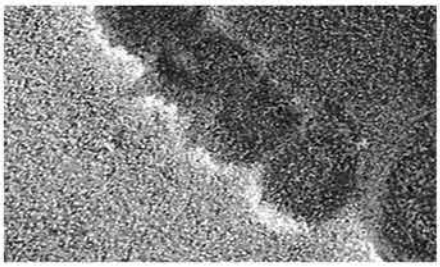
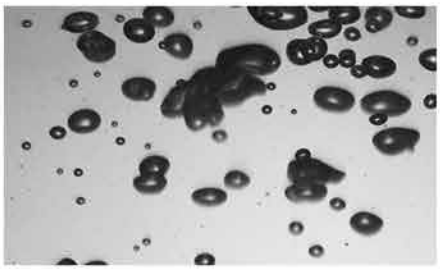
Operating Manual

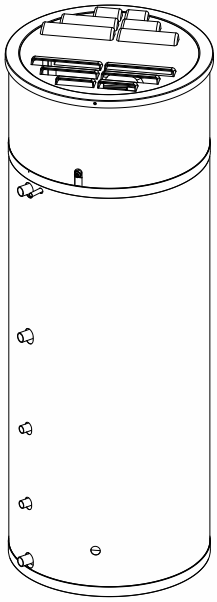
UK

DOMESTIC HOT WATER HEAT PUMP

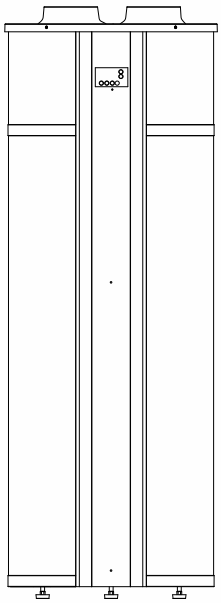




BWP 303+S



BWP 307+S



alpha innoTec

Please read first

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

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

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

As this operating manual possibly has been written for several different models, always comply with the parameters for the respective model.

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

Symbols

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

Information for users.

Information or instructions for qualified personnel.

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

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

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

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

NOTE.
Emphasized information.

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

Reference to other sections of the operating manual.

Reference to other documents of the manufacturer.

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83025000cUK – translation of the operating manual

Intended use

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

- for domestic water heating.

The unit may be operated only within its technical parameters.

☞ "Technical data / scope of delivery".

Disclaimer

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

The manufacturer's liability also expires:

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

EC conformity

The unit bears the CE mark of conformity.

☞ "EC declaration of conformity".

Safety

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

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

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

! ATTENTION
Only install the heating pump indoors.
Maintain minimum clearances.

☞ "Dimensioned drawings" and "installation plan".

! ATTENTION
Store unit in packaging and upright, not filled with water.
Transport unit in packaging and not filled with water.
Ambient temperature for storage and transport: -10 °C to +50 °C.

! ATTENTION
Do not tilt the unit more than a maximum of 45° (in any direction).
The unit can be substantially damaged if tilted by more than 45°!

! ATTENTION
Do not drill holes in the shell of the unit (i.e. for fittings). This could damage the unit to the point of making it unserviceable.

DANGER!
Risk of fatal electric shock!
Electrical connection work must be carried out by qualified electricians only.

- **Before working on the unit, disconnect the power supply, disconnect the unit from the power supply (unplug!) and secure against being switched back on again. Note that the fan may continue to turn even after the unit has been switched off.**

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

DANGER!
Qualified trained personnel only (qualified heating, cooling system, refrigeration or refrigerant technician or electrician) may carry out work on the unit and its components.

WARNING!
Unit contains refrigerants! Qualified service personnel must ensure that prior to maintenance or repairs of parts that circulate refrigerant, the refrigerant must be removed to the extent necessary for carrying out the work safely.

Leaking refrigerant could result in personal injury or environmental damage. Therefore:

- **Switch off system,**
- **Notify the manufacturer's authorised service centre.**

WARNING!
Use only water that is suitable for drinking in accordance with the drinking water ordinance.
Ensure that all drinking water connections comply with the local regulations.
Use only suitable materials for the entire domestic water circuit.
In case of excessive water pressure, install a suitable pressure reduction valve in the cold water supply pipe.

Area of use

Taking into account the ambient conditions, use limits and the relevant regulations, the pump can be used in new or existing domestic hot water systems.

☞ "Technical data / Scope of delivery".

Care of the unit

You can clean the outer surfaces of the unit with a damp cloth and proprietary household cleaning products.

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

Malfunctions

Malfunctions are indicated by the controller on the unit.

DANGER!
Only customer service personnel authorised by the manufacturer may carry out service and repair work on the unit's components.

☞ "Customer service".

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

☞ "Installed safety devices", "Safety temperature limiter" section.

Customer service

For technical information please contact your local heating engineer or the manufacturer's local partner.
For a current list and additional partners of the manufacturer, please visit

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

Warranty / Guarantee

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

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

Disposal

If taking the old unit out of service, comply with the relevant local laws, guidelines, directives and standards for the recovery, reuse, recycling and disposal of resources and components of cooling units.

☞ "Dismantling".

Description of unit

THE UNIT

The BWP is a ready-to-connect, domestic water heat pump. It consists of the housing, the components of the refrigerant, air and water circuit and all control and monitoring devices required for automatic operation.

The BWP uses the heat of the extract air to heat domestic water. During peak load period, extra power is supplied by an integrated electric heating element of 1.5 kW.

A thermowell is installed in the storage tank, which can be used for an external storage tank thermostat or a sensor (diameter 6 mm) of an external control.

The area of application and functional principle of the heat pump is specified in the operating manual.

HOW IT WORKS

The control unit starts the compressor shortly after hot water has been used. The compressor carries on running until the whole tank has once again been heated to the set temperature. In general the BWP can produce enough hot water to cover the requirements of a 4-person household (user dependent).

If the situation arises that the BWP cannot produce enough hot water, an electric heating element installed in the storage tank can be switched on. This enables more domestic water to be heated. It is possible to set the required temperature, to which the electric heating element is to heat the domestic water. Only use the electric heating element if it is needed, because the electric heating element consumes more energy than the compressor. The electric heating element must be switched on manually at the control.

☞ "Technical data/scope of delivery".

FUNCTIONAL PRINCIBLE

THE REFRIGERANT CIRCUIT - DESCRIPTION

The cooling system is used to optimise the heat in the extracted air. In this way the recovered heat is transferred to the water. This process is only possible by external supply of energy into the compressor.

The refrigerant circuit is a closed system, in which the HCFC-free refrigerant R134a functions as an energy carrier.

In the evaporator, heat is extracted from the air at a low evaporating temperature and is transferred to the refrigerant. The vaporous refrigerant is drawn in by a compressor, is compressed to a higher pressure and temperature level and is transported to the liquefier, which is attached to the outside of the storage tank. Here the heat absorbed in the evaporator and part of the absorbed compressor energy are transferred to the domestic hot water.

The high condensing pressure is then relaxed by means of an expansion device (expansion valve) to the evaporation pressure, and the refrigerant in the evaporator can then once again absorb heat from the exhaust air

☞ "Cooling circuit".

THE WATER CIRCUIT - DESCRIPTION

The water circuit is set up in compliance with the relevant standards and requirements.

Only water of drinking quality (according to the drinking water regulations) may be used. Ensure material compatibility in the whole water circuit. A suitable pressure reducer must be used if the water pressures are too high.

WATER CIRCUIT REQUIREMENTS

The nominal diameters of the pipes for on site installation are to be defined on site, taking into account the available water pressure and the expected pressure losses in the pipe system. The water side installation must be according to DIN 1988. The water pipes can be fixed or flexible pipes.

Attention must be paid to the corrosivity of the materials used in the pipe system to avoid damage. This requires particular attention if zinc coated components containing copper are used.

As with all pressure vessels, the domestic hot water tank of the water pump must be equipped with a type-tested safety valve and a non-return valve (on site).

The cold water pipe inlet is at the rear, near the floor (3/4" RG). The maximum operating pressure is 10 bar; the maximum operating temperature is 65° C. If necessary, a drinking water filter and a pressure reducing valve should be installed in the supply pipe.

We recommend checking the water connection sockets for dirt.

Avoid getting dirt in the pipe system when laying the piping on site (if necessary, flush the pipes before connecting the heat pump)!

If a circulation pipe is not connected to the heat pump the connection must be appropriately sealed!

DEFROSTING (BWP 307+S ONLY)

If the temperature difference between the cooling surface temperature upstream of the cooling surface and the cooling surface temperature becomes too large, which happens if ice has formed on the cooling surface, the system begins to defrost (see diagram). Solenoid valve MA 4 opens, the exhaust air fans switch off until the ice has melted and the cooling surface has reached a temperature of approx. 5°C (depends on the setting), after which the solenoid valve closes again and the exhaust air fan restarts.

☞ "Cooling circuit".

Incidentally:

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

ENERGY SAVING TIP

Do not set the domestic hot water temperature higher than necessary. The unit operates most efficiently at low domestic hot water temperatures (≈ 45 °C).

Switch on the electric heating element only if it is actually needed. Switching on the electric heating element increases the power consumption of the unit.

Scope of delivery

Compact unit with

- integrated domestic hot water tank,
- integrated controller, including control unit with LCD display,
- operating manual.

Complete the following first:

① Check the delivery for outwardly visible signs of damage…

② Check to make sure that the delivery is complete. Report defects or incorrect deliveries immediately.

NOTE.
On delivery, always check the (2) tilt indicators attached to the packaging first!
If either of the tilt indicators is red, this indicates improper transport (unit was tilted more than 45°) and acceptance of the unit can be refused.

Installation and assembly

The following applies to all work to be done:

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

NOTE.
Observe the sound levels of the respective model.

☞ "Technical data / scope of delivery", "Sound" section.

INSTALLATION LOCATION

! ATTENTION
Install the unit only inside buildings in a frost-free area.

The installation room must be frost-free and dry. It must fulfil the requirements of EN 378. It must also fulfil the regulations which apply locally.

Further requirements:

- Room temperature or air intake temperature:
  BWP 303+S 8°C to 35°C
  BWP 307+S -5°C to 35°C
- no excessive dust,
- firm, load-bearing floor (≈ 500 kg/m² per unit),
- socket outlet with earthing contact (230V / 50 Hz),
- cold / domestic hot water connection,
- wastewater connection for condensate discharge
- In recirculation mode:
  volume of installation room ≥ **20 m³**

☞ "Dimensioned drawings" and "installation plan".

TRANSPORT TO INSTALLATION LOCATION

Always comply with the following safety information during transport:

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

☞ "Technical data / Scope of delivery", "General unit data" section.

DANGER!
Danger of tipping over during transport! This can result in personal injury and damage to the unit.

- **Take suitable precautions to prevent the risk of tipping over.**

ATTENTION
Never use components and hydraulic connections on the unit for transport purposes.
The top part of the unit (upper sheet metal jacket) is not suitable for lifting.

ATTENTION
Do not damage the hydraulic connections under any circumstances.

ATTENTION
Do not tilt the unit more than a maximum of 45° (in any direction).
The unit can be substantially damaged if tilted by more than 45°.

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

If it is not possible to transport the unit to its final installation location using a forklift or pallet truck, you can also transport the heat pump using a hand truck.

TRANSPORT WITH A HAND TRUCK

Proceed as follows:

Push hand truck under the unit and transport carefully to installation location.

ATTENTION
Transport unit with the hand truck only on the corresponding transport pallet. This also applies to carrying up and down steps.

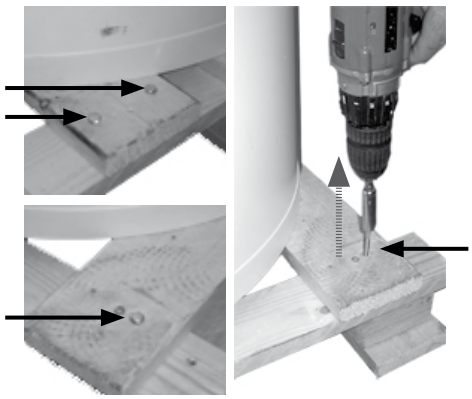
Tilting heights (minimum dimensions in mm)	BWP 307+S	BWP 303+S
with transport pallet	2080	2100
without transport pallet	1960	2000
Moving dimensions (minimum dimensions in mm)		
with transport pallet	1977x820	2000x820

REMOVAL OF THE UNIT FROM THE TRANSPORT PALLET

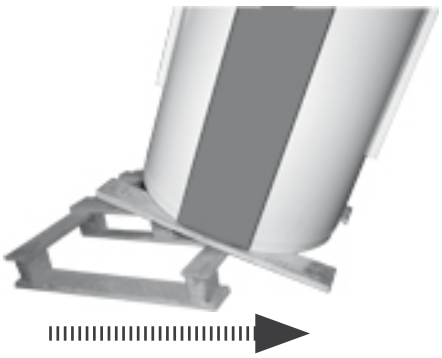
Proceed as follows:

① Place pallet with the unit on a level, flat and solid surface.

② Remove packaging, transport fittings and all screw connections from the pallet boards.



③ Slide unit carefully on the loosened boards to one side of the pallet.



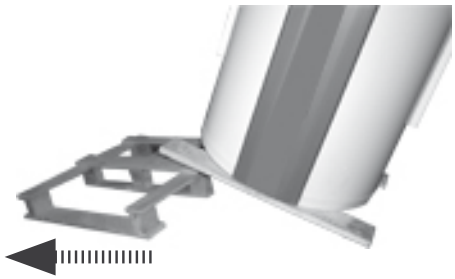
DANGER!
Work with several people present. Do not underestimate the weight of the unit.

DANGER!
Danger of tipping over!

- **Provide sufficient support for the side of the unit tilting forward.**

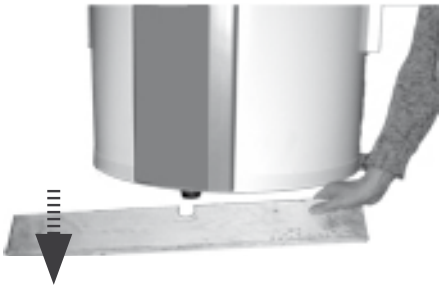
CAUTION!
Hands and fingers could be crushed during the following tasks!

④ Pull lower part of the pallet away while the unit is kept supported at an inclined angle of < 45°…



⑤ Slowly and carefully tip the unit back onto the floor.

⑥ Tilt unit slightly backward in order to pull out the front board from under the bottom of the unit.



⑦ Remove the rear board in the same manner.

⑧ Place unit at final installation location. Compensate for minor unevenness using the four adjusting screws on the bottom of the unit.

ATTENTION
Maintain minimum clearances in order to ensure correct air inlet and air outlet, in addition to access to the unit for servicing.

☞ "Installation plan".

INSTALLATION/CONNECTION TO THE DOMESTIC WATER CIRCUIT

DANGER!
Risk of fatal electric shock!
Before working on the unit, disconnect the power supply, disconnect the unit from the power supply (unplug!) and secure against being switched back on again. Note that the fan may continue to turn even after the unit has been switched off.

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

ATTENTION
Connect the unit to the hot water circuit according to the hydraulic diagram.

"Hydraulic diagram".

NOTE.
The installation must be sufficiently dimensioned in connection with the existing water pressure and the expected pressure loss, in order to ensure sufficient water pressure and a sufficient water supply to the tap.

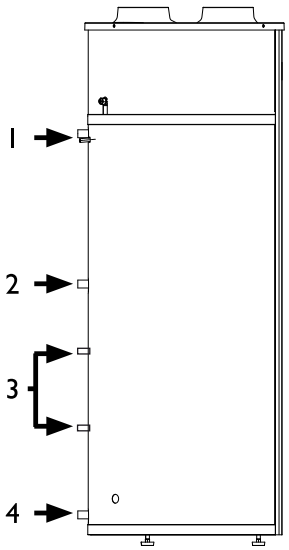
Do not exceed the operating pressures specified on the rating plate.
Install a pressure reduction valve and a water filter in the supply pipe, if necessary.

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

① Flush water circuit thoroughly before connecting the unit.

NOTE:
Contamination and deposits in the water circuit can cause malfunctions.

② Install domestic hot water connection to the upper connection at the rear of the unit…



1 Connection for domestic hot water connection
2 Connection for circulation pipe connection
3 Connection for heat exchanger connection
4 Connection for cold water connection

"Dimensioned drawings".

ATTENTION
Do not remove the plastic grommets in all the domestic water connections.

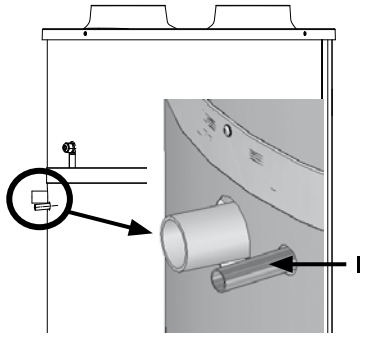
③ Install connection for return circulation pipe on the middle connection at the rear of the unit…

NOTE:
If the system is operated without hot water circulation, close the middle connecting pipe on the unit.

④ Mount supply pipe for cold water on the lower connecting pipe on the rear of the unit.

CONDENSATE DISCHARGE

The condensation water that accumulates from the air during operation of the unit must be drained in accordance with the local standards and guidelines. For this purpose, connect the connection on the outside of the unit with a water drain.



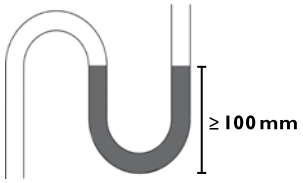
1 Condensate outlet = connection for condensate hose (next to domestic hot water connection at the rear of the unit)

NOTE:
Use a reinforced water hose with ¾" diameter (not included).
Do not use a textile hose (risk of kinking)!

① Install the water hose, using a hose strap to form a secure and tight seal at the condensate socket of the unit…

② Feed the water hose into the sewer system via the funnel trap.

NOTE.
The funnel trap acts as an odour trap and must have a water column ≥ 100 mm.



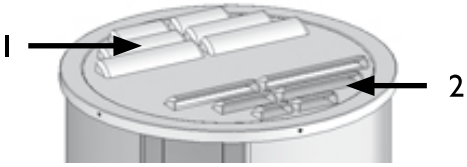
ATTENTION
Failure to install the condensate hose or incorrect installation can result in water damage in the installation room or damage to the unit.

AIR INLET AND AIR OUTLET

ATTENTION
Do not close or cover the air inlet and air outlet openings at the top of the unit.

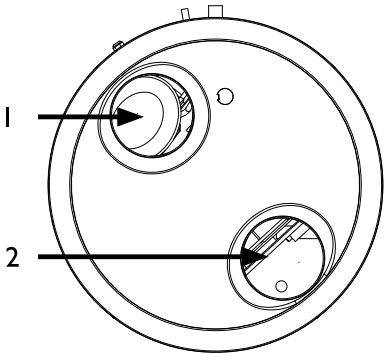
Ensure the minimum clearances.

☞ "Installation plan" BWP 303+S



1 Air intake openings (rear of the unit)
2 Air outlet openings (front of the unit)

☞ "Installation plan" BWP 307+S



1 Air intake openings (rear of the unit)
2 Air outlet openings (front of the unit)

Grille cover (KDUL) available as accessory (BWP 307+S only) for use of the unit with recirculating air:

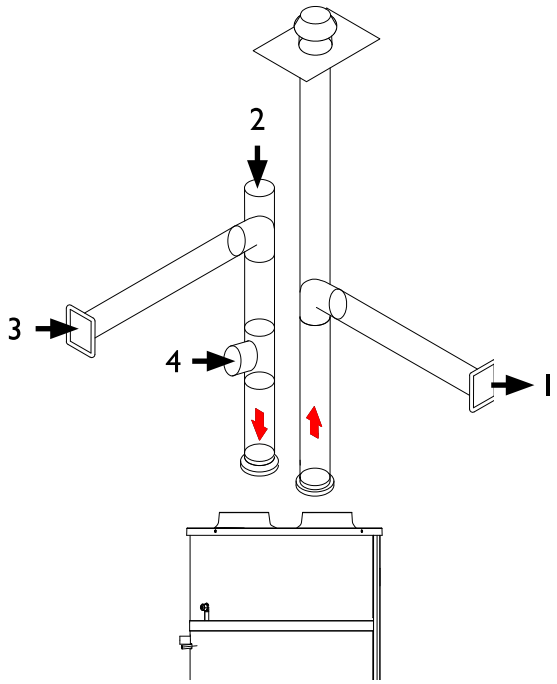
NOTE.
Installation of the grille cover (BWP 307+S only) increases the total height of the unit by 9 mm to 1946 mm.

ATTENTION
The ambient and supply air must not contain any aggressive substances (ammonia, chlorine or similar), or excessive dust or grease.

INSTALLATION OF AIR DUCTS - BWP 307+S ONLY

ATTENTION
The ambient and supply air must not contain any aggressive substances (ammonia, sulphur, chlorine or similar) or excessive dust or grease

Example:



1 Exhaust air (air delivery side)
2 Extract air (air intake opening)
3 Extract air (air intake opening)
4 Extract air (air intake opening)

NOTE
In exhaust air mode, ensure that sufficient fresh air can flow into the respective exhaust air spaces at all times.

Commissioning

DOMESTIC HOT WATER CIRCUIT

① Open cold water inlet and fill the unit's domestic hot water tank.

② Open the highest domestic hot water tap in the house or apartment and leave open under supervision until no more air escapes from the tap, and only water flows out…

③ Check the domestic hot water circuit for leaks, as soon as the domestic hot water tank is completely filled.

ELECTRICAL CONNECTIONS

The unit is wired ready for connection at the time of delivery. Plug the unit's power plug into a socket outlet with earthing contact.

COOLING CIRCUIT

The unit's cooling circuit is ready for operation at the time of delivery. No work may be performed on the cooling circuit. The unit's electronic control unit automatically controls all functions related to operation of the compressor and the fan.

You only have to set the required domestic hot water temperature (factory setting: 50 °C).

☞ "Operation".

ENERGY SAVING TIP
Do not set the domestic hot water temperature higher than necessary. The unit operates most efficiently at low domestic hot water temperatures (≈ 45 °C).

SWITCHING ON THE UNIT

When the unit is supplied with electricity (by plugging in the power plug), the display lights up and counts upward 5 seconds.

Then the version number of the control software appears briefly on the screen, before the screen switches to the default display, which shows the current temperature of the water in the hot water tank.

Maintenance of the unit

DANGER!
Risk of fatal electric shock! All electrical connections must be carried out by qualified electricians only.

– Before working on the unit, disconnect the power supply, disconnect the unit from the power supply (unplug!) and secure against being switched back on again. Note that the fan may continue to turn even after the unit has been switched off.

! ATTENTION
After the initial installation and at intervals of several days, conduct a visual inspection for any leaks in the domestic water circuit. Check regularly to ensure that the condensate drain is not blocked.

DOMESTIC WATER CIRCUIT AND DOMESTIC HOT WATER TANK

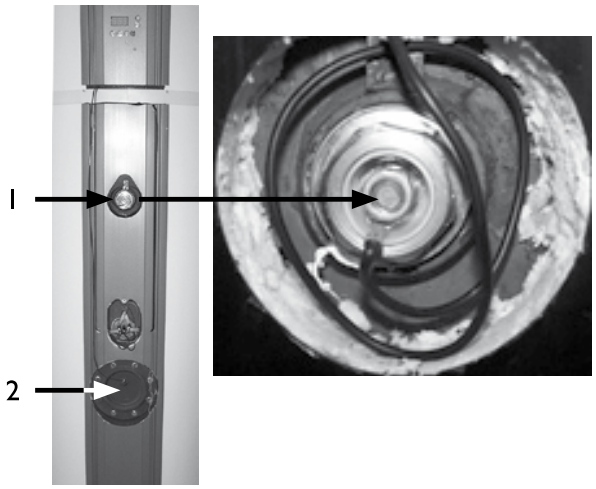
SAFETY VALVE

! ATTENTION
Ensure that the safety valve is in working order. Inspect the safety valve several times each year to ensure that it is functioning properly and replace, if necessary.

i NOTE.
The manufacturer will assume no liability for damage resulting from a defective or inoperable safety valve.

SACRIFICIAL ANODE / SENSOR POCKET

To prevent corrosion of the especially enamelled domestic hot water tank, it is equipped with a magnesium anode, which has been installed in the domestic hot water tank with a 1¼" pipe plug.



1 Anode at front of unit
(view with screen removed)
2 Sensor pocket in the flange
cover of the service opening

NOTE.
In the flange cover of the domestic hot water tank's service opening there is a sensor pocket, which is provided for an external boiler thermostat or for a sensor (for example, for an external solar controller) with maximum 6 mm diameter.

ATTENTION
Ensure that the anode is always intact.
Check the anode every year and it is essential to replace if it is corroded and has a diameter of only 6 – 10 mm.

The anode can be checked with a suitable measuring instrument (multimeter). If the testing current is < 1 mA, it is essential to replace the anode. In this case, the hot water tank must be drained down to the level of the anode.

① If you have not yet done so, remove the screen at the front of the unit…

☞ "Removing and attaching the screen".

② Shut off cold water supply…

③ Screw hose onto the drain valve of the unit and lay up to the sewer system…

④ Open the drain valve at the unit and (to prevent negative pressure in the domestic hot water tank) open a domestic hot water tap in the domestic water circuit…

⑤ After emptying the domestic hot water tank, close the drain valve and the domestic hot water tap…

⑥ Remove anode from the unit and inspect. Replace, if necessary…

⑦ Insert inspected or new anode in the unit and screw in…

⑧ Open cold water inlet and fill the unit's domestic hot water tank…

⑨ Open the highest domestic hot water tap in the house or apartment and leave open under supervision until no more air escapes from the tap, and only water flows out…

⑩ If no further work is to be done, attach the screen back onto the front of the unit.

☞ "Removing and attaching the screen".

CLEANING THE DOMESTIC HOT WATER TANK

The domestic hot water tank should be cleaned once each year by qualified personnel (heating or cooling system technicians).

① Follow the instructions ①–④ in the preceding section…

② After completely emptying the domestic hot water tank, close the domestic hot water tap and unscrew the flange cover of the service opening…

I Flange cover of service opening

③ Clean the domestic hot water tank…

④ Close the drain valve and screw the flange cover onto the service opening…

⑤ Follow the instructions ⑧–⑩ in the preceding section.

COMPONENTS OF THE COOLING CIRCUIT

① Remove screen, plastic cover and upper sheet metal jacket from unit, in order to access the components of the cooling circuit…

② After completing work on the components of the cooling circuit, re-attach the screen, plastic cover and the upper sheet metal jacket onto the unit.

☞ "Removing and mounting the screen" and "Access to the cooling circuit".

EVAPORATOR

The maintenance work is limited to cleaning the evaporator periodically or as needed.

CAUTION!
Risk of injury due to sharp-edged fins.

! ATTENTION
Do not damage fins.

Check to ensure that the fins of the evaporator are clean. Clean fins if necessary…

FAN

Clean the fan periodically or as needed, using a brush or bottle cleaner, etc.

! ATTENTION
Ensure that the balancing weights on the fan wheel are not removed, as this could cause unbalance and therefore increased noise and wear of the fan.

CONDENSATE CHANNEL AND DRAIN

Inspect condensate channel and drain to ensure that they are clean.

Proceed as follows:

① Pour water into the condensate channel and check whether it drains freely…

② If the water does not drain freely, clean the condensate drain.

Removing and attaching the screen

REMOVING THE SCREEN

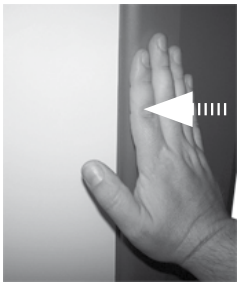
① Undo the retaining screws of the screen…

② From above, carefully pull the screen downwards and out of the groove on the left and right and set aside in a safe place.

ATTACHING THE SCREEN

NOTE.
Ensure that the wiring is attached in such a way that it cannot be pinched by the screen.

① Insert the screen from above into the grooves provided at the front of the unit and allow it to snap into place by lightly knocking with your open hand on both sides and continuously from top to bottom…



ATTENTION
Do not use any striking tools (hammer).

② Once the screen is fitted correctly in the grooves, tighten the screws.

Access to the cooling circuit

REMOVING THE PLASTIC COVER AND UPPER SHEET METAL JACKET

DANGER!
Risk of fatal electric shock! All electrical connections must be carried out by qualified electricians only.

- **Before working on the unit, disconnect the power supply, disconnect the unit from the power supply (unplug!) and secure against being switched back on again. Note that the fan may continue to turn even after the unit has been switched off.**

If you have not yet done so, remove the screen at the front of the unit…

☞ "Removing and attaching the screen".

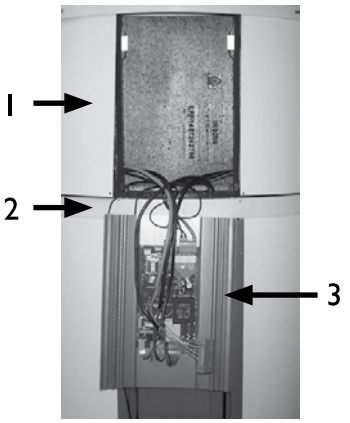
Proceed as follows:

① Undo the retaining screws of the plastic ring at the front of unit…

② Lift upper sheet metal jacket together with the plastic cover upward and out of the groove of the plastic ring, while at the same time, turning it slightly (bayonet fastening) Carefully remove the controller unit from the grooves of the sheet metal jacket and then tilt downward…

! ATTENTION
When releasing the controller unit from the grooves of the upper sheet metal jacket, ensure you do not damage any cable connections (e.g. by pulling).

1 Upper sheet metal jacket
2 Plastic ring
3 Controller unit

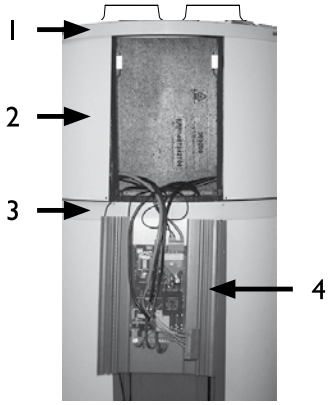


1 Plastic cover
2 Upper sheet metal jacket
3 Plastic ring
4 Controller unit (tilted downwards)

④ Lift upper sheet metal jacket together with the plastic cover completely off the unit and set aside. The components of the cooling circuit, the fan and the condensate channel are now accessible.

ATTACHING THE PLASTIC COVER AND UPPER SHEET METAL JACKET

① Lift the upper sheet metal jacket together with the plastic cover above the unit and lower carefully, Fit them into the groove of the plastic ring…



1 Plastic cover
2 Upper sheet metal jacket
3 Plastic ring
4 Controller unit (tilted downwards)

! ATTENTION
Ensure you do not damage any cable connections.

② Tilt controller unit up and fit upper sheet metal jacket into the grooves of the controller unit. To do so, again lift the upper sheet metal jacket slightly and then fit it into the required position…

③ Insert the retaining screws of the plastic ring in the front of the unit and screw tight, fix the upper sheet metal jacket in the bayonet fastening with a slight turning movement.

④ Attach screen back onto the front of the unit.

☞ "Removing and attaching the screen".

Dismantling the unit

DANGER!
Risk of fatal electric shock! All electrical connections must be carried out by qualified electricians only.

– Before dismantling the unit, disconnect the power supply, disconnect the unit from the power supply (unplug the unit!).

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

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

Before removing the unit, shut off the cold water supply and completely empty the domestic hot water tank.

☞ "Maintenance of the unit", "Domestic water circuit and domestic hot water tank", "Sacrificial anode", instructions ②–④.

Operation

The unit is delivered from the factory with default settings (= factory settings). It can be started up with no further configuration.

The factory settings are basic settings, which you can adapt to individual preferences and operating requirements, to optimise operation and maximise efficiency.

BWP 307+S - the control unit

OPERATION

USER MENU

The value of the corresponding menu item is shown if the button/button combination listed in the following is pressed.

The value can be changed using the arrow buttons whilst at the same time keeping the button/button combination pressed.

P1: LEVEL

(If the "Level" button is kept pressed the setting can be changed using the arrow buttons). This button can be used to switch the function between: standby, automatic operation, continuous operation and timer-controlled continuous operation (Level 0, 1, 2, 3).

• Level 0: The heat pump is deactivated. Only the control is activated. The heat pump is not activated if there is a heat requirement.

• Level 1: The fan is only activated to heat the domestic water. The required fan speed can be set from 0-100 % in menu item E25.

• Level 2: The fan runs even if the compressor is switched off. This function is also called: continuous air extraction in the home.

The required fan speed can be set from 0-100 % in menu item E25.

• Level 3: The fan runs during a selected period, even if the compressor is switched off, before it returns to normal operation.

The required fan speed can be set from 0-100 % in menu item E26.

Menu item E17 is used to select whether "Level 3" is to be continued until the next manual change (E17=0) or whether "Level 3" is to be used for a specific period (E17=1 and E18: 0-10 hours), and then returns to "Level 2".

Setting option: 0-3

Factory setting: 1

P2: CONTROL UNIT OF THE HEATING CARTRIDGE

(If the "Heating cartridge" button is kept pressed, the setting can be changed using the arrow buttons.) The heat pump is supplied with a heating cartridge for heating domestic water. If the outdoor temperature is below 0 °C it is advantageous to use the heating cartridge to heat domestic water.

1 = the heating cartridge is switched on as and when necessary (see setpoint P5).

0 = the electric cartridge is not switched on, even when needed.

Setting option: 0-1

Factory setting: 0

P3: OPERATING THERMOSTAT

(If the "Operating thermostat" button is kept pressed the setting can be changed using the arrow buttons.)

The domestic water is heated by the heat pump.

The compressor starts if the T8 temperature (tank, bottom) is less than setpoint P3 minus 5 °C, and stops again when the T8 temperature equals the setpoint P3.

Setting option: 0-55 °C

Factory setting: 52 °C

P4: STOP DEFROSTING (BWP 307+S ONLY)

(The "Level" + "Operating thermostat" are both pressed at the same time and are kept pressed down).

The defrosting period usually ends when the chilled surface has reached a temperature of 10 °C. It is sometimes necessary to change this temperature for special operating states.

Setting option: 0-25 °C

Factory setting: 1 0 °C

P5: HEATING CARTRIDGE

(The "Heating cartridge" + "Operating thermostat" are both pressed at the same time and are kept pressed down).

The heating cartridge only heats up the top half of the storage tank, while the heat pump also heats the bottom part of the storage tank. The heating cartridge starts if the T7 temperature (tank, top) falls below the setpoint P5 minus 5°C. It stops when the T7 temperature is above the setpoint P5.

Setting option: 0-65 °C

Factory setting: 50 °C

DISPLAY (MAIN MENU)

Press the arrow buttons to show the various temperatures in the display. Press the arrow buttons until the number from the temperature sensor is displayed. The temperature is displayed after around 3 seconds. The temperature remains displayed for around 30 seconds, before the display switches back to the normal screen. The normal screen display is set using menu item E49 (no display, water temperature T7 or clock).

The following values can be displayed:

T4/T10: Forced operation input (cannot be used for temperature display). In the event of a short circuit the heat pump switches to forced operation.

T5: Upstream of the evaporator

T6: Evaporator

T7: Storage tank, top

T8: Storage tank, bottom

T9: Additional sensor (can be used as a solar collector temperature sensor)

CL: The current time of the installed clock.

CHANGING THE DATA IN THE OPERATING MENU

To open the operating menu, press both the "up arrow" and "down arrow" button at the same time for around 10 seconds. The first menu item E0 of the operating menu is now displayed. If no buttons are pressed in the operating menu for around 15 seconds it closes automatically and the control unit switches back to the main menu.

The required menu item can be reached by navigating forwards and backwards using the "up arrow" and "down arrow". The respective value of the required menu item is shown if the "Operating thermostat" button is pressed (right-hand button under the display).

The respective value can now be changed using the "up arrow" and "down arrow" if the "Operating thermostat" button is kept pressed at the same time. When the required value is reached, release the "Operating thermostat" button to switch back to the user menu.

OPERATING MENU

E0: FACTORY SETTING

If the setpoints are calibrated in such a way that the system does not function as expected, or if the cause of the malfunction cannot be found, proceed as follows:

1. Enter all settings of the setpoints in the "Setpoint table" see page <ÜS>.

2. Set the setpoint to 1 and wait until the control unit switches back to the normal display.

3. All setpoints are now reset to the factory setting.

4. From here you can now recalibrate the setpoints.

Setting option: 0-1

Factory setting: 0

E2: T9 TEMPERATURE SETPOINT

Here a temperature setpoint is calibrated, which can be used with menu item E19 and temperature sensor

T9. It is a separate sensor, which is not included in the standard scope of delivery.

A more detailed description is given under E19.

Setting option: 0-30 °C

Factory setting: 21 °C

E8: DISINFECTION FUNCTION ON/OFF

If the value is set to 1 the water is heated to 65 °C once a week with the help of the heating cartridge, in order to disinfect the storage tank. If the value is set to 0 the disinfection function is deactivated.

Setting option: 0-1

Factory setting: 0

E9: OPERATION IN COLD ENVIRONMENTS

Value 0: If the intake air temperature (T5) is colder than the value set in menu item E10, the compressor is switched off and the heating cartridge is switched on automatically if necessary (P5 and temperature sensor T7). The compressor can be restarted if the intake air temperature (T5) is warmer than the value set in menu item E10 and remains so for 30 minutes.

Value 1: If the intake air temperature (T5) is colder than the value set in menu item E10 the compressor is not switched off, but the heating cartridge is switched on automatically if necessary (P5 and temperature sensor T7).

Setting option: 0-1

Factory setting: 0

E10: OPERATION IN COLD ENVIRONMENTS

Here is where the temperature is set, which determines when the compressor stops and when the heating cartridge is switched on for supplementary heating. See menu item E9.

Setting option: -5 - 10 °C

Factory setting: 0 °C

E13: UNDERFLOOR HEATING TEMPERATURE

Here a temperature setpoint is calibrated, which can be used together with function E19=2. A minimum temperature is set, at which the circulation pump for the underfloor heating is activated. The circulation pump stops if temperature T8 (storage tank, bottom) falls below the value set in menu item E13.

Setting option: 20-50 °C

Factory setting: 35 °C

E15: HYGROSTAT/STOP SYSTEM

Value 0: The control unit switches to fan speed level 3 if input T10 is short circuited. If T10 is interrupted again the control unit switches back to the level from which it came.

This function can be used by an external hygrostat in order to force the system into level 3 if the humidity is high.

Value 1: The control unit switches to fan speed level 0 (stop system) if input T10 is short circuited. If T10 is interrupted again the control unit switches back to the level from which it came.

Setting option: 0-1

Factory setting: 0

E16: MIN AIR FLOW RATE

This value gives the minimum air flow rate required by the fan during operation. Please note that the cooling system with the outlet at the high-pressure meter can be overloaded if the value calibrated is too high. The value selected should not be higher than necessary, to ensure minimum air flow across the chilled surface.

Setting option: 0-100 %

Factory setting: 0 % *(BWP 303+S)*
15% *(BWP 307+S)*

E17: FORCED MODE ON

If P1 is set to level 3 it is possible for the system to be operated automatically at level 2, following the number of hours set in E18.

Value 0 = the system is operated with P1, level 3, until it is set to another level manually.

Value 1 = following the number of hours set in menu item E18 the system is operated at level 2.

Setting option: 0-1

Factory setting: 0

E18: NUMBER OF HOURS

Setting for the number of hours during which the unit is operated continuously at level 3, before it switches back to level 2 automatically.

This setting is used by function E17=1.

Setting option: 1-10 hours.

Factory setting: 3

E19 : ADDITIONAL FUNCTION (TERMINALS L4 - 1,2)

This function controls relay R9. Solar collector/optional. Value 0: The function is deactivated and the relay is switched off.

Value 1: Solar collector function, which activates the solar pump (R9). The solar pump function is activated if the T8 temperature (tank, bottom) is below the value in menu item E46 (max. tank temperature). The pump is activated if the T9 temperature (solar collector) is above the T8 temperature (tank, bottom) + E20.

The pump stops again if the T9 temperature (solar collector) falls below the T8 temperature (tank, bottom). This function is available regardless of whether the heat pump is running or not.

Value 2: Underfloor heating function, which activates the circulation pump (relay R9). The underfloor heating function is activated if the T8 temperature (tank, bottom) is above the value in menu item E13 (underfloor heating temperature). The pump is activated if the T9 temperature (solar collector) is below the setting in menu item E2. The pump (relay R9) stops again if the T9 temperature (solar collector) is above the setting in menu item E2. This function is available regardless of whether the heat pump is running or not.

Value 3: Solar collector function (RS special function), which activates the solar pump (relay R9). The solar collector function has a higher level safety function, which can deactivate the solar pump.

If the T9 temperature (solar collector) is above 89°C the pump is switched off. The pump is reactivated if the T9 temperature falls below 87 °C.

The solar pump function is activated if the T8 temperature (storage tank, bottom) is lower than the value in menu item E46 (max. storage tank temperature).

The pump is in operation if the T9 temperature (solar collector) is above the T8 temperature (tank, bottom) + menu item E20.

The pump (relay R9) stops again if the T9 temperature (solar collector) falls below the T8 temperature (tank, bottom).

If the pump (relay R9) is activated, the heat pump + the heating cartridge are deactivated.

After pump relay R9 has been deactivated, 15 minutes later the following occurs:

• If the T5 (upstream of the evaporator) temperature is above 5.5°C, the heating pump is activated.

• If the T5 temperature (upstream of the evaporator) is below 4.5° C, the heating cartridge is activated.

Value 4: Cooling function, which activates a 3-way damper, which feeds cold exhaust air into a room with cooling requirement. This function is controlled by the temperature set in menu item E2, and the T9 sensor:

• If the temperature at the T9 sensor is above E2, relay R9 is activated.

• If the temperature at the T9 sensor is below E2, relay R9 is deactivated. This function is available regardless of whether the heat pump is running or not.

Value 5: Cooling function, which activates a 3-way damper, which feeds cold exhaust air into a room with cooling requirement. This function is controlled by the temperature set in menu item E2, and the T9 sensor, however, vice-versa E19=4:

• If the temperature at the T9 sensor is above the value in menu item E2, relay R9 is deactivated.

• If the temperature at the T9 sensor is below the value in menu item E2, relay R9 is activated.

This function is available regardless of whether the heat pump is running or not.

Value 6: relay R9 is activated if the compressor is in operation and is deactivated if it is switched off. This function is available regardless of whether the heat pump is running or not

Setting option: 0-6

Factory setting: 0

E20: SOLAR COLLECTOR HYSTERESIS

Here it is possible to set how long the temperature at the solar collector (T9) should be above the temperature in the storage tank (T8) until the solar pump is activated. See setpoint in menu item E19.

Setting option: 1-5 °C

Factory setting: 5 °C

E21: TX SETPOINT

To avoid too high operating pressure in the cooling system the system output must be reduced during the final time period of the heating phase. The water

temperature at which the reduction is to begin is set here.

Setting option: 0-55 °C

Factory setting: 45 °C

E23: TMOP

This value gives the highest allowable evaporation temperature. This avoids overloading the cooling system during high ambient temperatures.

Setting option: 0-30 °C

Factory setting: 25 °C

E25: FAN SPEED LEVEL 1 + 2

If extraction from the home is required over a lengthy period, it is possible to switch to level 2 (P1). The fan is now operated continuously until it is switched to another level. The speed at which the fan is to be operated, if level 2 is selected, is set here.

Please note that this setting also limits the maximum speed of the fan.

Setting option: 0-100 %

Factory setting: 100 %

E26: FAN SPEED LEVEL 3

The speed at which the fan is to be operated if level 3 (P1) is selected is set here. This function is selected if forced extraction from the home is required for a specific period.

Please note that this setting also limits the maximum speed of the fan.

Setting option: 0-100 %

Factory setting: 100 %

E45: DTAIR

The minimum air cooling required during heating of the water by the system is set here. The control unit controls the speed of the fan so that the air is only cooled down to the preset temperature. However, the control unit can cool to below the setpoint, if this is necessary for technical reasons. The cooling temperature can be reduced if a higher fan speed is required. Please note that has to be operated fast and with high energy consumption if the temperatures are too low.

Setting option: 1-15 °C

Factory setting: 2 °C *(BWP 303+S)*
3 °C (BWP 307+S)

E46: MAX. STORAGE TANK TEMPERATURE

To avoid a high temperature in the storage tank when using solar heating or another heating source, the temperature is set to the maximum allowable temperature at the bottom of the storage tank.

This setting is used in menu item E19.

Setting option: 40-70 °C
Factory setting: 60 °C

E49: SCREENSAVER (1-3)

The screensaver can be selected here:

1: No display. The sentence flashes to indicate that the system is being supplied with electricity.

2: The water temperature T7 (storage tank, to) is displayed.

3: The time is displayed.

Setting option: 1-3
Factory setting: 2

E50: HOURS OF THE INTERNAL CLOCK (0-23)

The hours of the clock can be set here.

E51: MINUTES OF THE INTERNAL CLOCK (0-59)

The minutes of the clock can be set here.

E52: COST-EFFECTIVE PHASE (ON/OFF)

If this option is switched on (ON) (1), the heating cartridge and the heat pump are only operated during the given period with start according to menu item E53 and stop according to menu item E54. If the option is switched off (OFF) (0), the heating cartridge and the heat pump are only operated if necessary or according to the settings.

Setting option: 0-1
Factory setting: 0

E53: START TIME OF THE COST-EFFECTIVE PHASE (0-23)

The start time for the cost-effective phase can be set here.

E54: END TIME OF THE COST-EFFECTIVE PHASE (0-23)

The end time for the cost-effective phase can be set here.

E60: TEMPERATURE DIFFERENCE BETWEEN T5 AND T6

If, after one hour of compressor operation, the T6 temperature (evaporator) is above the T5 temperature (upstream of the evaporator) + the value in menu item E60 the compressor is deactivated. “Er06” then appears on the display.
This is a safety function, which indicates that the heat pump is not being operated correctly.
The unit must be switched off to reset the error.

Setting option: 0-10 °C

Factory setting: 2 °C

SETPOINTS

BWP 303+S und BWP 307+S	Factory setting:	Date:	Date:
BWP 303+S and BWP 307+S	0		
E0: Factory setting	21		
E2: T9 Temperature setpoint	0		
E8: Disinfection function ON/OFF	0		
E9: Operation in cold environments ON/OFF	0		
E10: Operation in cold environments	35		
E13: Underfloor heating temperature	0		
E15: Hygrostat/Stop system	15		
E16: Min air flow rate	0		
E17: Forced mode ON	3		
E18: Number of hours	0		
E19 : Additional function	5		
E20: Solar collector hysteresis	45		
E21: TX setpoint	25		
E23: Tmop	100		
E25: Fan level 2	100		
E26: Fan level 3	3		
E45: dT air setpoint	60		
E46: Max. storage tank temperature	2		
E49: Screensaver	0		
E50: Clock (hours)	0		
E51: Clock (minutes)	0		
E52: Favourable phase	1		
E53: Start time of the cost-effective phase	6		
E54: End time of the cost-effective phase	2		
E60: Temperature difference			

DEFROST TABLE

(BWP 307+S only)

T5 upstream of the evaporator °C	T6 in the evaporator °C
15	-3
13	-3
11	-3
9	-4
7	-4
5	-5
4	-5
3	-6
1	-7
0	-8
-2	-9
-5	-11
-7	-13
-9	-13
-11	-15
-13	-16
-15	-18
-17	-20
-18	-21
-20	-22

The defrost function runs according to the above defrost table. If the T5 temperature (upstream of the evaporator) matches a temperature in the table (for example, 3 °C), the defrost process begins if the T6 temperature (in the evaporator) falls below the temperature "T6 in the evaporator". E.g. at T5 equals 3 °C, T6 is -6 °C at the beginning.

If the defrost function is activated, relay R4 (defrost) is activated and the fan stops. The defrost function can be activated for a maximum of 30 minutes at any one time. The defrost function must be deactivated for a further 60 minutes before it can be restarted. The defrost function stops immediately, if the T6 temperature (evaporator) becomes higher than the setting P4.

Function

The flow diagram of the installation instructions shows where the sensors are positioned. The circuit diagram also shows the relay outputs and the other outputs for connection of the fan and the

control unit of the Optima 170

Domestic hot water heat pump

The domestic hot water heat pump is a complete unit with a 285 litre hot water storage tank, a fan, a heat pump and complete automation. The unit is solely used to heat domestic water to the set temperature limit.

POWER

The domestic hot water heat pump can heat 367 litres of water from 10°C to 52.5°C and an extract air temperature of 7°C within 11.5 hours. The heating time depends on the temperature of the cold water added to the storage tank, the extract air temperature and the discharge method.
The 1.5 kW heating cartridge can be switched on if there is a need for additional hot water.
The domestic hot water heat pump only consumes around 28 % of the electricity required by a storage tank heated directly with electricity.

HEAT PUMP FUNCTION

The control unit starts the compressor soon after the hot water is removed. The compressor is operated until the whole storage tank has reached the set temperature. The domestic hot water heat pump can normally produce enough hot water to cover the hot water consumption of a whole family (depending on use).

WATER HEATING

After domestic hot water has been removed (i.e. drawn at the tap), the storage tank is refilled with cold water through an inlet at the bottom of the storage tank. A sensor measures the temperature at the bottom of the tank. If the temperature is 5 °C below the set temperature, the compressor is activated and the fan circulates the air via the evaporator. After the water has been heated to the set temperature, the compressor and the fan stop.

FAN MODE

The fan may possibly remain activated, even if the compressor has been stopped. Select level 2 or level 3.

This function is used if a domestic hot water heat pump is used to extract air in the home‘s wet room.

As long as the input to T10 is short circuited the control unit is forced to run at level 3. This state can be used to achieve additional extraction, for example, from the bathroom, while someone is in the bath. If the input is no longer short circuited the control unit switches back to the level it was at before the short circuit.

DEFROSTING

(BWP 307+S only)

If there are ice deposits on the surface of the evaporator the discrepancy between the temperature upstream of the evaporator and in the evaporator becomes too large and the system switches to defrost mode (defrost table, see page <ÜS>). Solenoid valve MA4 is opened, the fan stops until the ice has melted and the evaporator has reached a temperature of around 10°C (depending on the setting in menu item P4). The solenoid valve is then closed again and the fan starts.

ADDITIONAL CAPACITY

In the event of a situation occurring in which the domestic hot water heat pump is no longer able to supply a sufficient quantity of hot water the integrated heating cartridge can be activated. As a result, twice as much water can be heated. The temperature to which the heating cartridge is to heat the water can be set.

Only use the heating cartridge if necessary. The heating cartridge consumes more energy than the compressor. The heating cartridge is activated manually at the control panel.

OPERATING SAFETY

HIGH-PRESSURE LIMITER

(BWP 307 + S only)

The compressor has a high-pressure limiter which, if the pressure becomes too high, switches off the compressor before it leaves its use tolerance range.

The message „PE“ appears in the display.

If the cause of the error has been found the power supply must be switched off for 10 s in order to reset the high-pressure limiter before the unit can be restarted.

Lower the water temperature by 2-3° C to avoid the high-pressure limiter from being triggered again.

.

SAFETY TEMPERATURE LIMITERS

If an error occurs in the heating cartridge the safety temperature, limiters are deactivated. The button in the middle of the limiters must be pressed to reactivate the safety temperature limiters. The limiters are located on the middle of the storage tank.

ALARM

HIGH-PRESSURE LIMITER ERROR

(BWP 307 + S only)

If the high-pressure limiter is deactivated the message „PE“ appears in the display. The power must be switched off for 10 s and then switched back on again to reactivate the limiter. The message „PE“ disappears.

Built-in safety devices

SAFETY TEMPERATURE LIMITERS FOR THE HEATING CARTRIDGE

The safety temperature limiters protect the domestic hot water heat pump against high temperatures that arise during heat generation using the heat cartridge. The safety temperature limiters are mounted on the storage tank.
The corresponding sensor is mounted on the thermowell of the heating cartridge.
The heating cartridge is deactivated if the set value (80 °C) is exceeded. The heating cartridge cannot be reactivated until the temperature has fallen below 80 °C. On renewed activation the power supply to the unit must be deactivated, the front panel dismantled and the front cover of the heating cartridge removed. The Reset button can then be pressed.

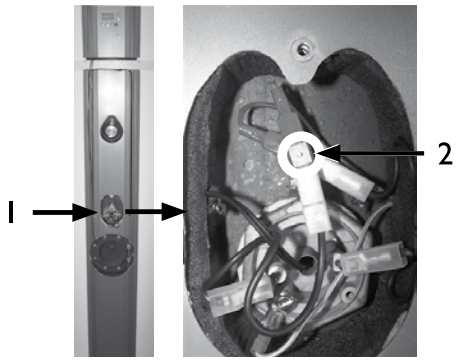
HINWEIS.
Ensure that the cables to the control unit do not get crushed or pulled out!

Proceed as follows to switch the electric heating element back on again.

① Remove the screen at the front of the unit.

 "Removing and attaching the screen".

② **Press the white pin** (= reset button) on the safety temperature limiter …



1 Safety temperature limiter
2 Reset button of the safety temperature limiter

③ Attach screen back onto the front of the unit.

 "Removing and attaching the screen".

Troubleshooting

Check whether or not

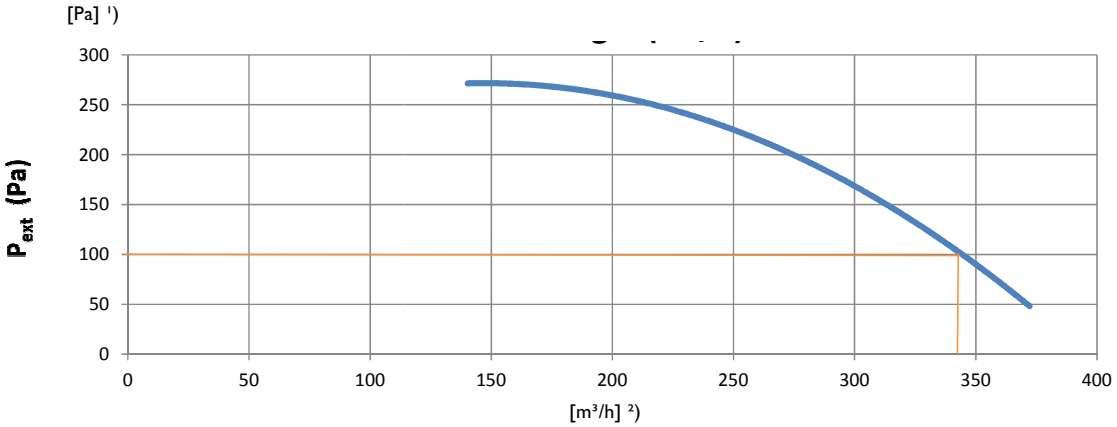
- the unit's power plug is plugged in,
- a voltage is applied to the socket outlet with earthing contact,
- the unit has switched itself off via the temperature sensor T8,
- a domestic hot water temperature > 55 °C is set,
- the high-pressure pressostat has triggered,
- the safety temperature limiter has triggered.

Technical data / scope of delivery

				BWP 307+S	BWP 303+S
Heat pump type	Domestic hot water	• applicable ı — not applicable		•	
Installation location	Indoors ı Outdoors	• applicable ı — not applicable		•	
Conformity	CE	• applicable ı — not applicable		•	
Performance data	**BWP 303+S**[1]:Output for heating 15 °C cold water to 45 °C domestic hot water in 15 °C air and an air volume of 250 m³/h. Information according to EN 255 **BWP 307+S**[2]:Output for heating 10 °C cold water to 52,5 °C domestic hot water in 7 °C air and an air volume of 250 m³/h. Information according to EN 16147				
		Heat pump output	kW	1,1[2]	1,66[1]
		Electric power input	kW	0,43	0,52
		Heating capacity (COP)	...	2,72[2]	3,2[1]
Limits of application	minimum temperature range for evaporator (air temperature)		°C	-5	8
	maximum temperature range for evaporator (air temperature)		°C	35	
	maximum domestic hot water temperature (heat pump operation)		°C	55	
	maximum domestic hot water temperature (heat pump operation plus electric heating element)		°C	65	
Sound	Sound pressure level inside (measured in free field at 1m distance around the machine)		dB(A)	52	50
Air flow rate	free-blowing		m³/h	250	
General unit data	Dimensions	Diameter	mm	660	
		Height (exhaust mode / recirculation mode)	mm	1837	1846
	Weight	without water ı filled with water	kg ı kg	113 ı 398	
	Connections	Cold water connection	...	R ¾ " AG	
		Domestic hot water connection	...	R ¾" AG	
		Domestic hot water circulation	...	R ¾" AG	
		Condensate drain pipe	Ø outside in mm	19	
Compressor	Quantity ı Performance levels		... ı ...	1 ı 1	
	Refrigerant	Refrigerant type ı Quantity	... ı kg	R134a ı 1,1	R134a ı 0,9
Evaporator	Quantity		...	1	
	Type ı Material		Finned pipe ı Cu, Al	• ı •	
Domestic hot water tank	Material ı Finishing coat		Stahl ı Special enamelling	• ı •	
	Nominal volume ı maximum permissible operating pressure		ı ı bar	285 ı 10	
	Tank protection		Magnesium sacrificial anode	1¼"	
Electrics	Connection		Earthing pin plug with cable	•	
	Voltage code ı heat pump fusing		... ı A	1~/N/PE/230V/50Hz ı 13	
	Degree of protection, fan		IP	44	
	Electric heating element output 3 ı 2 ı 1 phase		kW ı kW ı kW	— ı — ı 1,5	
Heat exchanger for additional heating *)	Maximum permissible operating pressure in the heat exchanger		bar	13,5	
	maximum permissible operating temperature of the heating medium in the heat exchanger		°C	90	
	Coil heating area (smooth tube)		m²	0,8	
Heat pump controller			included in scope of delivery: • yes — no	•	

Free pressure / Air flow rate

BWP 303+S / BWP 307+S

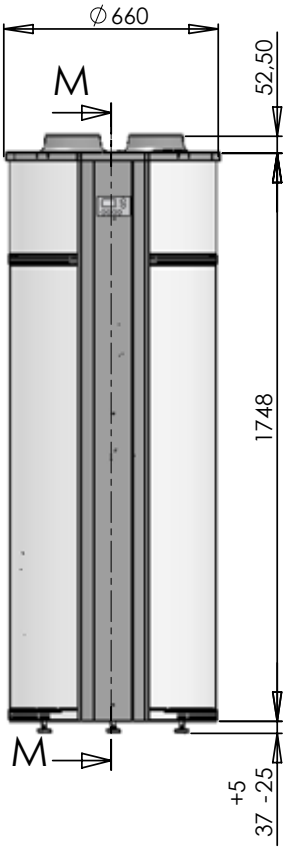


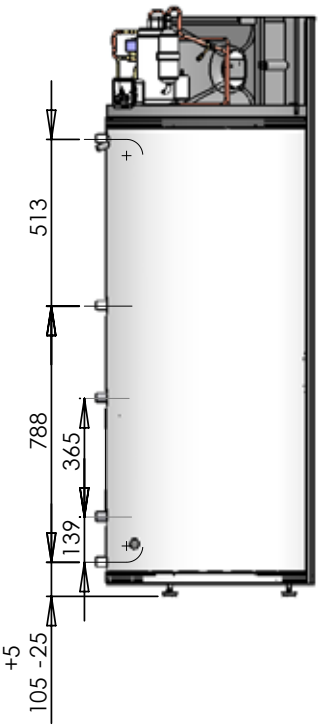
¹) Pressure ²) Air volume

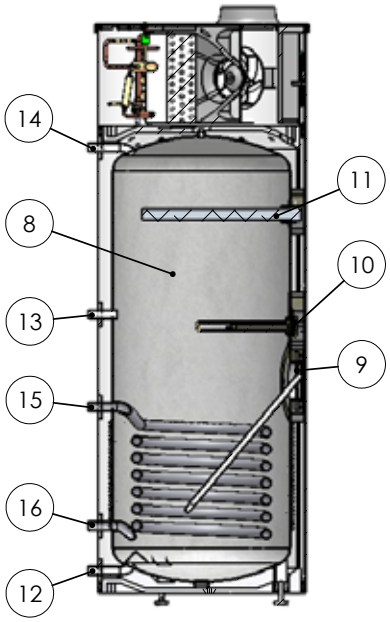
NOTE.
We recommend keeping the total external pressure loss below 100 Pa.

Dimensioned drawing

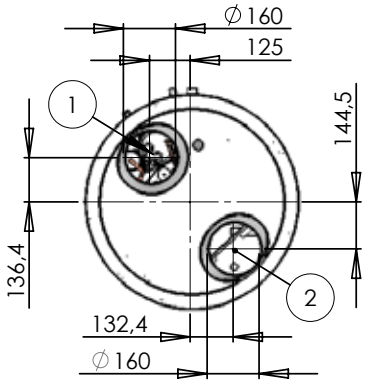
BWP 307+S

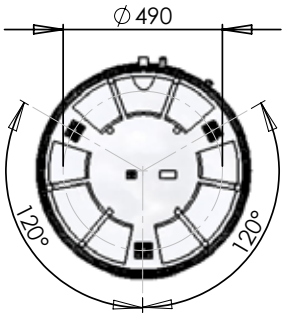


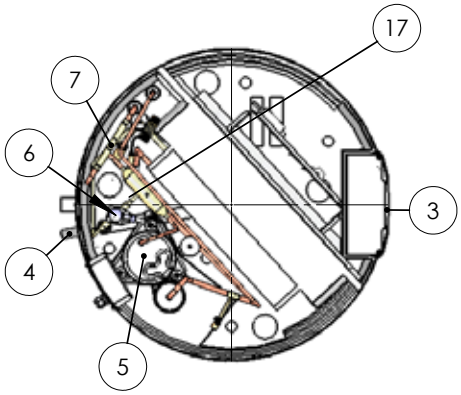




M-M

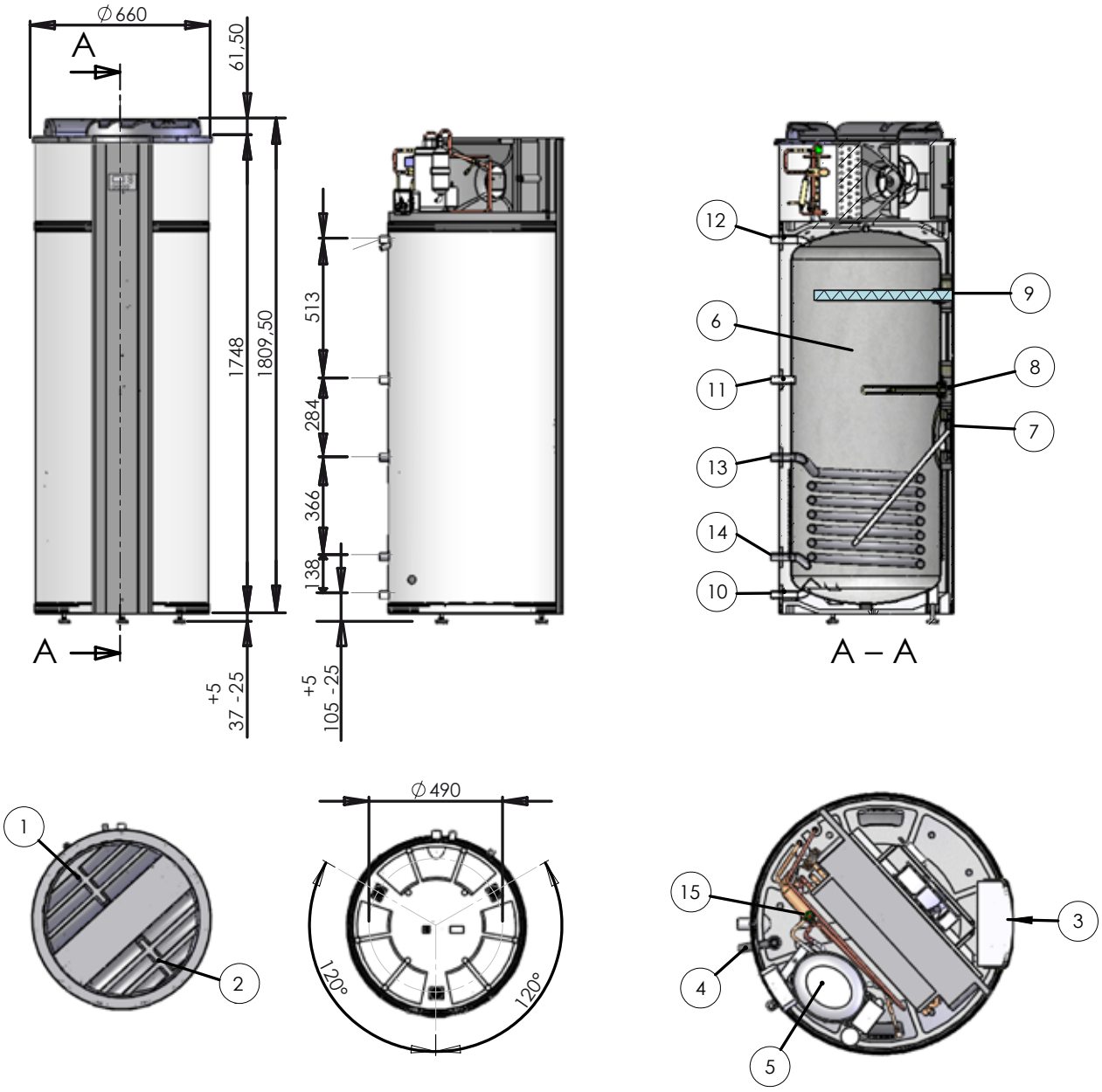






Legend:
All dimensions in mm.

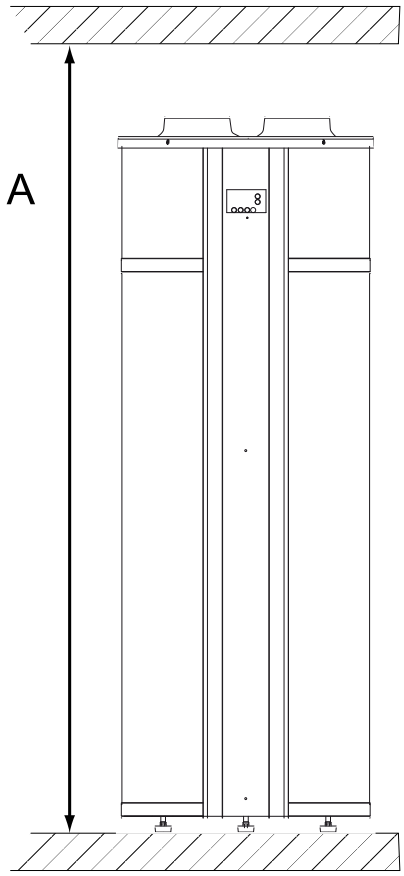
1 Supply air
2 Exhaust air
3 Controller board
4 Condensate drain pipe
5 Compressor
6 Solenoid valve
7 Check valve
8 Domestic hot water tank
9 Flange cover / Service opening with sensor pocket for external sensor
10 Electric heating element R 1½" AG
11 Sacrificial anode R 1¼" AG
12 Cold water connection R ¾" AG
13 Circulation connection R ¾“ AG
14 Domestic hot water connection R ¾" AG
15 Flow, heat exchanger R ¾" AG
16 Return, heat exchanger R ¾" AG
17 High-pressure pressostat

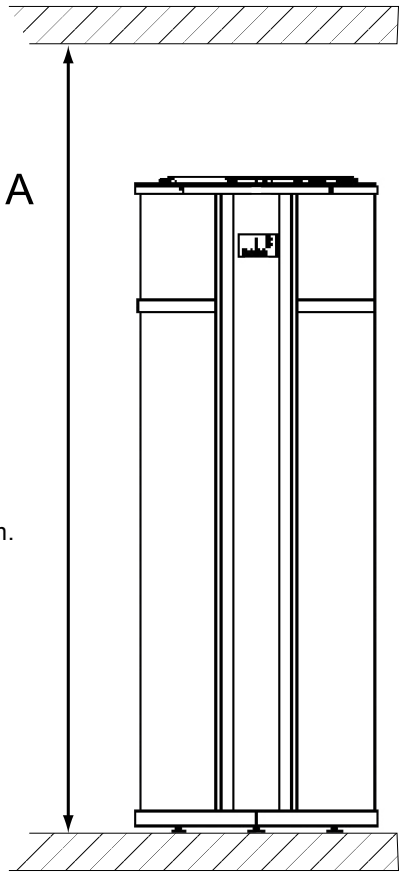


Legend:
All dimensions in mm.

1	Supply air
2	Exhaust air
3	Controller board
4	Condenser drain pipe
5	Compressor
6	Domestic hot water tank
7	Flange cover/Service opening with sensor pocket for external sensor
8	Electric heating element R 1½" AG
9	Sacrificial anode R 1¼" AG
10	Cold water connection R ¾" AG
11	Circulation water connection R ¾“ AG
12	Hot water connection R ¾“ AG
13	Flow, heat exchanger R ¾“ AG
14	Return, heat exchanger R ¾“ AG
15	High-pressure pressostat

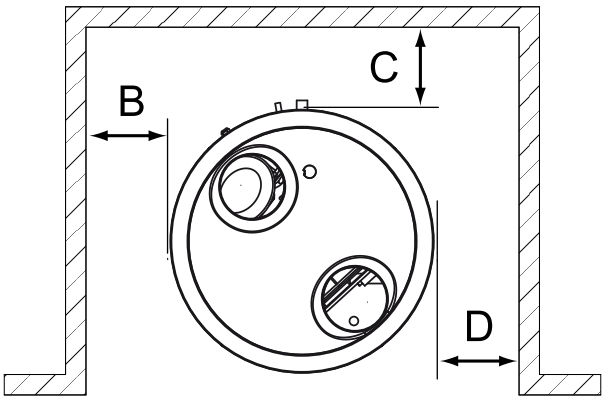
Installation plan BWP 307+S / BWP 303+S

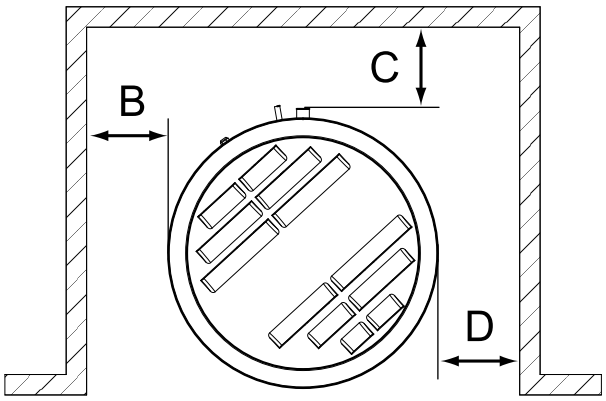




Legend. All dimensions in mm.

A	**A**
BWP 307+S	BWP 303+S
≥ 2200	≥ 2100





Installation in a niche:

B ≥ 500
C ≥ 200
D ≥ 500

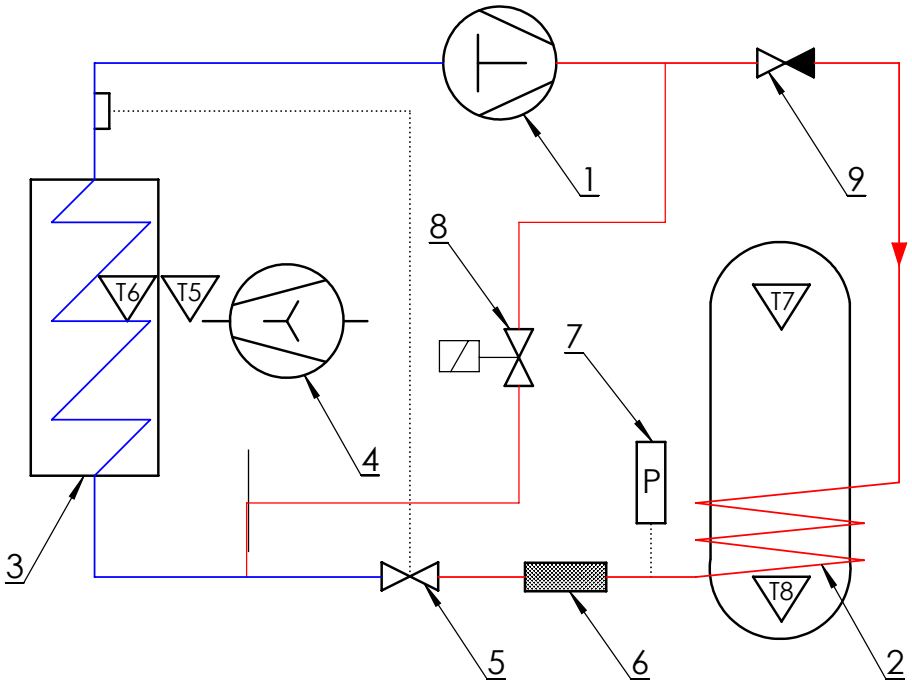
Installation on a right wall:

B > 1000
C = D ≥ 200

Installation on a left wall:

D > 1000
C = B ≥ 200

BWP 303+S / BWP 307+S

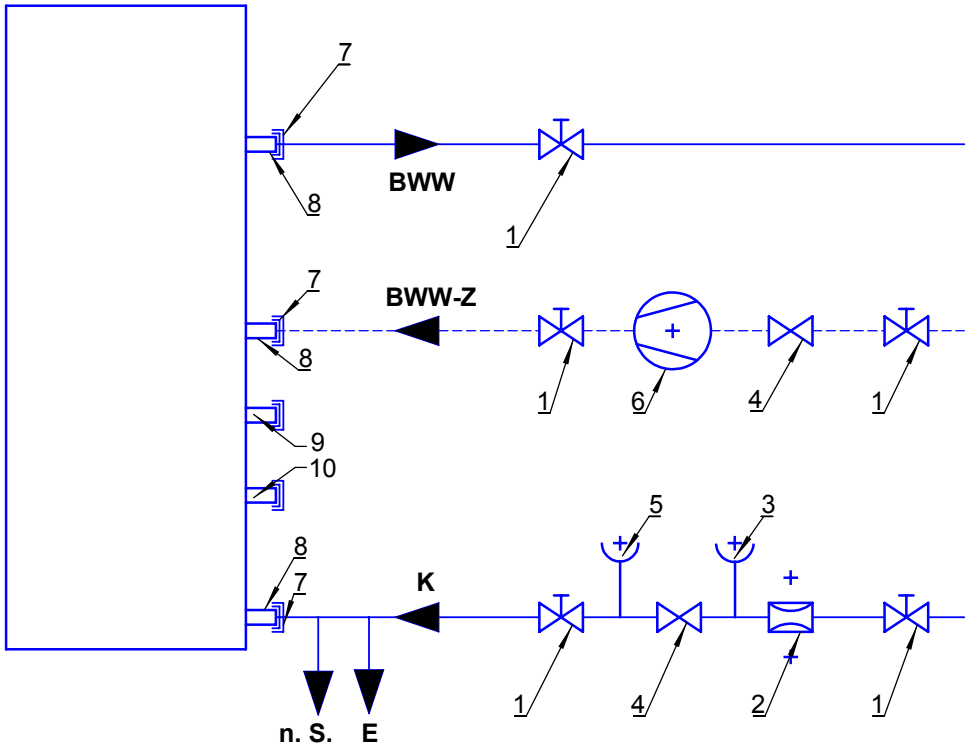


Legend:

1	Compressor
2	Condenser
3	Evaporator
4	Fan
5	Expansion valve
6	Filter dryer
7	High-pressure pressostat
8	Solenoid valve
9	Check valve
T5	Sensor, ambient air (upstream of cooling surface)
T6	Sensor, evaporator (cooling surface)
T7	Sensor, domestic hot water tank, top
T8	Sensor, domestic hot water tank, bottom

Hydraulic diagram

BWP 306/S) / 303(S)



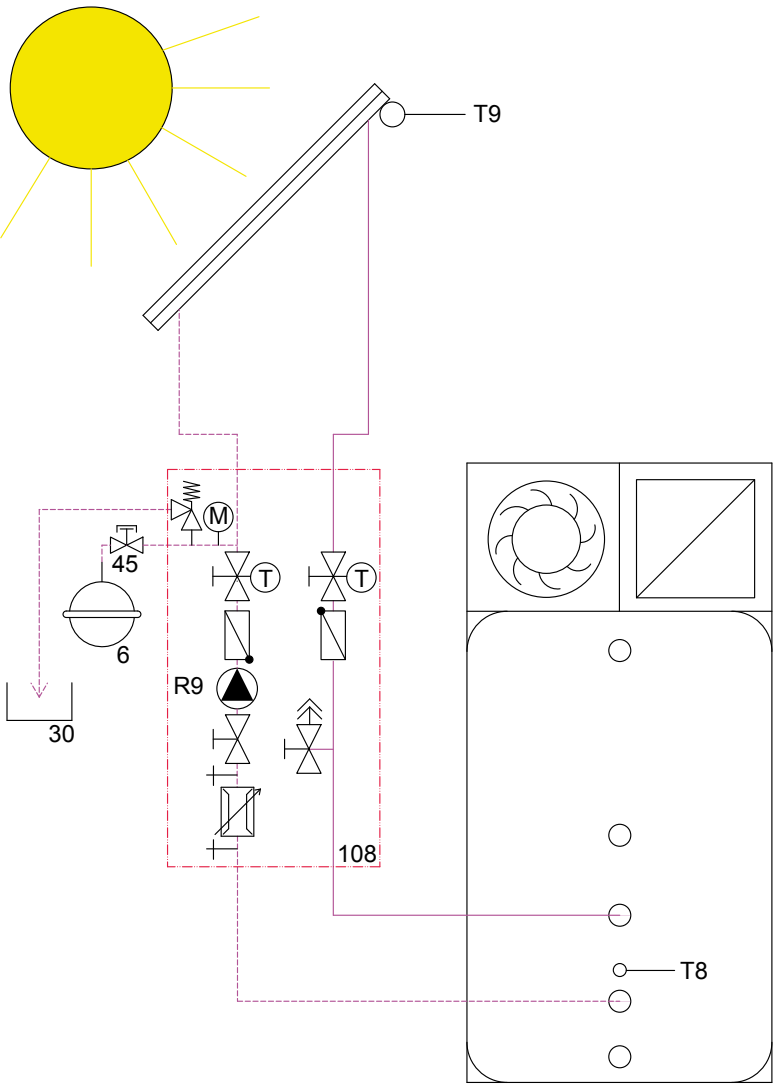
Legend:

E	Drain valve, domestic hot water tank (install at lowest point)
K	Cold water connection
n. S.	downstream of safety valve (install safety valve with 6 bar discharge pressure above the edge of the domestic hot water tank)
BWW	Domestic hot water
BWW-Z	Domestic hot water circulation
1	Shut-off valve
2	Pressure reduction valve
3	Test valve
4	Check valve
5	Pressure gauge connection socket
6	Circulation pump
7	Transport connections
8	Connections R ¾" AG
9	Flow, heat exchanger R ¾" AG
10	Return, heat exchanger R ¾" AG

WARNING!
Ensure scald protection on the drinking water side.

ATTENTION
If the domestic hot water heat pump is integrated in conjunction with a second heat generator, take suitable measures to ensure that a maximum domestic hot water temperature of 70 °C in the tank volume and the maximum allowable pressure of 10 bar in the additional heat exchanger of the domestic hot water heat pump are not exceeded.

NOTE.
The hydraulic diagram is a schematic representation to be used as an aid. It does not release you from the need to carry out your own planning. This drawing does not show all the shut-off devices, vents, bleeding devices and safety measures. These must be drawn up for the specific system in accordance with relevant local standards and regulations.



Legend:

6	Expansion vessel
30	Collecting tank for solar mixture
45	Cap valve
108	Solar pump group
T8	internal tank sensor (sensor pocket in the flange cover of the service opening, see dimensioned drawings)
T9	external solar sensor (functionally necessary accessory)
R9	Solar circulation pump

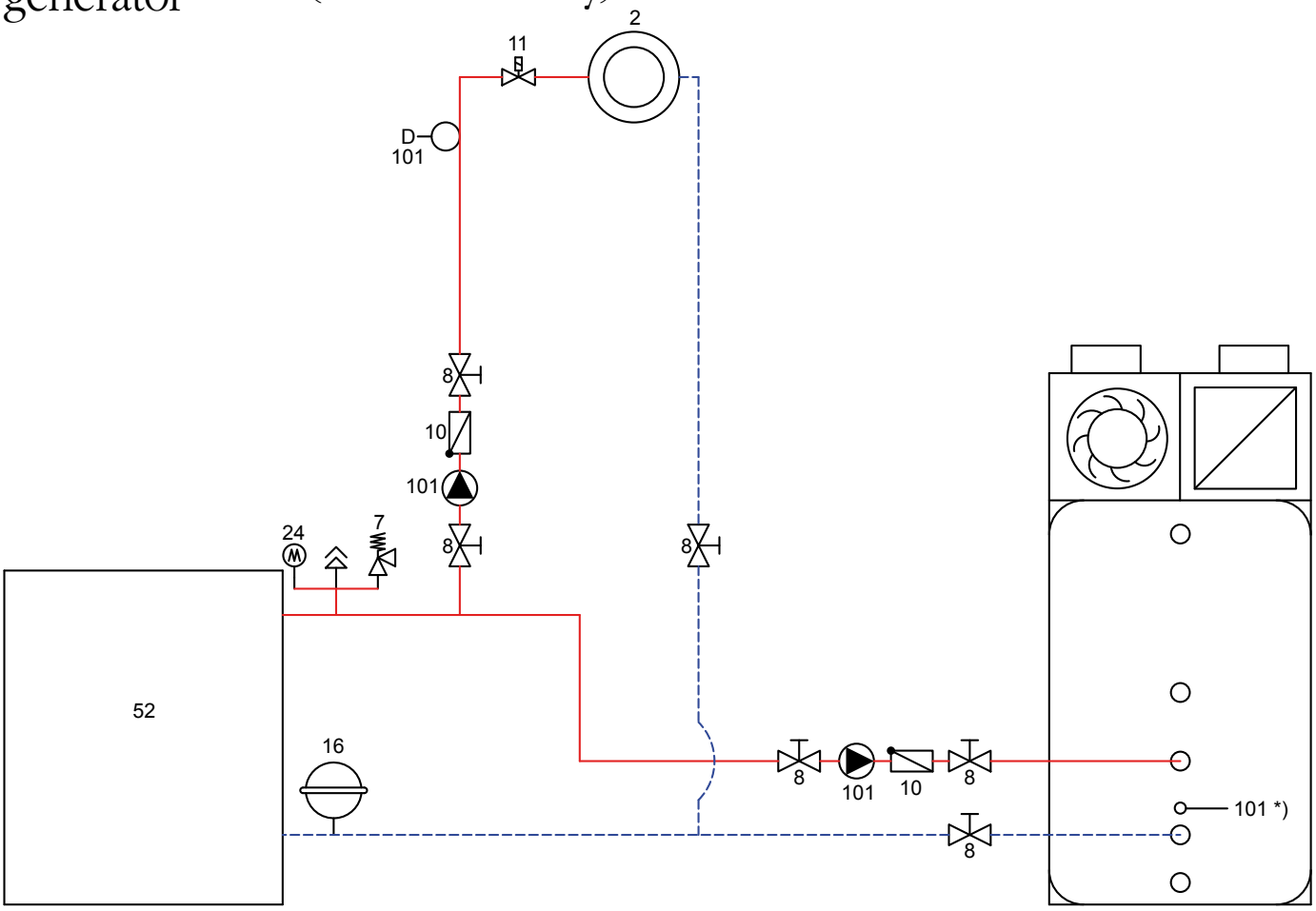
ATTENTION

If the domestic hot water heat pump is integrated in conjunction with a solar system, take suitable measures to ensure that a maximum domestic hot water temperature of 70 °C in the tank volume and the maximum allowable pressure of 10 bar in the additional heat exchanger of the domestic hot water heat pump are not exceeded.

NOTE.

The hydraulic diagram is a schematic representation to be used as an aid. It does not release you from the need to carry out your own planning. This drawing does not show all the shut-off devices, vents, bleeding devices and safety measures. These must be drawn up for the specific system in accordance with relevant local standards and regulations.

Integration with second heat generator (S variants only)



Legend:

2	Underfloor heating / radiators
7	Safety valve
8	Shut-off
10	Check valve
11	Single-room control
16	Expansion vessel provided by customer
24	Pressure gauge
52	Gas or oil-fired boiler
101	Control provided by customer
*)	Sensor pocket for external sensor in the flange cover of the service opening (see dimensioned drawings)

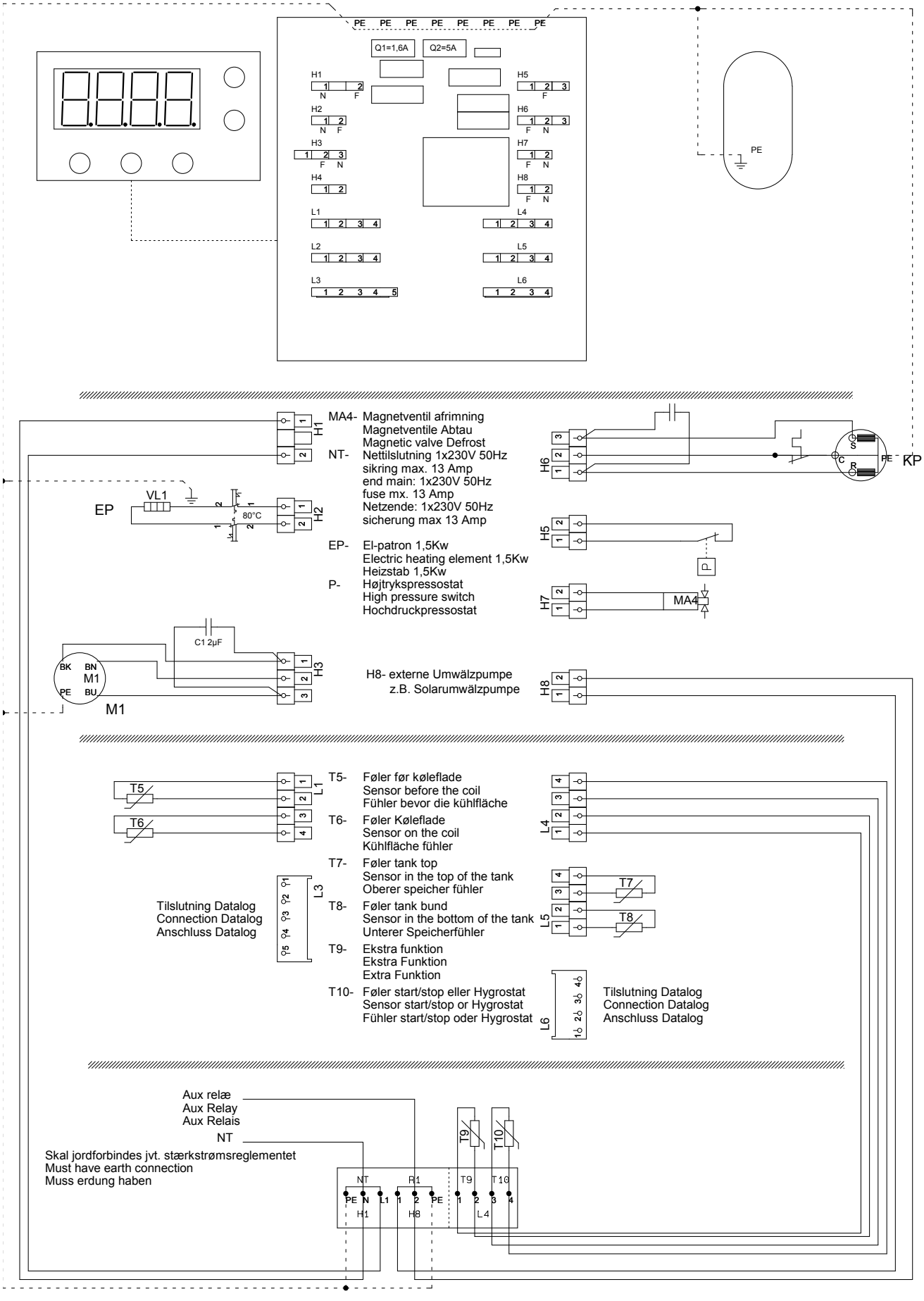
ATTENTION

If the domestic hot water heat pump is integrated in conjunction with a heating or solid fuel-fired boiler, take suitable measures to ensure that a maximum domestic hot water temperature of 70 °C in the tank volume and the maximum allowable pressure of 10 bar in the additional heat exchanger of the domestic hot water heat pump are not exceeded.

NOTE.

The hydraulic diagram is a schematic representation to be used as an aid. It does not release you from the need to carry out your own planning. This drawing does not show all the shut-off devices, vents, bleeding devices and safety measures. These must be drawn up for the specific system in accordance with relevant local standards and regulations.

Terminal diagram BWP303+S / BWP 307+S



Overview of the set values

Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
E0: Factory setting			
0			
E2: T9 setpoint temperature			
21			
E8: Thermal disinfection ON / OFF			
0			
E9: Operation in cold environment ON / OFF *(only BWP 307+S)*			
0			
E10: Operation in cold environment *(only BWP 307+S)*			
0			
E13: Minimum floor temperature			
35			
E15: Hygrostat / Stop system			
0			
E16: Minimum air volume (BWP 303+S / BWP 307+S)			
0 / 15			
E17: Party mode			
0			

E18: Number of hours for ventilation party mode			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
3			
E19: Extra function			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
0			
E20: Solar collector			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
5			
E21: Output reduction temperature (TX setpoint)			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
45			
E23: Maximum permissible evaporation temperature (Tmop) (BWP 303+S / BWP 307+S)			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
15 / 25			
E25: Fan level 2			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
100			
E26: Fan level 3			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
100			
E45: Lowest temperature of the air cooling (dTair setpoint) (BWP 303+S / BWP 307+S)			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
2 / 3			
E46: Maximum tank temperature			
Factory setting	Set value ı Date:	Set value ı Date:	Set value ı Date:
60			

E49: Bildschirmschoner (1-3)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
2	----------	----------	----------
E50: Stunden der internen Uhr (0-23)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
0	----------	----------	----------
E51: Minuten der internen Uhr (0-59)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
0	----------	----------	----------
E52: Günstige Phase (Ein/Aus)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
0	----------	----------	----------
E53: Startzeit der günstigen Phase (0-23)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
1	----------	----------	----------
E54: Endzeit der günstigen Phase (0-23)			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
6	----------	----------	----------
E60: Temperaturdifferenz zwischen T5 und T6			
Werkseinstellung	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:	eingestellter Sollwert ı Datum:
2°C	----------	----------	----------

EC declaration of conformity

CE

Der Unterzeichnete

bestätigt, dass das (die) nachfolgend bezeichnete(n) Gerät(e) in der von uns in Verkehr gebrachten Ausführung die Anforderungen der harmonisierten EG-Richtlinien, EG-Sicherheitsstandards und produktspezifischen EG-Standards erfüllt (erfüllen).
Bei einer nicht mit uns abgestimmten Änderung des(der) Geräte(s) verliert diese Erklärung ihre Gültigkeit.
Bezeichnung des (der) Gerät(e)s

Wärmepumpe/Lüftungsgerät

Gerätetyp	Bestellnummer	Gerätetyp	Bestellnummer
BWP 303	156 276	LG 317 TB	156 294
BWP 303S	156 236	LG 317 B	156 298
BWP 307	156 376	LG 320	156 186
BWP 307S	156 378	LG 320 R	156 188
LLG 322 R	156 238	LG 320 L	156 190
LLG 322 L	156 240	LG 530	156 192
LLG 428 R	156 242	LG 530 R	156 194
LLG 428 L	156 244	LG 530 L	156 196
LLG 634 R	156 246	LG 850 R	156 206
LLG 634 L	156 248	LG 850 L	156 208
LLB 315 + S	156 250	LLB 317 + S	156 200
LLB 317 K	156 202	LB 316 S	156 012
LG327 TB	156 380	LB 316	156 096
LG327 B	156 382		

EG-Richtlinien

2006/42/EG
2006/95/EG
2004/108/EG
2002/95/EC

Harmonisierte EN

EN 60335-2-40 +A11 +A12 +A1 +A2
EN 60335-2-21 +A1 +A2
EN 60335-1 +A1 +A11 +A12 +A2 +A13 +A14 +A15
EN 55014-1/2 +A1
ISO 3743-1
EN 50366 +A1
EN 16147

Nationale Normen/Richtlinien

DE AT CH

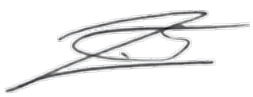
Firma:

alphainnoTec

Industriestrasse 3, D – 95359 Kasendorf

Ort, Datum: Kasendorf, 13.03.2013

Unterschrift:



Space for notes

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