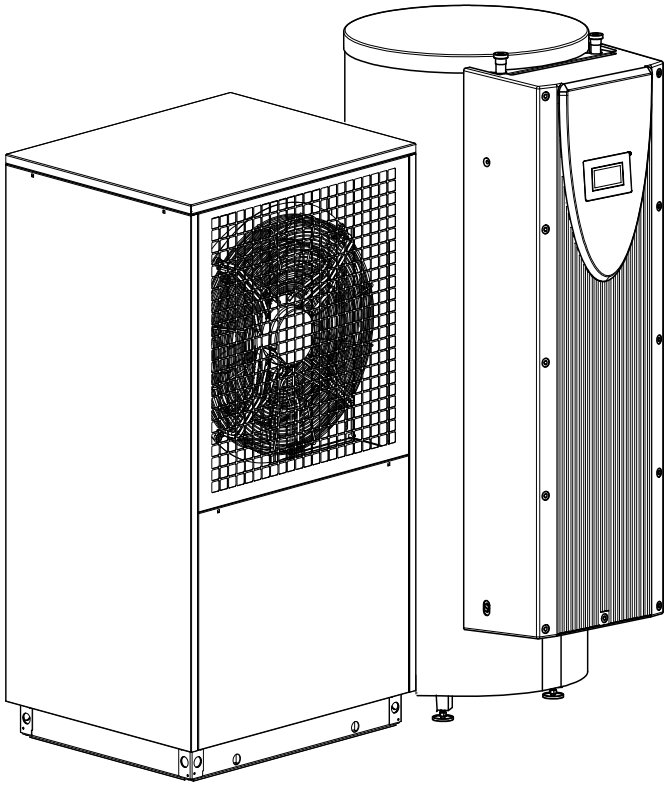
Glen Dimplex Deutschland

Dimplex

LA 1118BW
LA 1118BWC



Montage- und Gebrauchsanweisung

Luft-Wasser-Wärmepumpe für Außenaufstellung

Installation and Operating Instruction

Air-to-Water Heat Pump for Outdoor Installation

Instuctions d'installation et d'utilisation

Pompe à chaleur air-eau pour installation extérieure

Bestell-Nr. | Order no. | No de commande: 452168.66.24b

DE | EN | FR · FD 0407

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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.

i 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 prohibited. 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 guidelines

This heat pump is designed for use in a domestic environment according to Article 1, Paragraph 2 k) of EU directive 2006/42/EG (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, guesthouses and other residential buildings.

The construction and design of the heat pump complies with all relevant EU directives, 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 the mains supply network operator must also be observed.

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

This unit 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 the safe use of the unit 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.

It is particularly important for the efficiency of a heat pump to keep the temperature difference between heating water and heat source as small as possible. For this reason, it is advisable to design the heat source and heating system very carefully. **A temperaturedifference of approximately one 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 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 intended exclusively for heating or, depending on the device, also cooling heating water. It can be used in new or existing heating systems.

The circulating pump(s) must be controlled using the heat pump manager.

If function-relevant or safety-relevant pump functions, such as integration of the heat pump into the building management system, are not supported, then this can result in loss of warranty and cause a write-off of the heat pump.

The circulating pump(s) and the heat pump controller must always be ready for operation.

The specifications in the technical documents must be followed, particularly limit values for the minimum and – if available – maximum warm/cold water volume flow.

The heat pump is suitable for mono energy and bivalent operation.

During continuous operation, proper defrosting of the evaporator must be guaranteed by maintaining a heating water return temperature of more than 18 °C.

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 provided by the customer. For drying out a building in autumn or winter, it is advisable to install a second heat generator (e.g. an electric heating element available as an accessory).

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

Electrical energy is used to raise the temperature of the heat from the environment to a higher level. Because 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 main components of an air-to-water heat pump are the evaporator, fan and expansion valve, as well as the low-noise compressor, 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 (device-dependent)

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

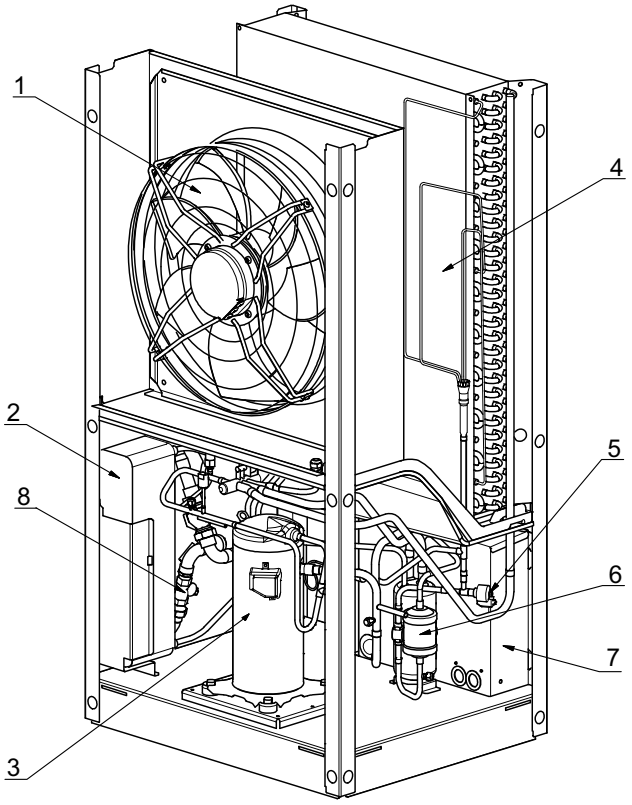
The heating water transfers its heat to the refrigerant via the liquefier, which is now functioning as an evaporator. The refrigerant is brought to a higher temperature level using the compressor. Heat is transferred to the surrounding air via the liquefier (which, in heating operation, functions as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

3 Scope of supply

3.1 Basic device

The heat pump contains the components listed below.

The basic device consists of a heat pump for indoor installation wired ready for use with metal casing, switch box and integrated heat pump manager. The refrigeration circuit is "hermetically sealed" and contains the fluorinated refrigerant R410A included in the Kyoto protocol. Information on the GWP value and CO_2 equivalent of the refrigerant can be found in the chapter Device information. The refrigerant is CFC-free, non-ozone depleting and non-combustible.



1) Fan
2) Liquefier
3) Compressor
4) Evaporator
5) Expansion valve
6) Filter dryer
7) Switch box
8) Dirt trap

3.2 Switch box

Power contactors, a soft starter unit and the extended controller unit are located in the switch box. It monitors and controls all heat pump signals and communicates with the heat pump manager.

Communication and control or mains cables, which are to be routed apart from each other, are fed through the cable gland area on the baseplate. The connecting terminals can be accessed directly by removing the side cover.

3.3 Heat pump manager

The hydro-tower with heat pump manager included in the scope of supply must be used to operate the (reversible) air-to-water heat pump.

The hydro tower constitutes the interface between a heat pump and the heat distribution in the building. The hydro tower contains all hydraulic components required between heat generation and heat distribution with an unmixed heating circuit. A dual differential pressureless manifold with a buffer tank allows an energy-optimised hydraulic integration of the heat generator and the heat distribution.

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

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

The functions and usage of the hydro-tower are described in the operating instructions supplied.

4 Accessories

4.1 Remote control

A remote display adds convenience and is available as a special accessory. Operation and menu navigation are identical to those of the heat pump manager. Connection takes place via an interface (special accessories) with RJ 12 Western plug.

NOTE

In the case of heating controllers with a removable control panel, this can also be used directly as a remote display.

4.2 Building management system

The heat pump manager can be connected to a building management system network via supplementation of the relevant interface plug-in card. The supplementary installation instructions of the interface card must be consulted regarding the exact connection and parameterisation of the interface.

The following network connections can be made on the heat pump manager:

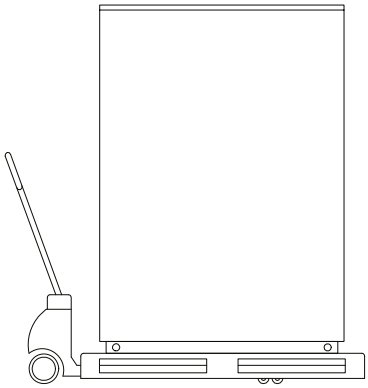
- Modbus
- EIB, KNX
- Ethernet.

5 Transport

⚠ CAUTION!

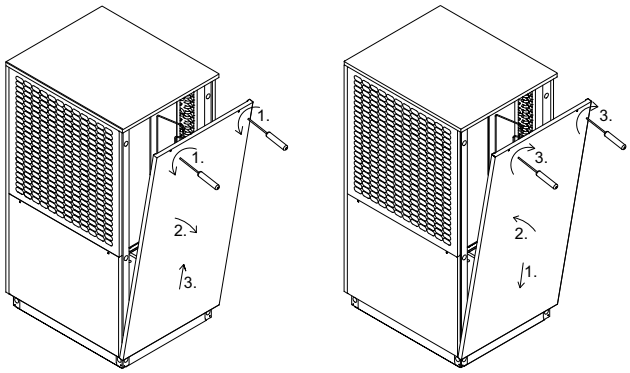
When transporting the heat pump, ensure that it is not tilted by more than 45° (in any direction).

A pallet should be used to transport the heat pump to its final installation location. The basic device can be transported with a lift truck, hand truck or by means of 3/4" pipes fed through the holes in the baseplate or frame.



The heat pump and the transport pallet are joined by four transit bolts. These must be removed.

Before using the transport holes in the frame, it is necessary to remove the two side panel assemblies. Each covering panel is secured with two screws. After the screws are loosened, the panels must be tilted and pulled out of the kickplate.



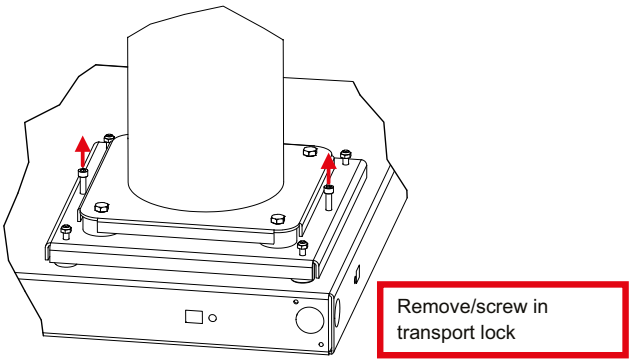
The top fan panel, which does not have to be removed for transportation, can be hung out of the cover panel. Rehang the panel by gently pushing it in an upwards direction.

ⓘ NOTE

Be careful not to damage any components when inserting the pipes through the frame.

All black dust caps must be snapped back into the transport holes at the installation location.

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



⚠ CAUTION!

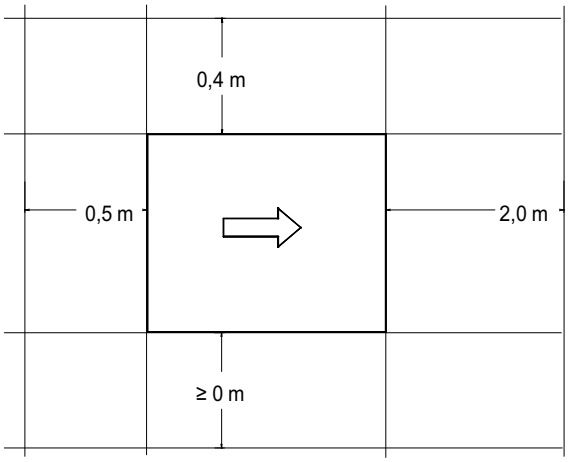
Before commissioning, the transport fastening must be removed.

6 Installation

6.1 General

The heat pump has been designed for areas that are accessible to the general public, as well as for areas that are not accessible to the general public.

The device should always be installed on a permanently smooth, even and horizontal surface. The entire frame should be in direct contact with the ground in order to ensure an adequate soundproof seal and to prevent the water-bearing components from becoming too cold. If this is not the case, additional insulation measures may be necessary. 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 designed for installation on even ground. In the case of different conditions (e.g.: installation on a platform or flat roof) or there is a greater risk of the heat pump tipping over (due to an exposed position or high wind exposure), 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, 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.

NOTE

The heat pump is not intended for use over 2000 metres above sea level.

⚠ CAUTION!

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

⚠ CAUTION!

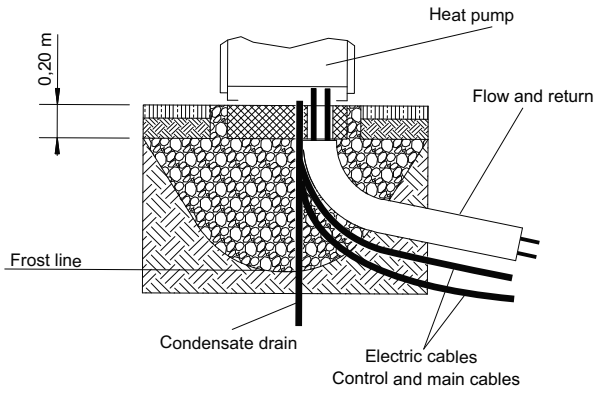
In cases of installation close to a wall, there may be more sediment in the air inlet and outlet areas due to the air current. The colder outside air outlet should discharge in such a way as to not increase the heat losses in heated neighbouring rooms.

⚠ 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

Condensed water 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 clearing tanks 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 Assembly

7.1 General

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

- Flow and return of the heating system
- Condensate drain
- Control cable to the heat pump manager
- Power supply

To access the inside of the device, all side panel assemblies can be removed as described in Cap. 5 on pag. 5.

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. A Wellflex hose set is available as an accessory for this. Side openings in the frame also enable lines to be routed at 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.

NOTE

Pump units with check valves maintain the specified flow directions. If there is incorrect distribution or breaking off of the volume flow, these units (and the check valves in particular) must be checked! The use of check valves are mandatory in the event of several heating circuits or parallel connections for heat pumps in order to avoid incorrect distribution.

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 sediments)
- 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.

Total heat output in kW	Total alkaline earths in mol/m³ and/or mmol/l	Specific system volume (VDI 2035) in l/kW		
		< 20	≥ 20 < 50	≥ 50
		Total hardness in °dH		
< 50	≤ 2.0	≤ 16.8	≤ 11.2	< 0.11[1]
50 - 200	≤ 2.0	≤ 11.2	≤ 8.4	
200 - 600	≤ 1.5	≤ 8.4	< 0.11[1]	
> 600	< 0.02	< 0.11[1]		

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 using fully demineralized water and a pH stabiliser to minimize the risk of corrosion in the heat pump and the heating system.

⚠ CAUTION!

With fully demineralized 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

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

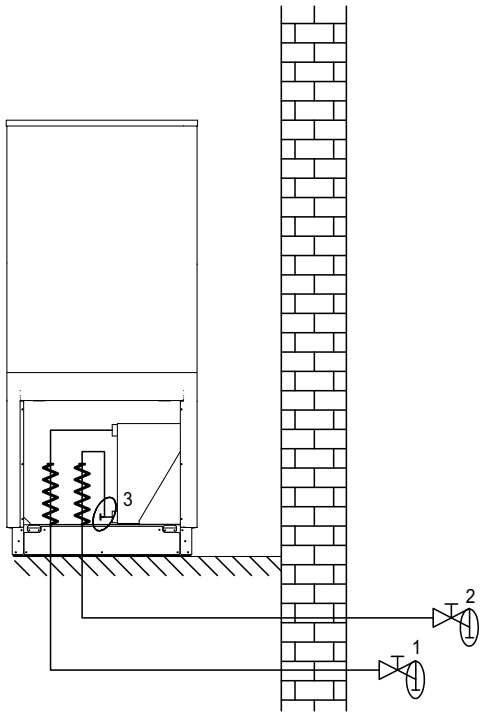
The minimum heating water flow rate through the heat pump must be assured in all operating states of the heating system. If the minimum heating water flow rate is not reached, the heat pump is blocked.

The nominal flow rate is specified depending on the max. flow temperature in the device information and must be taken into account during planning. For return temperatures under 30 °C, the flow must be designed for the nominal conditions.

The specified nominal flow rate (See "Device information" on page 14) must be guaranteed in every operating status. An installed flow rate monitoring sensor is used only for switching off the heat pump in the event of an unusual and abrupt drop below the minimum heating water flow rate and not for monitoring and safeguarding 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. When decommissioning the heat pump, or in the event of a power failure, the system must be drained through the indicated points (see illustration); it may be necessary to purge the system with compressed air. If heat pump systems are implemented in buildings where a power failure cannot be detected (holiday homes etc.), the heating circuit should be operated with suitable frost protection.



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 attachment 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 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 the 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 µPC2 installed in the heat pump. More detailed instructions can be found in the heat pump manager operating instructions and in the electrical documentation.

i 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 (see Appendix Chapter 3 on p. VII).

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

i NOTE

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

7.3.2 Circulating pump connection with high performance

In many cases, the supply voltage of the pump is stuck on continuous current when using larger electronically controlled circulating pumps (the manufacturer's information on the pump being used should be taken into consideration). The pump is then generally actuated using the Start/Stop input. This input is operated with extra low voltage from the pump (a link cable is usually inserted in the factory default of the pump). In order to be able to actuate the input, a coupling relay with a floating contact is required. This must be controlled with the pump function of a 230 V relay output of the controller. Due to the extra low voltage to be switched, a suitable relay with the appropriate contact material (gilded) must be selected and integrated on-site.

7.3.3 Frost protection

Regardless of the settings for the heat circulating pumps, they always run in heating, defrost and frost protection mode. In systems with multiple heating circuits, the 2nd and 3rd heat circulating pump has the same function.

⚠ CAUTION!

To ensure that the frost protection function on the heat pump works properly, the heat pump manager must remain connected to the power supply and flow must be maintained through the heat pump at all times.

⚠ CAUTION!

The primary pump (M11 – responsible for the heat source flow rate) and the secondary pump (M16 – responsible for the warm/cold water flow rate) must always be clamped to the heat pump manager in all cases. This is the only way to ensure the pump flows and returns necessary for operation and to ensure that the necessary safety measures are in place.

8 Commissioning

8.1 General

To ensure that commissioning is performed correctly, it should only be carried out by an after-sales service technician authorised by the manufacturer. This may be a condition for an additional warranty (see "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 latter's operating instructions.
- Ensure that the condensate drain functions properly.
- The hydraulic network must be flushed correctly before installing the heat pump. This includes the supply line to the heat pump. Only when flushing is complete can the heat pump be hydraulically integrated.
- The dirt traps present as standard or included for assembly must be inspected between 4 and 8 weeks after the heat pump is commissioned or changes made to the heating system and cleaned if necessary. Further maintenance intervals must be scheduled depending on the level of soiling, which must be defined and carried out by a suitably qualified person.

Special notes for the integration of heat pumps in existing systems (renovations):

The existing heat distribution network (pipe materials, connection types, etc.) and the existing heating systems (e.g. radiators, underfloor heating, etc.) can impact the quality of the water in existing systems. Particularly when welded steel pipes or pipes that are not oxygen diffusion-proof are used, deposits, scaling, silting or similar may be present that can cause damage in the heat pump system. This can result in a total failure of the heat pump The following measures must be observed to avoid this:

- Compliance with the water properties and water quality
- Flushing of the hydraulic system
- Maintenance interval of the dirt traps

If silting or ferromagnetic particles are to be expected in the hydraulic network, dirt separators or magnetite separators must be installed on-site before the medium enters the heat pump. The maintenance intervals must be defined by a suitably qualified person.

8.3 Procedure

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

At heating water temperatures below 7 °C, commissioning is not possible. The water in the buffer tank must be heated with the second heat generator to at least 18 °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) Select "Winter" mode on the heat pump manager.
4) In the special functions menu, start the "Commissioning" program.
5) Wait until a return temperature of at least 25 °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 20 °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 18 °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 Maintenance

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 sediment 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

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. We recommend equipping diffusion-open heating systems with an electrophysical anti-corrosion system (e.g. ELYSATOR system).

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. Do this by opening the heat pump as described in Chapter 7.1.

⚠ CAUTION!

Before opening the device, ensure that all 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 may form on the air intake and air outlet grids. If this happens, the ice must be removed from the vicinity of the air intake and air outlet grids 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.

10 Faults / troubleshooting

This heat pump is a quality product and is designed for trouble-free operation. Should a fault occur, however, 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 circuits are disconnected from the power supply!

After disconnecting the power supply, always wait for at least 5 minutes to allow stored electric charges to dissipate.

⚠ 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 refrigerant oils.

12 Device information

1	**Type and order code**			LA 1118BW
2	**Design**			
	Heat source			Air
2.1	**Model**			Universal with hydro tower
2.2	**Controller**			Integrated (hydro tower)
2.3	**Installation location**	**Heat Pump / Hydro tower**		Outdoors / Indoors
2.4	**Thermal energy metering**			Integrated
2.5	**Performance levels**			2
3	**Operating limits**			
3.1	**Heating water flow / return** [1]		**°C**	up to 60 ± 2 / from 18
3.2	**Air (heating)** [1]		**°C**	-22 to +5[2] / +35[3]
4	**Flow[4] / sound**			
4.1	**Heating water flow heat pump circuit / free compression**			
	Nominal flow in accordance with EN 14511	**at A7 / W35...30**	**m³/h / Pa**	1.5 / 40900
		at A7 / W45...40	**m³/h / Pa**	1.4 / 45900
		at A7 / W55...47	**m³/h / Pa**	1.4 / 45900
4.2	**Minimum heating water flow rate**	**Heat pump circuit**	**m³/h / Pa**	1.4
4.3	**Sound power level according to EN 12102 at A7 / W55 (outdoors)** [5] **Normal operation / reduced operation**[6] [7]		**dB(A)**	58 (57) [7] / 57 (56) [7]
4.4	**Sound pressure level at a distance of 10 m (air outlet side)** [8] **Normal operation / reduced operation**[6] [7]		**dB(A)**	30 (28) [7] / 28 (27) [7]
4.5	**Air flow**	**Normal operation / reduced operation** [6]	**m³/h**	5500 / 3200
4.6	**Sound power level**	**HWK**	**dB(A)**	42
4.7	**Sound pressure level at a distance of 1m**	**HWK**	**dB(A)**	35
5	**Technical data**			
5.1	**Heat generation**	**HWK**		external
5.2	**Buffer tank**	**HWK**		
	Nominal capacity		**litres**	100
	Permissible operating temperature		**°C**	85
	max. permissible operating pressure		**bar**	2,0
	Electrical pipe heater	**HWK**	**kW**	2, 4 or 6 [9]
	Immersion heater		**kW**	up to 6
5.3	**Domestic hot water cylinder**	**HWK**		
	Usable capacity		**litres**	277
	Heat exchanger area		**m²**	3,15
	Permissible operating temperature		**°C**	95
	Permissible operating pressure		**bar**	10,0
	Immersion heater		**kW**	1,5
5.4	**Start-to-leak pressure, safety valve**	**HWK**	**bar**	2,5
6	**Dimensions, weight and filling quantities**			
6.1	**Device dimensions without connections**		**H x W x L mm**	1650 x 910 x 750
6.2	**Device connections for heating**		**inches**	G 1 1/4" external thread
6.3	**Weight of the transportable unit(s) incl. packaging**		**kg**	295
6.4	**Refrigerant / total filling weight**		**type/kg**	R410A / 5.9
6.5				2088 / 12
6.6				yes
6.7	**Lubricant / total filling quantity**		**type/litres**	Polyolester (POE)/1.2
6.8	**Volume of heating water in device**		**Litres**	3.8
6.9	**Device dimensions**[10]	**HWK**	**H x W x L mm**	1920 x 740 x 950
6.10	**Tilted dimension**	**HWK**	**mm**	2000
6.11	**Device connections**	**HWK**		
	for heat generator		**inches**	1 1/4“ AG/FL
	unmixed heating circuit		**inches**	1 1/4“ AG/FL
	for domestic hot water		**inches**	1“ AG
	for circulation pipe		**inches**	3/4“ IG

	for expansion vessel		**inches**	1“ AG/FL	
6.12	**Anode diameter**	**HWK**	**mm**	33	
6.13	**Anode length**	**HWK**	**mm**	690	
6.14	**Anode connection thread**	**HWK**	**inches**	1 1/4“ IG	
6.15	**Weight of the transport unit(s) incl. packaging**	**HWK**	**kg**	215	
7	**Electrical connection**				
7.1	**Supply voltage / fusing / RCD type**			3~/N/PE 400 V (50 Hz) / C13 A / B	
7.2	**Control voltage / fusing by WPM**			1~/N/PE 230 V (50 Hz) / 4 AT	
7.3	**Degree of protection according to EN 60529**	**Heat Pump / Hydro tower**		IP 24 / IP 20	
7.4	**Starting current limiter**			Soft starter	
7.5	**Rotary field monitoring**			Yes	
7.6	**Starting current with soft starter**		**A**	21	
7.7	**Nominal power consumption A2/W35/ max. power consumption [4]**		**kW**	3.24 / 6.8	
7.8	**Nominal current A2 /W35 / cos φ**		**A / ---**	5.9 / 0.8	
7.9	**Power consumption of compressor protection (per compressor)**		**W / ---**	70 / thermostatically controlled	
7.10	**Power consumption of fan**		**W**	up to 200	
7.11	**Control voltage, fusing**	**HWK**			
7.12	**Supply voltage / fusing -FE(3~) / FE (1~) (∑ P = 3,5kW / 5,5kW / 7,5kW)**	**HWK**		1~ / N / PE 230V (50Hz) / B20A / B32A / B35A	
				3~ / N / PE 400V (50Hz) / B20A	
	Further supply voltage / fusing -FE10.12(3~) / -FE10.12 (1~) (∑ Pmax. = 6kW) HWK optional 2nd heat generator (6 kW) E10.12			1~ / N / PE 230V (50Hz) / B32A	
				3~ / N / PE 400V (50Hz) / B10A	
8	**Complies with the European safety regulations**			[11]	
9	**Additional model features**				
9.1	**Type of defrosting**			Reverse circulation	
9.2	**Frost protection, condensate tray / Water in device protected against freezing[12]**			Yes	
9.3	**Maximum operating pressure (heat sink)**		**bar**	3.0	
9.4	**Energy efficiency class / energy efficiency (low temperature)**			A+++ / 168 %	
9.5	**Energy efficiency class / energy efficiency (mean temperature)**			A++ / 133 %	
10	**Heat output COP [4]**				
10.1	**Heat output / COP**			EN 14511	
	Performance level			1	2
	at A-7 / W35		**kW / ---**	5.6 / 3.3	10.5 / 3.3
	at A2 / W35		**kW / ---**	7.3 / 4.3	12.3 / 3.9 (4.0)[13]
	at A7 / W35		**kW / ---**	8.4 / 5.0	
	at A7 / W45		**kW / ---**	8.1 / 3.9	
	at A7 / W55		**kW / ---**	7.7 / 3.2	
	at A10 / W35		**kW / ---**	8.8 / 5.4	

1. For air temperatures between -22°C and -5°C, flow temperature increasing from 45? t
2. Operation with 2 compressors
3. Operation with 1 comressor
4. These data indicate the size and capacity of the system according to EN 14511. For an analysis of the economic and energy efficiency of the system, other parameters, in particular the defrosting capacity and regulation, should also be taken into consideration. These figures are only achieved with clean heat exchangers. Instructions for care, commissioning and operation can be found in the relevant sections of the installation and operation instructions. The specified values have the following meaning, e.g. A7/ W35: outside air temperature 7 °C and heating water flow temperature 35 °C.
5. Tonal component according to DIN 45681 Table 1 is 0 dB
6. The heat output and COP is reduced by approx. 5 % in lower operation
7. When using the optional weather protection hood (accessory), the sound level is reduced to the specified values.
8. 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.
9. condition as delivered 6 kW
10. Note that additional space is required for pipe connections, operation and maintenance.
11. See CE declaration of conformity
12. The heat circulating pump and the heat pump manager must always be ready for operation.
13. The coefficient of performance (COP) in partial load operation can be increased by selecting "energy-optimised heating operation" (natural defrosting)

1	**Type and order code**				LA 1118BWC
2	**Design**				
	Heat source				Air
2.1	**Model**				Reversible with hydro tower
2.2	**Controller**				Integrated (hydro tower)
2.3	**Installation location**	**Heat pump / Hydro tower**			Outdoors / indoors
2.4	**Thermal energy metering**				Integrated
2.5	**Performance levels**				2
3	**Operating limits**				
3.1	**Heating water flow / return** [1]			**°C**	up to 60 ± 2 / from 18
3.2	**Air (heating)**			**°C**	-22 to +5[2] / +35[3]
3.2	**Cooling water flow**			**°C**	+7[3] / +9[2] to +20
3.3	**Air (cooling)**			**°C**	+15 to +45
4	**Flow[4] / sound**				
4.1	**Heating water flow heat pump circuit / free compression**				
	Nominal flow in accordance with EN 14511	**at A7 / W35...30**		**m³/h / Pa**	1.5 / 40900
		at A7 / W45...40		**m³/h / Pa**	1.4 / 45900
		at A7 / W55...47		**m³/h / Pa**	1.4 / 45900
4.2	**Minimum heating water flow rate**	**Heat pump circuit**		**m³/h / Pa**	1.4
4.3	**Cooling water flow rate / internal pressure differential**				
	Nominal flow in accordance with EN 14511	**A35 / W18...23**		**m³/h / Pa**	2.2 / 8100
	Minimum cooling water flow rate			**m³/h / Pa**	1.6 / 36500
4.4	**Sound power level according to EN 12102 at A7 / W55 (**outdoors) [5] **Normal operation / reduced operation**[6] [7]			**dB(A)**	58 (57) [7] / 57 (56) [7]
4.5	**Sound pressure level at a distance of 10 m (air outlet side)** [8] **Normal operation / reduced operation**[6] [7]			**dB(A)**	30 (28) [7] / 28 (27) [7]
4.6	**Air flow** **Normal operation / reduced operation** [6]			**m³/h**	5500 / 3200
4.7	**Sound power level**		**HWK**	**dB(A)**	42
4.8	**Sound pressure level at a distance of 1m**		**HWK**	**dB(A)**	35
5	**Technical data**				
5.1	**Heat generation**		**HWK**		external
5.2	**Buffer tank**		**HWK**		
	Nominal capacity			**litres**	100
	Permissible operating temperature			**°C**	85
	max. permissible operating pressure			**bar**	2,0
	Electrical pipe heater		**HWK**	**kW**	2, 4 or 6 [9]
	Immersion heater			**kW**	up to 6
5.3	**Domestic hot water cylinder**		**HWK**		
	Usable capacity			**litres**	277
	Heat exchanger area			**m²**	3,15
	Permissible operating temperature			**°C**	95
	Permissible operating pressure			**bar**	10,0
	Immersion heater			**kW**	1,5
5.4	**Start-to-leak pressure, safety valve**		**HWK**	**bar**	2,5
6	**Dimensions, weight and filling quantities**				
6.1	**Device dimensions without connections**			**H x W x L mm**	1650 x 910 x 750
6.2	**Device connections for heating**			**inches**	G 1 1/4" external thread
6.3	**Weight of the transportable unit(s) incl. packaging**			**kg**	295
6.4	**Refrigerant / total filling weight**			**type/kg**	R410A / 5.9
6.5	**GWP value / CO_2 equivalent**			**--- / t**	2088 / 12
6.6	**Refrigeration circuit hermetically sealed**				yes
6.7	**Lubricant / total filling quantity**			**type/litres**	Polyolester (POE)/1.2
6.8	**Volume of heating water in device**			**Litres**	3.8
6.9	**Device dimensions** [10]		**HWK**	**H x W x L mm**	1920 x 740 x 950

6.10	Tilted dimension	HWK	mm	2000	
6.11	Device connections	HWK			
	for heat generator		inches	1 1/4“ AG/FL	
	unmixed heating circuit		inches	1 1/4“ AG/FL	
	for domestic hot water		inches	1“ AG	
	for circulation pipe		inches	3/4“ IG	
	for expansion vessel		inches	1“ AG/FL	
6.12	Anode diameter	HWK	mm	33	
6.13	Anode length	HWK	mm	690	
6.14	Anode connection thread	HWK	inches	1 1/4“ IG	
6.15	Weight of the transport unit(s) incl. packaging	HWK	kg	215	
7	**Electrical connection**				
7.1	Supply voltage / fusing / RCD type			3~/N/PE 400 V (50 Hz) / C13 A / B	
7.2	Control voltage / fusing by WPM			1~/N/PE 230 V (50 Hz) / 4 AT	
7.3	Degree of protection according to EN 60529	Heat Pump / Hydro tower		IP 24 /IP 20	
7.4	Starting current limiter			Soft starter	
7.5	Rotary field monitoring			Yes	
7.6	Starting current with soft starter		A	19	
7.7	Nominal power consumption A2/W35 / max. power consumption [4]		kW	3.24 / 6.8	
7.8	Nominal current A2 /W35 / cos φ		A / ---	5.9 / 0.8	
7.9	Power consumption of compressor protection (per compressor)		W / ---	70 / thermostatically controlled	
7.10	Power consumption of fan		W	< 250	
7.11	Control voltage, fusing	HWK			
7.12	Supply voltage / fusing -FE(3~) / FE (1~) (∑ P = 3,5kW / 5,5kW / 7,5kW)	HWK		1~ / N / PE 230V (50Hz) / B20A / B32A / B35A	
				3~ / N / PE 400V (50Hz) / B20A	
	Further supply voltage / fusing -FE10.12(3~) / -FE10.12 (1~) (∑ Pmax. = 6kW) HWK optional 2nd heat generator (6 kW) E10.12			1~ / N / PE 230V (50Hz) / B32A	
				3~ / N / PE 400V (50Hz) / B10A	
8	**Complies with the European safety regulations**			[11]	
9	**Additional model features**				
9.1	Type of defrosting			Reverse circulation	
9.2	Frost protection, condensate tray / Water in device protected against freezing[12]			Yes	
9.3	Maximum operating pressure (heat sink)		bar	3.0	
9.4	Energy efficiency class / energy efficiency (low temperature)			A+++ / 186 %	
9.5	Energy efficiency class / energy efficiency (mean temperature)			A++ / 133 %	
10	**Heat output COP [4]**				
10.1	Heat output / COP			EN 14511	
	Performance level			1	2
	at A-7 / W35		kW / ---	5.6 / 3.3	10.6 / 3.3
	at A2 / W35		kW / ---	7.3 / 4.3	12.3 / 3.9 (4.0)[13]
	at A7 / W35		kW / ---	8.4 / 5.0	---
	at A7 / W45		kW / ---	8.1 / 3.9	---
	at A7 / W55		kW / ---	7.7 / 3.2	---
	at A10 / W35		kW / ---	8.8 / 5.4	---

11 Cooling capacity / COP [4] [14]				
11.1 Cooling capacity / COP			EN 14511	
	Performance level		1	2
	at A27 / W18	**kW / ---**	8.2 / 4.5	15.4 / 3.7
	at A27 / W9	**kW / ---**		12.7 / 3.2
	at A27 / W7	**kW / ---**	6.0 / 3.4	---
	at A35 / W18	**kW / ---**	6.7 / 3.2	14.0 / 3.1
	at A35 / W9	**kW / ---**		12.2 / 2.7
	at A35 / W7	**kW / ---**	5.2 / 2.6	---

1. For air temperatures between -22°C and -5°C, flow temperature increasing from 45? to 60?.
2. Operation with 2 compressors
3. Operation with 1 compressor
4. These data indicate the size and capacity of the system according to EN 14511. For an analysis of the economic and energy efficiency of the system, other parameters, in particular the defrosting capacity and regulation, should also be taken into consideration. These figures are only achieved with clean heat exchangers. Instructions for care, commissioning and operation can be found in the relevant sections of the installation and operation instructions. The specified values have the following meaning, e.g. A7/ W35: outside air temperature 7 °C and heating water flow temperature 35 °C.
5. Tonal component according to DIN 45681 Table 1 is 0 dB
6. The heat output and COP is reduced by approx. 5 % in lower operation
7. When using the optional weather protection hood (accessory), the sound level is reduced to the specified values.
8. 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.
9. Condition as delivered 6 kW
10. Note that additional space is required for pipe connections, operation and maintenance.
11. See CE declaration of conformity
12. The heat circulating pump and the heat pump manager must always be ready for operation.
13. The coefficient of performance (COP) in partial load operation can be increased by selecting "energy-optimised heating operation" (natural defrosting)
14. The maximum sound power level under full load can increase by up to 5 dB(A).

13 Product information as per Regulation (EU) No 813/ 2013, Annex II, Table 2

Information requirements for heat pump space heaters and heat pump combination heaters

Model		LA 1118BW					
Air-to-water heat pump		yes					
Water-to-water heat pump		no					
Brine-to-water heat pump		no					
Low-temperature heat pump		no					
Equipped with a supplementary heater		yes					
Heat pump combination heater		yes					
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low- temperature heat pumps, parameters shall be declared for low-temperature application.							
Parameters shall be declared for average climate conditions:							
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Rated heat output (*)	Prated	9	kW	**Seasonal space heating energy efficiency**	η_s	131	%
Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j*				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j*			
Tj = - 7°C	P*dh*	10,0	kW	Tj = - 7°C	COP*d*	2,12	-
Tj = + 2°C	P*dh*	7,0	kW	Tj = + 2°C	COP*d*	3,39	-
Tj = + 7°C	P*dh*	8,2	kW	Tj = + 7°C	COP*d*	4,33	-
Tj = + 12°C	P*dh*	9,3	kW	Tj = + 12°C	COP*d*	5,17	-
Tj = bivalent temperature	P*dh*	9,0	kW	Tj = bivalent temperature	COP*d*	1,88	-
Tj = operation limit temperature	P*dh*	9,0	kW	Tj = operation limit temperature	COP*d*	1,88	-
For air-to-water heat pumps				For air-to-water heat pumps:			
Tj = -15°C (if TOL < -20°C)	P*dh*	--	kW	Tj = -15°C (if TOL < -20°C)	COP*d*	--	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	P*cych*	-	kW	Cycling interval efficiency	COP*cyc*	-	-
Degradation co-efficient (**)	C*dh*	0,90	-	Heating water operating limit temperature	WTOL	60	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,015	kW	Rated heat output (*)	P*sup*	0	kW
Thermostat-off mode	P_{TO}	0,020	kW	Type of energy input		eletrical	
Standby mode	P_{SB}	0,015	kW				
Crankcase heater mode	P_{CK}	0,000	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	5500	m³ /h
Sound power level, indoors/ outdoors	L_{WA}	42/58	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	--	m³ /h
Emissions of nitrogen oxides	NO_x	-	mg/kWh				
For heat pump combination heater:							
Declared load profile		XL		**Water heating energy efficiency**	η_{wh}	100	%
Daily electricity consumption	Q_{elec}	8,08	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Contact details	Glen Dimplex Deutschland GmbH, Am Goldenen Feld 18, 95326 Kulmbach						

(*) For heat pump space heaters and heat pump combination heaters, the rated output P*rated* is equal to the design load for heating P*designh* , and the rated heat output of a supplementary capacity for heating sup(*Tj*).

(**) If C*dh* is not determined by measurement nthen the default degradation is C*dh* = 0,9
(--) not applicable

Information requirements for heat pump space heaters and heat pump combination heaters

Model	LA 1118BWC
Air-to-water heat pump	yes
Water-to-water heat pump	no
Brine-to-water heat pump	no
Low-temperature heat pump	no
Equipped with a supplementary heater	yes
Heat pump combination heater	yes

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low- temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average climate conditions:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	9	kW	**Seasonal space heating energy efficiency**	η_s	131	%
Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j*				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j*			
Tj = - 7°C	P*dh*	10,0	kW	Tj = - 7°C	COP*d*	2,12	-
Tj = + 2°C	P*dh*	7,0	kW	Tj = + 2°C	COP*d*	3,39	-
Tj = + 7°C	P*dh*	8,2	kW	Tj = + 7°C	COP*d*	4,33	-
Tj = + 12°C	P*dh*	9,3	kW	Tj = + 12°C	COP*d*	5,17	-
Tj = bivalent temperature	P*dh*	9,0	kW	Tj = bivalent temperature	COP*d*	1,88	-
Tj = operation limit temperature	P*dh*	9,0	kW	Tj = operation limit temperature	COP*d*	1,88	-
For air-to-water heat pumps				For air-to-water heat pumps:			
Tj = -15°C (if TOL < -20°C)	P*dh*	--	kW	Tj = -15°C (if TOL < -20°C)	COP*d*	--	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	P*cych*	-	kW	Cycling interval efficiency	COP*cyc*	-	-
Degradation co-efficient (**)	C*dh*	0,90	-	Heating water operating limit temperature	WTOL	60	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,015	kW	Rated heat output (*)	P*sup*	0	kW
Thermostat-off mode	P_{TO}	0,020	kW	Type of energy input		eletrical	
Standby mode	P_{SB}	0,015	kW				
Crankcase heater mode	P_{CK}	0,000	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	5500	m³ /h
Sound power level, indoors/ outdoors	L_{WA}	42/58	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	--	m³ /h
Emissions of nitrogen oxides	NO_x	-	mg/kWh				
For heat pump combination heater:							
Declared load profile		XL		**Water heating energy efficiency**	η_{wh}	100	%
Daily electricity consumption	Q_{elec}	8,08	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Contact details	Glen Dimplex Deutschland GmbH, Am Goldenen Feld 18, 95326 Kulmbach						

(*) For heat pump space heaters and heat pump combination heaters, the rated output P*rated* is equal to the design load for heating P*designh* , and the rated heat output of a supplementary capacity for heating sup(*Tj*).

(**) If C*dh* is not determined by measurement nthen the default degradation is C*dh* = 0,9

(--) not applicable

Anhang · Appendix · Annexes

1 Maßbild / Dimension Drawing / Schéma coté ..... A-II

1.1 Maßbild Wärmepumpe / Dimension Drawing Heat Pump / Schéma coté Pompe à cahleur ..... A-II

2 Diagramme / Diagrams / Diagrammes ..... A-III

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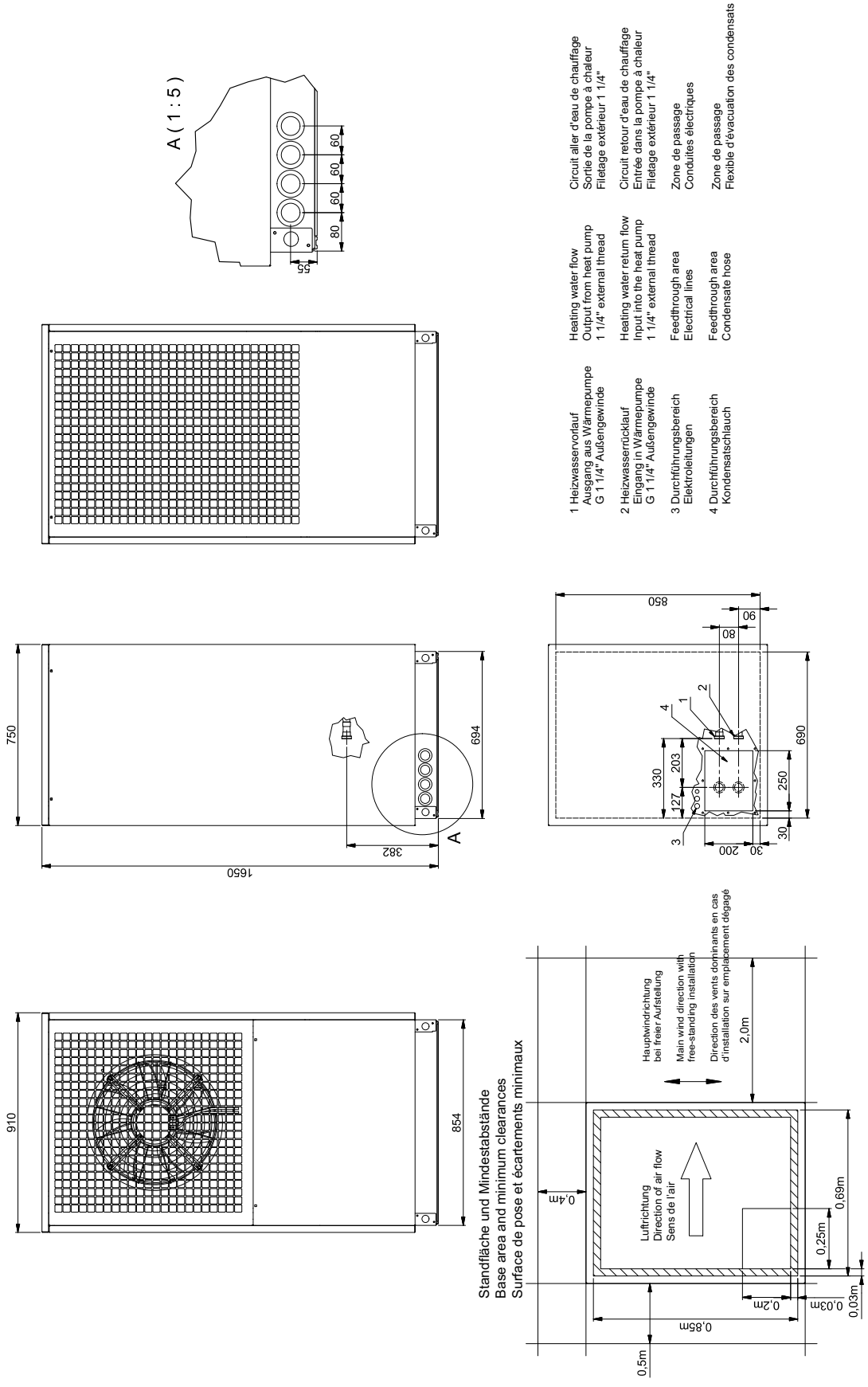
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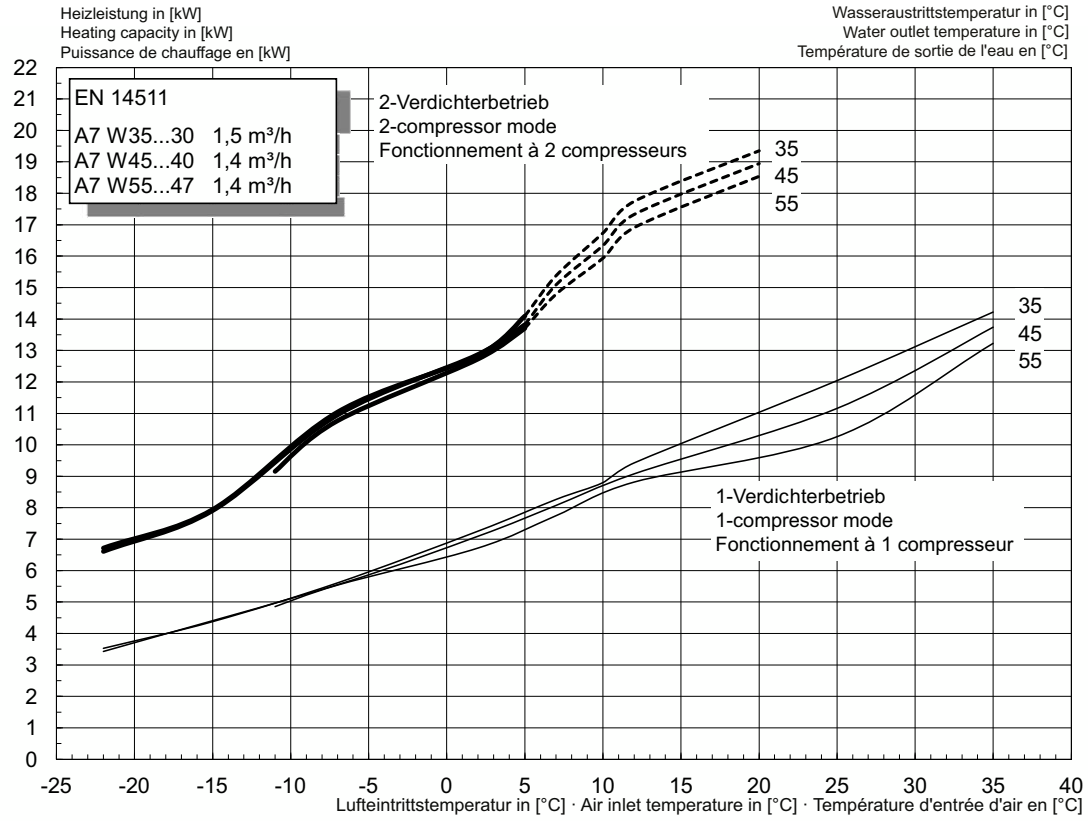
1 Maßbild / Dimension Drawing / Schéma coté

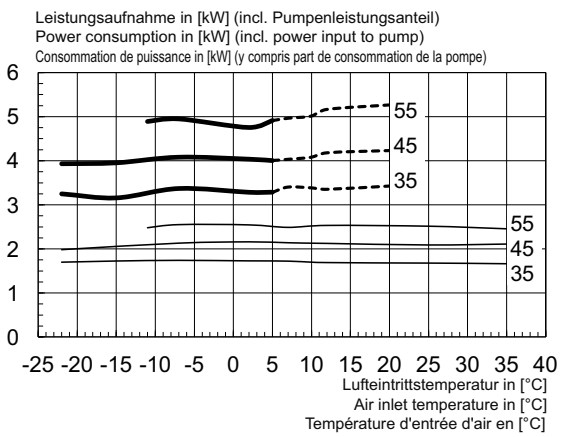
1.1 Maßbild Wärmepumpe / Dimension Drawing Heat Pump / Schéma coté Pompe à cahleur

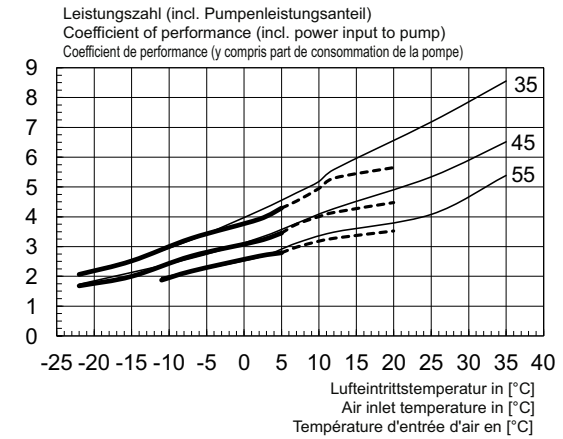


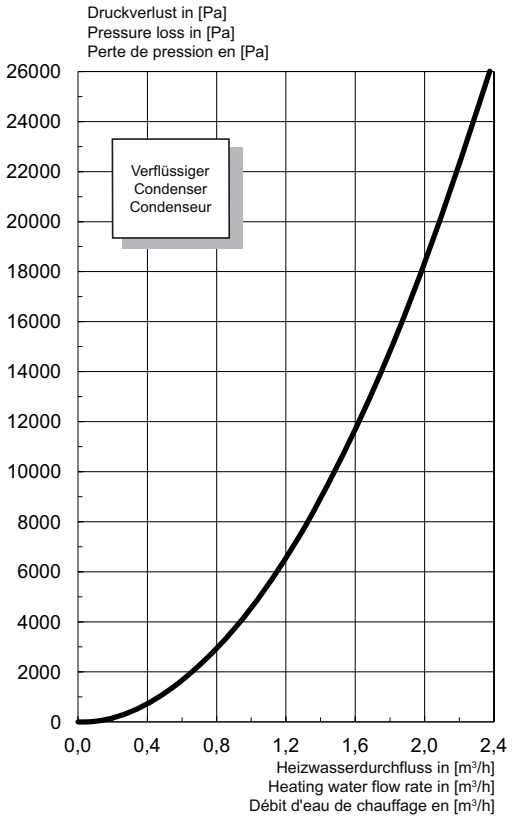
2 Diagramme / Diagrams / Diagrammes

2.1 Kennlinien Heizen / Characteristic curves for heating operation /Courbes caractéristiques mode chauffage LA 1118BW(C)

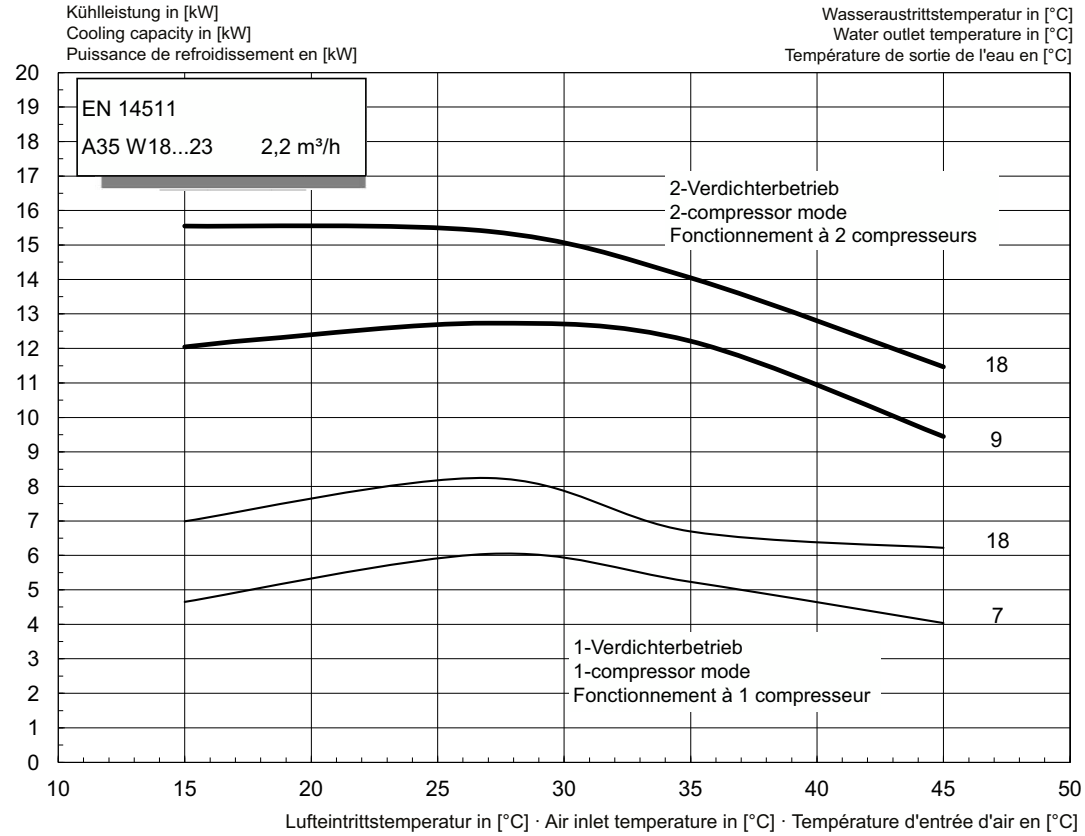


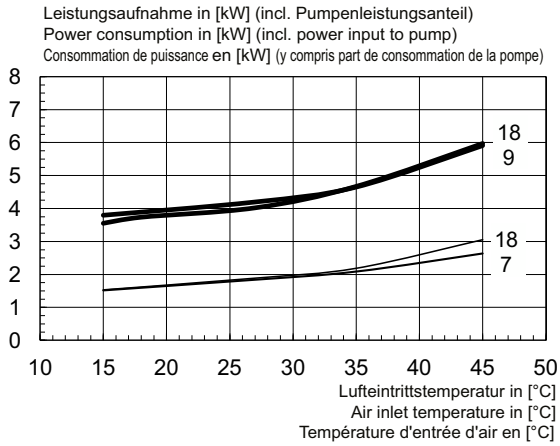


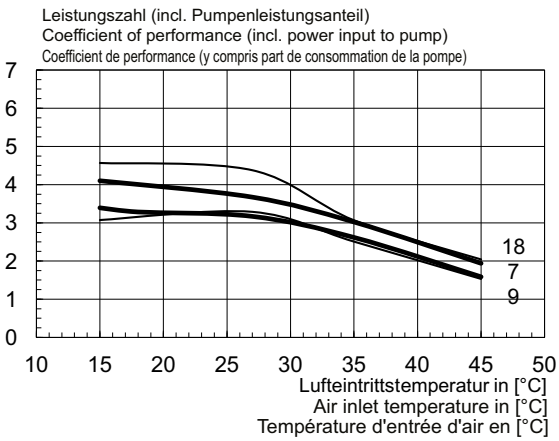


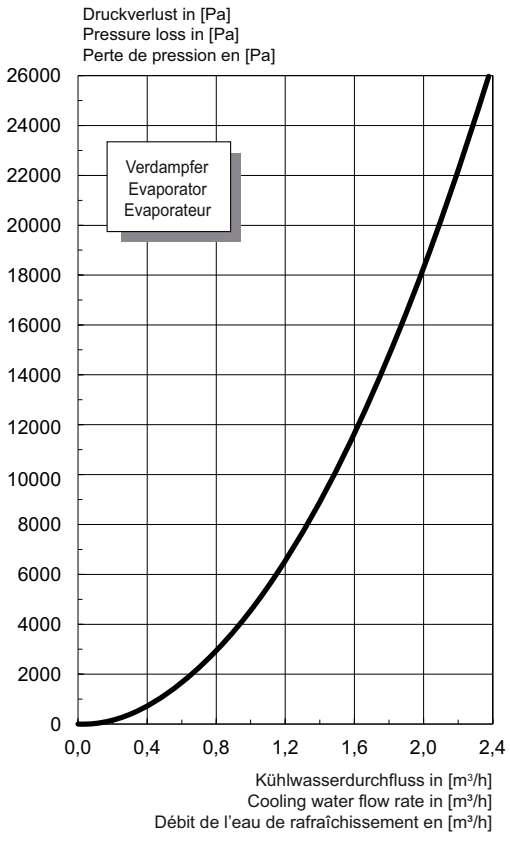


2.2 Kennlinien Kühlen / Characteristic curves for cooling operation / Courbes caractéristiques mode rafraîchissement LA 1118BWC

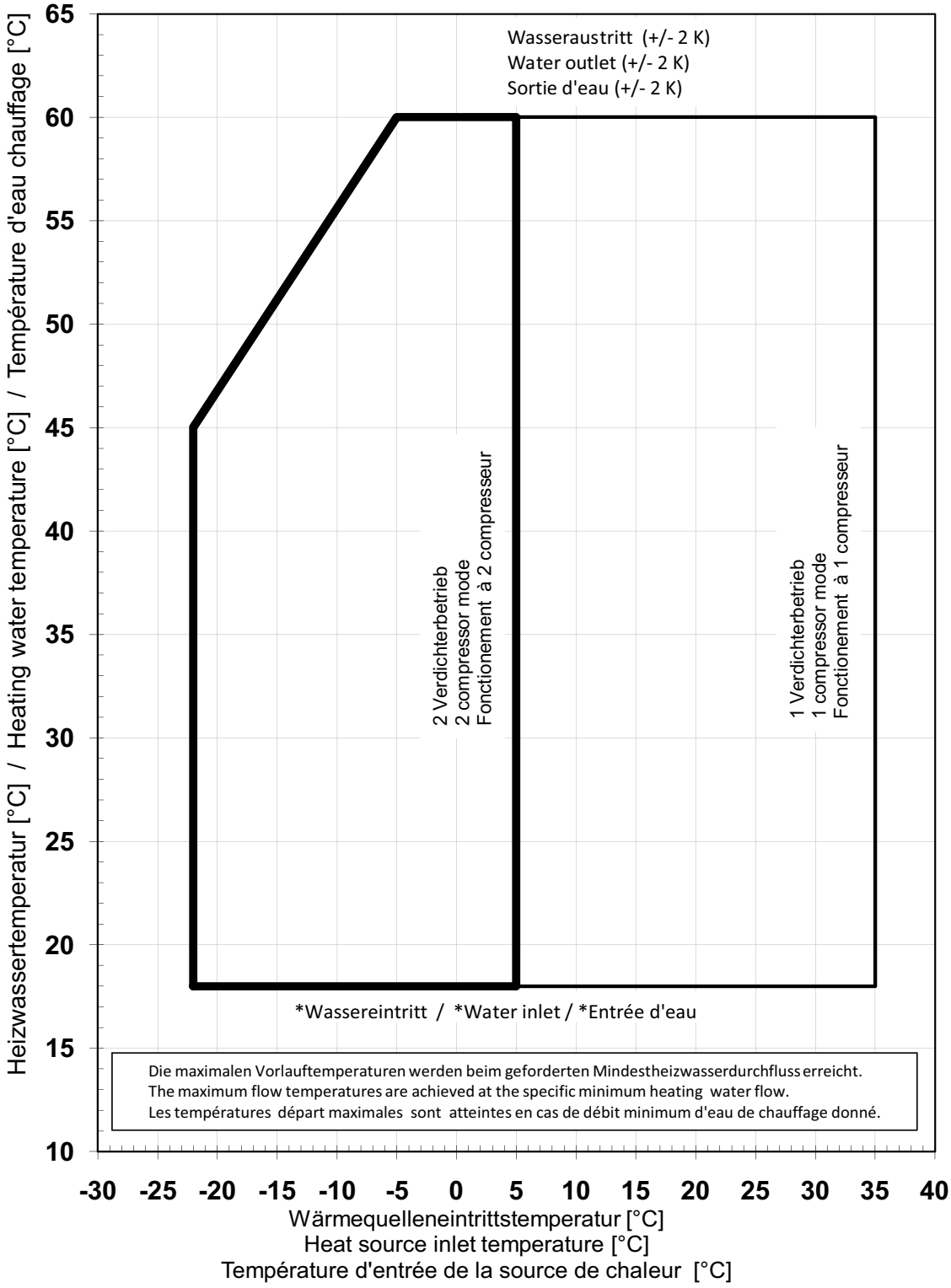






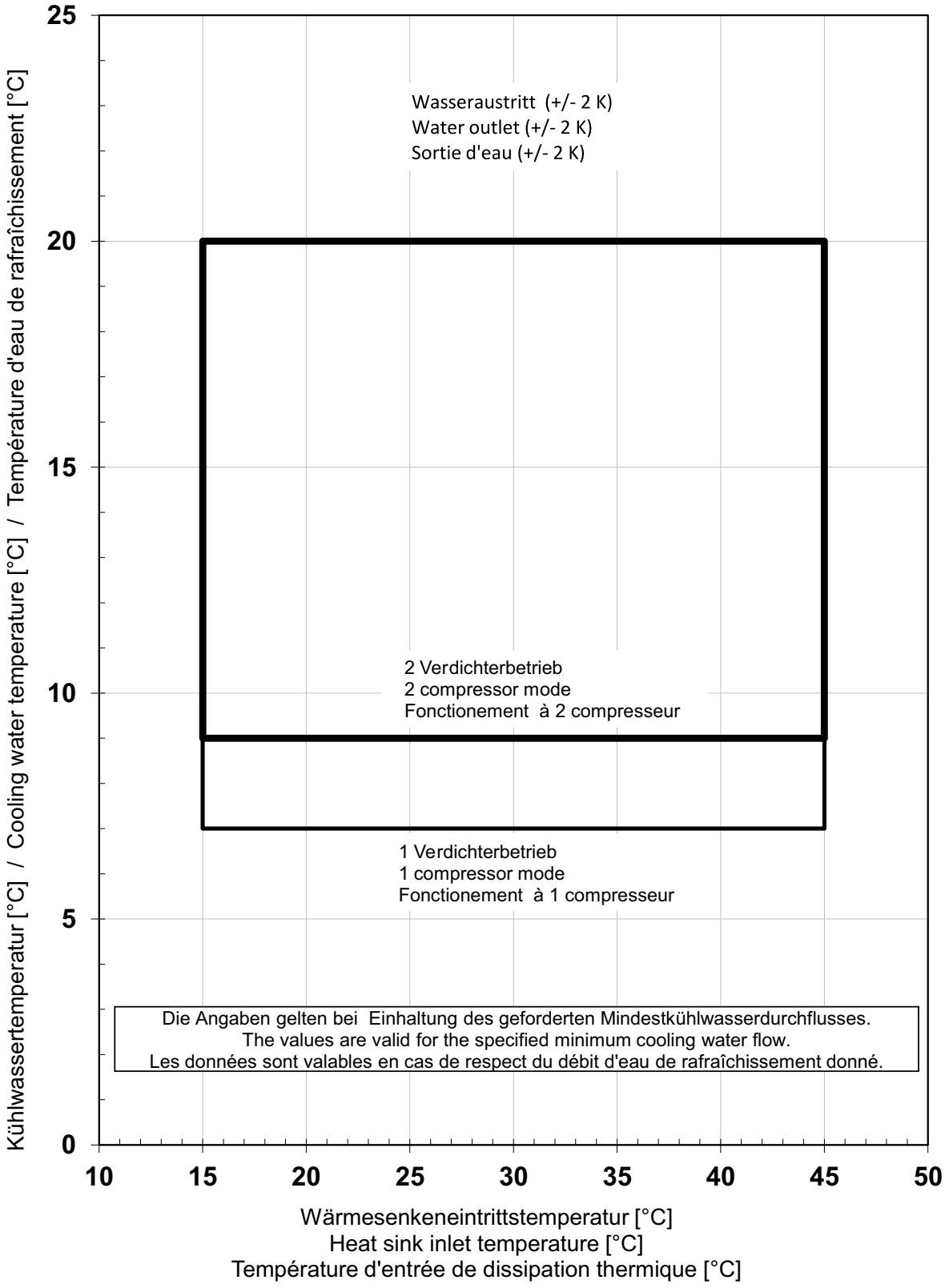


2.3 Einsatzgrenzendiagramm Heizen / Operating limits diagram heating / Diagramme des seuils d'utilisation chauffage



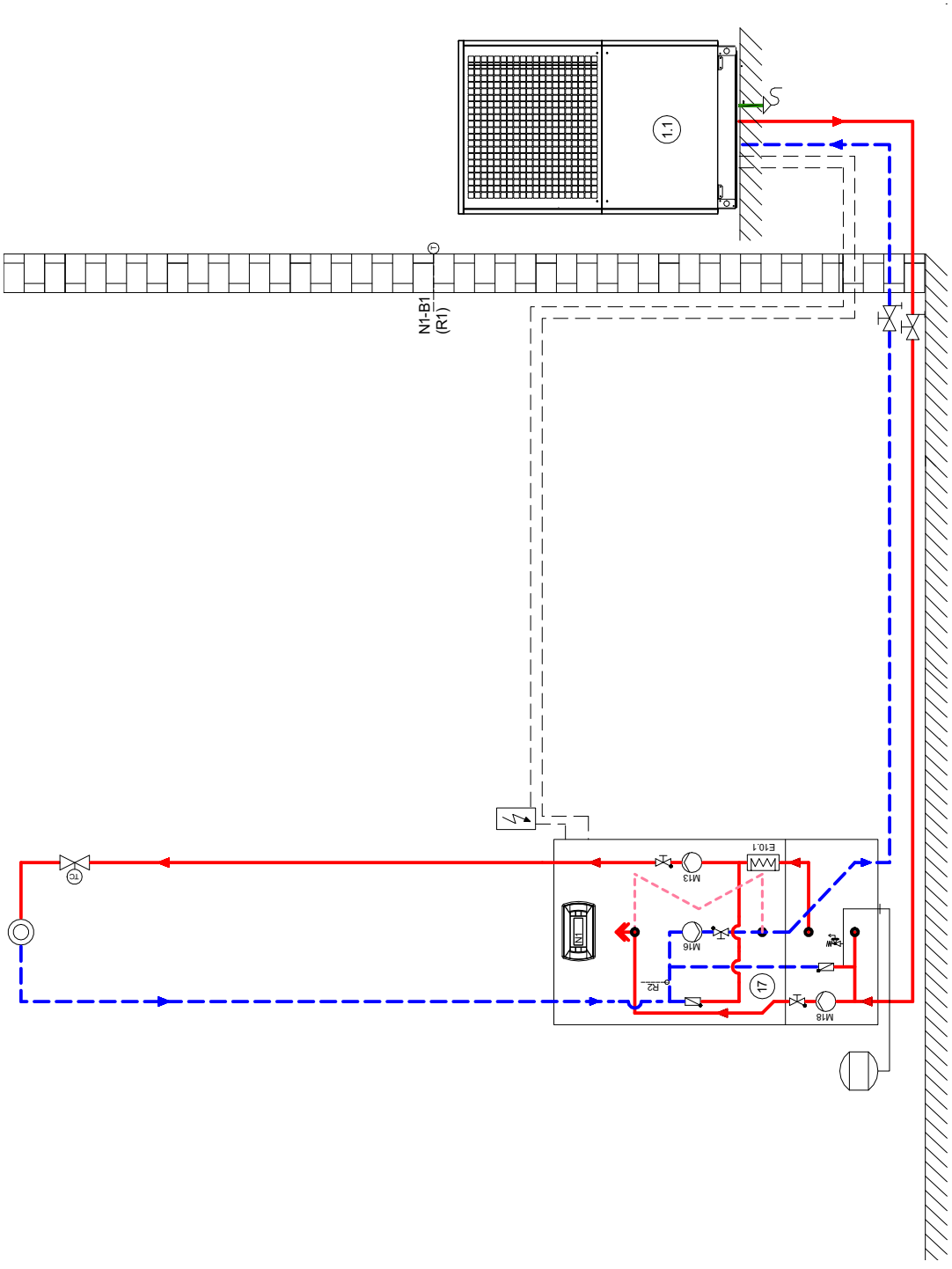
*Bei Luft/Wasser-Wärmepumpen stellt die minimale Heizwassertemperatur die Mindest-Rücklauftemperatur dar
*For air-to-water heat pumps the minimum heating water temperature is the minimum return temperature
*Sur les pompes à chaleur air / eau, la température minimale d'eau de chauffage correspond à la température retour minimale

2.4 Einsatzgrenzendiagramm Kühlen / Operating limits diagram cooling / Diagramme des seuils d'utilisation tafraîchissement

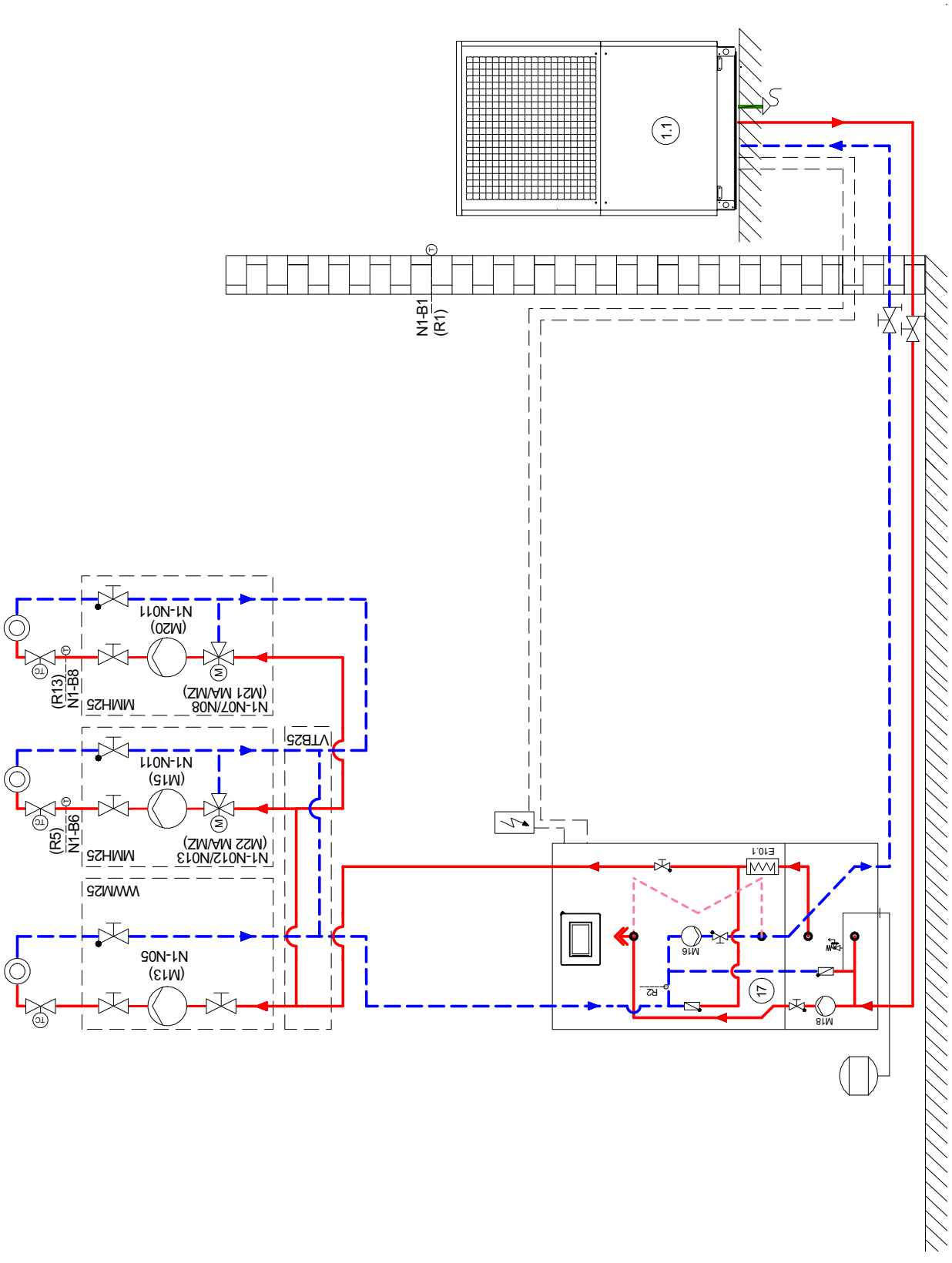


3 Hydraulische Einbindungsschemen / Hydraulic integration diagrams / Schémas d'integration hydraulique

3.1 Monoenergetische Wärmepumpenheizungsanlage mit einem Heizkreis, Puffer- und Warmwasserspeicher / Mono energy heat pump heating system with one heating circuit, buffer tank and hot water cylinder / Installation de chauffage par pompe à chaleur mono-énergétique avec un circuit de chauffage, ballons tampon et d'eau chaude sanitaire



3.2 Monoenergetische Wärmepumpenheizungsanlage mit drei Heizkreise, Puffer- und Warmwasserspeicher / Mono energy heat pump heating system with three heating circuits, buffer tank and hot water cylinder / Installation de chauffage par pompe à chaleur mono-énergétique avec trois circuits de chauffage, ballons tampon et d'eau chaude sanitaire



3.3 Legende / Legend / Légende

	Absperrventil	Shutoff valve	Vanne d'arrêt
	Sicherheitsventilkombination	Safety valve combination	Jeu de vannes de sécurité
	Umwälzpumpe	Circulating pump	Circulateur
	Ausdehnungsgefäß	Expansion vessel	Vase d'expansion
	Raumtemperaturgesteuertes Ventil	Room temperature-controlled valve	Vanne commandée par température ambiante
	Absperrventil mit Rückschlagventil	Shutoff valve with check valve	Vanne d'arrêt avec clapet anti-retour
	Absperrventil mit Entwässerung	Shutoff valve with drainage	Vanne d'arrêt avec vidange
	Wärmeverbraucher	Heat consumer	Consommateur de chaleur
	Temperaturfühler	Temperature sensor	Sonde de température
	Flexibler Anschlussschlauch	Flexible connection hose	Tuyau de raccordement flexible
	Rückschlagklappe	Check valve	Clapet anti-retour
	Dreiwegemischer	Three-way mixer	Mélangeur 3 voies
⑪	Wärmepumpe	Heat pump	Pompe à chaleur
⑰	Wärmepumpenmanager	Heat pump manager	Gestionnaire de pompe à chaleur
E10.1	Tauchheizkörper	Immersion heater	Résistance immergée
M13	Heizungsumwälzpumpe Hauptkreis	Heat circulating pump for main circuit	Circulateur de chauffage circuit principal
M15	Heizungsumwälzpumpe 2. Heizkreis	Heat circulating pump for heating circuit 2	Circulateur de chauffage 2ème circuit de chauffage
M16	Zusatzumwälzpumpe	Auxiliary circulating pump	Circulateur supplémentaire
M18	Warmwasserladepumpe	Hot water loading pump	Pompe de charge eau chaude sanitaire
M21	Mischer Hauptkreis od. 3. Heizkreis	Mixer for main circuit or heating circuit 3	Mélangeur circuit principal ou 3ème circuit de chauffage
M22	Mischer 2. Heizkreis	Mixer for heating circuit 2	Mélangeur 2ème circuit de chauffage
N1	Wärmepumpenmanager	Heat pump manager	Gestionnaire de pompe à chaleur
R1	Außenwandfühler	External wall sensor	Sonde sur mur extérieur
R2	Rücklauffühler (integriert)	Return flow sensor (integral)	Sonde de retour (intégrée)
R5	Temperaturfühler 2. Heizkreis	Temperature sensor for heating circuit 2	Sonde de température 2ème circuit de chauffage
R13	Fühler 3. Heizkreis / Fühler regenerativ	Sensor for heating circuit 3 / renewable sensor	Vanne d'inversion eau chaude sanitaire

4 Konformitätserklärung / Declaration of Conformity / Déclaration de conformité

Die aktuelle CE-Konformitätserklärung finden sie als Download unter:
You can find and download the current CE conformity declaration at:
Vous pouvez télécharger la déclaration de conformité CE actuelle sous :

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