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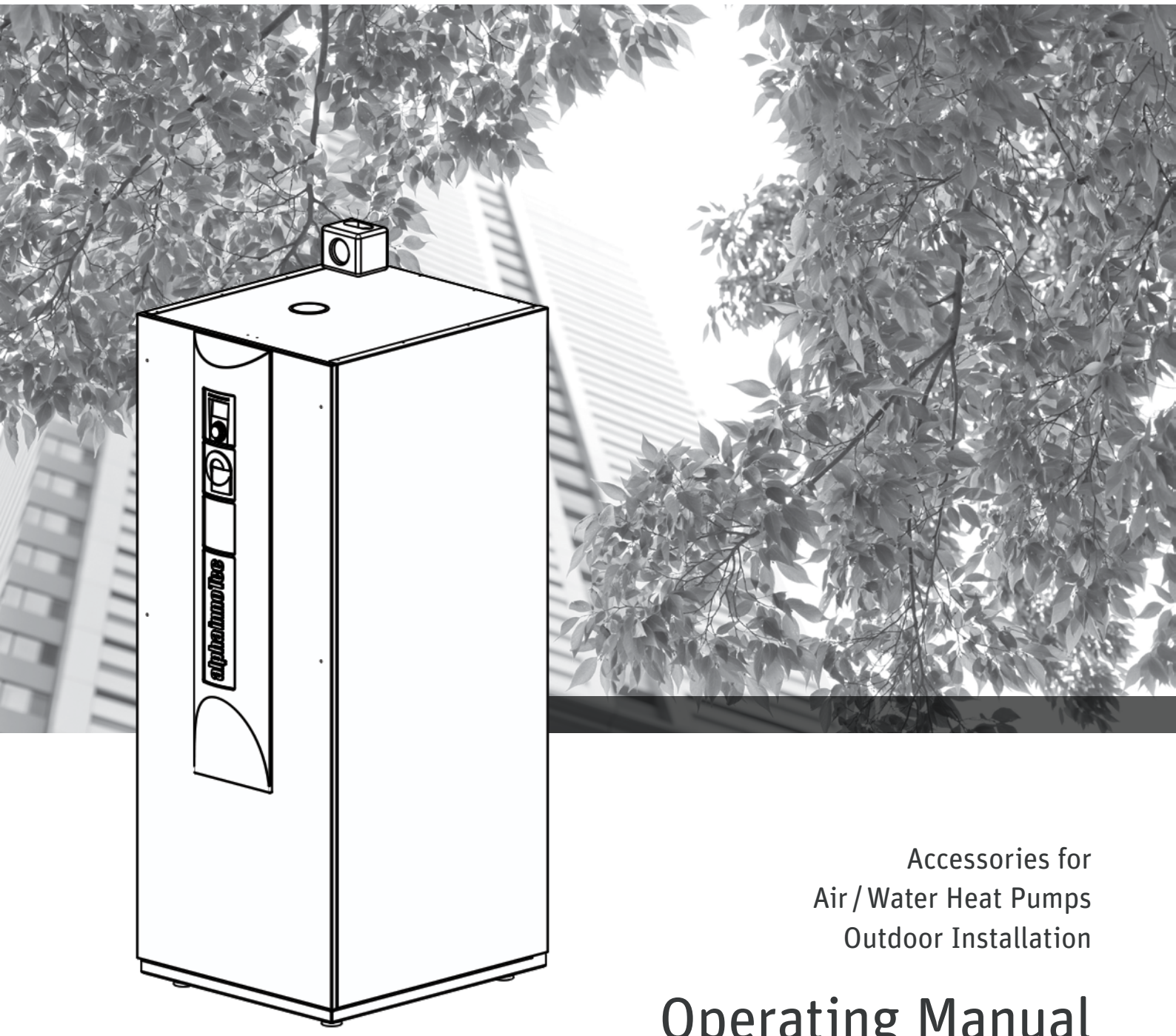


Accessories for
Air / Water Heat Pumps
Outdoor Installation

Operating Manual

Hydraulic tower HT 1
Hydraulic tower HT 2

83054000dUK – Translation into English of the original German operating manual

UK

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 operators 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 case of questions or uncertainty, contact the factory customer service department or the manufacturer's local service 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 information 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 possibly dangerous situation that could result in severe injuries or death.

CAUTION!
Indicates a possibly dangerous situation that could result in medium or light injuries.

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

NOTICE.
Emphasized information.

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

Reference to other sections of the operating manual.

Reference to other instructions of the manufacturer.

Contents

INFORMATION FOR USERS AND QUALIFIED TECHNICIANS

INSTRUCTIONS FOR QUALIFIED TECHNICIANS

Intended use

The hydraulic tower is an accessory for 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 air/water heat pump in new or existing heating systems.

The unit may be used only for the intended use. This means:

- for heating.
- for heating hot water.

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 tower is connected.

NOTICE.
Notify the responsible power supply company of the use of a heat pump or heat pump system.

Exclusion of liability

Der Hersteller haftet nicht für Schäden, die durch nichtbestimmungsgemässen Einsatz des Geräts entstehen. The manufacturer will not be liable for damage resulting from unauthorized use of the unit.

The manufacturer’s liability will also be voided in the following cases:

- if work is performed on the unit and its components in a manner that does not comply with the terms of this operating manual;
- if work is performed on the unit and its components in an improper manner;
- if work is performed on the unit that is not described in this operating manual, and this work was not expressly approved in writing by the manufacturer;
- if the unit or components in the unit are modified, redesigned or removed without the express written permission of the manufacturer.

Safety

The unit is operationally safe when used for the intended purpose. The construction and design of the unit conform to the state of the art, 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 safety gear.

DANGER!
Danger of fatal injury due to electric current!
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, refrigerant and electrical technicians) may perform work on the unit and its components.

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

Customer service

For technical assistance, please contact your qualified technician or the manufacturer's local service partner.

For a current list and additional partners of the manufacturer, please visit

DE: www.alpha-innotec.de

EU: www.alpha-innotec.com

Warranty / Guarantee

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

NOTICE.
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 quantity recording

In addition to the proof of the unit's efficiency, EEWaermeGalso meets the demand for a heat quantity recording (hereafter refered to as HQR). The HQR is mandatory with air/water heat pumps. With brine/water and water/water heat pumps, a HQR may only be set up when a forward flow temperature of ≥ 35 °C has been reached. The HQR must record the total warm energy release (heating and hot water) in the building. In heat pumps with heat quantity recording, the analysis is conducted by the regulator. The regulator displays the thermal energy that is exchanged from 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.

NOTICE.
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
When letting in fresh air, do not leave windows open for an extended period in order to save energy and reduce your heating costs.

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) should be inspected annually by a qualified technician (heating or cooling system technician).

The hot water tank should be cleaned once each year by qualified personnel (heating or cooling system technicians). To do this, first empty the hot water tank. Then remove the Styrofoam guard through the service hole of the hot water tank. Screw off the flange cover of the service hole.

Check the safety valve (provided by customer) for the hot water tank at regular intervals. Since an external current anode is built in, the anode requires no maintenance.

It is a good idea to have a maintenance contract with a heating installation company. The company will conduct the required maintenance at regular intervals.

Malfunctions

In the event of a malfunction, you can detect the cause of the malfunction via the diagnostic program of the heating and heat pump regulator.

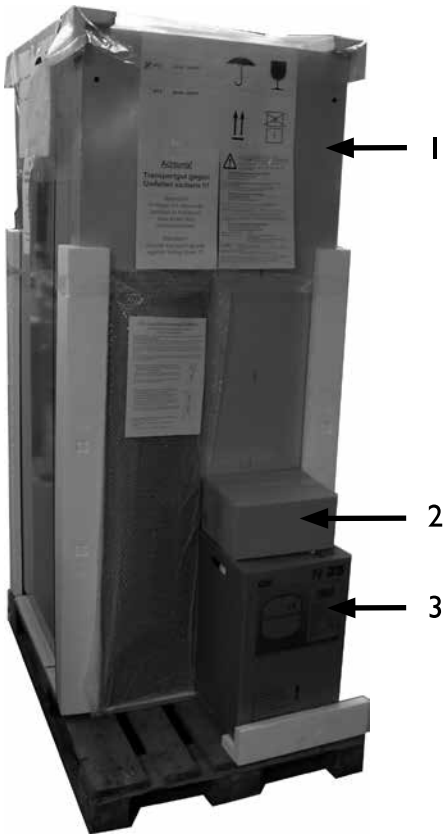
Operating manual of the heating and heat pump regulator.

! ATTENTION
Service and repair work on the components of the unit may be performed only by customer service personnel authorized by the manufacturer.

Note that no fault is displayed if the safety temperature limiter has triggered at the heating element (depends on device).

Scope of delivery

Example of scope of delivery:



1 Compact unit (hot water tank and buffer tank, without heat pump)
2 Extra box with control element of the heating and heat pump regulator, safety component for heating circuit, outdoor temperature sensor, feet
3 Expansion vessel for heat circuit

Proceed as follows:

① Inspect delivery for outwardly visible signs of damage…

② Check to make sure that delivery is complete. Any defects or incorrect deliveries must be claimed immediately..

i NOTICE.
Note the model.

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

Installation and assembly

Observe the following when performing all work:

NOTICE.
Always comply with applicable accident prevention regulations, statutory regulations, ordinances and directives.

INSTALLATION LOCATION

ATTENTION
Install the unit only indoors.

The installation area must be frost-free and dry. It must fulfill applicable local regulations.

Dimensional drawing and installation plan for respective unit model.

TRANSPORT TO INSTALLATION LOCATION

To avoid damage during transport, you should transport the unit to the final installation location in its original packaging (with angle bracket on the wooden pallet), using a lifting truck.

CAUTION!
Several people are required to transport the unit. Do not underestimate the weight of the unit.

Overview "Technical data/scope of delivery", "General unit data" section.

CAUTION!
Unit is not fastened to the wooden pallet. The unit can tip when being lifted down and during transport with a lifting truck. This can result in personal injury and damage to the unit.
- **Take suitable precautionary measures to eliminate the danger of tipping.**

If it is not possible to transport the unit to the final installation location using a lifting truck, you can also transport the unit using a hand truck.

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

ATTENTION
Do not damage the components and hydraulic connections under any circumstances.

DANGER!
The strap attached to the back of the unit is an aid for tipping the unit onto a hand truck! Always secure the unit on the hand truck with a tension belt!

Do not lift or transport the unit using only the strap!
- **The strap could break**
- **Persons could be injured**
- **Persons beneath the load could be fatally injured**
- **The unit and other objects could be damaged!**

CAUTION!
Wear safety gloves.

INSTALLATION

CAUTION!
Several people are required to install the unit. Do not underestimate the weight of the unit.

Proceed as follows at the installation location:

① Set unit on a solid and level, preferably sound-insulated surface…

② Mount feet…

ATTENTION
Moving the unit without the feet mounted can damage the floor.

②•①

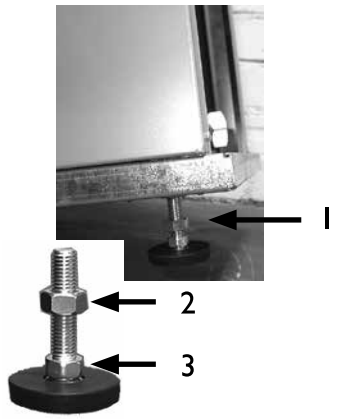
Tip the unit slowly and carefully to one side…

Secure unit in raised position so that it cannot accidentally tip back into the original position.

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

②•②

Mount one foot each on the front and back of the unit…



1 Foot
2 Lock nut
3 Adjusting screw

②•③

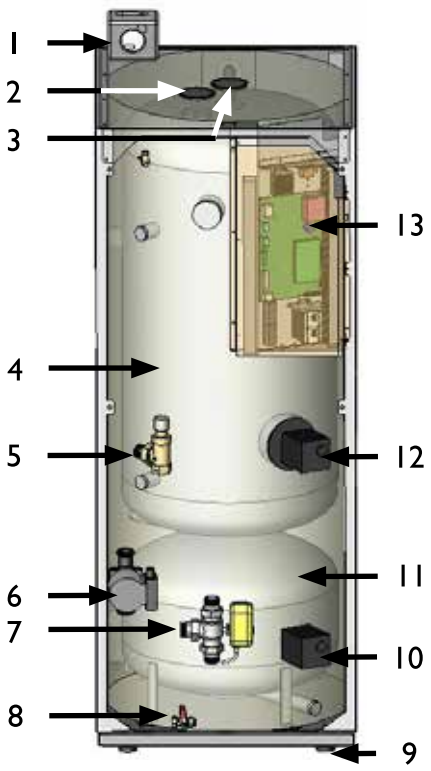
Slowly and carefully tip the unit back into the original position…

②•④

Repeat procedure on the other side of the unit…

③ Attach side panels and position unit at final location. Compensate for minor unevenness using the four adjusting screws. Then tighten the lock nuts.

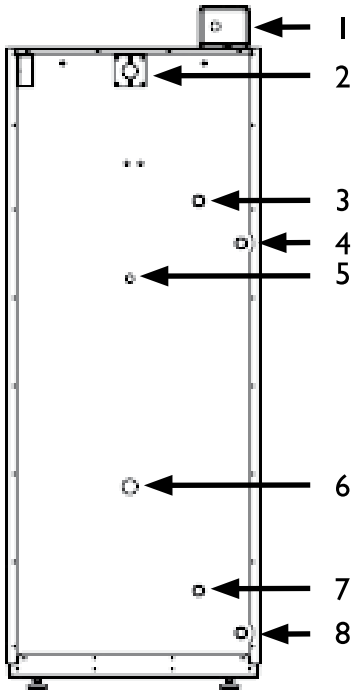
COMPONENTS OF THE UNIT



1 Safety component for heating circuit (insulated)
2 Hot water temperature sensor
3 External current anode for hot water tank
4 Hot-water tank
5 Overflow valve
6 Circulating pump for heating circuit (HUP)
7 Switching valve for hot water
8 Fill/empty cock for heating circuit
9 Adjustable feet
10 Capability for installation of an electric heating element (heating element not included in delivery; heating element for buffer tank up to max. 1 x EHZ 60)
11 Buffer tank
12 Option for installation of an electric heating element (heating element not included in delivery; heating element for hot water tank up to max. 1 x EHZ 45F)
13 Electrical switch cabinet

INSTALLATION / HYDRAULIC CONNECTION TO HEATING CIRCUIT

The connections for the heating circuit, for the cold and hot water and for the circulation are located on the back of the unit. The connection for the safety component of the heating circuit is on the top of the unit:



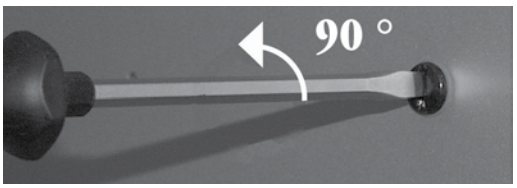
1 Safety component for heating circuit
2 Hot water
3 Hot water inflow (return flow)
4 Hot water outflow (forward flow)
5 Circulation
6 Cold water
7 Heating water outflow (to heat pump)
8 Heating water inflow (from heat pump)

NOTICE.
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 connecting lines between the heat pump and the hydraulic tower.

ATTENTION.
Install hot water connections to the heat pump based on the specifications of the heat pump guide below frost penetration depth.

Heat pump guide.

① Remove front panel of unit. To do this, loosen quick-release screws on the front panel. Turn counter-clockwise 90°…



② Lift front panel and set aside in a safe place…

ATTENTION
When installing the connections, always secure the connections on the unit from twisting, in order to prevent damage to the copper pipes in the interior of the unit.

③ Rinse heating circuit thoroughly prior to connecting the unit to the heating circuit…

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

④ Install shut-off devices for the hot water outflow (forward flow) and hot water inflow (return flow) on the heat pump side.

Hydraulic connection instructions'.

⑤ Install fill/empty devices, shutoff valves and non-return valves at the required locations in the heating circuit.

SAFETY COMPONENT

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

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

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

HYDRAULIC CONNECTION OF HOT WATER TANK

Connect hot water tank according to DIN 1988 and DIN 4753, Part 1 (or the local applicable standards and directives).

Do not exceed the operating pressures specified on the rating plate. Install a pressure reducer, if necessary.

! ATTENTION
The electrical conductivity of the hot water outflow must be > 100 µS/cm and must be comparable to water that is suitable for drinking.

EXPANSION VESSELS

The expansion vessel for the heating circuit, the corresponding cap valve and the wall mount are included in the scope of delivery. They must be integrated in the heating circuit on-site in compliance with the applicable standards and directives.

We recommend installing a suitable expansion vessel (not included in delivery) in the hot water circuit. This equalizes pressure fluctuations or water shocks in the cold water network and prevents unnecessary loss of water.

Electrical connections

Observe the following when performing all work:

DANGER!
Danger of fatal injury due to electric current!
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!
Observe the relevant EN-, VDE and/or applicable local safety regulations during the installation and during all electrical work.

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

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

① Remove right side panel of unit, if necessary.…

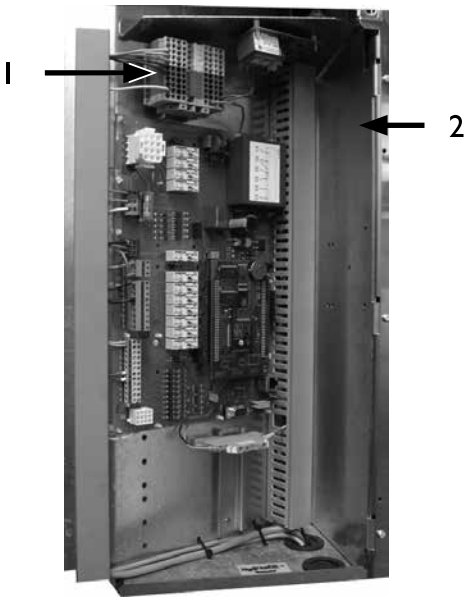
☞ Transport to installation location.

② Open switch cabinet in unit…
To do this, only loosen the two upper screws of the cover plate. Remove the remaining screws. Remove cover plate….

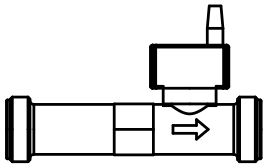
③ Insert control and sensor wires and the wire for the power company blocking contactor through the bushings on the back of the unit. Guide wires via the cable duct to the terminals in the switch cabinet…

④ Follow specifications of the terminal diagram for electrical connections…

☞ "Terminal diagram" for respective model.



1 Connection for control voltage
2 Electrical switch cabinet



! ATTENTION
The sensor cable for heat quantity recording may not be shortened!

i NOTICE.
The control element of the heat and heat pump regulator can be a connection with a computer or network using an network cable designed for such pruposes, thus allowing the heating and heat pump regulator to be controlled remotely.
If such a connection is desired, install a screened network cable (category 6, with RJ-45 plug) through the unit when installing the connections and run it through the front facade of the unit, parallel to the already-present heating and heat pump regulator control cable.

i NOTICE.
If electric heating elements are installed, you are responsible for the fuse protection of these.

⑤ After completion of all electrical installation work, close the switch cabinet inside the unit…

⑥ Close the unit if no further installation work inside the unit is to be performed immediately.

Rinsing, 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.

RINSING, FILLING AND BLEEDING THE HEATING AND HOT WATER CIRCUITS

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

! ATTENTION
Before rinsing and filling the hot water tank, the drain pipe of the safety valve must be connected.

HYDRAULIC TOWER I

① Connect hose for water outlet to filling and emptying tap (provided by customer) between heat pump and hydraulic tower (heating water inlet from heat pump) and lead to a drain…

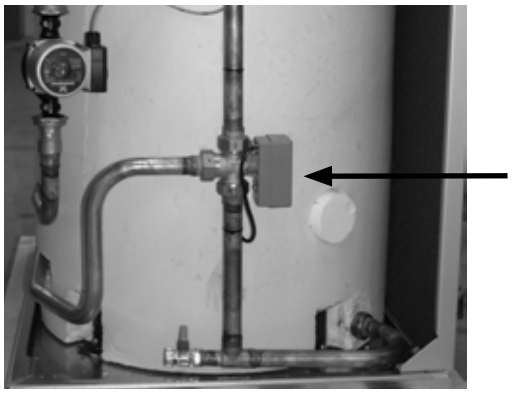
☞ „Dimensional drawings“

② Connect hose for water inlet to filling and emptying tap (provided by customer) between heat pump and hydraulic tower (heating water outlet to heat pump)…

☞ „Dimensional drawings“

③ Close shut-off valves (provided by customer) to heat pump! Open shut-off valves (provided by customer) to hydraulic tower…

④ Remove the motor of the 3-way valve. To do so, remove the U-bolt on the motor base and CAREFULLY pull the motor upward…



⑤ Turn spindle 180° and rinse hot water circuit ca. 1 minute…

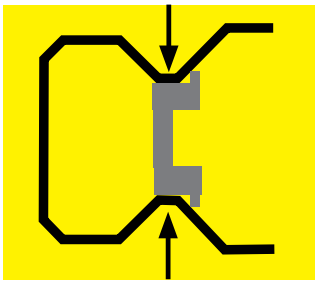
⑥ Turn spindle 180° back to starting position (rounded side of spindle points to B)…

⑦ Rinse heating circuit! If necessary, heating and hot water circuit can be rinsed at the same time! To do so, turn spindle 30°…

⑧ After completion of the rinsing and filling procedure, move spindle to starting position and mount the motor of the 3-way valve…

NOTICE.
To ensure a good seat of the motor on the valve, make sure that the U-bolt with the reduction is not pushed past the lug, because then the motor will not be held securely on the valve!

In order to be supported securely, the U-bolt must bear with both ends against the lug:



⑨ The unit is bled automatically when the bleeders (black cap) of the safety component of the heating circuit and the bleeders on the inlet to the exchanger of the hot water tank are open. If the heating circuit is filled or emptied, the bleeding valves open…

⑩ Open shut-off valves (provided by customer) to heat pump! Close shut-off valves (provided by customer) to hydraulic tower…

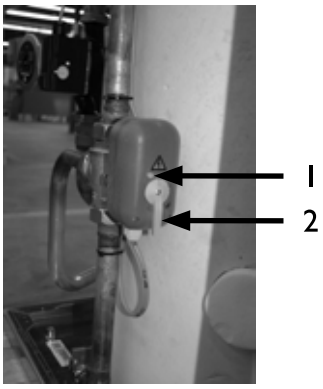
⑪ Exchange hoses at filling and emptying taps and rinse condenser of the heat pump via return flow…

⑫ In addition, open the bleeding valve on the condenser of the heat pump. Bleed condenser and then close the bleeding valve after completion of bleeding.

HYDRAULIC TOWER 2

① Follow the instructions from ① to ③ for hydraulic tower 1…

NOTICE.
When delivered, the valve is set to hot water.



3-way valve
1 button
2 adjusting lever

② Rinse hot water circuit for ca. 1 minute…

③ Press button on motor of 3-way valve and simultaneously turn adjusting lever 90°…

④ Rinse heating circuit! If necessary, heating and hot water circuit can be rinsed at the same time! To do so, press button on motor of 3-way valve and simultaneously turn adjusting lever 45°…

⑤ After completion of the rinsing and filling procedure, move adjusting lever of motor to starting position…

⑥ Follow the instructions from ⑨ to ⑫ for hydraulic tower 1.

RINSING, FILLING AND BLEEDING THE HOT WATER TANK

! ATTENTION!
Before rinsing and filling the hot water tank, the drain pipe of the safety valve must be connected. Do not exceed the response pressure of the safety valve.

① Open valve for cold water inlet on the hot water tank…

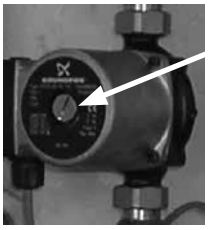
② Open the hot water valves at the taps…

③ Rinse the hot water tank until air no longer emerges from the valves at the taps…

④ Close hot water valves at the taps.

BLEEDING THE CIRCULATING PUMP OF THE HEATING CIRCUIT

Loosen the screw-on cap in the middle of the circulating pump for the heating circuit.



Insulating the hydraulic connections

You must insulate the pipes of the heating circuit, the connecting lines between the hydraulic tower and the heat pump and the connections for the hot water tank.

i NOTICE.
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…

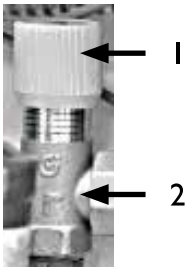
③ Ensure that the total flow is routed via the overflow valve…

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

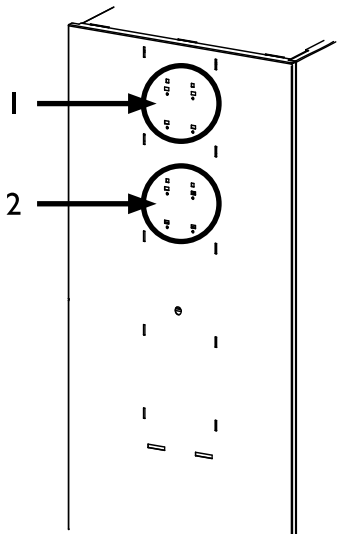


⑥ Open valves to heating circuit…

⑦ Reset the heating and heat pump controller.

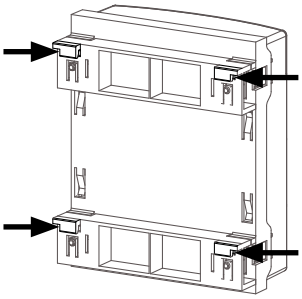
Installation of the control element

Situated at different heights in the front facade of the unit are recesses (each with 4 recesses) for fastening the control element:

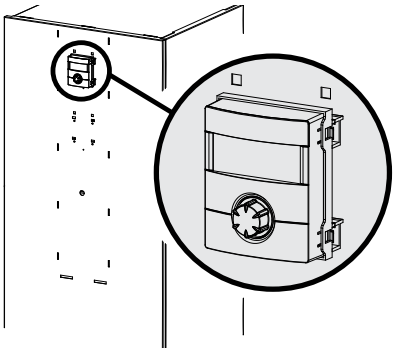


1 four upper recesses
2 four lower recesses

4 hooks are located on the back side of the control element and can be used to hang the control element on the front facade of the unit:

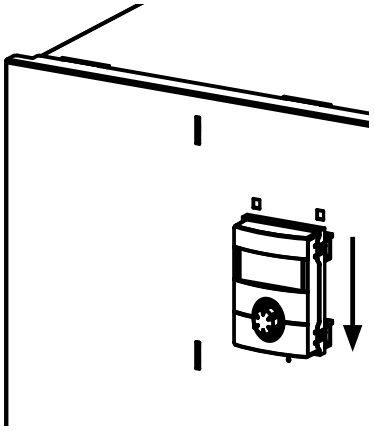


① Hang the control element's hooks on the recesses of the front facade (either in the upper or lower recesses)…

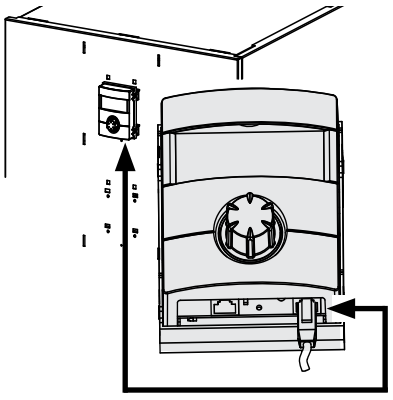


Example:
Control element in upper recesses

② Push the control element down until it locks into position…



③ Stick the heating and heat pump regulator's control cable into the **right** bushing on the bottom of the control element…



NOTICE.
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 pre-condition is that a screened network cable (category 6) be installed through the unit when installing the unit.

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

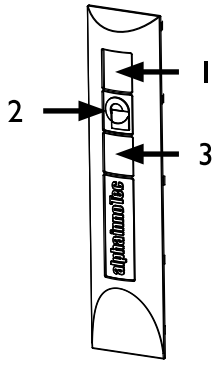
If this network cable is available, insert the network cable's RJ-45 plug into the left bushing of the control element.

NOTICE.
The network cable can be exchanged at any time. In order to be able to connect it, the screen must first be removed.

Installation and removal of the screen

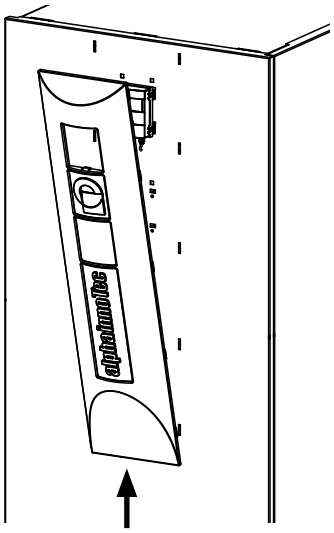
INSTALLING THE SCREEN

NOTICE.
The screen is provided at the time of delivery so that the control element may be inserted in the upper recesses of the front facade.
If the control element has been inserted in the lower recesses of the front facade, you must first remove the screen's temporary cover and then reinsert it above the logo.

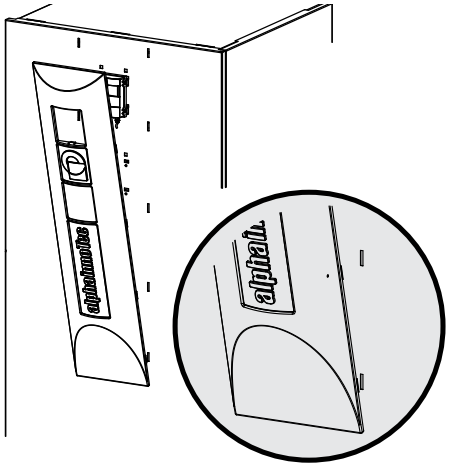


Screen at time of delivery:
1 recess for control element
2 logo
3 temporary cover

① First, insert the screen **below**, in the provided slots on the front of the facade…

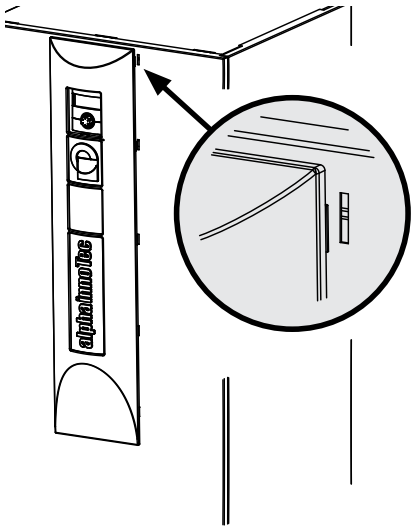


② Beginning first on one side and moving upwards, lock the screen's snap-in lugs in place **in the slots** provided on the front of the facade…



③ **Next, on the opposite side, moving upwards.** Lock the screen's snap-in lugs **in place** in the slots provided on the front of the facade…

④ Finally, press the screen's upper snap-in lugs into the slots provided on the front of the facade.



REMOVING THE SCREEN

In order to remove the screen, the snap-in lugs must **first be loosened by pressing one side** completely **toward the middle of the screen**. Thereafter, remove the snap-in lugs from the opposite side.

Commissioning

Follow the instructions in the section entitled "Commissioning" in the operating manual for your heat pump.

Make sure of the following…

- The water supply to the hot water tank must be open.
- The hot water tank must be filled.

  If the heat pump is switched on with an empty tank, the control element will indicate a malfunction.

Operating manual of the heating and heat pump regulator.

Dismantling

DANGER!
Danger of fatal injury due to electric current!
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 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.

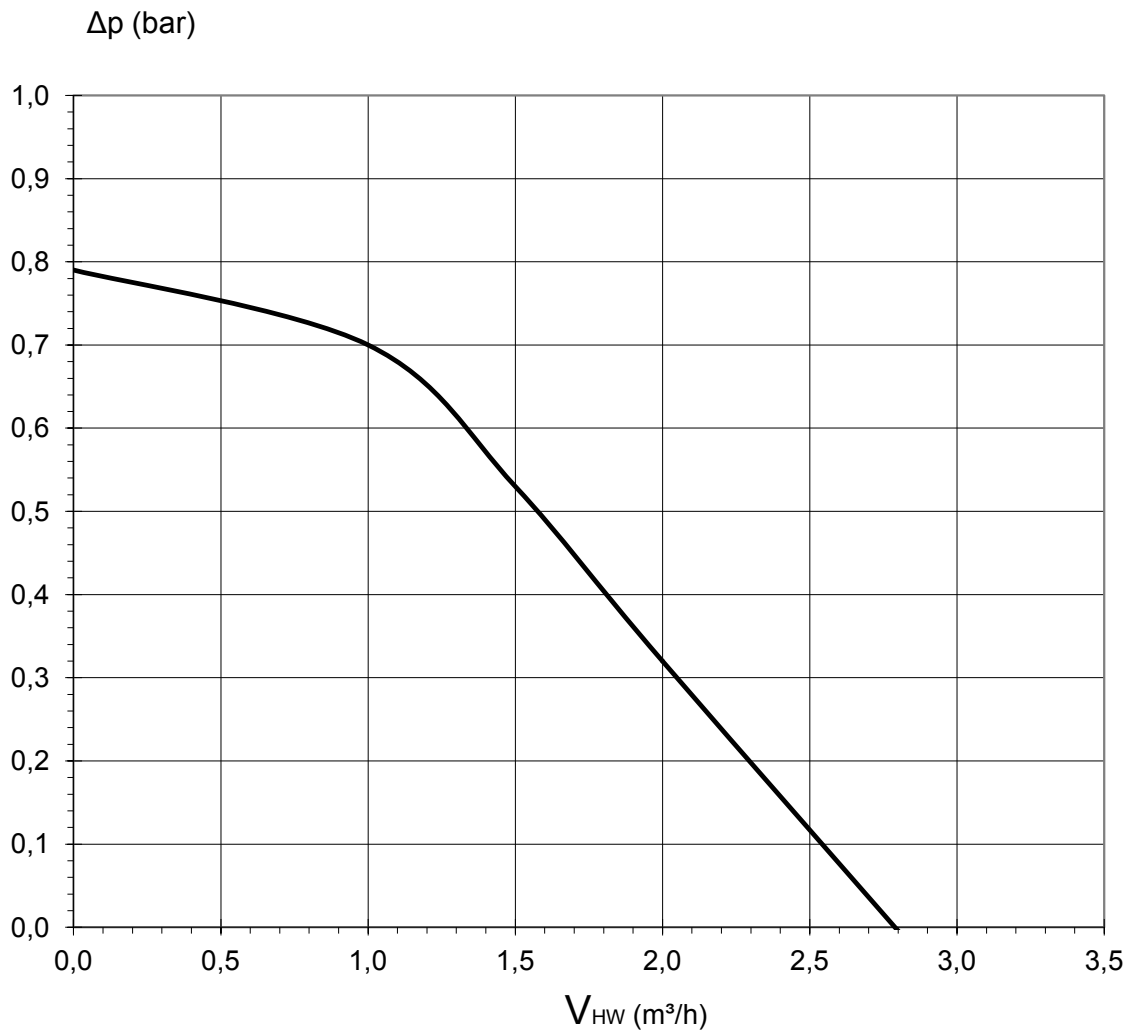
Technical data / scope of delivery

Accessory for heat pump model	LW 71A ... – LW 81A ... ı LW 101A...– LW 180A ...		• applicable ı — not applicable
Installation location	Indoors ı Outdoors		• applicable ı — not applicable
Conformity			CE
Heating circuit	Free compression heat circuit pump Δp ı volume flow		bar ı l/h
	max. permissible operating pressure		bar
	Volume of buffer tank		l
	3-way valve, heating/hot water		integrated: • yes — no
Hot-water tank	Rated volume		l
	permissible operating pressure		bar
	Surface heat exchanger heat pump		m²
General unit data	Dimensions (see dimensional drawings for the specified unit size)		unit size
	Total weight		kg
	Connections	Heating circuit	...
		Cold water	...
		hot water	...
		Circulation	...
Electric	Voltage code ı circuit breaker control voltage *)		... ı A
	effective power input of heating/hot water circuit pump		kW
	Protection type		IP
Safety equipment	Safety component heating circuit ı Safety component heat source		Incl. in sc. of delivery: • yes — no
Heating and heat pump regulator			Incl. in sc. of delivery: • yes — no
Expansion vessels	Heating circuit: Scope of delivery ı Volume ı Initial pressure		• yes — no ı l ı bar
Overflow valve			integrated: • yes — no
	Factory setting (adjust when commissioning the system)		bar
Sound	Sound pressure level in free field/sound conducting level		dB(A) ı dB(A)

UK813300L

*) comply with local regulations

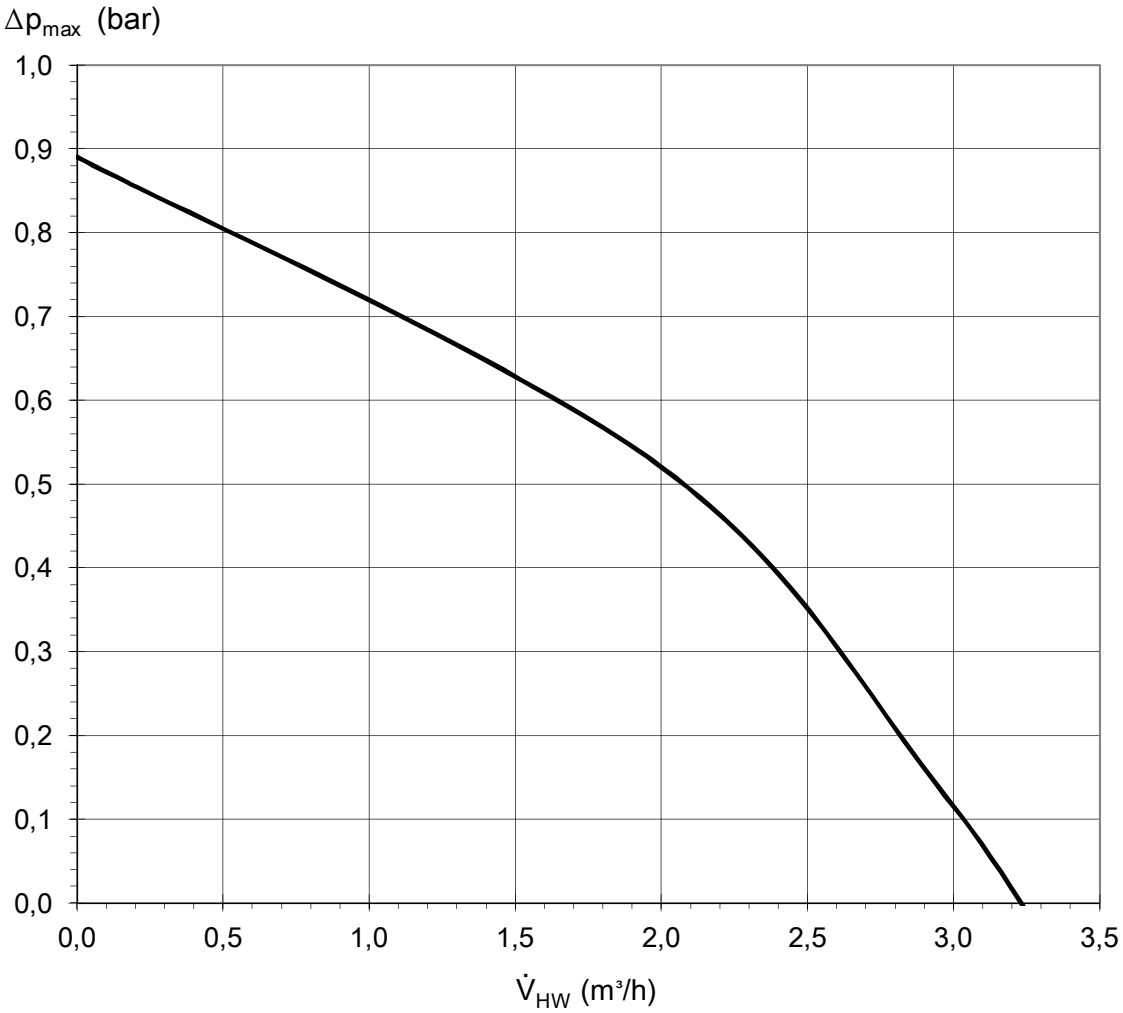
	HT 1	HT 2
	• ı —	— ı •
	• ı —	• ı —
	•	•
	0,70 ı 1000	0,52 ı 2000
	3	3
	98	98
	•	•
	295	285
	10	10
	2	3,5
	1	1
	290	290
	R 1“	R 1¼“
	R 1“	R 1“
	R 1“	R 1“
	RP ¾“	RP ¾“
	1~N/PE/230V/50Hz ı B10	1~N/PE/230V/50Hz ı B10
	0,07	0,09
	20	20
	• ı —	• ı —
	•	•
	• ı 25 ı 1,5	• ı 50 ı 1,5
	•	•
	0,3	0,5
	35 / 49	35 / 49
	813300a	813301d



Legend: UK812022

$\dot{V}_{HW}$ Volume flow, heating water

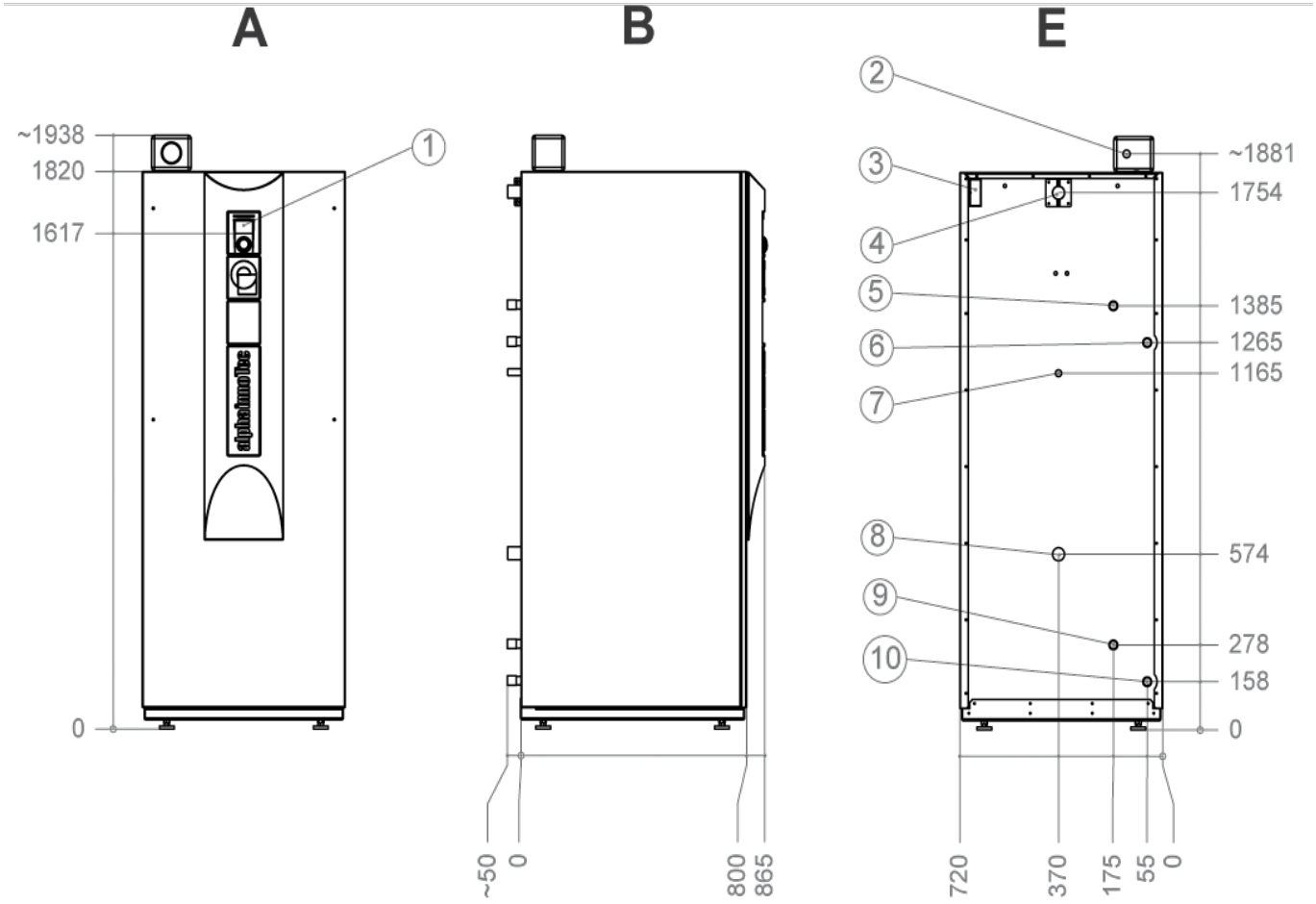
Δp (bar) Free compression, heating circuit



Legend: UK812023

$\dot{V}_{HW}$ Volume flow, heating water

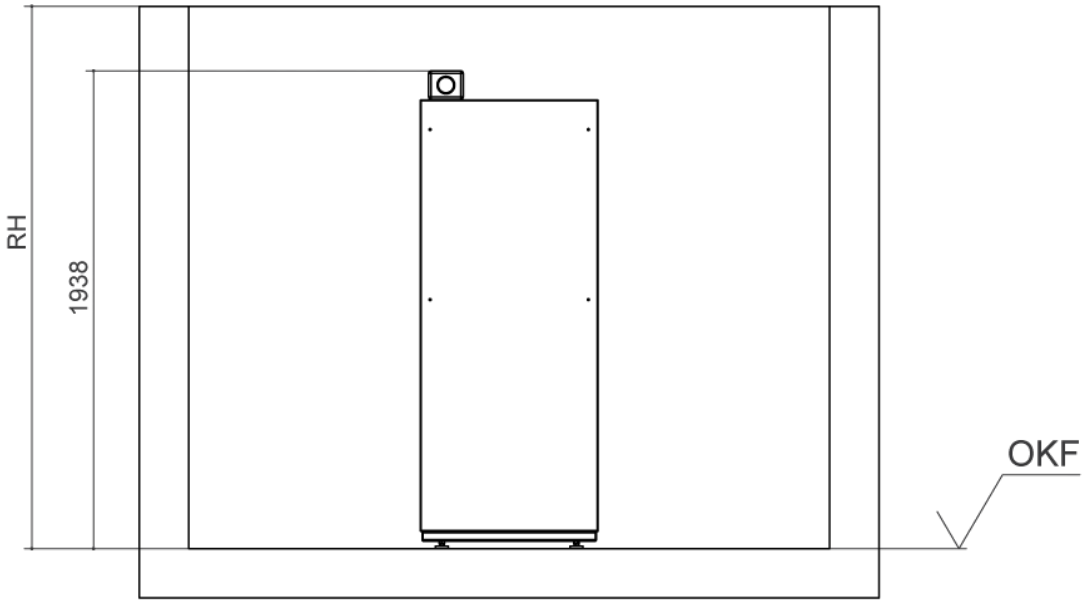
Δp (bar) Free compression, heating circuit

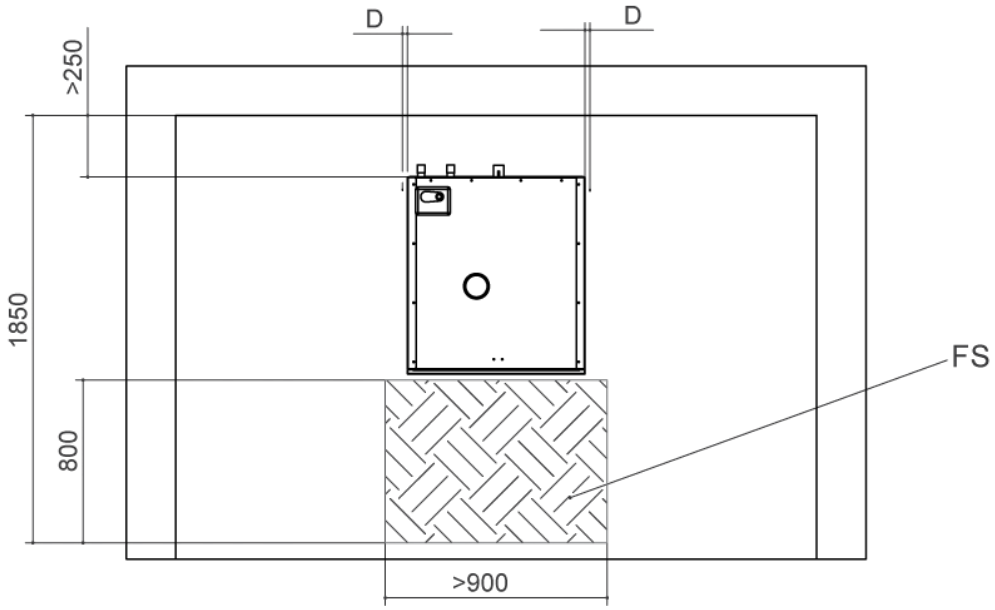


Legend: UK819285-
All dimensions in mm.

A	Front view
B	Side view from left
E	Rear view

		HT 1	HT 2
1	Control element		
2	Safety component (in extra box)	Rp ¾"	Rp ¾"
3	Ducts for electric/sensor cables		
4	hot water	R 1"	R 1"
5	Hot water inflow (return flow)	R 1"	R 1¼"
6	Hot water outflow (forward flow)	R 1"	R 1¼"
7	Circulation	Rp ¾"	Rp ¾"
8	Cold water	R 1"	R 1"
9	Heating water outflow (to heat pump)	R 1"	R 1¼"
10	Heating water inflow (from heat pump)	R 1"	R 1¼"

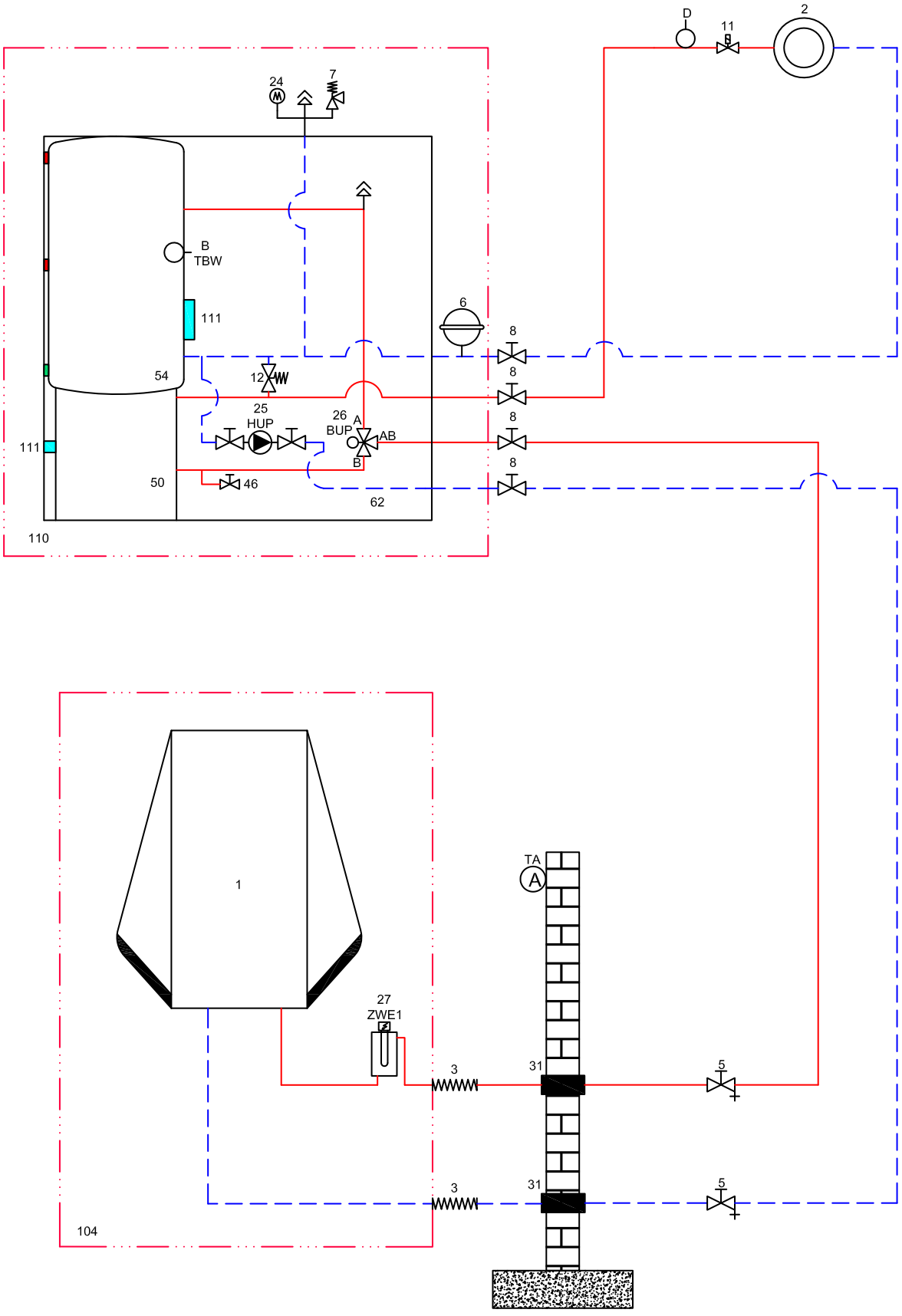




Legend: UK819290
All dimensions in mm.

RH	Minimum room height 2100
OKF	Top edge of finished floor
D	20 Distance to next object
FS	Shaded area = free space for service purposes

Hydraulic integration with LW 71A – LW 180A



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:

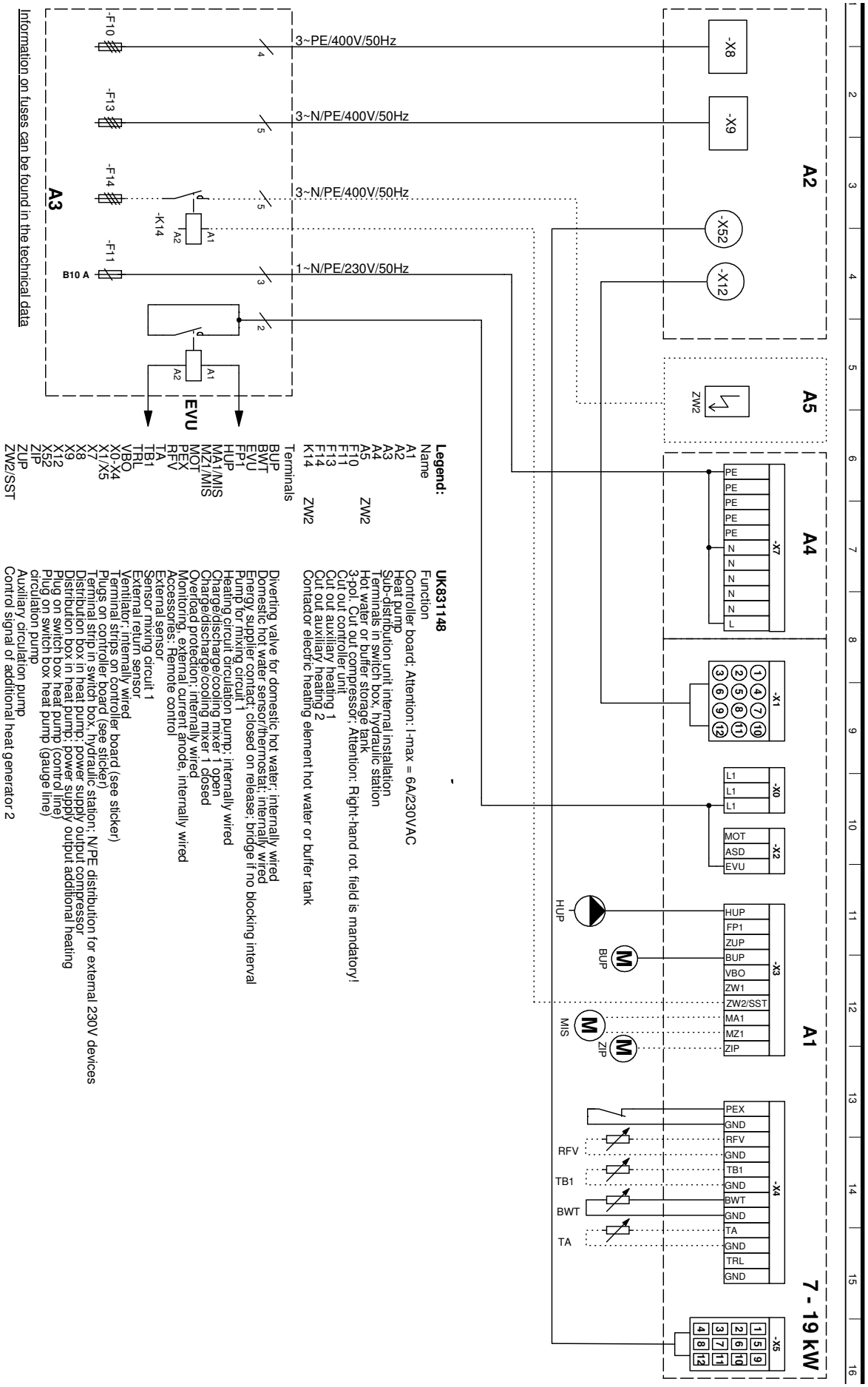
15	Mixer circuit three-way mixer (MK2-3 discharge)
17	Temperature difference regulator
19	Mixer circuit four-way mixer (MK2 charge)
21	Mixer circuit circulation pump (FP2-3)
22	Swimming pool circulating pump
44	Three-way mixer valve (cooling function MK2)
47	Changeover valve swimming bath preparation(B = 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!

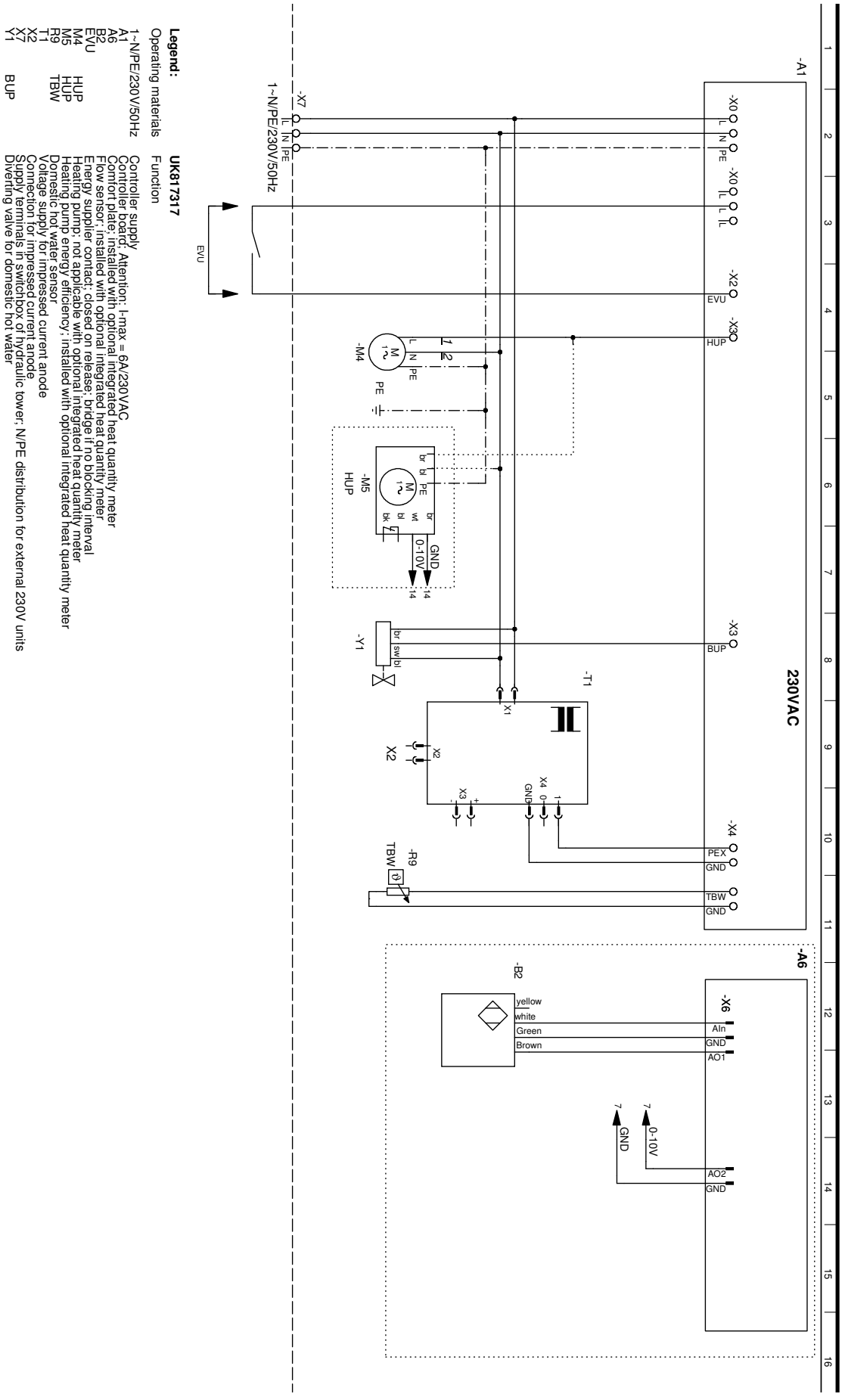
HT 1 / HT 2 with LW 71A – 180A

Terminal diagram



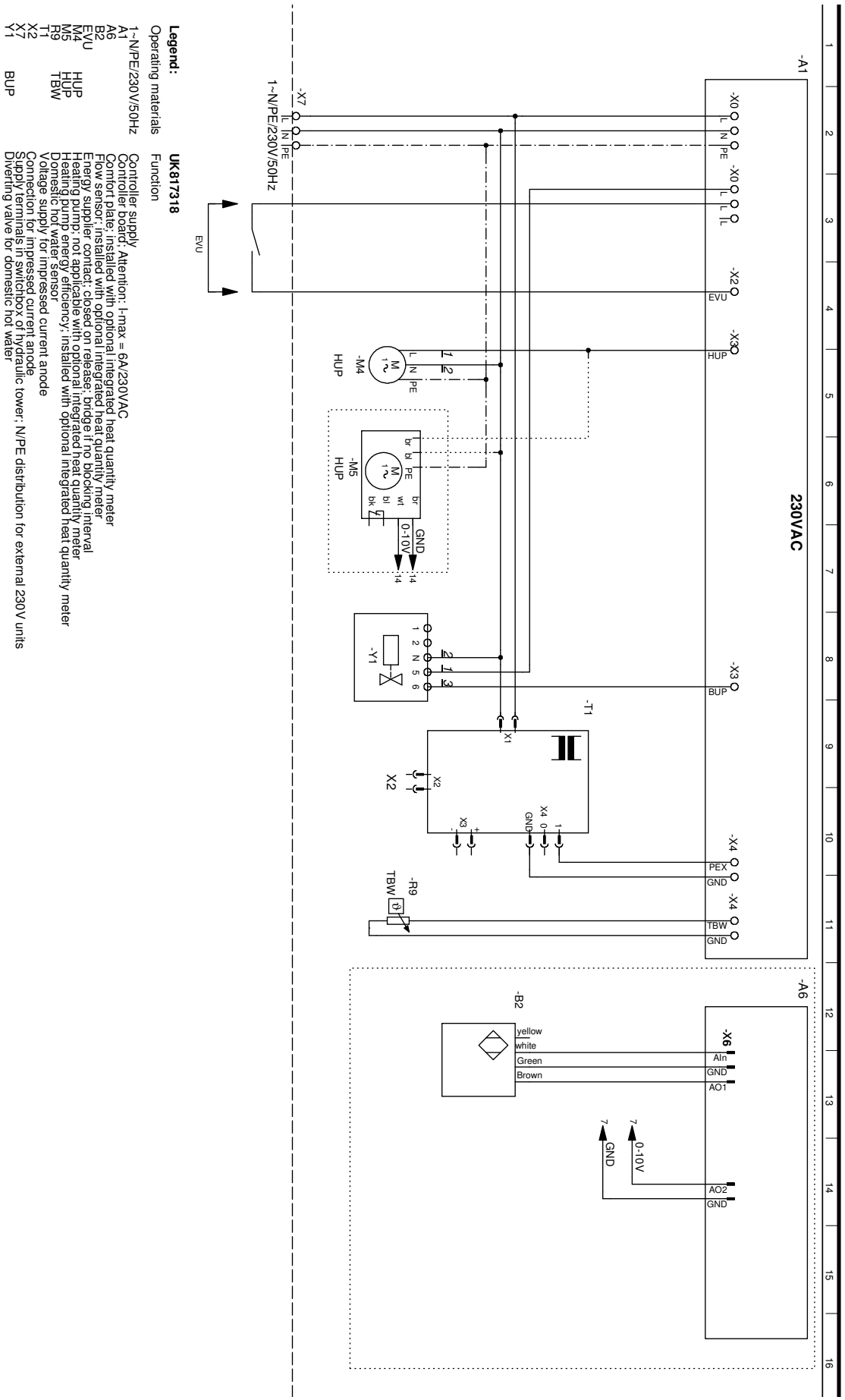
Circuit diagram

HT 1



HT 2

Circuit diagram



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