

▪ Vanvex RS

Domestic hot water heat pump

Installation Manual



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EEC - Declaration of conformity

1. About the product

Instructions / Safety Information / General

The heat pump has been designed and produced according to all relevant EU guidelines (also see the EEC-declaration of conformity)



Any work carried out on this unit may only be done by skilled personnel. Take all necessary precautions to avoid accidents.

1.1 Scope of delivery

- Heat pump with built-in control
- Installation manual with technical data
- Operating instructions

1.2 Product description

Vanvex RS is a domestic hot water heat pump, which is ready for connection. It consists of the cabinet, components for refrigerant, air and water circuits as well as a control panel, control and monitoring equipment designed for automatic operation.

Vanvex RS uses the heat from the extract air to produce hot water. At peak times extra energy can be supplied through an integrated immersion heater of 1.5 kW.

There is a sensor pocket in the boiler in which an external thermostat or sensor (diameter 6 mm) from an external control can be mounted.

The application area and operating principles of the heat pump are specified in the operating instructions.

Operation of the Vanvex RS

The control starts the compressor shortly after hot water is needed. The compressor operates until the water in the boiler reaches the set temperature. Usually, the Vanvex RS can produce enough hot water to cover the need of household of 4 persons.

If the Vanvex RS is not able to produce enough domestic hot water, an immersion heater integrated in the boiler can be switched on. In this way more domestic hot water can be produced. It is possible to set the temperature to which the immersion heater should heat the water. Only use the immersion heater when there is a need as it consumes more energy as the compressor. The activation of the immersion heater can be done manually on the control panel.

1.3 Technical data

Domestic hot water heat pump Vanvex RS		
Diameter without connections	mm	Ø660
Height	mm	1837
Weight without water	kg	113
Electrical connections	V/Hz	230/50
Fuse	A	13
Refrigerant / filling	-/kg	R134a /1.1

Performance data		
Performance specified for heating of domestic water from 10°C (cold water) to 52.5°C (domestic water) and extract air temperature 7°C:		
Heat performance	kW	1.1
Effect collection	kW	0.4
COP	-	2.72
Power consumption electrical cartridge	kW	1.5

Operating range / limits		
Max./min. extract air temperature	°C	35/-5
Max. water temperature (with the heat pump on)	°C	55
Max. water temperature (with heat pump and immersion heater on)	°C	65

Sound level		
1 meter in front of unit	dB(A)	52

Domestic hot water boiler		
Material		Steel specially enamelled
Net volume	litres	285

Airflow		
Airflow (free blowing)	m³/h	250

1.4 Refrigerant circuit – description

The cooling system is used for optimizing the heat in the inlet air. This is the manner by which the extracted heat is transferred to the water. This process is only possible with the external addition of energy, which takes place in the compressor.

The cooling system is a closed system where the HCFC-free refrigerant R134a is the energy carrier.

In the evaporator, heat is absorbed from the air and transferred to the refrigerant at low evaporation temperature.

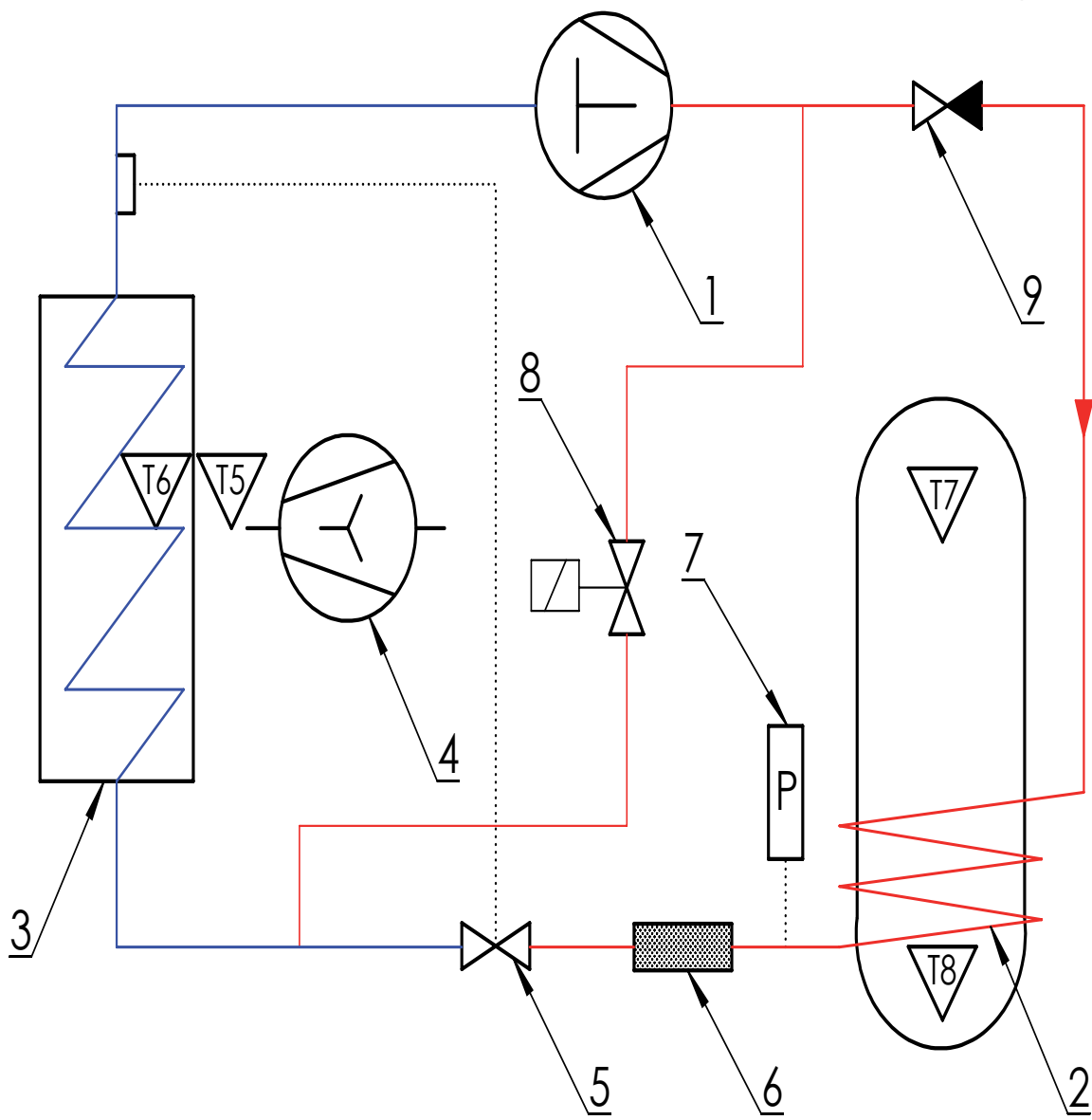
Refrigerant in vaporous form is fed to the compressor, in which it is raised up to a higher pressure and temperature level and transported to the condenser, which is coiled around the boiler. Here the heat that was absorbed in the evaporator and some of the compressor energy is transferred to the domestic hot water.

Eventually the high condensing pressure is throttled down to the evaporating pressure using an expansion valve so the refrigerant can again absorb heat from the extract air in the evaporator.

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1.4.1 Cooling system - diagram

T5, T6, T7, T8 - følere/sensors/Fühler



Component overview	
No.:	Description
1	Compressor
2	Condenser
3	Evaporator
4	Centrifugal fan
5	Expansion valve
6	Drying filter
7	Pressure switch
8	Magnetic valve
9	One way valve

Component overview	
No.:	Description
T5	Before evaporator
T6	Evaporator
T7	Domestic hot water top
T8	Domestic hot water bottom

1.5 Water circuit – description

The water circuit must be constructed with respect to the applicable norms and requirements. Please see the specifications in sections 3.1. and 3.2

The water used must be in drinking water quality (acc. to the Drinking Water Regulations). Material compatibility in the whole system must be ensured. At excessively high water pressures, a suitable pressure reducer should be installed.

1.5.1 Requirements for the water circuit

The pipe sizes for on-site installation are defined on basis of the available water pressure as well as the expected pressure loss in the pipe system. The water circuit should be designed according to the drinking water installation regulative in force. Rigid as well as flexible pipes can be used for the water circuit.

Depending upon the materials used in the water circuit of the dwelling, incorrect material combinations can lead to corrosion damage due to galvanic corrosion. This requires special attention with the use of galvanized components and components that contain copper.

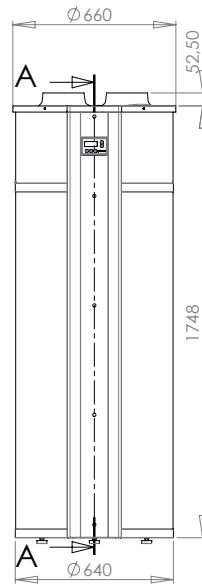
As for all pressurized vessels the boiler of the heat pump has to have an approved safety valve and a nonreturn valve on-site.

The installation of the cold water connection shall be at the back and bottom of the unit (3/4" RG). Max. pressure is 10 bar and max. temperature is 65°C. It is recommended to have a drinking water filter and a reduction valve in the cold water connection pipe.

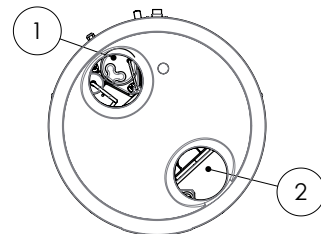
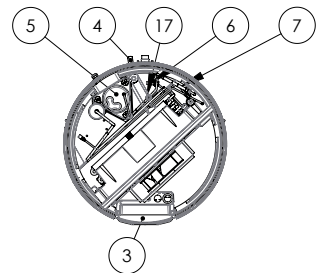
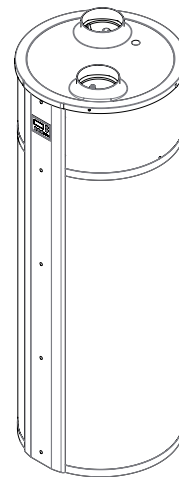
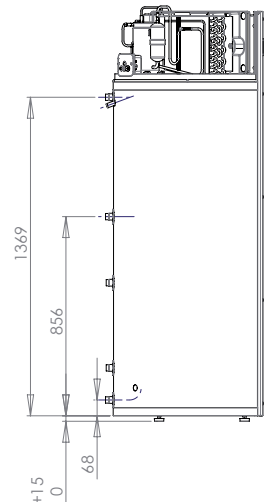
It is recommended to control the water connections for dirt.

Dirt must be avoided in the pipe system (if necessary flush the pipes before the heat pump is connected)!
When no circulation pipe is connected to the heat pump, the circulation connection must be sealed accordingly!

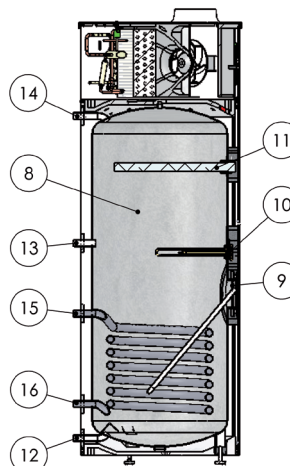
1.5.2 Dimensions



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SECTION A-A
SECTION M-M

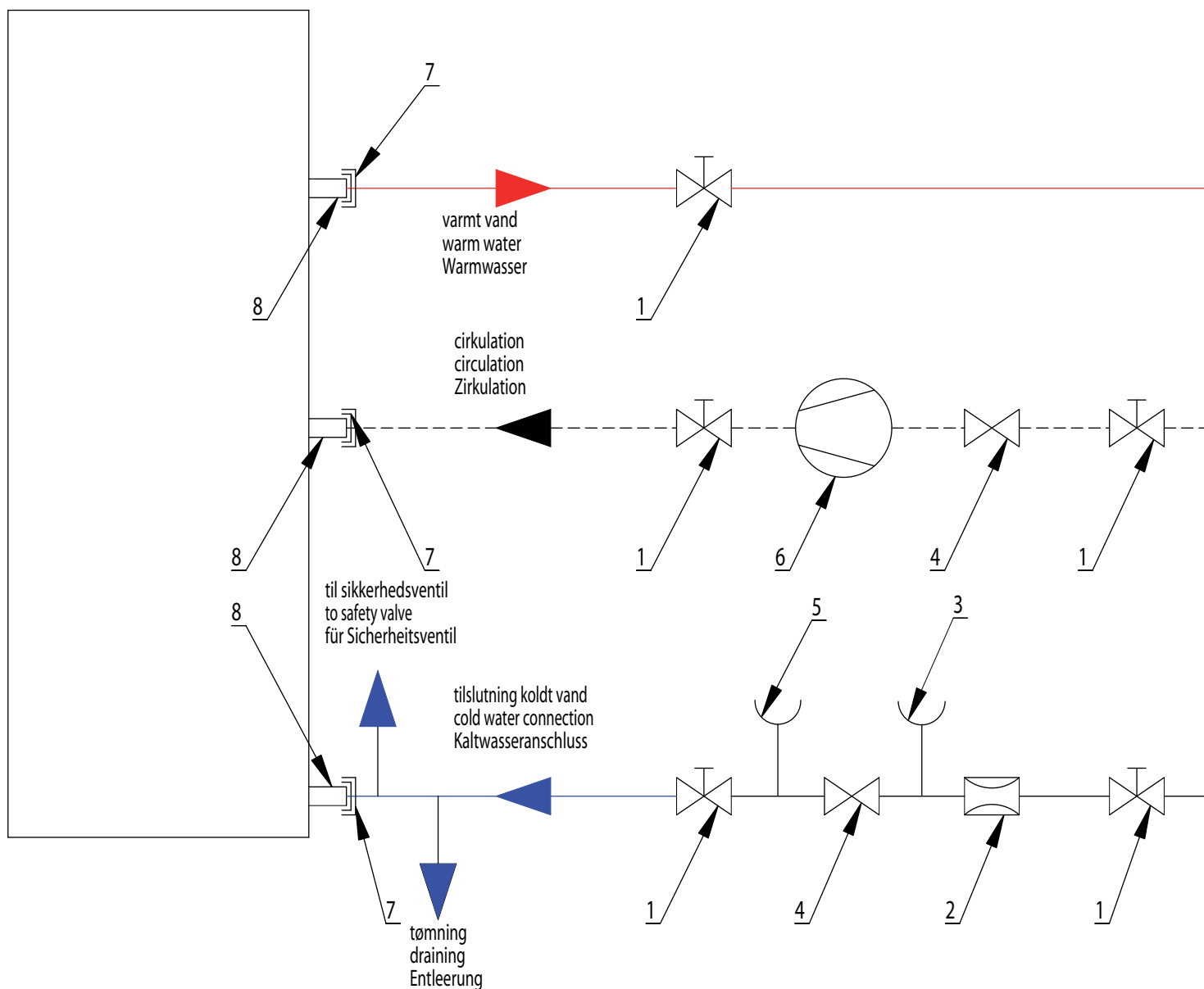


Vanvex RS:

1. Extract air
2. Exhaust air
3. Circuit board
4. Condensate drain
5. Compressor
6. Magnetic valve
7. Back pressure valve
8. 285 liter boiler
9. Service connecting
10. 1,5 kW electric cartridge
11. Anode
12. Cold water connection 3/4" RG
13. Hot water circulation 3/4" RG
14. Hot water connection 3/4" RG
15. Sun collector in 3/4" RG
16. Sun collector out 3/4" RG
17. High pressure switch

Installation Manual

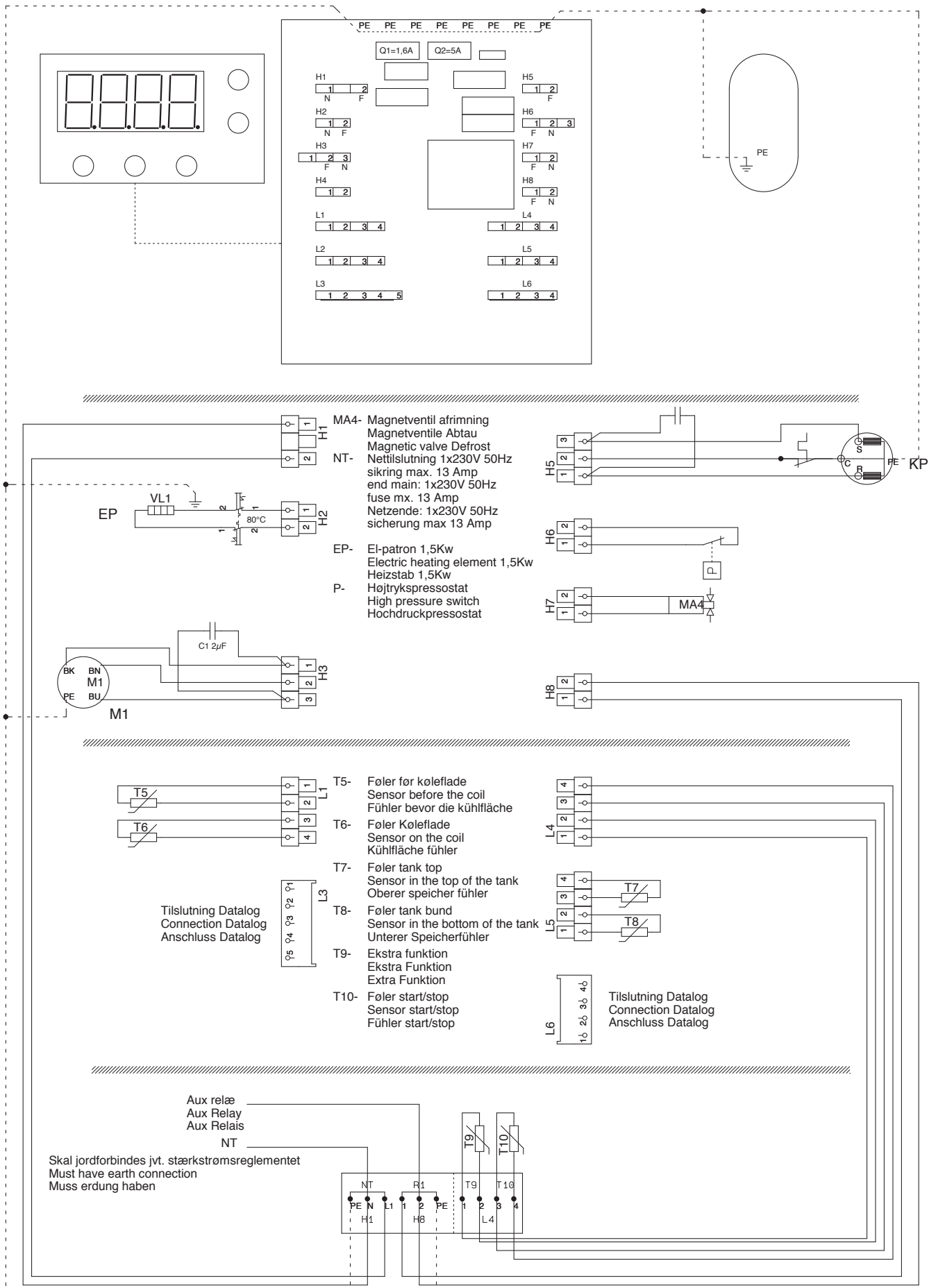
1.5.3 Water circuit – hydraulics diagram



- 1 – Shut off valve
- 2 – Pressure reducing valve
- 3 - Test valve
- 4 – Non return valve
- 5 - Manometer adapter
- 6 - Circulation pump
- 7 – Fitting with nut
- 8 – 3/4" RG

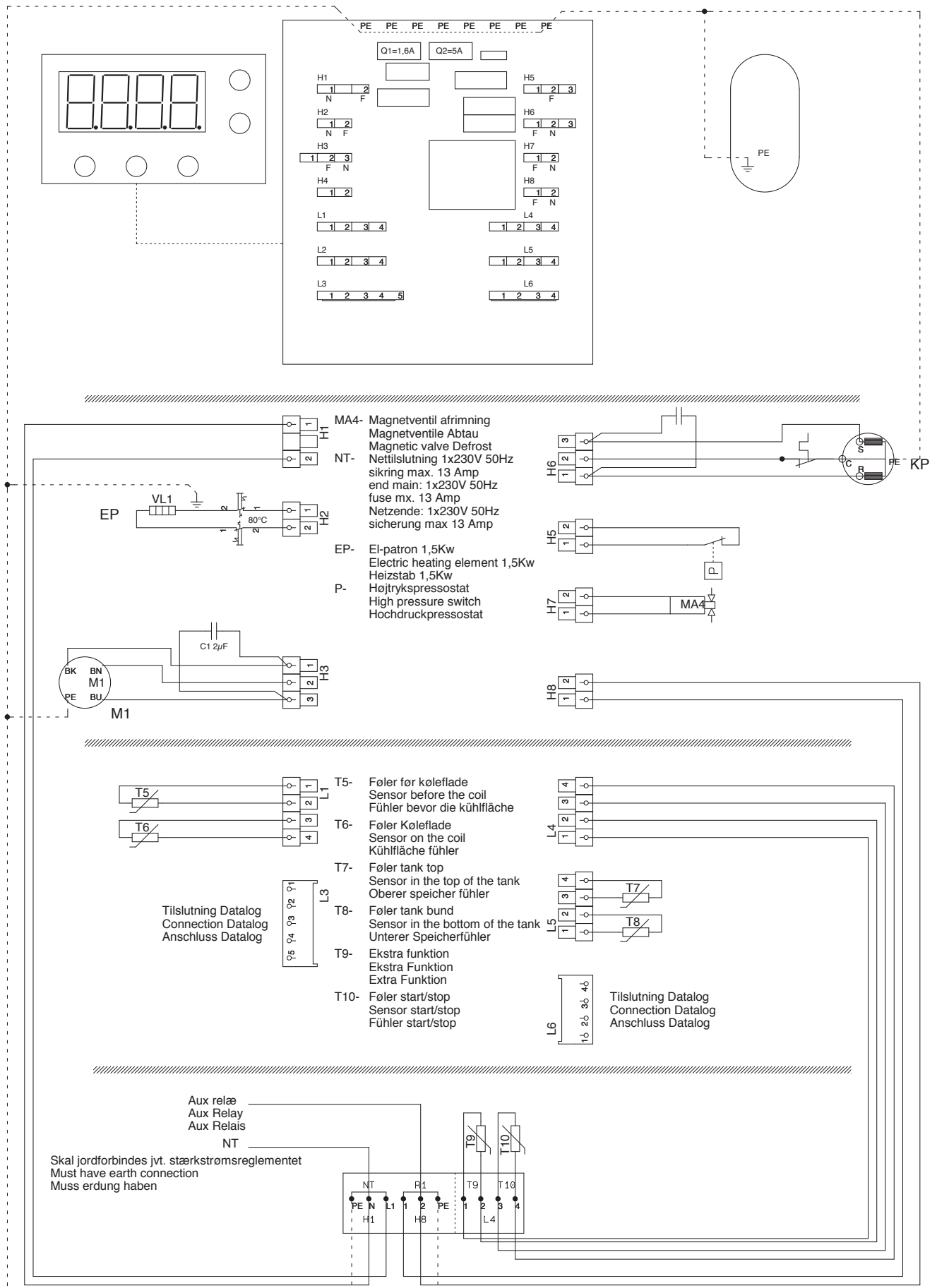
- Connecting of cold water according to DIN 1988
- Safety valve (p = 6 bar) to be mounted above the edge of the boiler
- Valve to be mounted at the lowest point for draining

1.6. Electrical scheme OPT 160



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1.7 Electrical scheme OPT 170



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2. Before Installation / Starting up

2.1 Important safety instructions

In the design and implementation of the Vanvex RS, all relevant EU guide lines have been adhered to.



Work on the Vanvex RS may only be performed by trained personnel! Take all necessary precautions in order to avoid work accidents while working!

2.1.1 Cooling system – safety instructions

Before beginning repair and service the skilled service technician must ensure that the refrigerant is discharged to a level at which the execution of the work can be done securely and safely.

Provisions must be made for service and repair on the heat pump when opening of the cooling circuit is needed and especially when working with an open flame (soldering, welding etc.) to prevent the outbreak of fire.

2.1.2 Electrical circuit – safety instructions



When working on the Vanvex RS, the main supply must always be disconnected – pull the plug out!

When connecting the Vanvex RS to the power supply, the local and national rules and norms must be adhered to. In addition, regard must be paid to possible requirements posed by the energy supplier.

2.1.3 Water circuit – safety instructions

Only water of drinking water quality may be used. During installation, regard must be paid to the choice of materials and it must be ensured that they can work together without problems in the entire circuit.



Special attention must be paid when using galvanised components and components containing aluminium!

Safety equipment must be installed to prevent over pressure in the system. All pipe work must comply with water safety regulations.

2.2 Delivery mode

Vanvex RS is delivered without condensate tube and the safety equipment for the water circuit.

2.3 Storage

The Vanvex RS must be stored and transported upright without water and in its packaging.

2.4 Transport

When carefully transporting the Vanvex RS over short distances, it can be tilted up to 45°C. If this limit is exceeded, the Vanvex RS must stand in its normal upright position for at least 1 hour before it may be started.

Transport and storage may take place at temperatures between -10 °C and +50 °C.

The Vanvex RS's top / casing is not suitable for lifting and must be handled with care during transport. It is recommended not to unpack the Vanvex RS before it is positioned where it is to be installed.



2.4.1 Transport with forklift

For transport with a forklift, the Vanvex RS must stand on the associated transport frame. Always lift it slowly. Due to the high position of the centre of gravity, the Vanvex RS must be secured against tipping during transportation.

2.4.2 Unloading the heat pump

In order to avoid damages, the Vanvex RS must be unloaded on a flat surface.



2.4.3 Transport with trolley

The Vanvex RS may only be transported on the associated transport frame. This also applies to transport on stairs. The transport frame measures appr. 70x80 cm incl. packaging. The Vanvex RS must be secured against sliding on the trolley.

Water connections etc. may not be used for transportation purposes.

Make sure that the trolley does not damage the cabinet and the connections.

2.5 Location / installation

The Vanvex RS may only be installed in a frost-free room. The installation location should comply with the following criteria:

- Room temperature between 0 and +35°C.
- Drain possibility for condensate.
- No abnormal dust concentration in the air.
- Solid base (approx. 500 kg / m²)
- To achieve problem-free functioning and to allow access for service, it is recommended that 0.5 m free space be maintained around the unit.

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Set-up sequence:

1. Remove the packaging from the pallet.
 2. Remove the transport fittings from the pallet.
 3. Take the Vanvex RS off the pallet and place it on the floor.
 4. Adjust the Vanvex RS vertically by adjusting the feet.
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2.6 Connection of water pipes

The following connections are located on the back of the heat pump:

- Condensate drain
- Cold water inlet / Hot water circulation / Hot water outlet



No holes may be drilled in the Vanvex RS. It can damage the condenser coiled around the boiler.



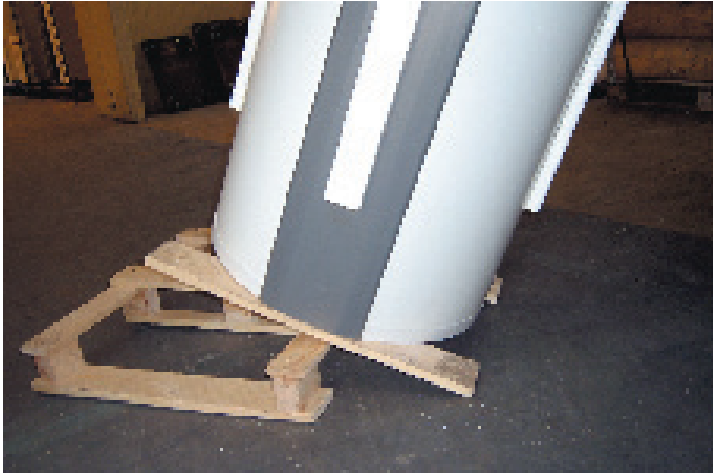
1. Screws to be removed (hexagonal head).



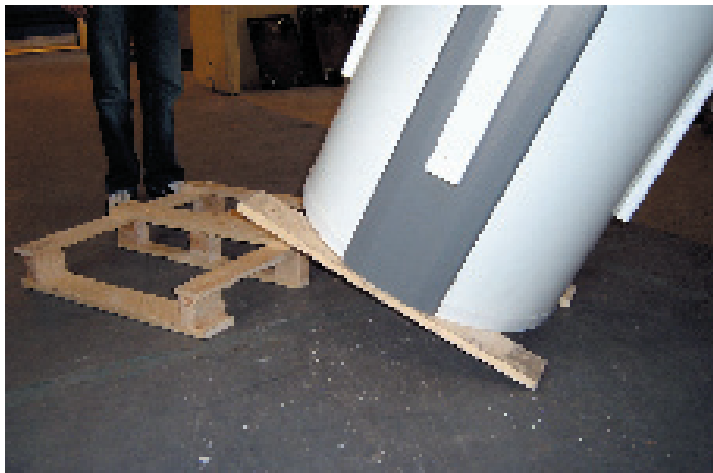
2. Screws to be removed



3. Removal of screws



4. Removal of product of from the pallet:
a: Glide the product carefully to one side a bit.
b: Tilt product in to the same side together with 2 pcs. of wood beneath.



5. Carry on with removal:
c: Remove the lower part of the pallet while keeping the product tilted, still with 2 pcs. of wood beneath.



6. The product is now on floor with 2 pcs. of wood underneath.



7. Removal of 1st piece of wood (can be released if product is tilted to one side)



8. Removal of 2nd piece of wood (can be released if product is tilted to the other side).



9. The pallet is removed.

Installation Manual

3. INSTALLATION

3.1 Water connection

During installation the actual pressure and pressure losses must be taken into account regarding pipe dimensions to ensure sufficient pressure and water flow rates at the tap point. The plumbing must be carried out according to plumbing regulations.

The piping can be made of flexible or rigid materials.

Care must be taken in respect to corrosion in the pipe system in order to avoid damages.

As for all pressurized vessels the boiler of the heat pump has to have an approved safety valve and a nonreturn valve on-site.

Cold water inlet and hot water outlet is located on the side of the boiler ($\frac{3}{4}$ " RG).

The maximum working pressure is 10 bar and the maximum working temperature is 65°C.

If necessary, the supply pipe must be equipped with a pressure reduction valve and eventually a filter.

When installing the pipe work in the house any dirt in the pipes must be avoided. Eventually flush the pipes with clean water before the heat pump is installed!

If no circulation of water is needed, make sure that the circulation connection is closed!

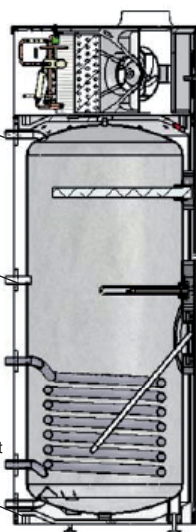
3.2 Location of pipe connections

Hot water outlet is mounted on the upper connecting branch ($\frac{3}{4}$ " RG)

If the unit is used with the circulation of the hot water supply, the middle connecting branch is used as a return path ($\frac{3}{4}$ " RG). If no circulation pipe is installed, the circulation connector must be sealed.

Inlet of fresh cold water is mounted on the bottom connecting branch ($\frac{3}{4}$ " RG).

It is recommended to use a $\frac{3}{4}$ " flex tube for the connection of the water connections to avoid possible vibration noise.

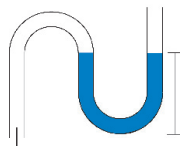
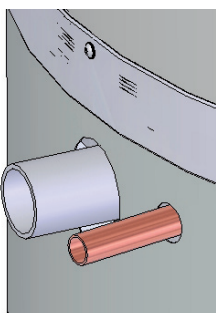


No holes for fittings or the like may be drilled in the product! Such would be able to damage the functionality of the product and cause the product to have to be scrapped!

3.3 Connection of condensate drain

While the Vanvex RS is running, some condensate will occur, which is to be fed to the sewage drain via the condensate drain. The quantity of condensate depends upon the humidity of the air going through the inlet to the Vanvex RS.

The condensate connecting branch must



be equipped with an air tight water trap, and run to a drain. The water trap must contain a water column of at least 60 mm.

It is also possible to use other airtight water traps, e.g. a hose with a winding. Use a reinforced hose and under

no circumstances a fabric hose. No condensate hose is delivered with the Vanvex RS. The hose must be secured on the condensate connection with a hose clamp so that it is firmly connected and water proof.



No holes for fittings or the like may be drilled in the product! Such would be able to damage the functionality of the product and cause the product to have to be scrapped!

3.4 Air intake, air exhaust and connections

Make sure that there is sufficient space around the Vanvex RS.

Inlet air

The inlet air may not be polluted with aggressive components (ammonia, sulphur, chlorine etc.) as parts in the system may be damaged.

Air connections

Inlet and outlet ducts must be made of rigid pipes to minimize pressure losses. Consider the fan working pressure and the duct pressure loss (see technical data).

It is advised to install the air ducts that are placed near the heat pump, levelled or with a light fall towards the inlet and extract air outlet to avoid leaking of condensed water. This will avoid leaking of condensed water from the ducts.

When air ducts are placed to the outside of the building, a back pressure valve (with a small resistance) should be placed to ensure that no cold air is entering the room in the winter time if the heat pump is not operating.

We recommend that all air ducts are insulated after they have been installed to reduce heat loss and noise level.

We recommend that a flexible connection is mounted between the air duct and duct connection, in consideration of a future service of the unit.



The heat pump may only be used with the boiler filled up!

The unit must always be disconnected from the power before the top cover of the Vanvex RS is removed!



When the unit is disconnected from the power, please wait until the fan has stopped before dismantling the top cover!

3.5 Connection of heat exchanger

In the heat boiler there can be a heat exchanger of 0,8 m² installed, which is enamelled outside. The connection is in 3/4" RG.

In the sensor pocket for the thermostat sensor there can also be placed a sensor to control the external connection e.g. wood burner etc. Max. diameter of the sensor is 6 mm.

When installing of the pipe system in the residence please dirt must be avoided in the system (clean the system with clean water before connecting of the heat pump)!

When installation of the pipes please ensure that the pipe connections are not twisted. Use a pipe wrench to keep the counter!

If the recirculation is not in use, it must be ensured the recirculation boss is fastened.

3.6 Rechecking

After the installation of the water system, it is recommended to ensure that the connections are sealed and that the drainage of the condensate is unobstructed.

4. Starting up / operation

4.1 Placement into service of the water circuit

Fill the boiler via the cold water connecting branch. Aerate the boiler by letting one of the hot water taps located at the highest level within the dwelling stand open until air no longer comes out with the water.

The boiler can normally hold 285 litres of water. The water installation must be tested after filling to make sure that it is not leaking.

In the hot water system the following materials may be used:

- Copper
- Stainless steel
- Brass
- Plastics

Special attention is required when using galvanized components and components containing aluminium.

4.2 Electrical connecting

Vanvex RS is delivered with a power connector and can be connected to the public electrical grid via a grounded outlet.

4.3 The cooling circuit

The cooling circuit is delivered ready to run and no work needs to be performed on it. The electronic controls automatically take over all functions concerning the operation of the compressor as well as the fan.

If needed, set the controls to the desired water temperature.

The factory setting is 50°C (see the operating instructions for more detailed directions).

4.4 Tips for energy savings

Do not set the water temperature higher than necessary.

The best utilisation of the Vanvex RS occurs at low water temperatures. The use of circulation will increase the energy consumption of the heat pump significantly.

4.5 Tips for fan operation

When using ductwork it may be necessary to run the fan on a higher speed to compensate for the pressure losses.

4.6 Rechecking

When the installation has been completed it is advised to check all connections etc. to ensure that they are tight and to check that condensate water can run to the drain unrestricted.

5. Fault finding

The domestic hot water heat pump is equipped with the following safety devices:

5.1 High pressure switch

To prevent the compressor exceeding its range of application, there is an integral high pressure switch, which interrupts when the pressure becomes too high. In case of interruptions (too high pressure) the red light in the control panel will flash and the high pressure switch will stop the heat pump. The red light lights.

When restarting the heat pump, the power to the heat pump must be switched off, before the reset button can be pressed. The heat pump can be restarted by pressing the red button on the high pressure switch. In order to gain access to the high pressure switch, the top cover has to be removed by removing the screws holding this.

5.2 Safety breakers for immersion heater:

The safety breakers protect the domestic hot water installation against overheating during heating with the immersion heater.

The safety breakers are mounted on the immersion heater. The corresponding sensor is in the sensor pocket of the water heater.

If the adjusted value (80°C) is exceeded the immersion heater will disconnect. It can be reconnected when the temperature is below 80°C. To do this, the power to the equipment must be off, front panel dismantled and the front cover of the immersion heater dismantled. Then the reset buttons can be pressed.

PLEASE NOTICE: Be careful not to damage or tear the cables to the control. For RESET press the small white pin in the centre.

5.3 The heat pump is not running

Please test the following:

Is the unit connected to the power?

Is the power turned on at the wall plug?

Is the heat pump switched off via the temperature sensor T8?

Is the temperature of the domestic hot water > 55°C?

Is the cable between controller and display connected?

If this does not help locating the error, please contact your local installer or service contractor.

6. Service / Maintenance

Maintenance please see operating instructions.



EF - Overenstemmelseserklæring
EC - Declaration of Conformity
EG - Konformitätserklärung

A. Fabrikant: **Genvex A/S**
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Herstiller: DK-6100 Haderslev
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Fax: +45 / 73 53 27 07
e-mail: salg@genvex.dk
web: www.genvex.dk

erklærer hermed, at følgende produkt/hereby certifies that the following product/beståigt, da das
nachfolgend bezeichnete Gerät:

B. Benævnelse: **Vanvex R/RS – brugsvandsvarmepumpe**
Type: **Vanvex R/RS – sanitary water heat pump**
Typ: **Vanvex R/RS – Brauchwarmwasser-Wärmepumpe**

C. Serie Nr.: 013088 / 013089
Serial number:
Bestell-Nr.:

ved forudsætning af at Genvex's montageanvisninger er fulgt / on the assumption that the mounting
instructions from Genvex have been followed / bei Voraussetzung dass die Montageanweisungen von
Genvex gefolgt wurden

er fremstillet i overensstemmelse med / is made according to /
über Einstimmung von nachfolgend bezeichnete EG-Sicherheitsstandards hergestellt:

- a) Rådets direktiv 2006/42/EF (Maskindirektivet). AT-bekendtgørelse nr. 612 af 25. juni 2008.
EU-Directive 2006/42/EC
EG-Maschinenrichtlinie 2006/42/EG
- b) Rådets direktiv 2006/95/EF (Lavspændingsdirektivet) af 12. december 2006. Bek. Nr. 797 17. august
2009
EU-Directive 2006/95/EC
EG-Niederspannungsrichtlinie 2006/95/EG
- c) Rådets direktiv 2004/108/EF (EMC-Direktivet) af 15. december 2004. Lovbekendtgørelse nr. 823 af
3. juli 2007
EU-Directive 2004/108/EC
EG-EMV-Richtlinie 2004/108/EG af den 15. december 2004
- d) Rådets direktiv 97/23 EF (Trykudstyrsdirektiv) af 29. maj 1997. AT- bekendtgørelse 743 af 23.
september 1999
EU-Directive 97/23/EC af den 30. maj 2002
EG- Druckgeräteverordnung 97/23/EG af den 29. mai 1997

Virksomhed:
Company:
Firma:

Sted og dato:
Place and date:
Ort und Datum:

Underskrift:
Signature:
Unterschrift:

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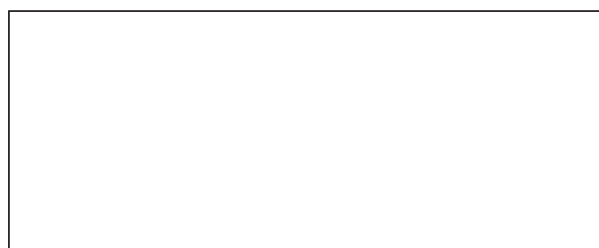
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