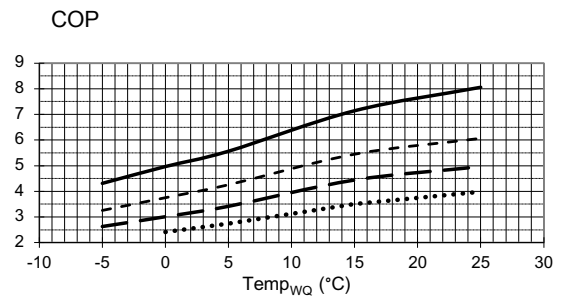
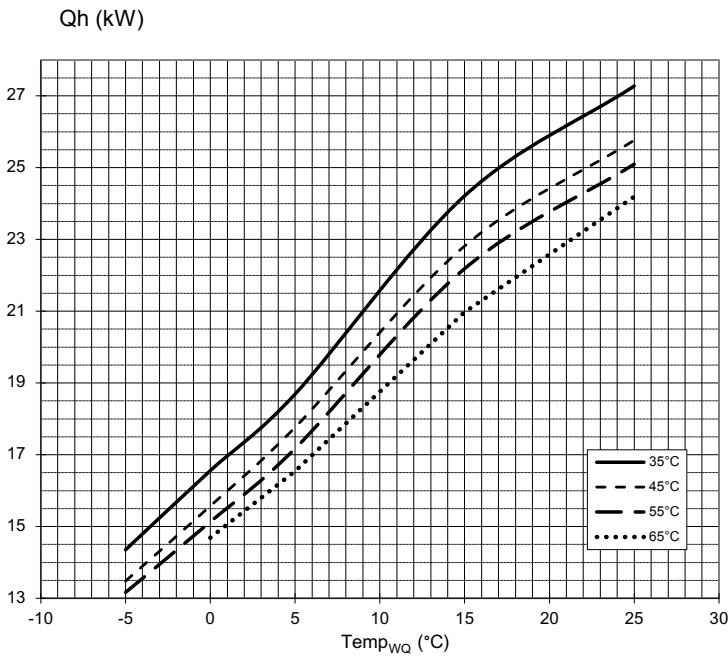
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Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating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



Performance curves

SW 172H3



823253

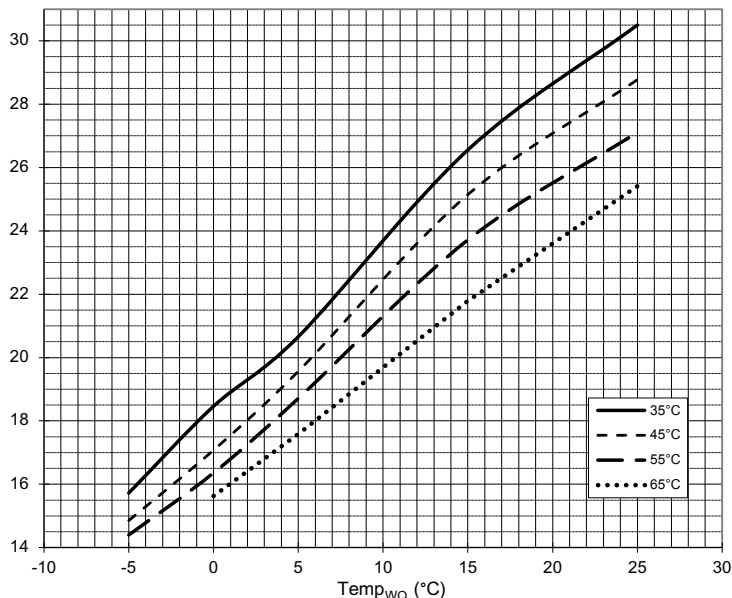
Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating circuit free pressure / Heating circuit with cooling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



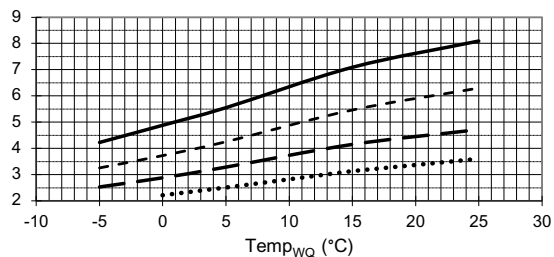
SW 192H3

Performance curves

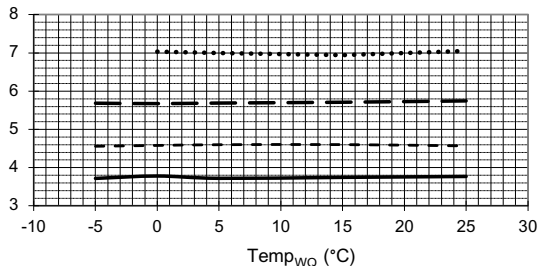
Qh (kW)



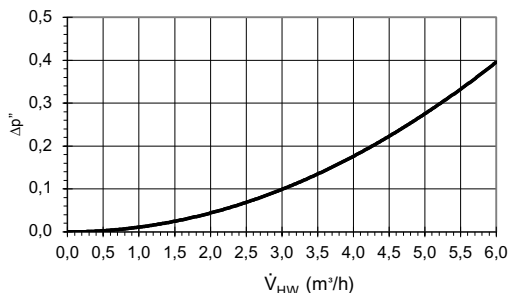
COP



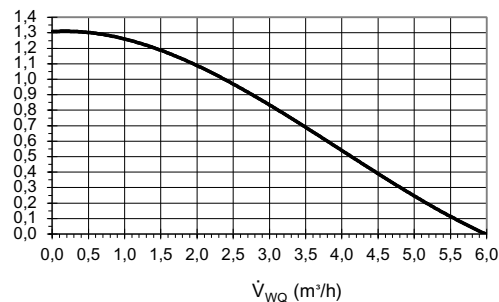
Pe (kW)



Δp_{HW} (bar)



Δp_{WQ} (bar)



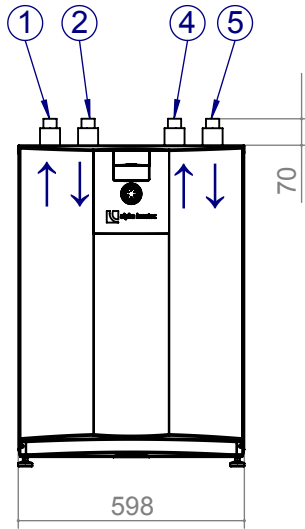
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Key:	DE823000L/170408
\dot{V}_{HW}	Heating water volume flow rate
\dot{V}''	Heat source volume flow rate
Temp _{WQ}	Heat source temperature
Qh	Heating capacity
Pe	Power consumption
COP	Coefficient of performance
$\Delta p_{HW} / \Delta p_{HW/K}$	Heating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

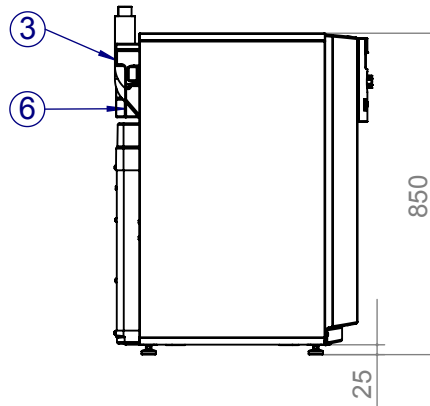


Dimensioned drawings

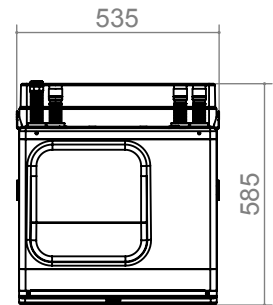
A



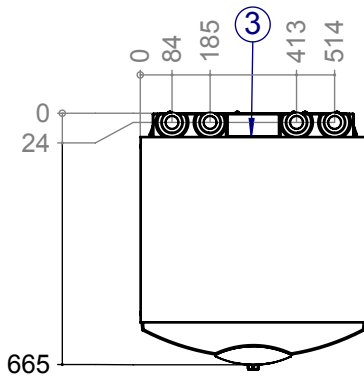
B



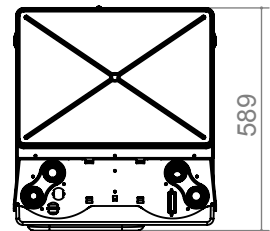
A1



C



C1



Key: D819447

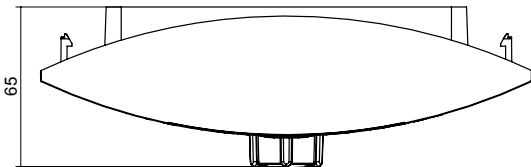
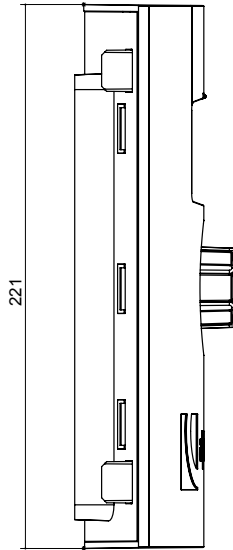
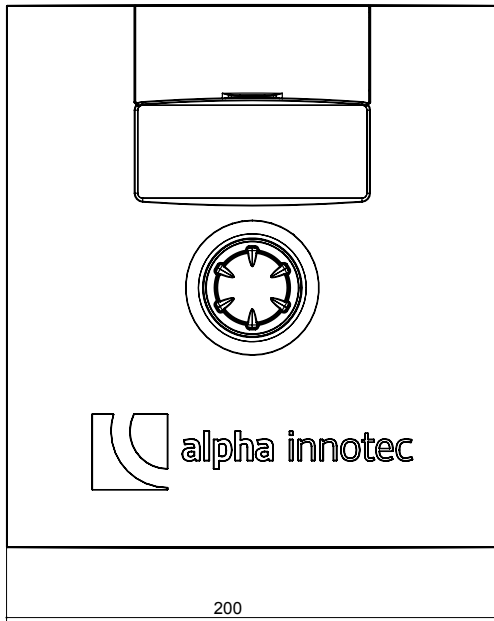
All dimensions in mm.

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

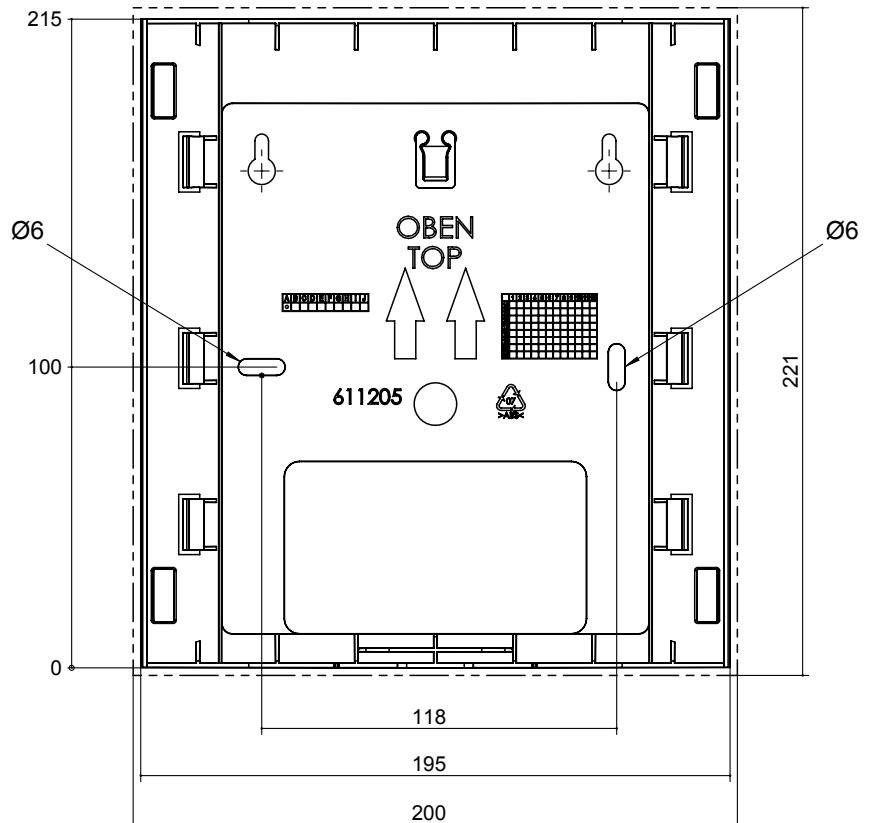
Item	Name	4kW - 12kW	14kW - 19kW
1	Heating water outlet (flow)	Ø28 Outside diameter	Ø35 Outside diameter
2	Heat source inlet (in heat pump)	Ø28 Outside diameter	Ø35 Outside diameter
3	Cable entry, connection cable	---	---
4	Heat source outlet (from heat pump)	Ø28 Outside diameter	Ø35 Outside diameter
5	Heating water inlet (return)	Ø28 Outside diameter	Ø35 Outside diameter
6	Cable entry, LIN bus cable	----	---



Dimensioned drawing of control, wall-mounted bracket



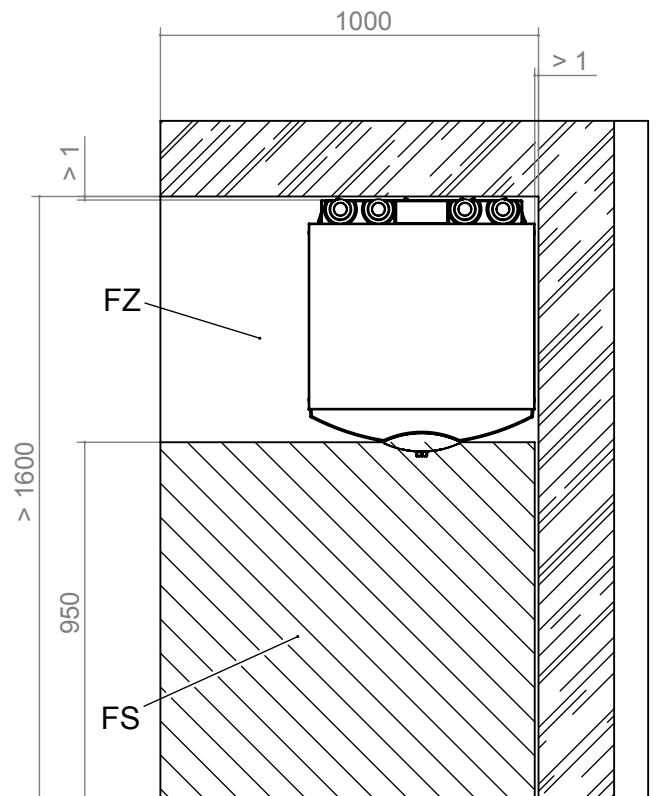
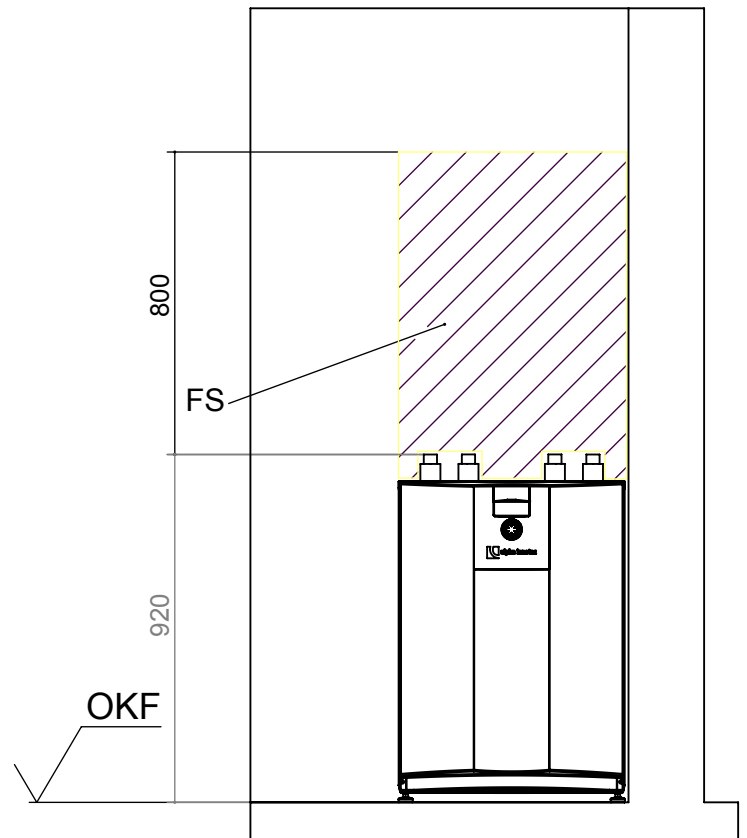
Wall-mounted installation:





Installation plans

V1



Key: DE819456a

V1 Version 1

FZ Free space for functionally necessary accessories

FS Free space for service purposes

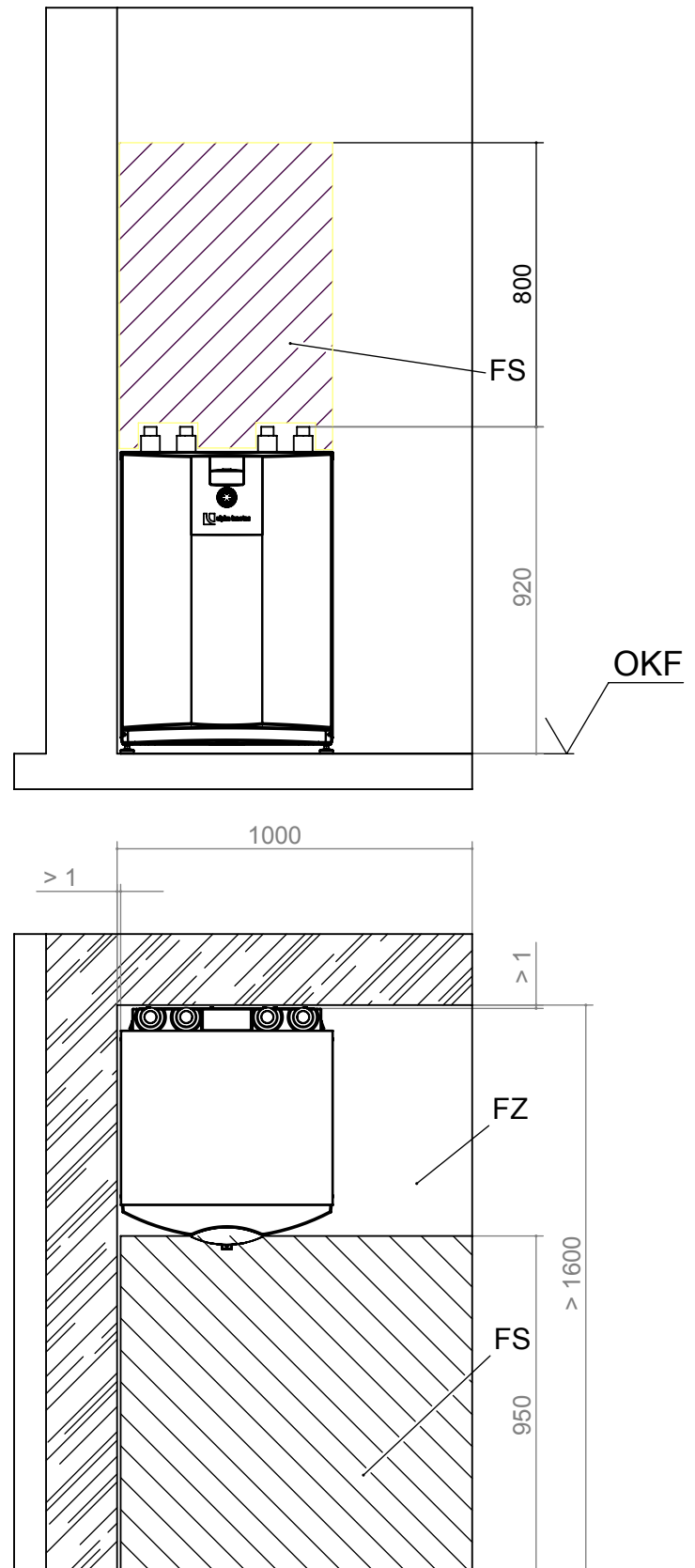
OKF Finished floor level

All dimensions in mm



Installation plans

V2



Key: DE819456a

V2 Version 2

FZ Free space for functionally necessary accessories

FS Free space for service purposes

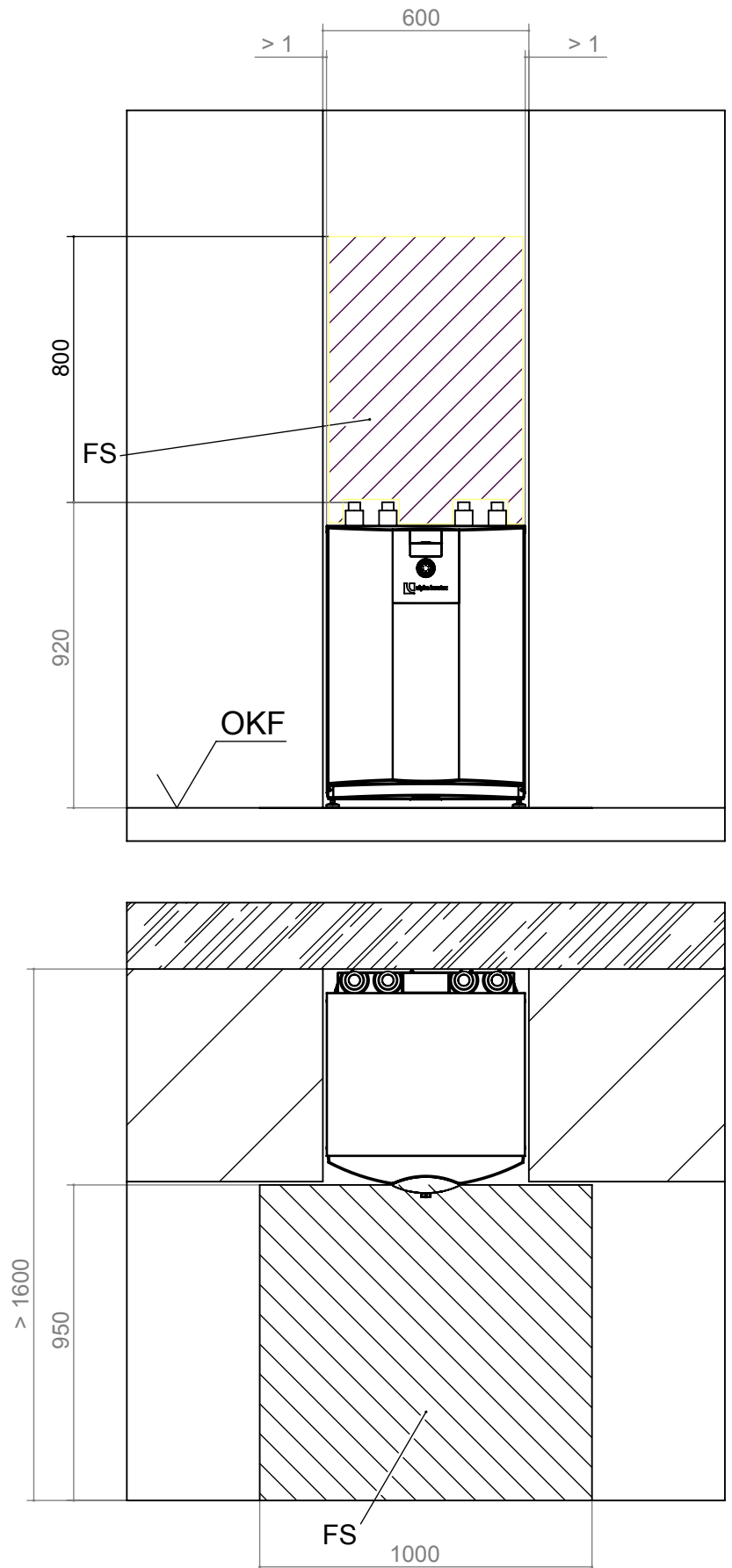
OKF Finished floor level

All dimensions in mm.



Installation plans

V3



Key: DE819456a

V3 Version 3

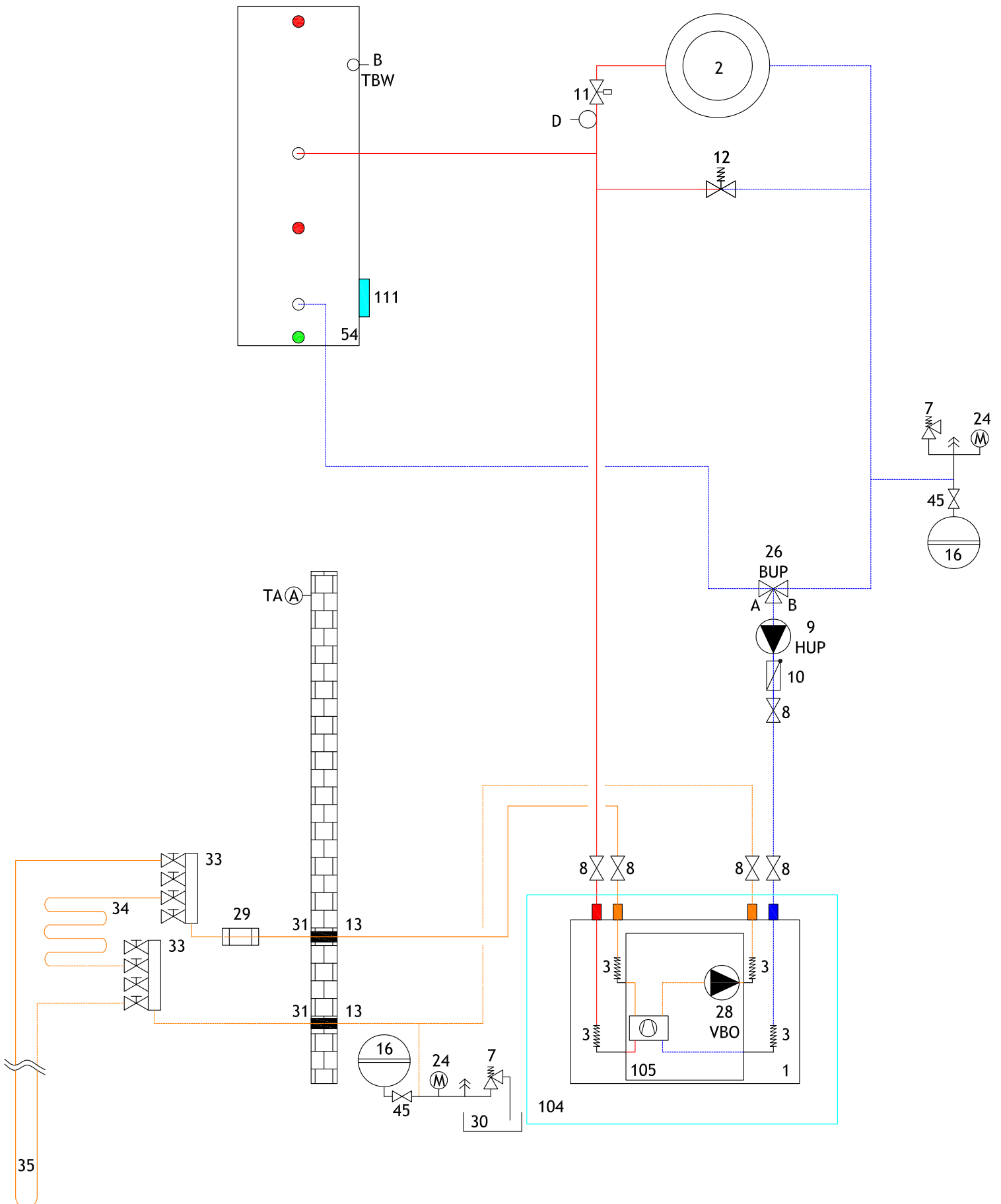
FS Free space for service purposes

OKF Finished floor level

All dimensions in mm.

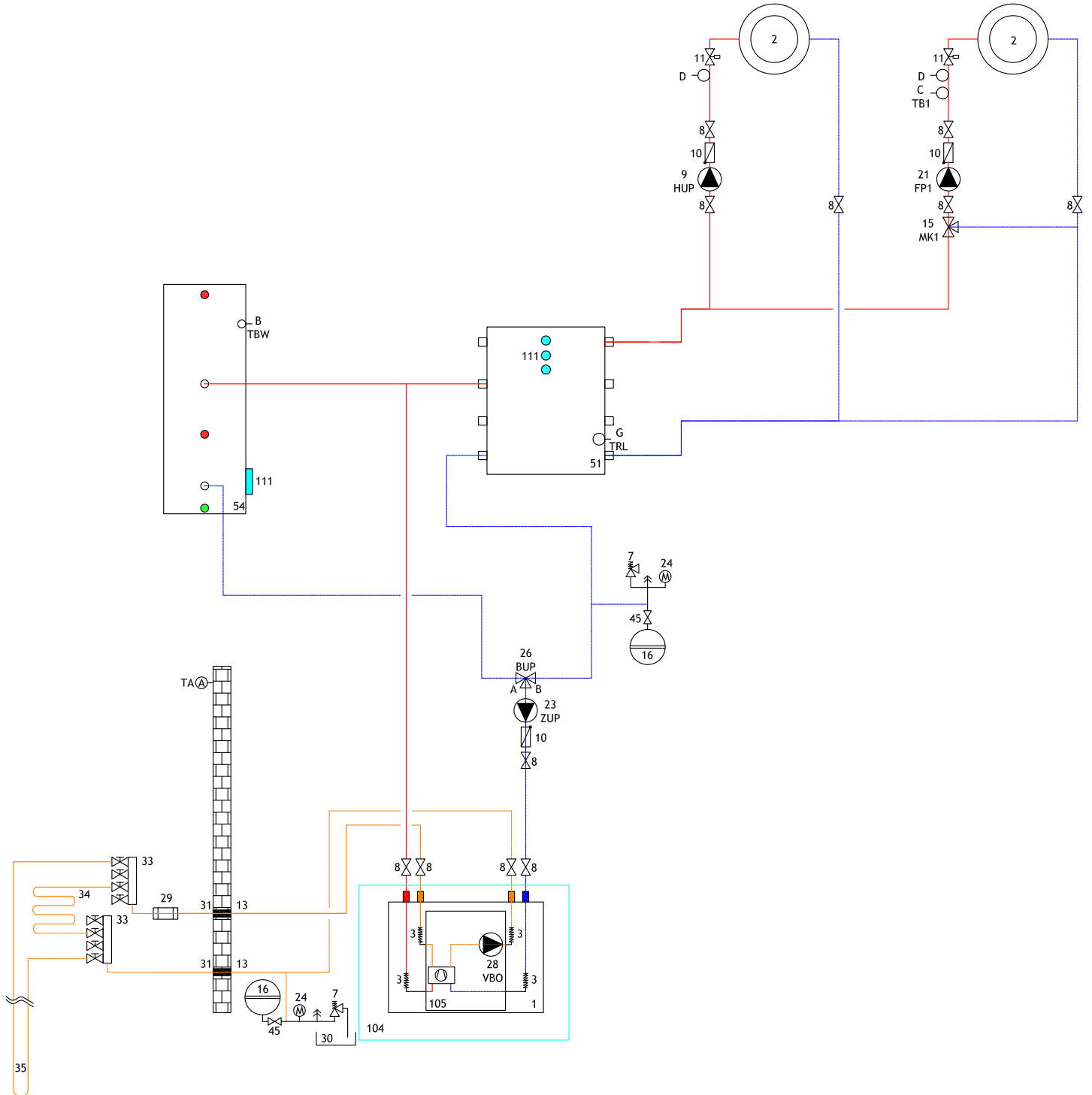


Hydraulic integration, unit variant H (heating)





Hydraulic integration, separate buffer tank



Hydraulics key

1	Heat pump	51	Separate storage tank	TA/A	Outdoor sensor
2	Underfloor heating / radiators	52	Gas or oil-fired boiler	TBWB	Domestic hot water sensor
3	Vibration isolator	53	Wood-fired boiler	TB1/C	Flow sensor, mixing circuit 1
4	Unit underlay, Styomer strips	54	Domestic hot water tank	D	Floor temperature limiter
5	Shut-off valve with drain outlet	55	Brine pressure monitor	TRL/G	Sensor, external return (separate storage tank)
6	Expansion vessel included in scope of supply	56	Swimming pool heat exchanger	STA	Branch control valve
7	Safety valve	57	Ground source heat exchanger	TRL/H	Return sensor (Dual hydraulic module)
8	Shut-off valve	58	Ventilation in the house		
9	Heating circulation pump (HUP)	59	Plate heat exchanger	79	Motor valve
10	Check valve	61	Cooling storage tank (???)	80	Mixing valve
11	Individual room control	65	Compact distributor	81	Heat pump outdoor unit, split, scope of supply
12	Overflow valve	66	Fan coils	82	Hydraulic indoor unit, split, scope of supply
13	Vapour-tight insulation	67	Solar domestic hot water tank	83	Circulation pump
14	Domestic hot water circulation pump (BUP)	68	Separate solar storage tank	84	Changeover valve
15	Mixing circuit, three-way mixer (MK1 discharging)	69	Multifunctional storage tank	113	Connection, additional heat generator
16	Expansion vessel on site	71	Dual hydraulic module	BT1	Outdoor sensor
18	Heating element, heating (ZWE)	72	Wall-mounted buffer tank	BT2	Flow sensor
19	Mixing circuit, four-way mixer (MK1 charging)	73	Pipe penetration	BT3	Return sensor
20	Heating element, domestic hot water (ZWE)	74	Ventower	BT6	Domestic hot water sensor
21	Mixing circuit, circulation pump (FP1)	75	Scope of supply, Dual hydraulic tower	BT12	Flow sensor, condenser
23	Feeder, circulation pump (ZUP) (change over Compact unit connect)	76	Drinking water station	BT19	Sensor, electric heating cartridge
24	Pressure gauge	77	Accessories, water/water booster	BT24	Sensor, additional heat generator
25	Heating + domestic hot water circulation pump (HUP)	78	Scope of supply, water/water booster, optional		
26	Changeover valve, domestic hot water (BUP)(B = normally open)				
27	Heating element, heating + domestic hot water (ZWE)				
28	Brine circulation pump (VBO)				
29	Dirt trap (max. 0.6 mm screen size)				
30	Collection container for brine mixture				
31	Wall penetration	100	Room thermostat, cooling accessories, optional		
32	Supply pipe	101	Control on site		
33	Brine distributor	102	Dew point monitor, optional accessories		
34	Horizontal ground collector	103	Room thermostat, cooling, included in scope of supply		
35	Borehole heat exchanger (vertical collector)	104	Heat pump, scope of supply		
36	Groundwater well pump	105	Cooling circuit module box, removable		
37	Wall bracket	106	Specific glycol mixture		
38	Flow switch	107	Scalding protection / thermal mixing valve		
39	Supply well	108	Solar pump group		
40	Discharge well	109	Overflow valve must be closed		
41	Flushing fitting, heating circuit	110	Hydraulic tower, scope of supply		
42	Circulation, circulation pump (ZIP)	111	Holder for additional heating element		
43	Brine/water heat exchanger (cooling function)	112	Minimum distance for thermal decoupling of the mixing valve		
44	Three-way mixer (cooling function MK1)				
45	Cap valve				
46	Fill and drain valve				
48	Domestic hot water charging circulation pump (BLP)				
49	Groundwater flow direction				
50	Buffer tank, heating				

Additional circuit board:

15	Mixing circuit, three-way mixer (MK2-3 discharging)
17	Temperature difference control (SLP)
19	Mixing circuit, four-way mixer (MK2 charging)
21	Mixing circuit circulation pump (FP2-3)
22	Swimming pool circulation pump (SUP)
44	Three-way mixer (cooling function MK2)
47	Changeover valve, swimming pool heating (SUP)(B = normally open)
60	Changeover valve, cooling mode (B = normally open)
62	Heat meter
63	Changeover valve, solar circuit (B = normally open)
64	Cooling circulation pump
70	Separate solar station
TB2-3/C	Flow sensor, mixing circuit 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 note!

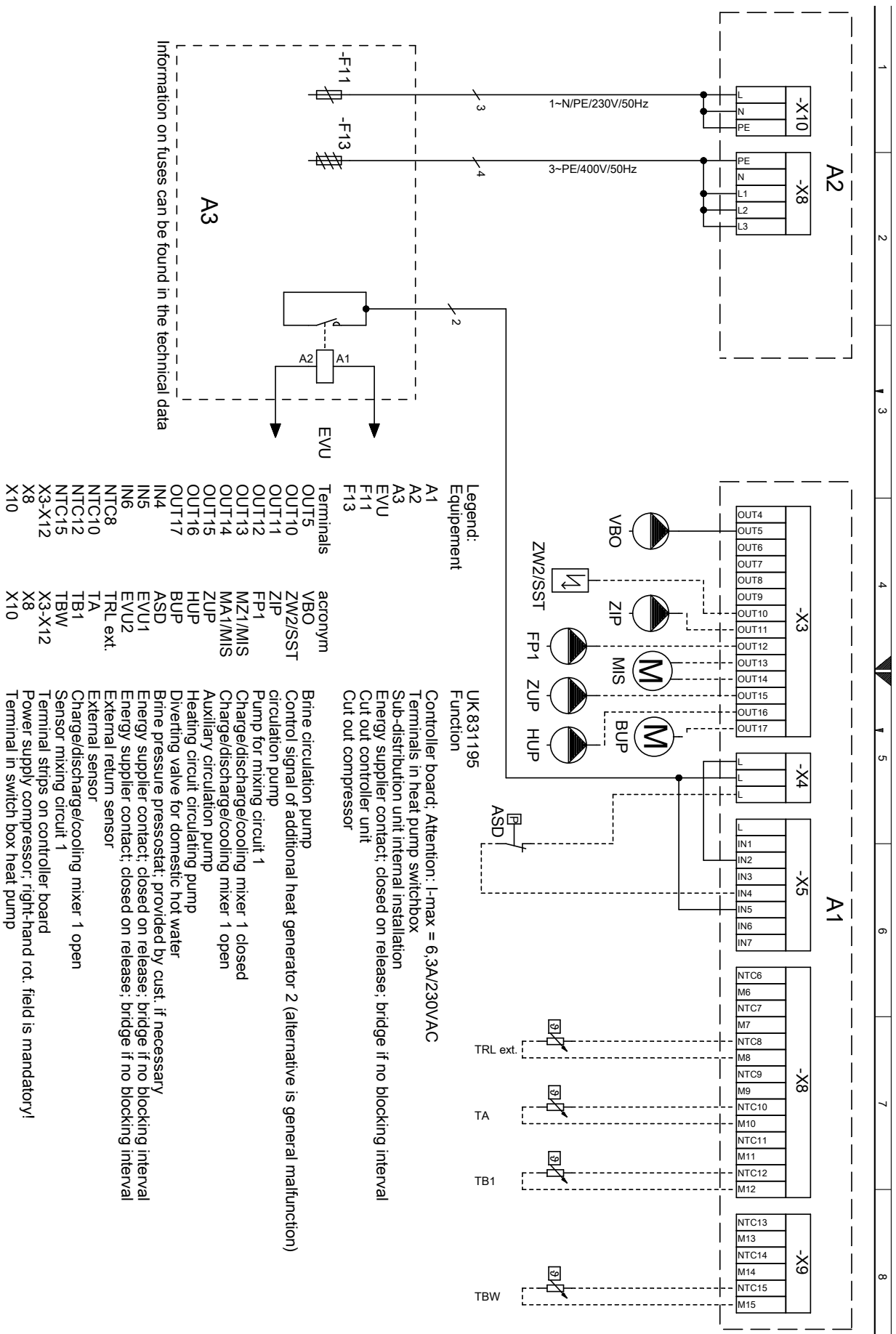
These hydraulic diagrams are schematic representations and are designed to help you! They do not release you from the need to carry out your own planning & design! Shut-off devices, vent valves and safety measures are not drawn in full in these diagrams! The local country-specific standards, laws and regulations must be followed! The pipes must be dimensioned according to the nominal volume flow rate of the heat pump or the free pressure of the integrated circulation pump! For detailed information and advice please contact the sales partner responsible for your area!





Terminal diagram

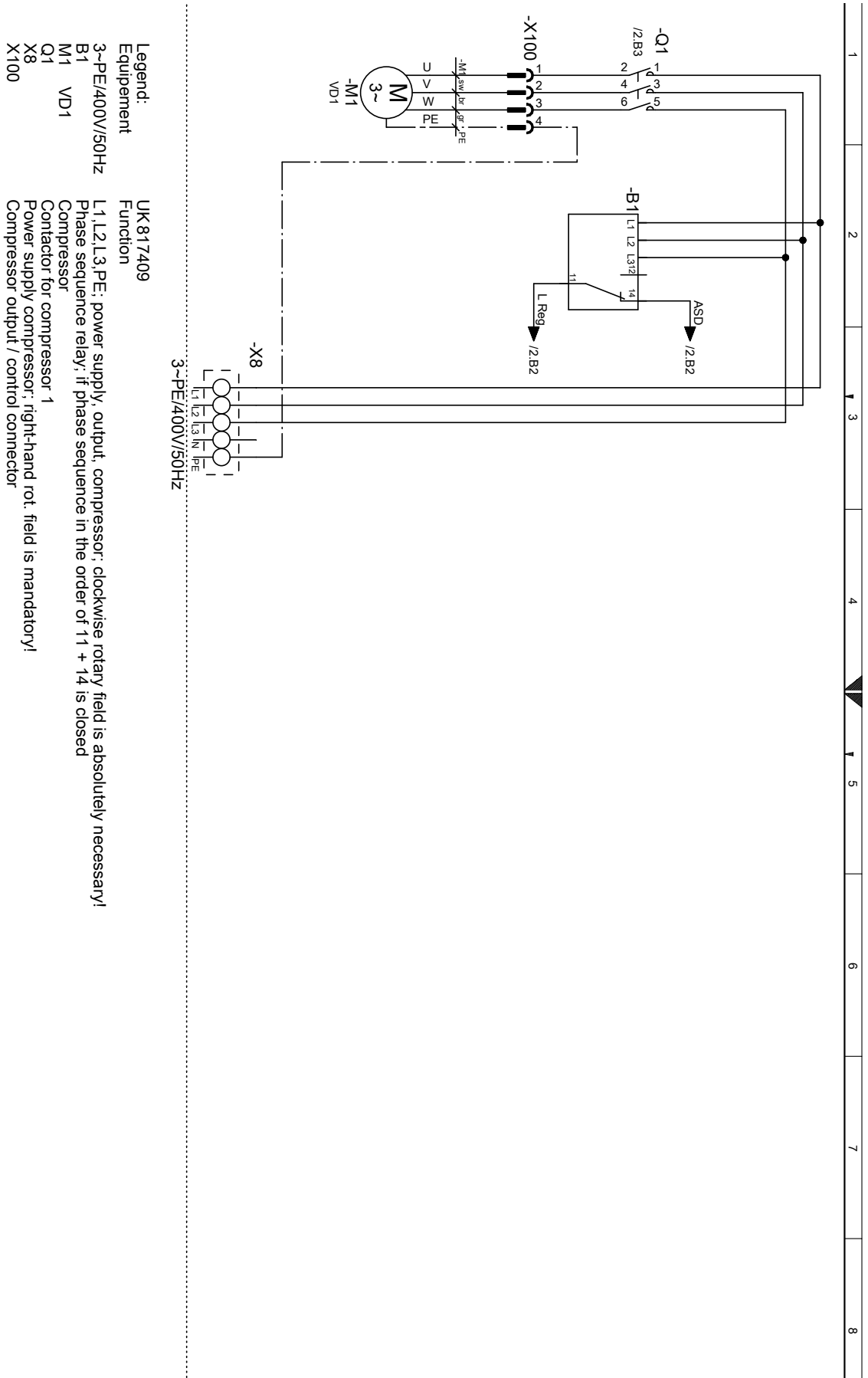
SW 42H3 – SW 192H3





SW 42H3 – SW 82H3

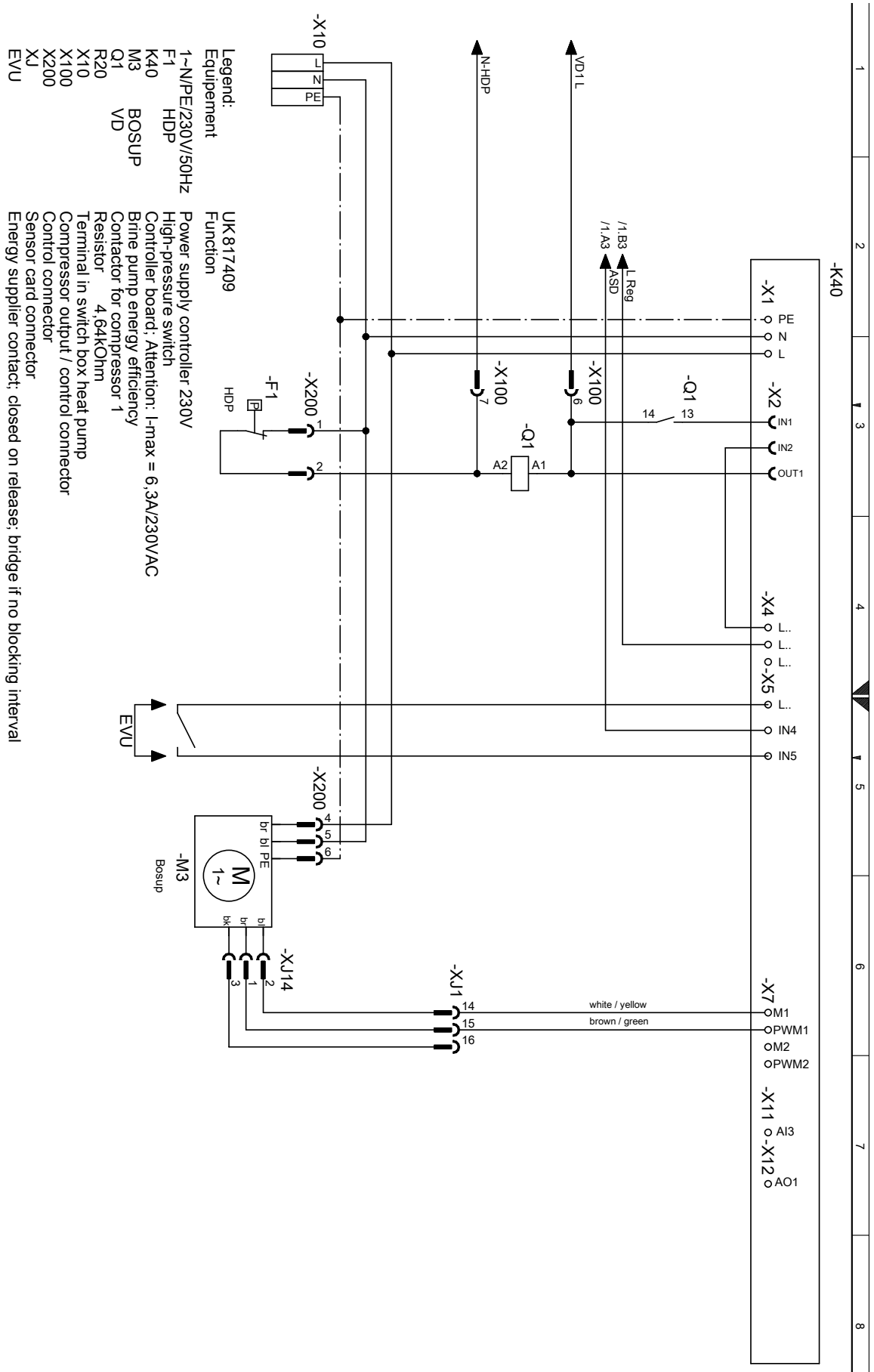
Circuit diagram 1/3





Circuit diagram 2/3

SW 42H3 – SW 82H3

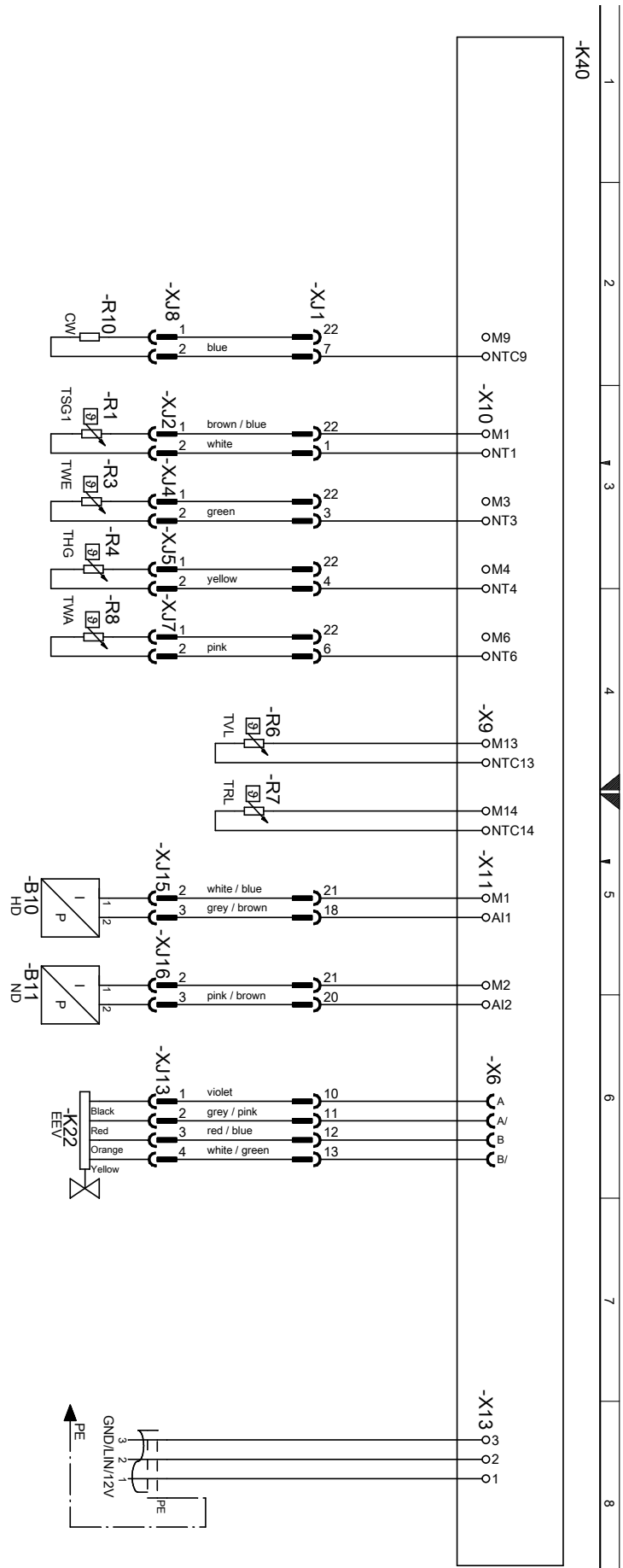




SW 42H3 – SW 82H3

Circuit diagram 3/3

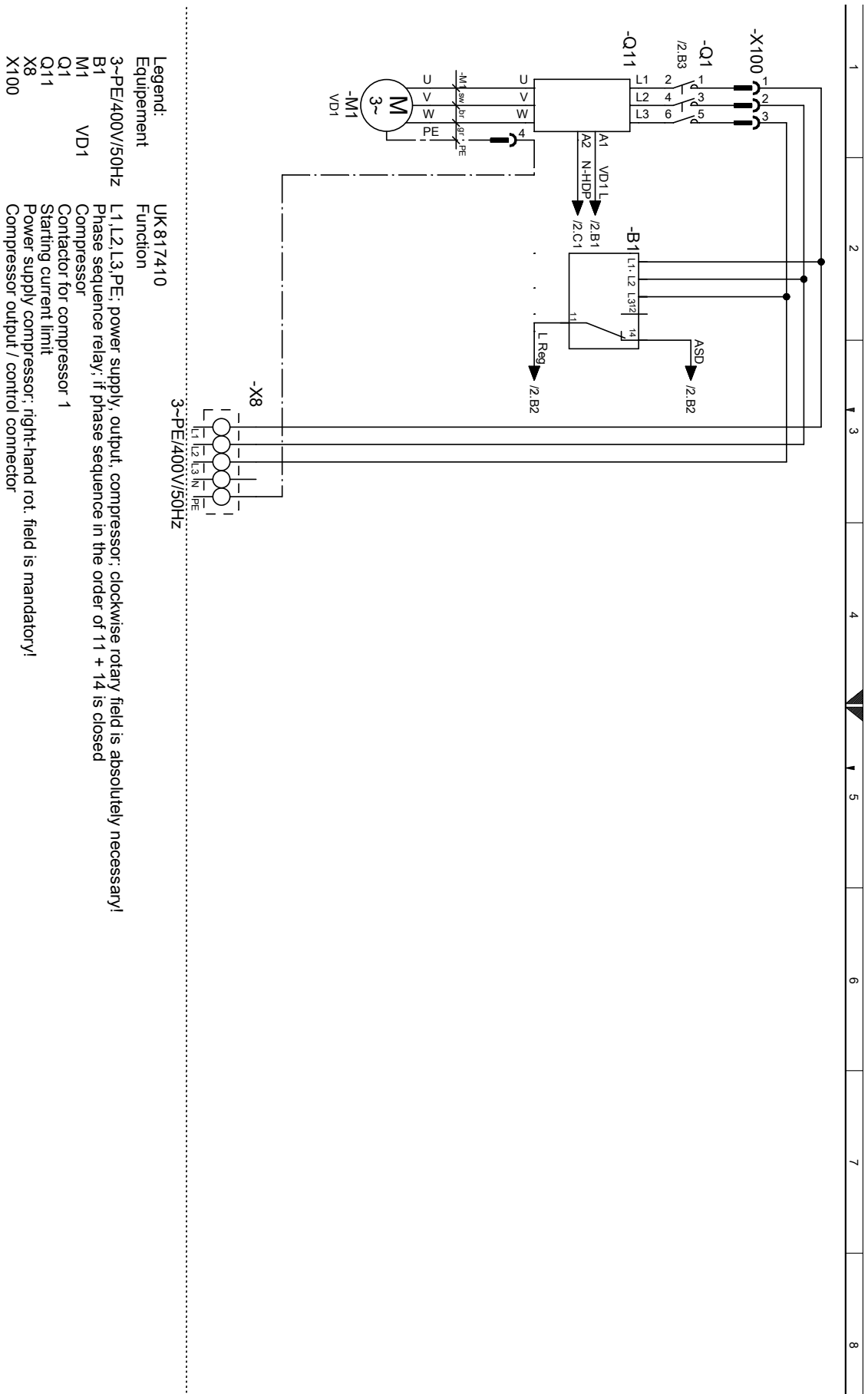
- Legend:**
- | | |
|------------------|------------------|
| Equipment | UK 817409 |
| B10 | HD |
| B11 | ND |
| K22 | ND |
| K40 | TSG1 |
| R1 | TWE |
| R3 | THG |
| R4 | THG |
| R6 | TVL |
| R7 | TRL |
| R8 | TWA |
| R10 | CW |
| XJ | CW |
- Function**
- High-pressure sensor
 - Low pressure sensor
 - Electronic expansion valve
 - Controller board: Attention: I-max = 6,3A/230VAC
 - Suction sensor, condenser
 - Heat source input sensor
 - Hot gas sensor
 - Flow sensor
 - Return sensor
 - Heat source output sensor
 - Encoding resistor
 - Sensor card connector





Circuit diagram 1/3

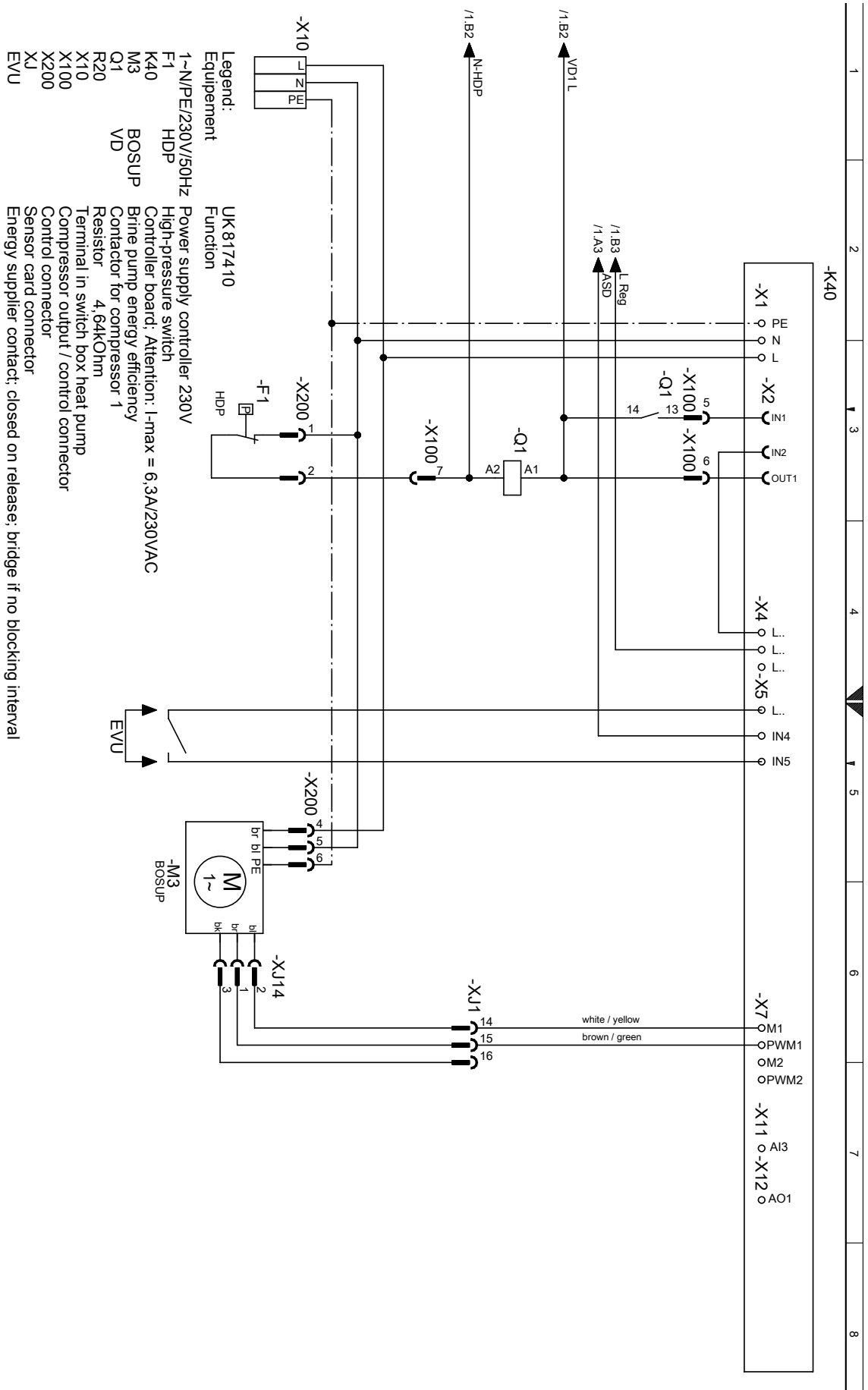
SW 102H3 – SW 122H3





SW 102H3 – SW 122H3

Circuit diagram 2/3

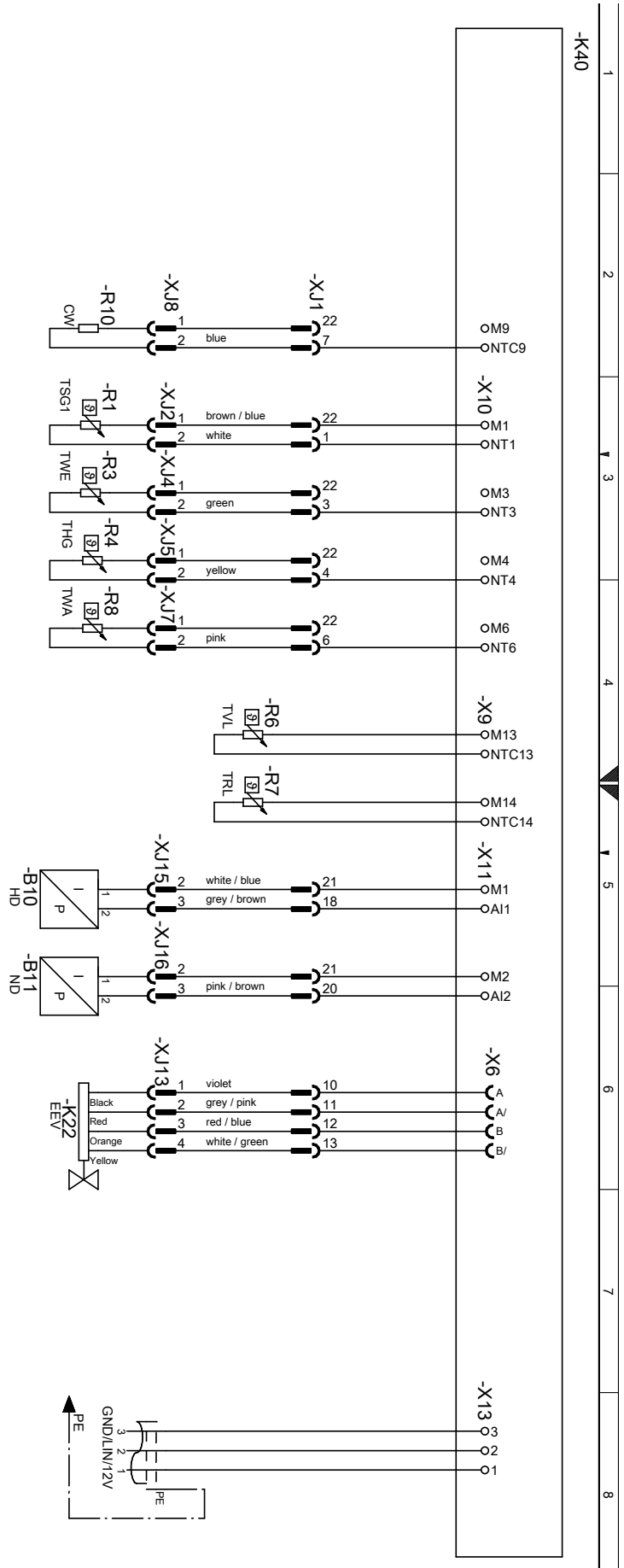




Circuit diagram 3/3

SW 102H3 – SW 122H3

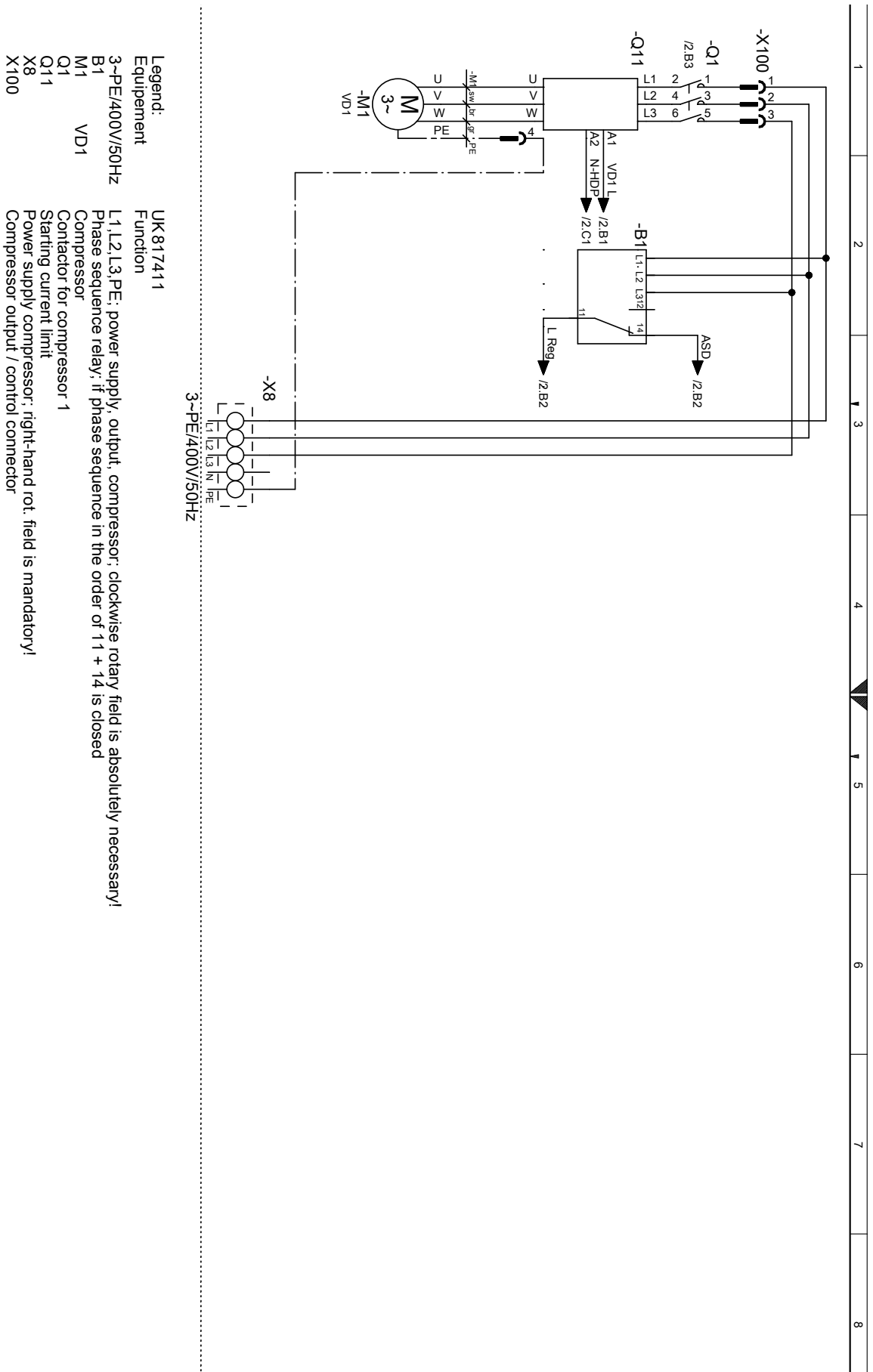
- Legend:
- | | |
|-----------|---|
| UK 817410 | Function |
| B10 | HD |
| B11 | ND |
| K22 | Electronic expansion valve |
| K40 | Controller board: Attention: I-max = 6,3A/230V/AC |
| R1 | Suction sensor, condenser |
| R3 | Heat source input sensor |
| R4 | Hot gas sensor |
| R6 | Flow sensor |
| R7 | Return sensor |
| R8 | Heat source output sensor |
| R10 | Encoding resistor |
| XJ | Sensor card connector |





Circuit diagram 1/3

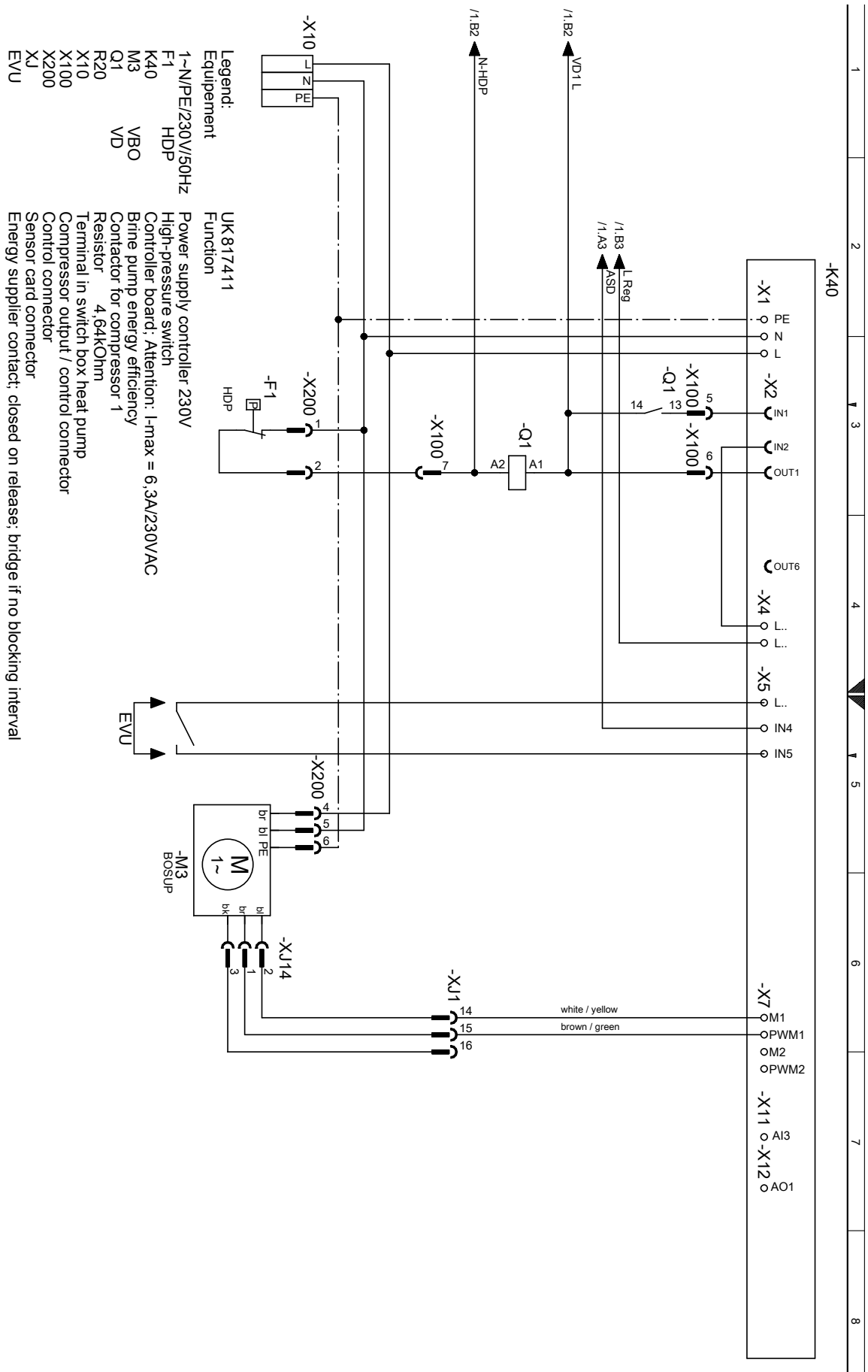
SW 142H3 – SW 192H3





Circuit diagram 2/3

SW 142H3 – SW 192H3





EC Declaration of Conformity

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



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

Designation of the device(s)

Heat Pump



Unit model	Number	Unit model	Number
SW 42H3	10070041	SW 42H1	10074042
SW 62H3	10070141	SW 62H1	10074142
SW 82H3	10070241	SW 82H1	10074242
SW 102H3	10070342	SW 102H1	10074342
SW 122H3	10070442	SW 132H1	10074442
SW 142H3	10070542		
SW 172H3	10070642		
SW 192H3	10070742		

EC Directives

2006/42/EG

2006/95/EG

2004/108/EG

*97/23/EG

2011/65/EG

* Pressure equipment component

Category II

Module A1

Designated position:

TÜV-SÜD

Industrie Service GmbH (Nr.:0036)

Standardized EN

EN 378

EN 349

EN 60529

EN 60335-1/-2-40

EN ISO 12100-1/2

EN 55014-1/-2

EN ISO 13857

EN 61000-3-2/-3-3

Company:

ait-deutschland GmbH

Industrie Str. 3

93359 Kasendorf

Germany

Place, date:

Kasendorf, 20.03.2015

Signature:

UK818173a

Jesper Stannow
Head of Heating Development









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