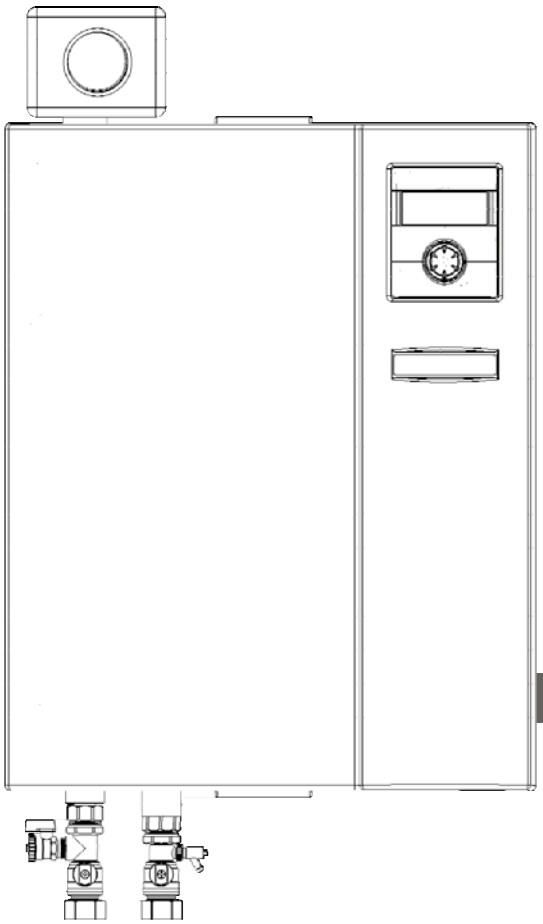


Accessory for
heat pumps

Operating Manual

Hydraulic module

UK

83059200bUK – Translation of the original operating manual

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 pass on to the new owner if the unit changes hands.

► If you have any questions or anything is unclear, ask the manufacturer's local partner 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 device label (see "Nameplate" and "Drill-hold pattern" on page 19).

1.2 Reference documents

The following documents contain additional information with regard 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)
- Log book
- Heat pump manual

1.3 Symbols and markings

Identification of warnings

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

Symbols in the document

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

1.4 Contact

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

- www.ait-deutschland.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 hot water preparation

► Intended use includes complying with the operating conditions (→ "Technical data / scope of supply Page 17) as well as the operating manual and observing 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 are 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 on safe and hazard-aware working.

► Only allow qualified personnel with "electrical" training to carry out work on the electrical and electronic systems.

► Only allow qualified, skilled personnel to perform 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 protection 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

Injuries caused by electric shock

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

► Disconnect unit from power supply.

► Secure unit against being switched back on again.

2.5 Avoid damage to property

Improper action

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

- Proper planning, design and commissioning
- Closed system with regard to corrosion
- Integration of an adequately dimensioned pressure maintaining device
- Use of deionised heating water (VE water) or VDI 2035 water
- Regular servicing and maintenance

If a system is not planned, designed, started up and operated in accordance with the given requirements, then there is a risk that the following damage and faults will occur:

- Faults 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 service life of the heat generator and the heating components depend decisively on the quality of the heating water.

When the system is filled with untreated drinking water, calcium precipitates as scale. Lime scale deposits form on the heat transfer surfaces of the heating. The efficiency drops and energy costs rise. In extreme cases, the heat exchangers will be damaged.

Fill the system exclusively with deionised heating water (VE water) or VDI 2035 water.

3 Operation and maintenance

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

3.1 Energy and environmentally-conscious operation

The generally accepted requirements for energy-conscious and environmentally-conscious operation of a heating system also apply to use of a 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 just a gap or tilt open (continuous ventilation); instead, open wide for a short time (shock ventilation).
- Always ensure that the controller settings are correct.

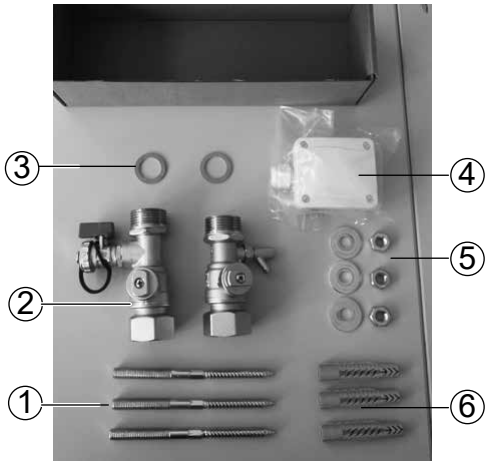
3.2 Maintenance

Wipe down the outside of the unit only using a damp cloth or cloth with mild cleaning product (washing-up liquid, neutral cleaning agent). Never use any harsh, abrasive, acid or chlorine-based cleaning products

4 Scope of supply

1 Accessory package
2 Safety module
3 Hydraulic module

Example of layout of the accessory package:



1 Hanger bolts (M10) for wall mounting (3)
2 Ball valves (2)
3 Flat seal 1“ (2)
4 Outdoor sensor
5 Nuts (M10), washers (3 each)
6 Plugs for wall mounting (3)

1. Inspect the delivery for outwardly visible signs of damage.
2. Inspect the scope of supply for completeness. Any defects or incorrect deliveries must be reported immediately.

4.1 Accessories

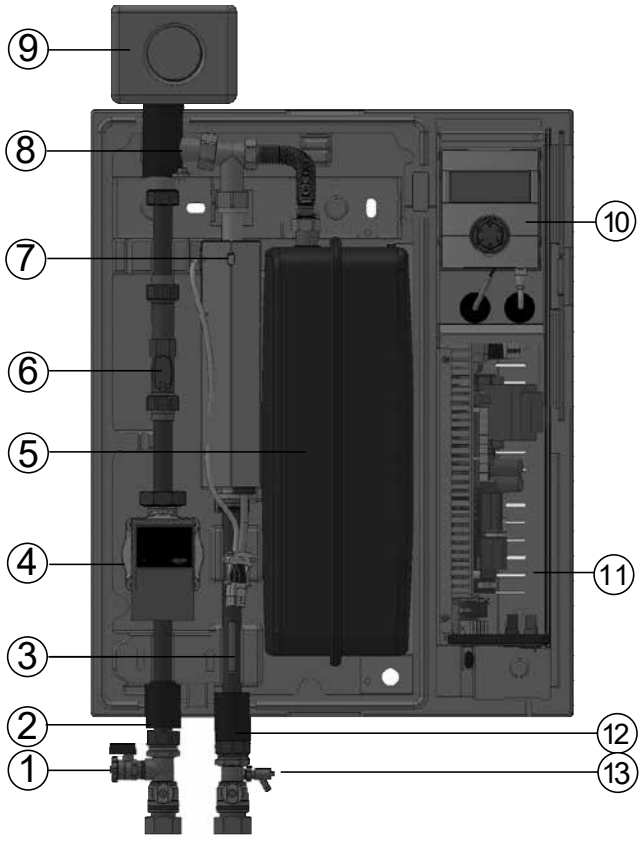
The following accessories are available for the unit through the manufacturer's local partner:

- Expansion board with various additional functions
- Room control panel for controlling the main functions from the living room
- Electrical connection kit
- Domestic hot water tank
- Buffer tank

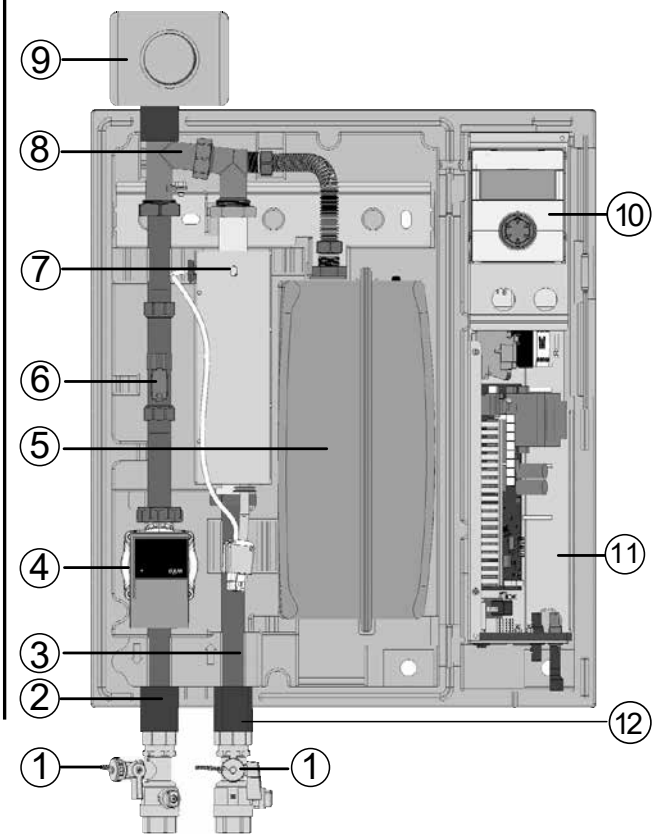
4.2 Components of the unit

2 versions of the hydraulic module are available:

H(D)V 9-1/3



H(D)V 12-3



	Components of the unit
1	Heating circuit filling and drain valve
2	Supply outlet
3	Supply sensor
4	Heating circuit recirculating pump (energy efficient circulation pump)
5	Expansion vessel
6	Electric heating element
7	Air separator
8	Heating circuit safety module (insulated)
9	Control panel for regulating
10	Electrical switch box
11	Supply inlet
12	Venting
13	Draining

5 Transport, installation and assembly

5.1 Unpacking and transport

Notes on safe transport

The unit is heavy (refer to “Technical data / Scope of supply” on Page 17). There is a risk of injuries or damage to property if the unit falls down or overturns.

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

► Wear cut resistant protective gloves.

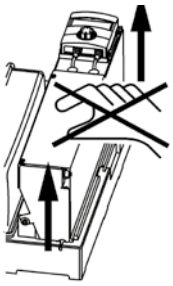
The hydraulic connections are not designed for mechanical loads.

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

Transport the unit preferably with a pallet truck, alternatively with a handcart or by carrying

To prevent damage during transport, always transport the unit to final installation location in its original packaging.

ATTENTION
The unit must neither be lifted up nor transported by the switch box.



Transport with a pallet truck

► Transport the device to the installation location while it is still packaged.

Transport with handcart

1. Load the hydraulic module with the underside of the unit on the handcart.
2. Secure the hydraulic module to the handcart with lashing straps.

Carrying the unit

► Transport the hydraulic module to the installation location.

Unpacking:

1. Remove plastic films and cardboard. Ensure that you do not damage the unit.
2. Dispose of the transport and packaging material in an environmentally friendly way and in accordance with local regulations.

INSTALLATION

5.2 Installation location

ATTENTION
Install the unit inside buildings only.

The installation area must be frost-free and dry. It must fulfil the relevant local regulations.

→ Observe safety and service clearances, refer to “Installation plan” and “Dimensioned drawing”.

ATTENTION
Ensure the wall has the necessary load-bearing capacity.

Possible installation situation, example:
HV 9-1/3 with integration of storage tank in series

1 Hydraulic module
2 Buffer tank
3 Domestic hot water tank

1. Mark holes to be drilled with the help of the drill-hole template.
2. Take off the front hood.
3. Use the plugs and screws supplied to fix the hydraulic module onto the wall:

The plugs supplied are only suitable for use with the following types of walls:

- Concrete
- Solid lightweight concrete blocks
- Cavity block made of lightweight concrete
- Cellular concrete
- Pre-stressed concrete - hollow ceiling/floor slabs
- Natural stone with dense, close-grained microstructure
- Solid calcium silicate blocks
- Perforated calcium silicate blocks
- Solid bricks
- Vertically perforated (honeycomb) bricks
- Hollow floors/ceilings made of clay bricks, concrete or similar
- Solid gypsum boards
- Gypsum boards and gypsum fibre boards
- Particle boards

The board material must be dimensioned with sufficient thickness to ensure secure fixing.
Appropriate fixing material must be provided on site for other types of wall constructions.

ATTENTION
Leaving a gap between the unit and the wall provides rear-side ventilation and must not be sealed or closed off.
Cable glands must be laid at a distance of at least 2 cm away from the hydraulic module.

5.3 Installation / hydraulic connection to heating circuit

NOTE
Before connection to the heating system, the heating circuit must be thoroughly flushed.

→ Dimensioned drawing

► Secure all connections against twisting.

✓ Cross-sections and lengths of the pipes for the heating circuit are adequately dimensioned. In doing so, always that the connection pipework between the heat pump and hydraulic module are also taken into account

✓ The free pressing of the recirculating pump produces at least the minimum throughput required for the unit type (refer to “15 Free pressing” on Page 19).

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

► Insert the vent at the highest point of the heating circuit.

► Take off the hood at the front of the hydraulic module:

On the inside of the hood, there is a tongue-and-groove joint along the circumference.
Lock the hood into the groove on the housing.
The connections for the heating circuit are located on the underside of the device.

5.4 Safety module

The safety module for the heating circuit is in the extra box.
Install the safety module at the connection provided on the top of the device.
The safety discharge of the safety valve must be discharged into the drain via a funnel waste trap in accordance with the respective current standards, guidelines and directives.

It is essential that the safety discharge is connected!

5.5 Expansion vessel

The expansion vessel for the heating circuit is integrated. Always check whether the size of the expansion vessel is large enough for the system. If necessary, an additional expansion vessel must be installed on site in accordance with the relevant standards and guidelines.

NOTE
The admission pressure of the expansion vessel must be adjusted to the system (approx. 0.5 bar less than the system filling pressure) in accordance with the calculation to the relevant standards (EN 12828).

6 Electrical installation

Establish the electrical connections between the heat pump and the hydraulic module

1. Route the two plug-in connections of the load and bus cables from the hydraulic module to the plug-in points on the heat pump.

NOTE.
For dual output-controlled heat pumps, the lines (8 m) are already connected to the heat pump.

2. Couple the connectors together:
3. Fit cover for plug-in connections.

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 in-feed.

Basic information relating to the electrical connection

- The specifications of the local energy supply company may apply to electrical connections.
- Equip the power supply for the heat pump with an all-pole circuit breaker with at least 3 mm contact spacing (according to IEC 60947-2).
- If required: Residual current circuit breaker type A is sufficient.
- Note the level of the tripping current (refer to “14 Technical data / Scope of supply” on Page 17).
- 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 (bus cable) sufficiently far apart.
- Do not lengthen the patch cable or the bus cable. Bus cables up to 30 m long can be used when the quality of the cable is the same as that of the original cable.

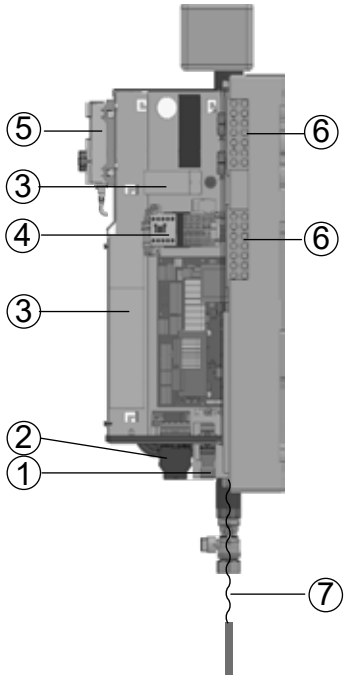
Electrical connection

The electrical connection is established via the switch box.
Pull in the cables and conductors and make the connections

1. Strip the sheathing off all cables to the external loads before laying in the cable gland of the glands box.
2. Feed the cable on the rear of the hydraulic module through the cable gland in the switch box.
1. Open the switch box in the unit.

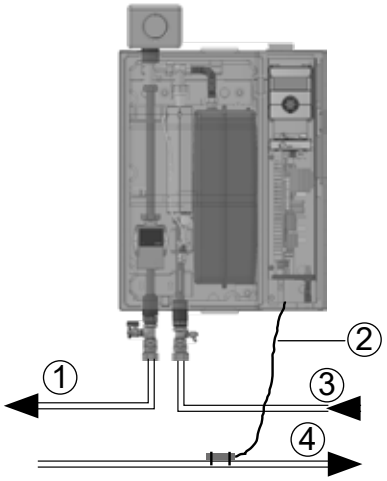
   Only slightly undo the top two screws of the cover plate. Remove the remaining screws. Unhook cover panel.
2. Feed the control and sensor cable as well as the cable for the EVU blocking time through the glands on the rear of the unit and into interior of the device. Lay the cables through the cable gland to the terminals in the switch box.
3. Carry out electrical connections in accordance with the terminal diagram.

→ “Terminal diagram” for the respective model.



Example HV 9-1/3:

1 Connection, bus cable EVS/EVS8
2 Connection, load cable EVS/EVS8
3 Cable glands
4 Contactor
5 Control panel
6 Cable routing
7 Return flow sensor



Example HV 9-1/3:

1 Supply to heating circuit / domestic hot water tank
2 Return sensor on hydraulic module
3 Supply from heat pump
4 Return to heat pump

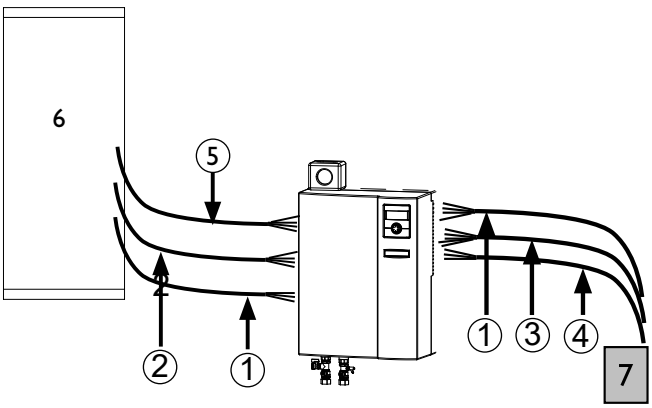
Fasten return flow sensor (2) to the return (heat-conducting pipe) to the heat pump (4) using cable ties and thermal compound.

→ Hydraulic integration documents

The electrical connection between the heat pump and hydraulic module is implemented via EVS or EVS8 (accessories). In dual variants, the lines (8 m) and plugs are included in the scope of delivery.

The hydraulic module is connected on site to the sub-distribution with the following cables

→ “Terminal diagram” for the respective model.



1 Load Compressor
2 Bus (screened)
3 Heating element load line
4 Control voltage
5 Control voltage nur Duale Wärmepumpe
6 Heat pump
7 Sub-distribution

NOTE

The control panel of the heating and heat pump controller can be connected to a computer or network using a suitable network cable, enabling the heating and heat pump controller to be controlled remotely from there.

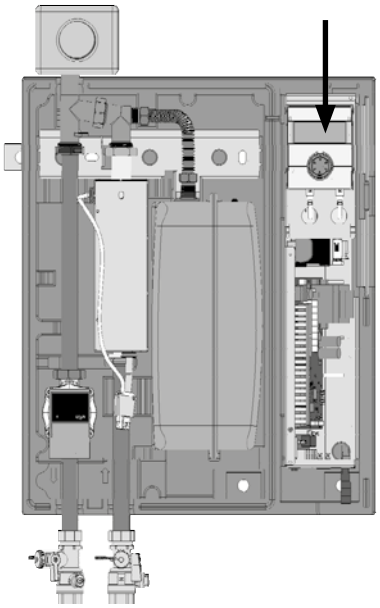
If such a connection is required, then install a shielded network cable (category 6, with RJ45 connector) during the electrical connection work and connect it parallel to the existing control cable of the heating and heat pump controller.

NOTE

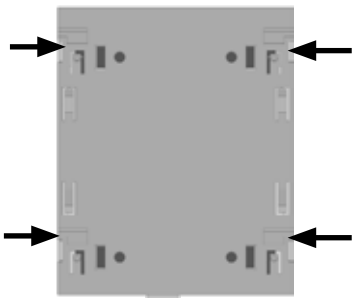
In units with integrated electric heating element, the electric heating element is connected at 9 kW (6kW) in the factory. At contactor Q, it is possible to select 6 kW (4kW) = 2 phase operation. Disconnect Q5/6 for this. Or 3kW (2kW) = 1 phase operation. Disconnect Q5/6 and Q5/4 for this. The values in brackets are for the 6kW heating element. Disconnected cables must be furnished with screw terminals. Only the phases cited above may be disconnected (safety temperature limiter).

7 Installing the control panel

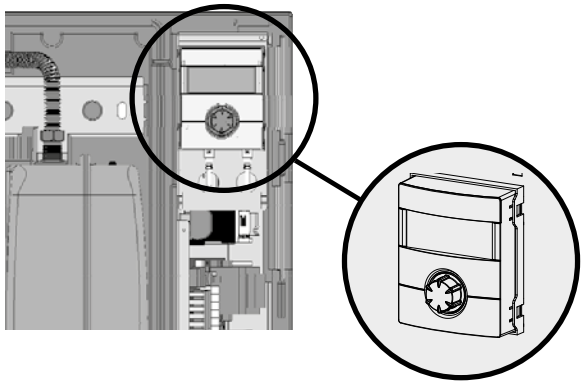
There are 4 openings in the top area of the switch box panel of the unit for fastening the control panel:



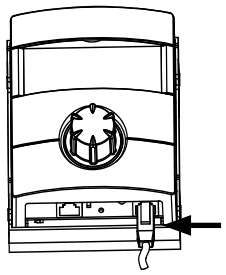
Example HV 12-3

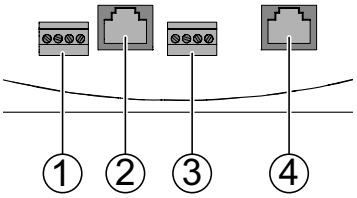


1. There are 4 hooks at the rear of the control panel, which are used to hook the control panel onto the switchgear compartment panel:



2. Press the hooked in control panel downwards until it latches into position.
3. Plug control cable into the bottom of the control panel.





1 Room control panel RBE RS 485 (accessory) connection

2 Network cable connection

3 LIN-bus cable connection to the controller board

4 Modbus cable to Modbus distributor connection

8 Flushing, filling and venting the system

8.1 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 only with deionised heating water (VE water) or VDI 2035 water (low-salt operation of the system).

Advantages of low-salt operation:

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

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

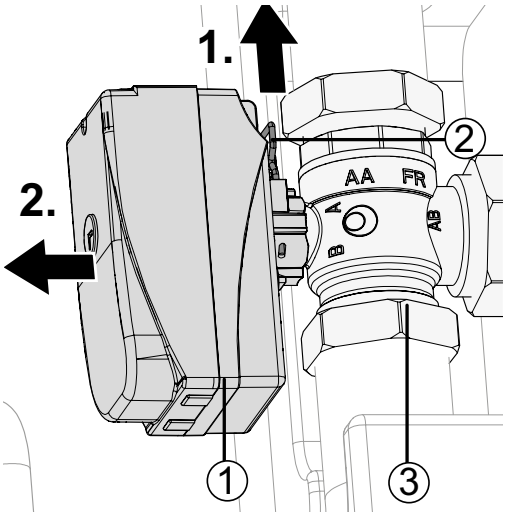
✓ Outlet pipe of the safety valve is connected.

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

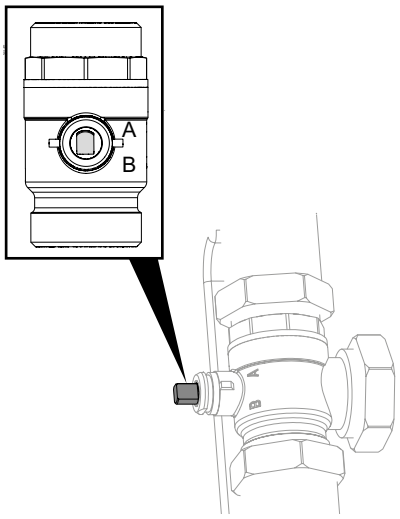
NOTE

The venting program on the controller can also be used to support the flushing and venting process. It is possible to control individual recirculating pumps and even the changeover valve through the venting programme. As a result it is not necessary to remove the valve motor.

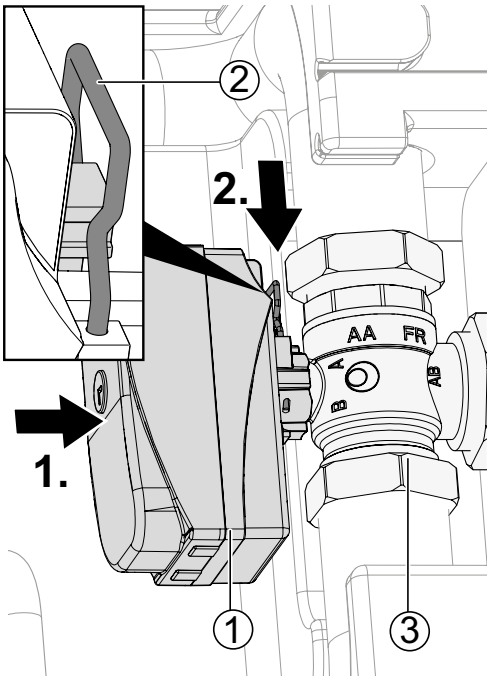
1. Pull the U-clip (2) of the switching valve (accessory) off the base of the valve motor (1).
2. Pull the valve motor carefully off the 3-way switching valve (3).



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

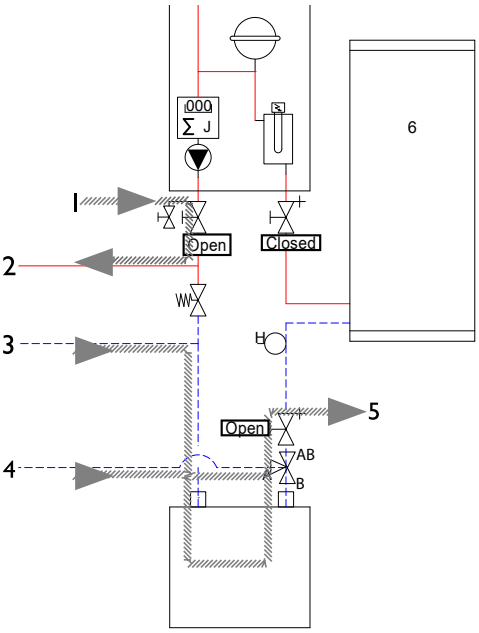


4. Flush the domestic hot water charging circuit for approx. 1 minute.
5. Turn the spindle so that the rounded side of the spindle points in the direction of marking B of the connections of the 3-way switching valve.
6. Flush heating circuit thoroughly, until no more air is discharged.
7. Position the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



9. Ensure that the U-clip has latched into position correctly:
   - Valve motor sits securely on the 3-way switching 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!).

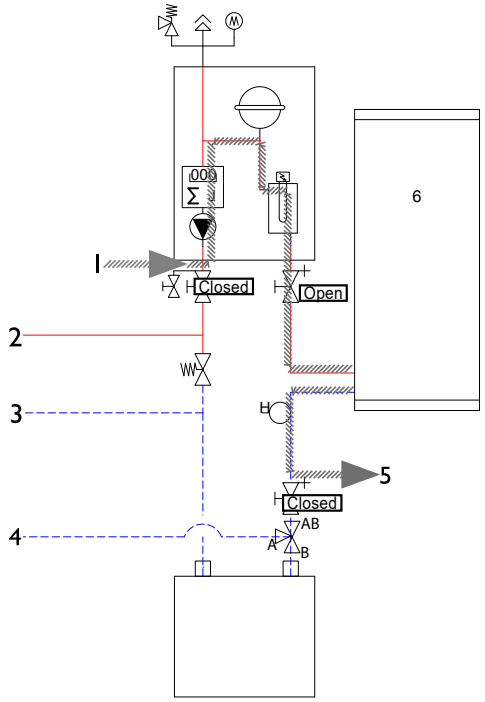
   Example for integration of storage tank in series:



1 Filling stop cock
2 Supply, hot water / domestic hot water
3 Return, hot water
4 Return, domestic hot water
5 Drain
6 Heat pump

→ “Switching valve” operating manual

Example for integration of storage tank in series:



1 Filling stop cock
2 Supply, hot water / domestic hot water
3 Return, hot water
4 Return, domestic hot water
5 Drain
6 Heat pump

10. Swap the hoses at the filling and draining stop cocks and flush the condenser of the heat pump via the return.
11. Open the additional vent valve at the condenser of the heat pump. Vent the condenser and then close the vent valve again when fully vented.

9 Insulate hydraulic connections

Insulate hydraulic lines in accordance with local regulations.

1. Open shut-off devices.
2. Perform a pressure test and inspect for leaks.
3. Insulate external piping on site.
4. Insulate all connections, fittings and pipes.

10 Set the overflow valve

→ Heat pump manual.

11 Commissioning

→ Operating manual of the heating and heat pump controller.

→ Heat pump manual

12 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 (refer to “Nameplate”) to hand.

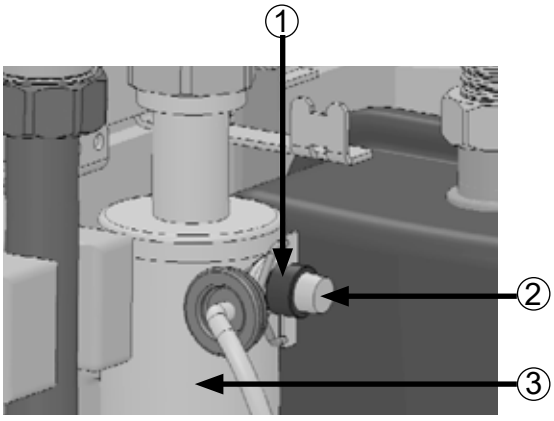
12.1 Unlock safety temperature limiter

A safety temperature limiter (1) is installed in the electric heating element (3). If the heat pump fails or there is air in the system:

► Check whether the reset knob (2) in the centre of the safety temperature limiter (1) has jumped out (located underneath the cover).

► Press the reset button back in again.

HV:



1 Safety temperature limiter on the electric heating element
2 Reset button
3 Electric heating element

13 Dismantling and disposal

13.1 Dismantling

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

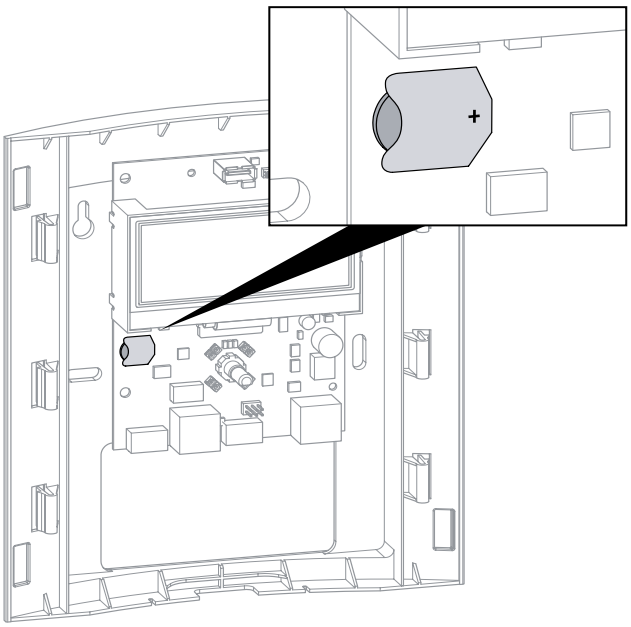
► Separate components by their materials.

13.2 Disposal and recycling

► Recycle or ensure proper disposal of unit components and packaging materials in accordance with local regulations.

Buffer (standby) battery

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



2. Dispose of the buffer battery in accordance with local regulations.

Technical data / Scope of supply

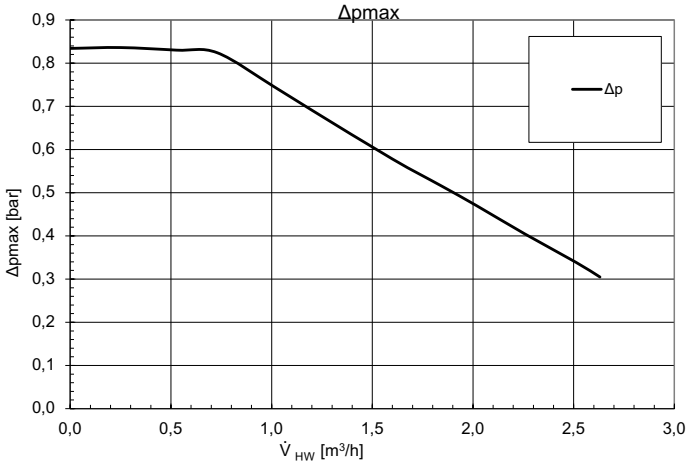
Accessories for heat pump type			HV 9-1/3	HV 12-3
Air/water 8 kW performance-controlled ı Air/water 12 kW performance-controlled		• yes — no	• ı —	• ı •
Air/water dual performance-controlled		• yes — no	— ı —	— ı —
Installation site				
Room temperature	min. ı max.	°C	5 ı 35	5 ı 35
Relative humidity		%	60	60
Sound				
Sound power level	Inside	dB(A)	—	—
Heating circuit				
Volume flow rate: minimum ı nominal analogue A7W35 (partial load operation) ı maximum		l/h	600 ı — ı 1200	600 ı — ı 2000
Free pressing ı Pressure loss ı Volume flow rate		bar ı bar ı l/h	0,7 ı — ı 1200	0,59 ı — ı 2000
max. allowable operating pressure		bar	3	3
General unit data				
Total weight		kg	25	40
Electrics				
Voltage code ı all-pole heat pump fuse protection *)**)		… ı A	1~N/PE/230V/50Hz ı B16	3~N/PE/400V/50Hz ı B16
Voltage code ı all-pole heat pump fuse protection *)**)		… ı A	—	1~N/PE/230V/50Hz ı B16
Voltage code ı Control voltage fuse protection **)		… ı A	1~N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10
Voltage code ı Electric heating element fuse protection **)		… ı A	3~N/PE/400V/50Hz ı B10	3~N/PE/400V/50Hz ı B16
Voltage code ı Electric heating element fuse protection **)		… ı A	1~N/PE/230V/50Hz ı B32	—
Degree of protection		IP	20	20
Electric heating element output 3 ı 2 ı 1 phase		kW ı kW ı kW	6 ı 4 ı 2	9 ı 6 ı 3
Circulation pump power consumption, heating circuit	min. — max.	W	4 – 75	4 – 75
Other unit information				
Heating circuit safety valve	included in scope of supply: • yes	— no	•	•
Heating circuit expansion vessel	included in scope of supply: • yes	— no	•	•
Overflow valve ı Changeover valve, heating -Domestic hot water	integrated: • yes	— no	— ı —	— ı —
Heating circuit vibration decouplers	integrated: • yes	— no	—	—
Controller	integrated: • yes	— no	•	•
Heat quantity recording	integrated: • yes	— no	•	•
*) Only compressor, **) Observe local regulations,			813318	813319

Technical data / Scope of supply

Accessories for heat pump type			HDV 9-1/3	HDV 12-1/3
Air/water 8 kW output-controlled I Air/water 12 kW output-controlled		• yes — no	— I —	— I —
Air/water dual output-controlled		• yes — no	•	•
Air/water 7 kW to 8 kW output-controlled I Air/water 10 kW to 18	Outdoor installation	• yes — no	— I —	— I —
Air/water 9 kW to 14 kW RX	Outdoor installation	• yes — no	—	—
Air/water dual	Outdoor installation	• yes — no	—	—
Air/water dual RX	Outdoor installation	• yes — no	—	—
Installation location				
Room temperature	min. I max.	°C	5 I 35	5 I 35
Relative humidity		%	60	60
Sound				
Sound pressure level at 1 m distance	inside	dB(A)	33	33
Sound power level	inside	dB(A)	46	46
Heating circuit				
Flow rate: minimum I maximum (see heat pump for pipe dimensioning)		l/h I l/h	900 ı 1600	900 ı 1600
Free pressing ı Pressure loss ı Flow rate		bar I bar I l/h	0,692 ı - ı 1150	0,833 ı - ı 1150
Max. allowable operating pressure		bar	3	3
Circulation pump control range	min. I max.	l/h	900 ı 1600	900 ı 1600
General unit data				
Total weight		kg	25,00	25,00
Electrics				
Voltage code ı all-pole fuse protection for heat pump *)**)	1 phase	… ı A	1~N/PE/230V/50Hz ı B16	1~N/PE/230V/50Hz ı B16
Voltage code ı all-pole fuse protection for heat pump *)**)	3 phases	… ı A	—	—
Voltage code ı Control voltage fuse protection **)		… ı A	1~N/PE/230V/50Hz ı B16	1~N/PE/230V/50Hz ı B16
Voltage code ı Electric heating element fuse protection **)	1 phase	… ı A	1~N/PE/230V/50Hz ı B25	—
Voltage code ı Electric heating element fuse protection **)	3 phases	… ı A	3~N/PE/400V/50Hz ı B10	3~N/PE/400V/50Hz ı B16
Degree of protection		IP	20	20
Electric heating element output 3 I 2 I 1 phase		kW I kW I kW	6 ı 4 ı 2	9 ı 6 ı 3
Circulation pump power consumption, heating circuit	min. — max.	W	4 – 75	4 – 75
Other unit information				
Safety valve, heating circuit	included in scope of supply:	• yes — no	•	•
Heating circuit diaphragm expansion vessel	included in scope of supply:	• yes — no	•	•
Overflow valve I Changeover valve, heating -Domestic hot water	integrated:	• yes — no	— I —	— I —
Heating circuit vibration decoupling	integrated:		—	—
Controller	integrated:		•	•
Heat quantity recording	integrated:	• yes — no	•	•
*) compressor only, **) note local regulations,			813322	813323

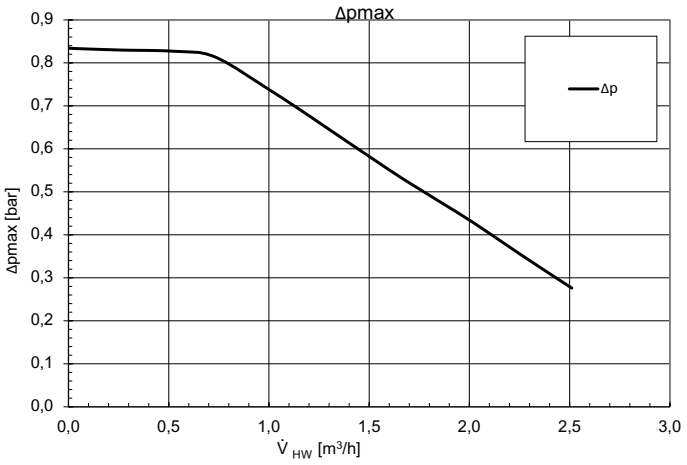
Free pressing

HV9-1/3



823282

HDV9-1/3

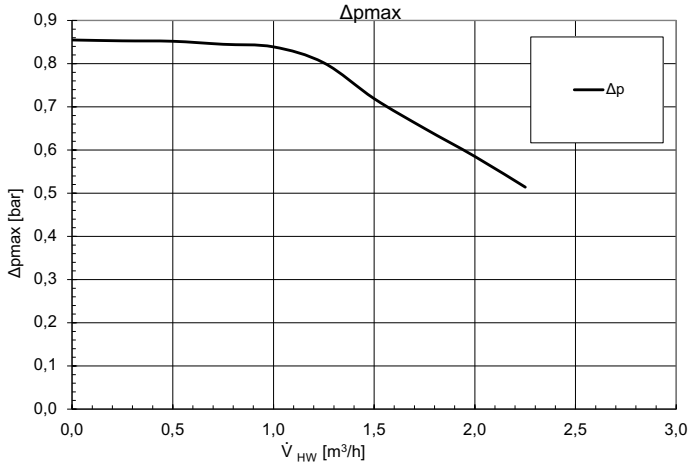


Key:

$\dot{V}_{HW}$	Volumetric flow of hot water in m³/h
Δpmax	Maximum free pressing

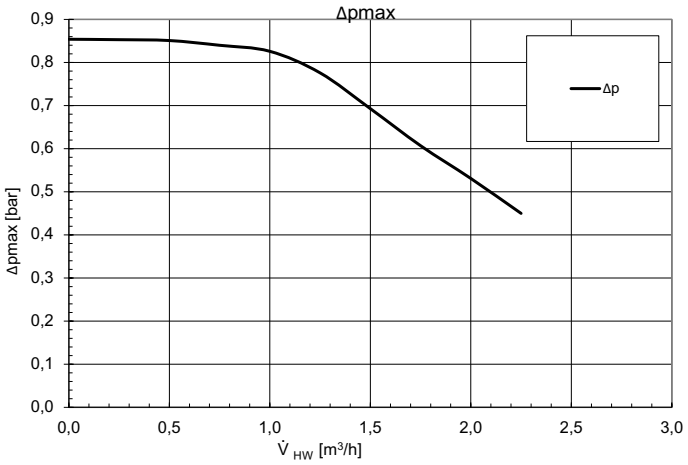
823286

HV 12-3



823283

HDV 12-3



Key:

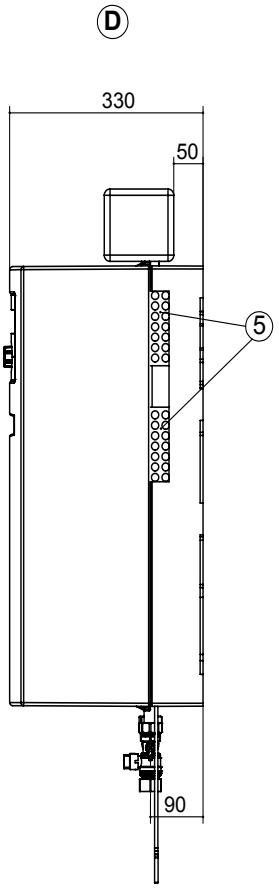
$\dot{V}_{HW}$	Volumetric flow of hot water in m³/h
Δpmax	Maximum free pressing

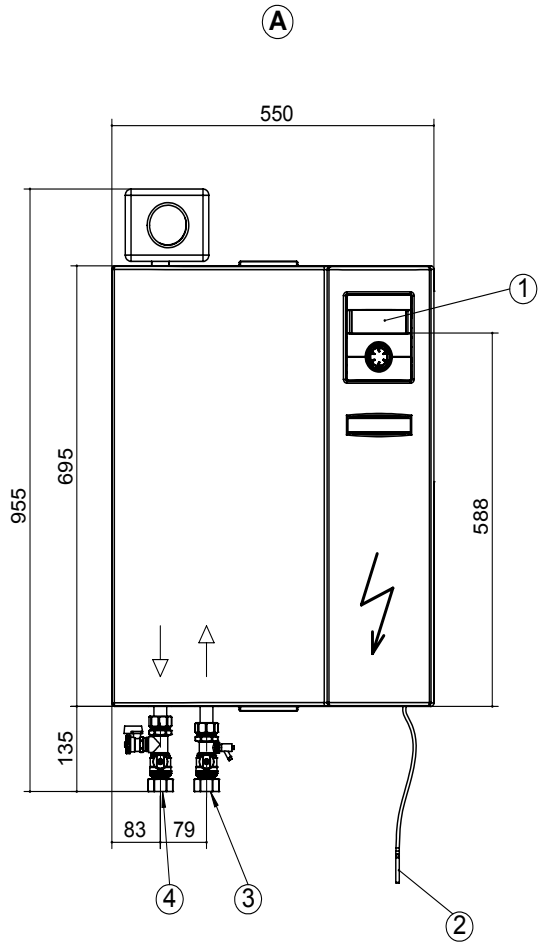
823287

Dimensioned drawing and drill pattern H(D)V 9-1/3

Dimensioned drawing:

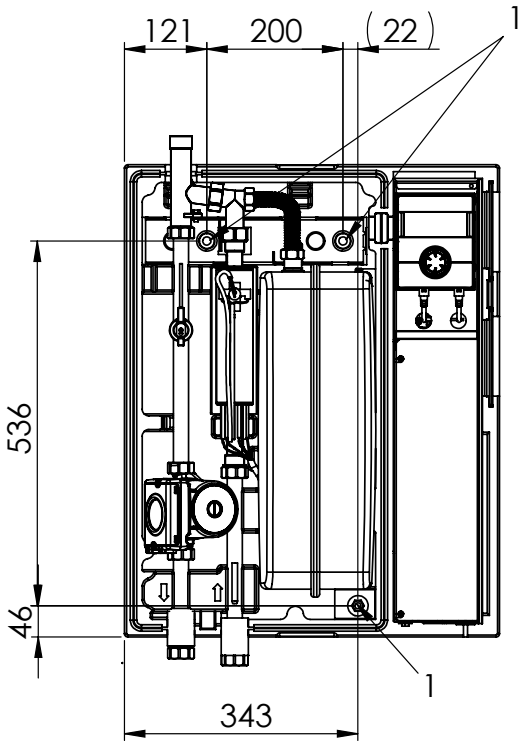
Key: D819396		
Subject to technical amendments without prior notice.		
All dimensions in mm.		
A	Front view	
D	Side view from right	
The hydraulic module is installed in the heating flow!		
Posi-tion	Name	Dim.
1	Control panel	
2	Return flow sensor approx. 5.5m from unit	
3	Heating water inlet (supply)	Rp 1“ internal thread
4	Heating water outlet (supply)	Rp 1“ internal thread
5	Penetrations for electric/ sensor cables	





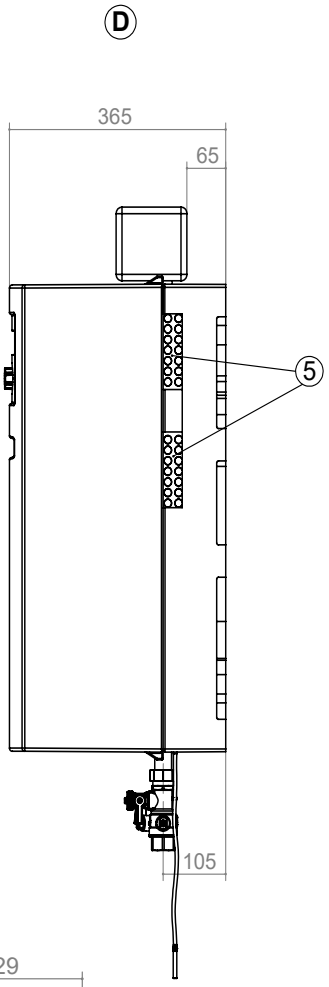
Drill pattern:

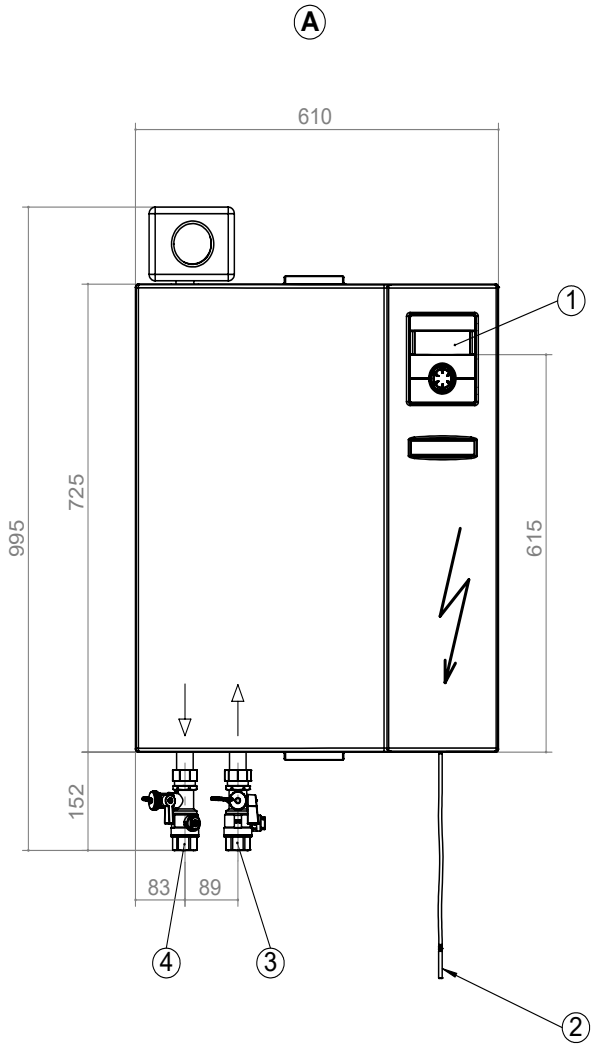
Legende 819493-
Spacing for drill pattern
1= drill hole<MOD-DIAM>12 for plug (incl.)

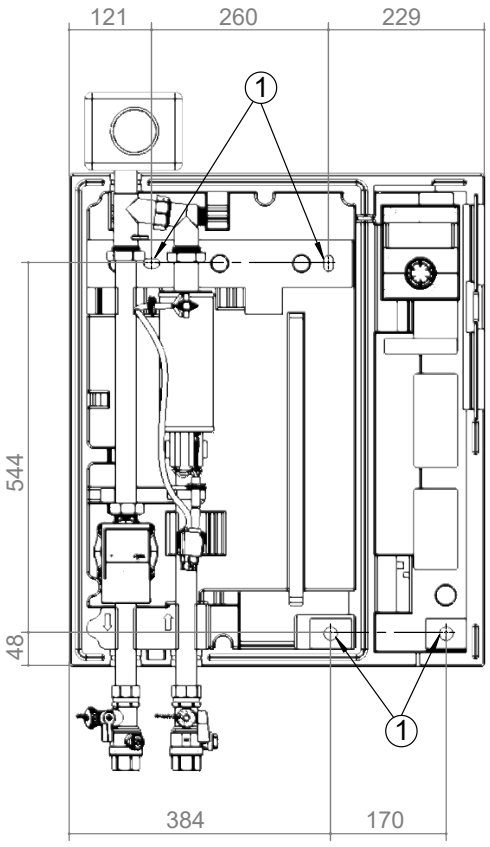


Dimensioned drawing:

Key: D819487		
Subject to technical amendments without prior notice.		
All dimensions in mm.		
A	Front view	
D	Side view from right	
The hydraulic module is installed in the heating flow!		
Posi-tion	Name	Dim.
1	Control panel	
2	Return flow sensor approx. 5.5m from unit	
3	Heating water inlet (supply)	Rp 1“ internal thread
4	Heating water outlet (supply)	Rp 1“ internal thread
5	Penetrations for electric/ sensor cables	



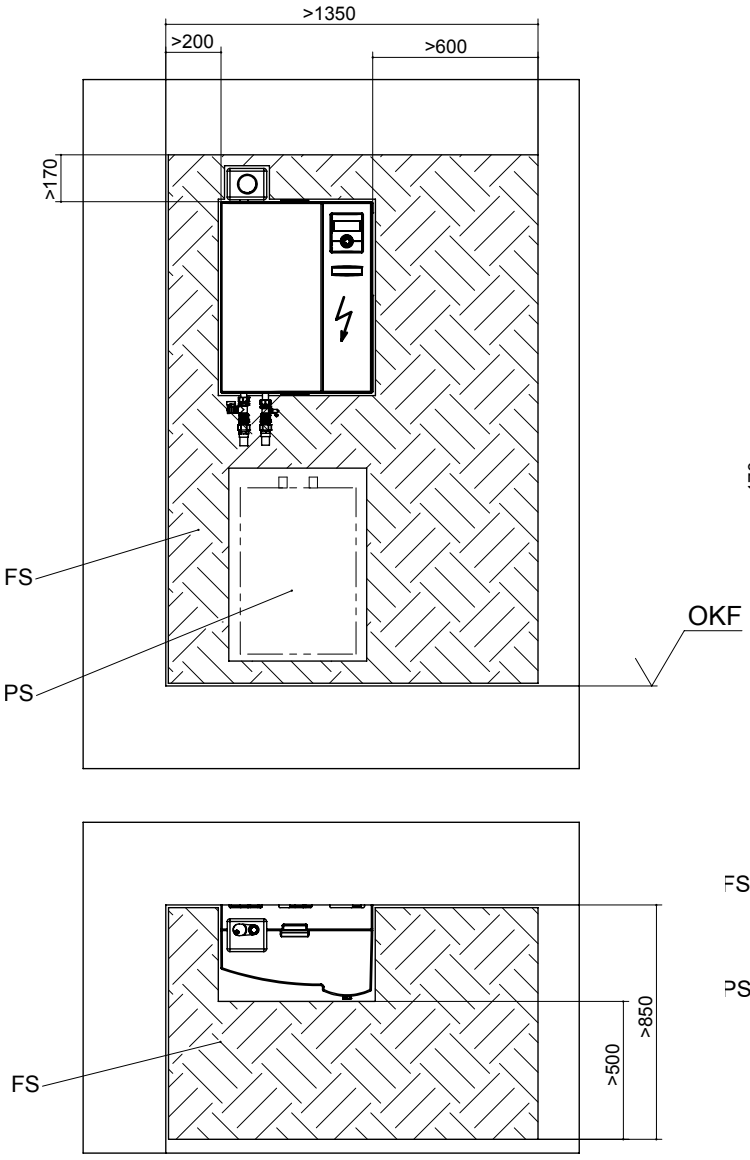




Drill pattern:

Legende 819493-
Spacing for drill pattern
1= drill hole<MOD-DIAM>12 for plug (incl.)

Installation plan H(D)V 9-1/3

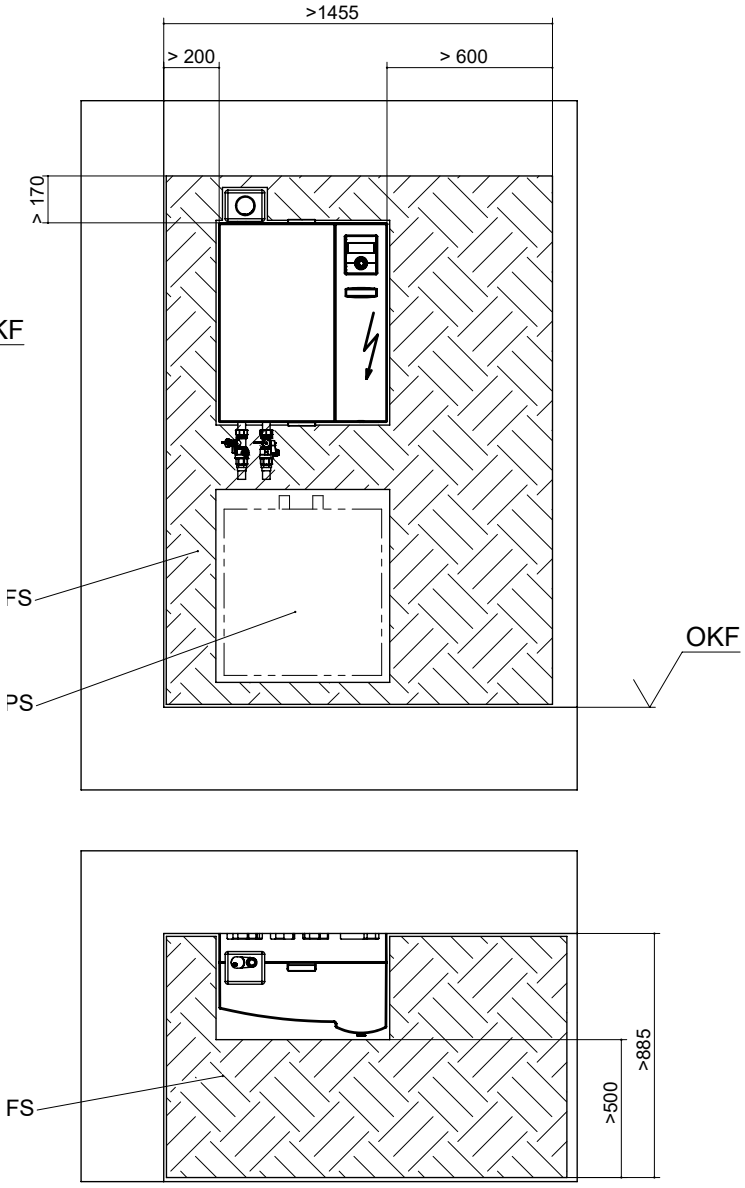


Key: 819398-

All dimensions in mm.

OKF	Top edge of finished floor
FS	Free space for service purposes
PS	Free space for wall-hanging Buffer tank possible

Installation plan H(D)V 12-3

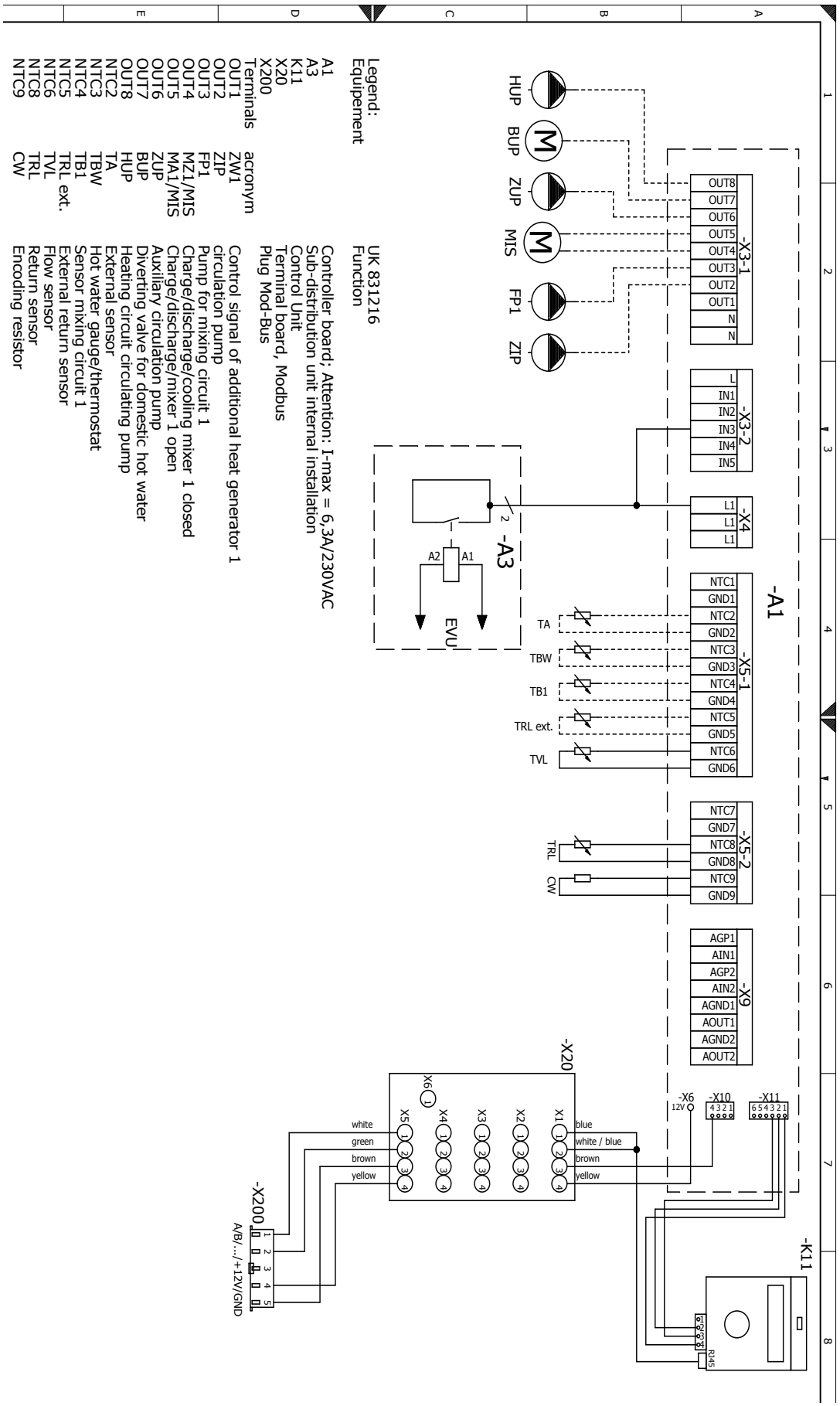


Key: 819488-

All dimensions in mm.

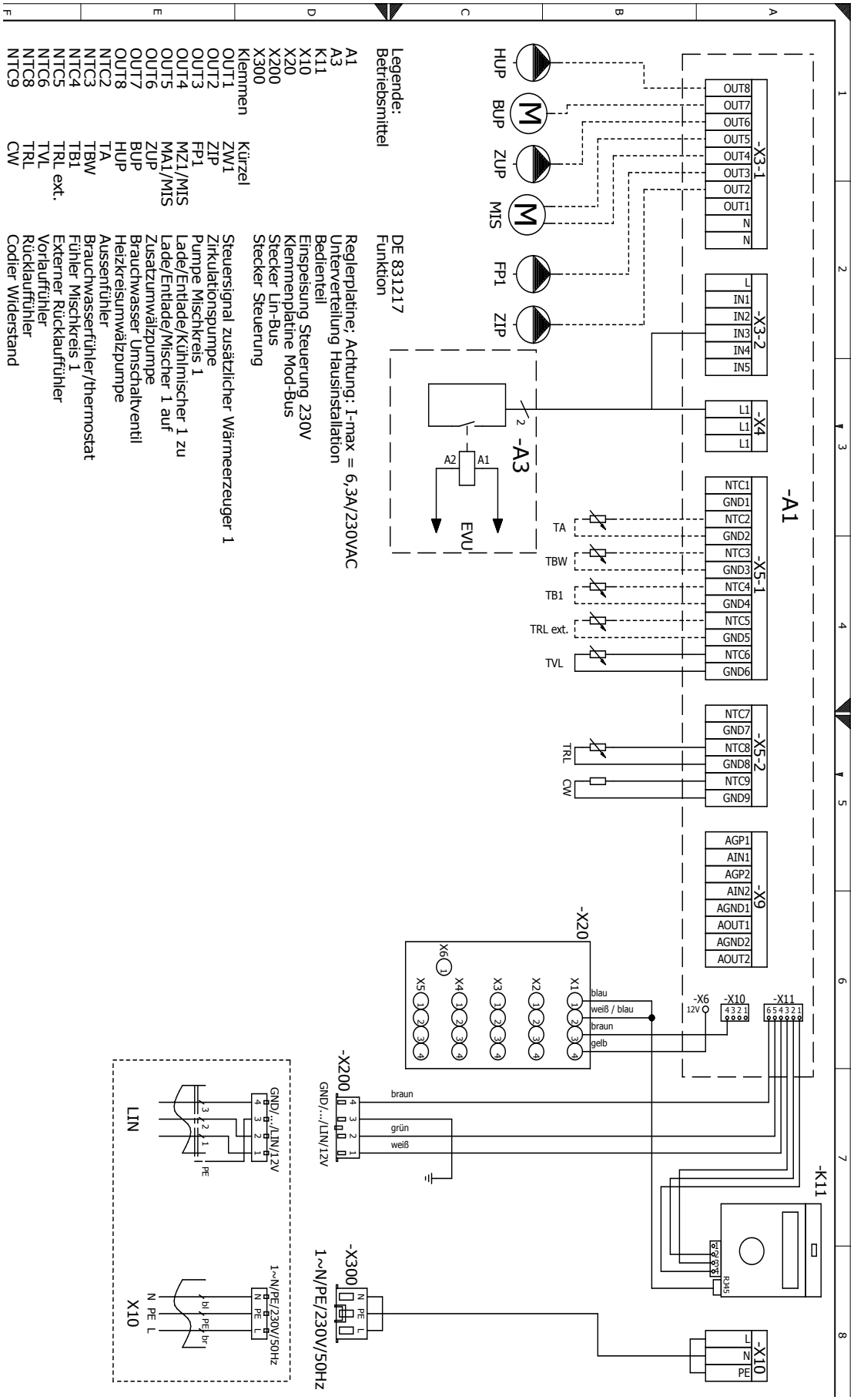
OKF	Top edge of finished floor
FS	Free space for service purposes
PS	Free space for wall-hanging Buffer tank possible

Terminal diagram



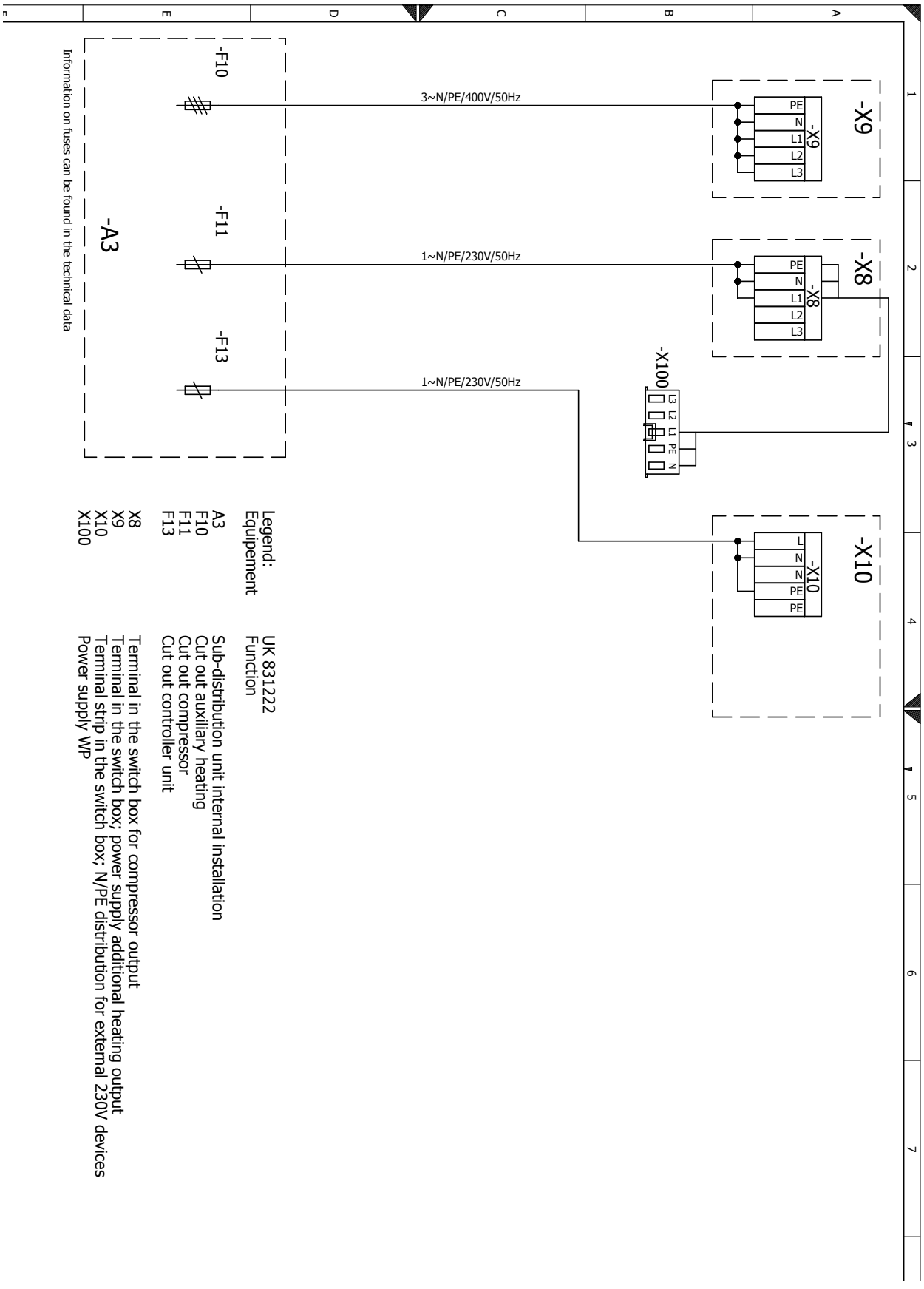
Terminal diagram

HDV

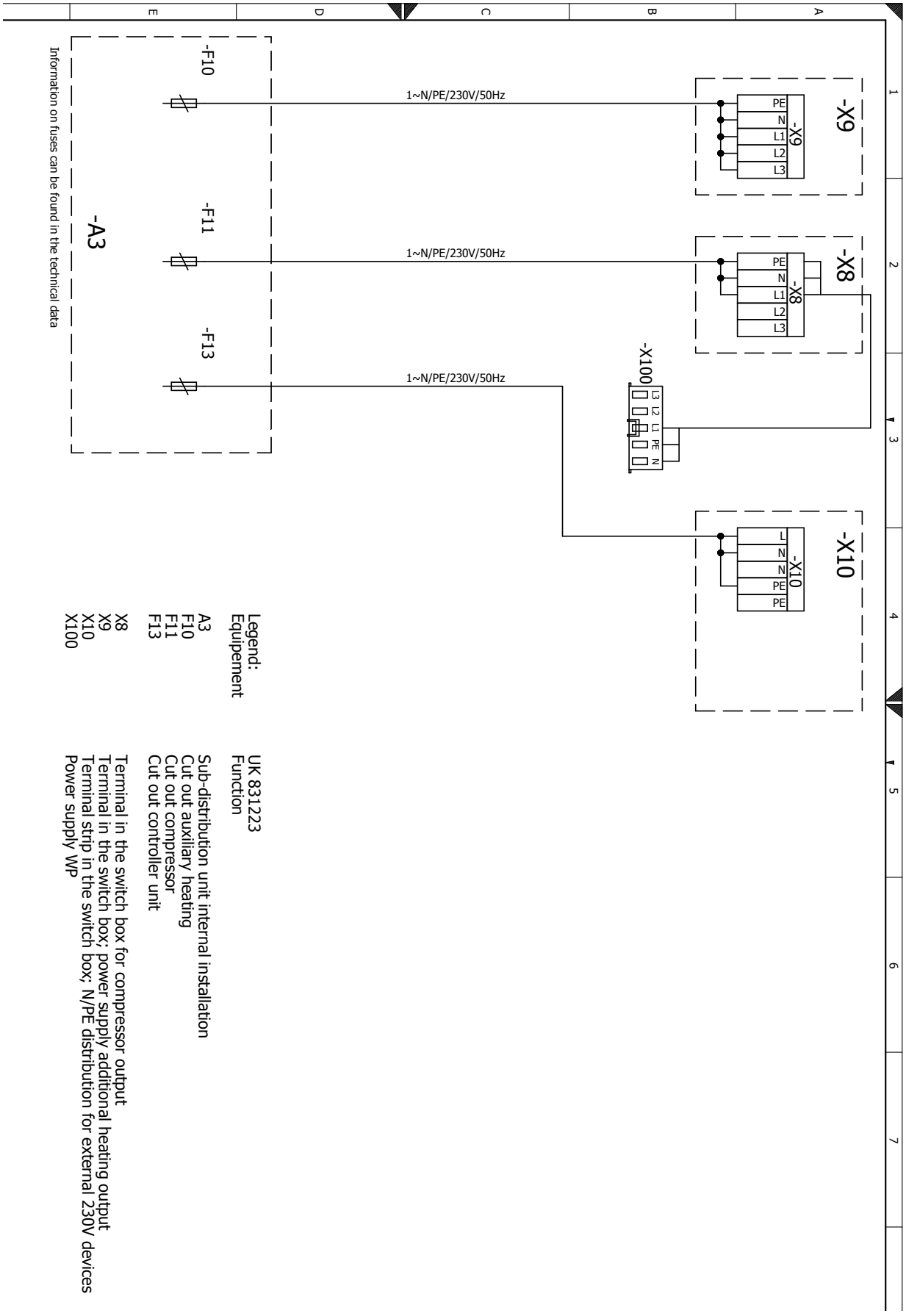


Terminal diagram, mains connection, heat pump 1~230V + electric heating element 3~400V

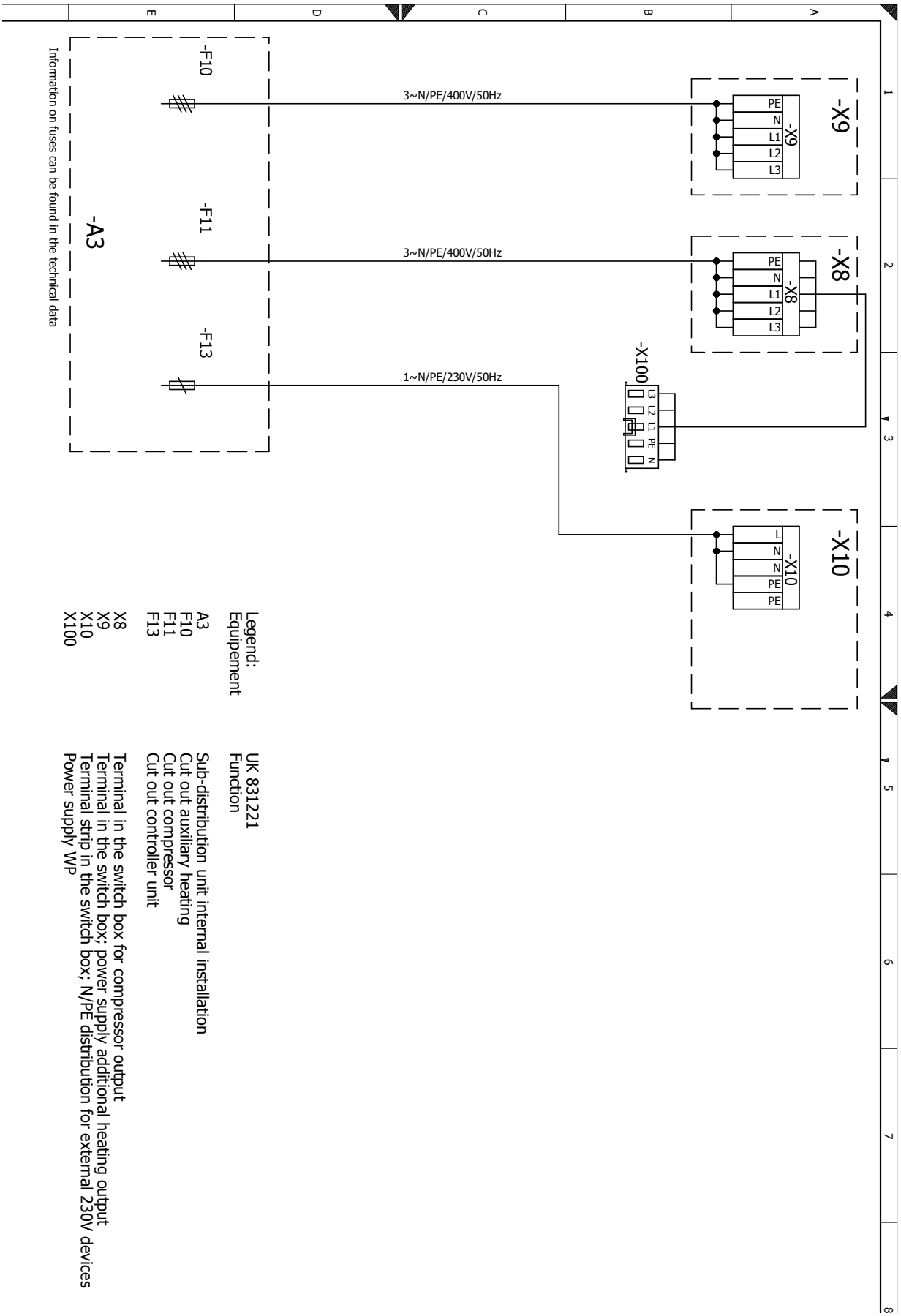
H(D)V 9-1/3, HDV 12-1/3



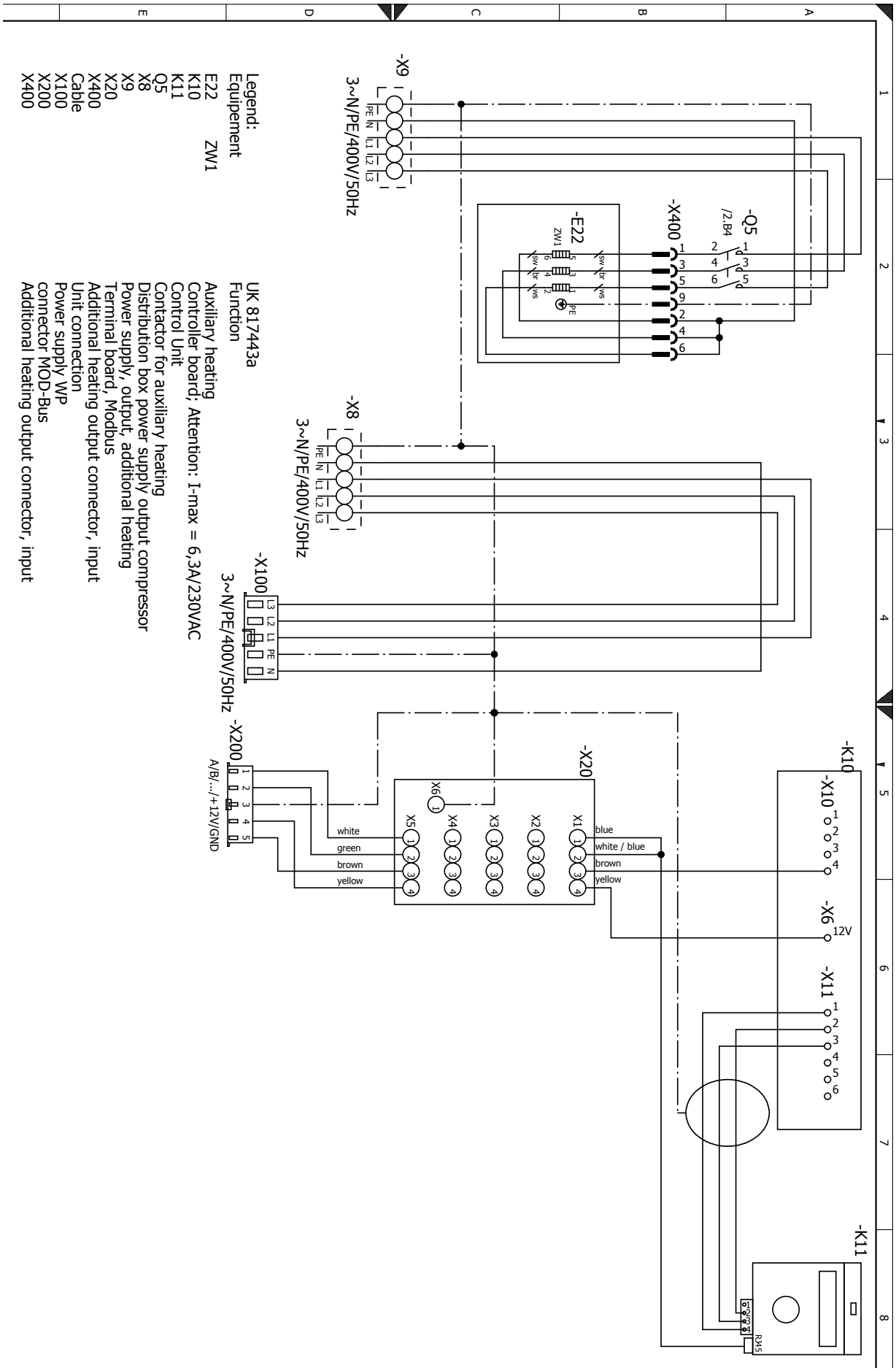
Terminal diagram, mains connection, heat pump 1~230V + electric heating element 1~230V



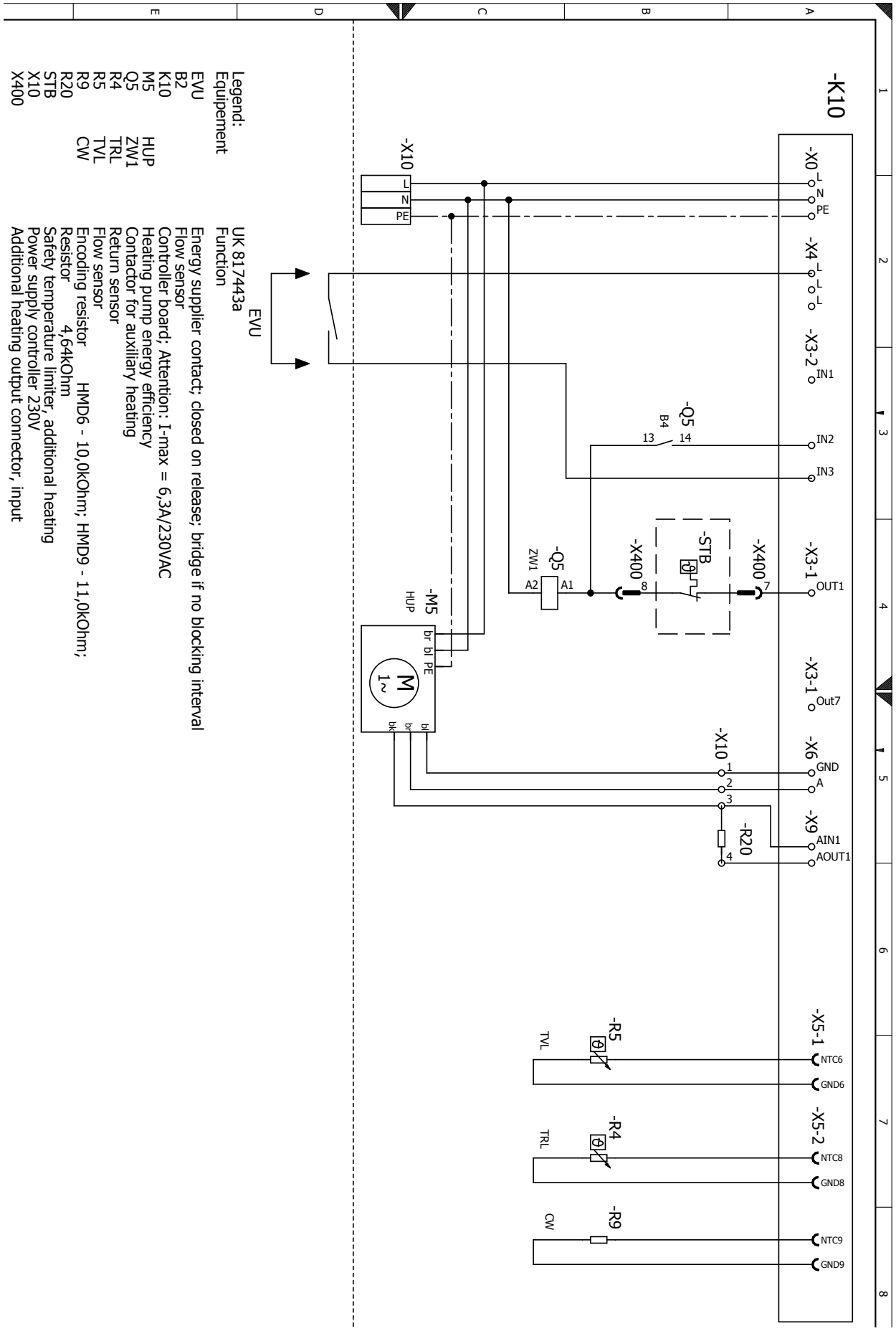
Terminal diagram, mains connection, heat pump 3~400V + electric heating element 3~400V



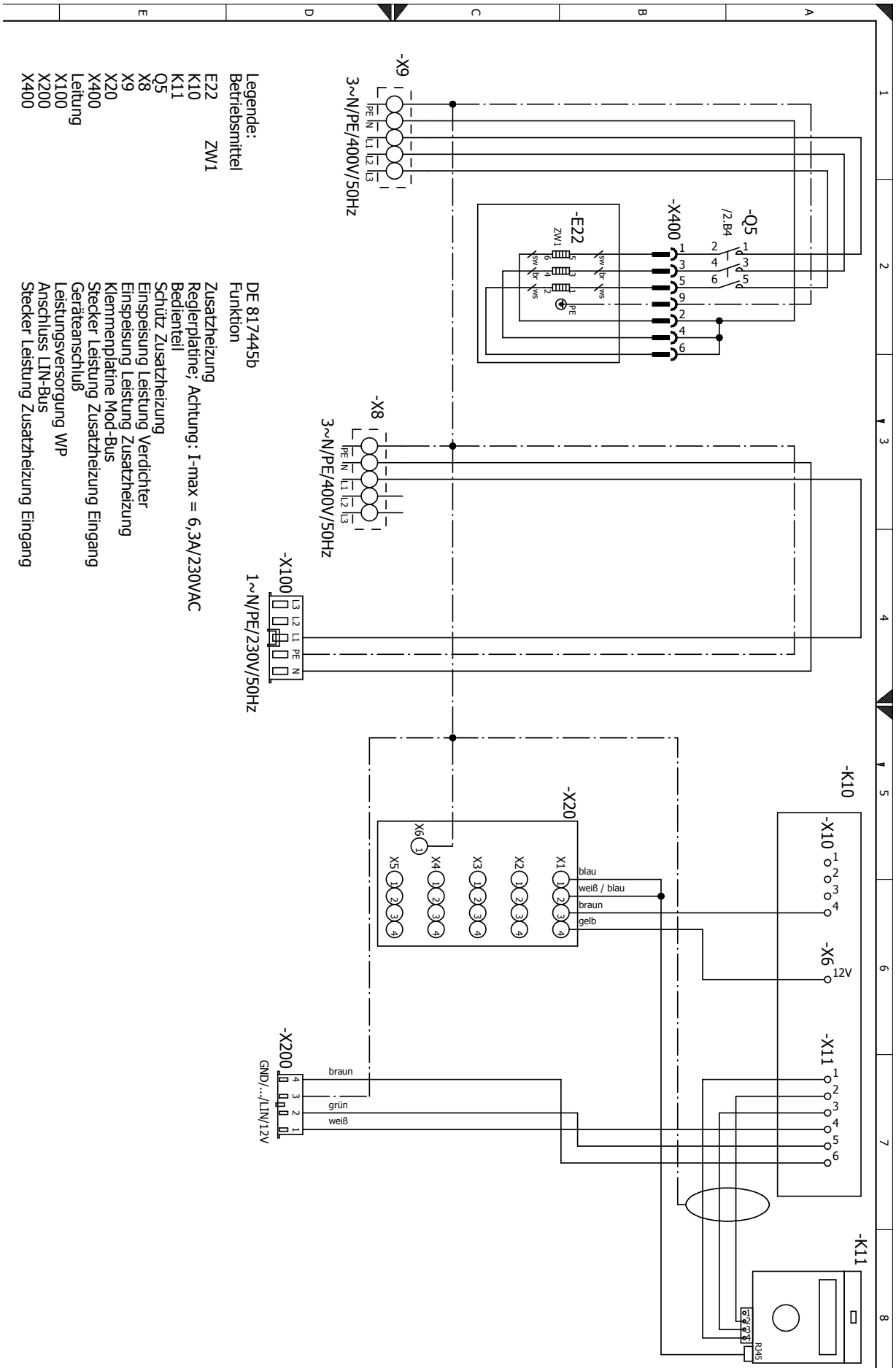
Circuit diagram 1/2



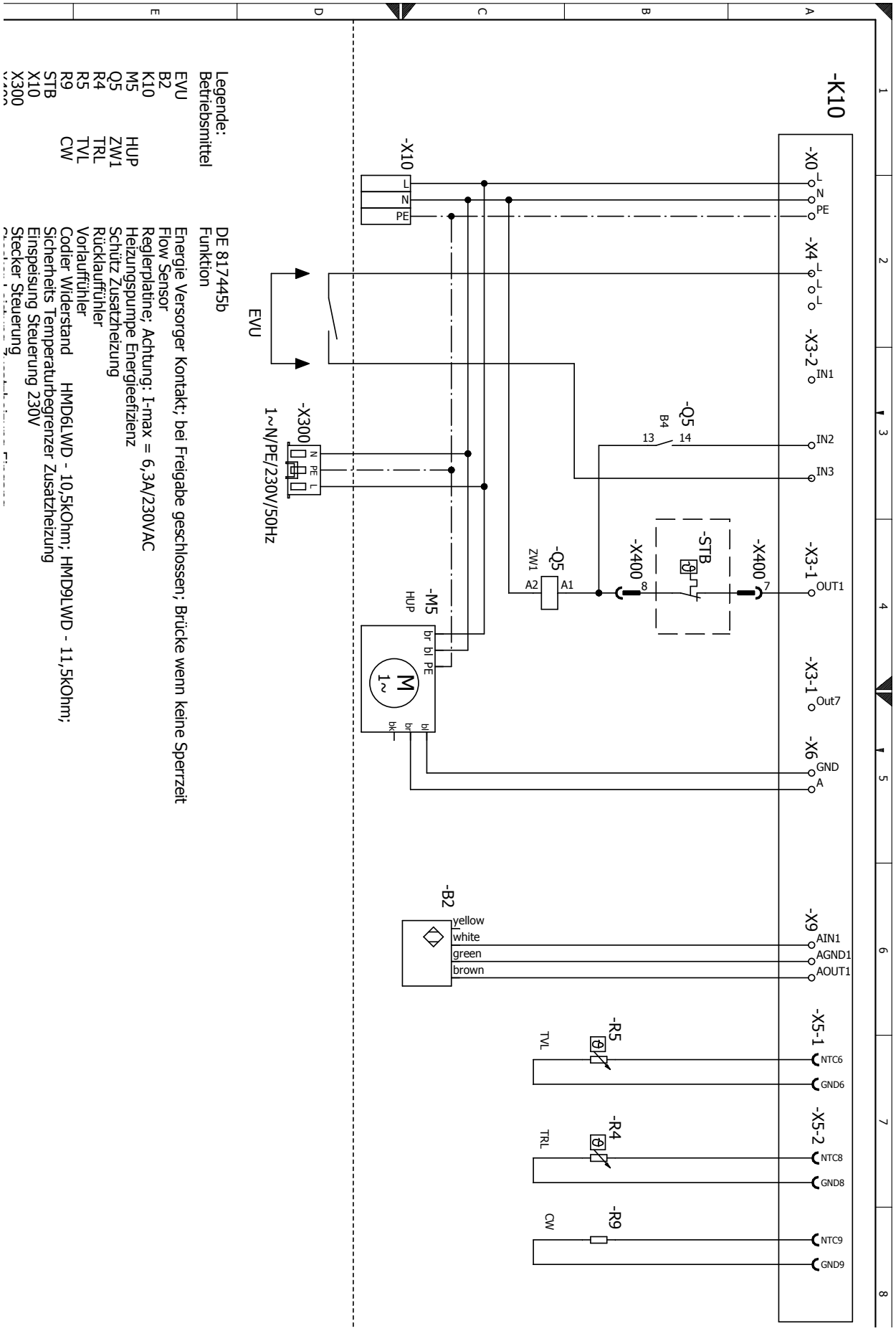
Circuit diagram 2/2



Circuit diagram 1/2



Circuit diagram 2/2



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