Item no.: XXXXXX-20/10/2004

Installation and Operating Instructions

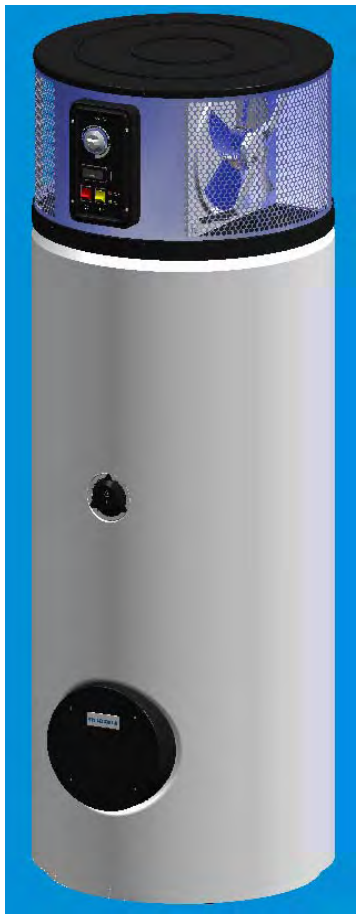
Hot water heat pump

HP 180 (I S WPS 180)

HP 300 (I S WPS 300)

HP 300 W (I S WPS W 300)

HP 300 WW (I S WPS WW 300)



Information

Brandmarket by Styleboiler:

List of contents

Product and technical modifications reserved.

Product approvals

All of our products are produced under strict ISO 9001 quality controls and have the CE label.
The hot water heat pumps thanks to their special construction, exceed the latest safety EN regulations (IEC - EMV / EMC), offer more operational reliability and also meet the latest regulations relating to energy losses in accordance with the German energy law (EnG) or the energy use ordinance (EnV), as well as the latest

ISO 9001/2000
Certification for quality and management system
No. SQ 0865-IT

ISO 9001/2000
Certification pour la qualité et le système de management
Nr. SQ 0865-IT

Conforms to CE
No. SEV-STS 001

CE

Conform - CE
No. ASE-STS 001

SEV – tested and approved in accordance with the standards:
EN 60335-1:2003
EN 60335-2-21:1999
EN 60335-2-40 :2003
EMV/EMC
EN 55014-1 / CISPR 14-1
EN 50366
EN / IEC 61000-3-2
EN 55014-2 / CISPR 14-2

SEV CB

Approuvé et homologués - ASE selon les normes:
EN 60335-1:2003
EN 60335-2-21:1999
EN 60335-2-40;2003
EMV/EMC
EN 55014-1 / CISPR 14-1
EN 50366
EN / IEC 61000-3-2
EN 55014-2 / CISPR 14-2

WPZ – tested and approved in accordance with the standards:
DIN EN 255-3:1997+AC: 1997
DIN EN 255-4: 1997
DIN EN 14511-4: 2004

WPZ-B-002-04-07
WPZ-Wärme
pumpentestzentrum
NTB - FWS
CH-Buchs

Approuvé et homologués - ASE selon les normes:
DIN EN 255-3:1997+AC:1997
DIN EN 255-4: 1997
DIN EN 14511-4:2004

Applied for

F W S - D A C H

SVGW - tested and approved in accordance with the directives:
W /TPW 115 and in accordance with the German energy laws relating to energy loss (EnG / EnV)

Homologué SSIGE et agréé selon
W /TPW 115 et OEne / LEene dés pertes énergétique

ISO – International Standard Organisation
CE – Comité Européen
SEV – Schweizerischer Elektrotechnischer Verein (VDE / ÖEV)
IEC – International Electrotechnical Committee
EN – Europäische – Norm
SVGW – Schweizereischer Verein des Gas- und Wasserfaches (DVGW / ÖVGW)
EnG – Energiegesetz
EnV – Energienutzungsverordnung
DIN – Deutsche Industrie Norm
WPZ – Wärmepumpenzentrum Buchs
NTB – Interstaatliche Hochschule für Technik
FWS–Fördergemeinschaft Wärmepumpen Schweiz
D-A-CH – Internationales WP-Gütesiegel D, A, CH

General

Note
The following instructions must be followed; otherwise any claims for liability on our part do not apply.

Regulations and safety instructions
These installation and operating instructions must be read before putting the appliance into operation.

The hot water heat pump is only used for heating water for domestic use and drinking water in the temperature ranges given.

The specialist engineer must ensure before beginning maintenance or repair work on parts that conduct refrigerant, that the refrigerant is removed insofar as is necessary to carry out the work safely. Refrigerant is to be handled and disposed of according to the regulations; it must not escape into the environment. (The refrigerant R134a is CFC-free, non-flammable and non-ozone depleting).

When work is done on the HP the pump must not be live (pull out the plug).

When doing electrical work on the HP the appropriate SEV, VDE, EN and IEC standards are to be followed. In addition to this the technical connection requirements of the energy companies are to be observed.

Delivery / Packaging
The hot water heat pump is delivered in an environmentally friendly cardboard packaging suitable for transport with protective inserts on a single use wooden pallet. Ensure you dispose of the packaging materials properly in accordance with the requirements for environmental protection.
In the event of visible damage the domestic water heat pump must not on any account be set up or installed. Please inform your supplier immediately.

Installation and Connection
The hot water heat pump is to be set up and installed in a frost-free, damp-free and acid-free room. It should also be placed as near as possible to the water source and the heat generator to avoid unnecessary energy loss in pipes.

Only authorised specialist engineers may carry out connections to the sanitation and heating systems and the electrical system.

The pump is also to be put into operation by authorised specialist engineers, taking into account all safety regulations in force.

General

Repairs may only be carried out by specialist engineers. Improper use and repairs may lead to serious damage and endanger the user.

Only original spare parts may be used for repairs.

These instructions are the basis for a problem-free installation, which should only be undertaken by specialist engineers.

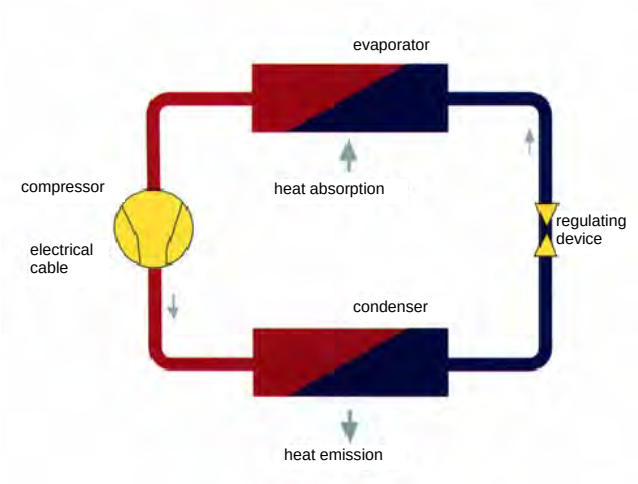
Operation
The hot water heat pump must only be set up and installed according to the installation and operating instructions.
The installation and operating instructions are to be considered as a part of the appliance and must be kept carefully (with the appliance) and, if required, put at the disposal of the specialist engineers.

Any claim against the guarantee lapses if these instructions are not followed.

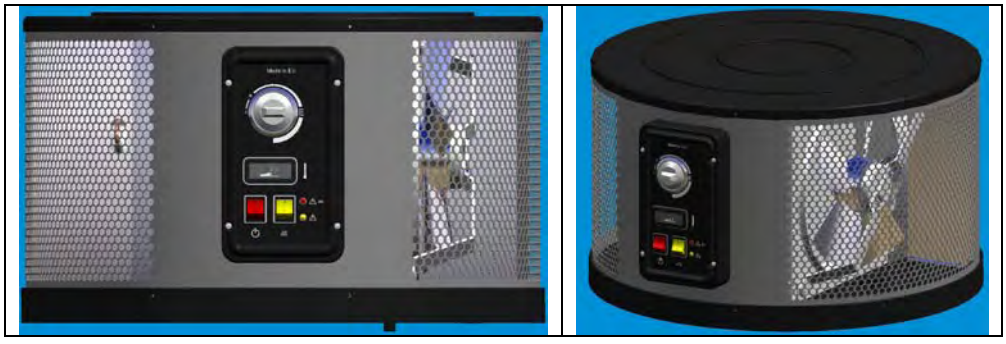
Function

Functional description of the heat pump

Refrigeration cycle



Head of heat pump



Function of the heat pump

The hot water heat pump uses the existing heat in boiler rooms, storerooms, workrooms and utility rooms to heat the water for domestic use. Particularly suitable are rooms where, for example, refrigerators, deep freezes, tumble dryers, boilers, etc are installed and give off heat, the majority of which will otherwise be given off unused to the outside.

The air present in the room (and sometimes also the outside air e.g. via a window) is sucked in with a fan and the heat present in the air is removed by passing through the air-to-air heat exchanger (evaporator).
In the evaporator the heat taken from the air is evaporated by means of refrigerant (working medium in the refrigerant cycle, such as in a refrigerator) with the refrigerant at low pressure. The refrigerant in the form of a vapour is taken in by a condenser (compressor) and compressed at a higher pressure (like in a bicycle pump), which leads to an increase in the temperature of the refrigerant.

Function

Functional description of the heat pump

In a second heat exchanger (condenser) the increased heat is used and transferred to the water for domestic use, whereby the vapour refrigerant becomes a liquid medium again through the fall in temperature.
The liquid refrigerant is released by a regulating device (expansion valve) to the low pressure (expansion) and can take up heat again in the compressor.

The hot water heat pump operates at air temperatures from +8°C to +32°C.

The HP is a ready-to-connect appliance for the heating of domestic water and drinking water and consists essentially of the domestic water tank, the components of the refrigerant, air and water circuits plus all the control, regulating and monitoring elements required for automatic operation.

The HP uses the heat in the air taken in with the supply of electrical energy to heat water.

The models HP 180 and 300 are fitted as standard with a supplementary additional electrical heating element (1.5 kW).

The model HP 300 W is fitted as standard with an electrical heating element (1.5 kW) and inner bare tube heat exchanger for connection to an additional heat source (boiler / wall-mounted heater / solar panel / etc.).

The model HP 300 WW (also known as Solar) is fitted as standard with an electrical heating element (1.5 kW) and two inner bare tube heat exchangers for connection to two additional heat sources (boiler / wall-mounted heater / solar panel / etc.).

Construction of the hot water heat pump

Tank

The tank consists of a compression-proof cylindrical inner boiler and is manufactured in accordance with DIN 4753 Part 1.
In the case of built-in heating surfaces (heat exchangers) these consist of one or two independent soldered-in, helical bent tubes with bare surfaces (bare surface heat exchangers).
The flange on the front with the integrated condenser also serves for the necessary regular cleaning of the inner tank.

All connections to the water supply are located at the back.

The HP can be adjusted with four regulating adjusting screws. The adjusting screws are supplied loose.

Protection against corrosion

The inner boiler is protected against corrosion in accordance with DIN 4753 Part 3 by means of a special enamel. Enamel is the only protection against corrosion which is biologically and chemically neutral and therefore tasteless and odourless and electrochemically neutral as well.

As an additional protection against corrosion a magnesium anode (45° angle, on the right) is built-in, which can be replaced at any time with an impressed current anode (see Accessories), and therefore ensures maintenance-free operation and in addition improved long-term protection against corrosion.

Heat insulation and cover

Heat insulation is achieved through a high quality biological, CFC-free PUR (polyurethane) high-resistance foam. By being completely packed in plastic foam minimum standby energy losses are achieved.
The outer cover consists of a coloured plastic jacket with additional flexible foam insulation 5 mm thick.

The refrigerant lines from the upper part of the appliance to the condenser in the lower part of the appliance are laid in tubes specially covered in foam to achieve better efficiency.

Regulation / Control system / Safety devices

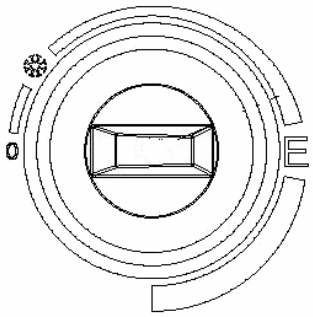
The HP is fitted with the following regulating and control systems and safety devices.

Refrigerant circuit
The HP is fitted in the refrigerant circuit with an independent high pressure (hp) and low pressure (lp) pressostat to protect the components in the event of pressure being too high or too low. In the event of pressure ratios being exceeded or not reached, the pressostat switches the HP off (light diode – fault). The HP is automatically switched on again after pressure reduction or pressure build-up is achieved in the refrigerant circuit.

Safety temperature limiter in the electrical heating element
A safety thermostat operating as a temperature limiter protects against the hot water being overheated by the electrical heating element, and is connected behind the panel of the control panel.
If the reference temperature (+110°C / –9K) is exceeded, the thermostat switches the electrical heating element OFF.
It is not possible to turn the heating element on again until the hot water temperature has gone down to < 100°C, after which the reset button (see picture) can be pressed (may only be done by a specialist engineer).

Temperature regulator for electrical heating element
The temperature regulator for the electrical heating element regulates the hot water temperature when working electrically with the heating element. This regulator is set in the factory to a fixed value of +47°C / +/- 3K, and is connected behind the control panel.

Temperature regulator for heat pump
Temperature regulation for water heating using the heat pump (compressor operation) is possible by means of the temperature regulator.
The control knob of the regulator is located on the control panel (see picture) where the desired hot water temperature for the HP can be set.
The possible temperature range for hot water heated by the HP is from +29°C (+/-4K) to max. 56°C (+/-2K).



Regulation / Control system / Safety devices

Temperature display
The water temperature is displayed via a capillary thermometer which is built-into the panel.
The water temperature is taken by means of a sensor in the upper area of the hot water tank.

Control panel

Transport

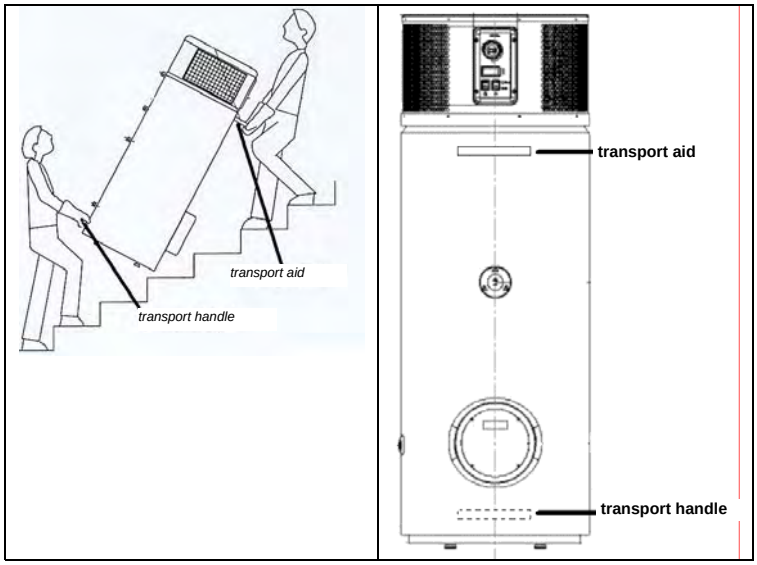
Essentially the HP is to be stored and transported upright (vertically) in the original packaging. For short distances an angled position of 45° is permitted if care is taken.

Partly due to its top heaviness, when using forklift trucks or other aids, lifting speeds are to be kept down and if need be the appliance is to be secured against falling off.

The HP may only be put down on an even surface.

After being transported at an angle, you should wait approx. 12 hours before installing.

For transporting manually and for putting the HP into place after removing the packaging there is a transport aid / transport handle (see picture).



On the front of the HP under the panel the insulating jacket can be pulled down about 50 mm until two plug-in holes become visible. The transport aid is to be pushed into the plug-in holes as far as it will go.
The carrying handle is to be screwed into the HP's cold water connection.
This makes the HP transportable without there being any damage to it (see picture).

IMPORTANT
The top of the appliance must not be used for transporting purposes under any circumstances. The top cannot take any great force.

The HP is to be installed in a frost-free, damp-free and acid-free room as near as possible to the water source and any heat generators to avoid unnecessary energy loss in the pipes.
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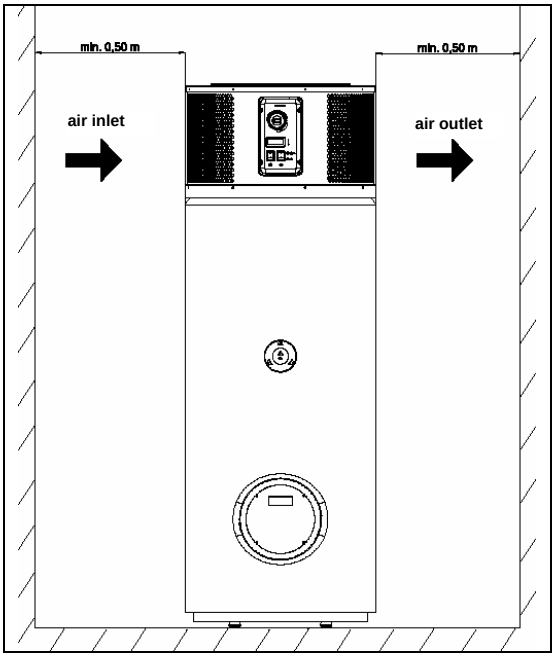
IMPORTANT

- The installation must be in a room of at least 20 m^3 with a min. floor area of 6 m^2
- The room air temperatures (or the air taken in) must not be < +8°C and > +32°C
- Use rooms with waste heat from tumble dryers, fridges, freezers, etc.
- The air must not be excessively dirty or very dusty
- There must be a siphoned dirty water outlet to drain off the condensate
- The cooler air blown out makes the room temperature fall by approx. 2 - 4K
- The minimum distances (see picture) must be maintained



Setup

Remove the four screws (connecting pallet with HP) from the bottom of the pallet

Remove the wooden pallet and screw in the four adjusting screws enclosed and line up the HWHP with a slight gradient to the condensate drain

Water connections

Selection of material

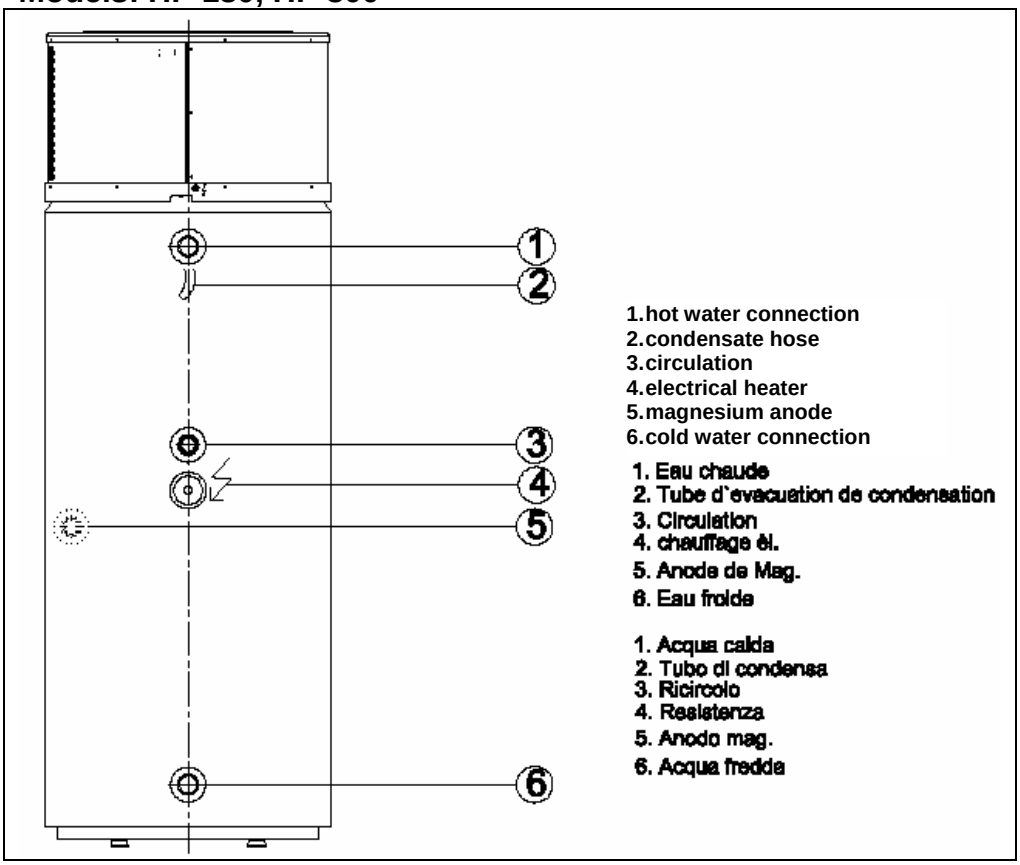
When selecting the material of the mains supply, in particular with mixed installations, when connecting to the hot water tank, care is to be taken with the correct sequence of materials to avoid possible electrochemical corrosion of the connections (pitting through stray currents).

The materials permitted with mixed installations and for hot water systems are contained in DIN 50930-6.

For the hydraulic connections (cold water and hot water as well as heating flow and return with heat exchanger) the rules and regulations of the local water authorities and the state of the art (rules and regulations) are to be taken into consideration.
You can also get information from the water authorities about the appropriate water hardnesses and pressure ratios.
Connections must be made by licensed installation companies.
The appliance is supplied with a connection schematic

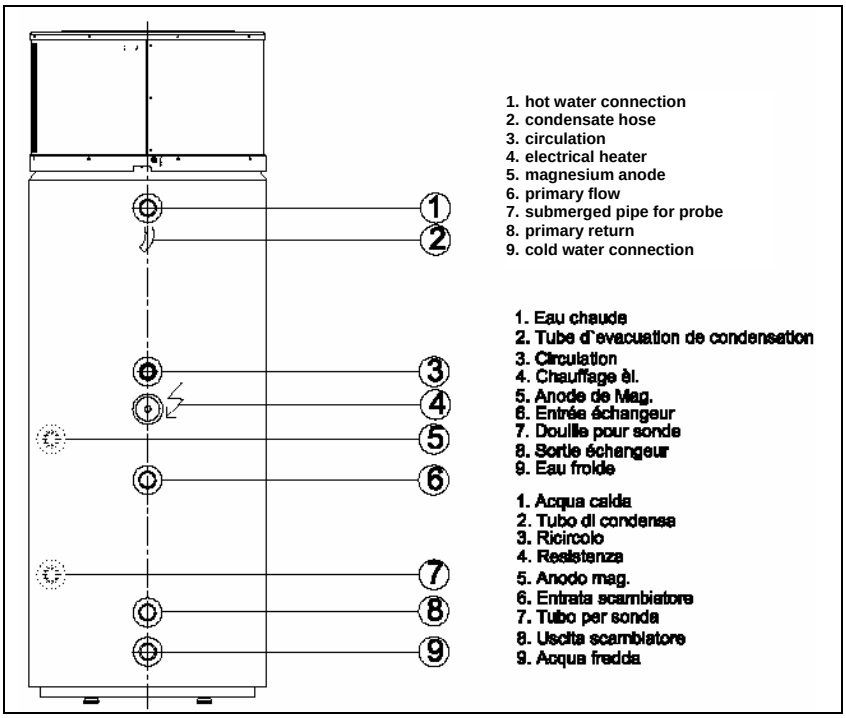
Hydraulic connection bonding cement

Models: HP 180, HP 300



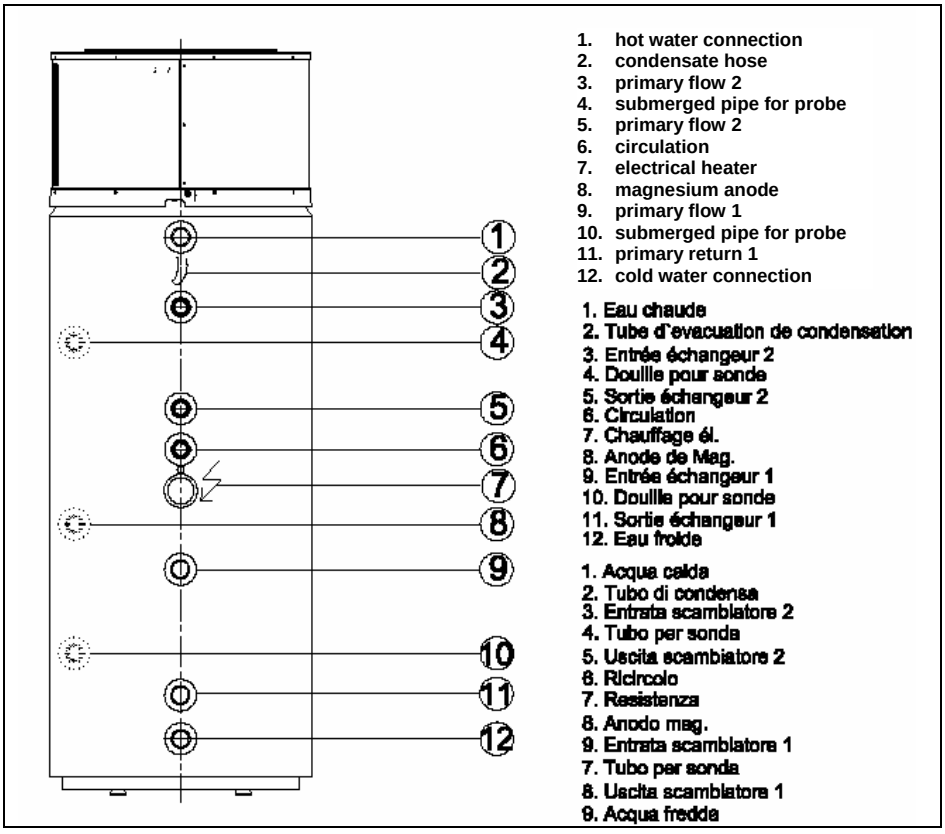
Hydraulic connection bonding cement

Model HP 300 W



Hydraulic connection bonding cement

Model HP 300 WW



Hydraulic Installation

Water connections

Max. operational pressure and max. operating temperatures
The HP's are designed for compression-proof connection.
The max. operating pressure for the tank is 10.0 bar / 1.0 MPa and max. working temperature is 110°C. The max. operating pressure for the heat exchanger is 16.0 bar / 1.6 MPa and the max. working temperature is 95°C. See rating plate.

Connections are to be made in accordance with the connection schematic.

IMPORTANT - DANGER
Due to the heating of the water there is an expansion of approx. 3% of the volume of water in the tank. As a result the expansion water must be able to flow away freely and visibly over the safety valve.

The hydraulic connection is to be made according to the regulations with the necessary safety fittings/safety group, as otherwise the guarantee claims lapse.

If connection is made without any or with a defective pressure-reducing valve as well as without any or with a defective safety valve, the inside tank becomes irreparable.

Special attention must be paid to the max. working pressure 10.0 bar / 1.00 MPa. A corresponding (component-tested – sealed / calibrated) pressure reducing valve / pressure reducer **must** be installed.

A component-tested safety valve **must** be installed with a max. opening pressure of 10.0 bar / 1.00 MPa.
The safety valve is to be regularly operated and checked.

Care should also be taken that there is no direct link between the drain of the safety valve and the drain funnel and a free distance of 15 mm **must** be ensured.

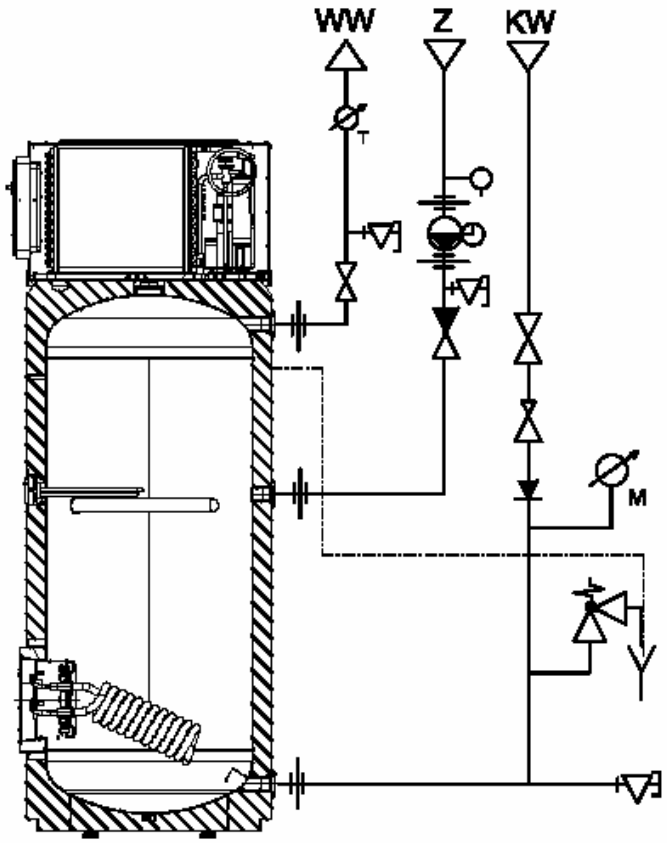
The instructions the manufacturer of the fittings are to be followed. Check that the expansion water appears when the appliance first heats up.

The plastic condensate hose (outer diameter 15 mm / inner diameter 14.5 mm) is introduced on the back of the appliance through the plastic cover. The condensate hose is to be laid and, if necessary, is to be extended so that the condensate can flow away without interference. The drainpipe into which the condensed water is fed must be lower than the HP's connection to the water supply. The condensate is to be fed into a drain pipe with siphon or into a collecting container which is regularly emptied.

Water connections

Hydraulic connection schematic

Model: HP 180, HP 300

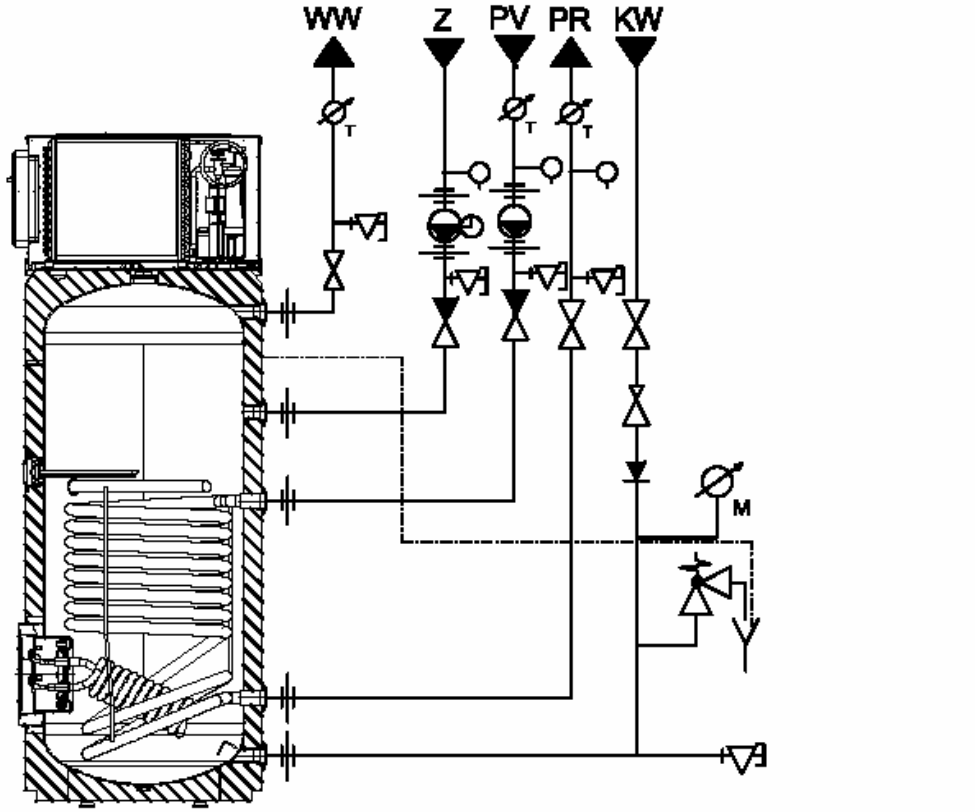


shut-off device	evacuation tap
pressure-reducing device	safety valve
return valve	
thermometer	ventilating valve
pressure gauge	charging pump, circulation pump
electrical connection heating element	timer clock to the circulation pump
condensate pipe	shut-off device with return valve

Water connections

Hydraulic connection schematic with a heat exchanger

Model: HP 300 W

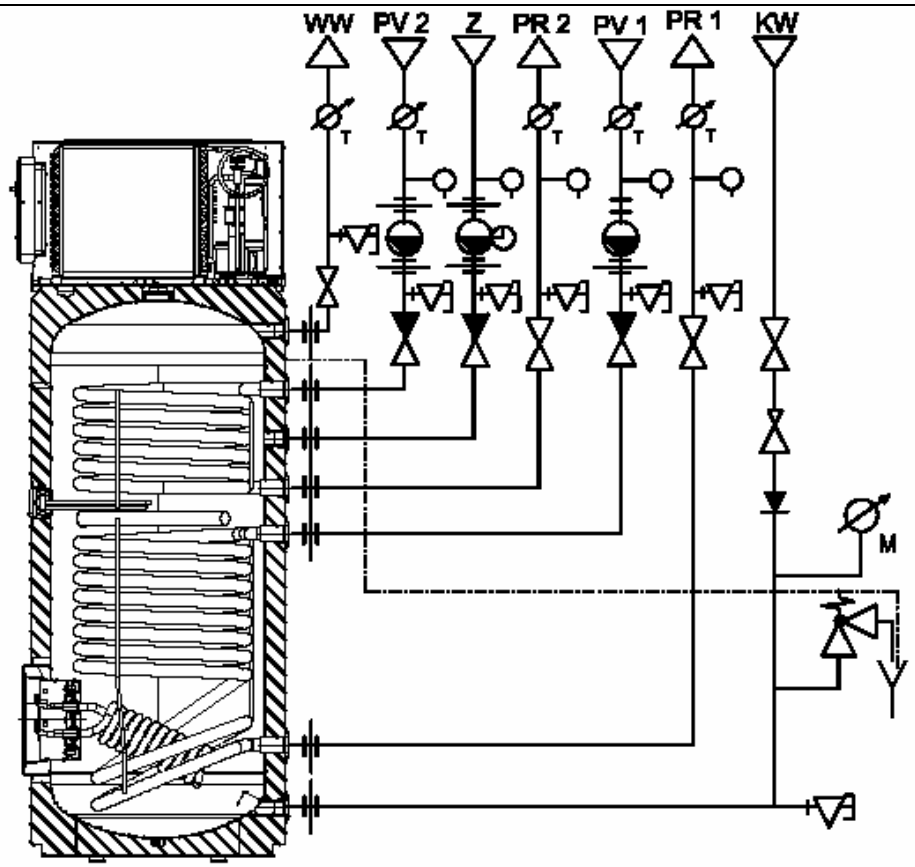


shut-off device	evacuation tap
pressure-reducing device	safety valve
return valve	
thermometer	ventilating valve
pressure gauge	charging pump, circulation pump
electrical connection heating element	timer clock to the circulation pump
condensate pipe	shut-off device with return valve

Water connections

Hydraulic connection schematic with two heat exchangers

Model: HP 300 WW



shut-off device	evacuation tap
pressure-reducing device	safety valve
return valve	
thermometer	ventilating valve
pressure gauge	charging pump, circulation pump
electrical connection heating element	timer clock to the circulation pump
condensate pipe	shut-off device with return valve

Water connections

The safety fittings are to be installed in accordance with DIN 1988.

We recommend the installation of a dirt filter in the cold water supply.

The supply pipes (hot water, circulation, primary flow and return) are to be very well insulated to avoid heat loss, in accordance with the Energy Ordinances.

Do without a circulation pipe for energy reasons, if at all possible.
If, however, a circulation pipe is connected, whenever possible this is to be provided with an electrical companion heater or in a classic installation the circulation pump is to be provided with a clock with a timer switch. A return valve is to be installed as well to avoid possible gravity circulations.

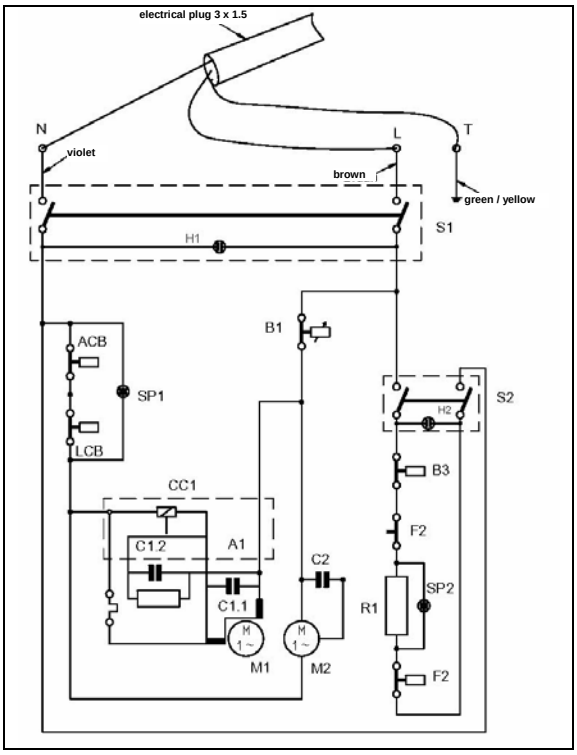
In particular the rules and the directives and regulations of the water authorities and the energy legislation are always to be taken into consideration in every case.

Electrical Installation

Electrical connection

The HP is wired ready for connection, the electrical connection is via the electric mains wiring including a shockproof plug to a socket in the building (~ 230 V / 50Hz / 16A / 2 kW). The socket must also be accessible after the installation.

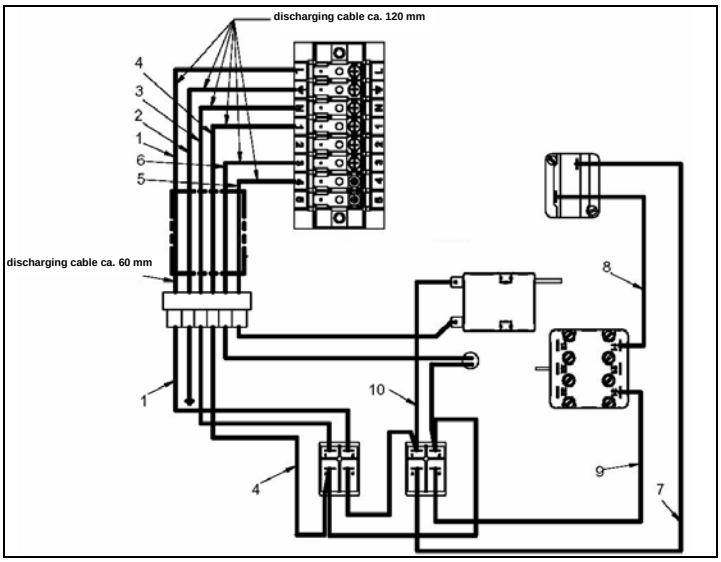
Electrical schematic



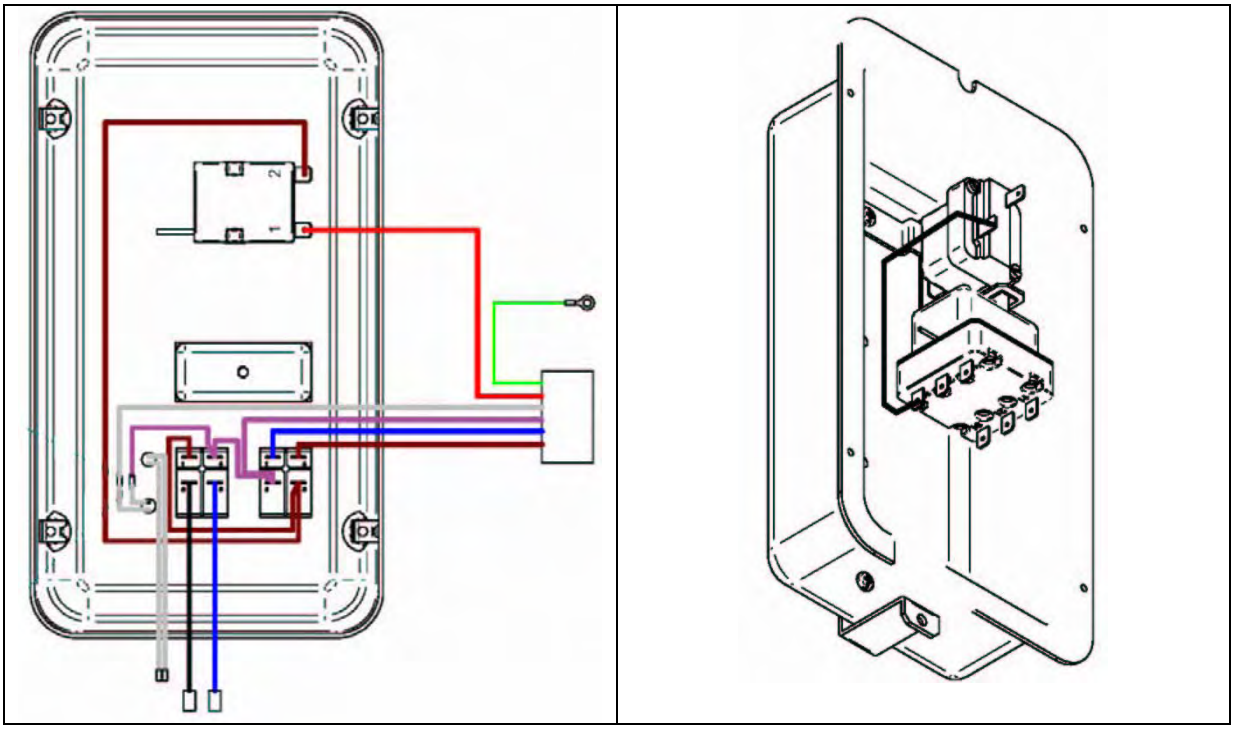
Key:

Pos.	Item. No.	Object
Mo 1- 8	145029	Terminal block
Electrical plug	070669	Electrical – connecting cable
Electrical plug		Electrical – connecting cable
S 1	070100	On/off switch HP red
S 2	070670	On/off switch heating yellow
M 1	145000	Compressor
CC1	145000	Safety transformer compressor
M 2	145003	Fan
R 1	070016	Electrical heating element 1500 W – 230V
F 2	145007	Safety thermostat heating element (110°C)
B 1	145006	Regulating thermostat HP (29°C ... 56°C)
B 3	145005	Fixed value thermostat heating element (47°C)
C 2	145028	Condenser 1$_{\mu}$F 450 V
SP 1	070591	Light diode, fault – HP, red
SP 2	070592	Light diode, heating element on, yellow
ACB	145015	High pressure pressostat 20.0–15.0 / 2.0–1.5 bar
LCB	145016	Low pressure pressostat 1.0–2.0 / 0.1–0.2 bar

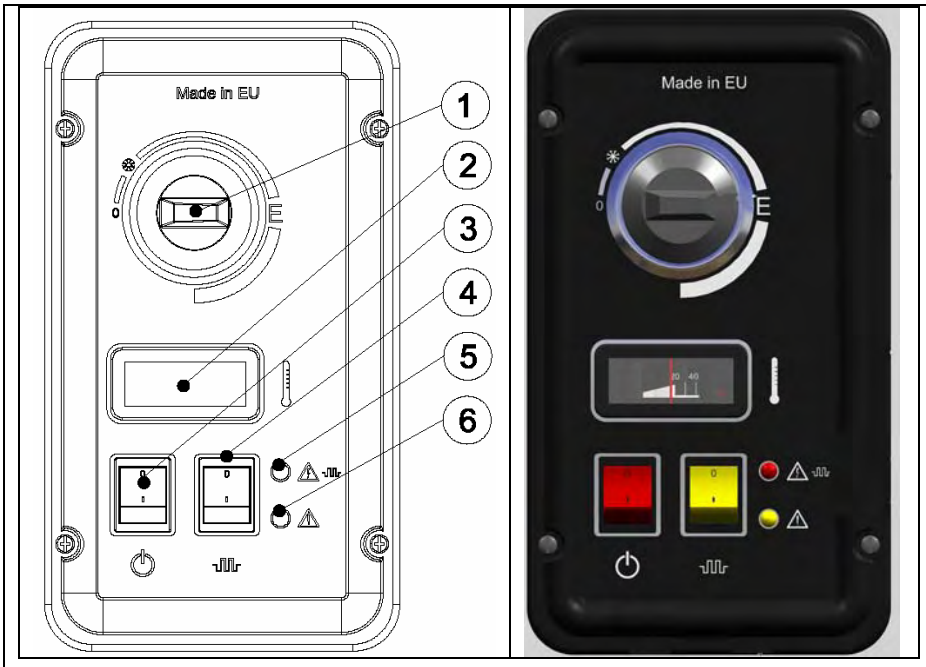
Wiring schematic



Pos.	Colour	Cross section	Length (mm)
1	Brown	1.5	1280
2	Yellow / Green	1.5	1280
3	Violet	1.5	1280
4	Pink	1.5	1280
5	Red	1.5	1280
6	White	1.5	1280
7	Black	1.5	260
8	Black	1.5	180
9	Violet	1.5	260
10	Brown	1.5	180



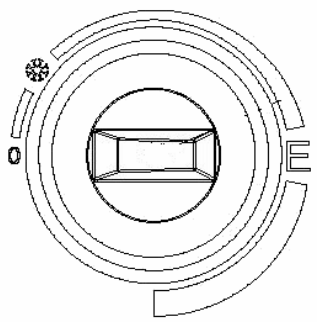
Control panel hot water heat pump



Key

1 Temperature regulator heat pump operation
2 Temperature display hot water
3 ON / OFF switch for the HWHP
4 ON / OFF switch for the electrical heating element
5 Light diode electrical heating element (when operating) ON
6 Light diode heat pump (refrigerant cycle) FAULT

Temperature regulator HP



Frost protection setting (~ +29°C)

Energy saving setting (~ 40 ... 45°C)

Control panel - hot water heat pump

The water temperature is set with the temperature regulator when in heat pump mode.

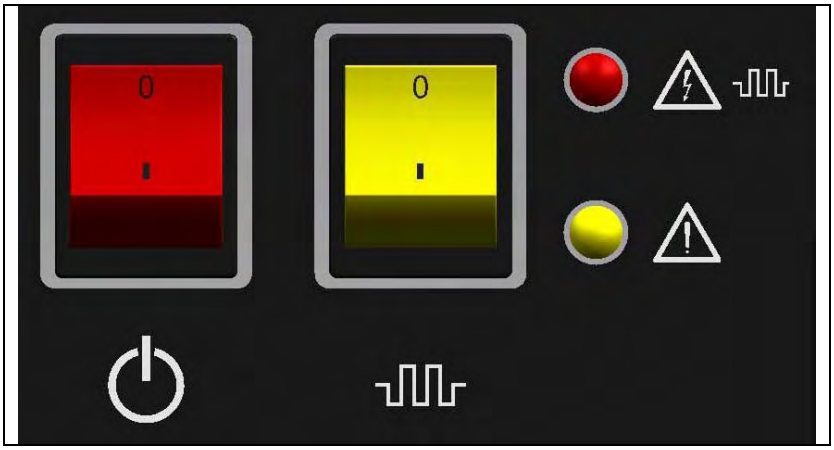
If you turn the control knob all the way to the right as far as it will go (clockwise), the max. water temperature setting of +55°C is reached.

The energy saving setting position (symbol E) corresponds to a hot water temperature of approx. +40 to +45°C.
In this position energy savings of up to 25% are possible.

The frost protection setting position (symbol) corresponds to a hot water temperature of approx. +29°C.
With this the water in the tank is held at a temperature of approx. +29°C and there is no danger of frost in the tank.
Use this setting if you are away for longer periods, e.g. the winter holidays and at the same time you would like to save energy.

IMPORTANT
This frost setting protects the appliance from frost but not the water pipes connected to it!

On/Off switch - Electrical heater



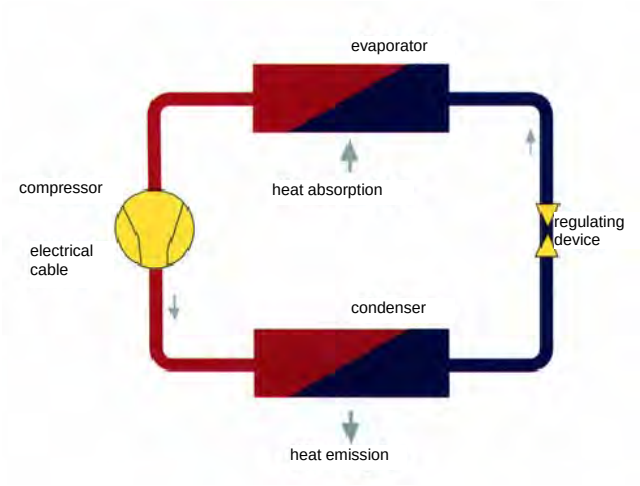
The supplementary electrical heater (1.5 kW) is clever, for energy saving reasons, and is capable of optimum use of the heat pump mode only when linked with the heat pump mode.

Control panel - hot water heat pump

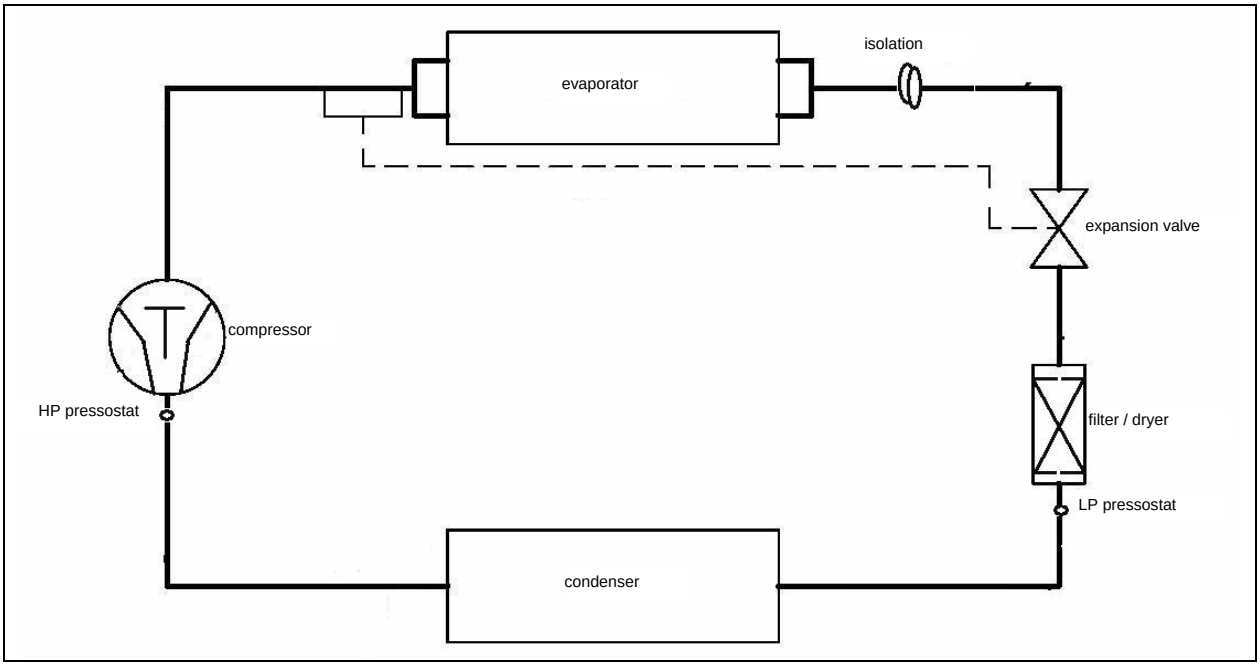
If you exceptionally need especially large amounts of hot water or the power of the heat pump does not reach the required hot water temperature, switch on the electrical heater. The water in the upper quarter of the tank (model 180 approx. 45 litres and model 300 approx. 75 litres) is heated with an output of 1.5 kW.

The electrical heating element heats, when switched on (yellow switch I), if the water temperature in the upper quarter of the tank is < +47°C and the heating element switches off again when the water temperature is ~ +50°C.
If the heating element is operating electrically the (red) light diode lights up.

Refrigerant circuit



Pictorial schematic - refrigerant circuit



Putting into operation

Must be put into operation for the first time by specialist engineers!

The hydraulic system (cold and hot water systems) as well as all connections to the hot water heat pump, in the case of combined systems including the primary circuit (heating flow and return), is to be inspected for complete water tightness before the appliance is put into operation.

Thorough rinsing out of the entire hydraulic system, and in particular the hot water heat pump, is absolutely necessary.

After the entire hydraulic system has been thoroughly rinsed, then the system can be filled, until for domestic water on the tap (hot water battery / hot water fitting), the water flows out in a full jet of water. The primary side (heating / solar / etc.) is to be carried out according to the specifications of the supplier of the system (normally heating engineers). In particular it is, however, to be ensured that the bare tube heat exchanger is extensively and perfectly ventilated. We recommend the installation of an automatic ventilator.

The electrical connection (socket) must be ready for connection (installed by specialist engineers) and must be tested for the correct distribution voltage.

The hot water heat pump can now be put into operation.

- Connect to the voltage supply, put the plug in the socket
- Press the (red) on/off heat pump switch to (I) ON
  (The light diode of the on/off switch lights up)
- Set the desired hot water temperature, using the temperature regulator

The hot water heat pump works until the first full heating up, dependent upon the air and cold water temperature.
After approx. 4 to 6 hours (model 180) or 7 to 9 hours (model 300) the hot water temperature reaches the max. hot water temperature of +55°C.

From these settings monitor until the values and functions set are reached.

The functioning of the thermostat in the regulating thermostat and the hot water temperature of the safety devices is to be checked by specialist engineers.

The functioning of the supplementary electrical heater is to be checked when the appliance is put into operation.

IMPORTANT
The escape of the expansion water is to be checked.

Combined operation
Only when the appliance has been put into operation for the first time and the functions of the hot water heat pump have been checked successfully, can combined operation take place for the first time.

These are to be carried out according to the instructions of the system supplier or specialist engineers.

NOTE
For the domestic water system, the power of the heat source or solar heating system and their primary temperature and volume flow are first and foremost the decisive factors. The placing of the temperature sensor (see under the heading Technical Data).

Customer service
If the hot water heat pump cannot be put into operation by specialist engineers or the hot water temperature is not reaching the corresponding technical data, please contact us or our customer service department.

If in dual operation with a boiler or solar heating system or similar the appliance should not work properly against expectations, besides the specialist engineers (electrician, heating engineer and plumber) the system suppliers (boiler / solar heating system) are to be called in and only after unsuccessful attempts, please contact us or our customer service department.

Magnesium anode

The magnesium anode integrated in the hot water heat pump as a cathodic additional corrosion protection is to be electrically checked by specialist engineers regularly every two years after being brought into operation, and replaced if necessary.
It is examined using a suitable current measuring device, **without** letting the water out of the tank.

Procedure:

- Remove PE lead from contact of the protective anode
- Connect ammeter (0 – 50 mA) between PE lead and contact
- Analysis of the protective anode use:
  Value measured: > 1 mA – the anode is OK
  Value measured: < 1 mA – the anode is to be checked and replaced, if necessary

If an electrical check is not possible, a visual inspection of the protective anode is necessary.
To do this, let out the domestic water in the tank to below where it is installed (about half the contents of the tank) so that the magnesium anode can be removed.

Accessories

As an option, a maintenance-free impressed current anode can be installed.

IMPORTANT

Magnesium protective anodes with impaired function shorten the life of the appliance.

Tank maintenance

As limescale can form almost everywhere, dirty water filtrations should take place and for reasons of bacterial hygiene, the inner tank should be inspected and maintained by specialist engineers after the first two years of operation, but at the earliest as soon as the hot water output drops off.

Limescale deposits reduce the volume of the tank and the transmission power of the heat exchanger and the hot water output decreases.

Maintenance by specialist engineers

For cleaning and specialised maintenance of the inner tank, full access to the flange for inspection and cleaning of the inner boiler is absolutely necessary.
The maintenance and complete cleaning of the condenser (fin tube heat exchanger) is scarcely possible on site under normal conditions and very expensive. The exchanger and the system are also filled with refrigerant under high pressure and temperature and leaks can occur.
Because of this for cleaning and specialised maintenance evacuation / venting (emptying and filling) of the refrigerant circuit is absolutely essential!

If required, our customer service department has factory-tested replacement condensers available.

Maintenance / Servicing / Repairs

Water circuit / Condensate drain

The inspection of the water circuit is restricted to any filters installed on the building side (follow instructions of the manufacturer of the fittings), possible leaks in fittings, screw connections, etc., are to be sorted out by specialist engineers.
The condensate drain is to be inspected to see that it is working correctly for the draining away of the condensate (see-through plastic hose) and for water tightness and is to be checked at the end of the hose for dirt and cleaned, if necessary.

Supply to the air circuit

The maintenance work is restricted to cleaning the evaporator as required or on a regular basis, in connection with the inspection of the magnesium anode.
IMPORTANT
Risk of injury from the sharp edges of the fins. The fins must not be deformed or damaged – fin comb!

Refrigerant circuit

No maintenance work is to be undertaken (see Tank maintenance)
The components can be cleaned at the time of the anode or tank maintenance.

Cleaning the appliance

For cleaning the appliance (outside) just a damp cloth and a soap and water solution is to be used.
IMPORTANT
Do not get any water on the control panel – Before you start cleaning, remove the plug from the socket!

If the domestic water should not be heated up when in boiler or solar mode, ask the heat source’s customer service department for help.

Faults / Troubleshooting

IMPORTANT
Work on the hot water heat pump may only be performed by persons with specialist knowledge!
Accident prevention regulations are to be followed.

Before you contact us or our customer service department, please carry out the following checks:

<u>The hot water heat pump is not working!</u>

1. the plug is plugged in
2. the on/off switch is switched on
3. there is distribution voltage at the socket (e.g. hand lamp)
4. the heat pump has not been switched off by the temperature regulator
5. the fault light diode is lit
6. the hot water temperature is already 55°C (or more)

Possible automatic start-up:

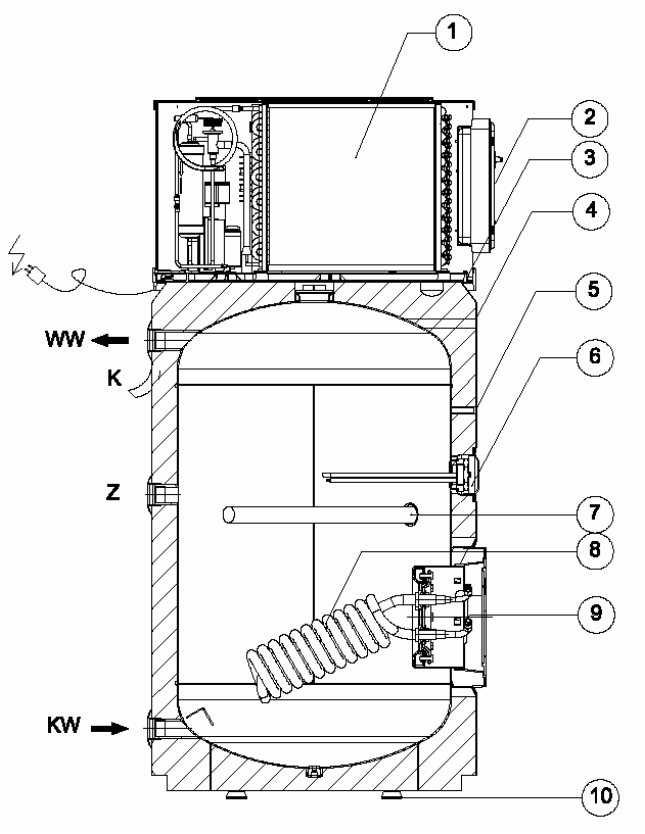
Fault 4	the heat pump starts working again, when hot water is used
Fault 5	excessive pressure or too little pressure in the refrigerant circuit, the heat pump automatically starts working again after a pressure build-up or reduction in pressure and the light diode goes out
Fault 6	the heat pump starts working again, when hot water is used

<u>The hot water heat pump works, hot water temperature is not high enough!</u>

Possible causes:

1. Interruption in the power supply or too much use of hot water
- Wait a few hours, then check the hot water temperature again
2. Low air temperatures / high air humidity
In the event of humidity being too high and temperatures being very low (<+8°C) and domestic water production at the same time, a build-up of frost can become noticeable on the evaporator and in extreme cases lead to the freezing of the evaporator
- Close the window, open the doors into the neighbouring rooms, turn off the heat pump with the on/off switch, so that the frost can thaw. After a few hours, the heat pump can be operated again

Section HP 180

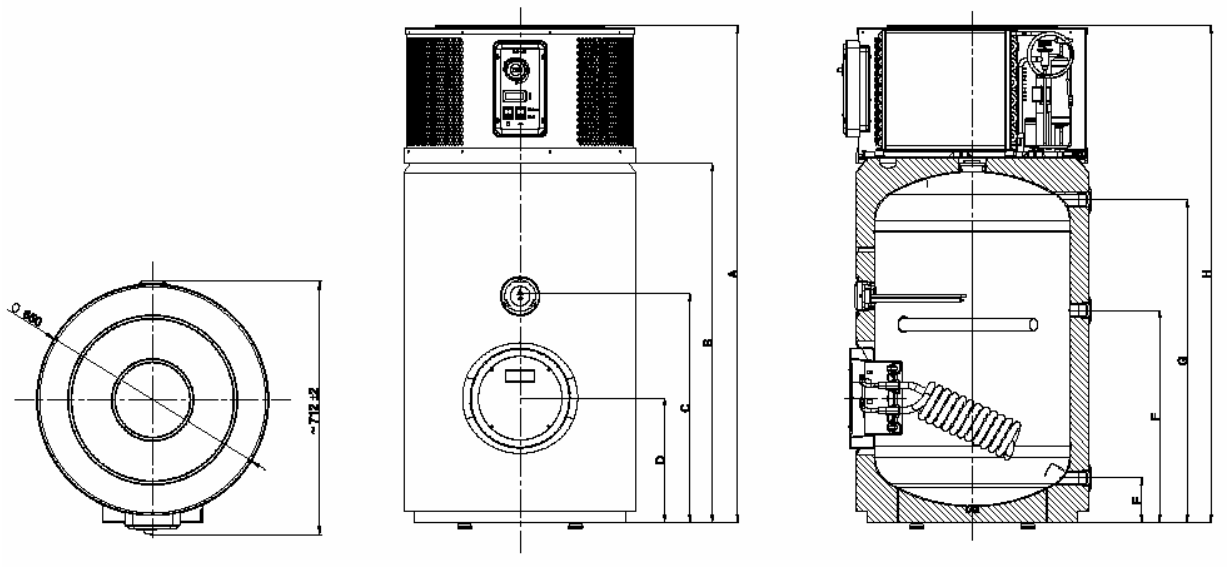


1. Heat pump head
2. Control panel
3. Condensate tank
4. Hole for installation aid
5. Submerged pipe for capillary thermometer
6. Electrical heater (1.5 kW)
7. Magnesium anode
8. Condenser
9. Flange
10. Adjustable feet

WW - Hot water Rp 1“
KW - Cold water Rp 1“
K - Condensed water drain ø 15 x14.5 mm
Z - Circulation

- Electrical mains cable with plug 230 V ~ / 50 Hz / 15 A

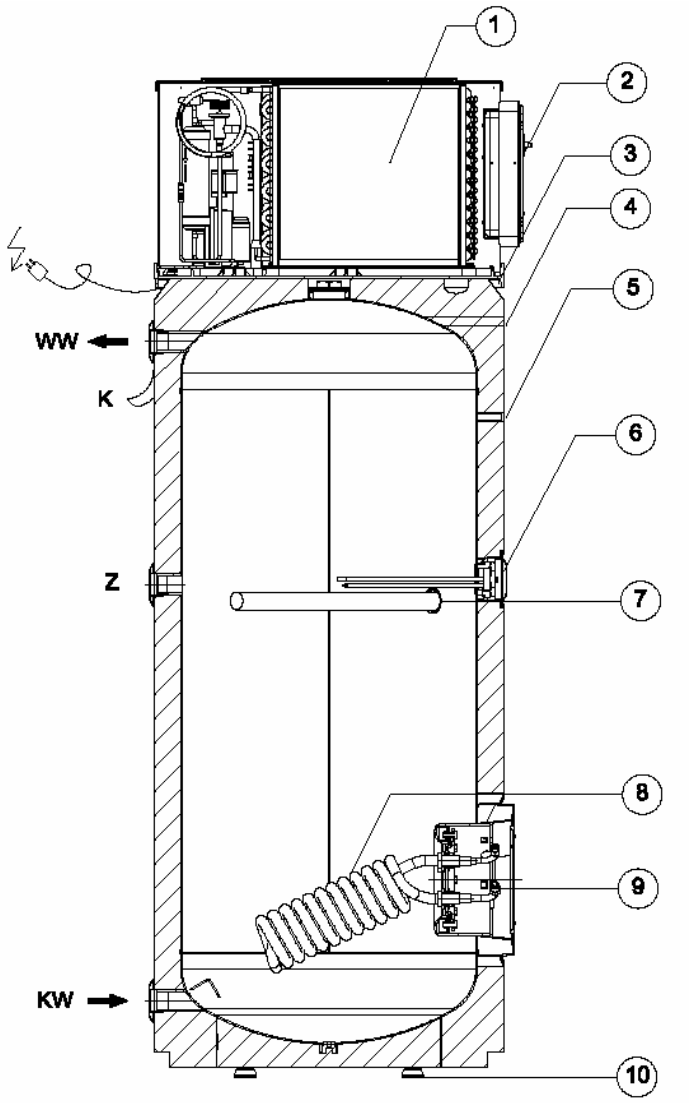
Dimensions HP 180



Model	A	B	C	D	E	F	G	H
HP 180	1392	1005	634	348	124	594	904	1392

Technical data / Dimensions

Section HP 300

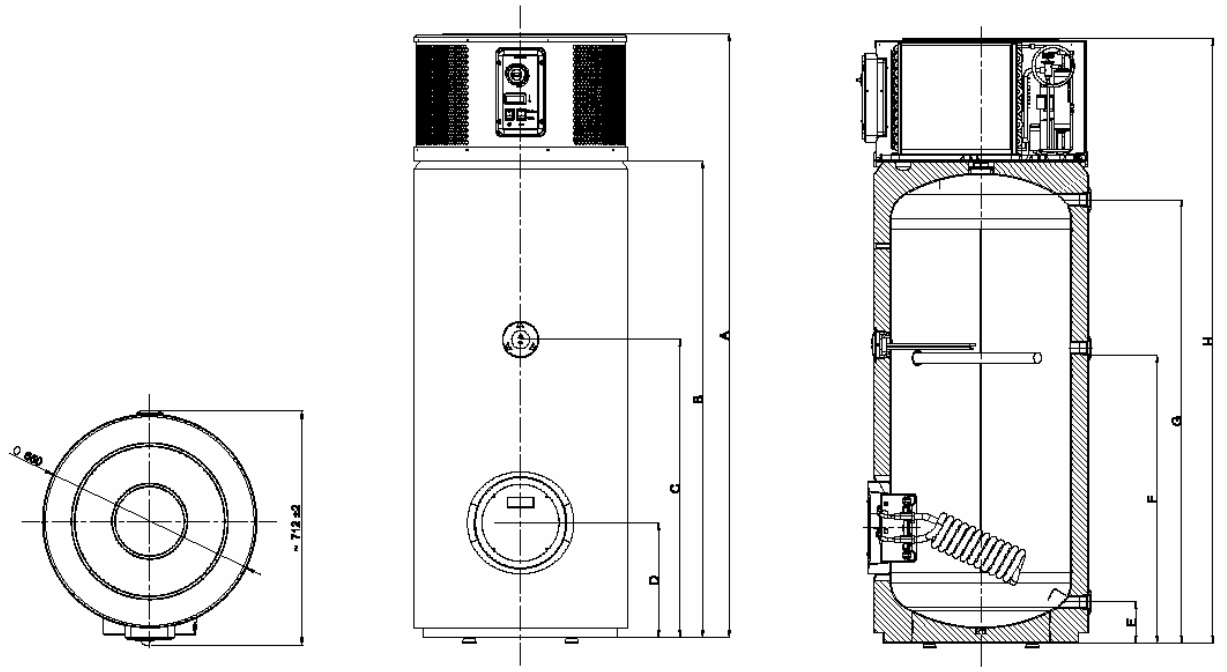


1. **Heat pump head**
2. **Control panel**
3. **Condensate tank**
4. **Hole for installation aid**
5. **Submerged tube for capillary thermometer**
6. **Electrical heater (1.5 kW)**
7. **Magnesium anode**
8. **Condenser**
9. **Flange**
10. **Adjustable feet**

WW - Hot water Rp 1“
KW - Cold water Rp 1“
K - Condensed water drain ø 15 x14.5 mm
Z - Circulation Rp 1“

- Electrical mains cable with plug 230 V ~ / 50 Hz / 15 A

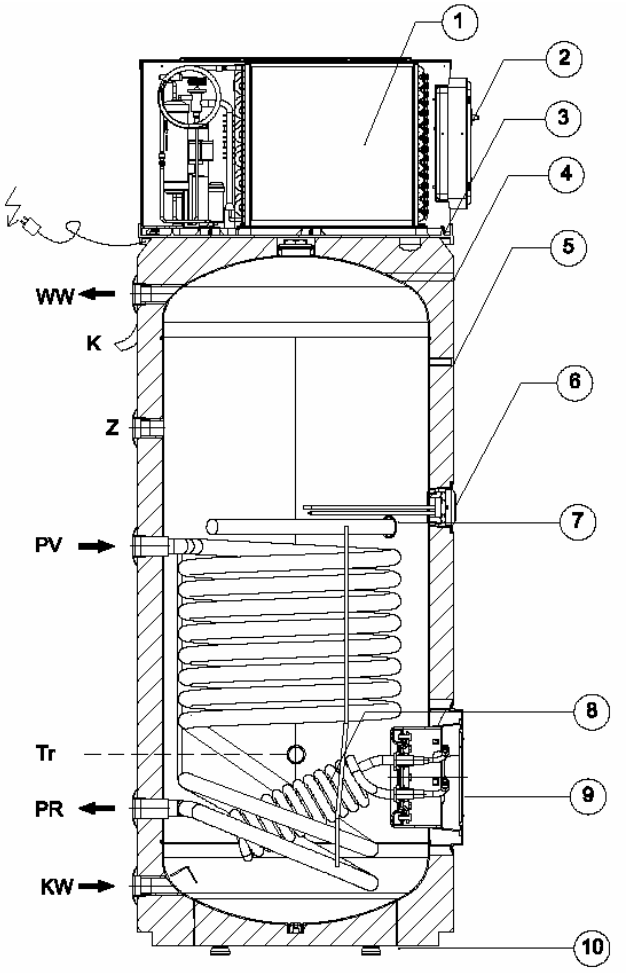
Dimensions HP 300



Model	A	B	C	D	E	F	G	H
HP 300	1832	1445	904	348	124	894	1344	1832

Technical data / Dimensions

Section HP 300 W

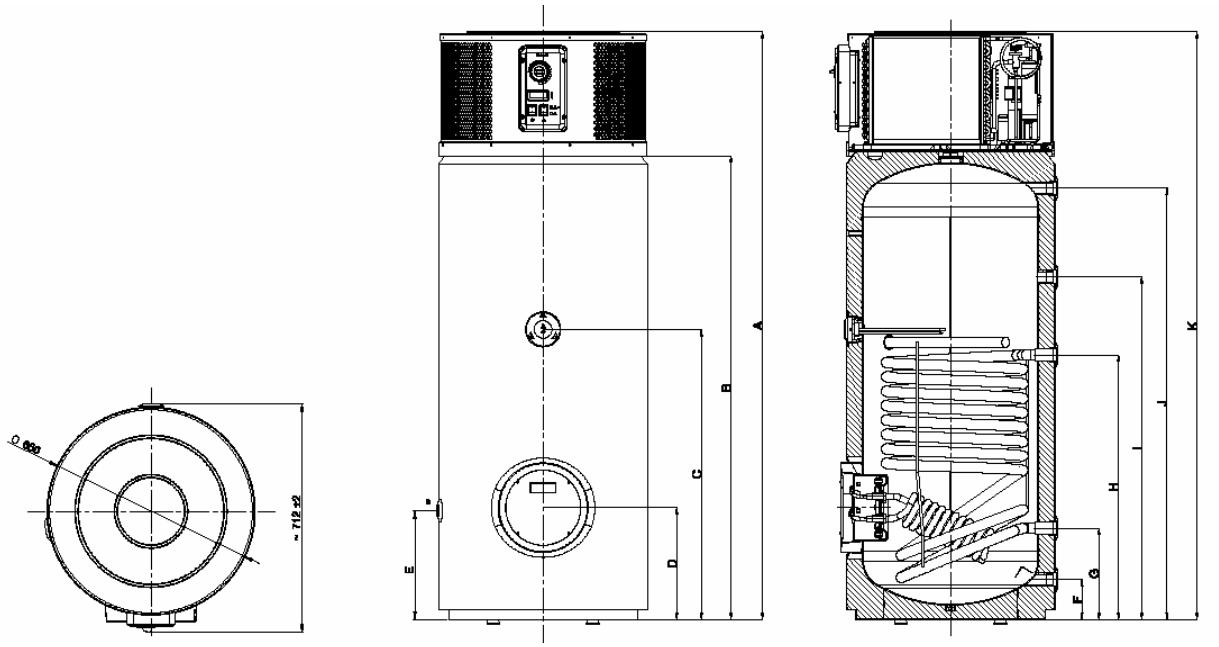


1. **Heat pump head**
2. **Control panel**
3. **Condensate tank**
4. **Hole for installation aid**
5. **Submerged tube for capillary thermometer**
6. **Electrical heater (1.5 kW)**
7. **Magnesium anode**
8. **Condenser**
9. **Flange**
10. **Adjustable feet**

WW - hot water Rp 1“
KW - Cold water Rp 1“
PV - Primary flow Rp 1“
PR - Primary return Rp 1“
K - Condensed water drain pipe ø 15 x14.5 mm
Tr - Socket Rp ¾“ (for temperature sensor WT)
Z - Circulation Rp 1“

- Electrical mains cable with plug 230 V ~ / 50 Hz / 15 A

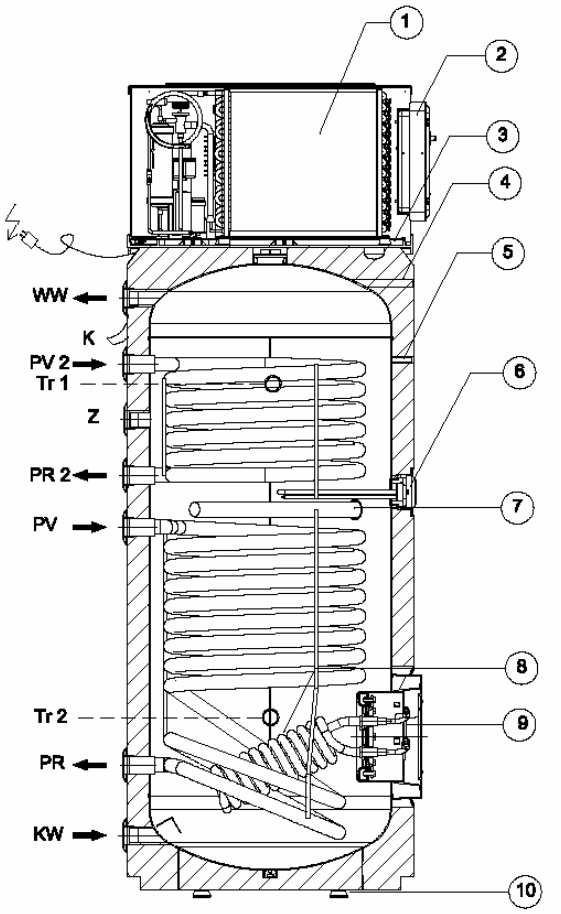
Dimensions HP 300 W



Model	A	B	C	D	E	F	G	H	I	J	K
HP 300 W	1832	1445	904	348	339	124	284	824	1068	1344	1832

Technical data / Dimensions

Section HP 300 WW

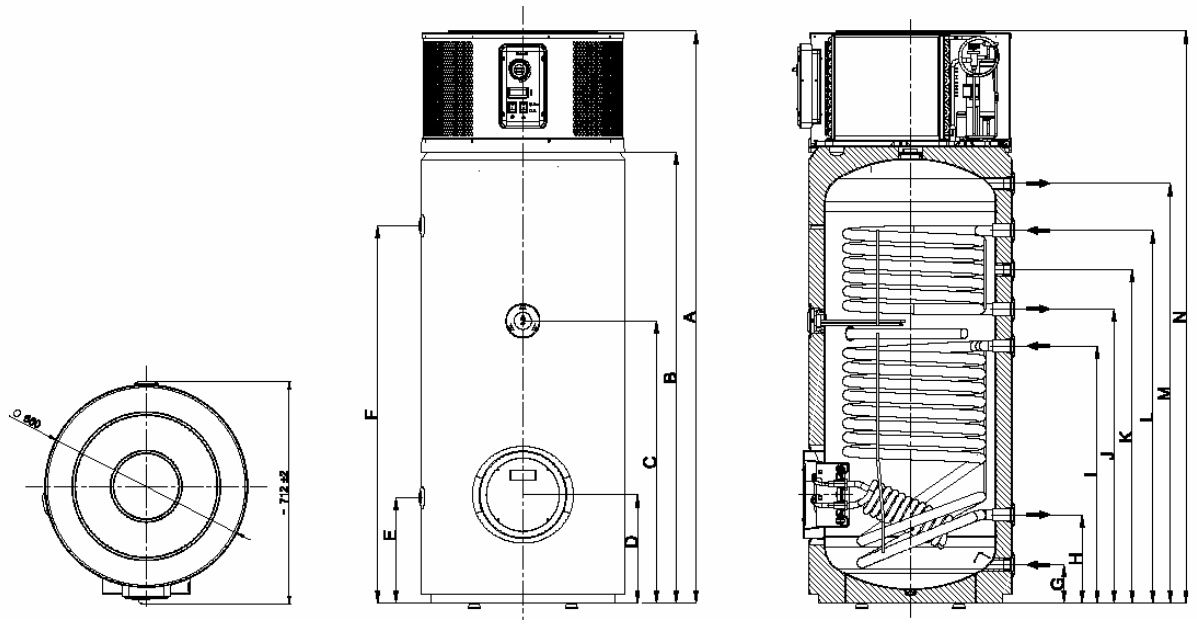


1. Heat pump head
2. Control panel
3. Condensate tank
4. Hole for installation aid
5. Submerged tube for capillary thermometer
6. Electrical heater (1.5 kW)
7. Magnesium anode
8. Condenser
9. Flange
10. Adjustable feet

WW - Hot water Rp 1“
KW - Cold water Rp 1“
PV - Primary flow Rp 1“
PR - Primary return Rp 1“
PV 2 - Primary flow Rp 1“
PR 2 - Primary return Rp 1“
K - Condensed water drain ø 15 x14.5 mm
Tr 1/Tr 2 - Sockets Rp ¾“ (for temperature sensor WT)
Z - Circulation Rp 1“

- Electrical mains cable with plug 230 V ~ / 50 Hz / 15 A

Dimensions HP 300 WW



Model	A	B	C	D	E	F	G
HP 300 WW	1832	1445	904	348	339	1209	124

Model	H	I	J	K	L	M	N
HP 300 WW	284	824	942	1068	1194	1344	1832

Hot water outputs

Hot water outputs / Bare tube heat exchanger at the top

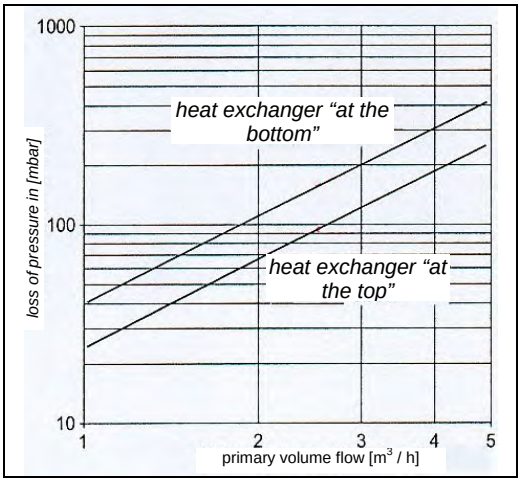
PV Temperatures	HW Outputs	Primary Outputs	HW Outputs	Primary Outputs
° C	l / h / 45° C	kW	l / h / 60 °C	KW
60	368	15	258	15
70	491	20	344	20
80	614	25	430	25
90	737	30	516	30

Hot water outputs / Bare tube heat exchanger at the bottom

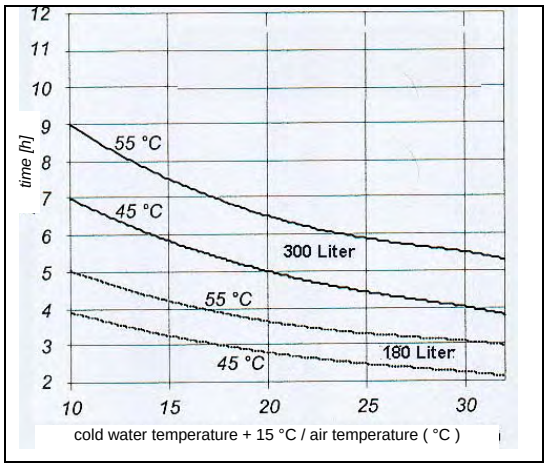
PV Temperatures	HW Outputs	Primary Outputs	HW Outputs	Primary Outputs
° C	l / h / 45° C	kW	l / h / 60 °C	KW
60	404	16	284	16
70	540	22	378	22
80	675	27	473	27
90	737	30	567	33

Conditions for hot water outputs:
- Cold water temperature 10°C
- Hot water outputs with charged tank 60°C

Loss of pressure for bare tube heat exchanger



Heating times for hot water heat pump



Test report in accordance with EN 255 / WPZ- (Heat pump test centre) FWS, NTB, Buchs, Switzerland

Technical data heat pump / refrigerant circuit / test report in accordance with EN 255 (COP t)
WPZ – (Heat pump test centre) FWS, NTB, Buchs, Switzerland

Measurable variables	**Unit**	**HP 180**	HP 300
Rated volume of tank (V_N)	l	180	300
Actual volume of tank	l	175.6	295.6
Ambient temperature	°C	*)	*)
Relative humidity	%	*)	*)
Coefficient of performance COP_t	[-]	*)	*)
Electrical power loss (P_{es})	W	*)	*)
Usable hot water volumes (V_{max})	l / 40°C	*)	*)
Power consumption during heating time (W_{eh})	kWh	*)	*)
Heating time (t_h)	h:min	*)	*)
Mean hot water temperature	°C	*)	*)
Sound power level, inner unit	DB(A)	*)	*)
Refrigerant R 143a, filling weight	kg	*)	*)
Test point A15 W55 KW15			
Source temperature	°C	*)	*)
Relative humidity	%	*)	*)
Measurable variables on discharge			
Volume flow	m^3/h	*)	*)
Cold water temperature	°C	*)	*)
Hot water temperature	°C	*)	*)
Related internal energy	kWs	*)	*)
Measurable variables on recharge			
Recharge time	h:min	*)	*)
Total electrical energy (on recharge)	kWs	*)	*)
Active power	W	*)	*)
Voltage	V	*)	*)
Source variables total testing period		*)	*)
Source temperature	°C	*)	*)
Relative humidity	%	*)	*)
Power consumption standby period			*)
Energy consumption standby period (Wes)	kWs	*)	*)
Test time standby period (ts)	s	*)	*)
Power consumption standby period (Pes)	W	*)	*)
Other			
LP Pressostat LOW	bar/MPa	1.0–2.0 / 0.1–0.2	1.0–2.0 / 0.1–0.2
HP Pressostat HIGH	bar/MPa	20.0–15.0 / 2.0–1.5	20.0–15.0 / 2.0–1.5
Axial fan output	V/W/A	220 / 35 / 0.16	220 / 35 / 0.16

Independent set-up, without the use of air ducts or pipe bends

*) Test data was still not available when the documents were printed

Test report in accordance with EN 255 / WPZ-(Heat pump test centre) FWS, NTB, Buchs, Switzerland
Technical data heat pump / refrigerant circuit / test report in accordance with EN 255 (COP t)
WPZ – (Heat pump test centre) FWS, NTB, Buchs, Switzerland

Measurable variables	**Unit**	**HP 300 W**	HP 300 WW
Rated volume of tank (V_N)	l	300	300
Actual volume of tank	l	298.1	298.0
Ambient temperature	°C	*)	15
Relative humidity	%	*)	71
Coefficient of performance COP_t	[-]	*)	3.1
Electrical power loss (P_{es})	W	*)	55
Usable hot water volumes (V_{max})	l / 40°C	*)	430
Power consumption during heating time (W_{eh})	kWh	*)	4.24
Heating time (t_h)	h:min	*)	8:01
Mean hot water temperature	°C	*)	55.5
Sound power level, inner unit	DB(A)	*)	61.0
Refrigerant R 143a, filling weight	kg	*)	0.85
Test point A15 W55 KW15			
Source temperature	°C	*)	14.9
Relative humidity	%	*)	71.0
Measurable variables on discharge		*)	
Volume flow	m^3/h	*)	0.729
Cold water temperature	°C	*)	15.1
Hot water temperature	°C	*)	56.4
Related internal energy	kWs	*)	25434
Measurable variables on recharge			
Recharge time	h:min	*)	04:40
Total electrical energy (on recharge)	kWs	*)	9072
Active power	W	*)	539
Voltage	V	*)	230
Source variables total testing time			
Source temperature	°C	*)	15.0
Relative humidity	%	*)	76.2
Power consumption standby period			
Energy consumption standby period (Wes)	kWs	*)	4841
Test time standby period (ts)	s	*)	87458
Power consumption standby period (Pes)	W	*)	55
Other data			
LP Pressostat LOW	bar/MPa	1.0–2.0 / 0.1–0.2	1.0–2.0 / 0.1–0.2
HP Pressostat HIGH	bar/MPa	20.0–15.0 / 2.0–1.5	20.0–15.0 / 2.0–1.5
Output of the axial fan	V/W/A	220 / 35 / 0.16	220 / 35 / 0.16

Independent set-up, without the use of air ducts or pipe bends

*) Test data was still not available when the documents were printed