



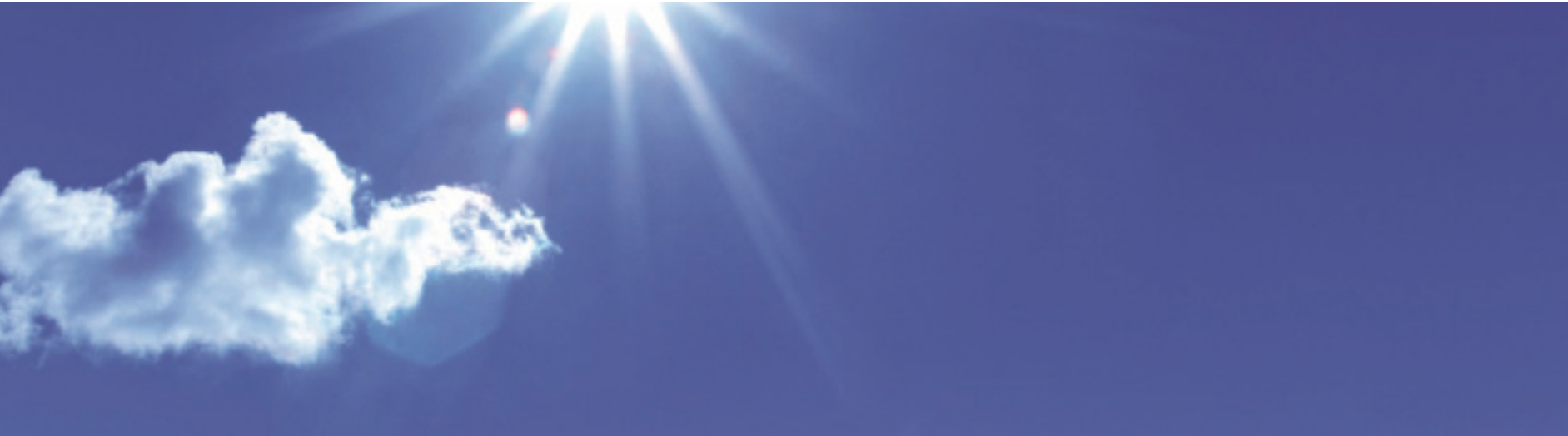
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CONGRATULATION



INFORMATION FOR THE USER

Congratulations for your choice. You have chosen high-end, high quality DHW HP, which will supply for you DHW economically and at the highest comfort level for a very long time. The DHW HP are built very robust and require very little maintenance. Nevertheless, in order to benefit most of your DHW HP, we recommend reading the instructions for use carefully, before using the DHW HP. The instructions contain important information concerning safety, use and maintenance.

INFORMATION FOR THE INSTALLER

Please read this manual carefully before installing the DHW HP. This manual contains mandatory instructions of the manufacturer, recommendations concerning the legal regulations and standards, safety regulations and requirements as well as useful hints for the installation, the use and the maintenance of the DHW HP. You will also find all information you need to ensure a smooth and most emery saving functioning. The respect of the manufacturer’s instructions, as well as the respect of the actual local, national and international standards, regulations and laws as well as the state-of-the-art regarding water and electrical installations, is mandatory and part of the warranty requirements. The DHW HP is designed for domestic use, indoors, in a frost-free environment. The water supply has to have drinking water quality. Nevertheless, some water compositions may need special precautions, for example in the case of low or high acidity (pH-value), high water hardness (scale building), iron and particles (dirt and sand) etc. may be necessary.

FOR YOUR OWN REFERENCE


Please fill in all fields below, it can be necessary later on if any questions may occur in the future.

MODEL TYPE	SERIAL NUMBER
INSTALLATION DATE	PHONE NUMBER OF INSTALLER
INSTALLERS NAME	ADDRESS OF INSTALLER

GENERAL INFORMATION

The heat pump usually covers a family’s need for hot water throughout the year.

The installation and the first launch of the DHW HP have to be made by a qualified and authorised installer according to the instructions and recommendations of this manual. Before connecting the DHW HP to the mains, the DHW HP and the installation have to be filled completely with water and to be checked for leakages. Ensure that the air flow requirements are met (room volume, air source, vent ...). At first launch (or when the tank has been drained) the heat-up time (ambient air temperature of approx. 15°C, DHW temperature 45-55°C) is likely to be 4 to 6 hours. Choose the HP operating mode to start, perhaps in combination with the supplementary heating.



- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.

HP WORKING PRINCIPLE:

The HP is the prioritized energy source for the generation of DHW. The heat pump operates according to the air to water principle: The energy is extracted from the ambient air in the evaporator. In order to ensure the energy supply, the air is forced through the evaporator by a powerful fan. The energy is transported in the HP circuit from the evaporator to the compressor. In the compressor the energy will be transformed to a higher temperature level. This process only need 30% of the thermal output energy as input (as electrical energy for fan and compressor, the thermal energy comes for free from the air). Finally the thermal energy from the compressor is transferred via condenser (external heat exchanger) to the DHW tank to generate DHW. Thus you are saving 70% of energy and energy cost.

TECHNICAL DATA - VT100C

COEFFICIENT OF PERFORMANCE		ACCORDING TO EN16147:2017	
20 °C - ambient air - 59,5% relative humidity	-	-	-
Setpoint at controller unit 55 °C	M profile	3,05 COP*	
Standby power	W	6	
Acoustic emission (ducted) (according to EN 12102-1:2017 and EN ISO 9614-2)	dB(A)	48	
HEAT PUMP			
Dimensions	mm	Height: 1176 Width: 540 Depth: 575	
Weight without packaging	Kg	56	
Weight with full tank	Kg	150	
Refrigerant (R290)	Kg	0,140	
Stocking and transport temperature range	°C	-20 to +60	
ELECTRICAL			
Voltage / Frequency	V / Hz	230 / 50 Phase - Neutral - Earth	
Heat pump input	kW	0,344**	
Heat pump output	kW	1,009**	
Supplementary heating	kW	2,0 / 230 V	
Fuse protection	A	10	
Thermostat for supplementary heating	°C	65, controlled via the display	
AIR			
Air flow	m³ / h	Min. 100 / Max. 250	
Air temperature	°C	Min. -10 to max. +35 or +5 to max. +35 (model specific)	
WATER			
Boiler, water content	L	94	
Working pressure	MPa / Bar	1 / 10	
Water temperature	°C	Adjustable to max. 62	
Water capacity	L	(mixed water at 40°C), 145	
Water connections	-	-	
Cold water inlet	PT	male	
Hot water outlet	PT	male	
Condensation water	PT	1/2"	
Protection of water ingress	IP	21	



* Based on DTI report no. 300-KLAB-18-003 / According to EN16147:2017 / ducted
** According to ASHRAE

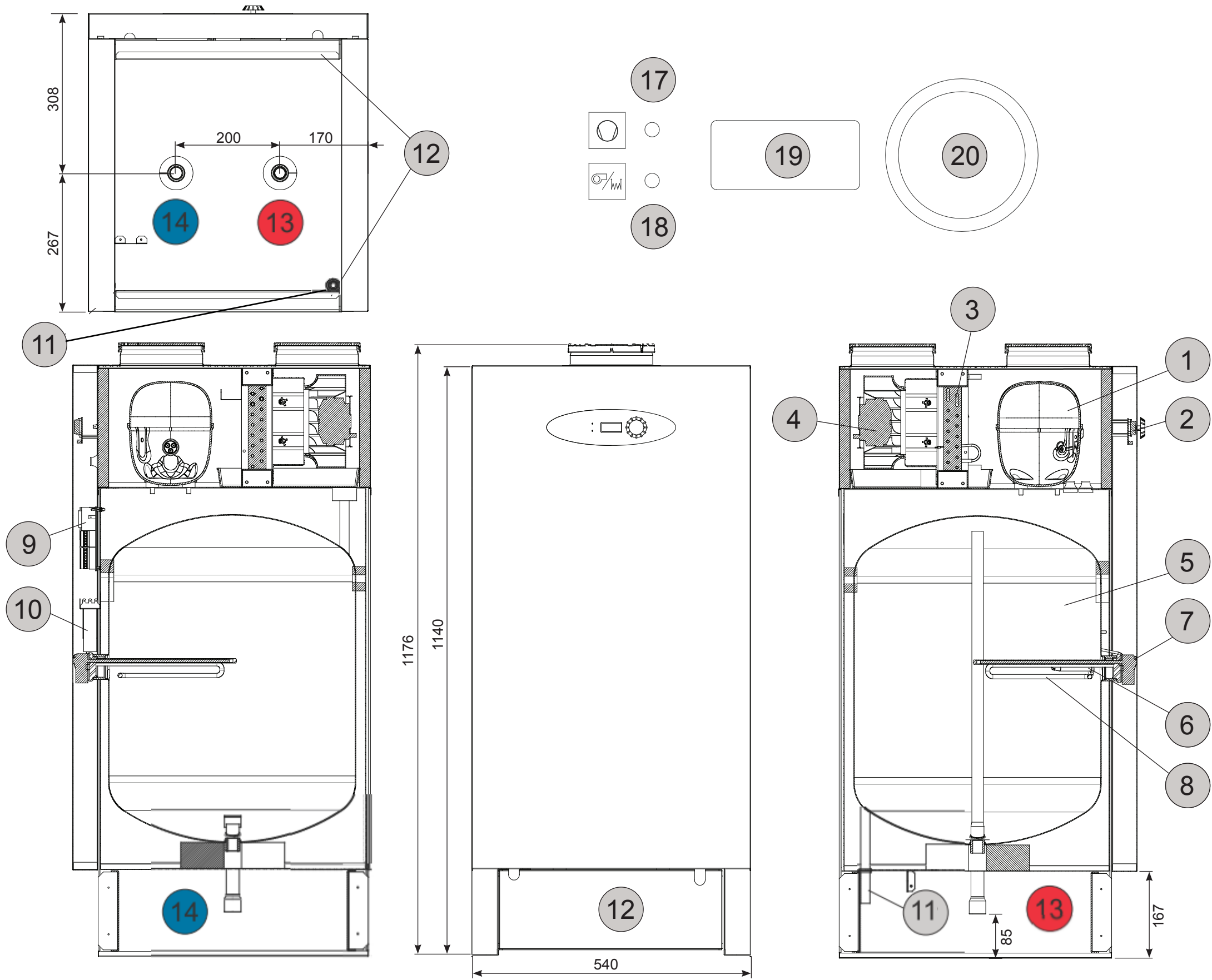
TECHNICAL DATA - VT180C

COEFFICIENT OF PERFORMANCE		ACCORDING TO EN16147:2017
20 °C - ambient air - 59,5% relative humidity	-	-
Setpoint at controller unit 55 °C	L profile	3,20 COP*
Standby power	W	6
Acoustic emission (ducted) (according to EN 12102-1:2017 and EN ISO 9614-2)	dB(A)	48
HEAT PUMP		
Dimensions	mm	Height: 1576 Width: 540 Depth: 575
Weight without packaging	Kg	70
Weight with full tank	Kg	236
Refrigerant (R290)	Kg	0,150
Stocking and transport temperature range	°C	-20 to +60
ELECTRICAL		
Voltage / Frequency	V / Hz	230 / 50 Phase - Neutral - Earth
Heat pump input	kW	0,344**
Heat pump output	kW	1,003**
Supplementary heating	kW	2,0 / 230 V
Fuse protection	A	10
Thermostat for supplementary heating	°C	65, controlled via the display
AIR		
Air flow	m³ / h	Min. 100 / Max. 250
Air temperature	°C	Min. -10 to max. +35 or +5 to max. +35 (model specific)
WATER		
Boiler, water content	L	166
Working pressure	MPa / Bar	1 / 10
Water temperature	°C	Adjustable to max. 62
Water capacity	L	(mixed water at 40°C), 217
Water connections	-	-
Cold water inlet	PT	male
Hot water outlet	PT	male
Condensation water	PT	1/2"
Protection of water ingress	IP	21



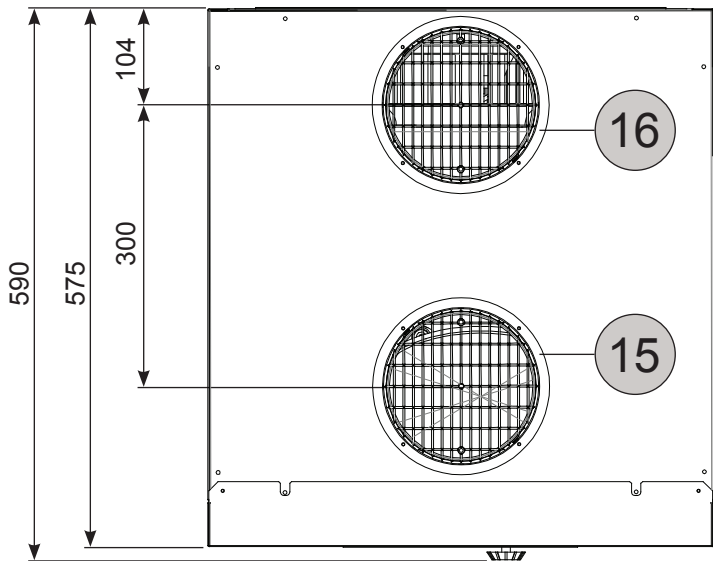
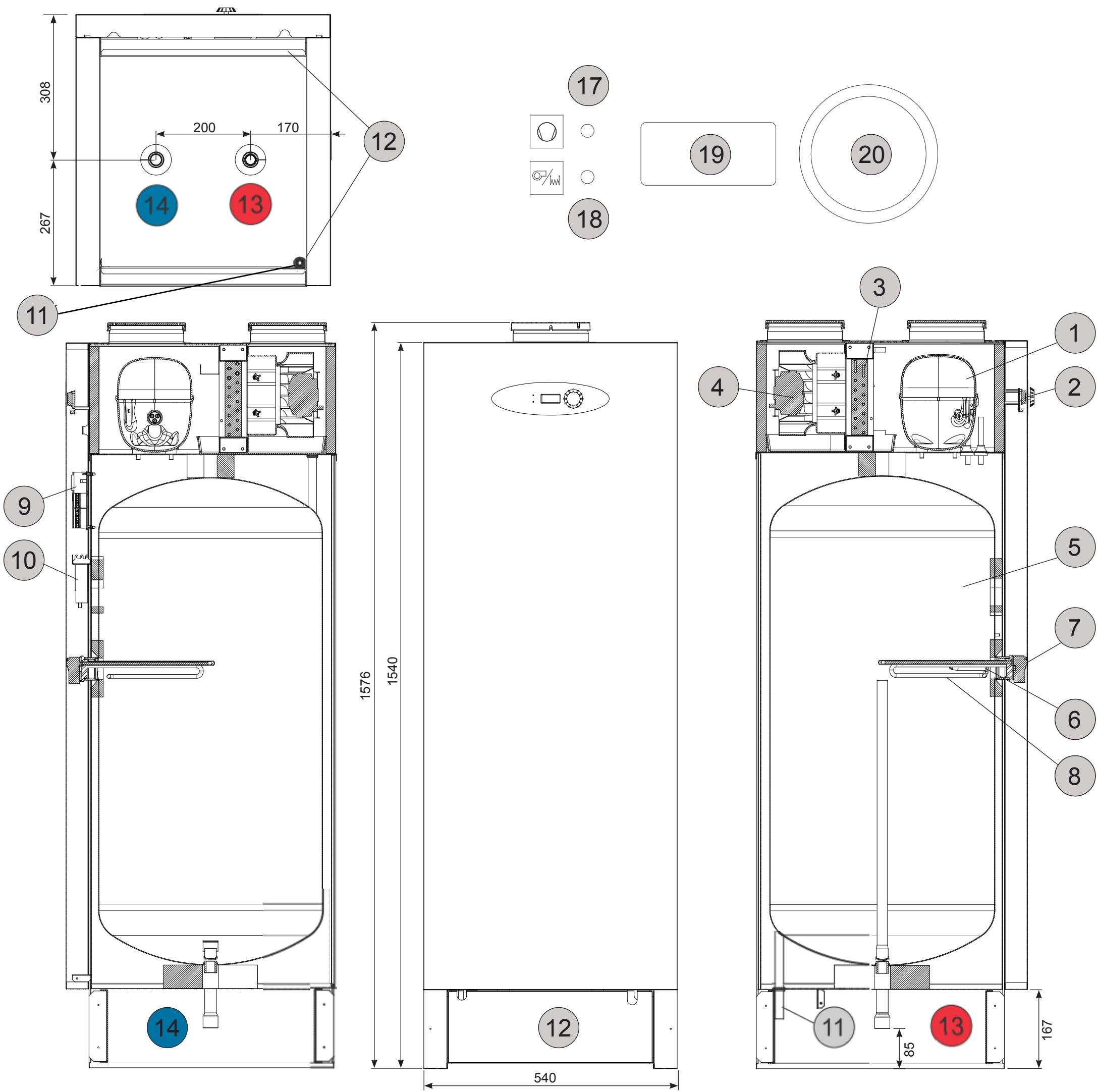
* DTI report no. 300-KLAB-18-003 / According to EN16147:2017 / ducted
** According to ASHRAE

CONSTRUCTION - VT100C



- | | | | | |
|-----|------------------------------|------|--|------|
| 1: | COMPRESSOR | 14: | COLD WATER INLET | MALE |
| 2: | DISPLAY UNIT | 15: | AIR INLET (ø160mm) | |
| 3: | EVAPORATOR | 16: | AIR OUTLET (ø160mm) | |
| 4: | FAN | 17: | OPERATING- / ALARM LED - HEAT PUMP | |
| 5: | ENAMELLED CONTAINER | 18: | OPERATING- / ALARM LED - SUPPLEMENTARY HEATING | |
| 6: | SENSOR POCKET | 19: | DISPLAY | |
| 7: | THERMOSTAT | 20: | CONTROL BUTTON | |
| 8: | HEATING ELEMENT | | | |
| 9: | CONTROLLER UNIT | | | |
| 10: | FAN CAPACITORS | | | |
| 11: | DEFROST WATER OUTLET 1/2" PT | | | |
| 12: | SUPPORT BRACKETS | | | |
| 13: | HOT WATER OUTLET | MALE | | |

CONSTRUCTION - VT180C



- | | |
|-------------------------------------|--|
| 1: COMPRESSOR | 14: COLD WATER INLET MALE |
| 2: DISPLAY UNIT | 15: AIR INLET (ø160mm) |
| 3: EVAPORATOR | 16: AIR OUTLET (ø160mm) |
| 4: FAN | 17: OPERATING- / ALARM LED - HEAT PUMP |
| 5: ENAMELLED CONTAINER | 18: OPERATING- / ALARM LED - SUPPLEMENTARY HEATING |
| 6: SENSOR POCKET | 19: DISPLAY |
| 7: THERMOSTAT | 20: CONTROL BUTTON |
| 8: HEATING ELEMENT | |
| 9: CONTROLLER UNIT | |
| 10: FAN CAPACITORS | |
| 11: DEFROST WATER OUTLET 1/2" PT | |
| 12: SUPPORT BRACKETS | |
| 13: HOT WATER OUTLET MALE | |

INSTALLATION

CHOICE OF THE INSTALLATION LOCATION

Wherever possible, the heat pump should be installed close to the existing hot-water conduit.

The location must be indoors in a frost-free environment with a frost protected sewer drain. The floor at the location must be flat and at level. It has to support the weight of the DHW HP (approx. 200 Kg for VT100C and 300 Kg for VT180C filled). The location must be designed to support the corresponding load. If the HP will operate mostly on, off peak hours do not install the product near to bedrooms. Even if the DHW HP operates very silently, this might disturb sensible users. Please ensure that the location and the DHW HP are easily accessible for maintenance and service. All damages and service impossibilities (e.g. repair), due to the reduced accessibility are part of the installer/user responsibility and not covered by the manufacturer's warranty.



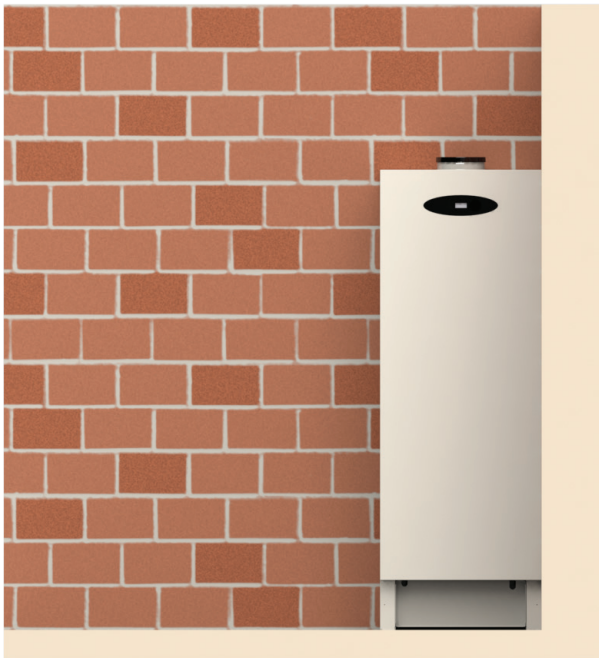
State-of-the-art building regulations, standards and legal requirements must be observed. Unused connectors (Coil, recycling loop) have to be sealed and insulated properly in order to avoid heat losses.



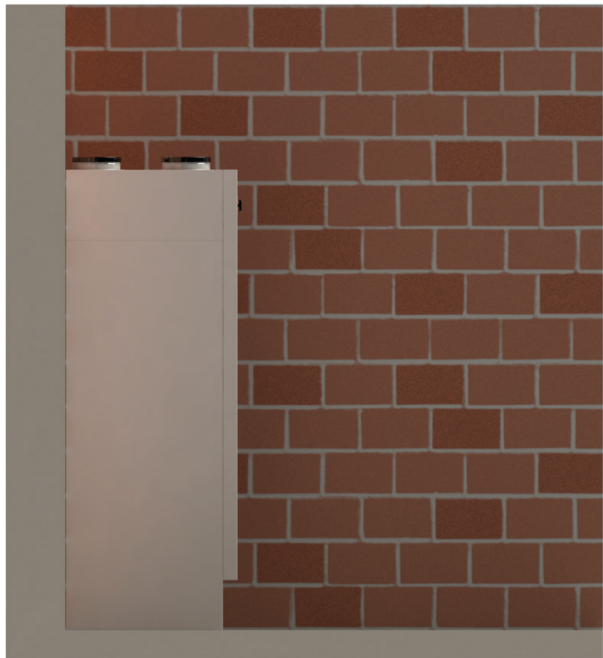
The heat pump can be installed in a corner but notice there should be enough space for water connections depending on a new installment of water pipes or for the existing water pipes.



Applicable for both VT100C and VT180C



Applicable for both VT100C and VT180C



Applicable for both VT100C and VT180C



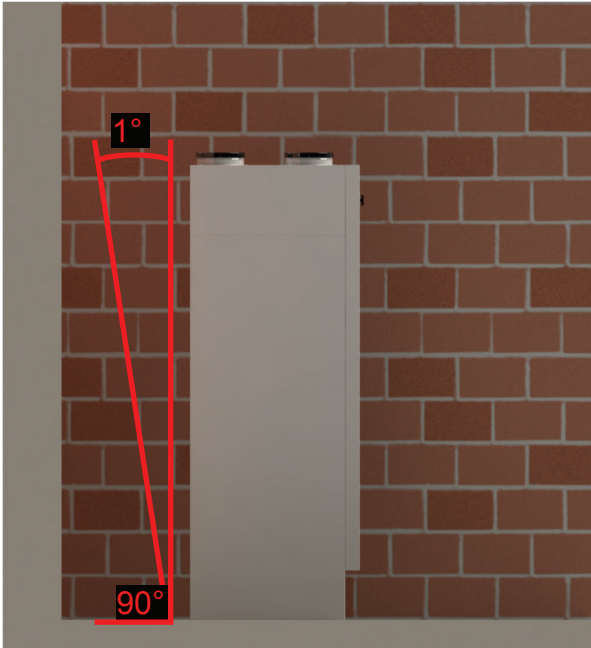
Applicable for both VT100C and VT180C




For installation in a closet please make sure that ductings are installed to ensure enough air flow into the heat pump. Failure of doing so can cause exclusion of warranty.

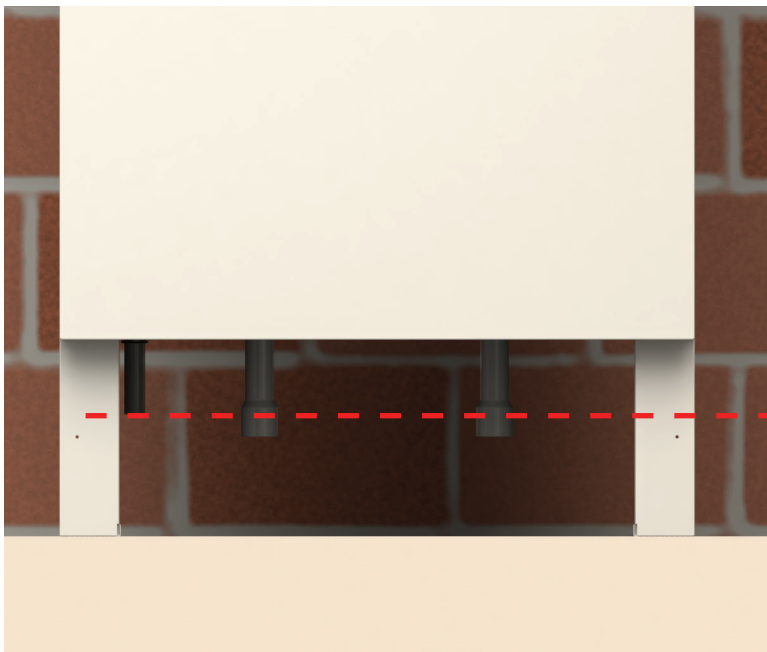
INSTALLATION

OTHER INSTALLATION REQUIREMENTS




Applicable for both VT100C and VT180C

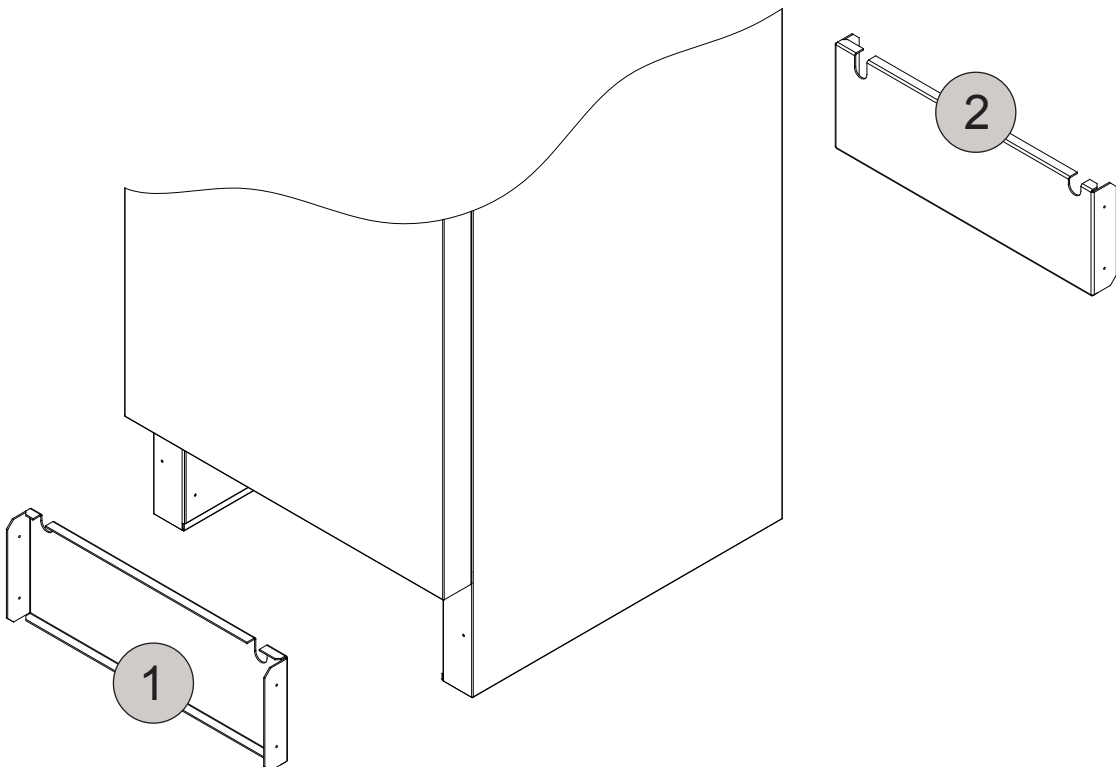
 The heat pump should always be positioned in correct level or 1° backwards for the defrost water to run out in a proper way.




Level of defrost water outlet

Applicable for both VT100C and VT180C

 Defrost water tube must be mounted in correct level of the defrost water outlet of the heat pump and into the drainage. If the tube is above correct level the defrost water will run backwards and into the heat pump and could cause water leakage and this will cause exclusion of warranty.



Applicable for both VT100C and VT180C.

 To reach the hot- and cold water connections remove the two support brackets.

We recommend after pipe installation that either (1) or (2) support bracket is mounted back onto the feet of the heat pump depending on water pipes coming from the front or backside of the heat pump.

WALL MOUNTING THE HEAT PUMP (VT100C only)

INSTALLER ONLY

If the customer wish to wall mount the VT100C heat pump please follow the below instructions carefully.

Wall brackets is not included, please order separately.

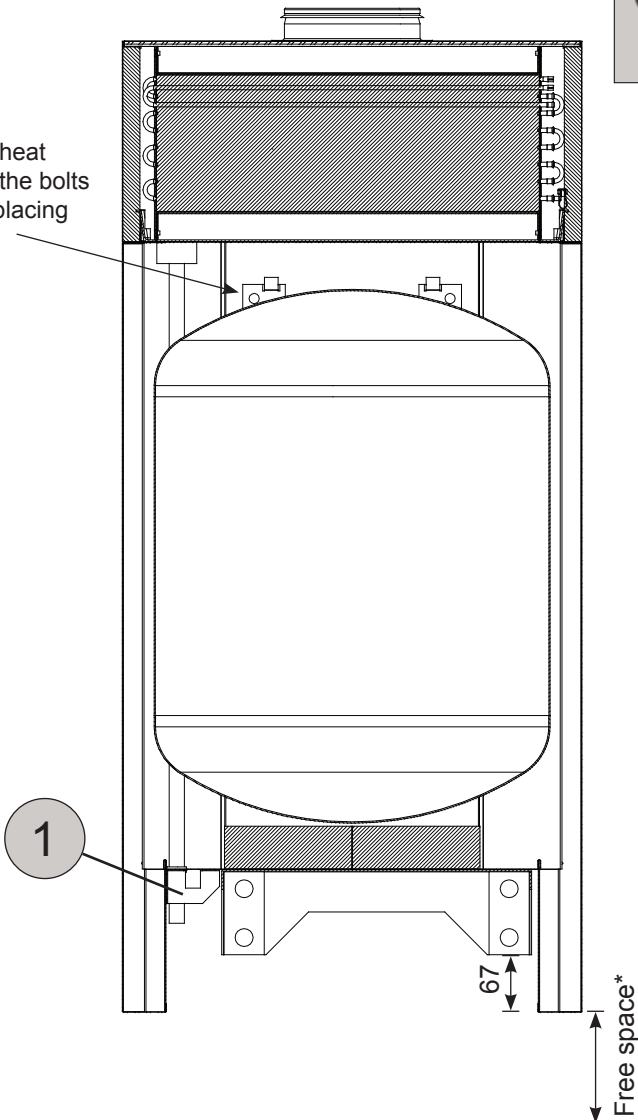


The wall has to be in such a condition that it can support the weight of the heat pump with a full tank of water (see page 6 for weight information). When installing ductings the weight may not be supported onto the heat pump. The non-respect of these requirements will be the reason of warranty exclusion and any cost on material, animal and personal damages cannot be forwarded to the manufacturer of this product.



* Free space is chosen either by the customer, installer or due to low free space in room.

Holes in the back panel of the heat pump is big enough to ensure the bolts are going into the foam when placing the heat pump.



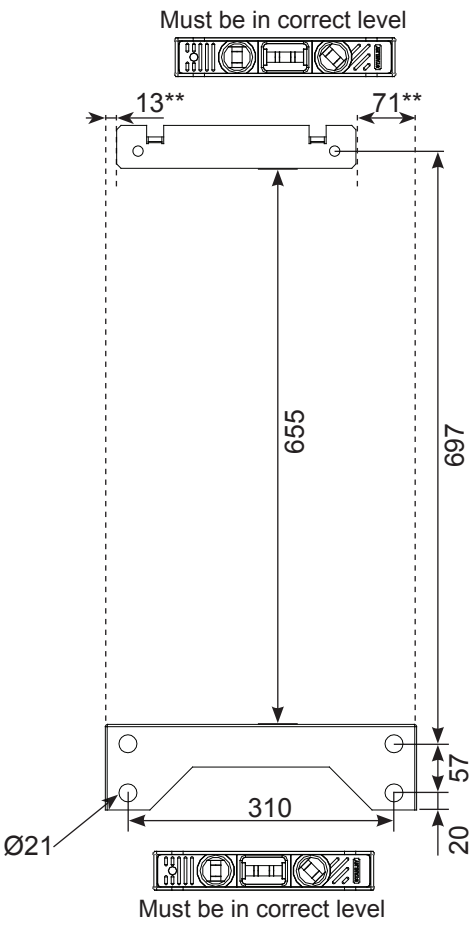
Drawing is seen when you are positioned in front of the heat pump.



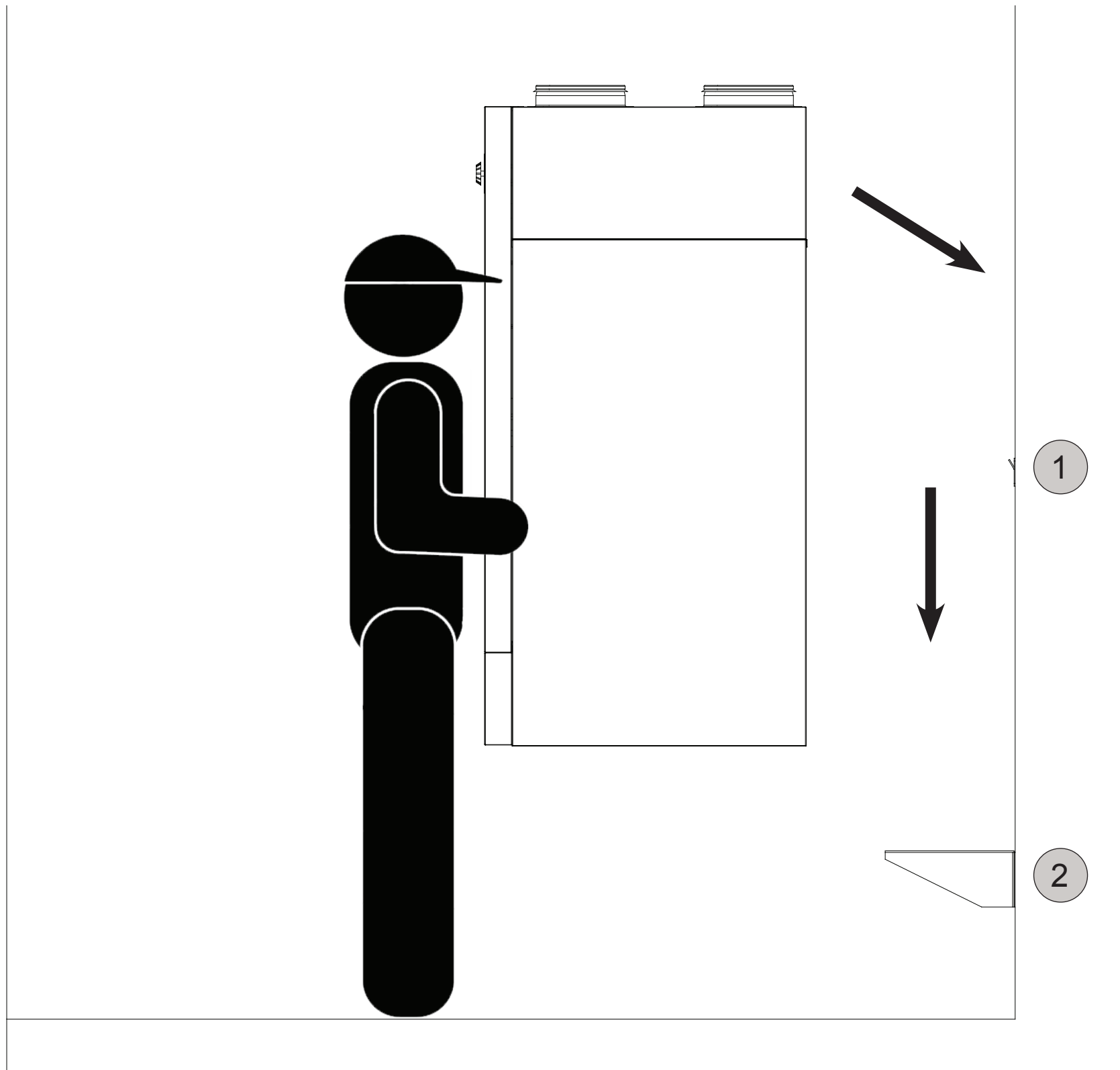
** The brackets are not positioned equally from center due to (pos. 1, above drawing) the holding bracket of the power cable. This bracket may not be removed due to its function of keeping the power cable in position. Pulling the wire without the holding bracket can cause electrical hazard to the heat pump.

Also note this bracket is to find on VT180C. The same requirement applies to this model.

The non-respect of this requirement will be the reason of warranty exclusion and any cost on material, animal and personal damage cannot be forwarded to the manufacturer of this product.



Drawing is seen when you are positioned in front of the heat pump.



After mounting the 2 brackets on the wall.

- Carefully pick up the heat pump and move towards the wall.
- Slowly begin to lower the heat pump until it graps into the support bracket (1) and lands onto the lower bracket (2)
- Before letting go of the heat pump be sure it has grapped into the support bracket (1) else the heat pump will turn forward.
- When the heat pump is fixed then check that it is positioned onto the lower bracket (2) else adjust the bracket a bit.
- Gently press down and pull the heat pump towards you to check if it is safe enough to start connecting water supply.

USER ONLY



On a daily basis it is not allowed to put any items, animals or persons onto the heat pump due to increased weight and can cause serious damage if support brackets cannot hold the extra weight. The non-respect of these requirements will be the reason of warranty exclusion and any cost on material, animal and personal damages cannot be forwarded to the manufacturer of this product.

GENERAL RULES FOR HYDRAULIC CONNECTION

Your DHW HP has a high quality stainless steel tank for the DHW production. In order to protect the tank and also the connectors you have to avoid connecting copper pipes or galvanized steel fittings directly. The use of insulation fittings is mandatory in this case.



The installation must be done according to the state of the art of installation. The non-respect of these rules and abnormal water composition may be the reason of warranty exclusion. The manufacturer has no liability for the installation and possible damages to it.

HYDRAULIC INSTALLATION

The installation and the first launch of the DHW HP have to be made by a qualified and authorised installer according to the instructions and recommendations of this manual. The respect of the manufacturer's instructions, as well as the respect of the actual local, national and international standards, regulations and laws as well as the state-of-the-art regarding water and electrical installations is mandatory and part of the warranty requirements

COLD WATER CONNECTION

The DHW HP core is a pressure tank. The hydraulic connections have to be made in accordance with the local, national and international regulations and standards. Generally the water inlet is protected by a safety device (safety valve and drain combined) as well as a backflow protection (retention valve) and a shunt-valve. These fittings are not included in the delivery. The use of approved new fittings is mandatory. If the supply pressure is > 5 bar.

DHW CONNECTION

Please respect the legal and specially hygienic requirements for DHW and the restrictions given by the use of different installation material. The DHW HP might be used as unique or additional source for the production of DHW.



The heat pump should only be launched when you are sure that the tank is completely filled with water.

At first launch (or when the tank has been drained) the heat-up time (ambient air temperature of approx. 15°C, DHW temperature 45-55°C) is likely to be 4 to 6 hours. Choose the HP operating mode to start, perhaps in combination with the supplementary heating.

INSULATION OF THE INSTALLATION

All pipes, fittings and connectors on the DHW side must be insulated to prevent heat loss. Unused connectors have to be sealed and insulated.

The DHW HP works either with ambient air or outside air depending on which version of VT100C or VT180C you have acquired.

Independent of the installation mode there are some basic requirements for the air quality of the airflow.

The easiest way to install the DHW HP is the ambient air installation. In the ambient air mode the product doesn't need ducting **unless installed in a closet or a very small room**. The air inlet uses the ambient air of the location and the air outlet exhausts the air into the same room. This installation mode needs some requirements.

In this installation mode the fan speed should be adjusted at "high". Anyhow, if you should want to change the fan speed for comfort reasons to "low", you can do so without a considerable decrease of performance.

Semi ducting or full ducting can increase the efficiency. In this way you can optimise the airflow and the efficiency.

Full ducting on air inlet and air outlet gives the possibility to position air inlet and outlet independent of the DHW HP location. Full ducting is also recommended for the use of exterior air. In this installation mode the fan speed should be adjusted at "high".

It is also possible to use the DHW HP ducted with extracted air. For this special application the minimum air flow requirements of the HP have to be matched with the airflow design of the ventilation. The fan speed for permanent operation can be selected separately.

For more details see page 31 "Duct connection"

PREPARATION FOR INSTALLATION

The heat pump is delivered adjusted and ready assembled with wire and plug. Just connect the water inlet and outlet to the piping. The defrost water from the evaporator is evacuated by a drain and has to be connected to the sewer.

The dimensions of the DHW HP and the connections see page 8 - 9 depending on your model type "construction".



The air must be dust and grease free.

The air source should benefit from free energy gains like in the laundry (dryer waste energy), kitchen, garage (appliances and car waste energy), basement (geothermal energy) and heating cabinet.

The air temperature must be $> -10^{\circ}\text{C}$.

The air source can benefit from dehumidification.

The exhaust air is cooled down and can be used for cooling e.g. a wine cellar.



Room volume $> 20 \text{ m}^3$.

Free air flow, no air re-circulation (air short-circuit between inlet and outlet).

Ventilation of the location (air inflow $> 100 \text{ m}^3/\text{h}$).

Location must not be heated by a heating system.



Semi ducting is usually used for the exhaust side to avoid mixing ambient and exhausts air.

Semi ducting helps to reduce the noise level.

COLD WATER CONNECTION SCHEME

- 1: Cold water inlet
- 2: Ball valve 1": must be open during operation.
- 3: Dirt collector 1": Collects rust and other unwanted particles from the pipe system.
- 4: Contra valve 1": to prevent excessive pressure.
- 5: Safety valve 1": max. pressure 1 MPa / 10 bar.
Discharge pipe connected to safety valve must be installed downwards and in frost free environment.

The water may drip from the discharge pipe of the pressure-relief valve device and that this pipe must be left open to the atmosphere.
- 6: Drain valve 1": open when the boiler needs to be emptied.
- 7: Hose connections: for drainage of water from safety valve and drain valve. Connect hoses to drain.
- 8: Drain: connect hoses to safety valve and drain valve and lead the water into drain.



The scheme is only a guideline. Always carry out piping according to local, national and/or international legislations.

DHW PRODUCTION

Your DHW HP can generate DHW with different energy sources, such as HP and/or electrical heater (built-in)

The energy sources are selected in the menu. They can be selected individually or in combination.

The desired setpoint temperature for DHW can be adjusted by the user in the parameter menu in between 5°C and the installation specific maximum temperature **Tmax** (installer setting).

Tmin is the setpoint for supplementary heating, It can be adjusted independently of the DHW set point, The factory setting for DHW setpoint is 45°C and for “**Tmin**” it is 35°C. The setpoint temperature can be achieved either by the HP (energy source selection “**Only HP**”) or the supplementary heating (energy source selection “**Only EL**”), depending on the choice of the energy source. **Tmin** is achieved with heat pump and supplementary heating (energy source selection “**HP + EL**”), if selected.

The heat pump operates with a hysteresis of +1 -3 °C around the DHW setpoint. The supplementary heating operates with a hysteresis of + -1 °C.

The DHW HP is equipped with a permanent and an automatic defrosting system if the model you acquired has this built-in (Solenoid valve). This reduces the need for defrosting and increases efficiency (increased operation cycle).

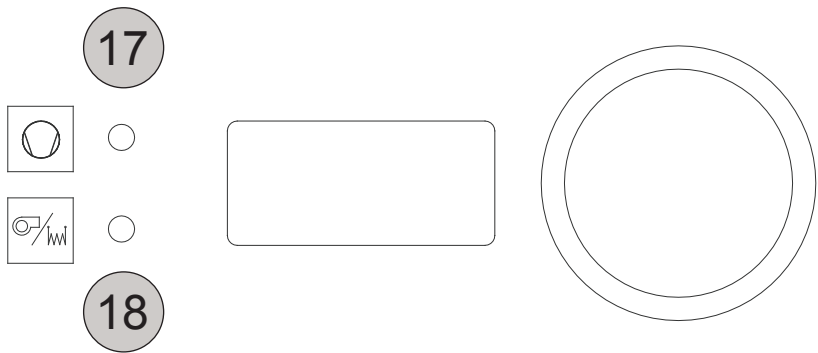
Nevertheless it is normal, that (especially at low temperatures and in heavy-duty operation) the evaporator has to undergo a de-icing procedure. When the evaporator temperature gets too low the heat pump will stop and the defrosting procedure starts automatically. For air defrosting this limit is -2 °C, for hot-gas defrosting -2 °C. Normal operation resumes at an evaporator temperature of +5 °C.

The LED indicators 17 and 18 of the control panel show the actual operation mode, the upper LED (17) for the heat pump and the lower LED (18) for supplementary heating:

- Off: Inactive (not selected)
- Orange: Selected, but running standby mode
- Green: Selected and producing DHW.



Heating of domestic water can be made using the heat pump and/or electrical heater. Electrical heater (built-in), installation are referred to as supplementary heating.




ELECTRICAL INSTALLATION

The heat pump is equipped with a 1,8 metre power supply cord, 3G x 1.5 mm², which comes out on the bottom of the device with stress relief bushing and a safety plug. The socket should be protected individually by an automatic circuit breaker and a residual-current circuit breaker (30mA).

Max. power input: See “page 6-7 - Technical data”.

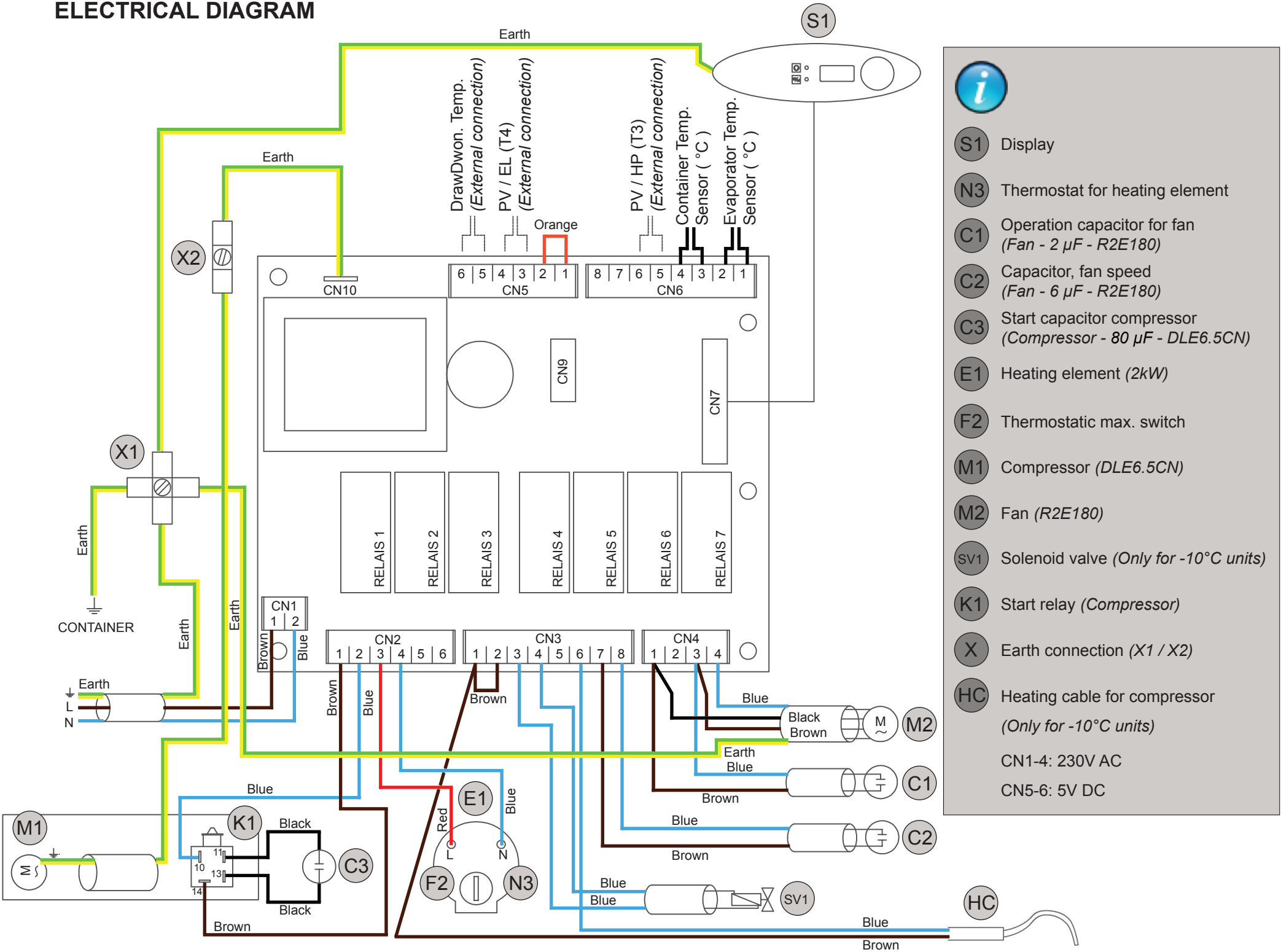
Power supply: 230V AC Phase - Neutral - Earth, 50Hz

Mains lead colours: Phase – brown, ●
Neutral – blue, ●
Earth – yellow/green ●



The appliance must be installed in accordance with national wiring regulations by a qualified and authorized installer. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified personnel in order to avoid a hazard.

ELECTRICAL DIAGRAM



USER INTERFACE

2-line display (control panel setup)


The display is activated (indicated) by turning or pressing the rotary-/push button (no. 32 on the control panel drawing).

To scroll through the menu turn the rotary-/push button.

You have 19 menus. The far left is the menu "WATER" (indicates the actual DHW temperature).

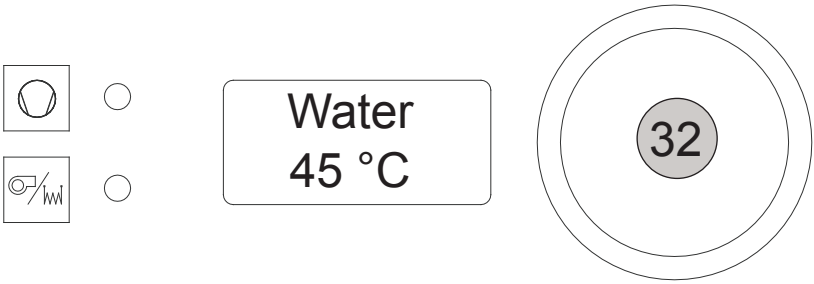
If you want to change the status or value of a parameter, push shortly the rotary-/push button; the status/value line will now start flashing. While the display is flashing you can vary the status/value by turning the rotary-/push button. When the desired value is indicated push the rotary-/push button again to acknowledge the chosen status/value. If you don't acknowledge the value while the display is flushing, the status/value remains unchanged.

If you press the rotary-/push button for more than 5 seconds, you get to the service parameter menu. This expert menu is reserved for the installer. Please do not change these settings without consulting your installer. None authorized settings in this menu might be the cause of warranty exclusion.



The upper line displays the parameter menu (function).

The bottom line displays the parameter status or value.



DISPLAY VIEW - MAIN PARAMETER MENU
(User menu)

Language English	When power is connected for the first time this parameter appears on the display. Factory setting: ENGLISH. You can choose between: Danish, German, English, Spanish, French, Polish, Slovene , and Italian by pushing the control button while the value line is flushing. You can change the language settings at every moment in the installer menu (service parameter menu).
Water 45 °C	If the power is switched on, this parameter appears on the display. It indicates the current DHW temperature,
Evapor 5 °C	Evaporator temperature. This parameter displays the current evaporator temperature.
Alarm 0 0 0	Alarm display. This parameter displays up to 3 alarms. "0" = no alarm. The alarm types 1 to 10 are described in the alarm overview at page 21 - Alarm levels and handling. Alarms are acknowledged and reset by pushing the rotary/push button.
Status Off	This parameter displays the current operating mode of the DHW HP. The possible operating mode values are: "Off" = switched off, "Standby", waiting for DHW demand "H.Water" = DHW production on going , "Def.Gas" – "Def.Air" - "Def.Stop" = Defrosting condition, see page 21 - Defrosting
Setpoint 45 °C	This parameter displays the setpoint temperature for DHW. The setpoint of the DHW temperature can be adjusted in between 5°C and Tmax by pressing and releasing the rotary/push button (parameter selection). While the value line is flashing, the value can be adjusted by turning the rotary/push button. Press again the rotary/push button to acknowledge and memorize your choice. The recommended DHW setpoint temperature is between "45°C" and "55°C". Note! This is only an average temperature and not the hot water output temperature.
Tmin 35 °C	This parameter displays the minimum temperature. Tmin is the temperature level that triggers the operating of the supplementary heating (if selected as "Heat pump" parameter value, e.g. "HP+EL" or "HP+Boil" if installed). The minimum temperature can be adjusted in between 5°C and Tmax by pressing and releasing the rotary/push button (parameter selection). While the value line is flashing, the value can be adjusted by turning the rotary/push button. Press again the rotary/push button to acknowledge and memorize your choice. The recommended minimum temperature is "35°C".

T2min 10 °C	Similar function as Tmin , used for “holiday function” or when the DHW HP is in “standby” mode. Tmin protects the DHW HP and your installation against freezing. The factory setting is “10°C”.
Timer OFF	Here the timer function can be selected. The following options are provided: “ON”, “OFF” <i>(Timer function is only available for software version 1.62 and above) (See page 27 for more information)</i>
Clock hh:mm	Status Menu for the real time clock in hours and minutes. <i>The setting of the Start/Stop function is necessary in order to get the Timer funktion to work.</i>
ClockSet 12 h	Setup for real time clock in hours.
ClockSet 0 m	Setup for real time clock in minutes.
Start HP 12 h	Setup for when the heat pump is allowed to run, in hours. Example! Set the clock to 22 in the evening.
Start HP 0 m	Setup for when the heat pump is allowed to run, in minutes. Example! Set the clock to 30 in the evening.
Stop HP 12 h	Setup for when the heat pump has to be in standby mode, in hours. Example! Set the clock to 06 in morning.
Stop HP 0 m	Setup for when the heat pump has to be in standby mode, in minutes. Example! Set the clock to 06 in morning.
H.Pump HP+EL	This parameter displays the energy source for your DHW production. The energy source can be selected with the rotary/push button. The possible selections are “ OUT ”, “ HP ”, “ EL ”, “ HP+EL ”, “ BOILER ”, “ HP+BOIL ”. If no boiler is installed, the last 2 combinations are not to be used
Legionel Off	This parameter displays status of the automatic legionella protection mode. If activated (“ ON ”) the DHW HP will once per 14 days increase the DHW temperature to 60°C (HP only), in order to avoid possible bacteria (legionella) creation. If using water at the same time, be aware of scalding hazards. See page 27 - scalding safety. See also page 23 for the legionella function guide.
FanOper High	This parameter displays the fan speed, when the HP is in operating mode. The fan speed can be selected with the rotary/push button. The possible selection are: “ LOW ” = low speed “ HIGH ” = high speed
FanCon Off	This parameter displays the fan operation mode, when the HP is in standby operating mode. If this parameter is unselected (“ OFF ”) the fan will stop together with the HP. If this parameter is set to “ LOW ” for low or “ HIGH ” for high speed, the fan will operate permanently and accordingly, while the HP is in the “standby” operating mode (= constant ventilation). Factory setting “ OFF ”.

SolarCel Off	<p>This function permits to operate the DHW HP with cheap and environmentally friendly energy from your own solar cell panels.</p> <p>“OFF” = Solar cells are not connected to system or not chosen to be used by the user.</p> <p>“HP only”, “EL only” and “HP + EL”: These values indicate the chosen operation mode, when the solar cell function is activated by the external inverter signal, see page 19 - Electrical installation for wiring diagram for connection to controller.</p>
SC-HP 52 °C	<p>5°C – Tmax</p> <p>Setpoint temperature of “HP only” operating mode, when Solcel function activated (inverter signal)</p>
SC-EL 53 °C	<p>5°C – T max</p> <p>Setpoint temperature of “EL only” or “HP + EL” operating mode, when Solcel function activated (inverter signal)</p>
Holiday Off	<p>This parameter activates/deactivates the holiday mode. The holiday mode can be selected with the rotary/push button. The possible selection are:</p> <p>“OFF”, “1 week”, “2 weeks”, “3 weeks”, “3 days”, “Manual”</p> <p>When the holiday mode is activated, “T2 min” is the safety level for frost protection.</p>
Man.Days 1	<p>This parameter displays the number of holidays at individual (manual) choice. The holiday days can be selected with the rotary/push button. The possible selection are:1-99</p>
ReDays 0	<p>This parameter displays status of the remaining number of holidays. The possible values are 0-99</p>
Boost Off	<p>This parameter activates/deactivates the BOOST operating mode in the case of additional need for DHW. If the BOOST operating mode is activated “ON”, the DHW production will be made by the HP and the supplementary electrical heating either for a maximum cycle of 1 hour or if Tmax is reached. Possible values “OFF”, “ON”. The factory setting is “OFF”.</p>
FanPause 30m/30s	<p>“OFF”, “30m/15s”, “30m/30s”, “60m/15s”, “60m/30s”, “90m/15s”, “90m/30s”</p> <p>When activated the fan will stop for either 15 or 30 seconds every 30 minutes, 60 minutes or 90 minutes, according to the selected value.</p>

DISPLAY VIEW - SERVICE PARAMETER MENU
(Only for installer)

Language English	Danish, German, English, Spanish, French, Polish, Slovene, Italian
Software 1.58	The menu “ software ” indicates the software release. The number from “ 1.58 - 1.65 ” is the actual releases.
Defrost Gas	This parameter displays the selected defrosting mode. Attention: The defrosting mode is model specific and must not be changed without written consent of the manufacturer. The possible selections are: “ GAS ” or “ AIR ” for VT100C and VT180C Service Def.None, Def.Gas, Def.Air
Anode Off	“ OFF ”, “ ON ” Is activated if signal anode is factory installed or can be activated if signal anode is retrofit.
Tmax 55 °C	Maximum operating “ Tmax ”. This parameter value limits the maximum operating temperature. Here can the maximum desired operating temperature be adjusted. “ Tmax ” can be adjusted in between 5°C and 62°C. The DHW setpoint temperature cannot exceed Tmax . Please note, that efficiency of the heat pump is reduced at higher temperatures = higher energy consumption.
Legionel Off	This parameter displays status of the automatic legionella protection mode. If activated (“ ON ”) the DHW HP will for 1 time only, increase the DHW temperature to 60°C (using HP+EL), in order to avoid possible bacteria (legionella) creation. If using water at the same time, be aware of scalding hazards. See page 27 - scalding safety. See also page 23 for the legionella function guide.

FAN CONTROL

The fan has 2 speed settings, which can be adjusted in the menu “**FanOper**”. The factory setting for the parameter value is “**HIGH**”. We recommend this setting for best performance. Nevertheless, if necessary, the “**LOW**” speed setting can be used to improve acoustic comfort or to avoid acoustic interferences without a significant loss of performance. (Installation not ducted on ambient air).

If your air outlet and/or air inlet are ducted, it is mandatory to set the “**FanOper**” parameter value to “**HIGH**”.
The menu parameter “**FanCon**” controls the fan-operating mode for the use with constant ventilation. If this parameter is unselected (“**OFF**”) the fan will stop together with the HP. If this parameter is set to “**LOW**” for low or “**HIGH**” for high speed, the fan will operate permanently and accordingly, while the HP is in the “**standby**” operating mode (= constant ventilation).
Factory setting “**OFF**”.

The “**FanPause**” function improves the operation of the DHW HP in humid environment (bathroom, laundry, basement...). This function forces the draining of defrost water tray, in order to prevent overflow. When activated the fan will stop according to user’s choice in the menu, see page 18 - User interface. An interruption of the HP fan operation (e.g. because the water temperature setpoint has been reached) resets the “**Fan-Pause**” function timer. The timer restarts together with the HP operation. If “**FanCon**” is activated, the “**FanPause**” function will interrupt the fan operation according to user’s choice. If “**FanPause**” is set to “**OFF**” then the function is deactivated.



Compressor protection:
After each compressor stop, a new start is delayed at least 5 minutes.



The design of an integrated constant ventilation system has to be done under the responsibility of an expert specified in order to match air flows. The manufacturer declines all responsibility on such a design.

ALARM LEVELS AND HANDLING

There are 3 alarm levels. The display can show 3 different alarms at the same time. The alarm must be acknowledged and reset by pressing the rotary/push button.

Level 1 - The information alarm:
does not affect the HP operating, but informs the user that there is a problem, which might need action and should be resolved as soon as possible. (**Alarm no. 8, 9, 10 and 11**).

Level 2 - The cooling circuit alarm:
This alarm level stops the DHW production via HP. If a supplementary heating is chosen in the “**H.pump**” parameter menu (“**HP+EL**” or “**EL**”), DHW is generated by the supplementary heating up to the DHW setpoint temperature. (**Alarm no. 3, 4, 5 and 6**).

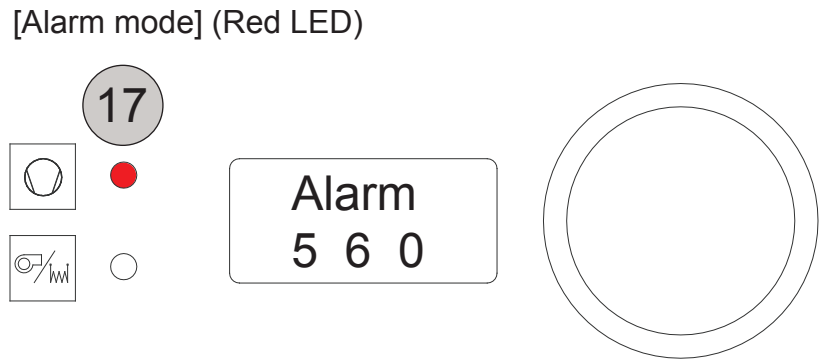
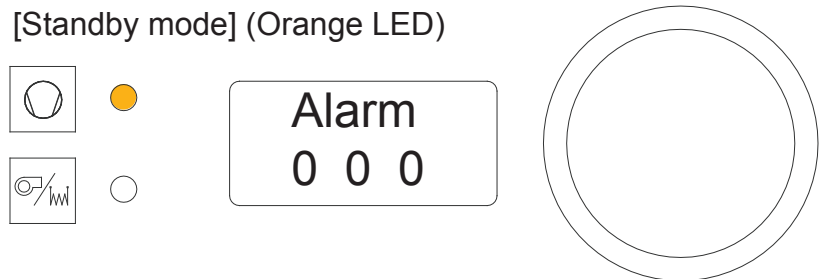
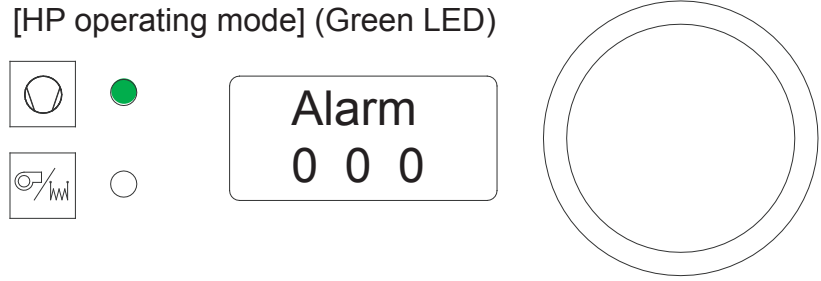
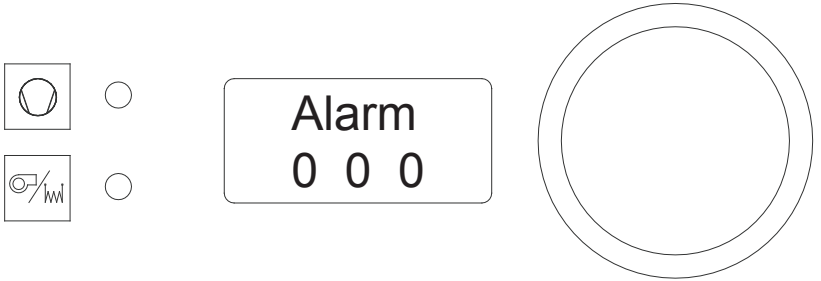
Level 3 - DHW HP alarm:
The DHW production will cease completely. A severe malfunction or defect is supposed. This alarm level needs the intervention of your installer or the manufacturer’s after-sales-service. (**Alarm no. 1 and 2**)

The user can see the alarms in the alarm menu, where also the alarms are acknowledged. The problem/defect has to be settled and the alarm has to be acknowledged, before normal operation resumes. If there are simultaneous alarms, the alarms are displayed (up to 3 alarms) in a sequence, according to their priority.

Special handling of pressostat switch alarms (**alarm 5 & 6**)

The pressostat switch protects the compressor and the cooling circuit against overpressure. At the first time the problem comes up, **alarm no.5** is displayed and the HP stops operating. LED (17) is flashing in red until the problem is solved (pressure is normal again), it resumes in normal operating mode automatically.
(LED indicator: standby mode = orange light; HP operating mode = green light). If **alarm no. 5** persists, call your installer.

Should a pressostat problem occur again in less than 6 hours after the first alarm, alarm **no.6** is displayed and the HP stops operating. Call your installer! LED (17) is flashing in red until the problem is solved (pressure is normal again) and the alarm acknowledged by pressing the rotary/push button, The LED (17) now flashes in orange. When the alarm is reset, the HP will restart and LED (17) turns for constant light (standby mode = orange light; HP operating mode = green light).

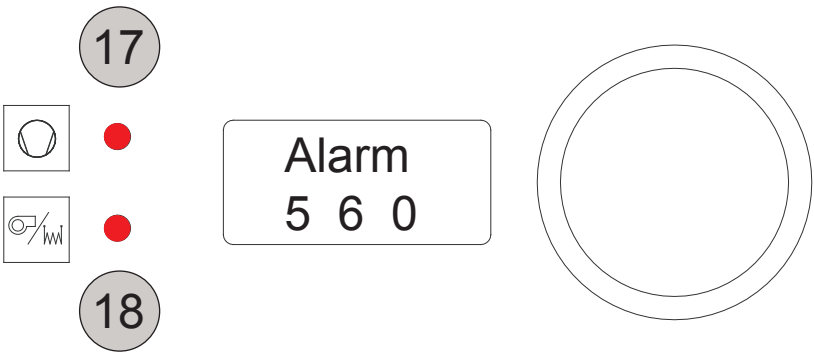


LED INDICATOR STATUS

LED (17)
for HP flashes red: Information- or coolant system alarm.

Both LED (17 + 18) flash:
DHW HP alarm, no DHW production possible.

[Alarm mode] (Red LED)



ERROR NO. / LED INDICATOR	DHW HP ALARMS / POSSIBLE PROBLEM OR DEFECT	REMARK / ACTION
1 / 17 AND 18	DHW temperature sensor is short circuited	No DHW production, HP and supplementary heating are cut off. Call your installer
2 / 17 AND 18	DHW temperature sensor is cut-off	No DHW production, HP and supplementary heating are cut off. Call your installer
ERROR NO. / LED INDICATOR	COOLING CIRCUIT ALARMS / POSSIBLE PROBLEM OR DEFECT	REMARK / ACTION
3 / 17	Evaporator temperature sensor short circuited	Compressor stops operating
4 / 17	Evaporator temperature sensor cut-off	Compressor stops operating
5 / 17	First pressostat alarm	Compressor stops and restarts automatically, if the problem has disappeared (pressure back to normal level), reset is possible
6 / 17	Second pressostat alarm	Compressor stops and restarts only after resetting and user acknowledgement
ERROR NO. / LED INDICATOR	INFORMATION ALARMS / POSSIBLE PROBLEM OR DEFECT	REMARK / ACTION
8 / 17	Temperature sensor „Temp 1“ short-circuited. (not applicable on products with software version 1.35 or higher)	Information only
9 / 17	Signal anode worn.	Inform your installer and ask for maintenance
10 / 17	Legionella temperature is not reached	Information only
11 / 17	The timer function is not set before activating it	See page 35 for Timer function

DEFROSTING

Your DHW HP is equipped with an automatic and continuous defrosting system. Defrosting becomes necessary, when the evaporator gets iced after heavy-duty operation or operating with low ambient temperature.

DEFROSTING MODES

The defrosting mode is model specific.

“**Defrost Gas**” – Defrosting with hot gas.

VT100C and VT180C with solenoid valve installed.

“**Defrost Air**” - Defrosting with air.

VT100C and VT180C without solenoid valve installed.

DEFROSTING “GAS”

If the temperature at the evaporator $< -2^{\circ}\text{C}$, the automatic defrosting procedure (by hot gas) starts. The bypass solenoid valve now opens, the compressor will run and the fan is cut-off.

If the evaporator temperature reaches $+5^{\circ}\text{C}$, the solenoid valve closes, and the fan restarts. If the temperature for the evaporator does not reach $+5^{\circ}\text{C}$ within 20 minutes, the defrosting procedure will stop and switch back to normal operating mode. If the evaporator temperature reaches -18°C or below, the HP will be locked. The supplementary heating “**HP+EL**” will continue, if selected, up to the setpoint of “**Tmin**”.

DEFROSTING “AIR”

If the temperature at the evaporator $< -2^{\circ}\text{C}$, the automatic defrosting procedure (by air) starts. The compressor stops and the fan runs on “**HIGH**” speed.

If the evaporator temperature reaches $+5^{\circ}\text{C}$, the defrosting cycle stops and run in normal operating mode again. If the temperature for the evaporator does not reach $+5^{\circ}\text{C}$ within 20 minutes, the defrosting procedure will stop and switch back to normal operating mode. If the evaporator temperature reaches -18°C or below, the HP will be locked. The supplementary heating “**HP+EL**” will continue, if selected, up to the setpoint of “**Tmin**”.



The minimum interval between two defrosting cycles is 2 hours. Even if the evaporator temperature should fall to or below -2°C in this period, the defrosting procedure will remain locked.

SAFETY

THERMAL DISINFECTION - LEGIONELLA PROTECTION

The procedure must be activated in the parameter menu.

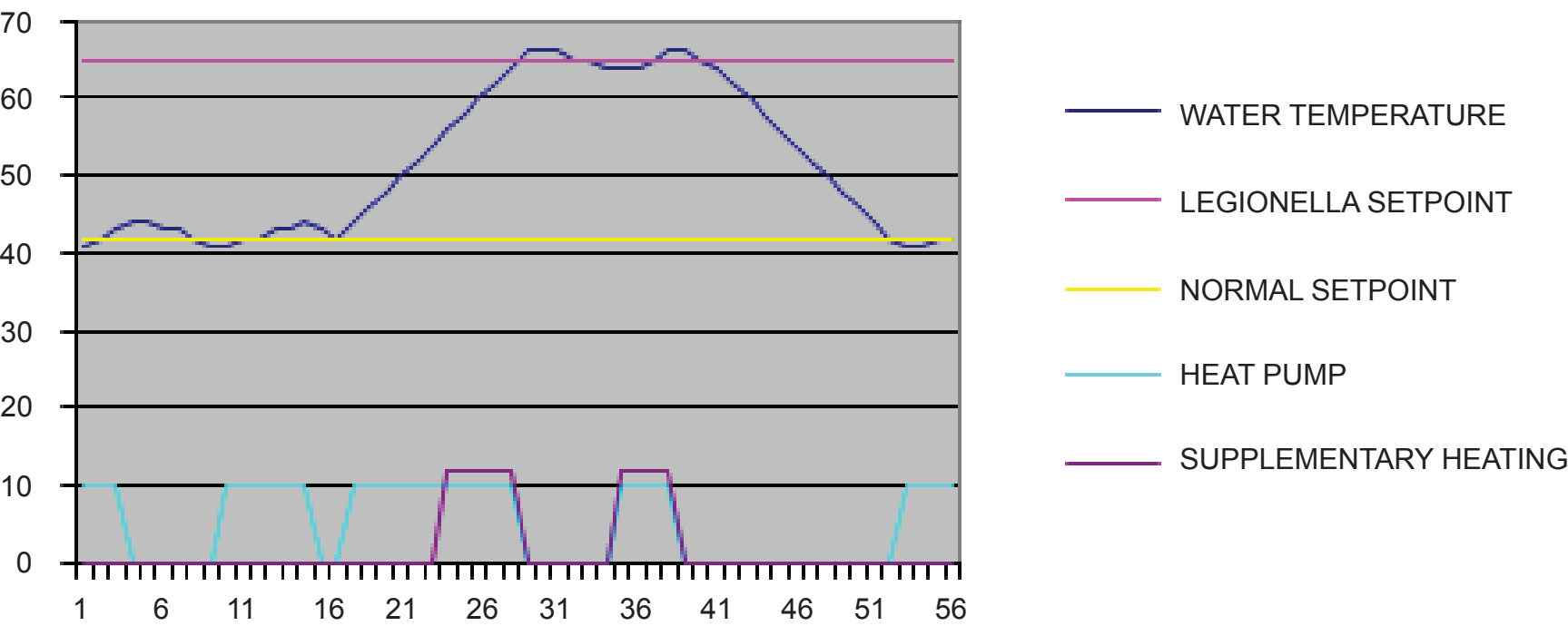
If the legionella procedure is activated, the legionella sequence will start immediately.

If the legionella procedure is deactivated, the legionella sequence will stop immediately.

If activated a new “legionella protection” cycle starts automatically after 14 days (336 hours). The function will be deactivated at power cut and start again from the moment the power is on again.

In order to protect your installation against “legionella” or other bacteria please use guide on page 26.

If the legionella temperature is not reached*, an alarm will be displayed. The alarm will disappear automatically after the next successful legionella sequence or be reset on user acknowledgement.



Example!

If legionella sequence is activated at 23:00 by user and a power cut happens during nighttime the sequence is deactivated and lost until next automatic sequence. Then the power returns 04:00 nighttime so will the legionella sequence start 04:00 nighttime after 14 days (168 hours), (next automatic cycle).

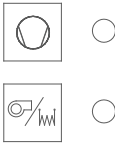
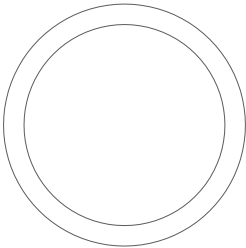
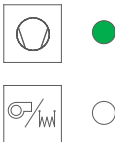
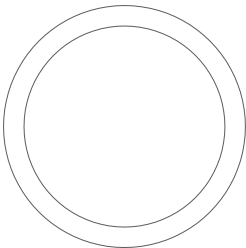

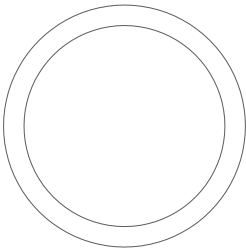
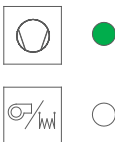
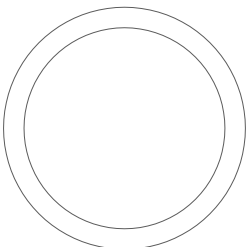
If this is not desirable for the user it is recommended to deactivate the legionella sequence in the parameter menu and start a new sequence at a more preferable time.

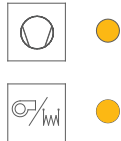


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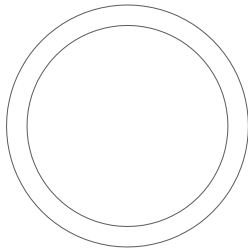
If the air temperature is too low and/or the DHW energy requirement during the “legionella protection” cycle is higher than the needed output for the “legionella-protection” procedure.

USE OF THE LEGIONELLA PROTECTION

			<div>Software 1.58</div> 		<p>New software version with the new legionella function. (Version 1.58 - 1.65)</p> <p>To check the software version you must go into installers menu, hold the rotary button for some seconds and the software version will appear.</p>
			<div>Legionel Off</div> 		<p>User menu:</p> <p>use the rotary button to scroll to the legionella menu. As factory setting the legionella function is set to “OFF”.</p>
			<div>Legionel On</div> 		<p>User menu:</p> <p>Press the rotary button until the text flashes and then rotate the button until “ON” appears. Press the rotary button once and legionella will be activated.</p> <p>The heat pump will heat up the water to 60 °C, +-1 °C in hysteresis by only use of the compressor.</p> <p>Note! <i>If the heat pump is set to “HP + EL” the electrical heating element will turn on if the water temperature is below Tmin, as factory setting this is 35 °C. If it is above 35 °C the electrical heating element will go into standby mode and the LED will turn orange.</i></p> <p>Note! <i>Legionella bacteria will die when water temperatures is above 50 ° C.</i></p>
			<div>Status Le.Work</div> 		<p>User menu:</p> <p>Use the rotary button to scroll to “Status” menu and note that a user information is shown “Le.Work”. This tells that the legionella sequence is in progress.</p>



Water
59°C



User menu:

In the “Water” status menu the user can see when the 60 °C, +-1 °C in hysteresis has been reached and the upper LED turns orange for “standby” mode.

Note! *The legionella software will keep a surveillance on the temperature for 1 hour* and then it returns back to normal operating mode again. This function applies only when the legionella sequence is activated through the user menu. The legionella sequence will start automatically again after 14 days.*

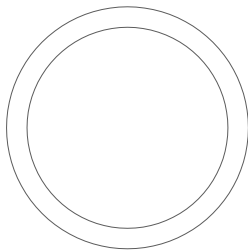


*

Due to the high quality of the insulation you will experience that the hot water temperature of 60°C is kept for more than 1 hour after the system is switched back to normal operating mode. In general 1 hour is enough to make sure that all bacterias are gone in the domestic hot water.

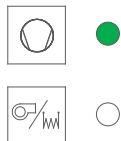


Status
Le.End

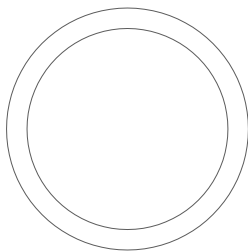


User menu:

When the legionella sequence have reached 60 °C, +-1 °C in hysteresis the user can scroll to “Status” menu and see that the legionella sequence has finished “Le.end”. This information will stay visible until switching back to normal operating mode.



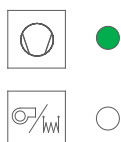
Legionel
Off



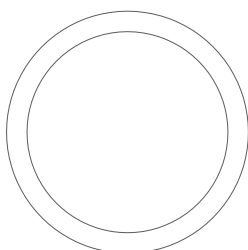
Installers menu:

Hold the rotary button for some seconds then you will go into the installers menu. Rotate the button until the legionella function appears.

As factory setting the legionella function is set to “OFF”.



Legionel
Manuel



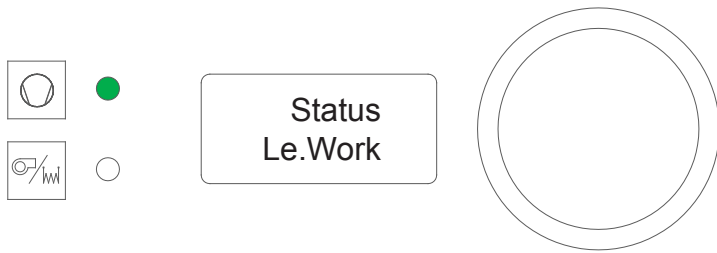
Installers menu:

Press the rotary button until the text flashes and then rotate the button until “Manuel” appears. Press the rotary button once and legionella sequence will be activated for only 1 time cycle.

The heat pump will heat up the water to 60 °C, +-1 °C in hysteresis by using both the compressor and the supplementary heating element.

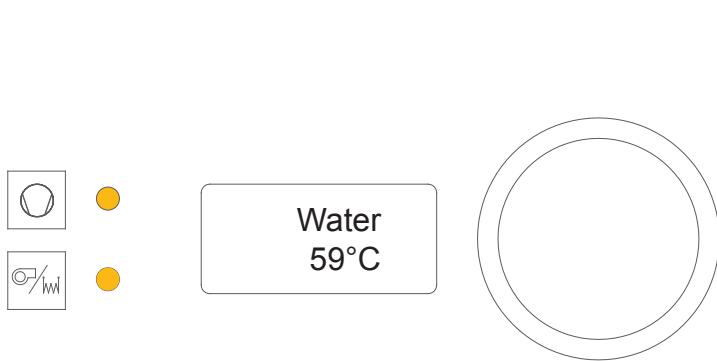
Note! it is not necessary to switch the heat pump to “HP + EL” before the electrical heating element can be used for this function. The software will turn on the electrical element automatically.

Note! When activated the lower LED don't lit up for showing activation of the supplementary heating element.



User menu:

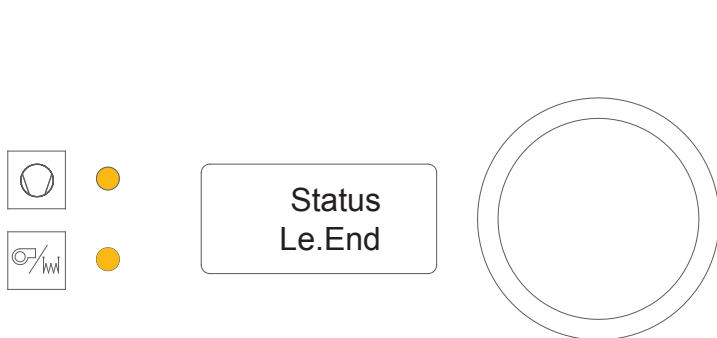
Use the rotary button to scroll to “Status” menu and note that a user information is shown “Le.Work”. This tells that the legionella sequence is in progress.



User menu:

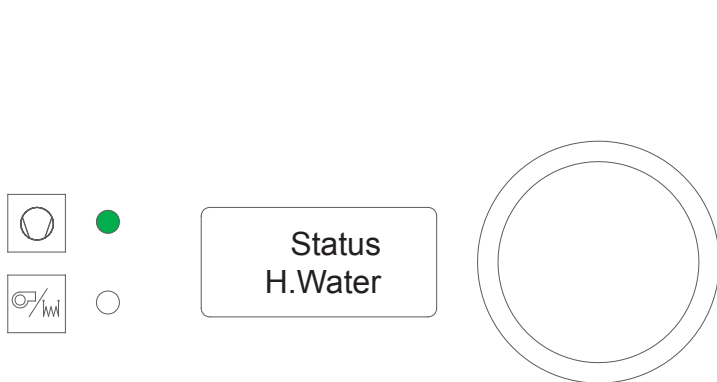
In the “Water” status menu the user can see when the 60 °C, +-1 °C in hysteresis has been reached and the upper LED turns orange for “standby” mode.

Note! If the legionella temperature is reached within 72 hours the heat pump will return to normal operating mode without any surveillance of 1 hour. This function applies only when the legionella sequence is activated through the installers menu.



User menu:

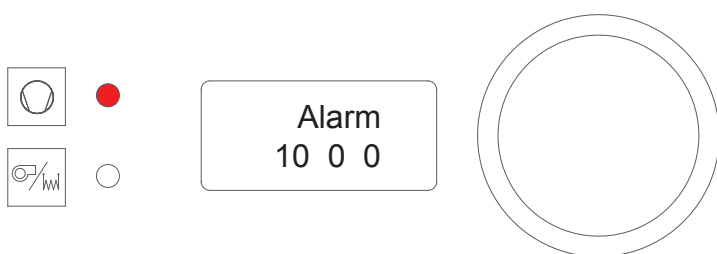
When the legionella sequence have reached 60 °C, +-1 °C in hysteresis the user can scroll to “Status” menu and see that the legionella sequence has finished “Le.end”. This information will stay visible until switching back to normal operating mode.



User menu:

When the heat pump returns to normal operating mode the upper LED turns green and in the “Status” menu the user can see that the heat pump is heating up water “H.Water”.

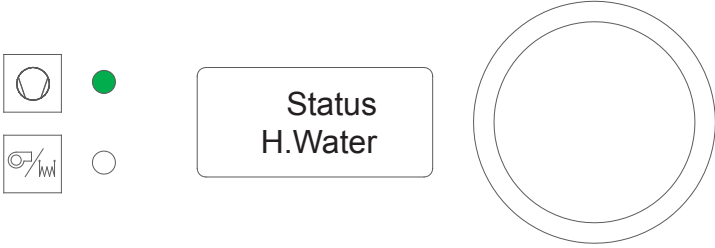
Note! “H.Water” will only appear when the setpoint have not been reached already else it will stay in “standby” mode and upper LED will be orange until need of hot water.



User menu:

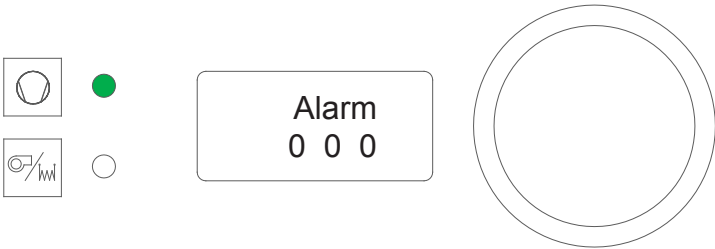
If the legionella sequence does not reach 60 °C, +-1 °C in hysteresis within 72 hours, an alarm no. 10 in the “Alarm” menu will appear and the upper LED will flash in red light and the heat pump will turn back to normal operating mode.

Note! The alarm will reset automatically after a new succesfully legionella sequence.



User menu:

In the “status” menu the user can see the information “H.Water” which tells that the heat pump is running in normal operating mode when the legionella alarm is activated.



User menu:

The user can push the button on the “Alarm” menu to acknowledge the alarm.

Note! *If the error appears again please contact an installer.*

SAFETY VALVE, CONTRA VALVE, CONDENSATION DRAIN – THE INSTALLER

The DHW HP tank must be protected by a safety valve and a contra valve on the cold water side. This is to protect the DHW tank against excessive pressure (due to the expansion of hot water and pressure shocks) and leaking. The safety valve overflow has to be connected to the floor drain. The contra valve in the security group prevents the backflow of warm water to cold water supply. Depending on the input air humidity, the evaporator generates a certain quantity of condensing water. The condensing water tray outlet unit must be fitted to the drain. Concerning the specifications of pipe connections - please see dimensional sketch page 8-9 Construction, depending on your model type.

SAFETY VALVE, CONTRA VALVE – THE USER

Your installer has fitted a new safety group. This is to protect the DHW tank against excessive pressure (due to the expansion of hot water and pressure shocks) and leaking. The functioning of the safety group:

While the cold water in the DHW tank is heated up, the water volume expands and the pressure inside the tank increases. If the pre-set pressure level of the security group is met, the security valve opens and releases excess water (= pressure) to the drain. This water release and even permanent releases in form of dropping, is absolutely normal and demonstrates that the security group is working. The user is responsible for the maintenance of the safety valve, and has to check regularly (4-5 times a year), whether it is operational. This is done by pressing or turning the spring loaded button on the valve and then to watch and hear, if water is drained.

SCALDING SAFETY

Under normal operation conditions scalding hazard can be excluded. Scalding hazard might occur, when using the electric supplementary heater and if there is a failure of the thermostat built into the electric heating element. In this case the electric heater might heat the DHW up to approx. 95° C - 98°C, before the safety thermostat is triggered.. To avoid scalding hazard you must build in a thermostatic mixing valve on the hot water side in order to have a pre-set maximum temperature for the complete DHW installation. With use of the mixing valve the water temperature will usually not exceed the prefixed temperature on the mixing valve when these kinds of valves are installed.

HOT WATER CONNECTION SCHEME

- 1: Hot water outlet from heat pump
- 2: Ball valve 1": must be open during operation.
- 3: Thermostatic mixing valve 1": to prevent high temperature of hot water at outlets (scalding hazard). Use it to adjust an acceptable hot water temperature.
- 4: Hot water outlet.
- 5: Cold water inlet.



The scheme is only a guideline. Always carry out piping according to local, national and/or international legislations.

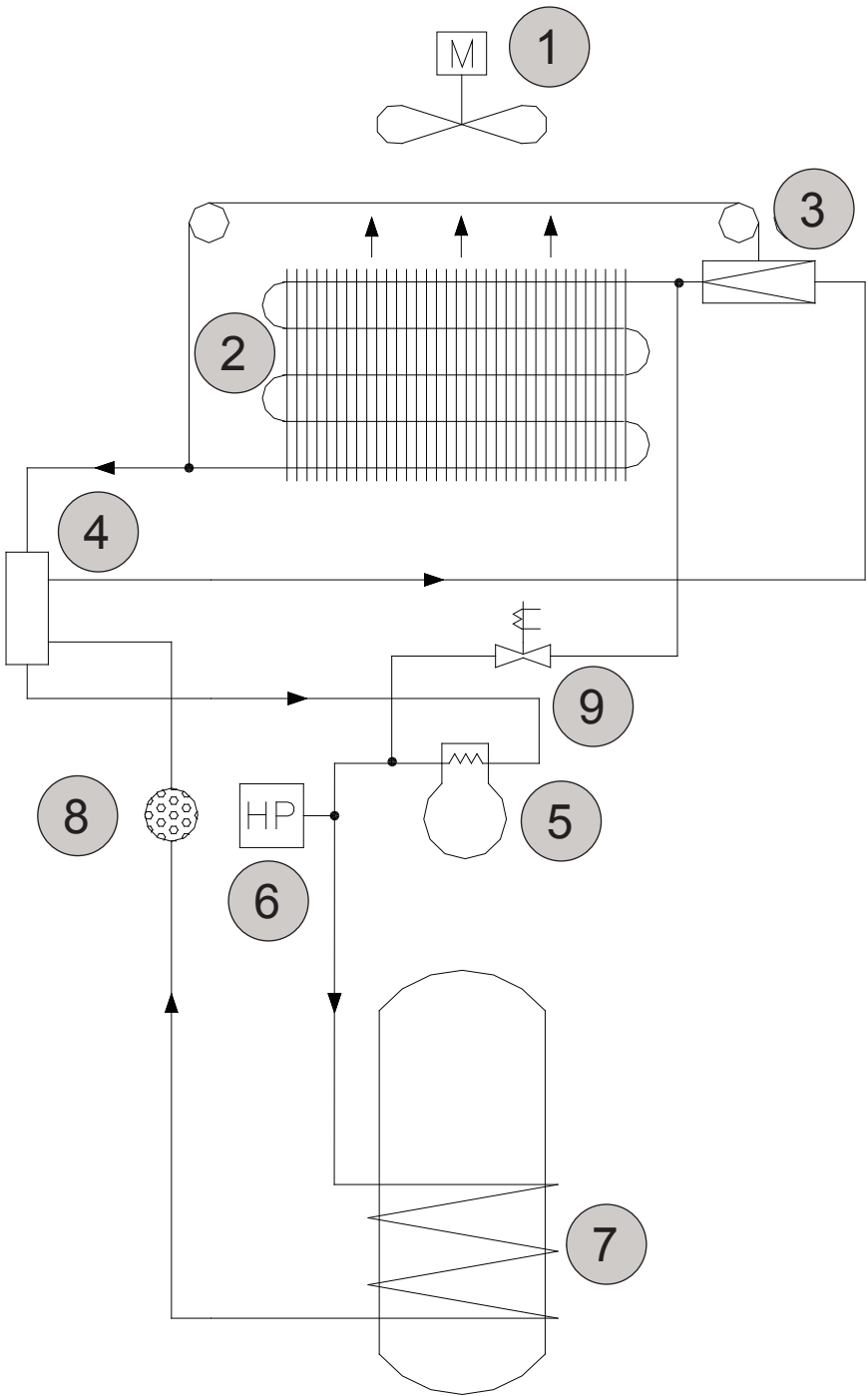


Damages due to a blocked safety valve are not covered by the manufacturer's warranty.

COOLING CIRCUIT

WORK PRINCIPLE

Refrigerant vapours are compressed in the compressor (5) from low pressure (6 bar) to high pressure (18 bar), and sent into the D-tube condenser (7), coiled round the hot-water tank, which is colder than the refrigerant vapours. A condensation of the refrigerant vapours takes place and the water in the tank is heated. The refrigerant is now a liquid and passes through the dry filter (8), which will absorb and detain residual moisture from the refrigerant, if any. In the heat exchanger (4) a further transfer of heat is possible. The purpose of the expansion valve (3) is to regulate the supply of liquid to the evaporator (2). A high-pressure sensitive switch (6) secures the cooling circuit against an inadmissible overpressure.



DUCT CONNECTION

The air can be taken from the room in which the heat pump is placed, from another room or from outside. In the latter cases the heat pump can be equipped with duct connections, both at the air inlet and at the air outlet. The air inlet and the air outlet are located at the top of the heat pump. The ducts should be used with thermal and acoustic insulation. The duct connections are $\varnothing 160$ mm. To ensure sufficient air flow the following rules should be observed: The total duct length (suction and pressure ducts) should not exceed 7 m with 160 mm ducts, minimum airflow 100 m³/h. The number of bows should be reduced to 2. When using the air from outside, please respect the HP operating temperature range.

For the sake of later disassembly of the duct connections for servicing or cleaning, should the duct system be connected to the piping which can either be pushed over each other, removed or be flexible to allow adequate access options.

- 1: Ambient air inlet
- 2: Ambient air outlet
- 3: Outside air - inlet
- 4: Outside air - outlet
- 5: Ambient air from another room - inlet

Heat pump models for certain air connections.

- A: If air inlet and outlet is within the same room and ambient air temperature doesn't go below +5°C you can use the VT100C and VT180C as an +5°C unit else use an -10°C unit.
(Air / fan defrosting mode only) or
(Solenoid valve, hot gas defrosting mode)

- B: If air inlet is taken from outside and air outlet goes out then use the VT100C and VT180C as an -10°C unit.
(Solenoid valve, hot gas defrosting mode)
- C: If air inlet is taken from another room and air outlet goes out then use the VT100C and VT180C as an $+5^{\circ}\text{C}$ unit as long as the ambient air temperature doesn't go below $+5^{\circ}\text{C}$ else use an -10°C unit.
(Air / fan defrosting mode only) or
(Solenoid valve, hot gas defrosting mode)
- D: If air inlet is taken from the room and air outlet goes out then use the VT100C and VT180C as an $+5^{\circ}\text{C}$ unit as long as the ambient air temperature doesn't go below $+5^{\circ}\text{C}$ else use an -10°C unit.
(Air / fan defrosting mode only) or
(Solenoid valve, hot gas defrosting mode)

Recommended installation option

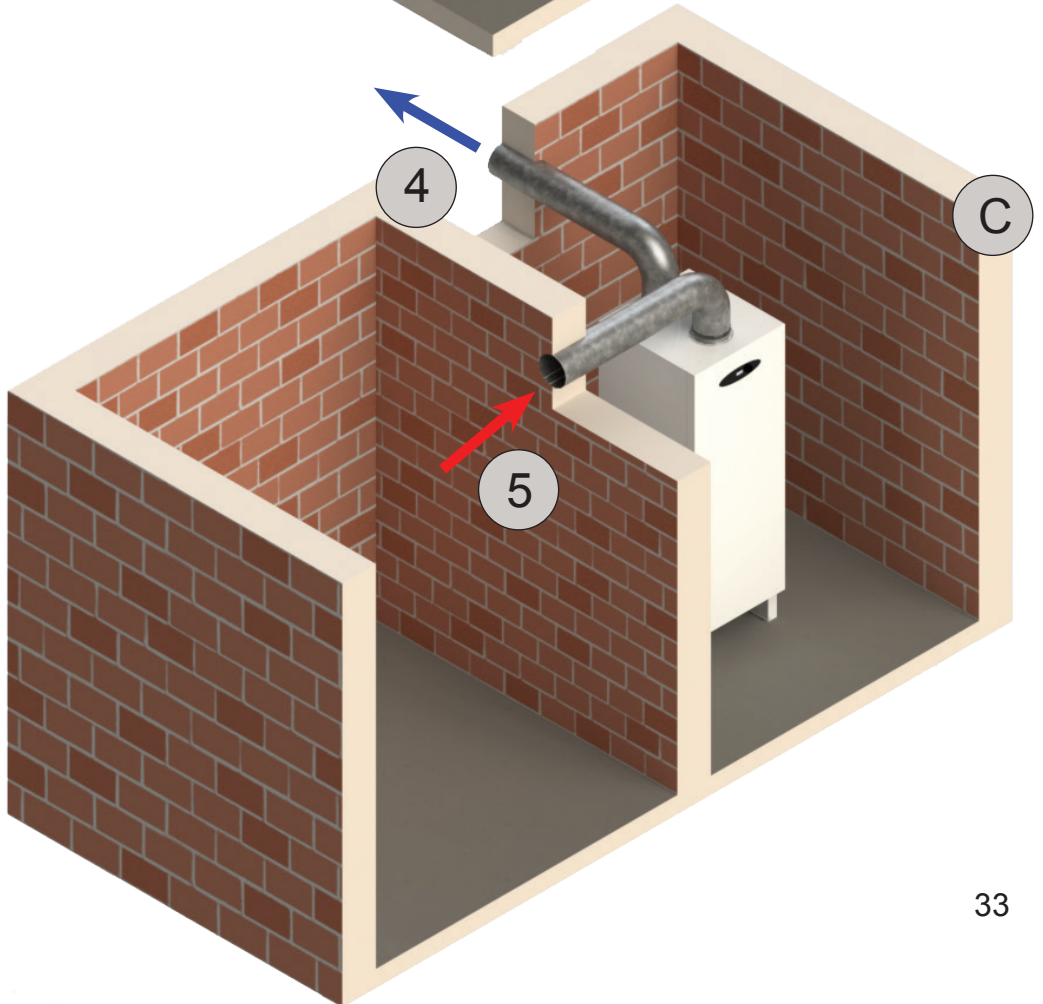
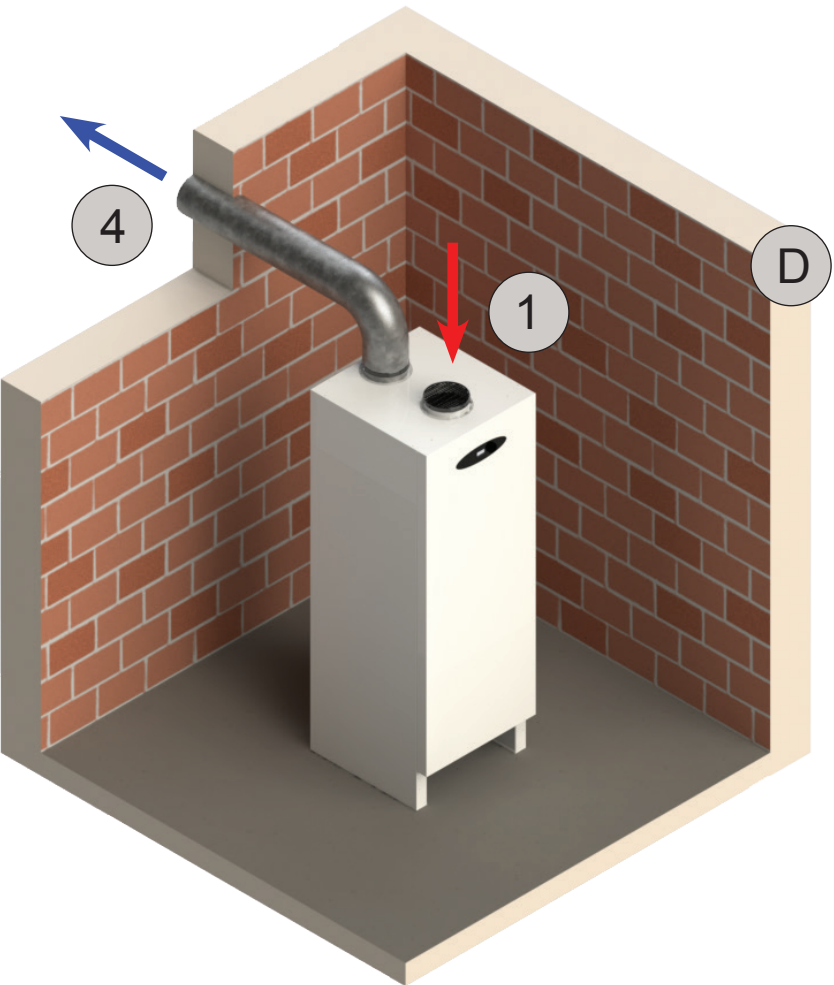
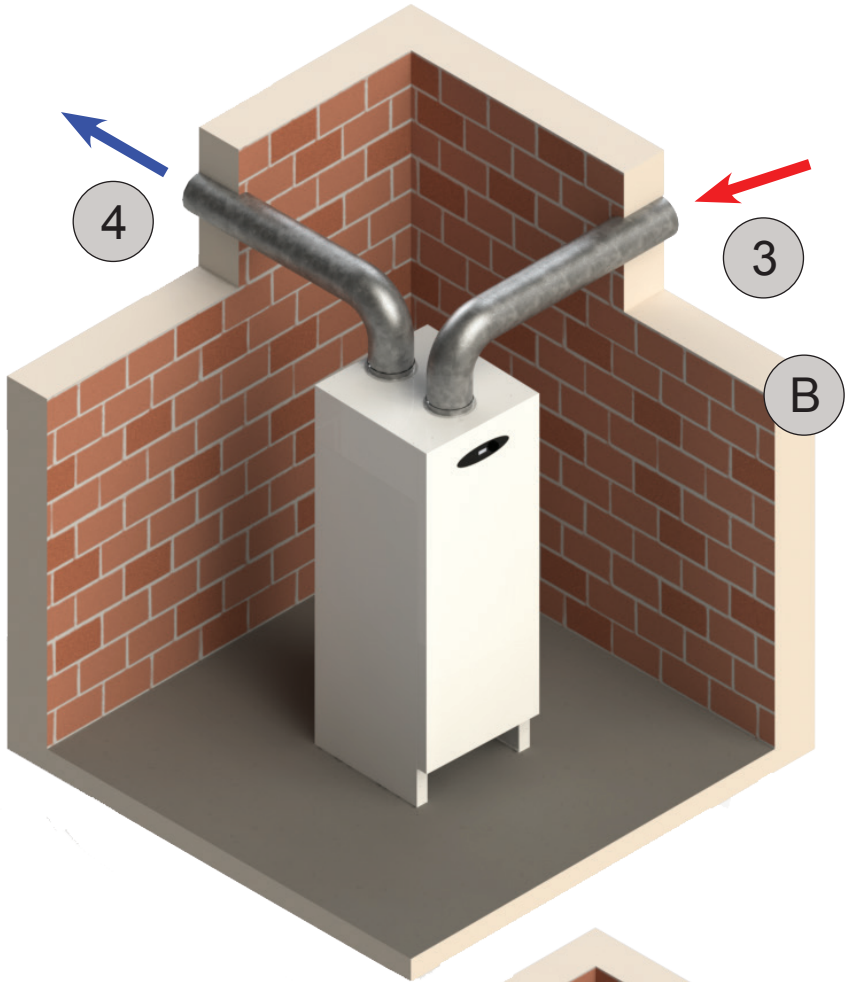
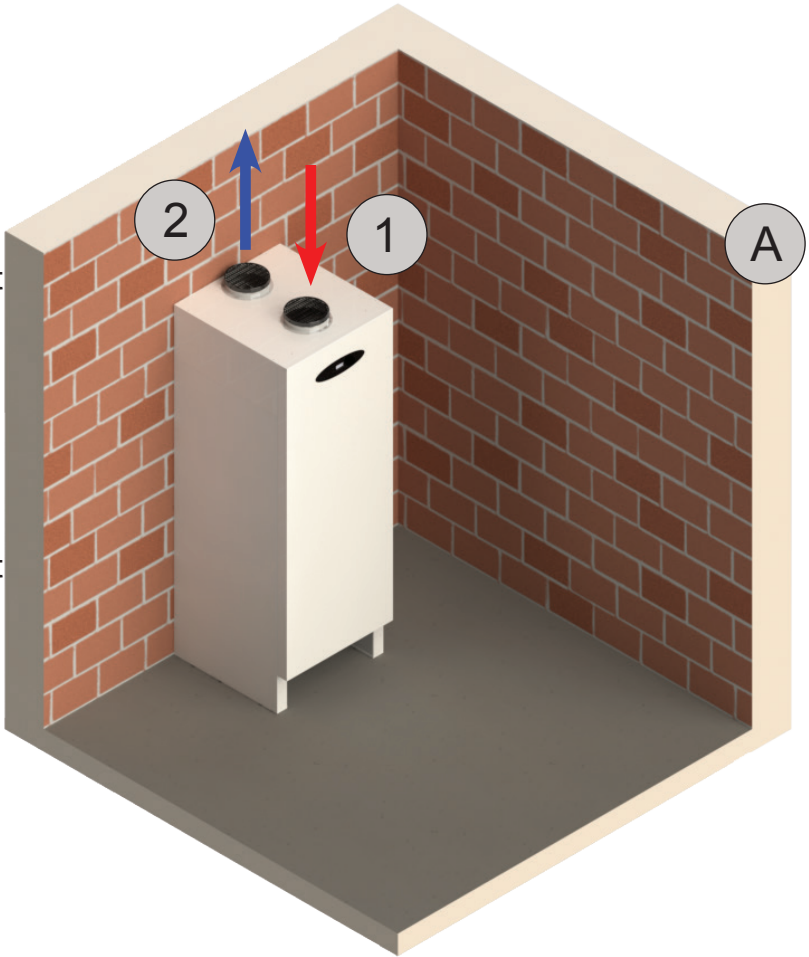
By using extracted air make sure a minimum air flow of $100\text{m}^3/\text{h}$ and maximum $250\text{m}^3/\text{h}$.

If the air inlet temperature will be below $+5^{\circ}\text{C}$ the heat pump must be a -10°C unit.



When installing ductings the weight may not be supported onto the heat pump.

The non-respect of these requirements will be the reason of warranty exclusion and any cost on material, animal and personal damages cannot be forwarded to the manufacturer of this product.



EXTERNAL CONTROLLED DHW PRODUCTION

USE OF SOLAR CELL FUNCTION

You can operate your DHW HP environmentally friendly and economically with energy generated by your photovoltaic solar cell installation. This operation mode uses an increased setpoint temperature, which can be individually selected and determines the additional energy storage capacity. In order to use this kind of operating mode, you have to wire the solar cell inverter exit to the DHW HP controller terminal block and to select in the “**SolCel**” menu the desired operating mode “**HP only**”, “**EL only**” or “**HP + EL**”.

See page 19 - User interface.

WIRING OF A SOLAR CELL INSTALLATION

The potential free contact of the inverter has to be wired to DHW HP controller. The selected connectors of the terminal block determine the operating mode possible, when the inverter contact is closed. The power level of the inverter exit can be adjusted. Please do select an appropriate power level in order to ensure a smooth operating (consider the instructions of the inverter producer).

See “wiring diagram”, page 18 - Electrical installation”.

WIRING RECOMMENDATIONS

SINGLE INVERTER OPERATION:

Connect the inverter exit to the terminal block CN6 connectors 5 –6 (T3). Bridge terminal block CN6 connectors 5 –6 to terminal block CN5 connectors 3-4 (T4).

TWO INVERTER OPERATIONS:

Connect the first inverter to terminal block CN6 connectors 5 –6 (T3) for HP operation.

Connect the 2nd inverter to terminal block CN5 connectors 3-4 (T4) for supplementary electrical (EL) operation.

The desired operation mode “**only HP**”, “**only EL**” or “**HP + EL**” can be selected via the parameter value of the “**SolCel**” parameter.

You operate your DHW HP with self-generated energy, when the inverter contact is closed and the „**SolCel**” function is activated. The display indicates the actual preselected operation mode “**only HP**”, “**only EL**” or “**HP + EL**”. If the inverter contact re-opens (not enough energy available) the operation mode and the display will be reset to normal operating mode.



The wiring of the controller determines the operating mode.

If the solar function is deactivated, it will change to normal operation mode. with the settings of the normal setpoint.

The heat pump operates with a hysteresis of +1 -3°C around the setpoint. The supplementary heating operates with a hysteresis of +-1°C.



Please take care that the inverter potential free exit is equipped with gold plated contacts because of the low intensity current. The risk of not connecting the inverter to potential free gold contacts can over time create corrosions on the contacts in the controller unit or relay without potential free gold contacts and loose complete contact to the inverter. This can cause warranty exclusion.

The setpoint for “**only HP**” can be adjusted in the menu “**SC-HP**” in between 5°C and **Tmax**.
Factory setting is 52°C.

The setpoint for “**only EL**” or “**HP + EL**” can be adjusted in the menu “**SC-EL**” in between 5°C and **Tmax**.
Factory setting is 53°C.



The use of the solar cell function should only be activated when solar panels are available.

USE OF HOLIDAY FUNCTION

With the use of the holiday function you are able to lower the power consumption during your holiday and absence from home. When activated, the hot water production will be locked unless the DHW temperature is equal to “**T2min**”. At the “**T2min**” temperature level the HP will resume working, in order to protect the device and the installation against frost. Should the temperature fall below “**T2min**” -1°C, the supplementary heating will be released. If the temperature falls further below “**T2min**” -3°C the heat pump will also start. When the temperature reaches “**T2min**” +1°C the DHW production will be locked again.

The “**holiday**” parameter menu has 5 possible choices:

- 1 week
- 2 weeks
- 3 weeks
- 3 days, for an extra-long weekend
- Manually setting of days (1 – 99)*

USE OF BOOST FUNCTION

The “**Boost**” mode gives you the possibility to generate DHW faster and in excess quantity in the case of urgent or occasional need for DHW (family visit, the sports team of your children comes for a shower, etc.) To activate the “**Boost**” cycle, select the menu parameter “**Boost**” and the value “**on**”. During the “**Boost**” cycle the HP and the supplementary heating will operate simultaneously for 1 hour maximum or until “**Tmax**” is reached. If you still need more DHW you have to activate the “**boost**” function again.

USE OF EXTERNALLY CONTROLLED DHW PRODUCTION

You can control the DHW production externally by means of a potential free contact (energy counter, external timer, etc.). This function gives you the possibility to generate DHW in a specific period (e.g. off-peak tariff production, acoustic comfort preference, etc.). **This configuration is needed if you have software version 1.58 - 1.61 only.**

Do not use for software version 1.62 - 1.65

At the “**T2min**” temperature level the HP will resume working, in order to protect the device and the installation against frost. Should the temperature fall below “**T2 min**” -1°C, the supplementary heating will be released. If the temperature falls further below “**T2 min**” -3°C the heat pump will also start. When the temperature reaches “**T2 min**” +1°C the DHW production will be locked again.



* There will be an uncertainty of +-3% when using manually setting of days.

21 days = +- 0.6 days

50 days= +- 1.5 days

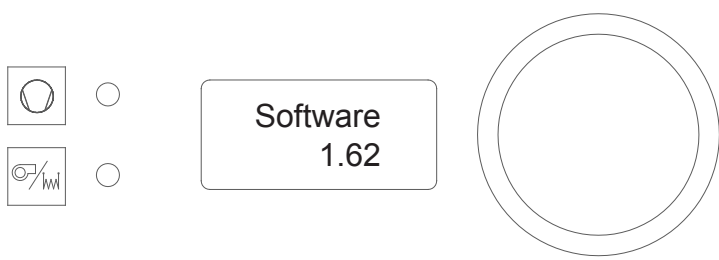
99 days= +- 3.0 days



Do not use an external timer to cut the power supply, use instead the externally controlled DHW production, by wiring the external potential free contact to terminal block CN5 connector 5 and 6. “See page 18 - Electrical installation, for wiring diagram”.

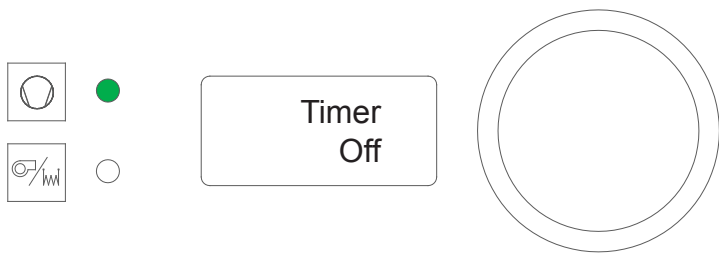
The external contact or timer must have gold-plated contacts due to low current operation. When the contact is “closed” the DHW production is locked, while the frost protection is activated. When the contact is open, the DHW HP operates in the selected operating mode.

USE OF TIMER FUNCTION



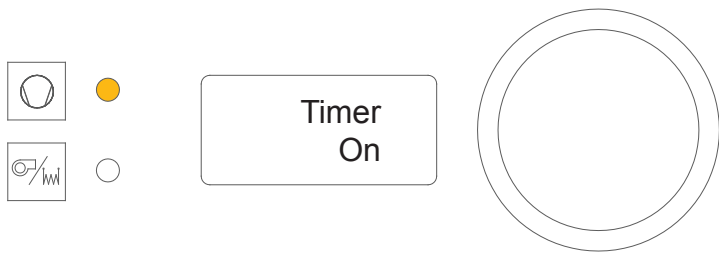
With use of software version 1.62 - 1.65 it is possible to use the timer function within the software instead of an external installed timer/clock unit.

To check the software version you must go into installers menu, hold the rotary button for some seconds and the software version will appear.



User menu:

use the rotary button to scroll to the Timer menu. As factory setting the timer function is set to "OFF".



User menu:

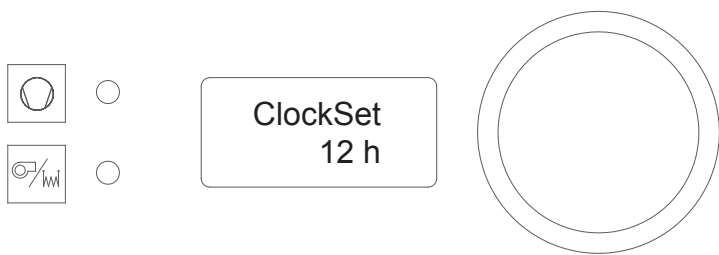
Press the rotary button until the text flashes and then rotate the button until "ON" appears. Press the rotary button once and timer will be activated.

Note! LED light will appear in red light because the user must configure the timer before the LED turns green.



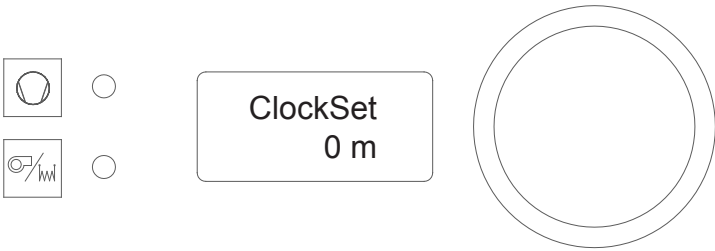
User menu:

Use the rotary button to scroll to "Clock" menu. As factory setting it is set to 12:00. This menu is only a status menu.



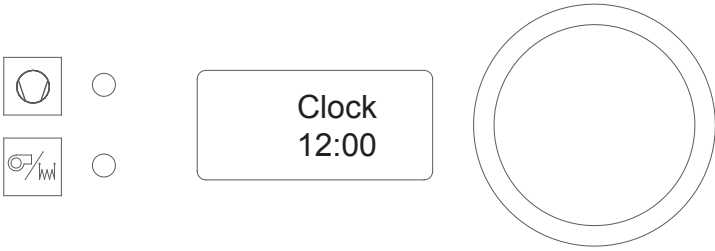
User menu:

Use the rotary button to scroll to "ClockSet". Press the button until text is flashing and adjust the hours to real time hours, look at the household watch, and press the button again to acknowledge.



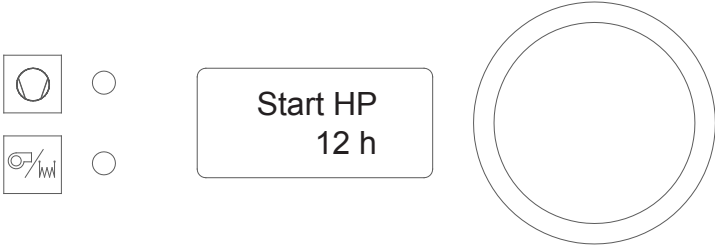
User menu:

Use the rotary button to scroll to “ClockSet”. Press the button until text is flashing and adjust the minutes to real time minutes, look at the household watch, and press the button again to acknowledge.



User menu:

Scroll back to “Clock” menu and watch the clock been adjusted to settings made in “ClockSet” menues.



User menu:

To start the timer function the user must set the start hours for when the heat pump should start produce hot water. Use the rotary button to scroll to “Start HP” and press the button. The text will flash and rotate the button to adjust to desired starting hours.



User menu:

To start the timer function the user must set the start minutes for when the heat pump should start produce hot water. Use the rotary button to scroll to “Start HP” and press the button. The text will flash and rotate the button to adjust to desired starting minutes.



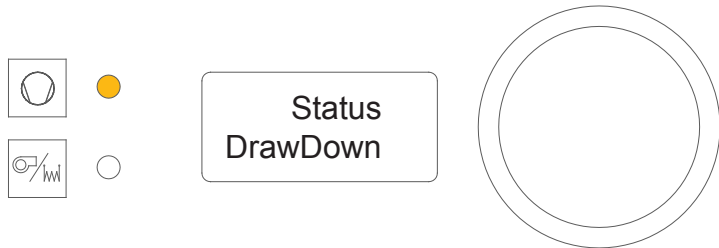
User menu:

To stop the timer function the user must set the stop hours for when the heat pump should stop produce hot water. Use the rotary button to scroll to “Stop HP” and press the button. The text will flash and rotate the button to adjust to desired stop hours.



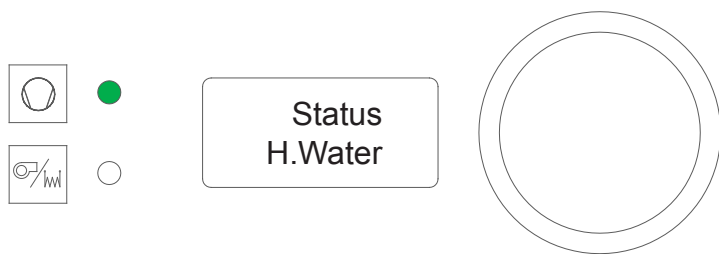
User menu:

To stop the timer function the user must set the stop minutes for when the heat pump should stop produce hot water. Use the rotary button to scroll to “Stop HP” and press the button. The text will flash and rotate the button to adjust to desired stop minutes.



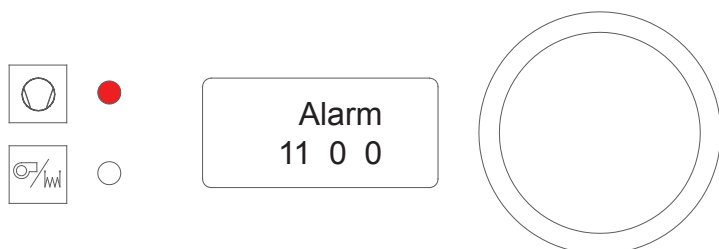
The timer function is now set according to the user settings.

Use the rotary button to show the “Status” menu and see the information “DrawDown” this means that the heat pump is in standby mode until activation according to timer settings. The upper LED is orange.



User menu:

When the desired starting hours and minutes is reached the heat pump will start heat up the water and the “Status” menu will show “H.Water” and upper LED is green.



User menu:

If you try to use the Timer function without configure the clock then you will have an alarm 11.

Important information:

- 1: Deviation of about 1 hour per year.
- 2: Are there changes in start / stop menus the software check if it is allowed to make hot water or not. It depends on which hours and minutes has been set for the real-time clock.
- 3: If a power failure occur there is a battery backup of 1-2 hours before the timer reset.
- 4: The legionella function has always the first priority and therefore the legionella function will be activated no matter if the timer function is in standby mode or operation mode.

SUPPLEMENTARY ELECTRIC HEATING

The upper part of the tank can be heated quickly by using the electrical heating element. The heating element is activated in the menu parameter “**H.pump**” selecting the value “**EL**” alone or with heat pump “**HP + EL**”. **Tmin** is set to the desired minimum temperature. When water temperature is below **Tmin** the heating element will support the heating until the temperature **Tmin** is reached. The heating element is quipped with a safety and an operational thermostat. The safety thermostat cuts-off when the safety level 75/85°C is reached. If the safety lock function has been released, your installer must reset it manually. With regard to the location of the heating element, refer to page 8.

MAINTENANCE AND CARE

Your DHW HP is working automatically. Nevertheless it needs some care and maintenance. We recommend to sign a service contract with your installer or to include it into an existing service contract with your specialized service provider.

CARE BY THE END USER

The DHW HP does not need specific care or maintenance by the end-user. Nevertheless the responsibility of the user is:

- To check the security valve regularly
- To check the displays for alarms.
- To clean air in- and outlet from dust
- To check the installation for leakages
- To check and clean the drain connector/hose.
- To inform the installer if necessary.

MAINTENANCE BY THE INSTALLER

GENERAL CHECK

The installer has to check on smooth operating and the state of the installation (safety group, leakages, excess pressure etc.).

MAINTENANCE OF THE EVAPORATOR

Examine the evaporator, and if necessary remove dust and dirt, once or twice a year. To inspect the evaporator, remove the air grating/duct connections. Dust particles can obstruct the air circulation, and this will reduce the HP performance considerably. Clean the evaporator with water and a brush. Be careful and avoid damaging the fins of the evaporator and keep the water away from the electrical parts.

MAINTENANCE OF THE DRAIN

The discharge pipe of the heat pump must be connected to a drain in accordance with the present regulations. The defrost/condensed water outlet of the heat pump must always be kept free from dirt. How often this has to be done, depends on the local conditions concerning dirt and temperature.

The user is responsible for checking and cleaning the drain water outlet/hose. This issue has also to be checked by the installer during the maintenance service.



A defective drain might cause multiple damages, such as defect electronic part, external corrosion, rotten insulation. The manufacturer's warranty does not cover these damages.

USER HINTS

You are using a top quality DHW HP. In order to benefit most of the performance here are some hints.

DHW SETPOINT TEMPERATURE

The performance of your HP depends on your water consumption, the setpoint temperature and the ambient air temperature.

If you consider that the average water consumption per person per day is 125 l, of which 1/3 is hot water, the daily hot water consumption would be 160 l for a 4-person household at average comfort and 240 l at high comfort level.

The performance of the DHW HP decreases with rising DHW temperature. We therefore recommend setting the setpoint for DHW to 45°C. If this should not be sufficient for your individual comfort and consumption, you can increase the setpoint temperature.

The performance of your DHW HP is increasing with the air inlet temperature. The selection of the location is therefore an important choice.

The maintenance and care of the device guarantees an outstanding performance and a long product life.

SPARE PARTS