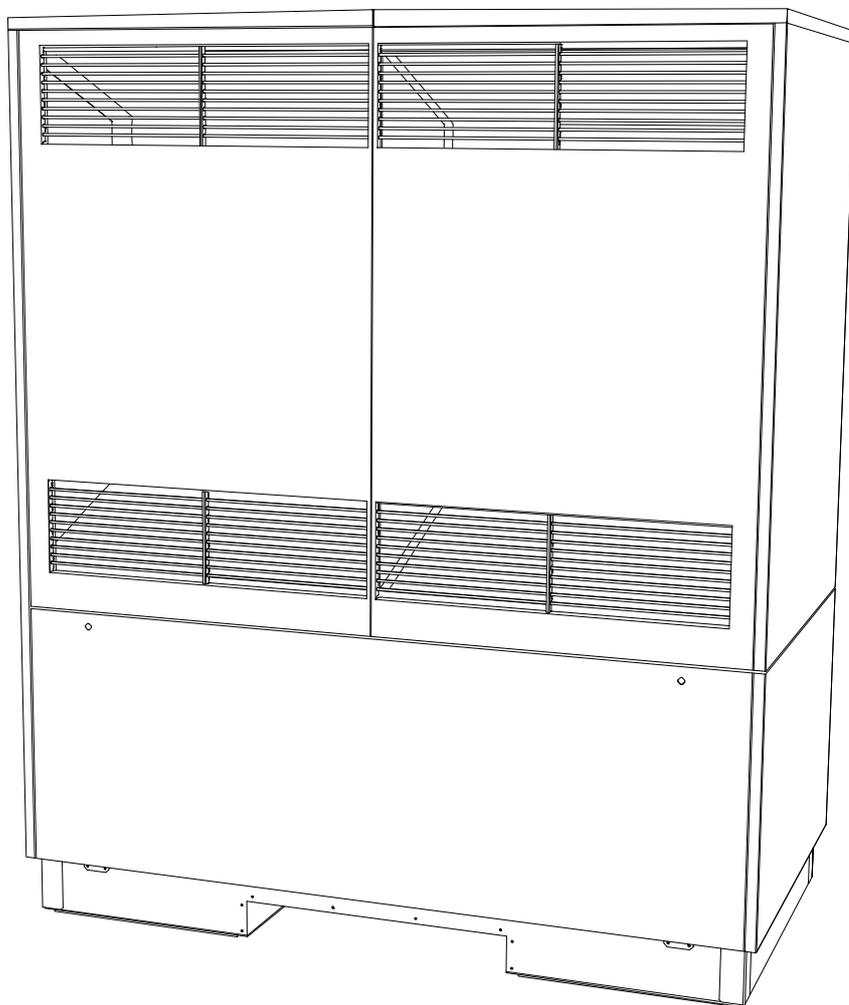


– weishaupt –

# manual

Installation and operating instructions

---





## Table of contents

<b>1</b>	<b>Safety notes</b> .....	<b>2</b>
1.1	Symbols and markings .....	2
1.2	Intended use .....	2
1.3	Legal regulations and directives.....	2
1.4	Energy-efficient use of the heat pump.....	3
<b>2</b>	<b>Intended use of the heat pump</b> .....	<b>4</b>
2.1	Area of application.....	4
2.2	Operating principle.....	4
<b>3</b>	<b>Scope of supply</b> .....	<b>5</b>
3.1	Basic device.....	5
3.2	Switch box.....	5
3.3	Heat pump manager .....	6
<b>4</b>	<b>Accessories</b> .....	<b>7</b>
4.1	External 4-way reversing valve.....	7
<b>5</b>	<b>Transport</b> .....	<b>8</b>
<b>6</b>	<b>Installation</b> .....	<b>9</b>
6.1	General information .....	9
6.2	Condensate pipe .....	10
<b>7</b>	<b>Installation</b> .....	<b>11</b>
7.1	General information .....	11
7.2	Connection on heating side .....	11
7.3	Electrical connection.....	13
<b>8</b>	<b>Commissioning</b> .....	<b>14</b>
8.1	General information .....	14
8.2	Preparation.....	14
8.3	Procedure.....	14
<b>9</b>	<b>Cleaning/maintenance</b> .....	<b>15</b>
9.1	Care .....	15
9.2	Cleaning the heating system.....	15
9.3	Cleaning the air system.....	16
<b>10</b>	<b>Faults/troubleshooting</b> .....	<b>17</b>
<b>11</b>	<b>Decommissioning/disposal</b> .....	<b>18</b>
<b>12</b>	<b>Device information</b> .....	<b>19</b>
<b>13</b>	<b>Dimension drawings</b> .....	<b>21</b>
13.1	Dimension drawing.....	21
<b>14</b>	<b>Diagrams</b> .....	<b>22</b>
14.1	Characteristic curve, heating .....	22
14.2	Characteristic curve, cooling .....	23
14.3	Operating limits diagram, heating .....	24
14.4	Operating limits diagram, cooling .....	25
<b>15</b>	<b>Integration diagrams</b> .....	<b>26</b>
15.1	Sample system diagram .....	26
15.2	Circuit diagram .....	27
15.3	Circuit diagram, extension module .....	28

## 1 Safety notes

### 1.1 Symbols and markings

Particularly important information in these instructions is marked with CAUTION! and NOTE.

#### CAUTION

---

Immediate danger to life or danger of severe personal injury or significant damage to property.

---

#### Note

---

Risk of damage to property or minor personal injury or important information with no further risk of personal injury or damage to property.

---

### 1.2 Intended use

This device is only intended for use as specified by the manufacturer. Any other use beyond that intended by the manufacturer is considered improper use. This requires the user to abide by the relevant project planning documents. Please refrain from tampering with or altering the device.

### 1.3 Legal regulations and directives

This heat pump is designed for use in a domestic environment according to Article 1, Paragraph 2 k) of EU directive 2006/42/EC (Machinery Directive) and is thus subject to the requirements of EU directive 2014/35/EU (Low Voltage Directive). It is thus also intended for use by non-professionals for heating shops, offices and other similar working environments, agricultural establishments and hotels, guest houses and other residential buildings.

The construction and design of the heat pump complies with all relevant EU directives, and DIN/VDE regulations (see CE declaration of conformity).

When connecting the heat pump to the power supply, the relevant VDE, EN and IEC standards are to be adhered to. Any further connection requirements stipulated by local utility companies must also be observed.

When connecting the heating system, all applicable regulations must also be adhered to.

This device can be used by children aged 8 and over and by persons with limited physical, sensory or mental aptitude or lack of experience and/or knowledge, providing they are supervised or have been instructed in safe use of the device and understand the associated potential dangers.

Children must not play with the device. Cleaning and user maintenance must not be carried out by children without supervision.

#### CAUTION

---

When operating or maintaining a heat pump, the legal requirements of the country where the heat pump is operated apply. Depending on the refrigerant fill quantity, the heat pump must be inspected for leaks at regular intervals by a certified technician, and these inspections must be recorded.

---

More information can be found in the accompanying log book.

#### 1.4 Energy-efficient use of the heat pump

By operating this heat pump, you are helping to protect the environment. A prerequisite for energy-efficient operation is the correct design of the heat source system and heating system.

To maintain heat pump efficiency, it is particularly important to keep the temperature difference between the heating water and heat source to a minimum. For this reason, it is advisable to design the heat source and heating system very carefully. **A temperature difference that is higher by 1 Kelvin (1°C) increases the power consumption by around 2.5%.** When designing the heating system, it should be borne in mind that special consumers such as domestic hot water preparation should also be taken into consideration and dimensioned for low temperatures. **Underfloor heating systems (panel heating)** are optimally suited for heat pump use on account of the low flow temperatures (30 °C to 40 °C).

It is important to ensure that the heat exchangers are not contaminated during operation, as this increases the temperature difference, which in turn reduces the coefficient of performance (COP).

When set correctly, the heat pump manager is also an essential factor in the energy-efficient use of the heat pump. Further information can be found in the heat pump manager operating instructions.

## 2 Intended use of the heat pump

### 2.1 Area of application

The air-to-water heat pump is to be used exclusively for the heating and cooling of heating water. It can be used in new or existing heating systems.

The heat pump is suitable for mono energy and bivalent operation in outside air temperatures to  $-22\text{ °C}$ .

Proper defrosting of the evaporator is guaranteed by maintaining a heating water return temperature of more than  $22\text{ °C}$  during continuous operation.

The heat pump is not designed for the increased heat consumption required when a building is being dried out. For this reason, the additional heat consumption should be met using special devices on-site. For drying out a building in autumn or winter, it is advisable to install a suitable 2nd heat generator (e.g. an electric heating element available as an accessory).

In cooling operation, the heat pump is suitable for air temperatures ranging from  $+10\text{ °C}$  to  $+45\text{ °C}$ .

It can be used for silent and dynamic cooling. The minimum water temperature is  $+7\text{ °C}$ .

#### Note

---

The device is not suitable for operation with a frequency converter.

---

### 2.2 Operating principle

#### Heating

Surrounding air is drawn in by the fan and fed through the evaporator (heat exchanger). The evaporator cools the air, i.e. extracts heat from it. This extracted heat is then transferred to the working medium (refrigerant) in the evaporator.

The heat is "pumped" to a higher temperature level by increasing its pressure with the aid of the electrically driven compressors. It is then transferred to the heating water via the liquefier (heat exchanger).

Electrical energy is used to raise the temperature level of the heat from the environment. Since the energy extracted from the air is transferred to the heating water, this type of device is referred to as an air-to-water heat pump.

The air-to-water heat pump consists of the main components evaporator, fan and expansion valve, as well as the low-noise compressors, the liquefier and the electrical control system.

At low ambient temperatures, humidity accumulates on the evaporator in the form of frost, reducing the transfer of heat. Uneven accumulation during this process does not indicate a fault. The evaporator is defrosted automatically by the heat pump as required. Under certain atmospheric conditions, steam may be emitted from the air outlet.

#### Cooling

The functions of the evaporator and the liquefier are reversed in the "Cooling" operating mode.

The heating water transfers its heat to the refrigerant via the liquefier, which is now functioning as an evaporator. The refrigerant is brought to a higher temperature level using the compressor. Heat is transferred to the surrounding air via the liquefier (which, in heating operation, functions as an evaporator).

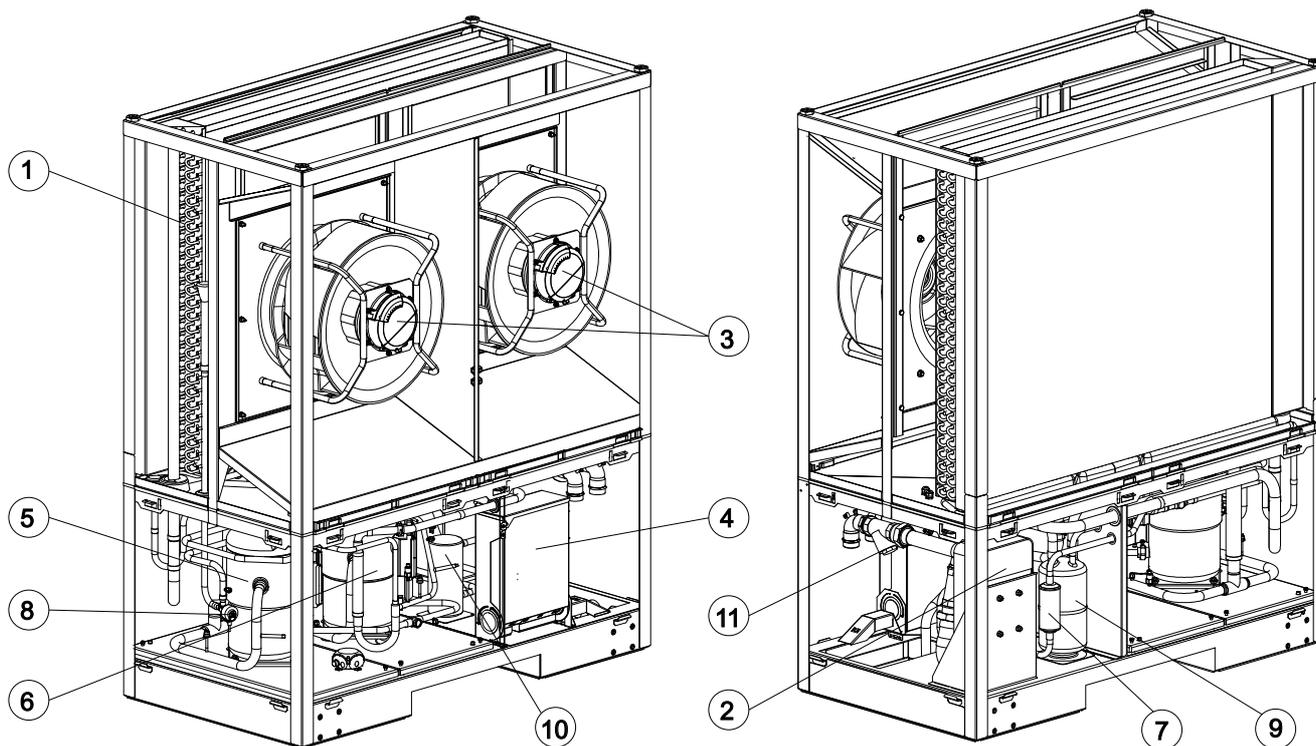
3 Scope of supply

**3 Scope of supply**

**3.1 Basic device**

The heat pump contains the components listed below.

The refrigeration circuit is "hermetically sealed" and contains the fluorinated refrigerant R407C incorporated in the Kyoto protocol. Information on the GWP value and CO<sub>2</sub> equivalent of the refrigerant is available under "Device information". The refrigerant is CFC-free, non-ozone depleting and non-combustible.



- 1. Evaporator
- 2. Liquefier
- 3. Fan
- 4. Switch box
- 5. Compressor 1
- 6. Compressor 2
- 7. Filter dryer
- 8. Expansion valve
- 9. Internal heat exchanger
- 10. Collector
- 11. Dirt trap

**3.2 Switch box**

The switch box is located in the heat pump. The switch box can be pulled out after removing the lower front cover and loosening the upper left-hand fastening screw.

The switch box contains the power supply terminals as well as the power contactors and the soft starter units.

### 3 Scope of supply

#### **3.3 Heat pump manager**

The heat pump manager included in the scope of supply must be used to operate the air-to-water heat pump.

The heat pump manager is a convenient electronic regulation and control device. It controls and monitors the entire heating system based on the outside temperature, as well as domestic hot water preparation and safety systems.

The outside temperature sensor to be mounted on-site incl. fixing materials is included with the heat pump and heat pump manager unit.

The functions and usage of the heat pump manager are described in the operating instructions supplied with it.

## 4 Accessories

### 4.1 External 4-way reversing valve

The external 4-way reversing valve (Y12) enables optimised heating and cooling operation of the reversible air-to-water heat pump. Switching the direction of flow ensures an optimal flow through the heat exchanger in the heat pump in heating operation as well as in the opposite direction in cooling operation. The actuator, driven by an electrical motor and required for automatic switching, is controlled by the heat pump manager. (Max. permissible switching current 2A).

The external 4-way reversing valve with an actuating time of max. 30 seconds ensures switching of the water flow over the complete temperature operating range without any mixing losses.

The installation of the 4-way reversing valve, available as an accessory, is required to reach the heating and cooling capacity and coefficient of performance (COP) mentioned in the device information. The specified operating limits are only fulfilled in combination with this accessory. A detailed installation description can be found in the instructions included with the valve.

#### **Note**

---

For operation of the heat pump with the external 4-way reversing valve, it is essential to set up the hydraulic connections according to the instructions included with the valve. These instructions describe the procedure for setting up the correct hydraulics in more detail. The alternating direction of flow in the heating and cooling operation is to be checked as part of commissioning.

---

The hydraulic diagram in the appendix shows the basic design.

5 Transport

## 5 Transport

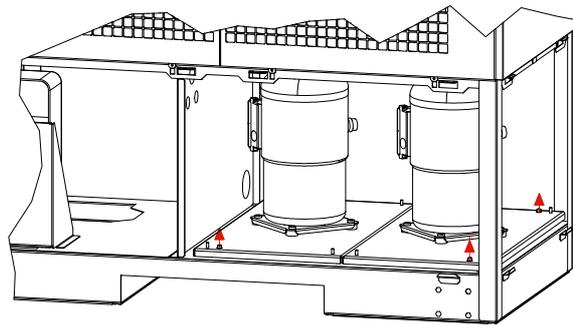
**⚠ CAUTION**

When transporting the heat pump, ensure that it is not tilted by more than 45° (in any direction).

A pallet should be used for transportation to the final installation location. The basic device can be transported with a lift truck or a crane.

After the crane transport, the transport eyebolts must be removed and the openings closed with the vent plugs supplied.

After transportation, the transport fastening in the device is to be removed from both sides of the base.



Removing/screwing in  
transport fastening (4x)

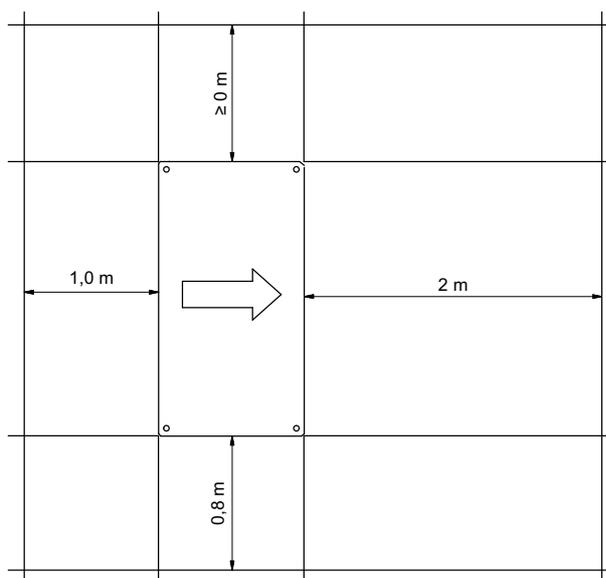
**⚠ CAUTION**

Before commissioning, the transport fastening must be removed.

## 6 Installation

### 6.1 General information

The device must be installed on a permanently even, smooth and horizontal surface. The entire frame should be in direct contact with the ground in order to ensure an adequate soundproof seal, to prevent the water-bearing components from becoming too cold and to protect the inside of the device from small animals. If this is not the case, additional insulation measures may be necessary. To prevent small animals from entering the inside of the device, the connection hole in the base plate must be sealed, for example. Furthermore, the heat pump should be set up so that the air outlet direction of the fan is perpendicular to the main wind direction to allow unrestricted defrosting of the evaporator. The heat pump is fundamentally designed for installation on even ground. For different conditions (e.g.: fitting on a platform, flat roof, etc.) or where there is a greater risk of the heat pump tipping over (e.g. due to an exposed position, high wind exposure, etc.), additional protection against tipping over must be provided. The responsibility for the heat pump installation lies with the specialist system construction company. During the installation, local requirements such as building regulations, the static load of the building, and wind exposure must be accounted for. It must be possible to carry out maintenance work without hindrance. This is ensured when observing the distances to solid walls as shown in the figure.



The specified dimensions are valid for stand-alone installation only.

#### **⚠ CAUTION**

Do not restrict or block the area around the intake or the air outlet area.

#### **⚠ CAUTION**

Observe country-specific building regulations!

#### **⚠ CAUTION**

The physical impacts must be observed for installation close to walls. No windows or doors should be present in the area surrounding the air outlet of the fan.

6 Installation

**⚠ CAUTION**

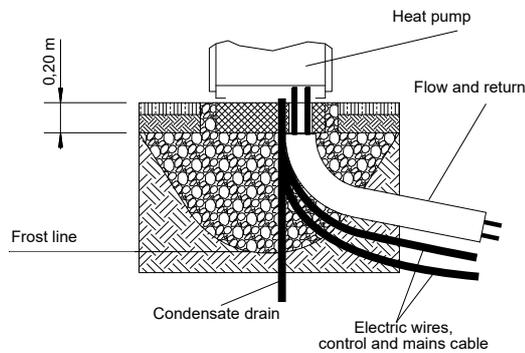
In cases of installation close to walls, there may be more contamination in the intake and air outlet area due to the air flow. The colder outside air outlet should discharge in such a way as to not increase the heat losses in heated neighbouring rooms.

**⚠ CAUTION**

Installation in a hollow or in an inner courtyard is not permitted because cooled air collects at ground level and is drawn in again by the heat pump during extended periods of operation.

## 6.2 Condensate pipe

Condensate that forms during operation must be drained off frost free. To ensure proper drainage, the heat pump must be mounted horizontally. The condensate pipe must have a minimum diameter of 50 mm and must be fed into a sewer in such a way that it is safe from frost. Do not discharge the condensate directly into clarifiers or cess pits. The aggressive vapours and a condensate pipe laid in an area which is not frost-free can destroy the evaporator.



**⚠ CAUTION**

The frost line can vary according to the climatic region. The regulations of the countries in question must be observed.

## 7 Installation

### 7.1 General information

The following connections need to be established on the heat pump:

- Heating system flows and returns
- Condensate drain
- Control cable to the heat pump manager
- Power supply

### 7.2 Connection on heating side

The heating system connections on the heat pump are to be made inside the device. Refer to the device information for the connection sizes. The connection hoses are routed out of the device in a downwards direction. An optional pipe kit is available as an accessory, which can be used to lead the connections out to the side.

A spanner must be used to firmly grip the transitions when connecting the heat pump.

Before connecting the heating water system to the heat pump, the heating system must be flushed to remove any impurities, residue from sealants etc. Any accumulation of deposits in the liquefier may cause the heat pump to completely break down.

Once the heat pump has been connected to the heating system, it must be filled, purged and pressure-tested.

The following points must be observed when filling the system:

- Untreated filling water and make-up water must be of drinking water quality (colourless, clear, free of deposits)
- Filling water and make-up water must be pre-filtered (max. pore size 5 µm).

Scale formation in domestic hot water heating systems cannot be avoided, but in systems with flow temperatures below 60 °C, the problem can be disregarded. With high-temperature heat pumps and in particular with bivalent systems in the higher performance range (heat pump + boiler combination), flow temperatures of 60 °C and more can be achieved. The following standard values should therefore be adhered to with regard to the filling and make-up water according to VDI 2035, sheet 1: the total hardness values can be found in the table.

Overall heat output in kW	Total Alkaline earths in mol/m³ and/or mmol	Specific system volume (VDI 2035) in l/kW		
		< 20	≥ 20 < 50	≥ 50
		Total hardness in dGH		
< 50	≤ 2.0	≤ 16.8	≤ 11.2	< 0.11 <sup>1</sup>
50 – 200	≤ 2.0	≤ 11.2	≤ 8.4	
200 – 600	≤ 1.5	≤ 8.4	< 0.11 <sup>1</sup>	
> 600	< 0.02	< 0.11 <sup>1</sup>		

1. This value lies outside the permissible value for heat exchangers in heat pumps.

Fig. 7.1: Guideline values for filling and make-up water in accordance with VDI 2035

For systems with an above-average specific system volume of 50 l/kW, VDI 2035 recommends the use of fully demineralised water and a pH stabiliser to minimise the risk of corrosion in the heat pump and heating system.

#### CAUTION

With fully demineralised water, it is important to ensure that the minimum permissible pH value of 7.5 (minimum permissible value for copper) is complied with. Failure to comply with this value can result in the heat pump being destroyed.

**Note:**

For operation of the heat pump with the 4-way reversing valve, it is essential to set up the hydraulic connections according to the instructions included in the scope of supply of the valve. These instructions describe the procedure for setting up the correct hydraulics in more detail. Non-observance of this will lead to restrictions in the operation of the heat pump.

**⚠ CAUTION**

If the heat pump is only operated in heating operation and without an external 4-way reversing valve, the hydraulic connections must be established according to the counterflow principle (see dimension drawing table Fig. 13.1 on page 21). Activation of the Cooling operating mode is not permissible in this case and must be refrained from!

**Important:**

The notes/settings in the instructions of the heat pump manager must always be observed and carried out accordingly; not doing so will lead to malfunctions.

**Minimum heating water flow rate**

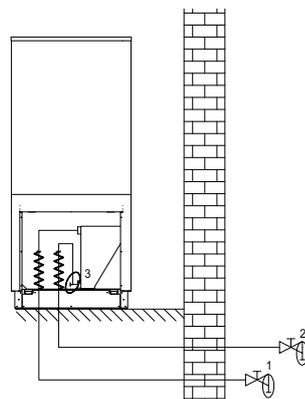
The minimum heating water flow rate through the heat pump must be assured in all operating states of the heating system. This can be accomplished, for example, by installing a hydraulic switch. When the minimum heating water flow rate is undershot, the plate heat exchanger in the refrigeration circuit can freeze, which can lead to total loss of the heat pump.

The nominal flow rate is specified depending on the max. flow temperature in the device information and must be taken into account during planning. With design temperatures below 30 °C in the flow, the design must be based on the max. volume flow with 5 K spread for A7/W35.

The specified nominal flow rate (See "Device information" on page 19.) must be assured in all operating states. An installed flow rate switch is used only for switching off the heat pump in the event of an unusual and abrupt drop in the heating water flow rate and not to monitor and safeguard the nominal flow rate.

**Frost protection**

On heat pump systems where protection from frost cannot be guaranteed, there must be an option for draining the system (see figure). The frost protection function of the heat pump manager is active whenever the heat pump manager and the heat circulating pump are ready for operation. If the heat pump is taken out of operation or in the event of a power failure, the system must be drained and, if necessary, blown out at the points shown (see figure). The heating circuit should be operated with a suitable frost protection if heat pump systems are implemented in buildings where a power failure cannot be detected (holiday home).



### 7.3 Electrical connection

3 lines/cables must be routed to the heat pump in total:

- A standard 5-core cable is used to connect the heat pump to the power supply. The cable must be provided on-site. The conductor cross section is selected in accordance with the power consumption of the heat pump (see appendix Device Information) and the applicable VDE (EN) and VNB regulations. An all-pole disconnecting device with a contact gap of at least 3 mm (e.g. utility company blocking contactor or power contactor) must be installed in the heat pump power supply. A 3-pole circuit breaker with joint tripping of all outer conductors (trip current in accordance with device information) provides the short circuit protection taking into account the layout of the internal wiring. The relevant components in the heat pump contain an internal overload protection. When connecting, ensure that the incoming supply has a clockwise rotating field. Phase sequence: L1, L2, L3.

#### CAUTION

Ensure that there is a clockwise rotating field: With incorrect wiring, starting of the heat pump is prevented. A corresponding warning is indicated on the display of the heat pump manager (adjust wiring).

- The control voltage is supplied via the heat pump manager. A 3-pole line must be laid for this in accordance with the electrical documentation. Further information on the wiring of the heat pump manager is available in the heat pump manager operating instructions.
- A shielded communication line (J-Y(ST)Y ..LG) (not included in the scope of supply) connects the heat pump manager with the refrigerant circuit controller installed in the heat pump. More detailed instructions can be found in the heat pump manager operating instructions and in the electrical documentation.

#### Note

The communication cable is necessary for the function of air-to-water heat pumps in outdoor installation. It must be shielded and laid separately from the mains cable.

#### 7.3.1 Demand sensor connection

The demand sensor R2.2 (NTC 10) is included with the heat pump manager. It must be installed depending on the hydraulics used.

If a demand sensor is not connected, the second heat generator cannot be controlled with the heat pump manager in the event of an interruption in communication either.

#### Note

The return sensor R2 installed in the heat pump is active when the compressor is running and must not be disconnected.

## 8 Commissioning

### 8.1 General information

To ensure that commissioning is performed correctly, it should only be carried out by an after-sales service technician authorised by the manufacturer (Weishaupt technician). Under certain conditions, this may be associated with an additional warranty service.

### 8.2 Preparation

The following items must be checked prior to commissioning:

- All of the heat pump connections must be installed as described in chapter 7.
- All valves which could impair the proper flow of the heating water in the heating circuit must be open.
- The air intake and air outlet paths must be clear.
- The fan must turn in the direction indicated by the arrow.
- The settings of the heat pump manager must be adapted to the heating system in accordance with the operating instructions.
- Ensure that the condensate drain functions properly.

### 8.3 Procedure

The heat pump is commissioned via the heat pump manager. Settings should be made in compliance with the heat pump manager's instructions.

At heating water temperatures under 7 °C, commissioning is not possible. The water in the buffer tank must be heated with the 2nd heat generator to at least 22 °C.

To ensure problem-free commissioning, the following procedure is to be implemented:

1. Close all consumer circuits.
2. Ensure that the heat pump has the correct water flow.
3. Use the manager to select the automatic operating mode.
4. In the special functions menu, start the "Commissioning" program.
5. Wait until a return temperature of at least 29 °C has been reached.
6. Now slowly reopen the heating circuit valves in succession so that the heating water flow rate is constantly raised by slightly opening the respective heating circuit. The heating water temperature in the buffer tank must not be allowed to drop below 24 °C during this process. This ensures that the heat pump can be defrosted at any time.
7. When all heating circuits are fully open and a return temperature of at least 22 °C is maintained, the commissioning is complete.

#### CAUTION

Operating the heat pump at low system temperatures may cause the heat pump to break down completely.

---

## 9 Cleaning/maintenance

### 9.1 Care

To protect the paintwork, avoid leaning anything against the device or putting objects on the device. External heat pump parts can be wiped with a damp cloth and commercially available domestic cleaner.

#### **Note**

---

Never use cleaning agents containing sand, soda, acid or chloride, as these can damage the surfaces.

---

To prevent faults due to contamination in the heat exchanger of the heat pump, ensure that the heat exchanger in the heating system cannot be contaminated. Should operating malfunctions due to contamination still occur, however, the system should be cleaned as described below.

### 9.2 Cleaning the heating system

#### **CAUTION**

---

The installed dirt traps must be cleaned at regular intervals.

---

The cleaning intervals should be defined according to the degree of soiling in the system. The filter insert should also be cleaned.

For cleaning, the heating circuit must be made pressureless in the vicinity of the dirt trap, the filter compartment unscrewed, and the filter insert removed and cleaned.

Assembly carried out in reverse order requires attention to correct assembly of the screen inserts and tightness of the screw joints.

The ingress of oxygen into the heating water circuit may result in the formation of oxidation products (rust), particularly if steel components are used. These enter the heating system via the valves, the circulating pumps and/or plastic pipes. A diffusion-resistant installation is therefore essential, especially with regard to the complete piping.

#### **Note**

---

We recommend the installation of a suitable corrosion protection system to prevent the formation of deposits (e.g. rust) in the condenser of the heat pump.

---

Residue from lubricants and sealants may also contaminate the heating water.

In the event of severe contamination leading to a reduction in the performance of the liquefier in the heat pump, the system must be cleaned by a heating technician.

Based on current information, we recommend using a 5% phosphoric acid solution for cleaning purposes. However, if cleaning needs to be performed more frequently, a 5% formic acid solution should be used.

In both cases, the cleaning fluid should be at room temperature. We recommend flushing the heat exchanger in the direction opposite to the normal flow direction.

To prevent acidic cleaning agents from entering the heating system circuit, we recommend connecting the flushing device directly to the flow and return of the liquefier of the heat pump.

It is then important that the system be thoroughly flushed using appropriate neutralising agents to prevent any damage from being caused by cleaning agent residue remaining in the system.

Acids must be used with care and the regulations of the employers liability insurance associations must be adhered to.

The instructions of the cleaning agent manufacturer must always be observed.

### 9.3 Cleaning the air system

The evaporator, fan and condensate drain should be cleaned of contamination (leaves, twigs, etc.) before each new heating period.

**⚠ CAUTION**

Before opening the device, ensure that all electric circuits are disconnected from the power supply.

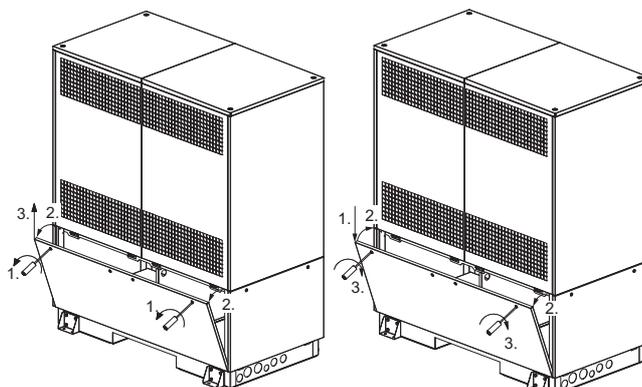
To prevent the evaporator and the condensate tray from being damaged, do not use hard or sharp objects when cleaning.

Under extreme weather conditions (e.g. snow drifts), ice formation may occur on the air intake and air outlet grids. If this happens, the ice and snow must be removed from the vicinity of the intake and air outlet area by the operator to ensure that the minimum air flow is maintained.

To ensure proper drainage from the condensate tray, it must be regularly inspected and cleaned, if necessary.

All panelling can be removed to allow access to the inside of the device.

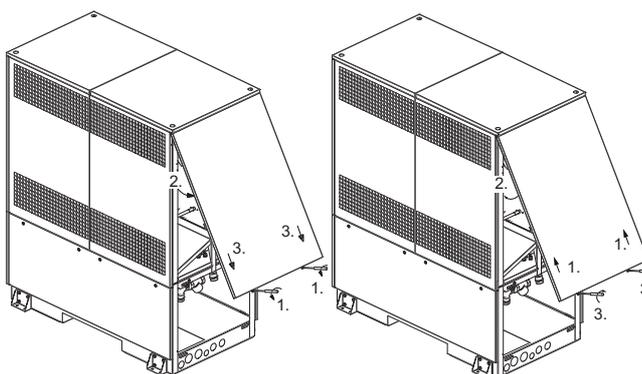
The two sash fasteners must be opened for this purpose. The cover must then be slightly tilted forward and lifted off toward the top.



Opening the lower covers

Closing the lower covers

The upper panels are hooked into the cover panel. To dismantle, undo the two screws and unhook the panels by pulling them back.



Opening the upper cover panels

Closing the upper cover panels

## 10 Faults/troubleshooting

This heat pump is a quality product and is designed for trouble-free operation. In the event that a fault should occur, it will be indicated on the heat pump manager display. In this case, consult the "Faults and troubleshooting" page in the operating instructions of the heat pump manager. If you cannot correct the fault yourself, please contact your after-sales service technician.

---

 **CAUTION**

Before opening the device, ensure that all electric circuits are disconnected from the power supply.

---

After switching off the power supply, wait at least 5 minutes to allow the electrically charged components to discharge.

---

 **CAUTION**

Work on the heat pump must only be performed by authorised and qualified after-sales service technicians!

---

## **11 Decommissioning/disposal**

Before removing the heat pump, disconnect it from the power source and close all valves. The heat pump must be dismantled by trained personnel. Observe all environmental requirements regarding the recovery, recycling and disposal of materials and components in accordance with all applicable standards. Particular attention should be paid to the proper disposal of refrigerants and refrigeration machine oil.

## 12 Device information

<b>1 Type and order code</b>	WWP LA 60-A R	
<b>2 Design</b>		
Heat source	Air	
2.1 Version	Universal, reversible	
2.2 Controller	WPM wall-mounted	
2.3 Thermal energy metering	Integrated	
2.4 Installation location	Outside	
2.5 Performance level	2	
<b>3 Operating limits</b>		
3.1 Heating water flow / return <sup>1</sup>	°C	to 60 -2(to 62 -2) <sup>2</sup> / from 22
Cooling water flow / return	°C	<sup>3</sup> +7 to +20 / min. 10 °C to max. 28 °C
Air (heating)	°C	-22 to +40
Air (cooling)	°C	+10 to +45
<b>4 Flow/sound</b>		
4.1 Heating water flow rate / internal pressure differential		
	A7/W35/30	m <sup>3</sup> /h / Pa
		6.0 / 18000
	A7/W45/40	m <sup>3</sup> /h / Pa
		5.8 / 16800
Minimum heating water flow rate	A7/W55/47	m <sup>3</sup> /h / Pa
		3.4 / 9400
4.2 Cooling water flow rate / internal pressure differential		
	A35 / W18/23	m <sup>3</sup> /h / Pa
		10.2 / 52000
Minimum cooling water flow rate <sup>4</sup>	A35 / W7/12	m <sup>3</sup> /h / Pa
		8.3 / 34400
4.3 Sound power level according to EN 12102 Normal operation/reduced operation <sup>5</sup>	dB(A)	72 / 66
4.4 Sound pressure level at a distance of 10 m (air outlet side) <sup>6</sup> Normal operation/reduced operation <sup>5</sup>	dB(A)	44 / 38
4.5 Air flow (controlling range, EC fan)	m <sup>3</sup> /h	0 – 25000
<b>5 Dimensions, weight and filling quantities</b>		
5.1 Device dimensions without connections <sup>7</sup>	H x W x L mm	2300 x 1900 x 1000
5.2 Weight of the transportable unit(s) incl. packaging	kg	870
5.3 Device connections for heating	Inches	Rp 2"
5.4 Refrigerant/total filling weight	Type/kg	R407C / 15.7
5.5 GWP value / CO <sub>2</sub> equivalent	--- / t	1774 / 27
5.6 Refrigeration circuit hermetically sealed		Yes
5.7 Lubricant/total filling quantity	Type/litres	POE (RL32-3MAF) / 8.0
5.8 Volume of heating (cooling) water in device	Litres	10.4
<b>6 Electrical connection</b>		
6.1 Supply voltage/fusing/RCD type	3~/PE 400 V (50 Hz) / C50A / B	
6.2 Control voltage / fusing for WPM	1~/N/PE 230 V (50 Hz) / 6.3 AT	
6.3 Degree of protection according to EN 60 529	IP24	
6.4 Starting current limiter	Soft starter	
6.5 Rotary field monitoring	Yes	
6.6 Starting current	A	60
6.7 Nominal power consumption A7/W35/max. consumption <sup>8</sup>	kW	7.8 / 26.4
6.8 Nominal current with A7/W35/cos φ	A/---	14.2 / 0.80
6.9 Power consumption of compressor protection (per compressor)	W	120
6.10 Power consumption of fan	kW	up to 3.9
<b>7 Complies with the European safety regulations</b>	See CE declaration of conformity	

12 Device information

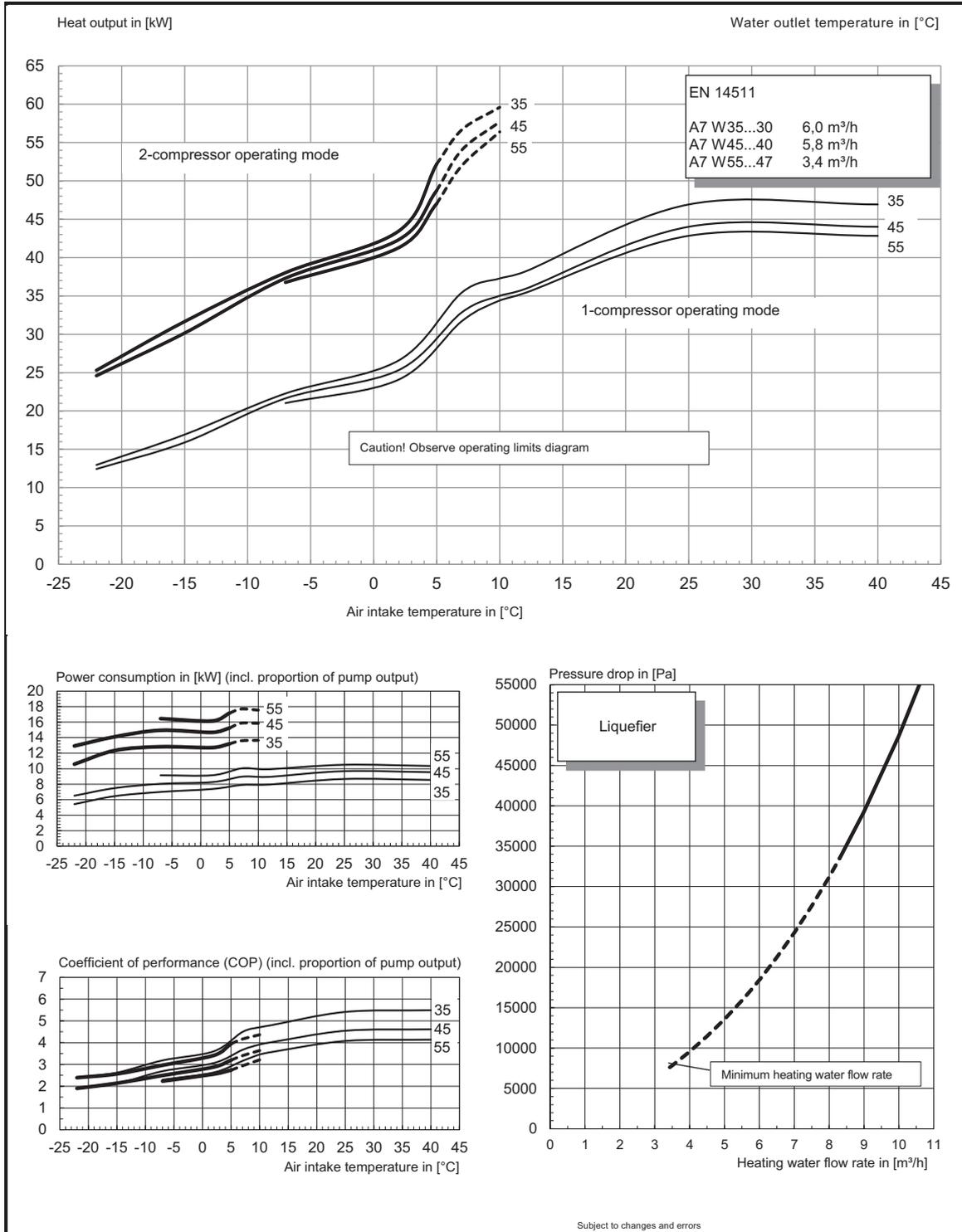
<b>8 Additional model features</b>				
<b>8.1 Type of defrosting (according to need)</b>		Reverse circulation		
<b>8.2 Condensate tray frost protection/water in device protected against freezing<sup>9</sup></b>		Heated/yes		
<b>8.3 Max. operating overpressure (heat source/heat sink)</b>		bar	3.0	
<b>8.4 Hydraulic four-way reversing valve (external)<sup>10</sup></b>		Accessories		
<b>9 Performance/coefficient of performance (COP)</b>				
<b>9.1 SCOP (seasonal coefficient of performance (COP)) average climate 35 °C/55 °C</b>		4.01 / 3.40		
<b>9.2 <math>\eta_g</math> average climate 35 °C/55 °C</b>		157 / 133		
<b>9.3 Heat output / coefficient of performance (COP)<sup>8 10</sup></b>		<b>Heat source/heat</b>	EN 14511	
	<b>Air/water</b>	<b>Performance level</b>	<b>1</b>	<b>2</b>
	<b>at A-15 / W35</b>	<b>kW / ---</b>	16.9 / 2.6	31.7 / 2.6
	<b>at A-7 / W35</b>	<b>kW / ---</b>	22.2 / 3.2	38.0 / 3.0
	<b>at A2 / W35</b>	<b>kW / ---</b>	26.6 / 3.6	43.4 / 3.4
	<b>at A7 / W35-30</b>	<b>kW / ---</b>	35.3 / 4.5	
	<b>at A12 / W35</b>	<b>kW / ---</b>	38.1 / 4.8	
	<b>at A7 / W45-40</b>	<b>kW / ---</b>	32.9 / 3.7	
	<b>at A7 / W55-47</b>	<b>kW / ---</b>	31.7 / 3.2	
<b>9.4 Cooling capacity / coefficient of performance (COP)<sup>8 10</sup></b>		<b>Heat sink / heat</b>	EN 14511	
	<b>Air/water</b>	<b>Performance level</b>	<b>1</b>	<b>2</b>
	<b>at A35 / W23-18</b>	<b>kW / ---</b>	33.4 / 3.2	63.3 / 2.8
	<b>at A27 / W18</b>	<b>kW / ---</b>	34.8 / 3.7	67.8 / 3.5
	<b>at A35 / W12-7</b>	<b>kW / ---</b>	23.1 / 2.5	48.1 / 2.5
	<b>at A27 / W7</b>	<b>kW / ---</b>	25.2 / 3.0	51.6 / 3.0

1. For air temperatures between -22 °C and 0 °C, flow temperature increasing from 45 °C to 60 °C.
2. The specified maximum heating water flow temperature applies to a set minimum heating water flow.
3. The minimum achievable flow temperature depends on the current volume flow, the set return set temperature and the current performance level.
4. In 2-compressor operation with A35/W7, this results in a cooling water temperature difference of 5K ±1K.
5. The heat output and COP is reduced by approx. 5% in lower operation
6. The specified sound pressure level corresponds to the operating noise of the heat pump in heating operation with a flow temperature of 55 °C. The specified sound pressure level represents the free sound area level. The measured value can deviate by up to 16 dB(A) depending on the installation location.
7. Note that additional space is required for pipe connections, operation and maintenance
8. This data indicates the size and capacity of the system. For an analysis of the economic and energy efficiency of the system, the bivalence point and the regulation should be taken into consideration. These figures are only achieved with clean heat exchangers. Instructions for maintenance, commissioning and operation can be found in the relevant sections of the assembly and operating instructions. The specified values have the following meaning, e.g. A7/W35: heat source temperature 7 °C and heating water flow temperature 35 °C.
9. The heat circulating pump and the heat pump manager must always be ready for operation.
10. The values specified apply when using the hydraulic four-way reversing valve (observe instructions for accessories).

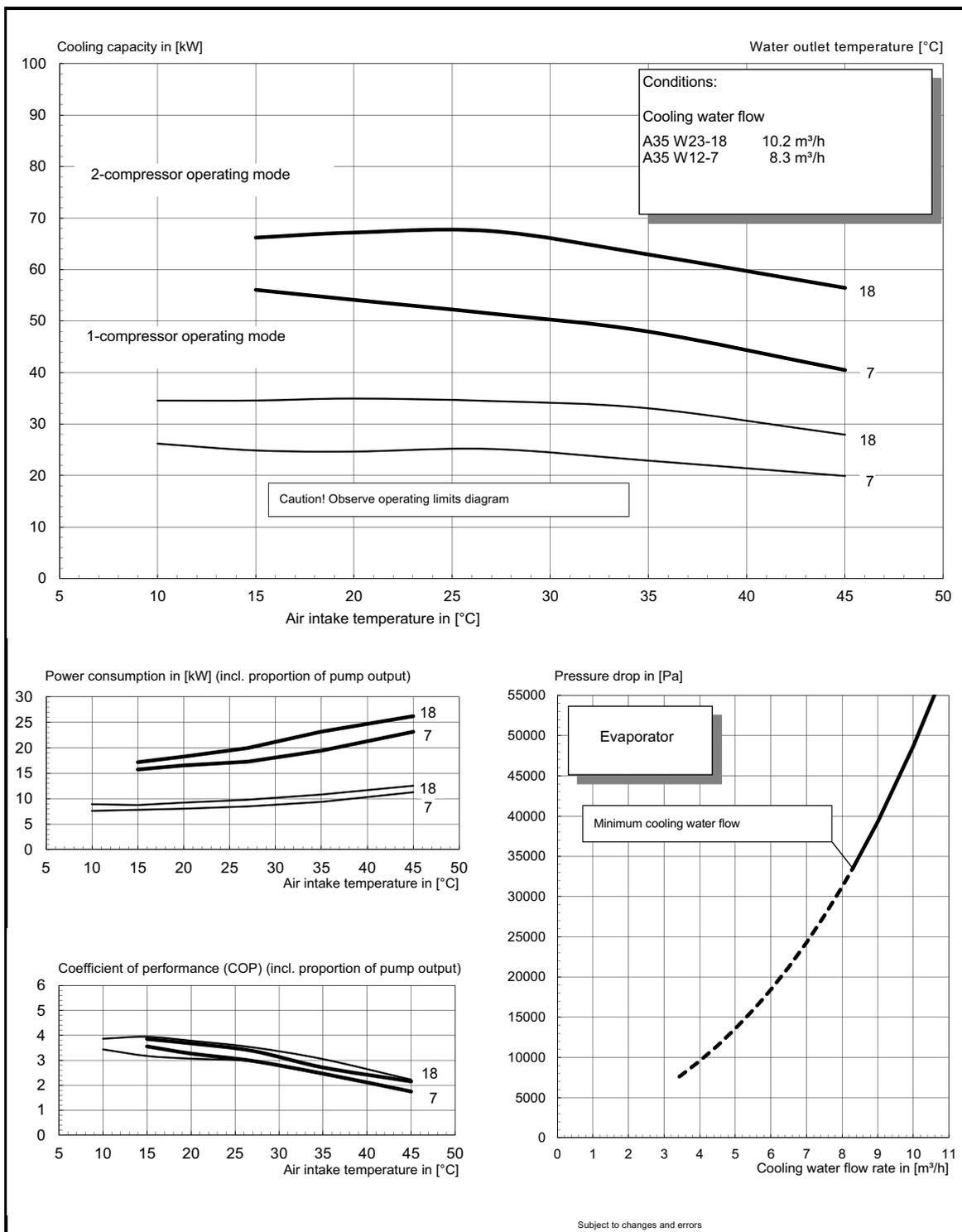


14 Diagrams

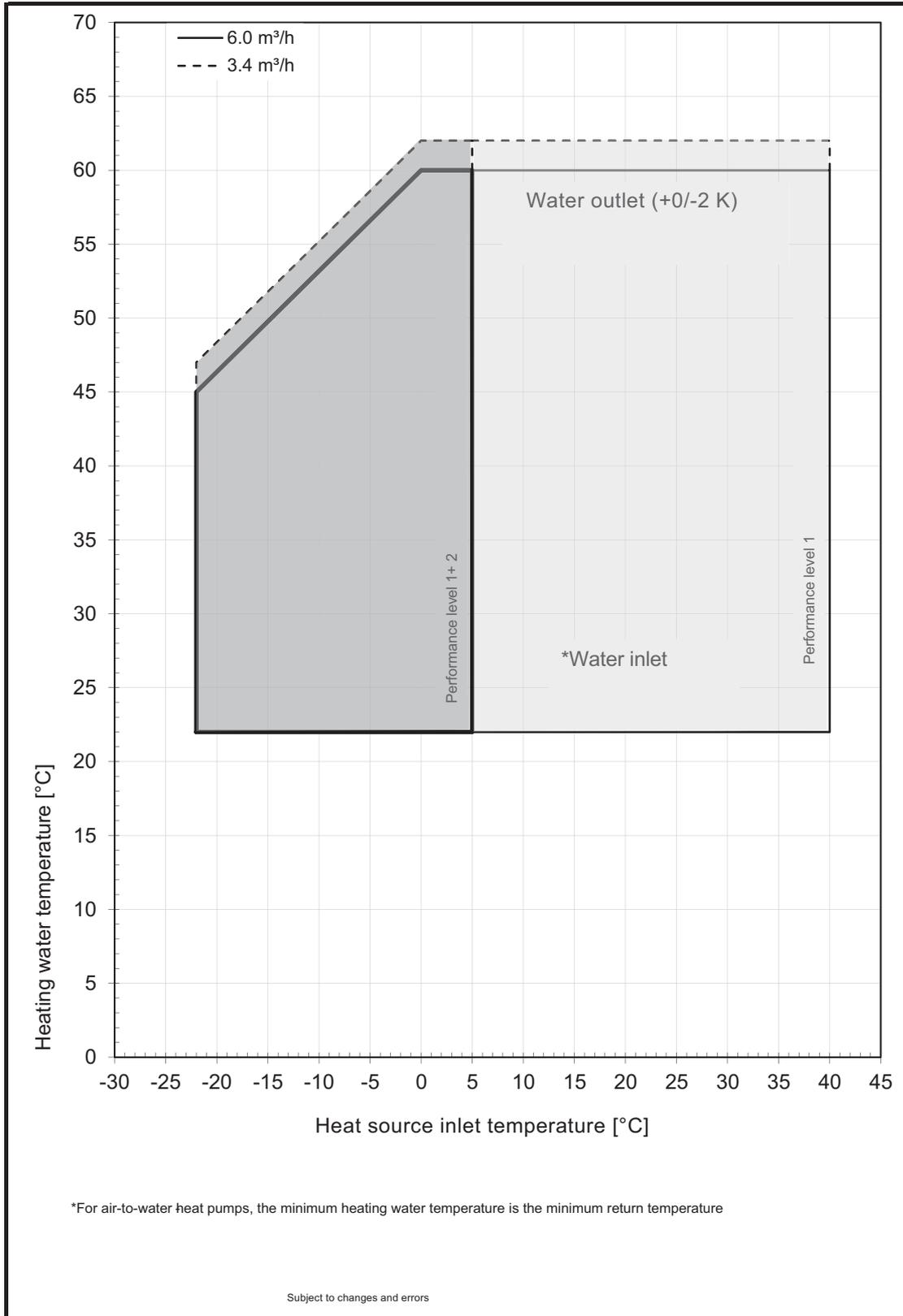
14.1 Characteristic curve, heating



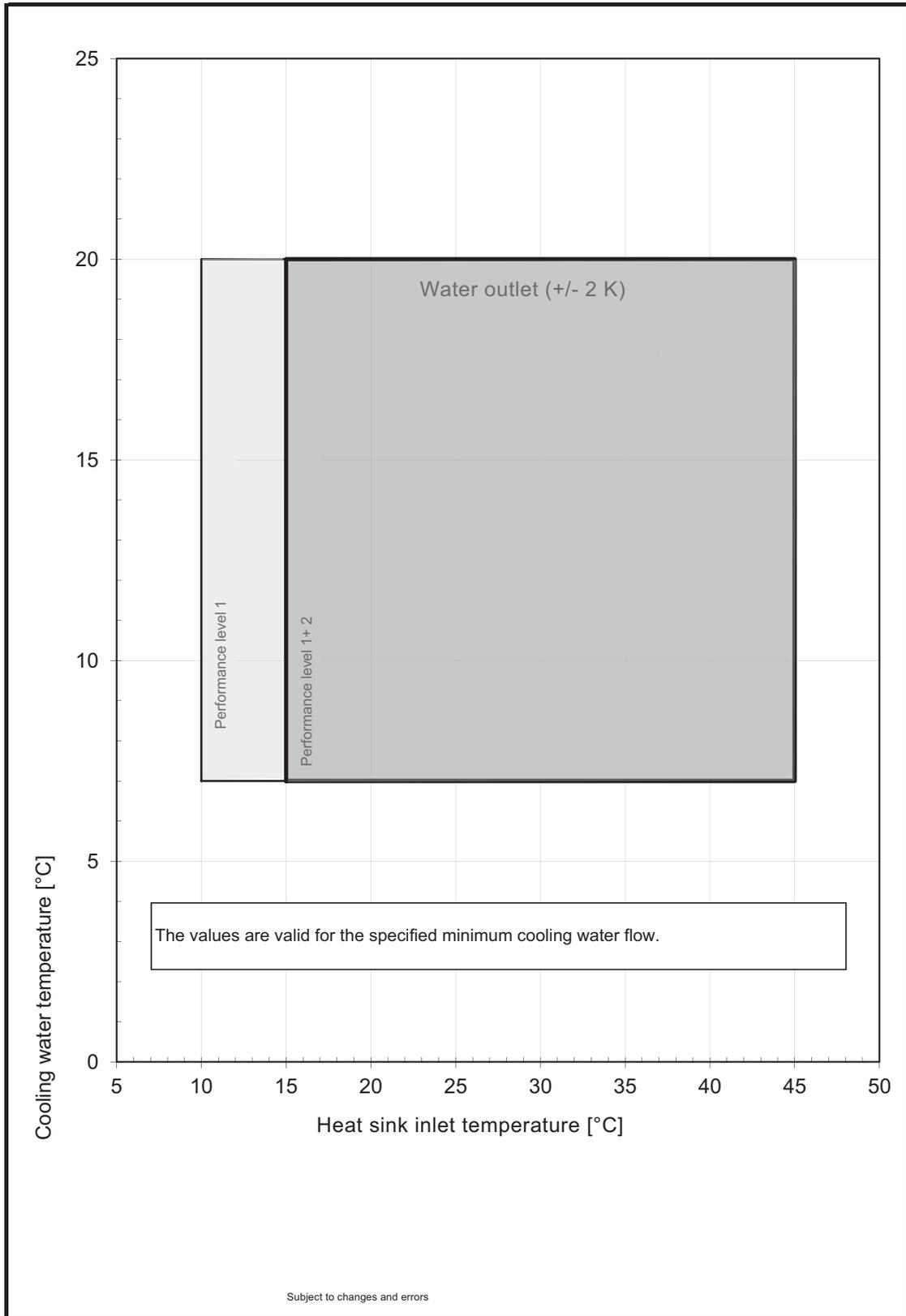
### 14.2 Characteristic curve, cooling



### 14.3 Operating limits diagram, heating

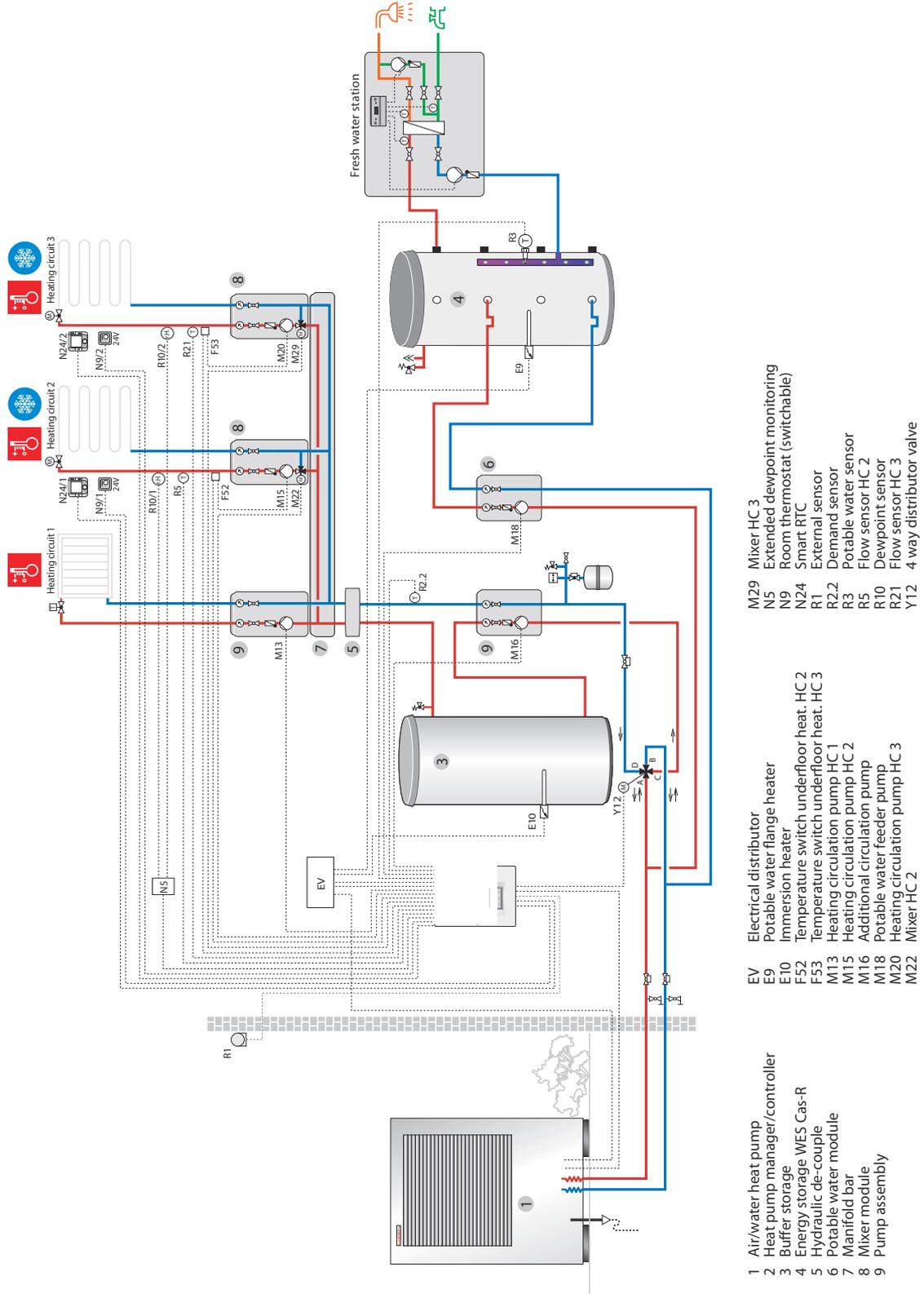


### 14.4 Operating limits diagram, cooling



15 Integration diagrams

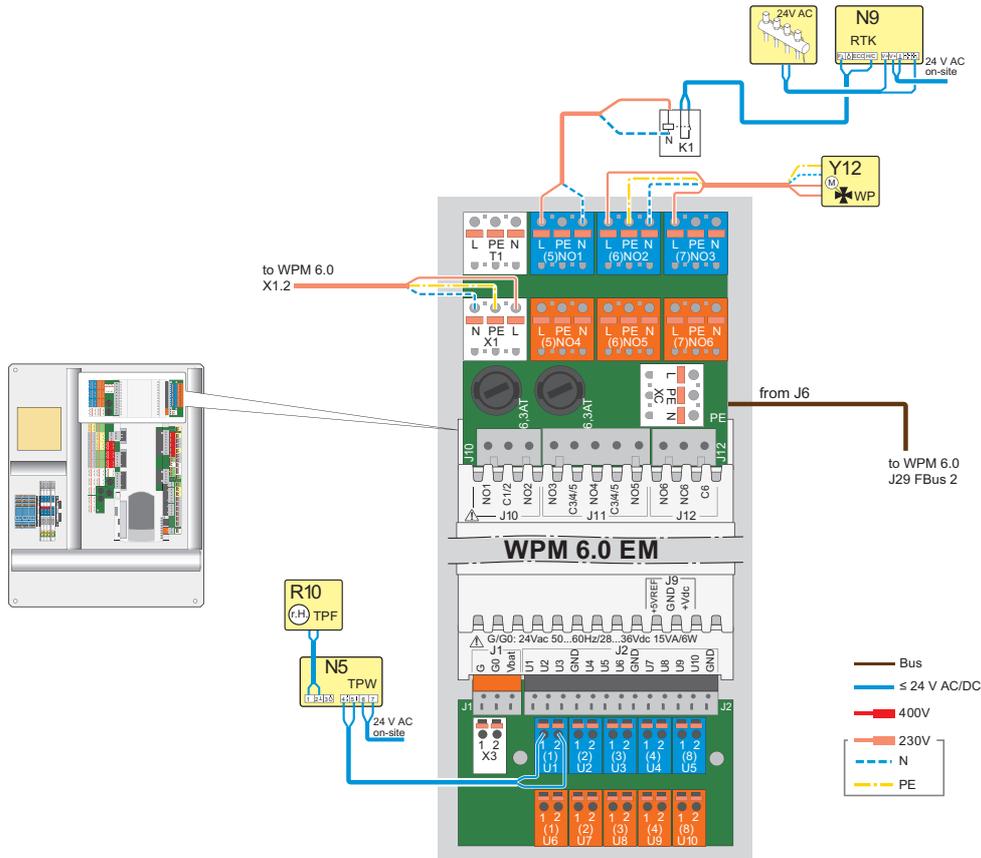
15.1 Sample system diagram



The system example is a non-binding draft design with no claims of completeness. Final system design must be carried out in consultation with an expert planner.



15.3 Circuit diagram, extension module





## The complete program: Reliable technology and prompt, professional service

	<p><b>W Burners</b> <span style="float: right;"><b>up to 700 kW</b></span></p> <p>The compact burners, proven millions of times over, are economical and reliable. Available as gas, oil and dual fuel burners for domestic and commercial applications.</p>	<p><b>Wall-hung condensing boilers for gas</b> <span style="float: right;"><b>up to 800 kW</b></span></p> <p>The wall-hung condensing boilers WTC-GW have been developed to meet the highest demands in ease of operation and efficiency. Modulating operation means these units operate quietly and economically.</p>	
	<p><b>monarch® WM Burners and Industrial Burners</b> <span style="float: right;"><b>up to 12,000 kW</b></span></p> <p>These legendary industrial burners are durable and versatile. Numerous variations of oil, gas and dual fuel burners meet a wide range of applications and capacity requirements.</p>	<p><b>Floor-standing condensing boilers for oil and gas</b> <span style="float: right;"><b>up to 1,200 kW</b></span></p> <p>The floor-standing condensing boilers WTC-GB (up to 300 kW) and WTC-OB (up to 45 kW) are efficient, low in pollutants and versatile in use. Even the largest capacities can be covered by cascading up to four gas condensing boilers.</p>	
	<p><b>WKmono 80 Burners</b> <span style="float: right;"><b>up to 17,000 kW</b></span></p> <p>The WKmono 80 burners are the most powerful monoblock burners from Weishaupt. They are available as oil, gas or dual fuel burners and are designed for tough industrial application.</p>	<p><b>Solar systems</b></p> <p>The stylish flat-plate collectors are the ideal complement for any Weishaupt heating system. They are suitable for solar water heating and for combined heating support. With versions for on-roof, in-roof and flat roof installations, solar energy can be utilised on almost any roof.</p>	
	<p><b>WK Burners</b> <span style="float: right;"><b>up to 32,000 kW</b></span></p> <p>These industrial burners of modular construction are adaptable, robust and powerful. Even on the toughest industrial applications these oil, gas and dual fuel burners operate reliably.</p>	<p><b>Water heaters/Energy storage</b></p> <p>The diverse program of potable water and energy storage for various heat sources includes storage volumes of 70 to 3,000 litres. In order to minimize storage losses, potable water cylinders from 140 to 500 litres are available with highly efficient insulation using vacuum insulation panels.</p>	
	<p><b>MCR Technology / Building Automation from Neuberger</b></p> <p>From control panels to complete building management systems - at Weishaupt you can find the entire spectrum of modern control technology. Future orientated, economical and flexible.</p>	<p><b>Heat pumps</b> <span style="float: right;"><b>up to 180 kW (Single device)</b></span></p> <p>The heat pump range offers solutions for the utilisation of heat from the air, the soil or ground water. Some systems are also suitable for cooling buildings.</p>	
	<p><b>Service</b></p> <p>Weishaupt customers can be assured that specialist knowledge and tools are available whenever they are needed. Our service engineers are fully qualified and have extensive product knowledge, be it for burners, heat pumps, condensing boilers or solar collectors.</p>	<p><b>Geothermal probe drilling</b></p> <p>With its daughter company, BauGrund Süd, Weishaupt also offers geothermal probe and well drilling. With the experience of more than 17,000 systems and more than 3,2 million meters of drilling, BauGrund Süd offers a comprehensive service program.</p>	