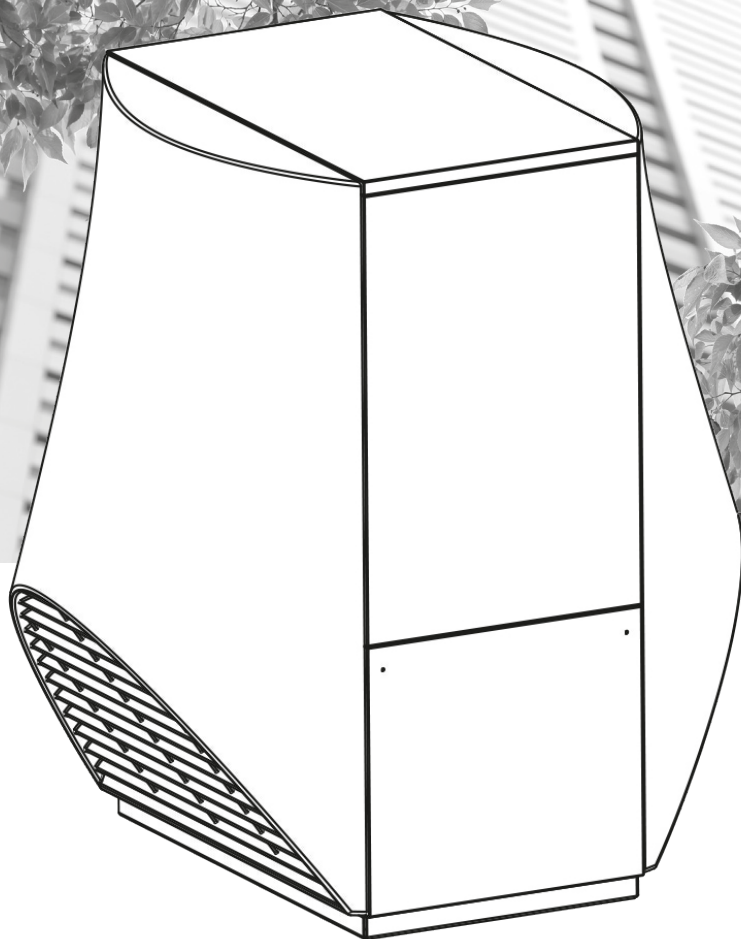
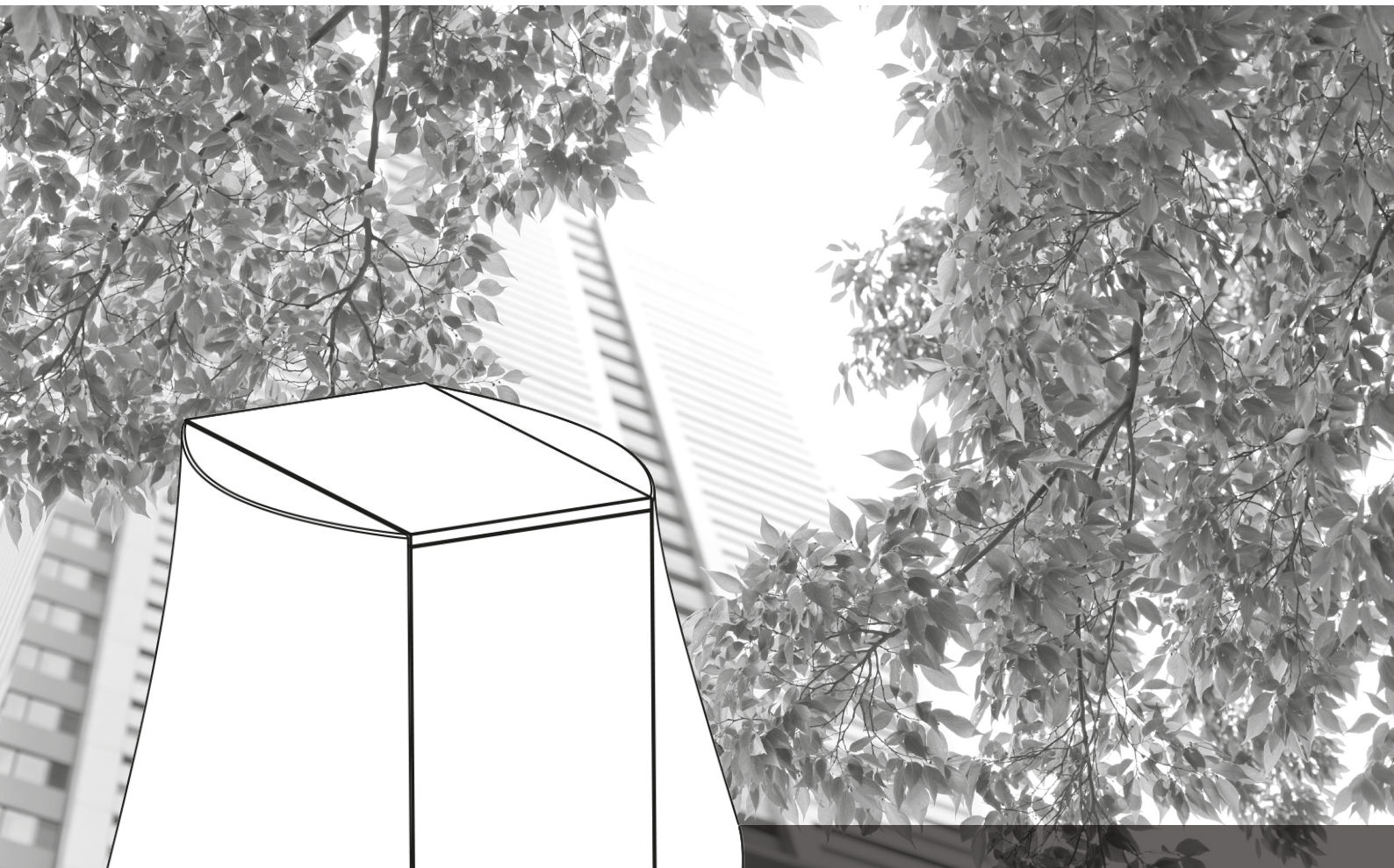


*the better way to heat*



Air/Water Heat Pumps  
Outdoor installation

# Operating Manual

## LW 161H-A/V





## 1 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 kept ready to hand 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 starting any work on or with the unit. Especially the chapter on safety. Follow all instructions in full and unreservedly.

This operating manual may contain descriptions, which 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.

As 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 with the unit. Treat all its constituent parts confidentially. They are protected by copyright. They may not be reproduced, transmitted, copied, stored in electronic systems or translated into another language, either wholly or in part, without the express written permission of the manufacturer.

## 2 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 moderate or slight injuries.



### **IMPORTANT**

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.



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### 3 Intended use

The unit is only to be used for its intended purpose. This means:

- for heating.
- for water heating.

The unit may be operated only within its technical parameters.

→ “Technical data/Scope of supply”, page 26



#### NOTE

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

### 4 Disclaimer

The manufacturer is not liable for damage or 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 changed, modified or removed without the explicit written consent of the manufacturer.

### 5 EC conformity

The unit bears the CE marking.

→ “EC Declaration of Conformity”, page 39

### 6 Safety

The unit is safe to operate when used for its intended purpose. 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.

The operating manuals supplied with the product are intended for all users of the product.

The operation of the product via the heating and heat pump control and work on the product which is intended for end customers / operators is suitable for all age groups of persons who are able to understand the activities and the resulting consequences and can carry out the necessary activities.

Children and adults who are not experienced in handling the product and do not understand the necessary activities and the resulting consequences must be instructed and, if necessary, supervised by persons experienced in handling the product and who are responsible for safety.

Children must not play with the product.

The product may only be opened by qualified personnel.

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

Only qualified, skilled personnel is able to carry out the work on the unit safely and correctly. Interference by unqualified personnel can cause life-threatening injuries and damage to property.

- ▶ Ensure that the personnel is familiar with the local regulations, especially those on safe and hazard-aware working.
- ▶ Only allow qualified personnel with “electrical” training to carry out work on the electrics and electronics.
- ▶ Only allow qualified, skilled personnel to do any other work on the system, e.g.
  - Heating installer
  - Plumbing installer
  - Refrigeration system installer (maintenance work)

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



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



### **DANGER**

**Risk of fatal electric shock!**

**All electrical connection work must be carried out by qualified electricians only.**

**Before opening the unit, disconnect the system from the power supply - wait for 90 seconds = residual voltage at inverter - and prevent it from being switched back on!**

Existing earthing connections within housings or on mounting plates must not be altered. If this should nevertheless be necessary in the course of repair or assembly work:

- ▶ Restore earthing connections to their original condition after completion of the work.



### **WARNING**

**Only qualified personnel (trained heating, refrigeration engineers and electricians) may carry out work on the unit and its components.**



### **WARNING**

**Unit contains refrigerant!**

**Leaking refrigerant could result in personal injury and environmental damage.**

**Therefore:**

- Switch off system.
- Notify the manufacturer's authorised customer service.



### **IMPORTANT**

For safety reasons:

Never disconnect the unit from the power supply, unless the unit is being opened.



### **IMPORTANT**

Install the heat pump only outdoors and operate only with outside air as the heat source. Do not restrict or block the air-conducting sides.

→ "Dimensioned drawings", page 28, and "Installation plan", page 29



### **WARNING**

**Never switch on the unit if air flow deflectors on the unit are removed.**



### **IMPORTANT**

It is not permitted to integrate the heat pump in ventilation systems. Use of the cooled air for cooling purposes is not permitted.



### **IMPORTANT**

The ambient air at the place in which the heat pump is installed, as well as the air drawn in as a heat source, must not contain any corrosive constituents!

Constituents (such as ammonia, sulphur, chlorine, salt, sewage gases, flue gases...) can cause damage to the heat pump, which can result in complete failure / irreparable total damage to the heat pump! Can be installed near the coast.



### **CAUTION!**

**In the air outlet area the air temperature is approx. 5° K below the ambient temperature. Under certain climatic conditions an ice layer can therefore form in the air outlet area. Install the heat pump so that the air blower does not discharge into footpath areas.**

## Decommissioning / draining the heating

If the system/heat pump is decommissioned or drained after already being filled, it must be ensured that the condenser and any heat exchangers have been drained completely in the event of freezing temperatures. Residual water in heat exchangers and condensers can result in damage to the components.

1. Completely drain the system and the condenser, and open vent valves.
2. Blow them clear with compressed air, if required.

## 7 Contact

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

- Germany: [www.alpha-innotec.de](http://www.alpha-innotec.de)
- EU: [www.alpha-innotec.com](http://www.alpha-innotec.com)



## 8 Warranty/Guarantee

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



### NOTE

Please contact your dealer about all matters concerning warranties and guarantees.

## 9 Disposal

When decommissioning the old unit, always comply with local applicable laws, directives and standards concerning the recovery, recycling and disposal of materials and components of cooling units.

→ "29 Dismantling", page 25

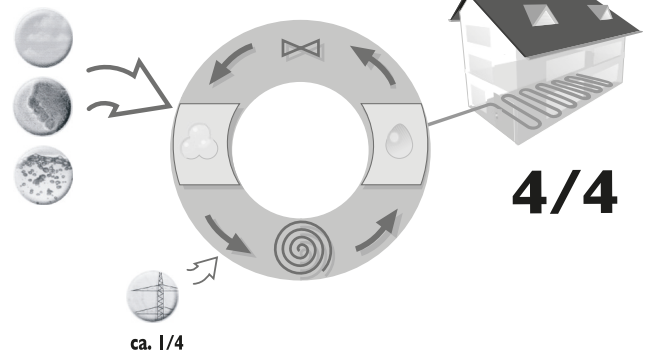
## 10 How heat pumps work

Heat pumps operate on the same principle as a refrigerator: the same technology, only with reversed benefits. The refrigerator extracts heat from food, it discharges this heat into the room through fins at its rear.

The heat pump extracts heat from our environment: from the air, earth or water. The extracted heat is conditioned in the unit and passed on to the heating water. Even when it is extremely cold outside, the heat pump draws enough heat to heat a house.

Example: sketch of a brine/water heat pump with underfloor heating:

ca. 3/4



$\frac{4}{4}$  = usable energy  
 approx.  $\frac{3}{4}$  = environmental energy  
 approx.  $\frac{1}{4}$  = external electrical energy

## 11 Area of use

Taking into consideration the ambient conditions, limits of use and the relevant regulations, any heat pump can be used in new or existing heating systems.

→ "Technical data/Scope of supply", page 26



## 12 Heat metering

In addition to proof of the unit's efficiency, the EEWaermeG (German law promoting renewable energy for heating) also requires heat metering (hereinafter referred to as WME). Heat metering is mandatory for air/water heat pumps. Heat metering for brine/water and water/water heat pumps only has to be installed for a flow temperature  $\geq 35$  °C. The heat metering must record the total thermal energy output (heating and hot water) to the building. In heat pumps with heat metering, the evaluation is carried out by the controller. The controller displays the thermal energy output into the heating system in kWh.

## 13 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 use the control element of the heating and heat pump controller to operate and control the heat pump system.



### NOTE

Make sure that the controller settings are correct.

→ Operating manual of the heating and heat pump controller

To ensure that your heat pump or heat pump system operates efficiently and ecologically, please pay particular attention to the following:



### ENERGY SAVING TIP

Avoid unnecessarily high flow temperatures. The lower the flow temperature on the heating water side the more efficient the system.



### ENERGY SAVING TIP

Preferably use purge ventilation. Compared to continuously open windows, it is better to air rooms by fully opening windows for a short period, two to three times a day (so-called "purge" ventilation); this reduces energy consumption and your heating bill.

## 14 Care of the unit

You can use a damp cloth and standard cleaning products to clean the outer surfaces of the unit.

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



## 15 Scope of supply

Example of scope of supply packaging:

Packing unit 1:

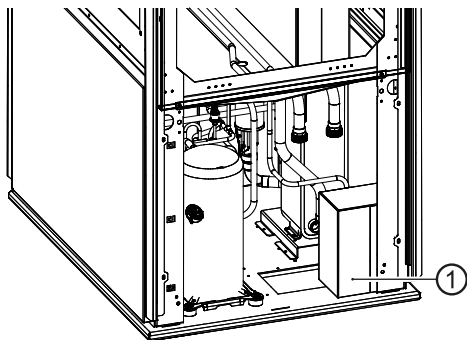


Air deflector hoods (2 hoods, each in a separate box)

Packing unit 2:



Compact unit with hermetic compressor, all safety-relevant components for monitoring of the cooling circuit and hose for condensate discharge (connected on the heat pump side).



- 1 Extra box:  
Circulation pump UPM GEO 25-85 180 PWM  
Load compressor plug for connection to wall-mounted controller  
Bus line plug (communication) for connection to wall-mounted controller  
Return flow sensor with cable ties and thermal compound

1. Check the delivery for outwardly visible signs of damage.
2. Check to make sure that the delivery is complete. Any defects or incorrect deliveries must be reported immediately.

**i** **NOTE**  
Note the unit model.

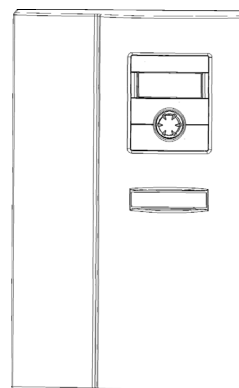
→ “Technical data/Scope of supply”, page 26

### Functionally necessary accessories

**!** **IMPORTANT**  
Use only original accessories made by the manufacturer of the unit.

The heating and heat pump controller as a wall-mounted controller is a functionally necessary accessory.

The heat pump is only a fully functional unit if the heating and heat pump controller is installed.



Heating and heat pump controller 2.1-16kW  
(for wall mounting)

Communication between the heat pump and controller takes place via a cable to be laid on site by the customer (I(Y) STY 2x2,  $\varnothing$  each  $\geq 0,6 \text{ mm}^2$ ).

### Additional accessories

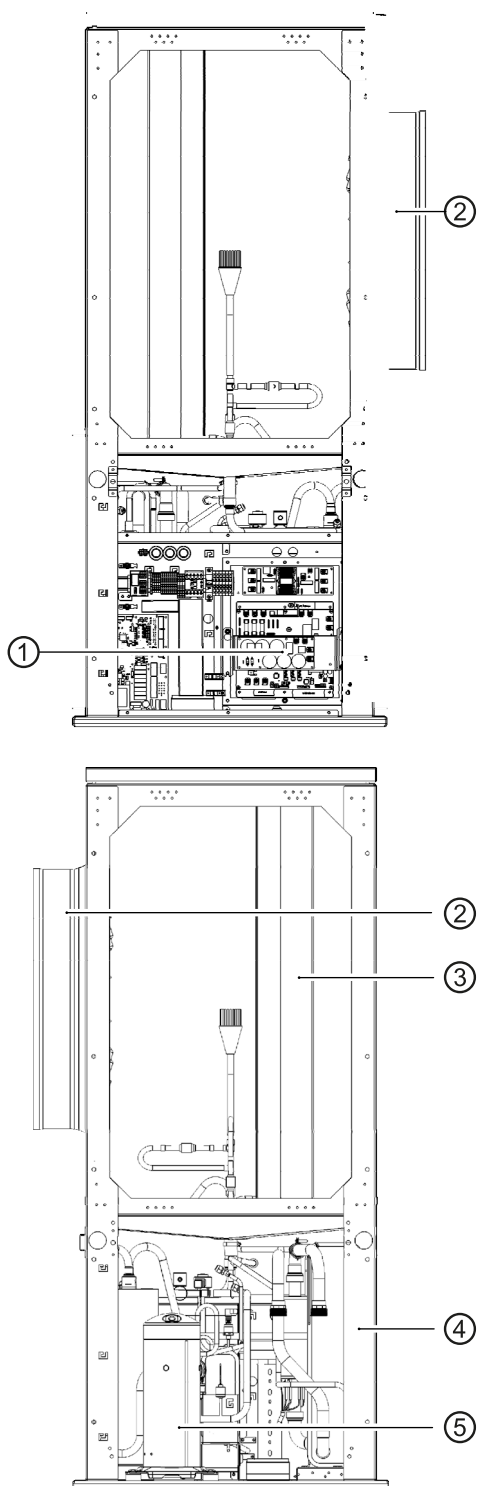
You must order separately:

- installation accessories (vibration decouplers) for air/water indoor installation heat pumps
- air / magnetic sludge separator





## 15.1 Main components



- 1 switch
- 2 fan
- 3 evaporator
- 4 condenser
- 5 compressor

## 16 Installation and assembly

The following applies to all work to be done:

**NOTE**  
Always comply with the relevant local accident prevention regulations, statutory regulations, guidelines and directives.

**NOTE**  
Note the sound information for the respective model.

→ “Technical data/Scope of supply”, page 26, “Sound” section

**NOTE**  
The noise emissions of the heat pumps must be taken into account in the respective installation plans for air/water heat pumps. The respective regional regulations must be observed.

### Installation site requirements

- ✓ Perform installation outdoors only.
- ✓ Clearance dimensions are met
- “Dimensioned drawings”, page 28, and “Installation plan”, page 29
- ✓ Free air intake and blowing air are possible without any air short-circuit.
- ✓ The surface is suitable for installation of the unit:
  - The foundation is level and horizontal
  - The surface and the foundation have a load-bearing capacity sufficient for the unit's weight
- ✓ Ground surface in the air outlet area of the heat pump is permeable to water



## 16.1 Transport to the installation location

To prevent damage during transport, transport the packed unit to its final installation location using a pallet truck, forklift truck or crane.



### WARNING

**Risk of tilting and overturning on lifting the unit from the wooden pallet and during transport! People can be injured and equipment damaged; always work with several people.**

► Take suitable precautions to prevent the risk of overturning.



### IMPORTANT

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

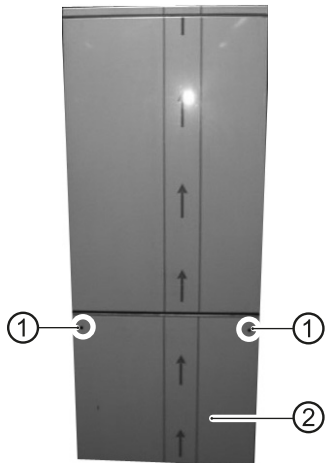


### IMPORTANT

Do not tilt the unit by more than 45° maximum (in any direction).

## 16.2 Preparing for installation

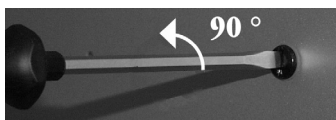
1. Remove lower facing panels on the switch box side and the water connection side of the unit.



1 Quick-release screws

2 Lower facing panel

Undo the quick-release screws. Turn through 90° to the left.

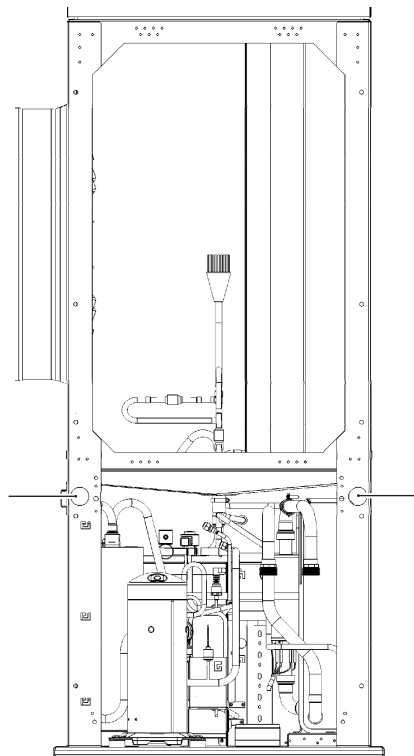


2. On both sides, pull the lower facing panel upwards and outwards at an angle, lift out and put in a safe place.



### Lifting the unit with tube handles

Rear:



### IMPORTANT

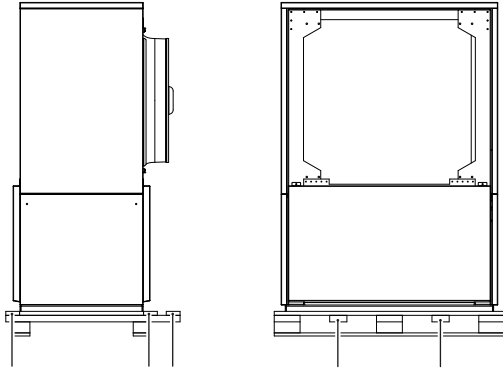
Make sure that the tube handles do not damage cable harnesses and components in the unit.

Lift the unit with the inserted tube handles, with at least four people (one for each tube handle) and place on the base. Make sure that the unit's baseframe is in full contact with the surface of the ground.

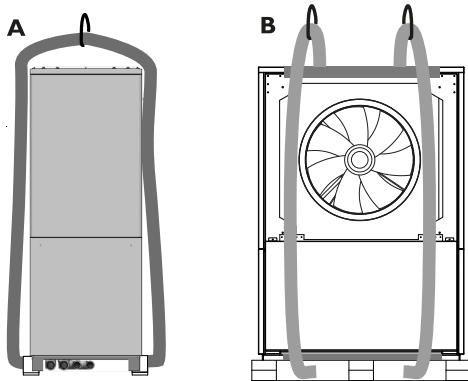


## Lifting the unit with a crane

1. Remove the strips on the sides of the wooden pallet.



2. Pass the roundslings under the unit. Place lengths of timber between the roundslings and the unit to prevent pressure damage to the housing, or dismantle the facing panels (for dismantling instructions, see "Attaching the air deflector hoods").



A Front view (operating side)  
B Side view 1



**WARNING**  
Roundslings should not be too close together or too near the middle; otherwise the unit may tilt or overturn!



**IMPORTANT**  
Pass roundslings past the fan on the side. Make sure that the loaded roundslings do not press against the fan.

3. Lift the unit with the crane and place it on the base. Make sure that the unit's baseframe is in full contact with the base.

## 16.3 Installation

→ "Dimensioned drawings", page 28, and "Installation plan", page 29



### CAUTION

In the air outlet area the air temperature is approx. 5 K below the ambient temperature. Under certain climatic conditions, an ice layer can therefore form in the air outlet area. Install the heat pump such that the air blower does not discharge into footpath areas.



### NOTE

Set up the unit so that the switch box side is accessible at all times.

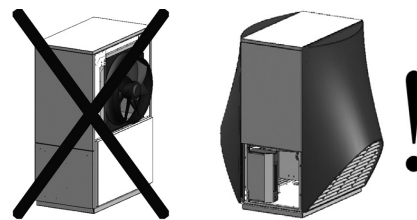
## 16.4 Attaching the air deflector hoods



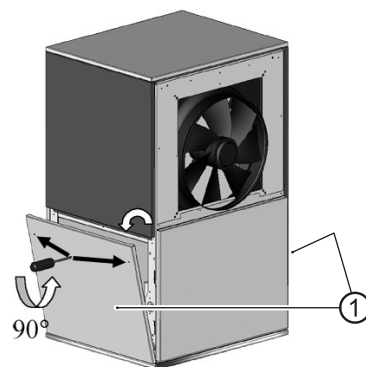
### WARNING

Rotating parts on the unit.

For safety reasons, mount the two air deflector hoods on the unit before carrying out any other work.



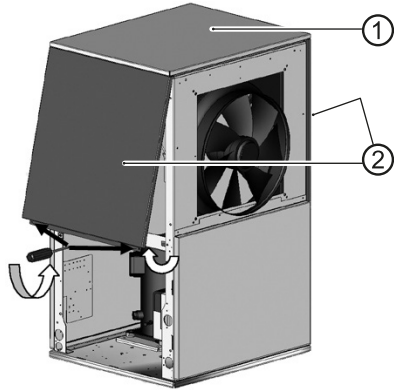
1. If you haven't done so already, remove the lower facing panels from the switch box and water connection side of the unit.
  - 1.1. To do this, undo the two quick-release screws in the lower facing panels.
  - 1.2. Pull each of the facing panels upwards and outwards, lift them out of the unit frame and put in a safe place.



1 Lower facing panels

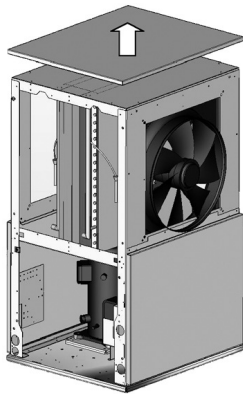


2. Removing the upper facing panels from the unit.
  - 2.1. To do this, undo the two screws at the bottom edges of each of the upper facing panels.
  - 2.2. Pull each of the facing panels downwards and outwards, lift them out of the unit cover at the top and put in a safe place.



- 1 Unit cover
- 2 Upper facing panels

3. The unit cover has been fixed by the upper facing panels. After removing the upper facing panels, the top cover sits loosely on the top. Lift off the unit cover and put it down in a safe place.

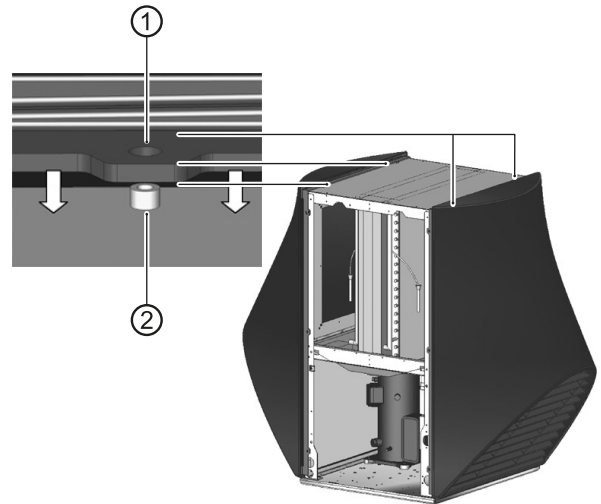


4. Installing the air deflector hoods.

**! IMPORTANT**

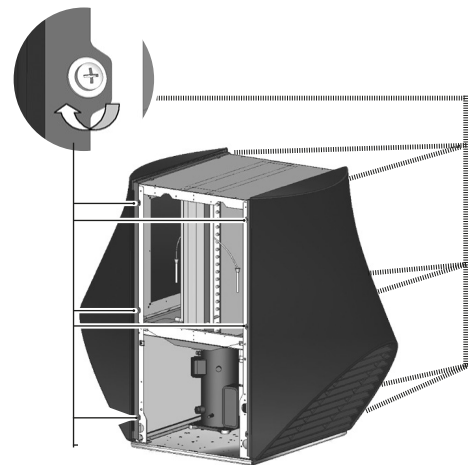
Before starting the installation, remove the protective film from the air deflector hoods.

- 4.1. Hook the air deflector hoods onto the brass bushings at the top of the unit frame.



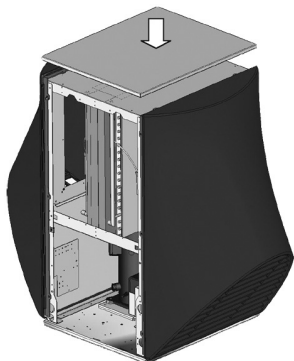
- 1 Eye in the air deflector hood
- 2 Brass bushing on the unit frame

- 4.2. Screw the air deflector hoods onto the unit frame on the switch box side (= operating side) and the water connection side.

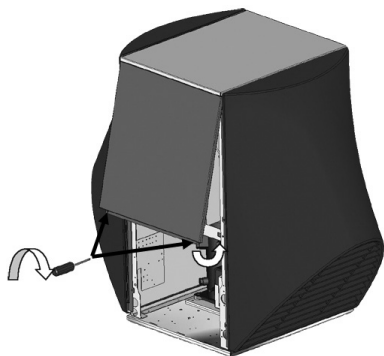




- Placing the unit cover back on the frame.



- Hook the upper facing panels into the unit cover. Screw the bottom onto the unit frame.



The air deflector hoods are now installed. You can carry out the assembly and installation work on the unit, and when finished attach the bottom facing panels. (See “Electrical connection work”).

## 16.5 Installation / connection to the heating circuit

### ! IMPORTANT

Integrate the unit in the heating circuit as shown in the hydraulic diagram for the respective unit model. It is not possible to connect several heat pumps in parallel.

→ “Hydraulic integration” documents

- ▶ Check to make sure that the cross-sections (diameters) and lengths of the pipes for the heating circuit (including the pipes laid in the ground between the heat pump and the building!) are adequately dimensioned.

The hydraulic system must be equipped with a buffer tank, the required volume of which depends on your unit model.

→ “19 Buffer tank”, page 14

### ! IMPORTANT

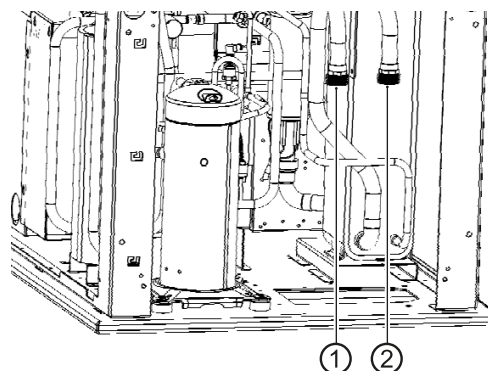
Dirt and deposits in the (existing) hydraulic system can cause damage to the heat pump.

- ▶ Ensure that a sludge separator is installed in the hydraulic system.
- ▶ Rinse the hydraulic system thoroughly prior to establishing the hydraulic connection of the heat pump.

### ! IMPORTANT

When installing the connections, always protect the connections on the unit from twisting, in order to prevent damage to the copper pipes inside the unit.

1. Install the outside pipes of the heating circuit beneath the frost line.
2. Install shut-off devices for the heating water outlet (flow) and heating water inlet (return) on the heat pump side.  
By installing the shut-off devices, the evaporator and condenser of the heat pump can be flushed, if necessary.



- 1 Heating water inlet connection (return)
- 2 Heating water outlet connection (flow)

3. Connect the unit to the pipes of the heating circuit via vibration decouplers. They must be installed in order to prevent damage from vibrations to the pipes.

### i NOTE

If an existing system is being replaced, the old vibration decoupling may not be reused. Vibration decouplers are available as accessories.

4. Lay the condensate hose in the unit so that it cannot come into contact with the refrigerant pipes.



5. Check that frost-free condensate discharge is ensured.
  - "Installation plan", page 29
  - Heat pump planning & design manual
6. Seal empty pipes on the unit side.

## 16.6 Condensate drain

The condensate precipitated from the air must be removed frost-free via a condensate pipe with minimum 50 mm diameter. If surfaces are water permeable, it is sufficiency for the condensate water pipe to be laid vertically in the ground to a depth of at least 90 cm. If the condensate is discharged into drains or sewers, ensure frost-free laying with a gradient.

Discharge of the condensate into the sewers is permitted only via a trap with funnel inlet, which must be accessible at all times.

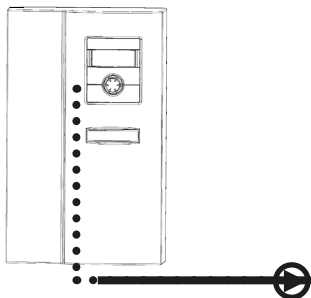
## 17 Pressure safety

Equip the heating circuit with a safety valve and expansion vessel in accordance with local standards and guidelines.

Also install filling and draining emptying devices, shut-off devices and non-return valves in the heating circuit.

## 18 Circulation pump

The pump cable may not be lengthened. Therefore the distance must be chosen so that the cable is long enough. However, it is possible to shorten the cable.

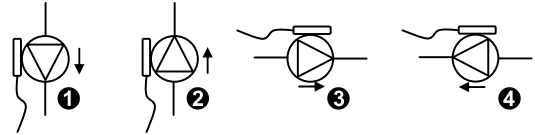


max. approx. 2.4 m cable length

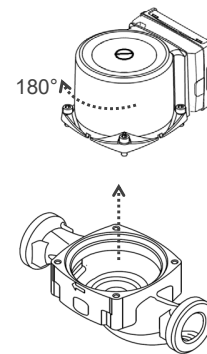
Only 1 PWM signal is available for the circulation pump, therefore the hot water must be supplied with a changeover valve via the BUP outlet. Normally open = heating.

## 18.1 Permissible positions of the circulation pump

Only the following installations are permitted:



If necessary the pump head can be rotated as follows:



1. If necessary, shut off the pipe and drain the pump section.
2. Undo the 4 screws at the pump head.
3. Lift the pump head.
4. Turn the pump head through 180°.
5. Insert and fix the pump head.
6. If you wish, the pump rating plate can also be turned.

## 18.2 Circulation pump technical data

Ambient temperatures	0°C to +55°C
Relative indoor air humidity	max. 95%

## 19 Buffer tank

The hydraulic integration of the heat pump requires a buffer tank in the heating circuit. Minimum volume of buffer tank 200 l



## 20 Water heating

Water heating with the heat pump requires another heating water circuit in addition (parallel) to the heating circuit. When integrating, make sure that the hot water supply is not fed through the buffer tank of the heating circuit.

→ “Hydraulic integration” documents

## 21 Hot water tank

If the heat pump is to be used to heat water, you must integrate special hot water tanks in the heat pump system. Choose the storage volume so that the required quantity of hot water is available even during a power cut.

The heat exchanger surface of the hot water tank must be dimensioned so that the heating capacity of the heat pump is transferred with minimum temperature drop. We offer a variety of hot water tanks for you to choose from. They are optimally matched to your heat pump.

Integrate the hot water tank in the heat pump system as shown in the hydraulic diagram for your system.

## 22 Electrical connection work

The following applies to all work to be done:



### DANGER

**Risk of fatal electric shock!**

**All electrical connection work must be carried out by qualified electricians only. Before opening the unit, disconnect the system from the power supply - wait for 90 seconds = residual voltage at inverter - and prevent it from being switched back on!**

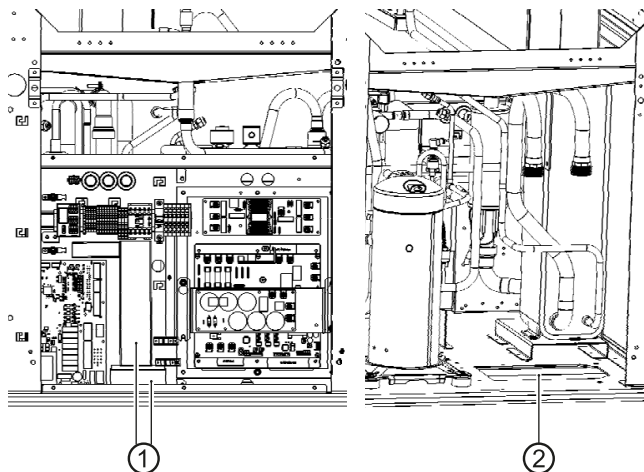


### WARNING

**Note and follow the relevant EN, VDE and/or local safety regulations during installation and when carrying out electrical work. Comply with technical connection requirements of the responsible power supply company (if required by the latter)!**

### 22.1 Power connection

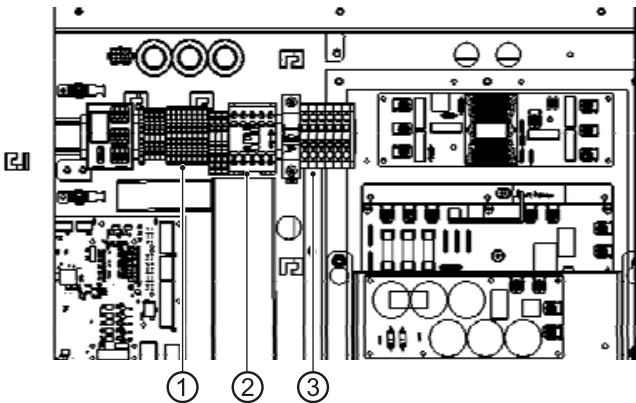
1. If the unit is closed, take off the facing panel.
2. The power cables are pulled through the opening in the baseplate and are routed through the cable duct and into the switch area.



- 1 Cable duct
- 2 Opening in the baseplate



3. Connect the power cable to the following terminals:



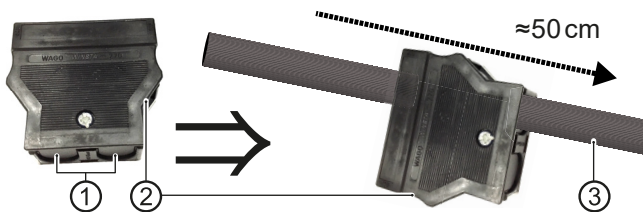
- 1 230V  
2 Heating element  
3 Compressor



**NOTE**

Example for power connection: Connections must be done as described in terminal diagram.

4. Lay the power cable in a cable conduit up to the cable entry into the building and from there continue laying it up to the fuse box.
5. Connect the power cable to the power supply.
6. Connect the compressor load cable to the five-pin plug included in the scope of delivery of the heat pump.
- 6.1. Break a lock of one of the cable bushings (①) carefully out of the pre-engaged strain relief housing (②) and push the strain relief housing approx. 50cm over the load cable (③).



- 6.2. Strip the load cable 55 mm.



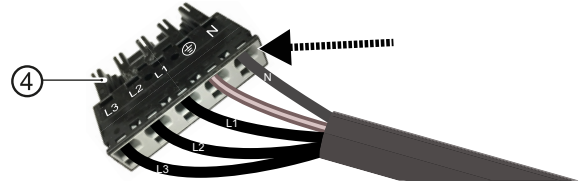
- 6.3. Shorten the live wires so that the PE conductor has a lead of 8 mm.



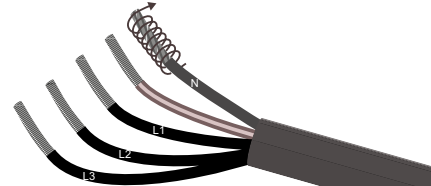
- 6.4. Strip each wire 9 mm.



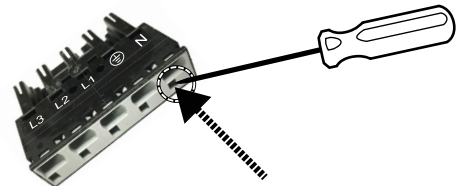
- 6.5. Insert the stripped wires into the pins of the five-pin plug (④).



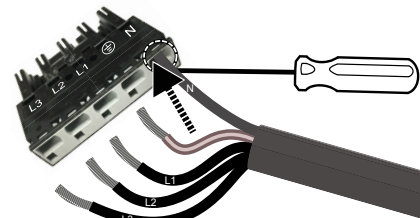
- ▶ If the load cable has single wires, insert N, PE, L1, L2 and L3 into the corresponding plug pins labelled on the plug as far as they will go.
- ▶ If the load cable has fine wire strands:
  - Twist the strands of each wire.



- Insert an operating tool or screwdriver (2.5 mm blade width) in the connection lock of the neutral conductor plug pin to unlock the connection lock.



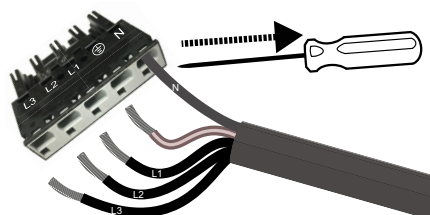
- Insert the twisted wire of the neutral conductor as far as it will go into the neutral conductor plug pin.







- Pull the operating tool or screwdriver out of the neutral conductor plug pin to lock the connection.

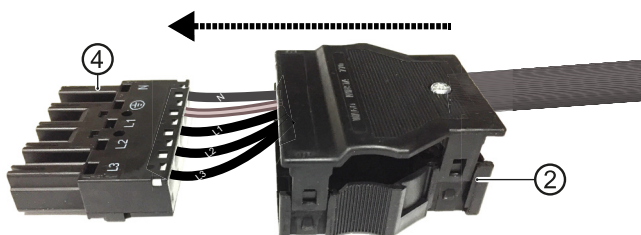


- Insert the PE conductor and the L1, L2, L3 conductors in the same way in the corresponding plug pins labelled on the plug.

**! IMPORTANT**

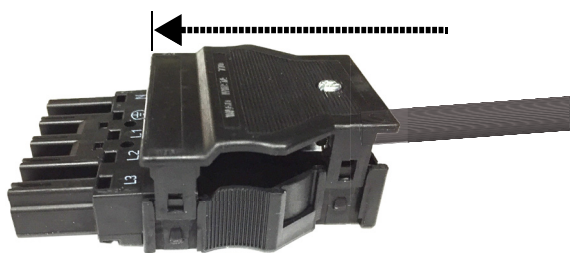
Check each inserted wire for tight fitting in its plug pin.

- 6.6. Push the strain relief housing (2) onto the wired plug (4).

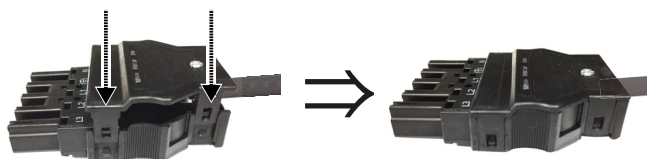


- 6.7. Align them correctly to each other: The top side of the plug and the top side of the strain relief housing are both marked with "TOP".

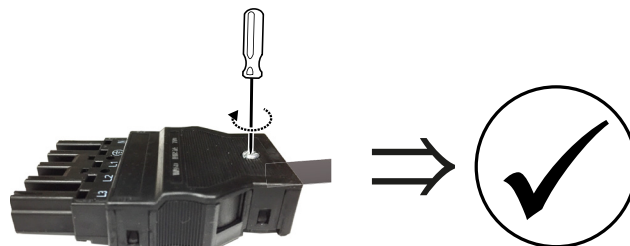
- 6.8. Push the plug as far as it will go into the strain relief housing.



- 6.9. Lock the top part of the strain relief housing firmly onto the bottom part.



- 6.10. Screw the strain relief screw tight.



7. Plug the compressor load cable plug into the corresponding sockets in the wall controller.

**! IMPORTANT**

Ensure clockwise rotary field of the load power supply (compressor). Operation with the incorrect rotary direction of the compressor can cause serious, irreparable damage to the compressor.

**! IMPORTANT**

The power supply for the heat pump must be equipped with an all-pole miniature circuit-breaker with at least 3 mm contact spacing to IEC 60947-2. Note the tripping current.

→ "Technical data/Scope of supply", page 26, "Electrics" section

**i NOTE**

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



## 22.2 Heat pump side connection of the BUS cable

The connection between the heat pump and the heating and heat pump controller is made via a BUS cable (to be provided by the customer on site, recommended cable type I(Y) STY 2x2,  $\varnothing$  each  $\geq 0,6 \text{ mm}^2$ ).

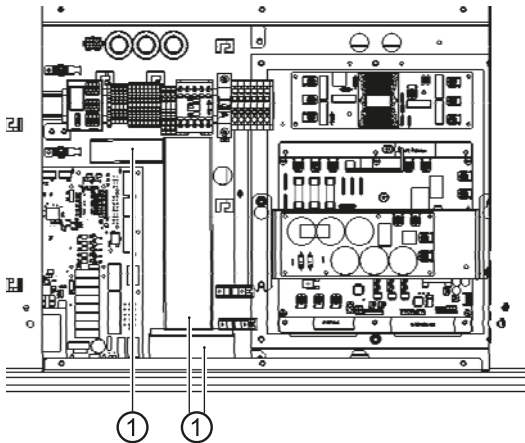
Maximum line length: 30 m



### NOTE

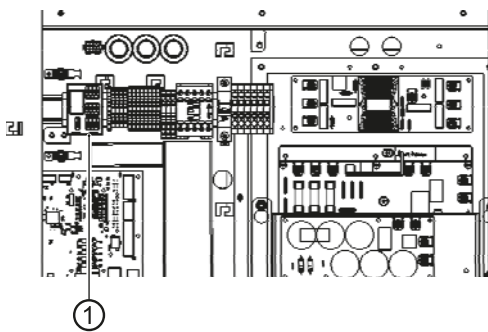
When laying the cable inside the building, note that unshielded power supply cables (voltage supply of outdoor unit) and shielded cables (Mod-bus) must be laid separately from each other ( $> 100 \text{ mm}$ ).

1. Like the power cable, the bus cable is passed through the opening in the baseplate, through the cable duct and into the switch area.



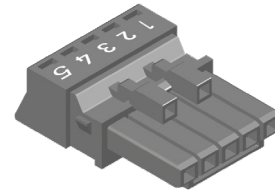
1 Cable duct

2. Connect the bus cable to the X20 circuit board.

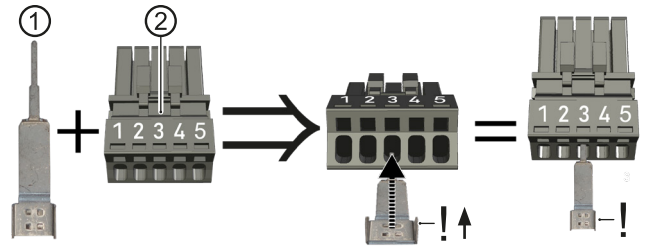


1 Terminals for BUS cable

3. Lay the BUS cable in a cable conduit up to the cable entry into the building and from there continue laying it up to the heating and heat pump controller.
4. Connect the bus cable (communication) to the wall-mounted controller using the plug included with the heat pump.



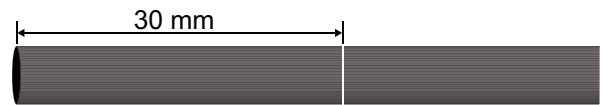
- 4.1. Insert the contact spring (1) into pin 3 of the bus plug (2) up to the limit stop. The lugs on the broad end of the contact spring must point upwards (in the direction of the numbers on the bus plug).



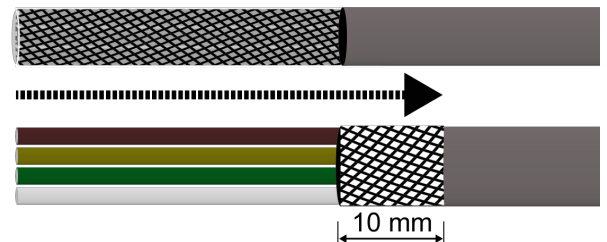
### NOTE

If the contact spring is in the way when subsequently inserting the wires of the bus cable, it can be disconnected and re-connected after inserting the wires.

- 4.2. Strip the bus cable 30 mm.

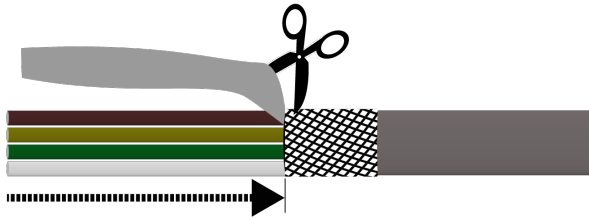


- 4.3. Push the shielding braid back 10 mm over the sheath.





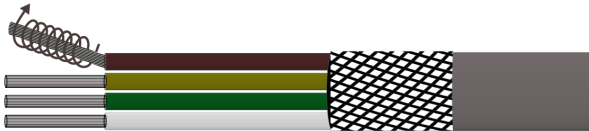
4.4. Pull back the shielding foil up to the shielding braid and cut off.



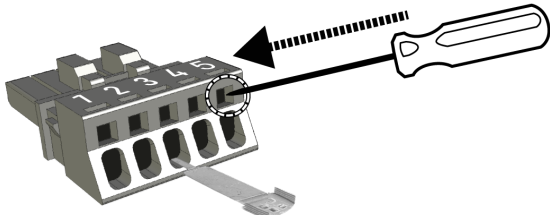
4.5. Strip each wire 9 mm.



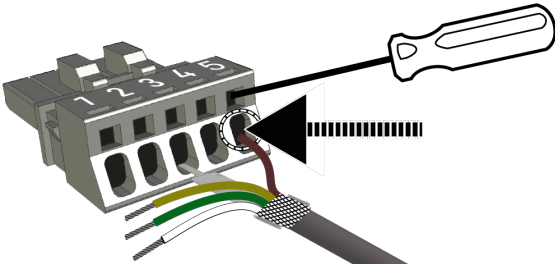
4.6. Twist the strands of each wire.



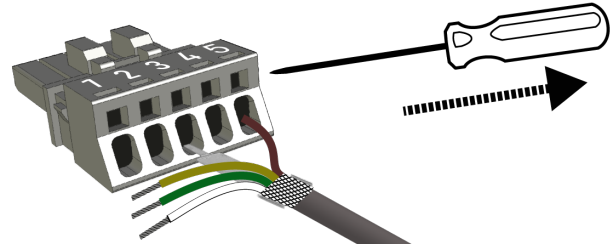
4.7. Insert an operating tool or screwdriver (blade 2.5x0.4 mm) in the connection lock on plug pin 5 to unlock connection lock.



4.8. Place the cable with shielding braid onto the contact spring from above and insert the brown wire into the connector pin 5 up to the limit stop.



4.9. Pull the operating tool or screwdriver out of the bus plug and thereby lock the connection of plug 5.



4.10. Insert the three other wires in the same way into the corresponding plug pins.

Assignments of the plug pins

white wire of the bus cable	Plug pin 1
green wire of the bus cable	Plug pin 2
shielding braid on contact spring	Plug pin 3
yellow wire of the bus cable	Plug pin 4
brown wire of the bus cable	Plug pin 5

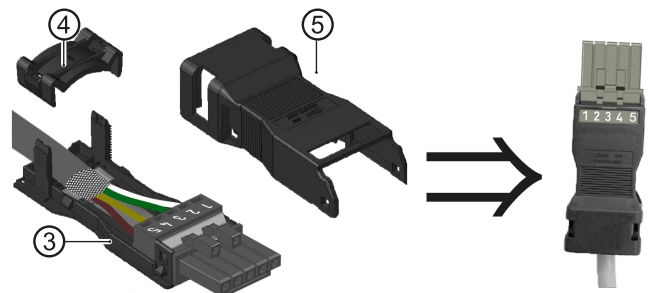
### ! IMPORTANT

Check each inserted wire for tight fitting in its plug pin.

4.11. Place the shielding braid on the contact spring and, if necessary, shorten it so that it does not go beyond the contact spring.

4.12. Assemble the plug housing.

4.13. Snap the wired plug into the lower part of the housing (③).



4.14. Fit the strain relief (④) and clip into place until the bus cable is clamped firmly.

### ! IMPORTANT

The shielding braid must have a direct and firm contact with the contact spring.

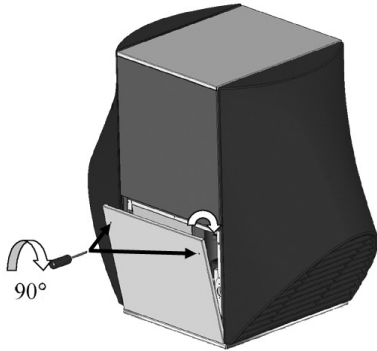
4.15. Snap the upper part of the housing (⑤) fully onto the lower part.

→ “Terminal diagram”, page 34, and “Circuit diagrams”, from page 35

→ Operating manual of the heating and heat pump controller



5. Seal empty pipes on the unit side.
6. Screw the facing panels onto the heat pump. Position each of the lower facing panels at an angle in the unit frame, hang on the unit frame at the top and close the quick-release screws.



7. Install the return flow sensor included in the scope of supply.
- Operating manual of the wall-mounted controller, "Electrical connection" section

## 23 Flushing, filling and venting the system

### ! IMPORTANT

The system must be absolutely free from air before commissioning.

### Unsuitable quality of the water for filling up and replenishing 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.

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

### Heating water quality

#### i NOTE

- For detailed information refer, among other things, to the VDI Guidelines 2035 "Vermeidung von Schäden in Warmwasserheizanlagen" (preventing damage in hot water heating systems)
  - Required pH value: 8.2 ... 10;  
for aluminium materials:  
pH value: 8.2 ... 8.5
- ▶ Fill the system with deionised heating water (VE water) or with water corresponding to the VDI 2035 norm only (low-salt operation of the system).

Advantages of low-salt operation:

- Low corrosion-promoting properties
  - No formation of mineral scale
  - Ideal for closed heating circuits
  - Ideal pH value due to self-alkalisation after filling the system
- ▶ If the required water quality is not achieved, consult a company specialising in the treatment of heating water.
- ▶ Keep a system log for hot water heating systems in which relevant planning data is entered (VDI 2035).



## Antifreeze in the heating circuit

For air/water heat pumps installed outdoors, it is not necessary to fill a water/antifreeze mixture into the heating circuit.

The heat pumps have safety devices that prevent the water from freezing, even when the heating is switched off. A prerequisite is that the heat pump remains switched on and is not disconnected from the mains. Should there be a risk of frost, the circulation pumps are activated.

The following points must be observed if antifreeze is added, depending on the concentration of the mixture:

- Heat output of the heat pump is reduced
- COP value becomes worse
- In the case of on-site circulating pumps, the delivery rate is reduced; in the case of integrated circulating pumps, the specified free pressure drops
- The compatibility of the material of the components used with the antifreeze mixture must be ensured

## Monitoring

Analytical recording and monitoring of the relevant water values and the added active conditioning substances is of decisive importance. Therefore, they should be monitored regularly using appropriate water test equipment.

## Fill and bleed the heating circuit

1. Fill and bleed the heating circuit.
2. In addition, open the bleeding valve on the condenser of the heat pump. Bleed condenser.

## 24 Insulating the hydraulic connections

Insulate hydraulic lines in accordance with the local regulations.

1. Open shut-off devices.
2. Perform a pressure test and check for leaks.
3. Insulate the vibration decouplers and the outside pipes of the heating circuit so that they are sealed against vapor diffusion.
4. Insulate all connections, fittings and pipes.
5. Insulate the condensate drain in a frost-proof manner.
6. The unit must be completely closed on all sides to ensure rodent protection.

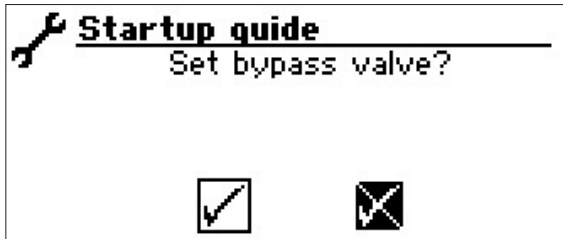


## 25 Overflow valve

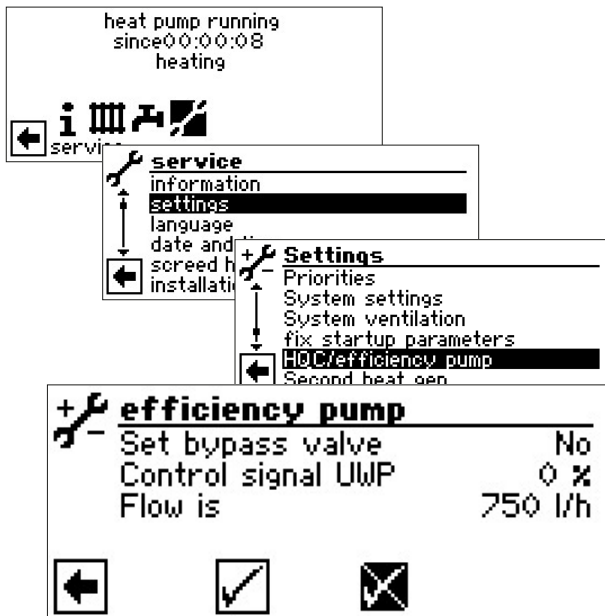
### Testing and setting the overflow valve

(only necessary for integration of storage tank in series)

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



Confirm the IBN assistant or:

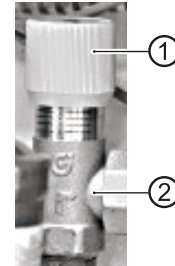


The “Set bypass valve” menu item is set by default to “No”. The overflow valve adjustment function is deactivated.

- The UWP control signal is the indication of the currently required pump capacity in %
  - If the flow rate is the current flow rate (measuring accuracy +/- 200 l/h)
1. Fully open the overflow valve, close the heating circuits
  2. If the “Set bypass valve” menu item is set from “No” to “Yes”, the circulation pump is activated with 100% – and the pump starts up.

3. If the control signal UWP reaches 100%, close the overflow valve to the extent that the maximum flow rate.

→ “Technical data/Scope of supply”, page 26



- 1 Rotary-push button
- 2 Overflow valve

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



## 26 Commissioning



### WARNING

The unit may only be started up if the air deflector hoods are installed and the facing panels are closed.



### NOTE

The commissioning has to be in the heating mode.

1. Carry out a thorough installation check and work through the general checklist.

→ Manufacturer's homepage

By checking the installation you prevent damage to the heat pump system, which could be caused by work carried out improperly.

Check that

- **clockwise rotary field** of the load power supply (compressor) is ensured
- The heat pump **installation and assembly** have been carried out according to the requirements of this operating manual
- the electrical installation work has been completed properly
- The power supply for the heat pump must be equipped with an all-pole automatic circuit-breaker with at least 3 mm contact spacing to IEC 60947-2
- The heating circuit is flushed, filled and thoroughly vented
- All valves and shut-off devices of the heating circuit are open
- All pipe systems and components of the system are leaktight

2. Carefully fill out and sign the completion report for heat pump systems.

→ Manufacturer's homepage

3. Within Germany:

Send completion report for heat pump systems and general checklist to the manufacturer's factory customer service department.

In other countries:

Send completion report for heat pump systems and general checklist to the manufacturer's local partner.

4. The heat pump system is commissioned by customer service personnel authorised by the manufacturer. There is a fee for starting up!

## 27 Maintenance of the unit

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

According to EU regulation (EC) 517/2014, leak inspections and maintenance of a log book are required by law for certain heat pumps!

→ Log book for heat pumps, Section "Information on use of the log book"

The components of the heating circuit and the heat source (valves, expansion vessels, circulation pumps, filters, dirt traps) should be checked and cleaned as necessary, but at least annually, by qualified personnel (heating or cooling system fitters).

Always regularly control for unimpeded air infeed accordingly. Constrictions or even blockages which, for example occur

- when applying house insulation with polystyrene balls
- through packaging material (foils, films, cartons etc.)
- through foliage, snow, icing or similar weather-related deposits
- through vegetation (bushes, tall grass etc.)
- through air shaft covers (fly protection screens etc.)

and which must be prevented and/or removed immediately.

Icing of the protective grating

If temperatures fall below freezing and high levels of humidity are present, ice can form on the protective grating of the air deflector hoods. In order to ensure fault-free operation, the ice must be removed regularly!

### ! IMPORTANT

Check regularly to ensure that the condensate can drain out of the unit freely, without obstruction. To this end, check the condensate pan in the unit and the condensate drain regularly for dirt / blockages and clean as necessary.



## 27.1 Annual maintenance

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

It is best to arrange a maintenance agreement with a heating installation company. The company will conduct the required maintenance at regular intervals.



### NOTE

Any person who works on the refrigerant circuit must have a qualification certificate issued by a body accredited by the industry.

## 27.2 Cleaning and flushing unit components



### CAUTION!

**Unit components may be cleaned and flushed only by customer service personnel authorised by the manufacturer. Only use liquids recommended by the manufacturer.**

**After flushing the condenser with chemical cleaning agent, any residues must be neutralised and the system flushed intensively with water. Always note and follow the technical data of the respective heat exchanger manufacturer.**

## 28 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



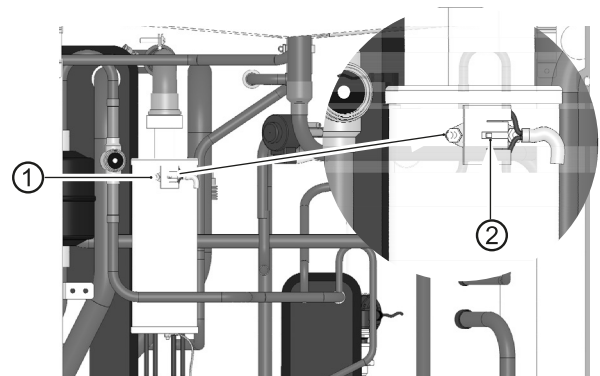
### WARNING

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

## 28.1 Unlock the safety temperature limiter

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

- Check whether the reset button (②) of the safety temperature limiter (①) has jumped out (by approx. 2 mm).



- Press the reset button (②) back in again.
- If the safety temperature limiter trips again, contact the local partner of the manufacturer or the factory's customer service.

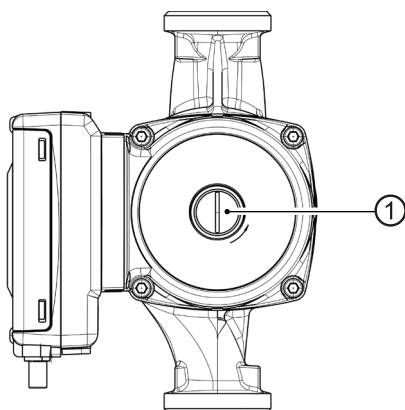




## 28.2 Manually unblock the circulating pump

Circulating pumps can block due to sediments or longer standstill periods. This blockage can be removed manually.

1. Undo deflating screw (①) in the middle of the circulation pump.



2. Insert a screwdriver into the opening and release the blocked shaft in the direction of rotation of the circulating pump.
3. Reinsert and tighten the deflating screw (①).

## 29 Dismantling



### **DANGER**

**Risk of fatal electric shock!**

**All electrical connection work must be carried out by qualified electricians only. Before opening the unit, disconnect the system from the power supply - wait for 90 seconds = residual voltage at inverter - and prevent it from being switched back on again!**



### **WARNING**

**Only qualified heating or cooling system personnel are allowed to remove the unit from the system.**



### **IMPORTANT**

Recycle or ensure proper disposal of unit components, refrigerants and oil according to the relevant regulations, standards and guidelines.

### 29.1 Removal of the buffer battery



### **IMPORTANT**

Before scrapping the heating and heat pump controller, remove the buffer battery on the processor board. The battery can be pushed out using a screwdriver. Dispose of the battery and electronic components in an environmentally friendly way.



# Technical data/Scope of supply

Performance data		Values in brackets: (1 Compressor)		LW 161H-A/V
Heating capacity   COP	for A10/W35 acc. to DIN EN14511-x: 2013	Partial load operation	kW   COP	10.0   4.87
	for A7/W35 acc. to DIN EN14511-x: 2013	Partial load operation	kW   COP	5.8   4.33
	for A7/W55 acc. to DIN EN14511-x: 2013	Partial load operation	kW   COP	9.1   2.73
	for A2/W35 acc. to DIN EN14511-x: 2013	Partial load operation	kW   COP	8.1   4.20
	for A-7/W35 acc. to DIN EN14511-x: 2013	Full load operation	kW   COP	13.9   3.21
	for A-7/W55 acc. to DIN EN14511-x: 2013	Full load operation	kW   COP	14.7   2.41
Heating capacity	for A10/W35	min.   max.	kW   kW	5.8   17.4
	for A7/W35	min.   max.	kW   kW	5.6   16.1
	for A7/W55	min.   max.	kW   kW	6.5   17.1
	for A2/W35	min.   max.	kW   kW	4.9   14.2
	for A-7/W35	min.   max.	kW   kW	4.0   13.9
	for A-7/W55	min.   max.	kW   kW	4.0   14.7
Cooling capacity   EER	for A35/W18	Partial load operation	kW   EER	-   -
	for A35/W7	Partial load operation	kW   EER	-   -
Cooling capacity	for A35/W18	min.   max.	kW   kW	-   -
	for A35/W7	min.   max.	kW   kW	-   -
Heating capacity domestic hot water preparation			kW	12
<b>Operating limits</b>				
Heating circuit return min.   Heating circuit flow max.		Heating	within heat source min./max.	°C
Heat source, heating		min.   max.		°C
Additional operating points			...	A>-15   W65
<b>Sound</b>				
Sound power level inside		min.   Night   max.		dB(A)
Sound power level outside 1)		min.   Night   max.		dB(A)
Sound power level acc. to DIN EN 12102-1:2017		inside   outside		dB(A)
Tonality   Low-frequency			dB(A)   • yes - no	-   -
<b>Heat source</b>				
Air flow rate at maximum external pressing   Maximum external pressure			m³/h   Pa	4400   -
<b>Heating circuit</b>				
Flow rate (pipe dimensioning)   Min. volume buffer tank in series   Min. volume separation buffer tank			l/h   l   l	2000   200   200
Free pressing   Pressure loss   Flow rate			bar   bar   l/h	0.593   0.077   2000
Max. allowable operating pressure			bar	3
Circulation pump control range			min.   max.	l/h
Circulation pump control range			min.   max.	l/h
<b>General unit data</b>				
Total weight			kg	315
Weight of heat pump module   Compact module   Fan module			kg   kg   kg	-   -   -
Refrigerant type   Refrigerant capacity			...   kg	R410A   4.00
<b>Electrics</b>				
Voltage code   all-pole fuse protection for heat pump *)**			...   A	3~N/PE/400V/50Hz   C25
Voltage code   Control voltage fuse protection **)			...   A	1~N/PE/230V/50Hz   B16
Voltage code   Electric heating element fuse protection **)			...   A	3~N/PE/400V/50Hz   B16
HP*): effect. Power consumption A7/W35 (partial load operation) DIN EN14511-x: 2013   Electric consumption I cosφ			kW   A   ...	0.82   3.7   0.97
HP*): effective power consumption A7/W35 acc. to DIN EN14511-x: 2013: min.   max.			kW   kW	1.40   4.30
HP*): Max. machine current   Max. power consumption within the operating limits			A   kW	22   8.0
Starting current: direct   with soft starter			A   A	5   -
Degree of protection			IP	20
Residual current circuit breaker if required			type	B
Electric heating element output			3   2   1 phase	kW   kW   kW
Circulation pump power consumption, heating circuit			min.   max.	W
Circulation pump power consumption, heating circuit			min.   max.	W
<b>Other unit information</b>				
Safety valve heating circuit   Response pressure		included in scope of supply: • yes - no   bar		-   -
Buffer tank   Volume		included in scope of supply: • yes - no   l		-   -
Heating circuit expansion vessel   Volume   Prepressure		incl. in scope of supply: • yes - no   l   bar		-   -   -
Overflow valve   Changeover valve heating - domestic hot water		integrated: • yes - no		-   -
Heating circuit vibration decoupling		incl. in scope of supply or integrated: • yes - no		-
Controller   Heat quantity recording   Extension board		incl. in scope of supply or integrated: • yes - no		•   •   -

\*) compressor only, \*\*) note local regulations 1) Indoor and outdoor installation.

The performance data and the operating limits apply to clean heat exchangers | Index: h

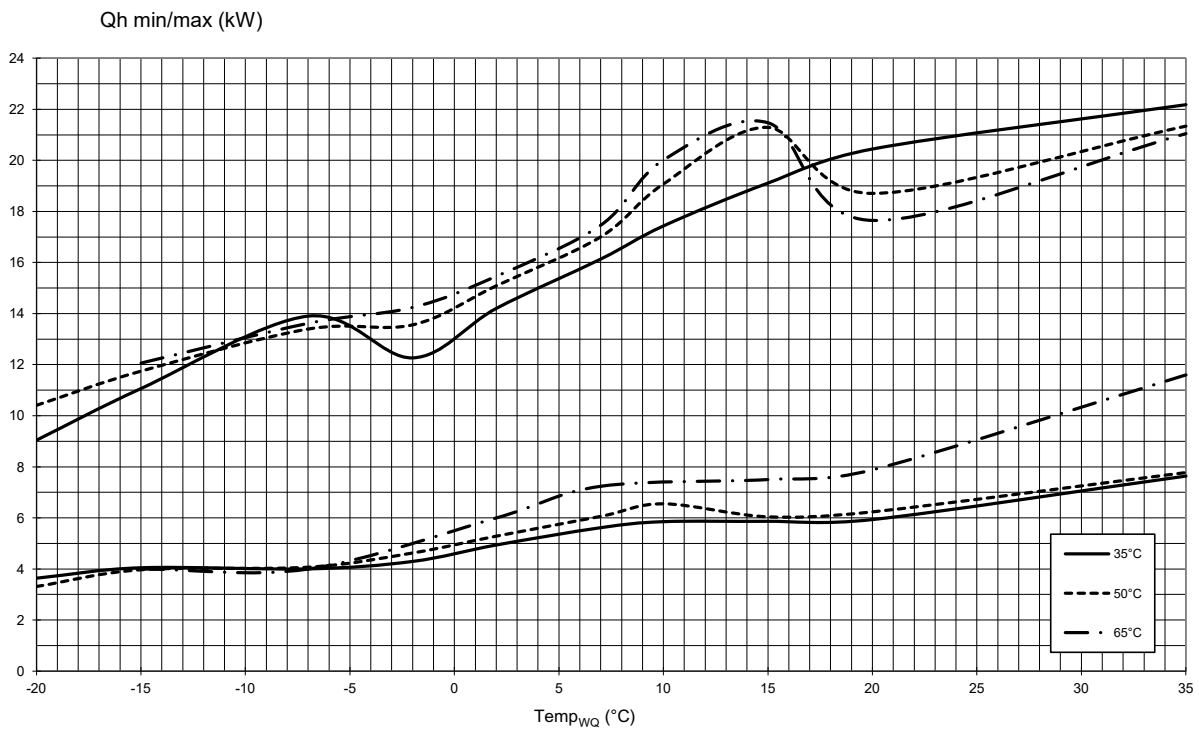
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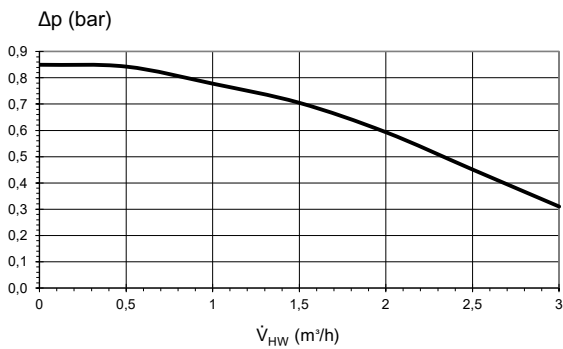
# LW 161H-A/V

## Heating capacity

## Performance curves



## Free compression



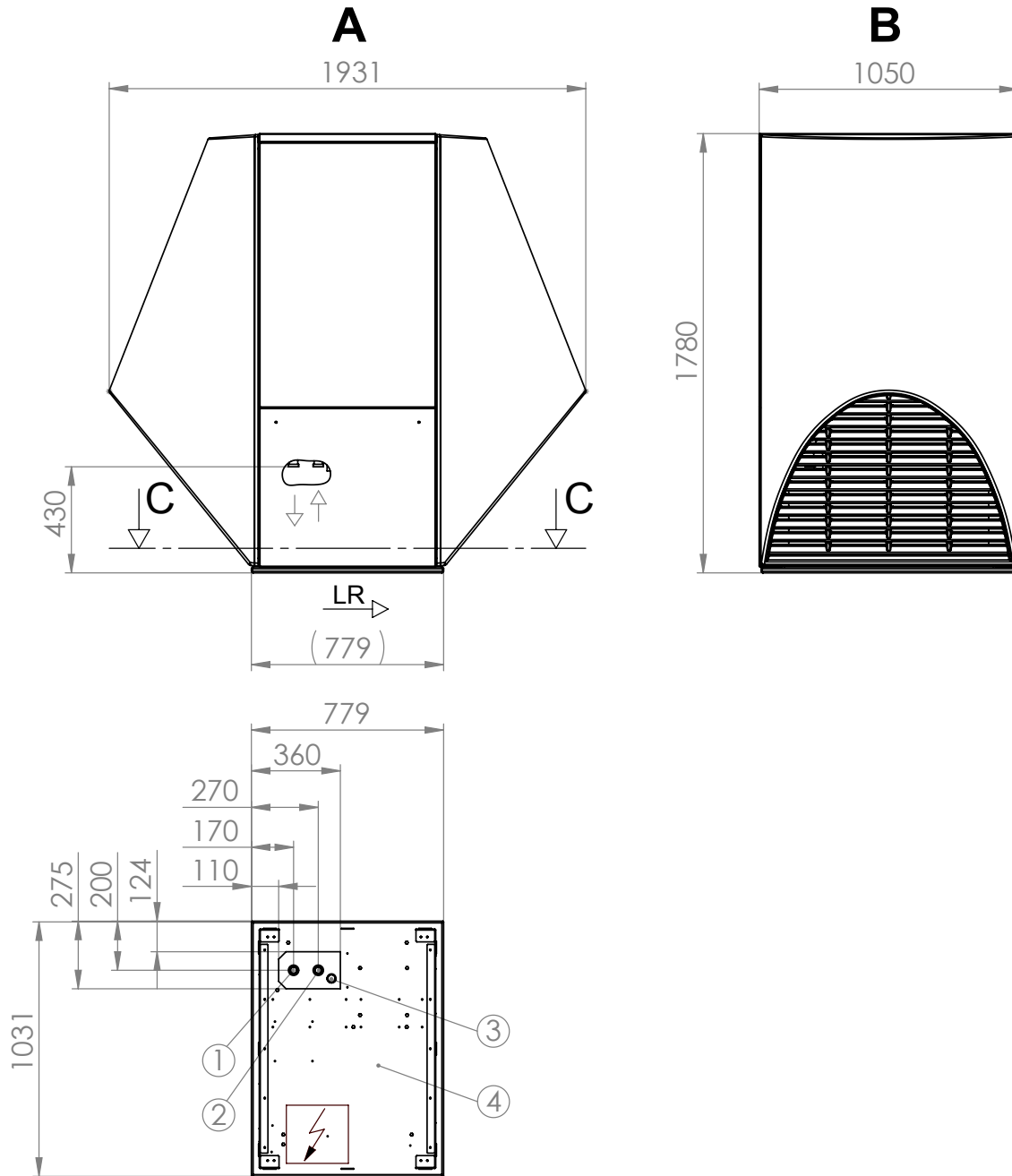
Keys:

$\dot{V}_{HW}$	Heating water flow rate
Temp <sub>WQ</sub>	Heat source temperature
$\Delta p$	Free compression heat pump
Qh min/max	min./max. heating power



# Dimensioned drawings

LW 161H-A/V



Keys: UK819436

All dimensions in mm.

Pos.	Name
A	Front view
B	Side view
C	Plan view section (without façade and shrouds)
LR	Air direction

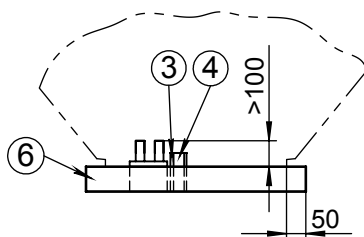
Pos.	Name	
1	Heating water outlet (flow)	R 1 ¼"
2	Heating water inlet (return)	R 1 ¼"
3	Condensate hose	outside-Ø 36x3
4	Baseplate	



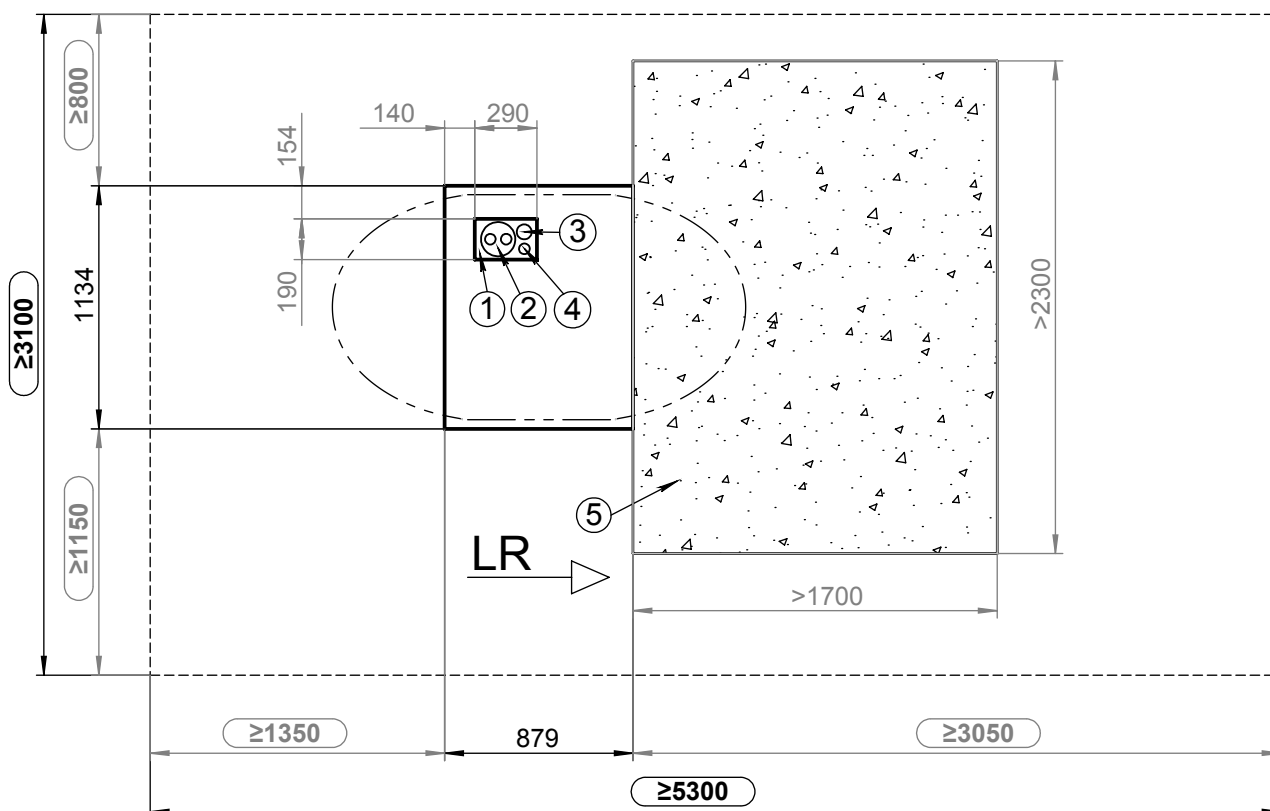
# LW 161H-A/V

# Installation plan

A



C



Keys: UK819377a

All dimensions in mm.

Pos.	Name
A	Front view
C	Top view
LR	Air direction
≥ ...	Minimum clearances
1	Recess in base
2	Local heat pipe for heating water forward/return flow
3	Reserve conduit for electric cables, minimum diameter 70mm
4	Condensate discharge, minimum diameter 50mm
5	Water permeable area (gravel, ...) in the air outlet area
6	Base



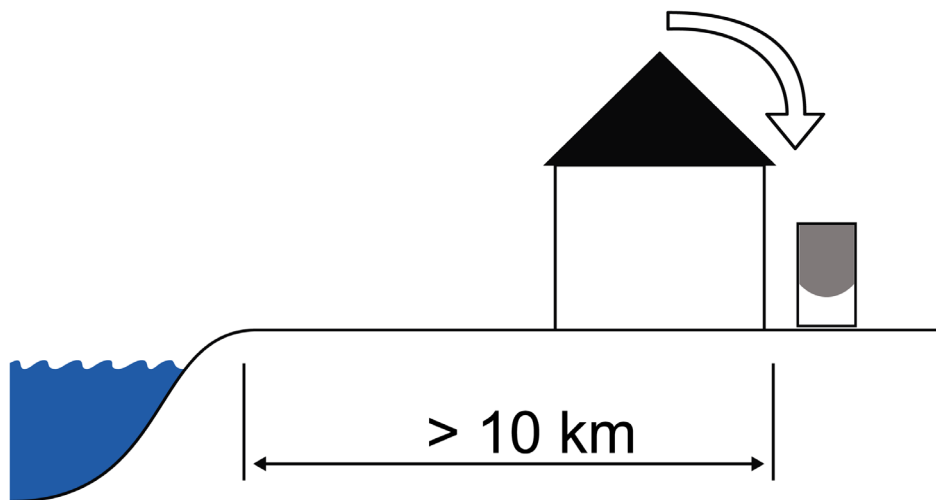
## Coastal installation

LW 161H-A/V

### IMPORTANT

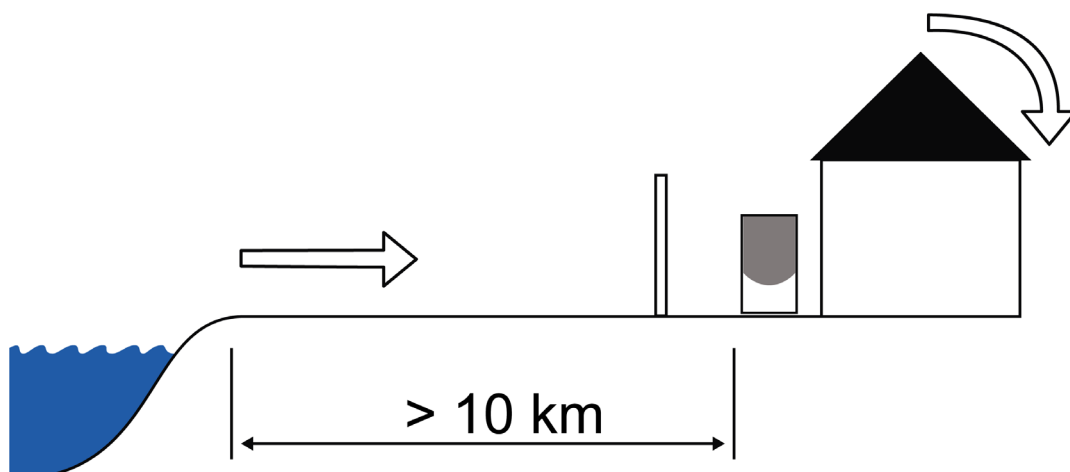
The minimum distances necessary for correct and safe operation as well as any service work must be observed.

- facing away from the coast / prevailing wind direction
  - ✓ in a sheltered area near a wall
  - ✓ not in open areas
  - ✓ not in sandy surroundings (to avoid the influx of sand)



- on the seaward side

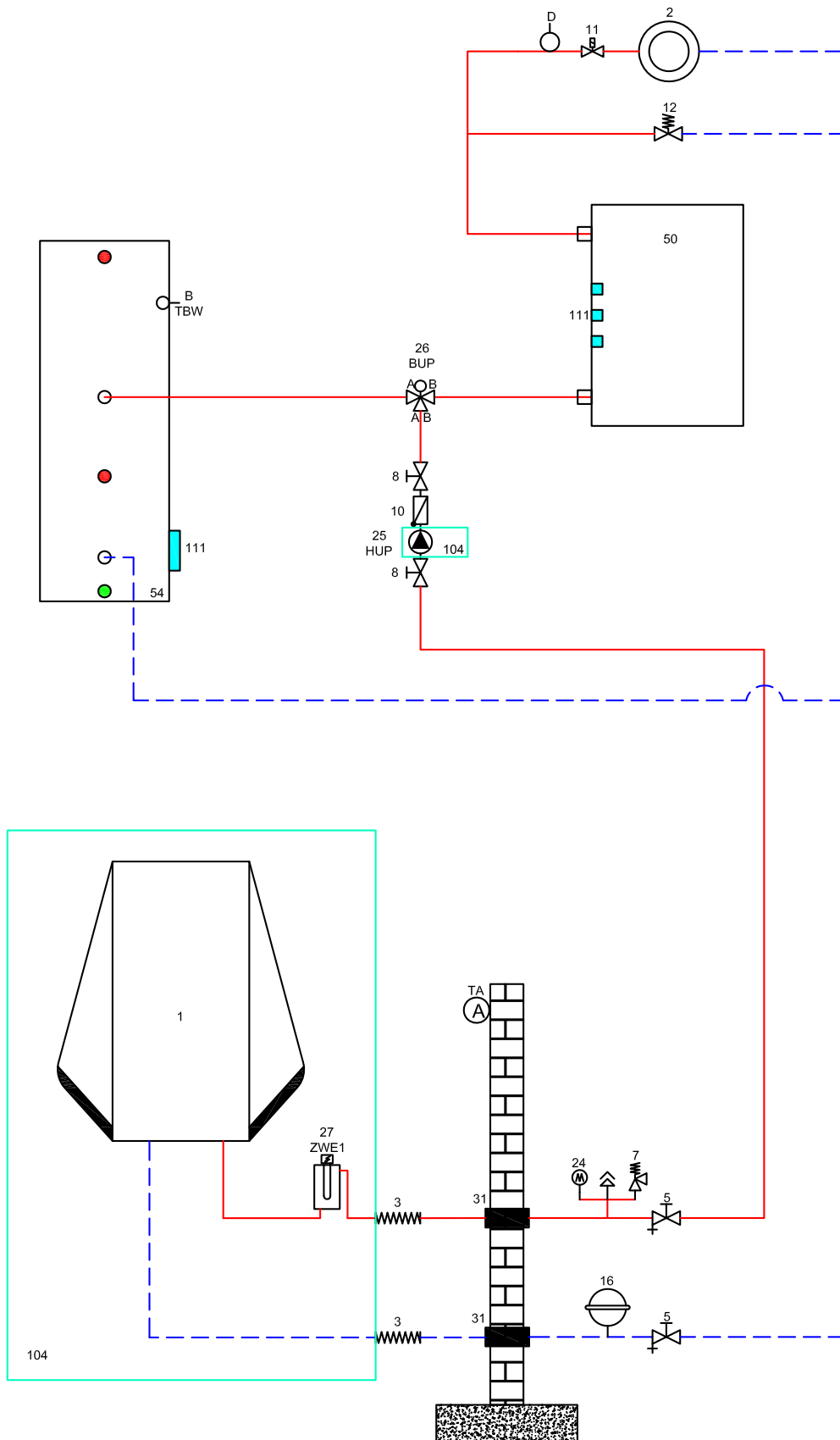
- ✓ in an area near a wall
- ✓ an impermeable windbreak resistant to onshore winds is installed
- ✓ Height and width of the windbreak  $\geq 150\%$  of the device dimensions
- ✓ not in sandy surroundings (to avoid the influx of sand)





# Row tank

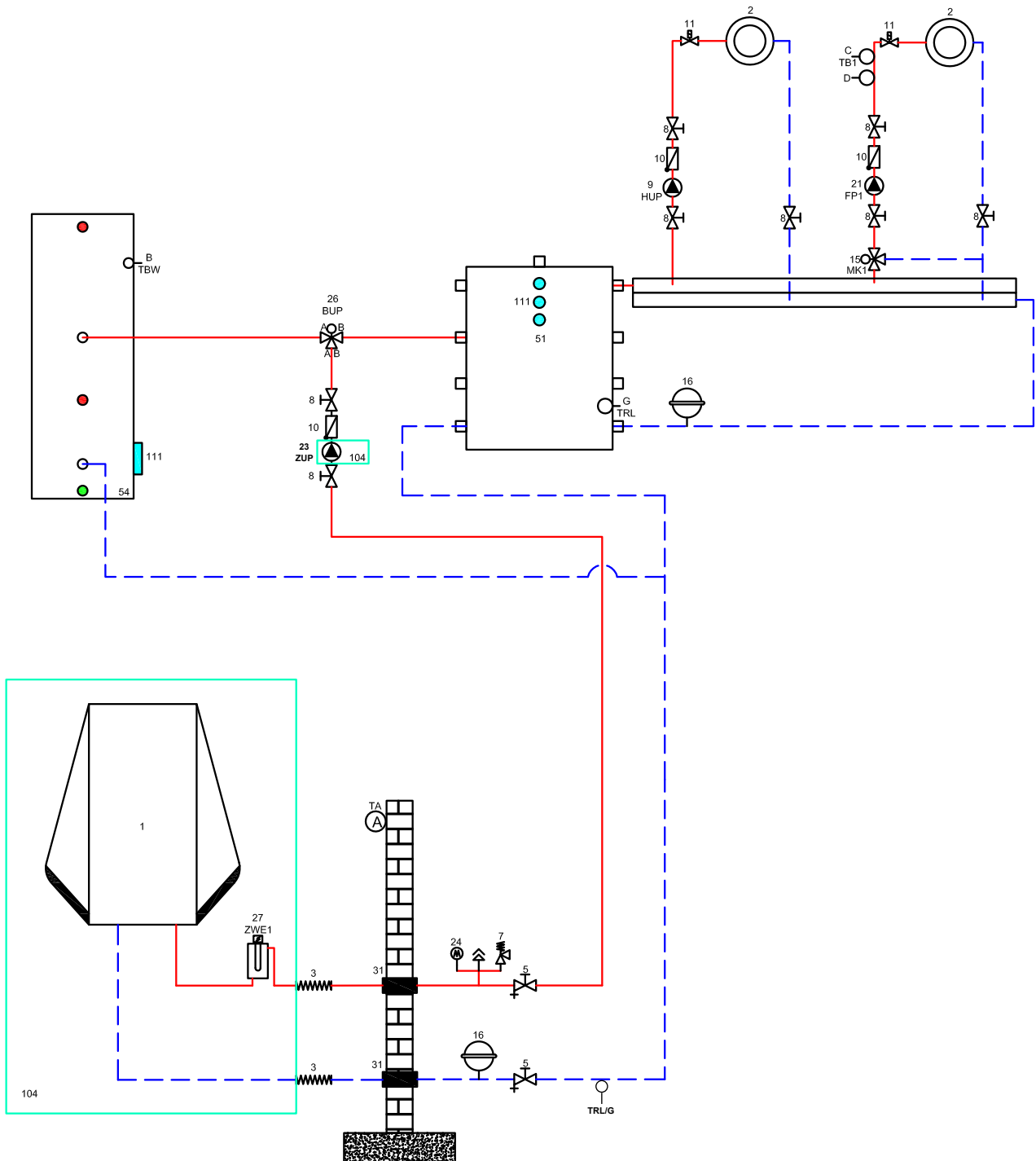
LW 161H-A/V





# LW 161H-A/V

# Separate buffer tank







## Legend hydraulic diagram

1	Heat pump	51	Separation tank	TAA	External sensor
2	Underfloor heating / radiators	52	Gas- or oil-boiler	TBWB	Domestic hot water sensor
3	Vibration isolation	53	Wood boiler	TB1/C	Feedwater sensor mixer circuits 1
4	Sylomer strip machine underlay	54	Hot water cylinder	D	Floor temperature limiter
5	Closure and drainage	55	Brine pressure switch	TR/L/G	Sensor external return
6	Expansion vessel packing list	56	Swimming pool heat exchanger	STA	Line pressure regulator valve
7	Safety valve	57	Geothermal heat exchanger	TR/L/H	Sensor return (hydraulic module, dual)
8	Closure	58	Ventilation system		
9	Heating circulation pump	59	Plate heat exchanger	79	Motor valve
10	Non return valve/ one way valve	61	Cooling cylinder	80	Mixing valve
11	Individual room regulation	65	Compact distributor	81	Split heat pump outdoor unit
12	Overflow valve	66	Fancoils	82	Split heat pump indoor unit
13	Steamtight insulation	67	Solar/ service water cylinder	83	Circulation pump
14	Service water circulation pump	68	Solar/ service water cylinder	84	Switching valve
15	Mixer circuit three-way mixer (MK1 discharge)	69	Multifunction tank	113	Connection 2nd heat generator
16	Expansion vessel supplied by customer	71	Dual hydraulic module	BT1	Outdoor temperature sensor
18	Heating rod (heating)	72	Buffer tank wall mounted	BT2	Flow temperature sensor
19	Mixer circuit four-way mixer (MK1 charge)	73	Pipe lead-in	BT3	Return temperature sensor
20	Heating rod (SM)	74	Venttower	BT6	Domestic hot water temperature sensor
21	Mixer circuit circulation pump (FP1)	75	Scope of delivery, hydraulic tower, dual	BT12	Flow temperature liquefier
23	Feed circulating pump (reconnect the integrated circulating pump in the heat pump)			BT19	Temperature sensor immersion heater
24	Manifold	76	Fresh water station		
25	Heating circulation pump	77	Scope of supply water/water booster	BT24	Temperature sensor 2nd heat generator
26	Switching valve (heating/service water)(B = normally open)	78	Accessories water/water booster optional		
27	Heating element				
28	Brine circulation pump	100	Room thermostat for cooling (optional)	115	Mixer circuit three-way mixer (MK2-3 discharge)
29	Dirt-trap 0.6 mm mesh	101	Controls supplied by customer	17	Temperature difference regulator
30	Spill-tray for brine mix	102	Dew-point monitor (optional)	19	Mixer circuit four-way mixer (MK2 charge)
31	Wall breakthrough	103	Room thermostat for reference space in packing list	21	Mixer circuit circulation pump (FP2-3)
32	Inlet pipe	104	Supply heat pump	22	Swimming pool circulating pump
33	Brine manifold	105	Cooling circuit module box removable for installation	44	Three-way mixer valve (cooling function MK2)
34	Ground collector	106	Specific glycole mixture	47	Changeover valve swimming bath preparation(B = normally open)
35	Ground slinkies	107	Scald protection / thermostatic mixer valve	60	Changeover valve cooling operation(B = normally open)
36	Groundwater spring pump	108	Solar pump assembly	62	Heat meter (optional)
37	Wall bracket	109	Overflow valve must be closed	63	Changeover valve solar circuit(B = normally open)
38	Flow switch	110	Packing list hydraulic tower	64	Cooling circulation pump
39	Suction well	111	Mounting for additional heating element	70	Solar separation module
40	Inverted well	112	Minimum distance to thermal decoupling of the mixing valve	TB2-3/C	Feedwater sensor mixer circuits 2-3
41	Rinse fitting heating circuit			TSS/E	Sensor, temperature difference control (low temperature)
42	Circulation pump			TSK/E	Sensor, temperature difference control (high temperature)
43	Brine / Water heat exchanger (cooling function)			TEE/F	Sensor external energy source
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				

### Comfort board / Expansion 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 separation 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

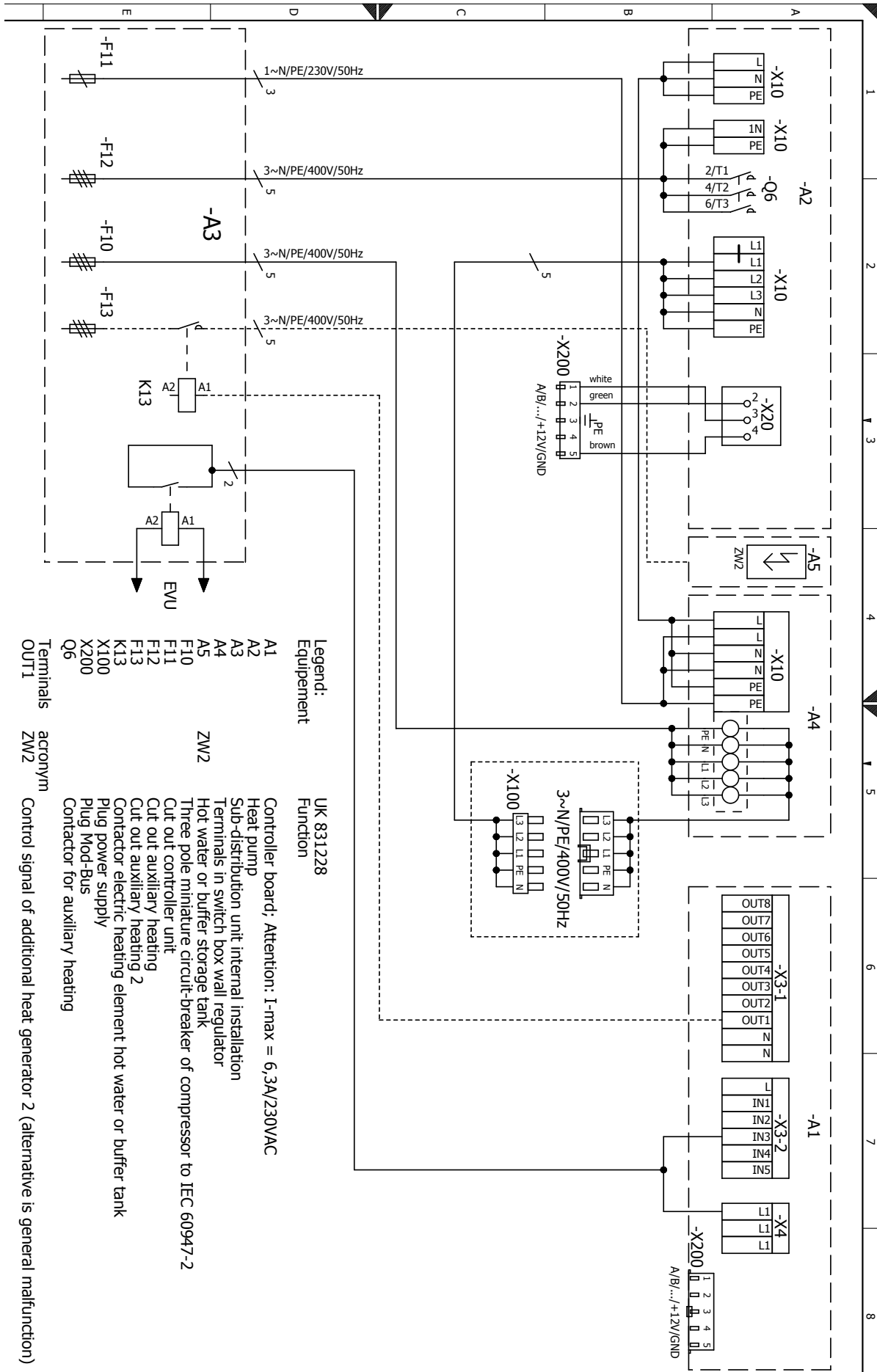
## Important notice 1

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!



# LW 161H-A/V

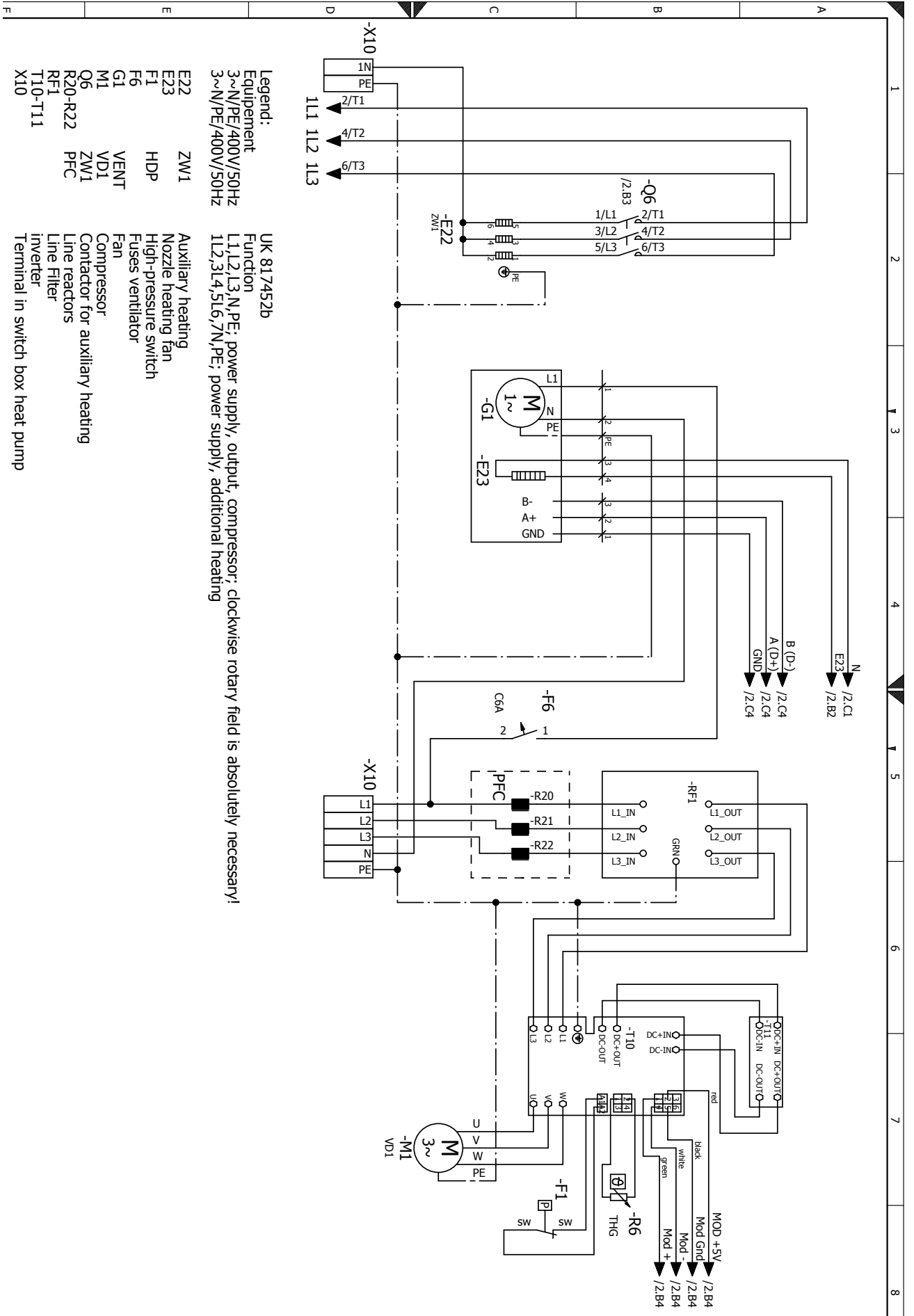
# Terminal diagram





# LW 161H-A/V

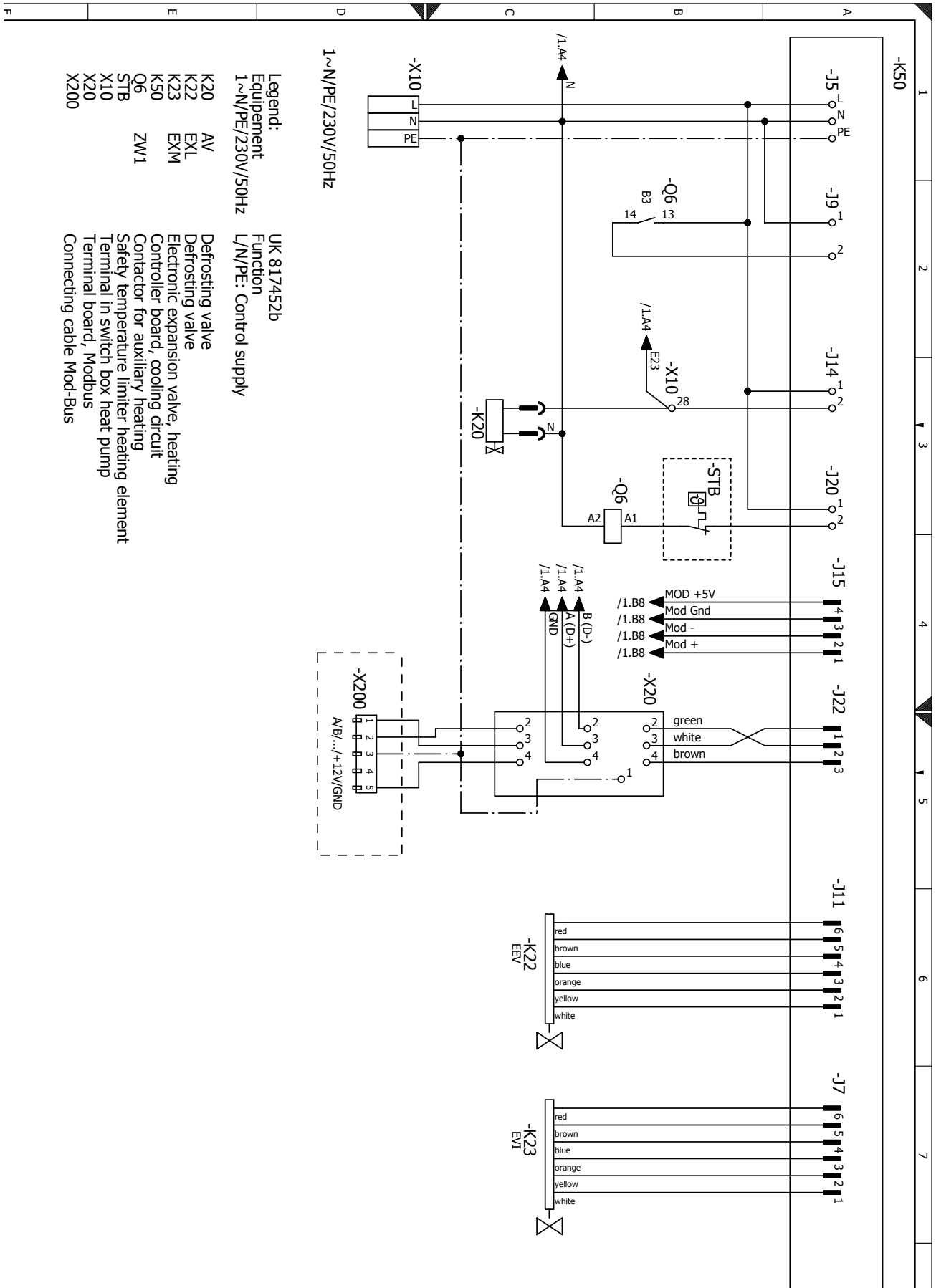
## Circuit diagram 1/3





# LW 161H-A/V

# Circuit diagram 2/3

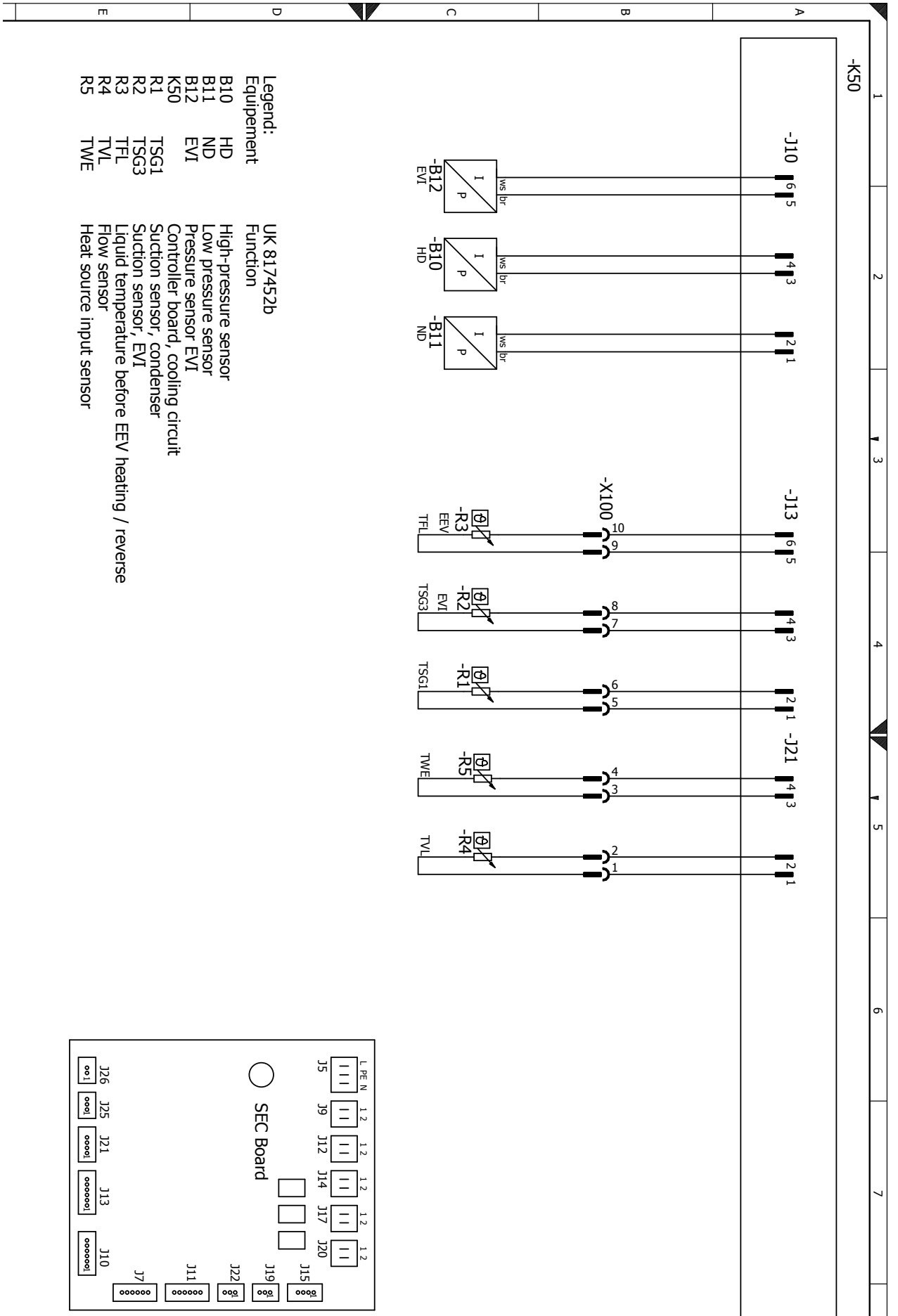


- Legend:
- Equipment UK 817452b
  - Function
  - 1~N/PE/230V/50Hz L/N/PE: Control supply
- K20 AV Defrosting valve
  - K22 EXL Defrosting valve
  - K23 EXM Electronic expansion valve, heating
  - K50 EXM Controller board, cooling circuit
  - O6 ZW1 Contactor for auxiliary heating
  - STB Safety/temperature limiter heating element
  - X10 Terminal in switch box heat pump
  - X20 Terminal board, Modbus
  - X200 Connecting cable Mod-Bus



# LW 161H-A/V

## Circuit diagram 3/3





# EC Declaration of Conformity in accordance with the EC Machinery Directive 2006/42/EC, Annex II A



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

Item #1 Unit model	Item #2 Unit model	Number	Order code
10064701 LW 161H/V	-	10064701	LW 161H/V
10064801 LW 161HL/V	-	10064801	LW 161HL/V
10064901 LW 161H-A/V	15208901 WR 2.1-16kW	100649WR2101	LW 161 H-AV-WR2.1-16kW

## EC Directives

2006/42/EG  
2014/35/EU  
2014/30/EU  
\*2014/68/EU  
2011/65/EU

## \* Pressure equipment component

Category II  
Module A1  
Designated position:  
TÜV-SÜD  
Industrie Service GmbH

## Standardized EN

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

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

**Place, date:** Kasendorf, 06.02.2018

**Signature:**

Joachim Maul  
Director R&D

UK818184



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