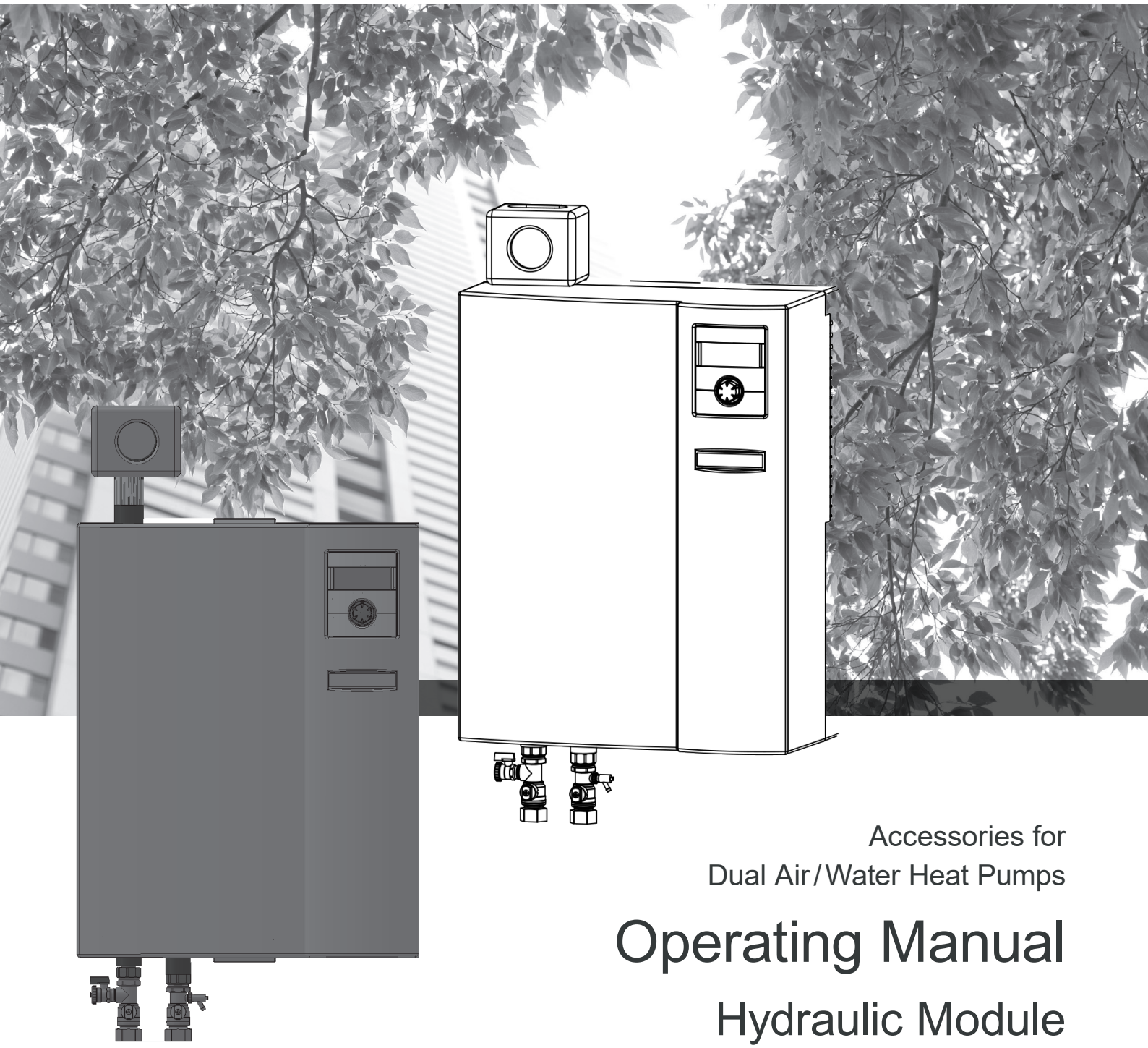
the better way to heat

alpha innotec



Accessories for
Dual Air / Water Heat Pumps

Operating Manual

Hydraulic Module
HMD 1/E
HMD 1/RE

UK

83053600gUK – Translation of the original operating manual

Please read first

This operating manual provides important information on the handling of the unit. It is an integral part of the product and must be stored so that it is accessible in the immediate vicinity of the unit. It must remain available throughout the entire service life of the unit. It must be handed over to subsequent owners or users of the unit.

Read the operating manual before working on or operating the unit. This applies in particular to the chapter on safety. Always follow all instructions completely and without restrictions.

It is possible that this operating manual may contain instructions that seem incomprehensible or unclear. In the event of any questions or if any details are unclear, contact the factory customer service department or the manufacturer's local partner.

Since this operating manual was written for several different models of the unit, always comply with the parameters for the respective model.

This operating manual is intended only for persons assigned to work on or operate the unit. Treat all constituent parts confidentially. The information contained herein is protected by copyright. No part of this manual may be reproduced, transmitted, copied, stored in electronic data systems or translated into another language, either wholly or in part, without the express written permission of the manufacturer.

Symbols

The following symbols are used in the operating manual. They have the following meaning:

Information for operators.

Information or instructions for qualified technicians.

DANGER!
Indicates a direct impending danger resulting in severe injuries or death.

WARNING!
Indicates a potentially dangerous situation that could result in serious injuries or death.

CAUTION!
Indicates a potentially dangerous situation that could result in medium or slight injuries.

ATTENTION
Indicates a potentially dangerous situation, which could result in property damage.

NOTE
Emphasised information.

✓ Prerequisite for an action.

► Single-step instruction for action.

1., 2., 3., … Numbered step within a multi-step instruction for action. Adhere to the given sequence.

● List.

→ Reference to further information elsewhere in the operating manual or in another document.

ENERGY SAVING TIP
Indicates suggestions that help to save energy, raw materials and costs.

Contents

Intended use

The hydraulic module is a functionally-necessary accessory for dual air/water heat pumps intended for outdoor installation. Taking into account the limits of application, the unit can be used in combination with an outdoor installation dual air/water heat pump in new or existing heating systems.

The unit may be used only for the intended use. This means, in conjunction with a dual air/water heat pump:

- for heating
- for cooling (RX variants only)
- for domestic water heating

The unit may be operated only within its technical parameters.

→ Overview “Technical data / Scope of delivery” and overview “Technical data / Scope of delivery” of the operating manual for the heat pump to which the hydraulic module is connected.

Disclaimer

The manufacturer is not liable for losses resulting from any use of the unit which is not its intended use.

The manufacturer’s liability also expires:

- if work is carried out on the unit and its components contrary to the instructions in this operating manual
- if work is improperly carried out on the unit and its components
- if work is carried out on the unit which is not described in this operating manual, and this work has not been explicitly approved by the manufacturer in writing
- if the unit or components in the unit have been altered, modified or removed without the explicit written consent of the manufacturer

Safety

The unit is safe to operate for its intended use. The construction and design of the unit conform to current state of the art standards, all relevant DIN/VDE regulations and all relevant safety regulations.

Every person who performs work on the unit must have read and understood the operating manual prior to starting any work. This also applies if the respective person has already worked with such a unit or a similar unit or has been trained by the manufacturer.

Every person who performs work on the unit must comply with the applicable accident prevention and safety regulations. This applies in particular to the wearing of personal protective equipment.

DANGER!
Risk of fatal injury due to electric shock!
Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and secure it from being switched back on!

WARNING!
Only qualified technicians (trained heating, cooling and electrical technicians) may perform work on the unit and its components.

WARNING!
Observe safety labels on and in the unit.

ATTENTION!
For safety reasons:
Never disconnect the unit from the power supply, unless the unit is being opened.

Contact

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

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

Warranty / Guarantee

For warranty and guarantee conditions, please refer to the purchase documents.

NOTE
Please contact your dealer concerning warranties and guarantees.

Disposal

When decommissioning the unit, always comply with applicable laws, directives and standards for the recovery, recycling and disposal of materials and components.

→ “Dismantling”.

Heat metering

In addition to proof of the unit’s efficiency, the EEWaermeG also requires heat metering (hereafter referred to as HQR). Heat metering is mandatory for air/water heat pumps. Heat metering for brine/water and water/water heat pumps only have to be installed for a flow temperature ≥ 35 °C. The heat metering must record the total thermal energy released (heating and domestic hot water) in the building. In heat pumps with heat metering, the analysis is carried out by the regulator. The regulator displays the thermal energy discharged in the heating system in kWh.

Operation

Your decision to purchase a heat pump or a heat pump system is a long-term contribution to protecting the environment through low emissions and reduced primary energy use.

You can operate and control the heat pump system with the control element of the heating and heat pump regulator.

NOTE
Make sure that the control settings are correct.

→ Operating manual of the heating and heat pump regulator.

To ensure that your heat pump or heat pump system operates efficiently and ecologically, the following are especially important:

ENERGY SAVING TIP
Avoid unnecessarily high flow temperatures. A lower flow temperature on the hot water side increases the efficiency of the system.

ENERGY SAVING TIP
Preferably use rapid ventilation. To save energy and reduce your heating costs, do not leave windows open for long periods.

Care of the unit

The outer surfaces of the unit can be cleaned with a damp cloth and household cleaning products.

Do not use cleaning or care products that contain abrasives, acids and/or chlorine. Such products would destroy the surfaces and could also damage the technical components of the unit.

Maintenance of the unit

The components of the heating circuit and the heat source (valves, expansion vessels, circulating pumps, filters, dirt traps) should be inspected and cleaned as necessary - however, at least once a year - by qualified personnel (heating or cooling system fitters).

It is best to arrange a maintenance agreement with a heating installation company. The company will arrange the necessary regular maintenance work.

Malfunctions

In the event of a fault, you can read out the cause of the fault from the diagnostic program of the heating and heat pump regulator.

→ Operating manual for the heating and heat pump regulator.

! ATTENTION
Only customer service personnel authorised by the manufacturer may carry out service and repair work on the components of the unit.

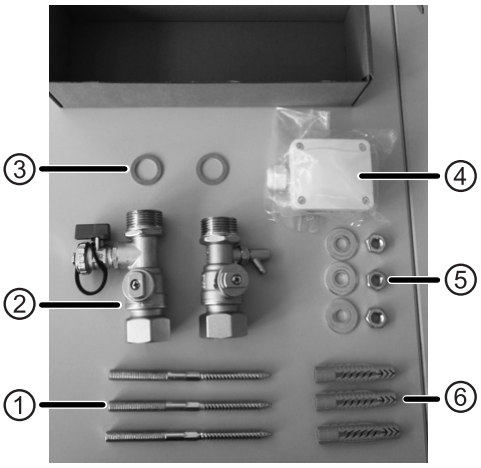
Note that no malfunction is displayed if the safety temperature limiter on the electric heating element has tripped.

→ “Commissioning”, “Safety temperature limiter” section.

Scope of delivery

1 Accessories package
2 Safety assembly
3 Hydraulic module

Example of layout of the accessory package:



1 Hanger bolts (M 10) for wall bracket (3x)
2 Ball valves (2x)
3 Flat gasket 1“ (2x)
4 Outdoor sensor
5 Nuts (M 10), plain washers (3 each)
6 Anchors for wall bracket (3x)
7 Screws for strain relief
(16x – not illustrated)

1. Check the delivery for outwardly visible signs of damage.
2. Check that nothing is missing from the scope of supply. Any defects or incorrect deliveries must be reported immediately.

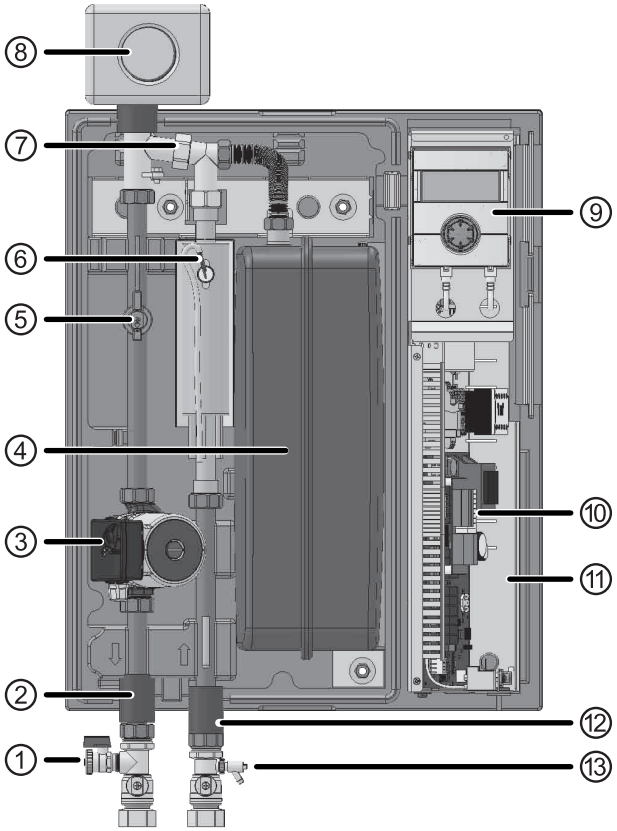
NOTE
Note the unit model.

→ Overview “Technical data / scope of delivery” or rating plate on unit.

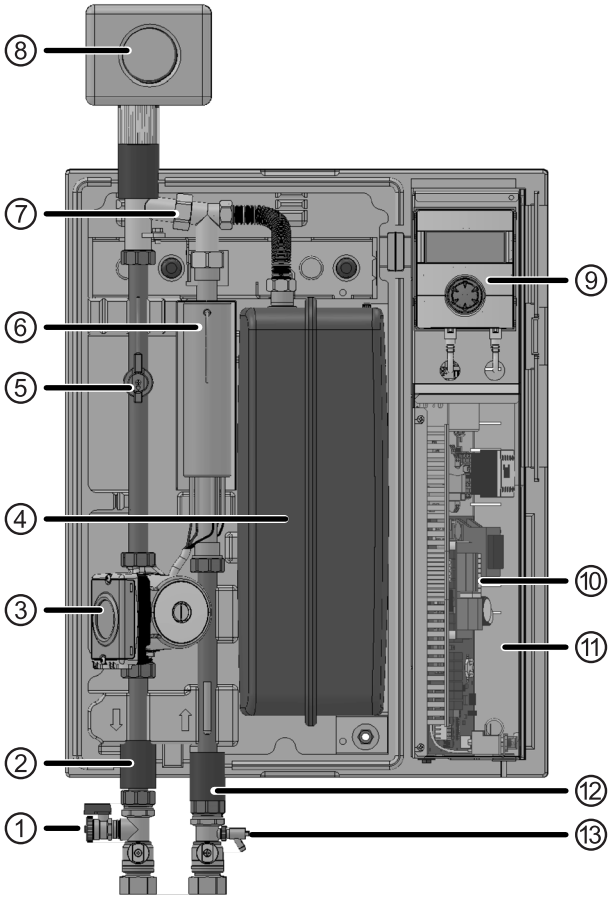
Components of the unit

Two versions of the hydraulic module are available.

HMD 1/E



HMD 1/RE



1	Fill/empty cock for heating circuit
2	Forward flow outlet
3	Circulating pump for heating circuit (Energy efficient circulating pump)
4	Expansion vessel 12l
5	Flow monitor
6	Continuous flow heater 6kW
7	Air separator
8	Safety assembly for heating circuit (insulated)
9	Control element, regulation
10	Comfort board
11	Electrical switch cabinet
12	Forward flow inlet
13	Ventilation

Installation

The following applies to all work to be done:

NOTE
Always comply with the applicable local accident prevention regulations, statutory regulations, ordinances, guidelines and directives.

Installation location

ATTENTION
Install the unit only inside buildings.

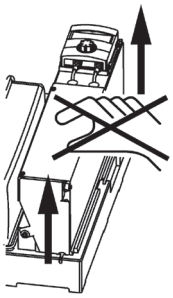
The installation area must be frost-free and dry. It must fulfil the relevant local regulations.

→ Dimensional drawing and installation plan for respective model.

Transport to installation location

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

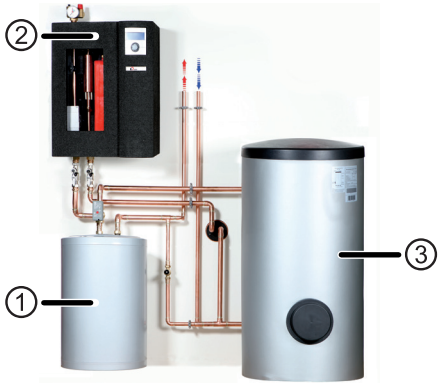
ATTENTION
The unit must not be lifted up by the switch box and transported.



ATTENTION
Never use components and hydraulic connections on the unit for purposes of transport.

Installation

CAUTION!
Ensure the wall has the necessary load bearing capacity.



Possible installation situation,
Example: HMD 1/E with row tank

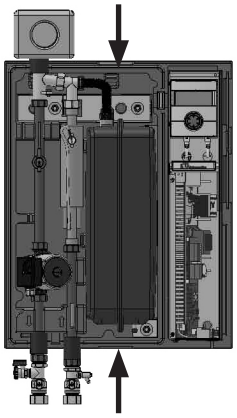
1 Buffer storage tank
2 Hydraulic module
3 Domestic hot water tank

1. Hold the drilling template at the right height and mark the 3 drilling holes.

→ Note the safety and service clearances required, see “Installation plan”.

2. Lift the hydraulic module out of the box:

3. Remove the top section from the front by pulling on the recessed grips.



Example: HMD 1/E:
1 Recessed grips

4. Remove internal packaging material (transport safeguards).
5. Use the anchors and bolts supplied to fix the hydraulic module to the wall:

CAUTION!
Hands and fingers could be crushed during the following tasks!

The anchors are only suitable for use in the following types of walls:

- Concrete
- Solid lightweight concrete blocks
- Cavity blocks made of lightweight concrete
- Cellular concrete
- Prestressed concrete - hollow ceiling/floor slabs
- Natural stone with sealed joints
- Solid sand-lime blocks
- Perforated sand-lime bricks
- Solid bricks
- Vertically-perforated bricks
- Hollow floors/ceilings made of clay bricks, concrete or similar
- Solid gypsum boards
- Gypsum boards and gypsum fibre boards
- Particle boards

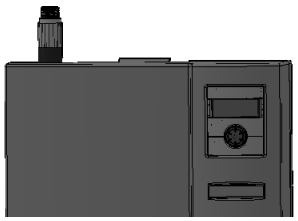
The board material must be dimensioned with sufficient thickness to ensure secure fixing.

Appropriate fixing material must be provided on site for other types of wall constructions.

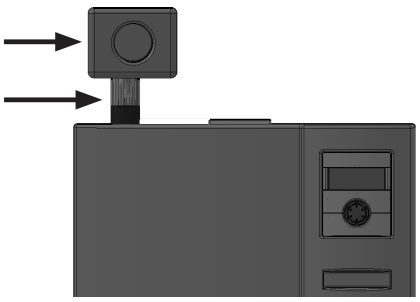
ATTENTION
Leaving a gap between the unit and the wall helps back ventilation and may not be sealed or closed off.
Cable ducts must be laid at a distance of at least 2 cm from the hydraulic module.

For reversible variant:

6. Mount thread covers on the hanger bolts.
7. Screw adapter with safety component onto hydraulic module.



8. Following the leak test, use insulation included in the scope of supply to insulate adapter and safety component.



Installation / Hydraulic connection to heating circuit

The connections for the heating circuit are located on the underside of the unit.
The connection for the safety assembly is on the top of the unit:

NOTE
Dimension heating system so that the free compression of the circulating pumps integrated in the unit always ensures the minimum heating water flow rate.
Always take into account the connection pipes between the heat pump and the hydraulic module.

ATTENTION
When installing the connections, always secure the connections on the unit against twisting, to prevent damage to the copper pipes inside the unit.

1. Flush heating circuit thoroughly before connecting the unit to the heating circuit.

→ “Flushing, filling and bleeding the system”,

NOTE
Contamination and deposits in the heating circuit can cause malfunctions.

2. Install filling and draining devices, shut-off valves and non-return valves at the required locations in the heating circuit.

→ “Hydraulic connection” documents.

Safety assembly

The safety assembly for the heating circuit is in the extra box.

Mount the safety component on the connection provided on the top of the assembly.

The safety drain of the safety valve must lead into the drain via a funnel siphon in accordance with the applicable standards and regulations!

The safety drain must be connected!

Expansion vessels

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 according to 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) according to the calculation to the relevant standards (EN 12828).

Electrical connections

The following applies to all work to be done:

DANGER!
Risk of fatal injury due to electric shock!
Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and prevent it from being switched back on!

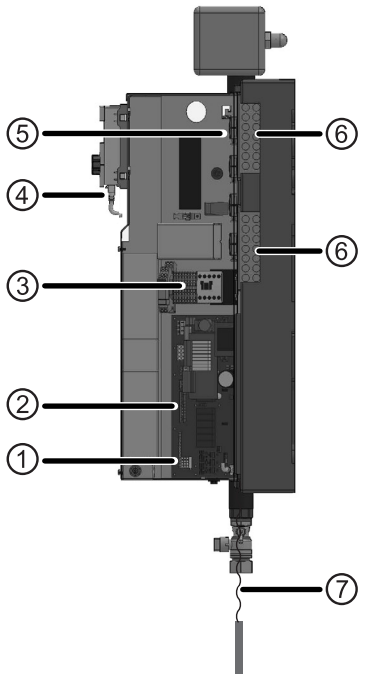
WARNING!
During installation and while carrying out electrical work, comply with the relevant EN-, VDE and/or local safety regulations.

Comply with technical connection requirements of the responsible power supply company (if required by the latter)!

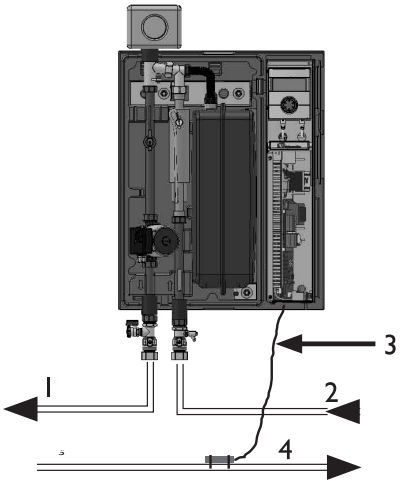
NOTE
All live wires must be stripped before they are installed in the cable duct of the switch cabinets!

ATTENTION
The power supply for the heat pump and the electric heating element must be equipped with a three-phase automatic circuit-breaker with at least 3mm contact spacing according to IEC 60947-2.
Note the level of the release current.

→ Overview “Technical data / scope of delivery”, “Electric” section.



Example: HMD 1/E
1 Terminal strip, external sensors
2 230 V inputs
3 Control voltage
4 Bus cable connection
5 Terminal strip, power supply cable
- Heat pump
- Heating element
6 Cable routing
7 Return flow sensor



Example: HMD 1/E
1 Flow to the heating circuit/ Domestic hot-water tank
2 Return flow sensor on the hydraulic module
3 Flow from heat pump
4 Return flow to heat pump

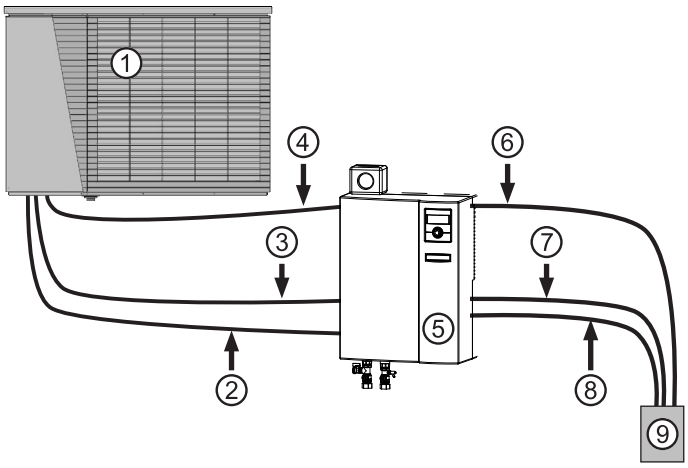
Use cable ties and heat transfer compound to fix the return flow sensor (2) to the return flow (heat carrying pipe) to the heat pump (4).

→ Hydraulic connections documents

The electrical connection between the heat pump and hydraulic module is made using the 3 pre-installed cables on the heat pump.

On site, the hydraulic module is connected from the subdistribution board using the following cables

→ “Terminal diagram” for respective model.

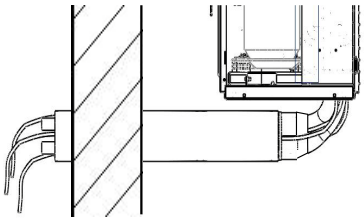


1 Heat pump
2 Compressor (5 cores)
3 Control (3 cores)
4 LIN-Bus (3 cores, shielded)
5 Hydraulic module
6 Heating element load cable (5 cores)
7 Control voltage (3 cores)
8 Compressor (5 cores)
9 Subdistribution board

If laid on site:

► Seal reserve conduits on unit side.

Feed the three connection cables through the three ducts of the wall penetration - use lubricant!



NOTE

When laying the cable inside the building, ensure that unshielded power supply cables (outdoor unit voltage supply) and shielded cables (LIN-Bus) are laid separately from each other.

If the wall penetration is used, the necessary distance from adjacent pipes and cables is ensured.

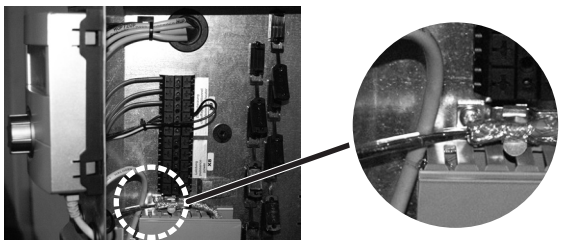
NOTE

The control element of the heat and heat pump regulator can be connected with a computer or network using a network cable designed for such purposes, therefore allowing the heating and heat pump regulator to be controlled remotely.

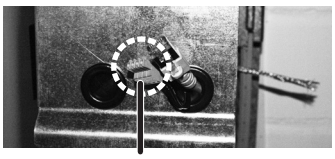
If such a connection is required, install a shielded network cable (category 6, with RJ-45 connector) during the electrical connection work and connect it parallel to the existing control cable of the heating and heat pump regulator.

Connect BUS cable

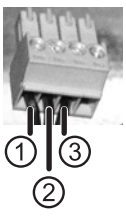
1. Strip the BUS cable insulation and push the shield back over the insulation.
2. Insert the end of the insulated cable with the shield into the shield terminal.



3. Feed the end with the individual cores through one of the two grommets.

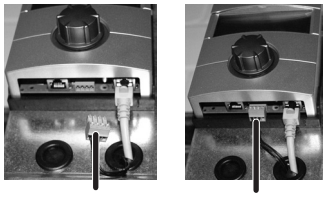


Core assignment:



1 12 V
2 GND
3 LIN

4. Pull off the green bus connector from the bottom of the control element and connect the cable as shown in the terminal diagram, then re-attach the connector to the control element.



After completing all electrical installation work, close the switch cabinet inside the unit. Close the unit if no further installation work inside the unit is to be performed immediately.

Flushing, filling and bleeding the system

ATTENTION
The system must be absolutely free from air before commissioning.

Contamination and deposits in the system can cause malfunctions.

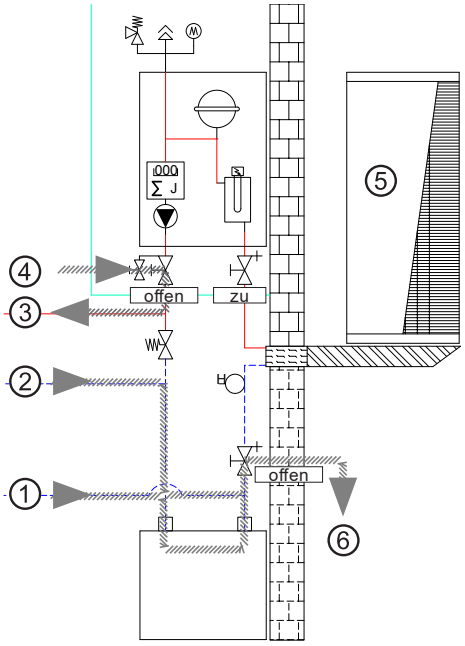
Flushing, filling and bleeding the heating circuit

ATTENTION
Do not exceed a pressure of 2.5 bar when flushing the unit. The drain line of the heating circuit safety valve must be closed before flushing and filling.

Example: HMD 1/E with row tank-connection

1. Connect hose to the filling and draining tap and lay it to a drain.
2. Connect the filling and drain tap at the hydraulic module (heating water outlet to the heat pump).
3. Close shut-off valves in the hydraulic module on the heat pump side. Open shut-off valves of the module on the heating circuit side.

Example for heating variant:

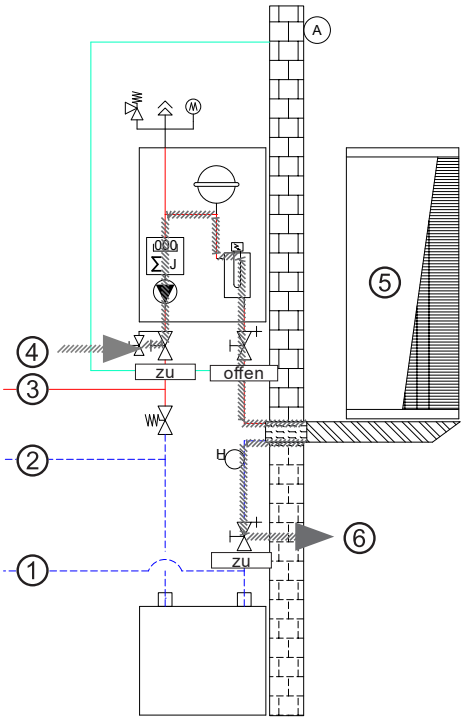


1 Return, domestic hot water
2 Return, hot water
3 Supply, hot water / domestic hot water
4 Filling stop cock
5 Heat pump
6 Drain

→ “Switching valve” operating manual

4. Dismantle the motor of the 3-way valve for the domestic water heating (accessories). To do so, remove the U-bolt on the motor base and carefully pull off the motor from above.
5. Turn stem through 180° and flush domestic hot water circuit for approx. 1 minute.
6. Turn stem through 180° back to starting position (rounded side of stem points to B).
7. Flush heating circuit! If necessary, the heating and domestic hot water circuit can be flushed at the same time! To do so, turn stem through 30°.
8. After completing the flushing and filling procedure, move stem to the starting position and mount the motor of the 3-way valve.
9. The unit is bled automatically when the bleeders (black cap) of the safety assembly are open. If the heating circuit is filled or emptied, the bleeding valve opens.
10. Open shut-off valves in the hydraulic module on the heat pump side. Close shut-off valves of the module on the heating circuit side. Close shut-off valves on site on the heating pump side.

Example for heating variant:



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

11. Exchange hoses at filling and emptying taps and flush condenser of the heat pump via return flow.
12. In addition, open the bleeding valve on the condenser of the heat pump. Bleed condenser and then close the bleeding valve again when fully bled.

Insulating the hydraulic connections

You must insulate the fixed piping of the heating circuit, the connection pipes between the hydraulic module and the heat pump and the connections of the domestic hot water tank.
In (R) variant vapour diffusion tight

NOTE
Insulate in accordance with applicable local standards and directives.

Set the overflow valve

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

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

1. In case of low heating curve: Set the system to “Forced heating”.

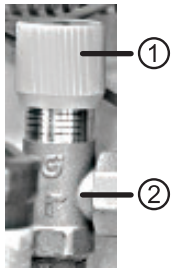
→ Operating manual of the heating and heat pump controller.

2. Shut off valves to the heating circuit.
3. Ensure that the total flow is routed via the overflow valve.
4. Read out the flow and return temperature at the heating and heat pump controller.

→ Operating manual of the heating and heat pump controller.

5. Turn the adjusting knob (1) of the overflow valve (2) until the temperature drop between the flow and return temperature is set as follows:

External temperature	Recommended settings
-10 °C	4 K
0 °C	5 K
10 °C	8 K
20 °C	9 K
30 °C	10 K

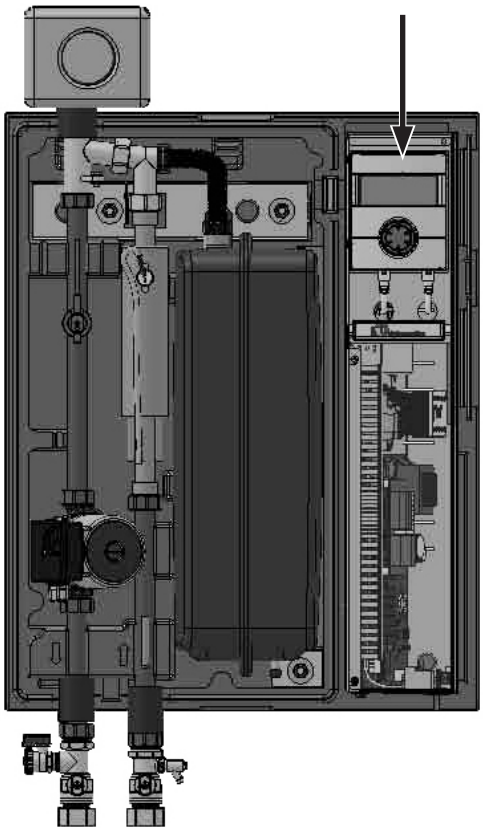


1 Adjusting knob
2 Overflow valve

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

Control element

In the top part of the unit's switch box housing there are 4 recesses for fixing the control element:



Example: HMD 1/E

NOTE
A connection to a computer or a network can be installed via the left bushing on the bottom of the control element, thus allowing the heating and heat pump regulator to be controlled remotely. One precondition is that a shielded network cable (category 6) has been installed through the unit as part of the electrical connection work.

→ Operating manual for the heating and heat pump regulator, version "Qualified technician", "Web server" section.

If this network cable is available, insert the network cable's RJ-45 plug into the left bushing of the control element.

NOTE
The network cable can be retrofitted at any time.

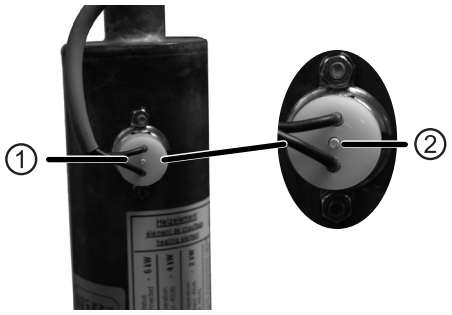
Commissioning

→ Follow the instructions in the section entitled “Commissioning” in the operating manual for your heat pump.

Safety temperature limiter

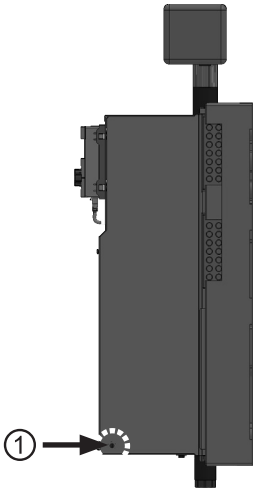
A safety temperature limiter is built into the electric heating element. In the event of a malfunction in the heat pump or air in the system, check whether the reset button of the safety temperature limiter has tripped. If this is the case, push in the button.

HMD 1/E



1 Safety temperature button on electric heating element
2 Reset knob

HMD 1/RE:



1 Safety temperature limiter and Reset button (under cap)

Dismantling

DANGER!
Risk of fatal injury due to electric shock!
Electrical connections may be installed only by qualified electricians.

Before opening the unit, disconnect the system from the power supply and prevent it from being switched back on!

WARNING!
Only qualified heating or cooling system technicians are allowed to remove the unit from the system.

ATTENTION
Recycle or provide for proper disposal of unit components in accordance with the applicable regulations, standards and directives.

Removal of the buffer battery

ATTENTION
Before scrapping the heating and heat pump regulator, remove the buffer battery on the processor board. The battery can be pushed out using a screwdriver. Dispose of battery and electronic components in keeping with environmental considerations.

Technical data / scope of delivery

Unit designation		HMD 1/E
Accessory for heat pump model		
LWD 50A - LWD 90A ı LWD 50ARX - LWD 70ARX	• applicable ı — not applicable	• ı —
Functionally necessary	• applicable ı — not applicable	•
Installation location		
Indoors ı Outdoors	• applicable ı — not applicable	• ı —
Maximum indoor temperature	°C	—
Maximum relative humidity	%	—
Conformity	CE	•
Heating circuit		
Heating circuit efficiency pump	integrated: • yes — no	•
Heating circuit free compression Δp (factory setting) ı Maximum free compression Δpmax ı Volume flow	bar ı bar ı l/h	0,46 ı 0,54 ı 1600
Volume flow: minimum flow rate ı maximum flow rate	l/h	900 ı 2000
max. permissible operating pressure	bar	3
Integrated expansion vessel ı Volume ı Initial pressure	• yes — no ı l ı bar	• ı 12 ı 1,5
Buffer tank	integrated: • yes — no	—
Heat metering and/or flow rate display	integrated: • yes — no	•
General unit data		
Housing dimensions (Height ı Width ı Depth)	mm ı mm ı mm	695 ı 550 ı 330
Total weight	kg	25
Connections		
Heating water inlet (forward flow)	...	R 1" internal
Hot water outflow (forward flow)	...	R 1" internal
Electrics		
Voltage code ı three-phase circuit breaker heat pump **)	... ı A	3~/N/PE/400V/50Hz ı C16
Voltage code ı circuit breaker control voltage **)	... ı A	1~/N/PE/230V/50Hz ı B16
Voltage code ı circuit breaker electric heating element **)	... ı A	3~/N/PE/400V/50Hz ı B10
Protection type	IP	20
Output electric heating element 3 ı 2 ı 1 phase	kW ı kW ı kW	6 ı 4 ı 2
Heating circuit pump: maximum power consumption ı current consumption	kW ı A	0,07 ı 0,31
Safety equipment		
Safety assembly heating circuit ı Safety assembly heat source	in scope of delivery: • yes — no	• ı —
Heating and heat pump regulator	in scope of delivery: • yes — no	•
Overflow valve	integrated: • yes — no	—

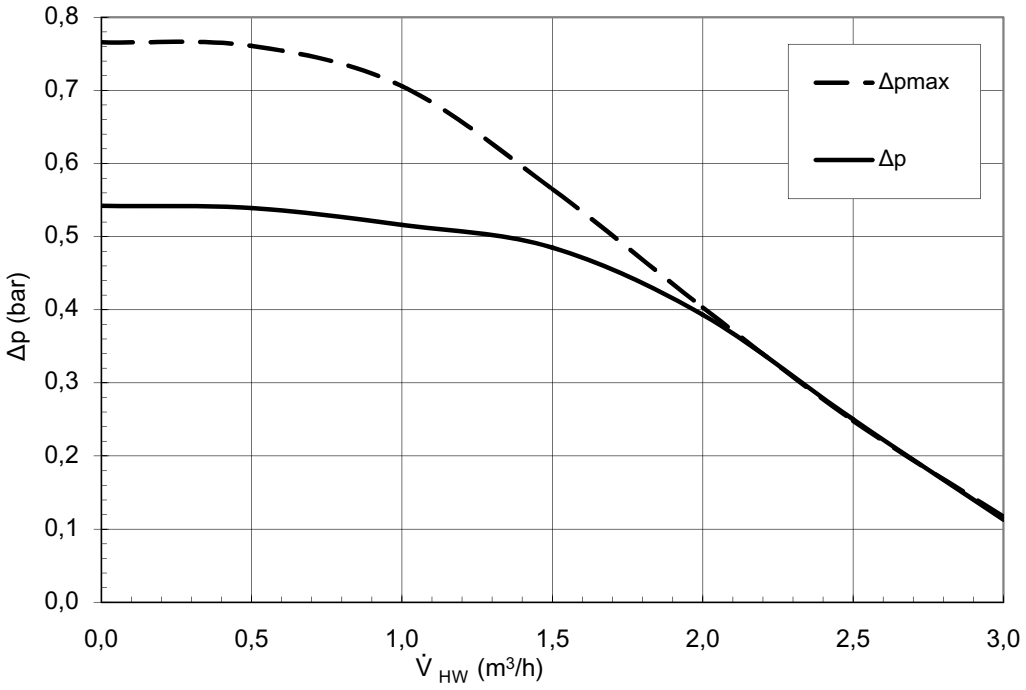
**) comply with local regulations

813305b

Unit designation		HMD1/RE
Accessory for heat pump model		
LWD 50A - LWD 90A ı LWD 50ARX - LWD 70ARX	• applicable ı — not applicable	— ı •
Functionally necessary	• applicable ı — not applicable	•
Installation location		
Indoors ı Outdoors	• applicable ı — not applicable	• ı —
Maximum indoor temperature	°C	35
Maximum relative humidity	%	60
Conformity	CE	•
Heating circuit		
Heating circuit efficiency pump	integrated: • yes — no	•
Heating circuit free compression Δp (factory setting) ı Maximum free compression Δpmax ı Volume flow	bar ı bar ı l/h	0,46 ı 0,54 ı 1600
Volume flow: minimum flow rate ı maximum flow rate	l/h	900 ı 2000
max. permissible operating pressure	bar	3
Integrated expansion vessel ı Volume ı Initial pressure	• yes — no ı l ı bar	• ı 12 ı 1,5
Buffer tank	integrated: • yes — no	—
Heat metering and/or flow rate display	integrated: • yes — no	•
General unit data		
Housing dimensions (Height ı Width ı Depth)	mm ı mm ı mm	695 ı 550 ı 330
Total weight	kg	25
Connections		
Heating water inlet (forward flow)	...	R 1" internal
Hot water outflow (forward flow)	...	R 1" internal
Electrics		
Voltage code ı three-phase circuit breaker heat pump **)	... ı A	3~/N/PE/400V/50Hz ı C16
Voltage code ı circuit breaker control voltage **)	... ı A	1~/N/PE/230V/50Hz ı B16
Voltage code ı circuit breaker electric heating element **)	... ı A	3~/N/PE/400V/50Hz ı B10
Protection type	IP	20
Output electric heating element 3 ı 2 ı 1 phase	kW ı kW ı kW	6 ı 4 ı 2
Heating circuit pump: maximum power consumption ı current consumption	kW ı A	0,07 ı 0,31
Safety equipment		
Safety assembly heating circuit ı Safety assembly heat source	in scope of delivery: • yes — no	• ı —
Heating and heat pump regulator	in scope of delivery: • yes — no	•
Overflow valve	integrated: • yes — no	—

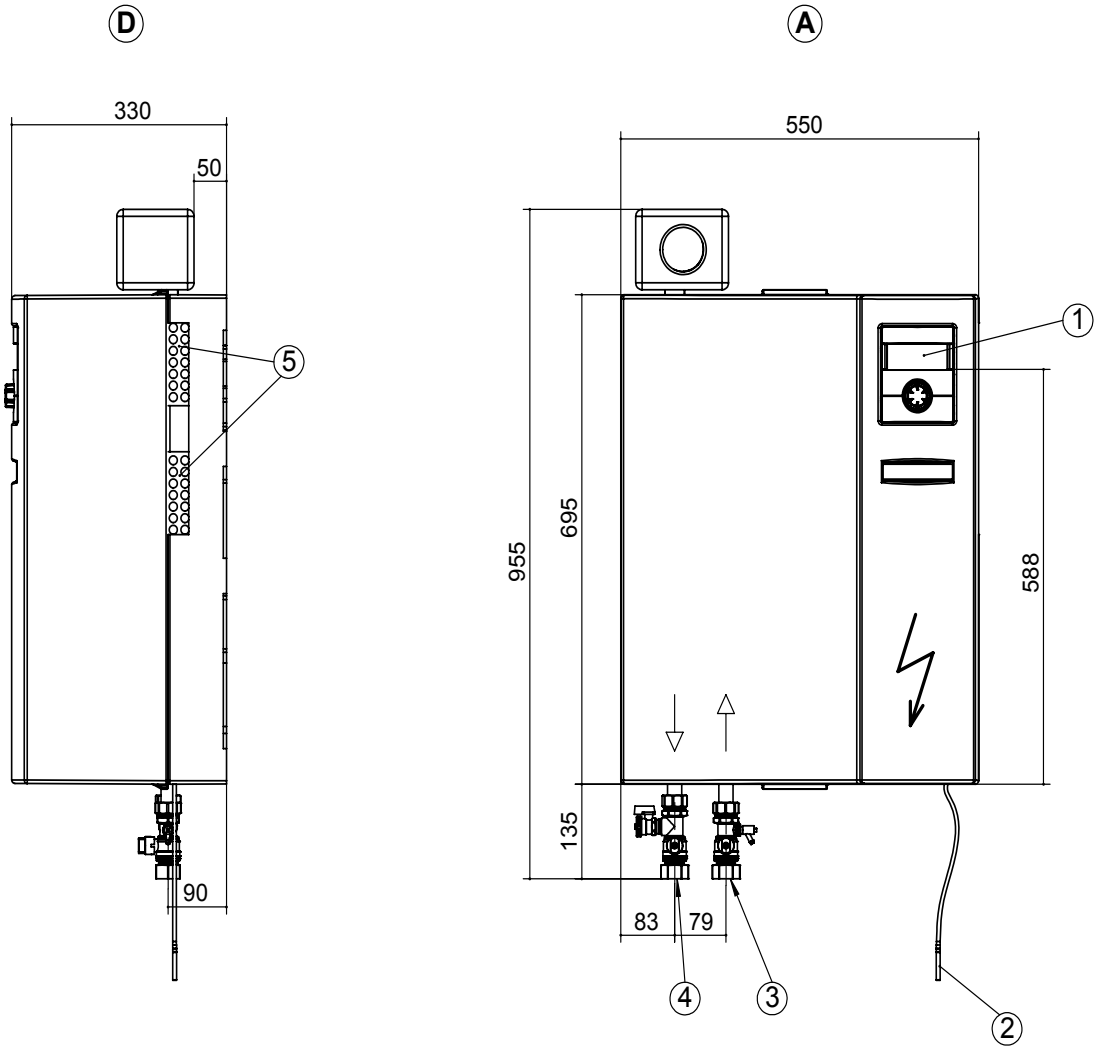
**) comply with local regulations

813308



Keys: UK812031

$\dot{V}_{HW}$	Volumetric flow of hot water
Δp	Free compression (factory setting)
Δpmax	Maximum free pressing

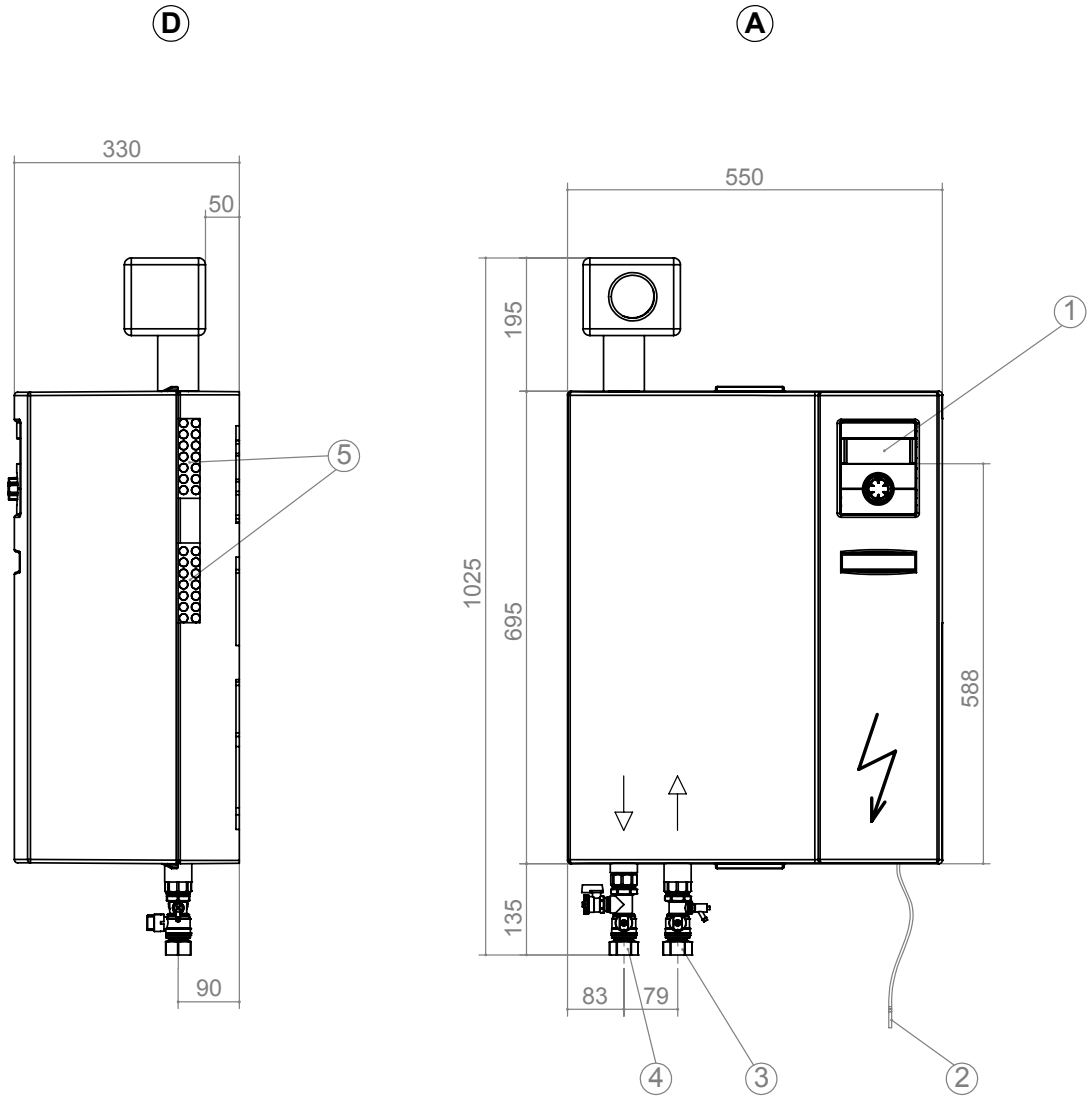


Keys: UK819396

All dimensions in mm.

Pos.	Name
A	Front view
D	Side view from right
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

The hydraulic module is installed in the heating flow!

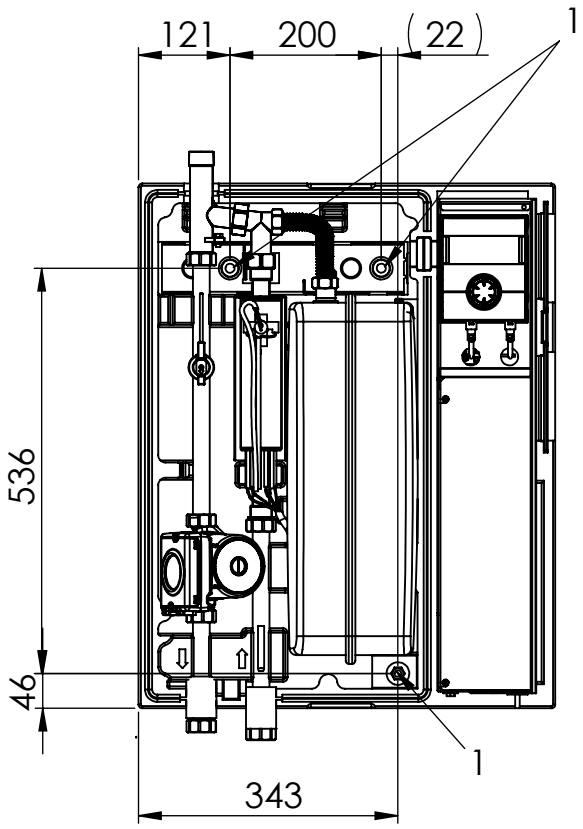


Keys: UK819412a

All dimensions in mm.

Pos.	Name
A	Front view
D	Side view from right
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

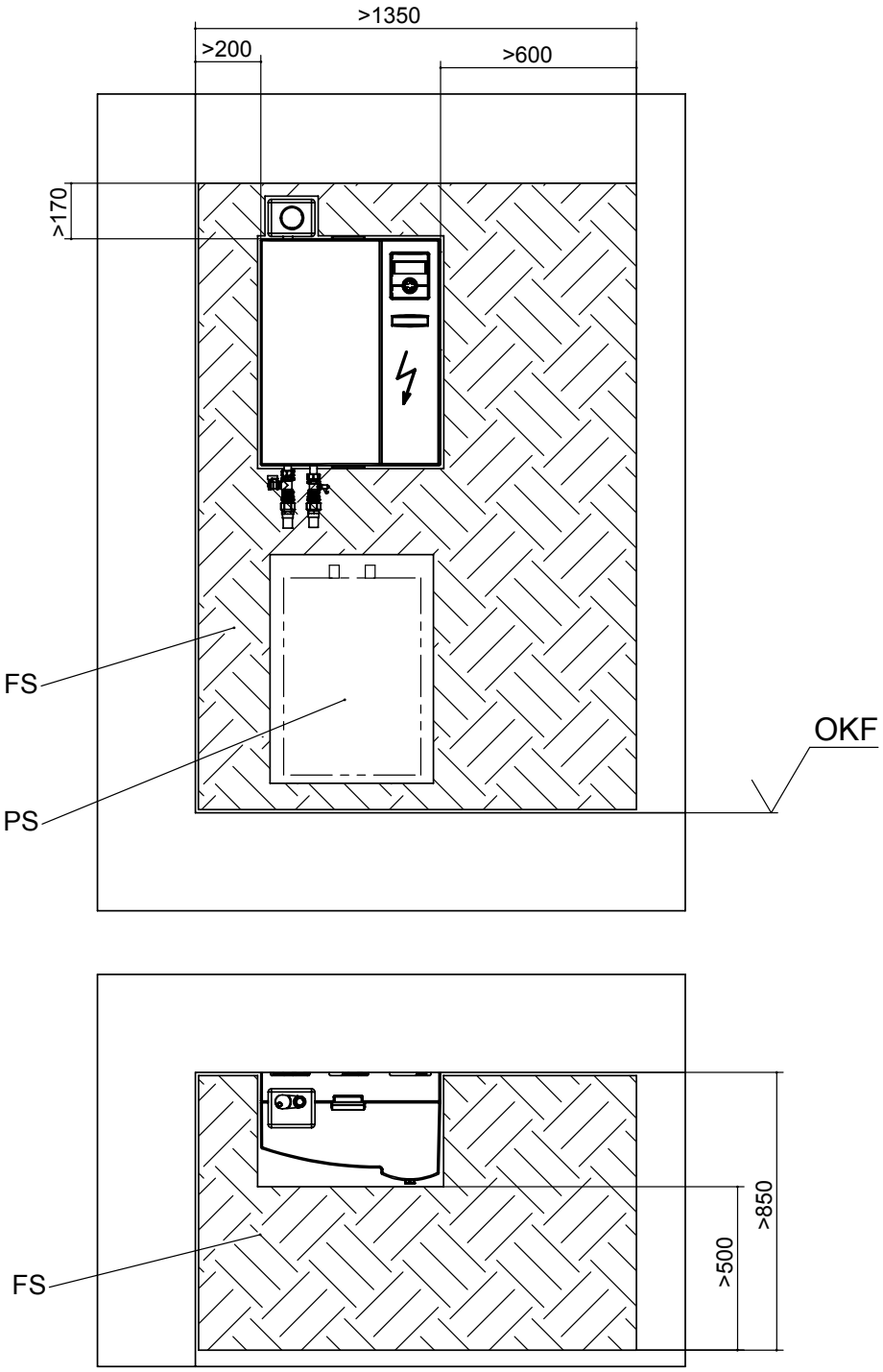
The hydraulic module is installed in the heating flow!



Keys: UK819403a

All dimensions in mm. Spacing for drill pattern.

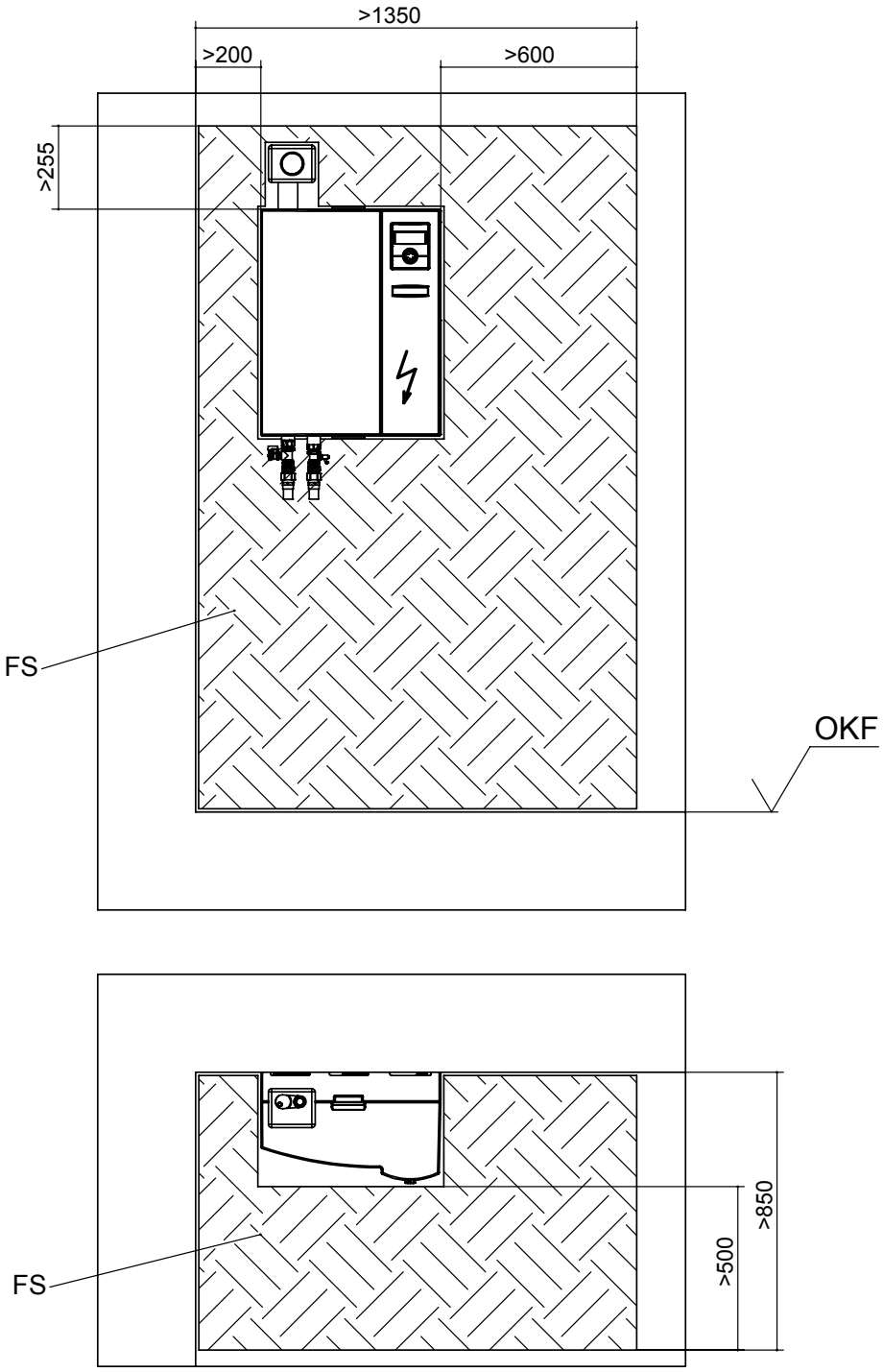
Pos.	Name
1	Drill hole Ø12 for plug (incl. accessory package)



Keys: UK819398

All dimensions in mm.

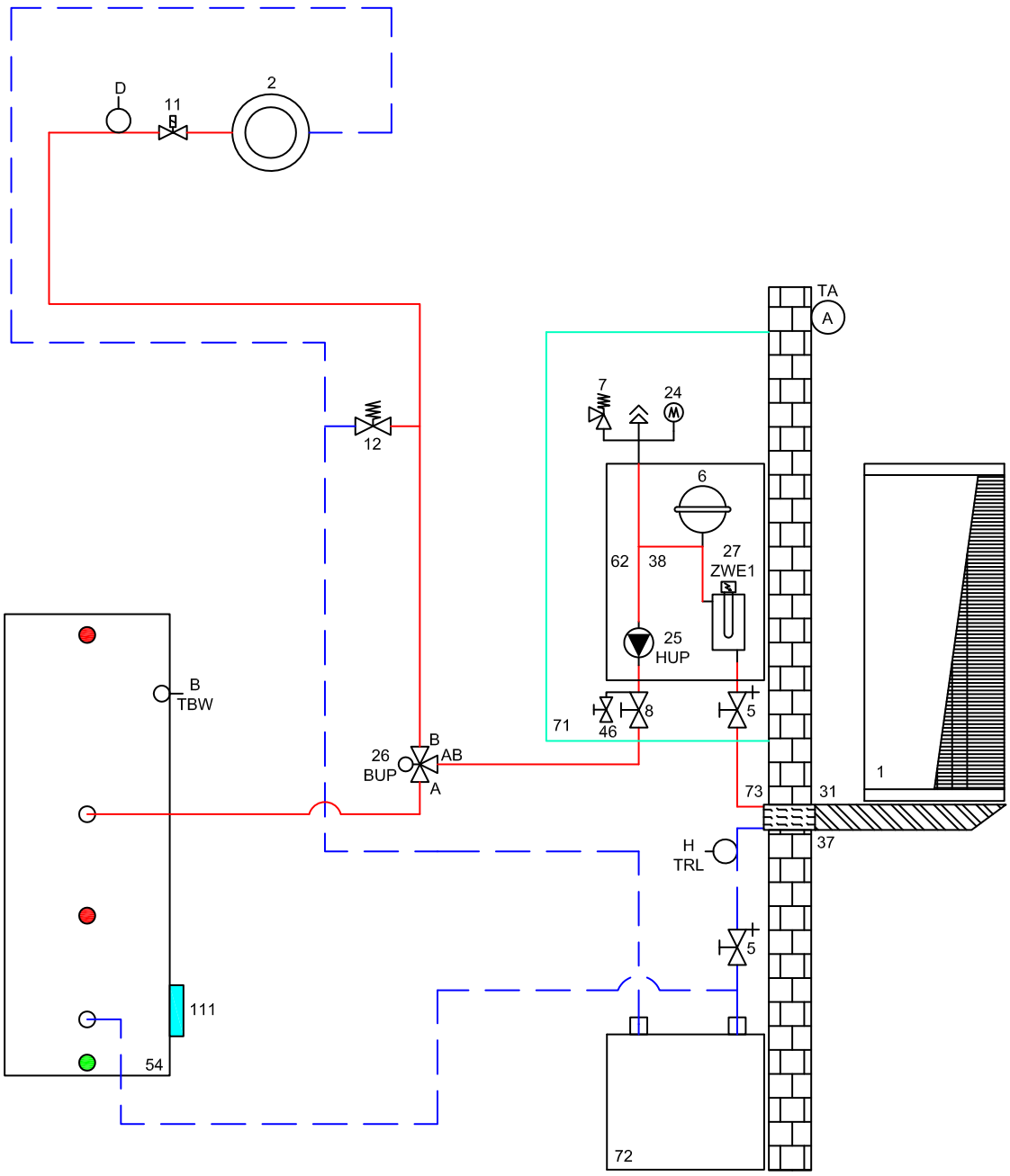
Pos.	Bezeichnung
FS	Free space for service purposes
OKF	Top edge of finished floor
PS	Free space for wall-mounted buffer storage tank 50L (accessories) possible



Keys: UK819413a

All dimensions in mm.

Pos.	Bezeichnung
FS	Free space for service purposes
OKF	Top edge of finished floor


D
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12
TA
A
7
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ZWE1
25
HUP
71
46
8
5
B
TBW
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BUP
B
AB
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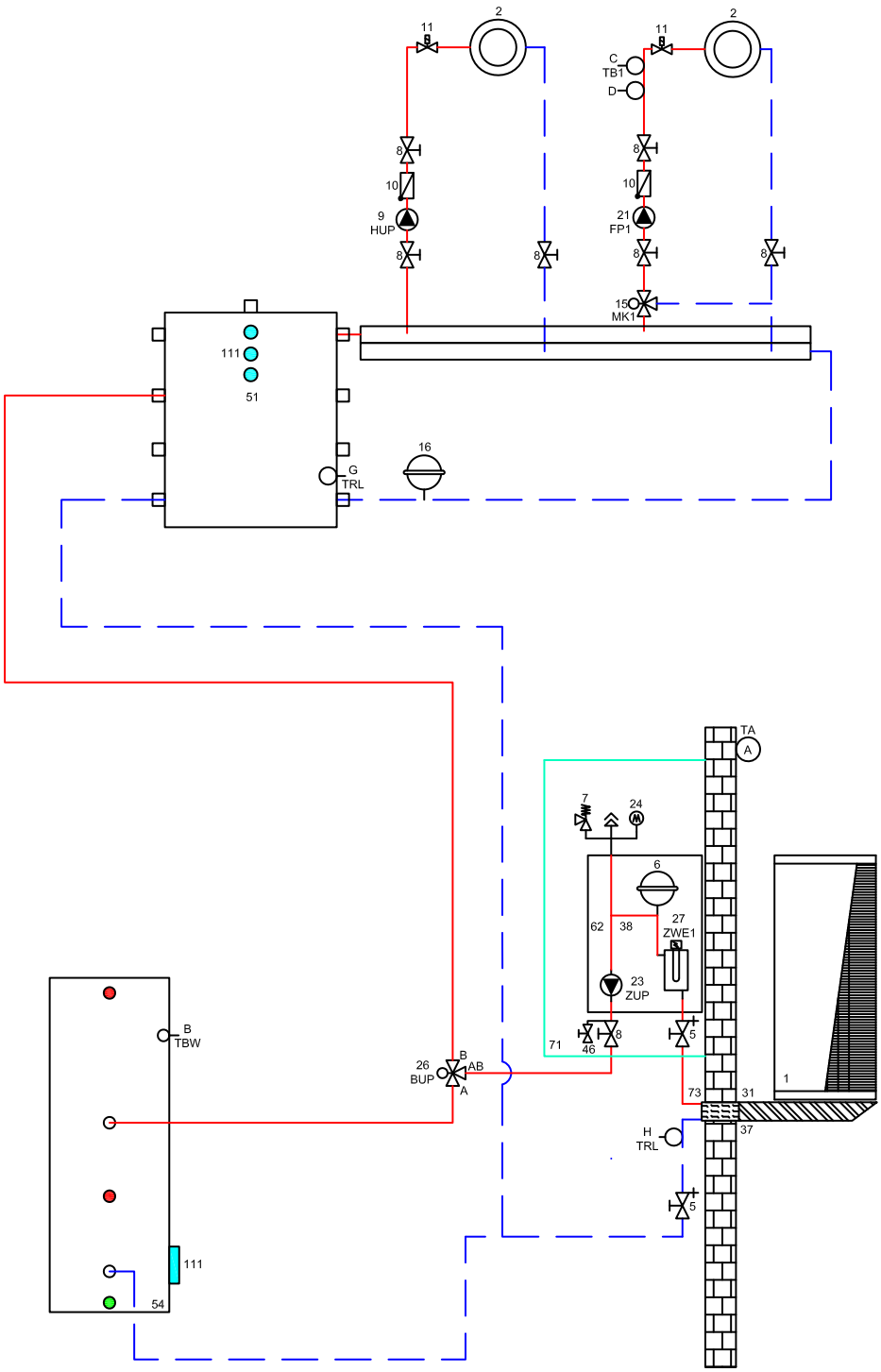
73
31
1
37
H
TRL
5
111
54
72


11
2
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D
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HUP
21
FP1
15
MK1
111
51
16
G
TRL
TA
A
7
24
6
62
38
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ZWE1
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TRL
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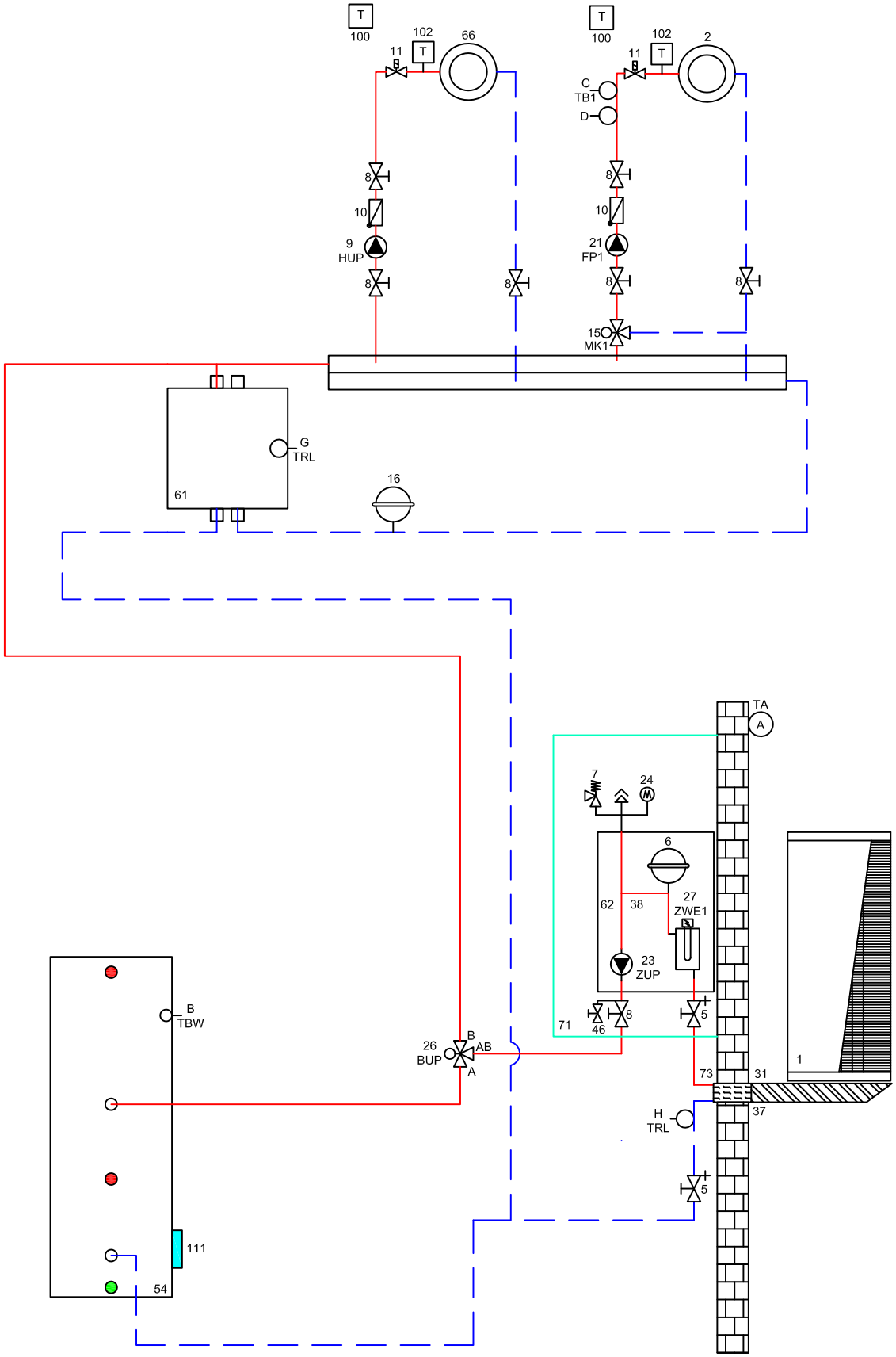
54


T
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102
66
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102
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TB1
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FP1
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54

Legend hydraulic diagramm

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

Comfort board:

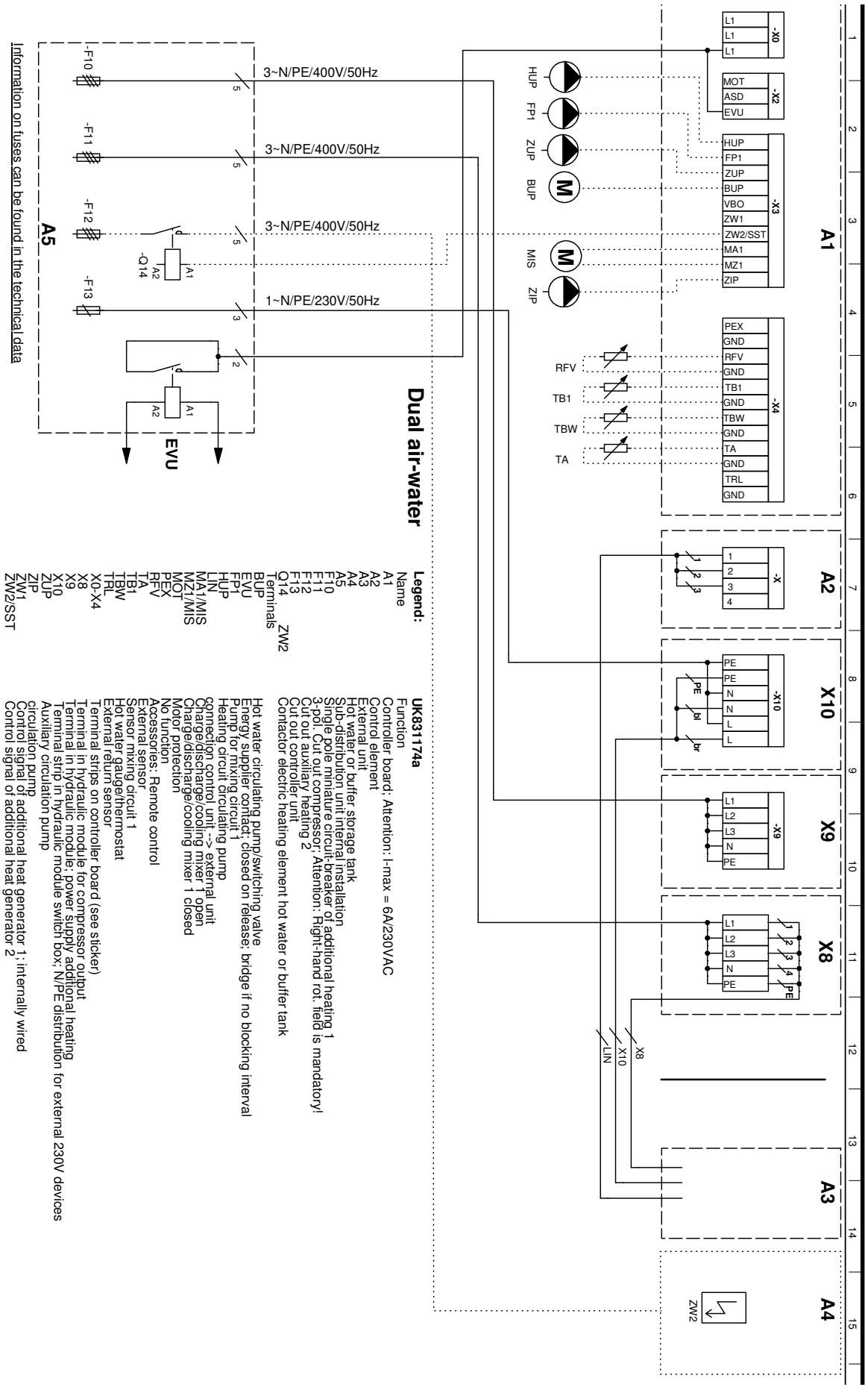
15	Mixer circuit three-way mixer (MK2-3 discharge)
17	Temperature difference regulator
19	Mixer circuit four-way mixer (MK2 charge)
21	Mixer circuit circulation pump (FP2-3)
22	Swimming pool circulating pump
44	Three-way mixer valve (cooling function MK2)
47	Changeover valve swimming bath preparation(B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

Important notice !

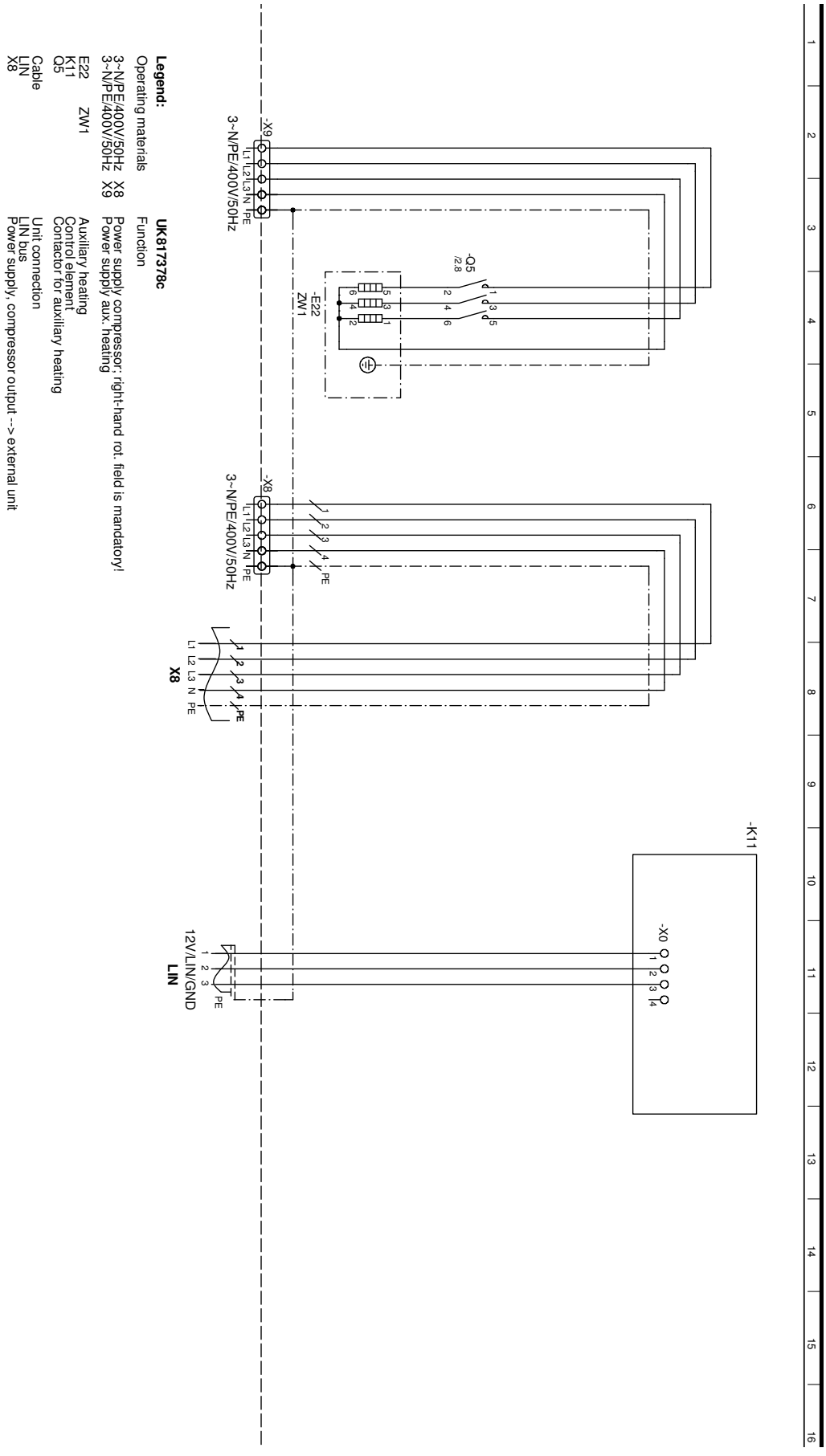
These hydraulic diagrams are schematic representations and are for assistance only. They do not relieve of the obligation to carry out appropriate planning! They do not include all necessary shut-off valves, ventilator fittings or safety devices. These must be incorporated in accordance with the standards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

Terminal diagram

LWD... / HMD 1/E, HMD 1/RE

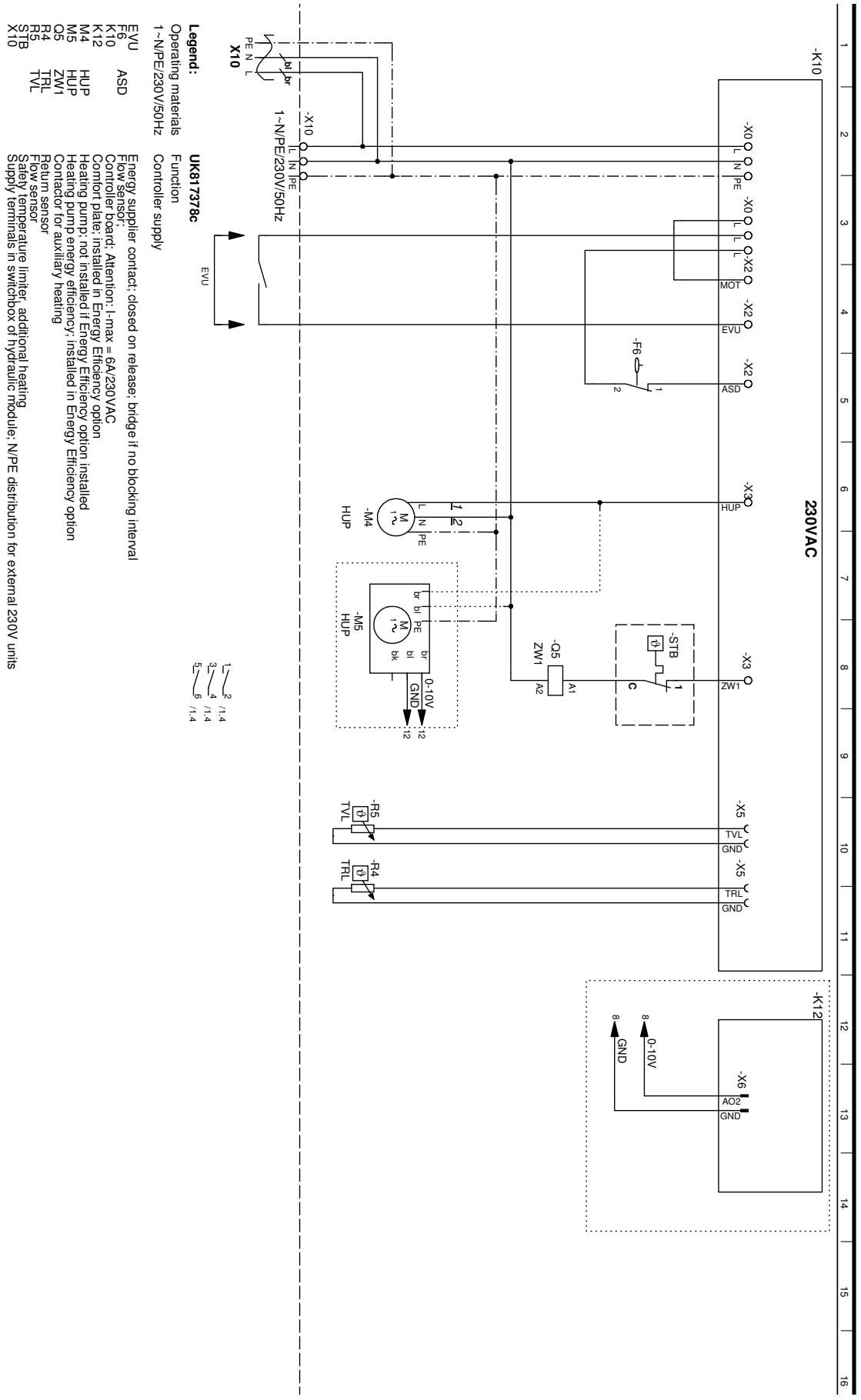


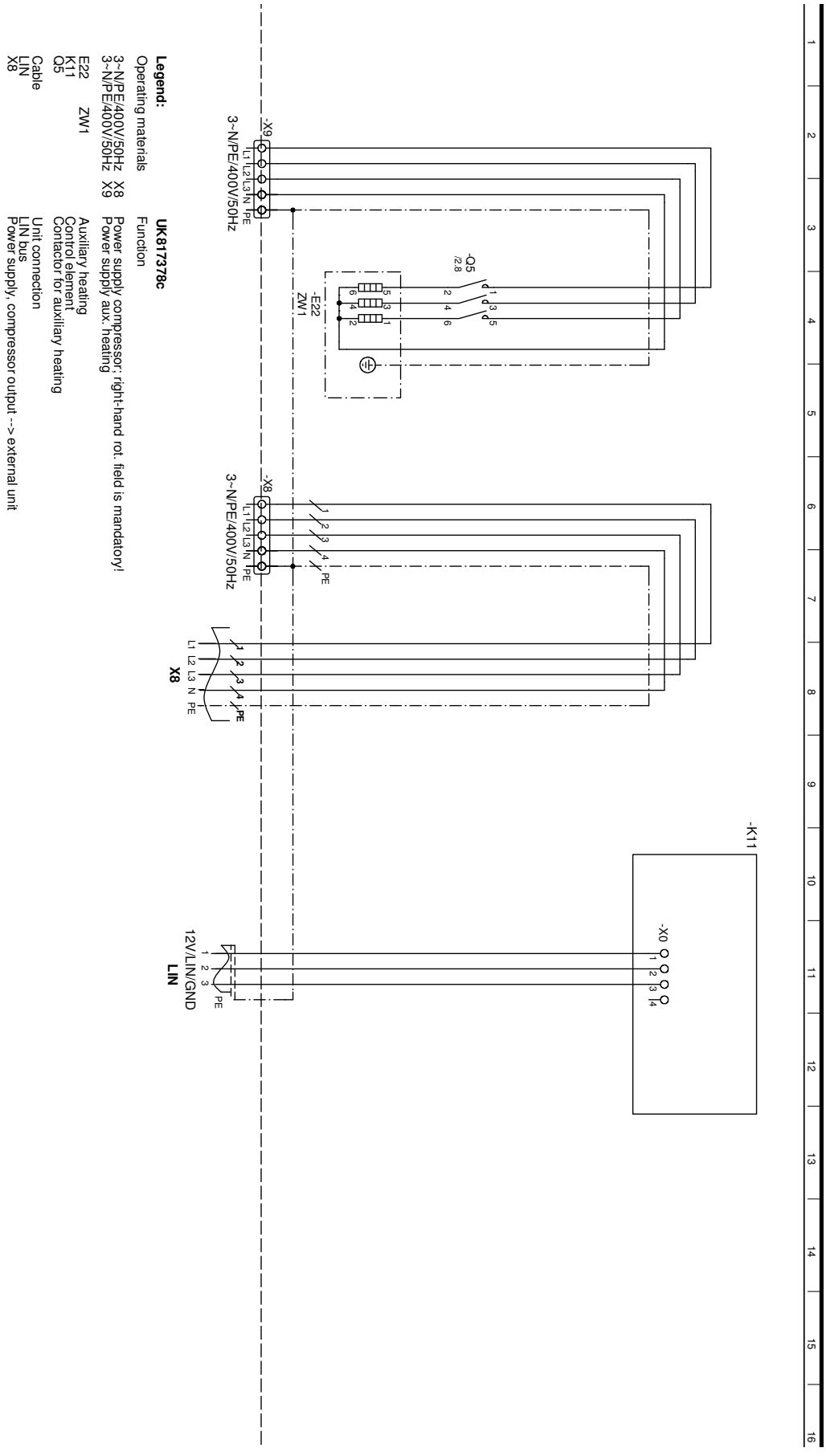
Circuit diagram 1/2



Circuit diagram 2/2

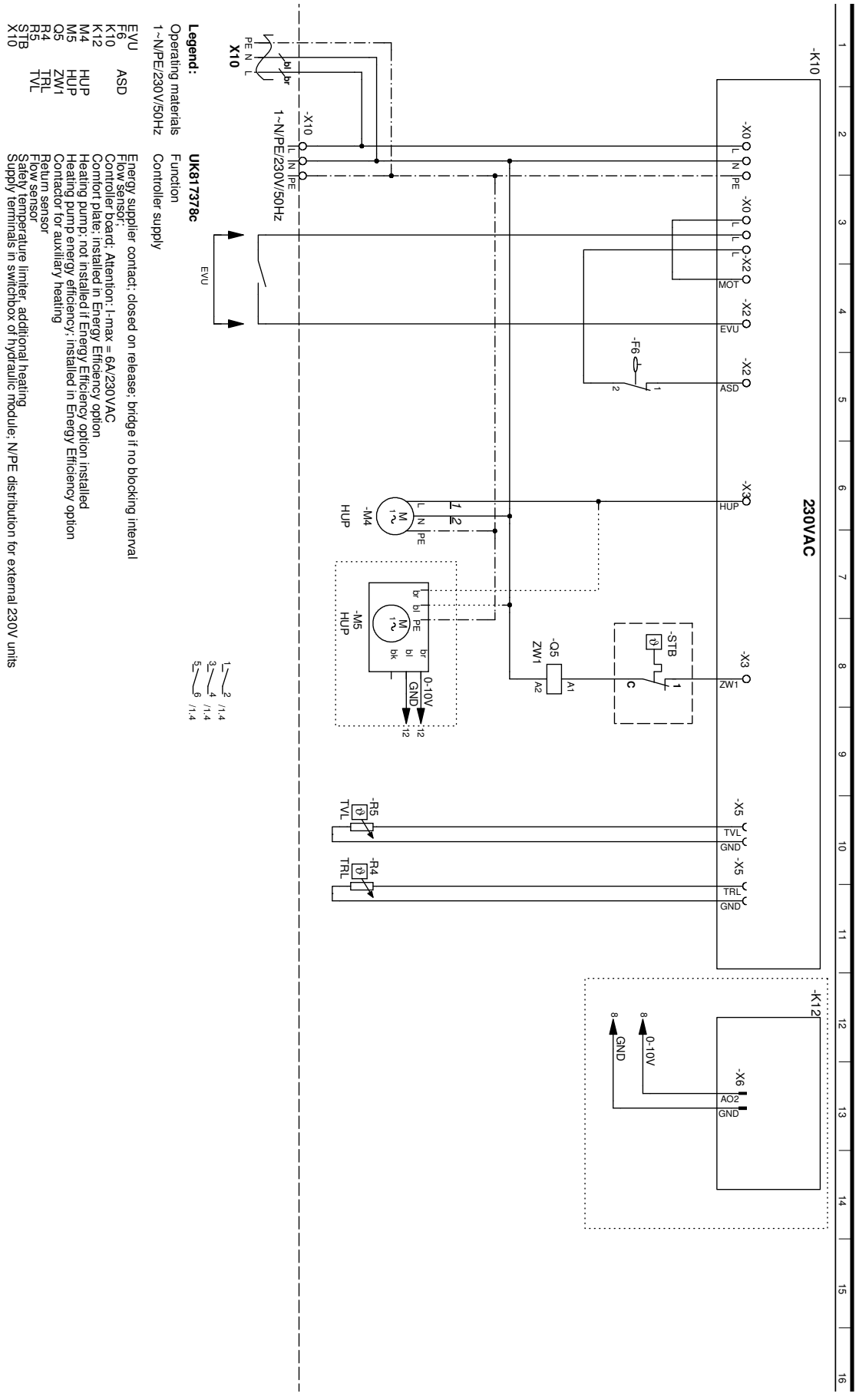
HMD 1/E




Legend:
Operating materials
UK817378c
Function
3~N/PE/400V/50Hz X8 Power supply compressor; right-hand rot. field is mandatory!
3~N/PE/400V/50Hz X9 Power supply aux. heating
E22 ZW1 Auxiliary heating
K11 Control element
Q5 Contactor for auxiliary heating
Cable Unit connection
LIN LIN bus
X8 Power supply, compressor output --> external unit
-X9
3~N/PE/400V/50Hz
L1 L2 L3 N PE
-Q5
/2.8
-E22
ZW1
-X8
3~N/PE/400V/50Hz
X8
-K11
-X0
12V/LIN/GND
LIN

Circuit diagram 2/2

HMD 1/RE



EC Declaration of Conformity

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

Designation of the device(s)

Heat Pump alpha innotec

Unit model	Order number	Item number 1	Item number 2
LWD 50A-HMD*	100601HMD02	100 601	150 705 41
LWD 70A-HMD*	100602HMD02	100 602	150 705 41
LWD 90A-HMD*	100609HMD02	100 609	150 705 41
LWD 50A/RX-HMDR*	100605HMD02	100 605	150 711 41
LWD 70A/RX-HMDR*	100606HMD02	100 606	150 711 41
LWD 50A/SX-HMD*	100603HMD02	100 603	150 708 41
LWD 70A/SX-HMD*	100604HMD02	100 604	150 708 41
LWD 50A/RSX-HMD*	100607HMD02	100 607	150 712 41
LWD 70A/RSX-HMD*	100608HMD02	100 608	150 712 41

EC Directives
2006/95/EG 813/2013
2004/108/EG
*2014/68/EU
2011/65/EG

EN..
EN 378 EN 349
EN 60529 EN 60335-1/-2-40
EN ISO 12100-1/2 EN 55014-1/-2
EN ISO 13857 EN 61000-3-2/-3-3
EN 14825

*** Pressure equipment component**
Category II
Module A1
Designated position:
TÜV-SÜD
Industrie Service GmbH (Nr.:0036)

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

Place, date: Kasendorf, 08.05.2019

Signature:

Jesper Stannow
Head of Heating Development

UK818191b

UK

ait-deutschland GmbH
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95359 Kasendorf, Germany

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