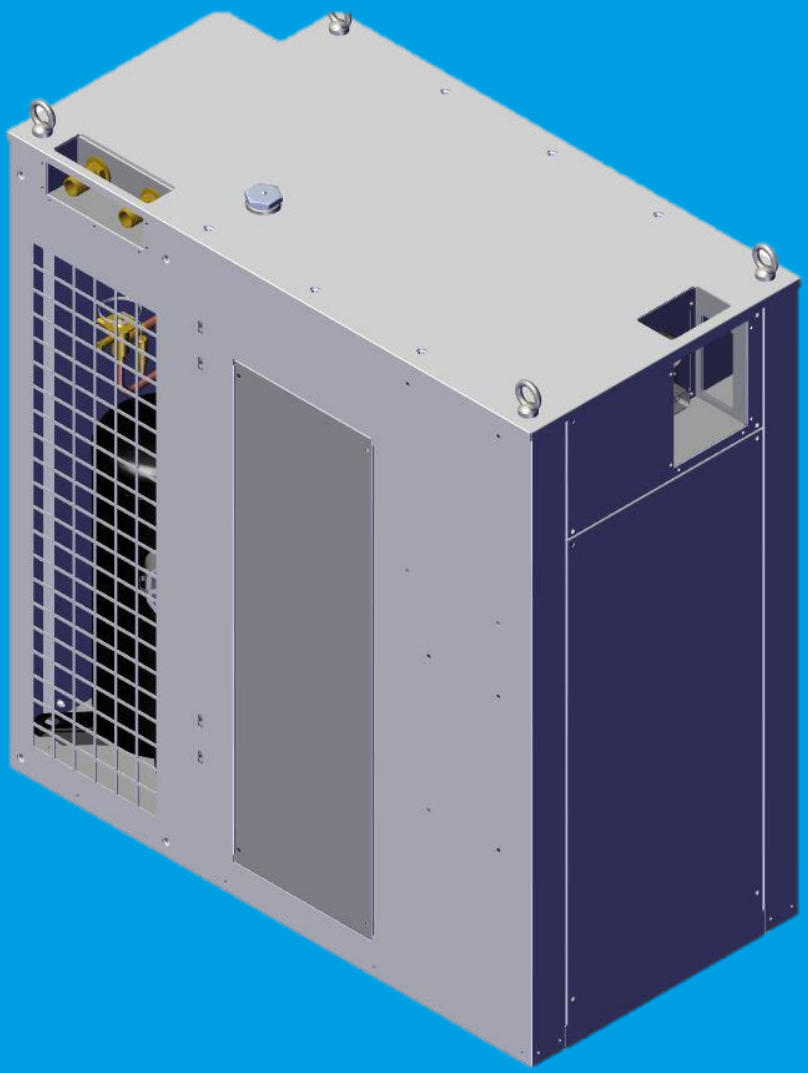
EN Quick instruction

Water chiller VLV 4 – VLV 12



Content

1. Introduction

This quick guide gives the instructions to start up the chiller. Please take care to read this guide before starting with any operation.

This guide is not included with trouble shooting, maintenance and decommissioning that are available in the full version of OPERATING AND MAINTENANCE INSTRUCTIONS available in the following link https://www.pfannenberg.com/en/service-support/manuals/

2. Safety instructions

Symbols in use

DANGER

Identifies an exceptionally hazardous situation. Severe, irreversible injuries or death will occur if this notice is not observed.

DANGER

Identifies an exceptionally hazardous situation in connection with electrical voltage. Severe, irreversible injuries or death will occur if this notice is not observed.

WARNING

Identifies an exceptionally hazardous situation. Severe, irreversible or deadly injuries could occur if this notice is not observed.

CAUTION

Identifies a hazardous situation. Minor or moderate injuries could occur if this notice is not observed.

NOTICE

Notice is used to address practices not related to physical injury.

Safety

The chiller instructions must be read by the installer and personnel in charge for operation, before starting the chiller.
All safety and security instructions given in this manual must be observed!
Only qualified personnel are allowed to install, operate and do the maintenance work.
Non-observance of the instructions may cause injuries and will cancel the manufacturer's liability for subsequent damage.
National regulations on accident prevention, regulations of the local power supply authorities as well as any specific safety instructions for chiller must be observed.
The safety of the unit is only guaranteed, if it is used as intended.
The following points must be observed before commissioning and while operating the chiller:

- Familiarize yourself with all operating controls.
- Make sure that all working limits indicated within unit label are observed.
- Use protective devices to check electrical insulation. Do not carry out any work on any part of the equipment that are live with wet clothing, hands and feet.
- Never spill or pour any cooling medium into the environment as this may cause health hazard.
- The components of the chiller must not be modified in any way.
- Disconnect the power supply and release pressure from any pressurized component before carrying out any service work on the Chiller.
- A qualified commissioning engineer must ensure that the chiller has been connected to the electrical mains in accordance with the standard EN 60204 and all other applicable national regulations.
- Ensure adequate ventilation.
- Hand protection: Safety gloves.
- Eye protection: Safety goggles.
- Body protection: Wear safety shoes

3. Residual risk

CAUTION

There are some residual risks after the installation of the unit that must be considered.

Residual risks according to 2006/42/CE Directive:

- The condenser has fins on his external surface, so there is the possibility for the operator to touch sharp edges during service of the unit.
- Although the unit is designed with all the possible safety requirements, in case of external fire there is the possibility that the internal pressure and temperature of the unit will increase in a dangerous and uncontrollable way; in that case use the extinguishing tools suitable for that conditions.
- Should be maintained according to the maintenance instruction (see chapter **Maintenance**) to avoid malfunctions in case of necessity (e.g. in case of external fire the pressure of the refrigerant circuit could rise to a critical value).
- For units without emergency switch-disconnector: chiller user must install the emergency switch-disconnector installation close to the chiller, in an accessible and clearly visible place, to allow emergency stop of the unit and safety for the operator.
- Even if in this manual is clearly indicated to switch off the unit before doing any maintenance or control operation, protection elements of the unit, as fixed panels, are not provided with safety devices that block the operation of the unit if they are not mounted, in that case the operator could be exposed to contact with internal rotating parts.
- In case of damage of fans protection grids, possible risk for the rotating part should be considered by the utilizer; in this situation the unit should be immediately switched off and repaired.

Residual risks according to 2014/68/UE Directive:

- Although the unit is designed with all the possible safety requirements, in case of external fire there is the possibility that the internal pressure and temperature of the unit will increase in a dangerous and uncontrollable way; in that case use the extinguishing tools suitable for that conditions.
- For the series production of the standard units of category I, the pressure resistance test (typically the hydrostatic pressure test) is made on a statistic base, not on all units.

This can be accepted, also considering all the safety devices mounted on the units.

- Even if the instructions contained in this manual are enough explanatory for safety, high pressure switches, to guarantee intervention in case of wrong filing, or in case of malfunction due to not controlled increase of pressure and temperature.

4. Responsibility

Hereby, the manufacturer declares that any form of liability will be refused if it can be attributed to improper use, unauthorized modifications or disregard of the instructions given in this manual.

The warranty expires as soon as one of the above conditions applies.

The customer / operator is obliged to provide this manual and all related documents to those responsible for installation, operation, maintenance and repair.

5. Check incoming materials

- Perform a visual inspection for transport damage when unpacking the chiller. Take note of any loose parts, dents, scratches, visible loss of liquid etc.
- Inspect and secure the packaging material for any loose functional parts before disposal.

External visible damages:

⌦ Report any damages to the freight carrier immediately and accept the material with reserve. Observe the "Terms for Cases of Damage".

⌦ Precise information about defects, must be provided for the handling of warranty claims. Always specify the type designation and serial number.

NOTICE

Internal not visible damages:

⌦ If the package is damage report any damages to the freight carrier immediately and accept the material with reserve. Observe the "Terms for Cases of Damage".

⌦ Internal damages should be notified within 8 days from the incoming date.

6. Product description

This Pfannenberg chiller is intended to cool down liquid. The frigorific circuit removes the heat from the water and rejects the condensing power to the ambient through the air ventilation circuit. The unit is complete of a hydraulic circuit with pump and atmospheric tank to pump the cold water to the user's device and back to the cooling circuit.

⌦ **Appendix I - Fig. 1** This is an example of a type label.
Important is the information of the chiller serial number, which is needed for all technical questions.

7. Transport

WARNING

For the operations of movement (with wooden pallet) it is necessary to use

- a) a forklift truck with proper load capacity and with forks longer than the base of the chiller. Avoid sudden movements which can damage the framework and the internal components.

⌦ **Appendix I - Fig. 2**

8. Unpacking the chiller

Each chiller is supplied on a wooden pallet, wrapped with protective film, strapped, and protected on lateral sides, rain film protection.

Store the chiller in a dry place, away from heat sources. All waste materials should be recycled in the appropriate manner.

9. Lifting

WARNING

For the operations of lifting is necessary a 4 leg chain lifting sling (provided by the customer).The 4 leg chain lifting sling must have the right size in order to lift the chiller's weight (the weight is indicated on the type label).
⌦ **Appendix I – Fig. 3**

10. .Decommissioning, disposal

10.1 Decommissioning and storage

WARNING

Danger of injury due to materials and substances

Improper work on the unit or opening of the refrigerant circuit can be damaging to health.
Always ensure that the unit is de-energized before working on the unit.
The unit must only be disposed of by qualified personnel and in accordance with applicable environmental regulations.

If the unit is no longer needed for a longer period, it must be disconnected from the voltage supply.
⌦ Ensure that improper start-up by third parties is not possible.

10.2 Final decommissioning or disposal

WARNING

Danger of accidents due to the heavy weight of the units

Uncontrolled movements of the unit during decommissioning can cause accidents.
Use suitable lifting equipment and secure unit to prevent accidents.
Also, secure assembled components.

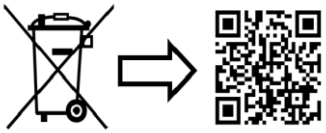
CAUTION

Danger of injury due to sharp edges

For manufacturing reasons, the metal edges of the unit may have burrs.
Wear gloves during service and assembly work.

If units are to be definitively decommissioned or disposed of, the following must be observed:
Applicable statutory regulations of the user country and environmental protection regulations must be observed.
Refrigerant must be professionally extracted from the refrigerant system. Avoid refrigerant emissions.
The unit must only be disposed of by authorized, qualified personnel.

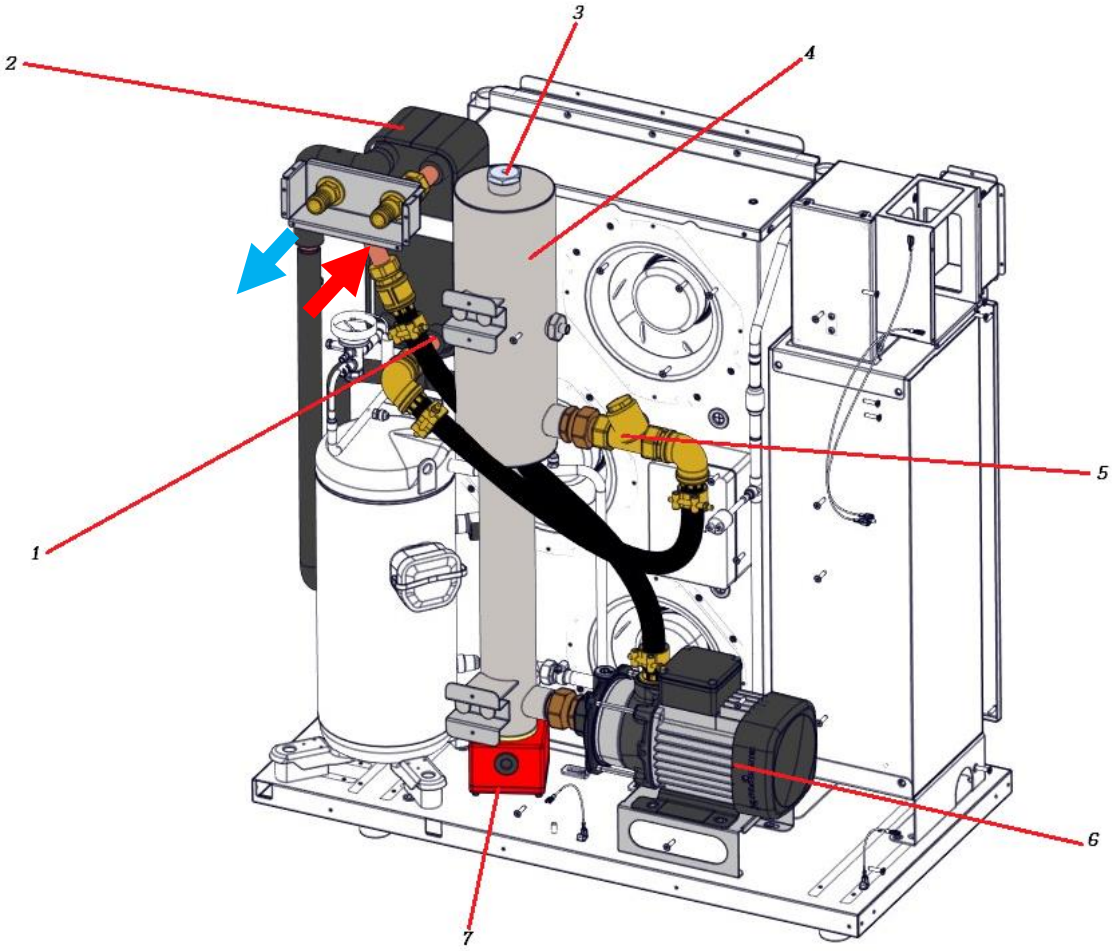
Waste equipment must also be disposed of correctly by Pfannenberg. Freight charges for delivery to one of our manufacturing facilities must be pre-paid.



www.pfannenberg.com/disposal

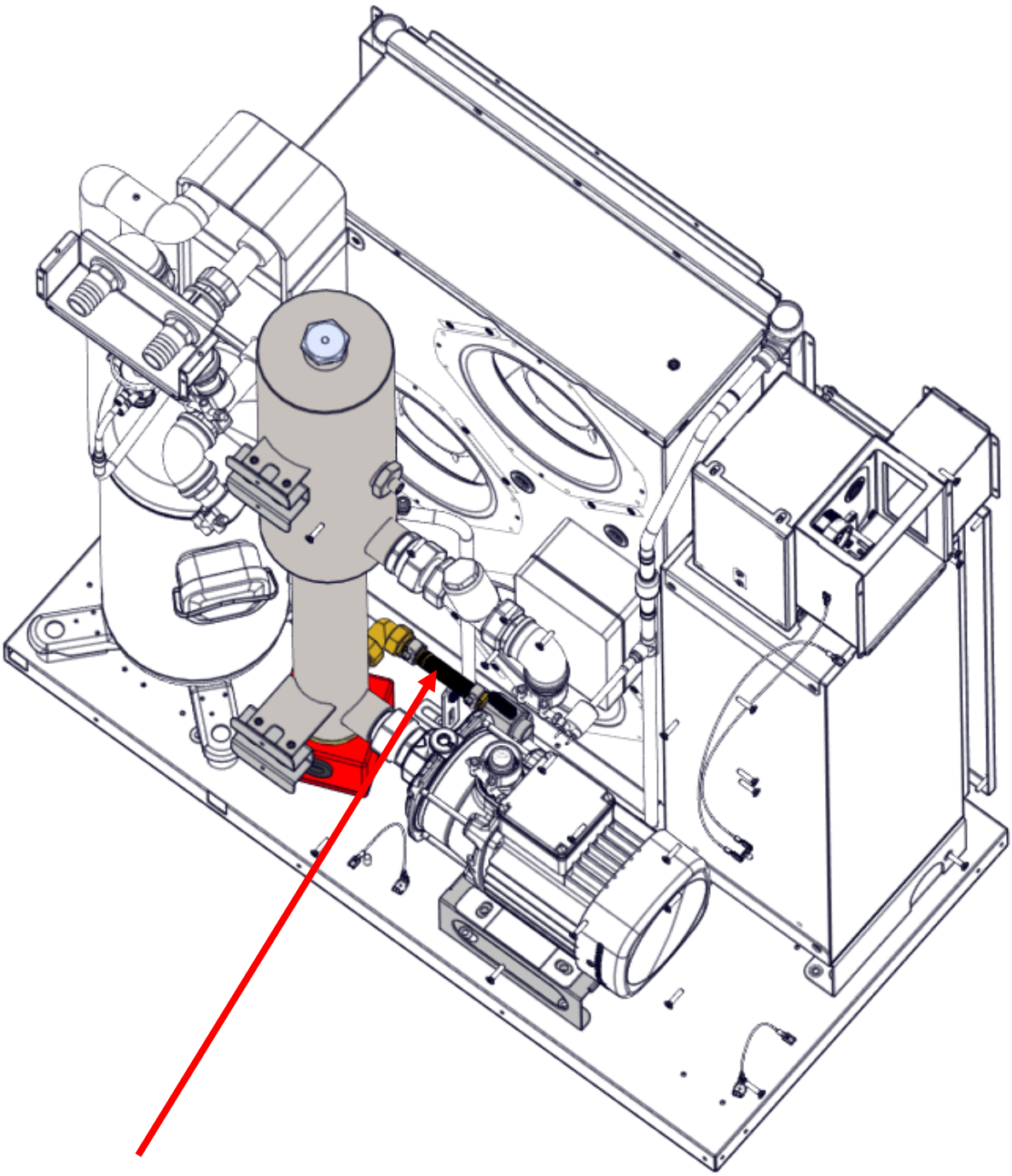
11. Installation

12. Hydraulic circuit



NUMBERS	*DESCRIPTIONS*
1	Outlet pipe (heat-exchanger)
2	Evaporator
3	Cap
4	Stainless steel tank
5	Y-strainer filter
6	Pump
7	Heater

13. Tank drain point



For proper operation of the unit the following minimum requirements for the hydraulic circuit must be observed.

- The chiller has been cleaned by means of specific cleaning products. Make sure that the pipes used do not contain dirt or processing residues; if in doubt, perform one or more cleaning cycles.
- Use pipes and fittings with same diameter of the circuit connections and with adequate resistance to the liquid pressure.

Filling the Tank

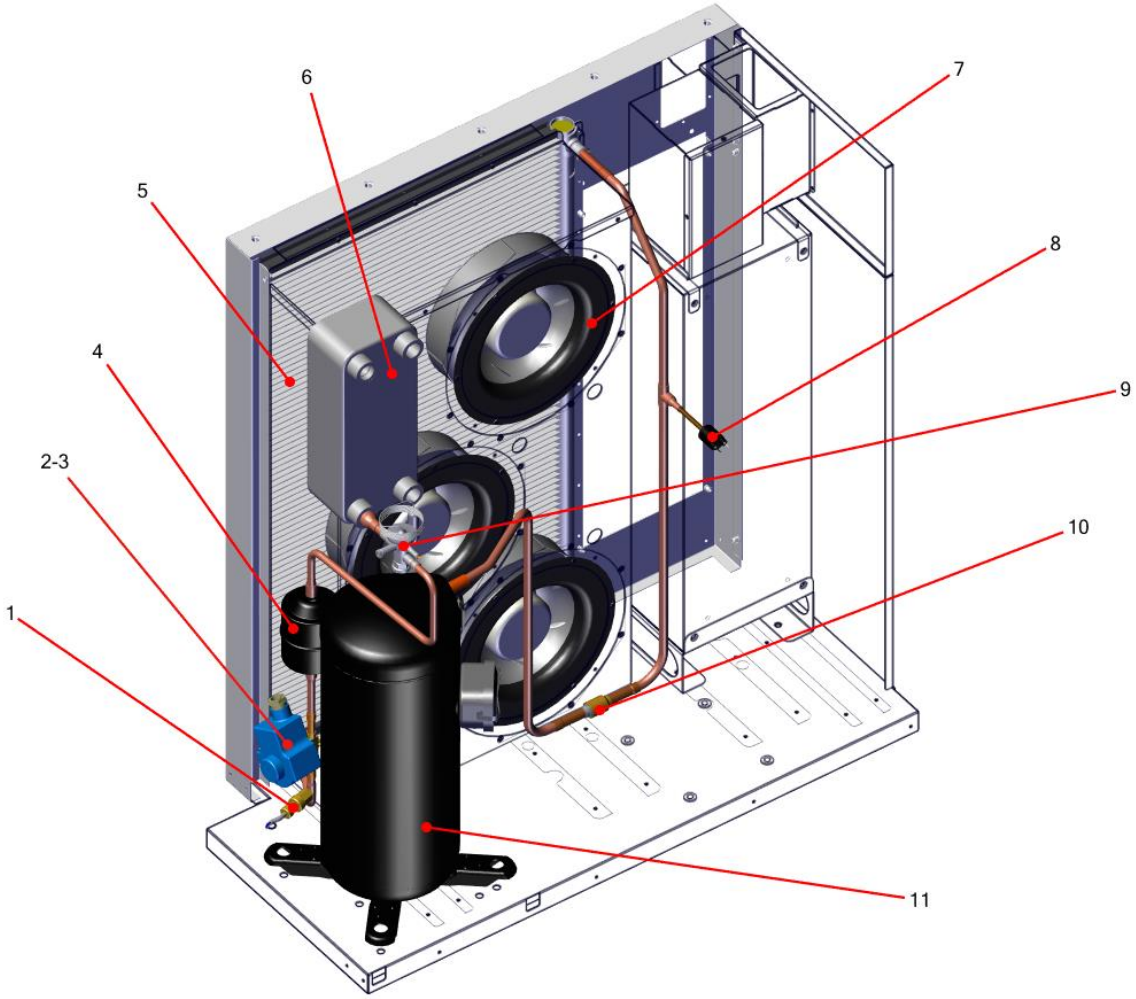
- Fill tank with coolant 50% water + 50% Dowcal 100 until the maximum level is reached as shown below (water quality and treatment should be established according to the application specifications)
- Chiller circuit is designed with non-ferrous materials: stainless steel, brass, copper, bronze, Polyethylene, rubber etc.
- To speed up the filling procedure it is recommended to fill-in the user circuit as well.

CAUTION

- Do not use any other glycol except *Dowcal 100*
- Do not use distilled water
- Do not use other fluids or additives which the chemical composition is not well known
- Fill the tank till the cap

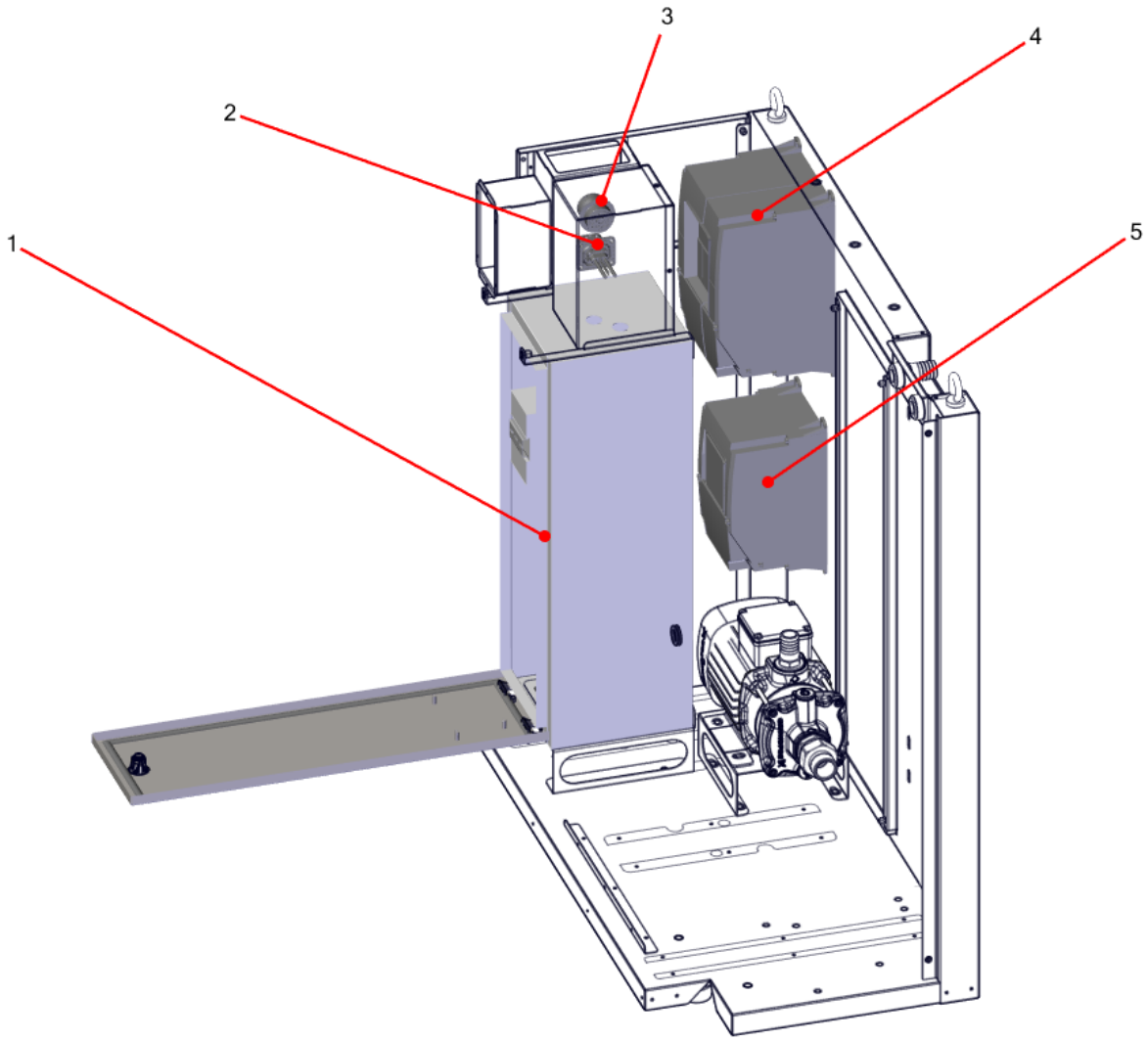
In case of any doubt contact Service Pfannenberg.

14. Refrigerant circuit



NUMBERS	*DESCRIPTIONS*
1	Pressure Transducer
2-3	Valve body / Solenoid
4	Filter drier
5	Condenser
6	Evaporator
7	Fans
8	High pressure switch
9	Thermostatic Valve
10	One-way valve
11	Compressor

15. Electrical circuit



NUMBERS	*DESCRIPTIONS*
1	E.Box
2	Power connections
3	Alarm connections
4	Inverter [Compressor – Heater]
5	Inverter [Pump]

DANGER

Life-threatening danger due to electric shock

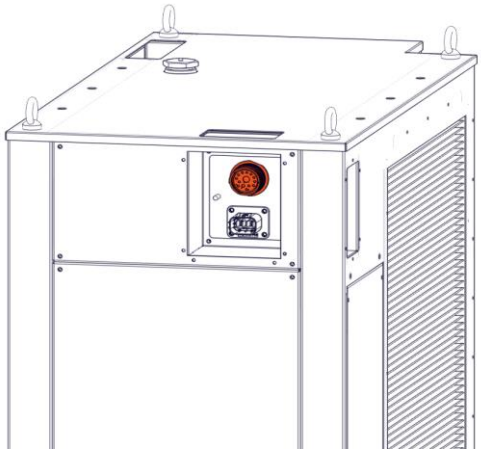
Live units and exposed connection cables can generate an electric shock and cause severe accidents.

➢ Work on electrical connections must be carried out exclusively by trained, qualified electricians.

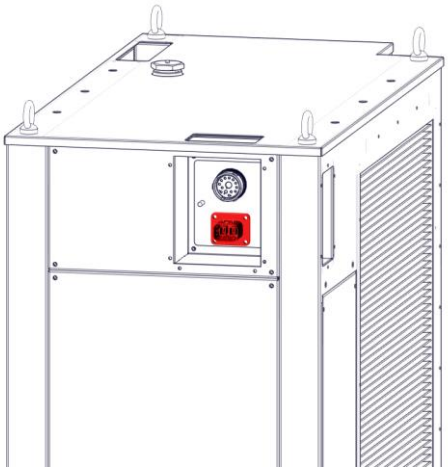
➢ Lightning protection of the unit (outdoor installation) must be carried out by qualified engineers.

- Electrical power supply cables should be carried into the electrical box and ensure by the connecting glands in the bottom side of electrical box.
- Connect the ground conductor yellow-green to the PE in the connection box.
- Connect the electrical power supply cables direct to the main switch QS0 following the right phase sequence.
- Do not switch on the electrical power the chiller if it has been moved from a cold to warm environment. Humidity inside the electrical devices could cause condense water and consequent damage.
- Check that the voltage supply is according to the electrical data in the type label.
- Check that the transformer of auxiliary circuit is correctly connected in conformity to the supply voltage and frequency.

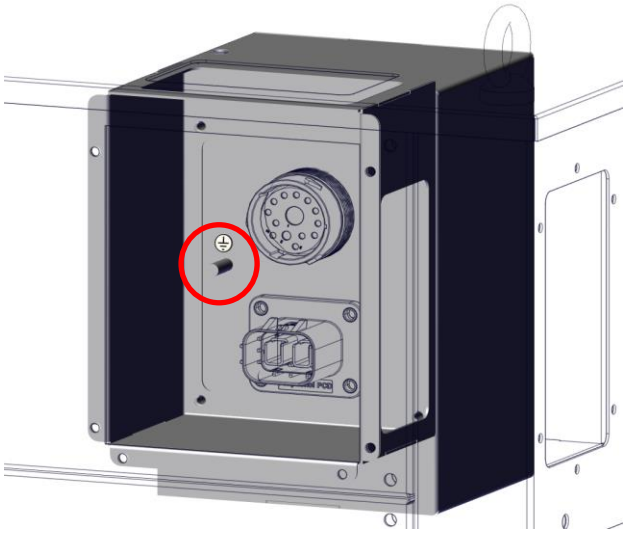
CONTROL CONNECTION



POWER CONNECTION



EARTH CONNECTION (M6 x 16)



16. Preparation before switching on the chiller

DANGER

Life-threatening danger due to electric shock

Live units and exposed connection cables can generate an electric shock and cause severe accidents.

- Work on electrical connections must be carried out exclusively by trained, qualified electricians.
- Lightning protection of the unit (outdoor installation) must be carried out by qualified engineers.
- Before work on the chiller for ANY KIND OF WORK OR MAINTENANCE turn off the general main switch, then wait at least 3 minutes.

Filling the Tank

1- Turn off the main switch of the user (the chiller has not the main switch), then wait at least 3 minutes.
2- Disconnect the control supply and the power supply
3- Unscrew the cap
4- Fill the tank till the cap with Dowcal 100 [50 % Vol.].
5- Close the cap
6- Reconnect the control supply and the power supply
7- Turn on the main switch
8- If the electrical level switch-off the unit repeat this procedure from point 1.

N°	Yes/No	Start-up Check list
1		Chiller is correctly placed and fixed with N°6 M10 Bolts *[Appendix I – Fig. 4 – 5]*
2		Hydraulic circuit has been cleaned up (pipes and final devices to be cooled)
3		Pipes cap has been removed before hydraulic connections
4		Water filter (if present) is clean and the the package of filter cartridge has been removed
5		Tank is filled to max level
6		Tank cap is present and tightened
7		Hydraulic pipes are installed at the right position in accordance with INLET-OUTLET identification plates and connections are tightened
8		Power supply cable, Earth conductors and alarm cable have been connected and tightened
9		All the fuse are switched in ON position
10		Electrical box is closed
11		All panels are assembled

If you answered to one or more question No, you must have to check again the instructions of INSTALLATION chapter and solve the issue.
If you answered Yes to all the questions the chiller is ready for the start up.
Now you can go to the next chapter “Switch on-off chiller”.

17. Switch on-off chiller

The chiller has been designed to run automatically.

Fluid Set-point is set at +32 °C (to modify this value refer to the Controller manual).

Supply the DC 24 Volt to the control circuit

Supply the DC 570/800 Volt to the power connector.

To switch on the chiller, turn on the main switch of the user (the chiller has not the main switch)

To stop the chiller, switch off the main switch of the user (the chiller has not the main switch)

At the following link you can find the complete Handling and Maintenance manual:

https://www.pfannenberg.com/en/service-support/manuals/

Attachements

To fulfil the operation instruction the following documents should be used:

- hydraulic diagram
- electrical diagram

NOTICE

The following documents will be provided with every chiller:

- Technical Datasheet (x1)
- Declaration of conformity (x1)
- Hydraulic diagram(x1)
- Electrical diagram(x1)
- Quick Instruction Manual (x1)

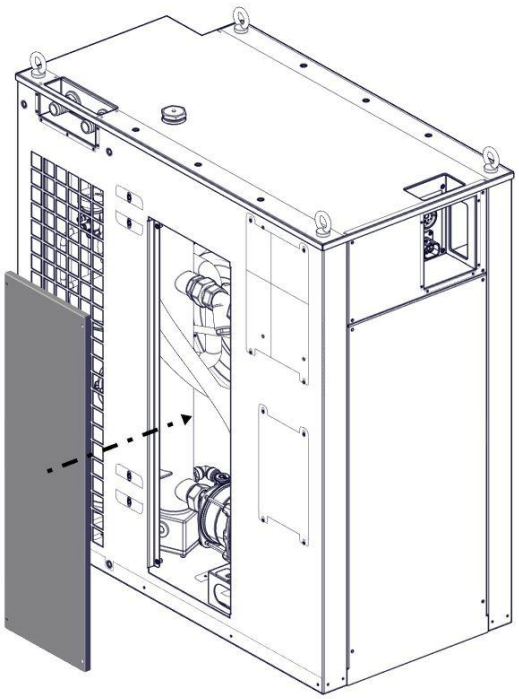
18. Service Panels

DANGER

Life-threatening danger due to electric shock

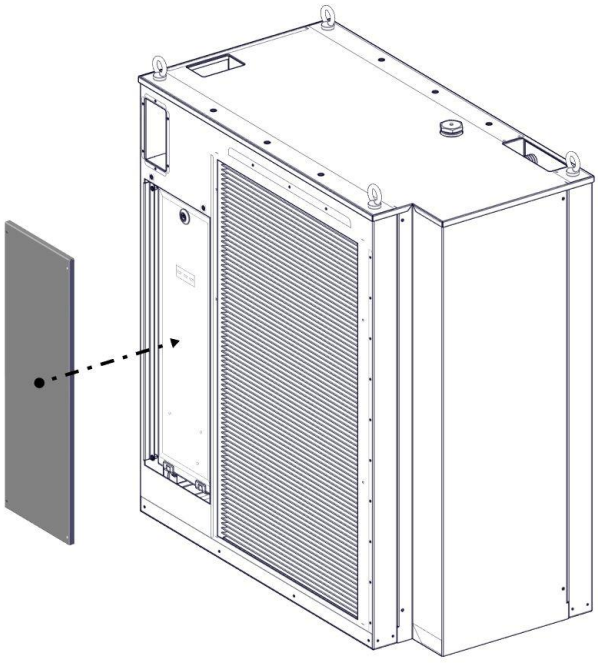
Live units and exposed connection cables can generate an electric shock and cause severe accidents.

- ➢ Work on electrical connections must be carried out exclusively by trained, qualified electricians.
- ➢ Lightning protection of the unit (outdoor installation) must be carried out by qualified engineers.
- ➢ Before work on the chiller for ANY KIND OF WORK OR MAINTENANCE turn off the general main switch, then wait at least 3 minutes and disconnect the power supply cable and the control supply cable.



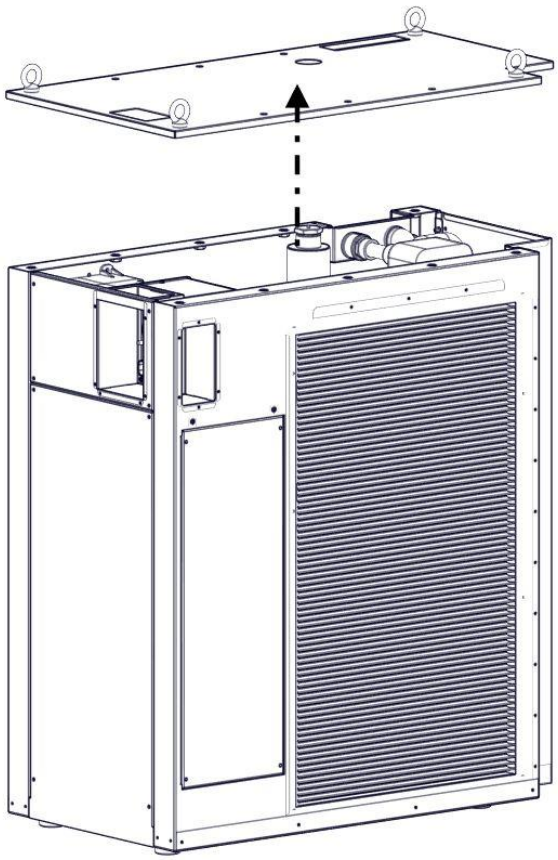
Removing this service panel you have access to:

- Pump
- Y-strainer filter



Removing this service panel you have access to:

- Electrical Box



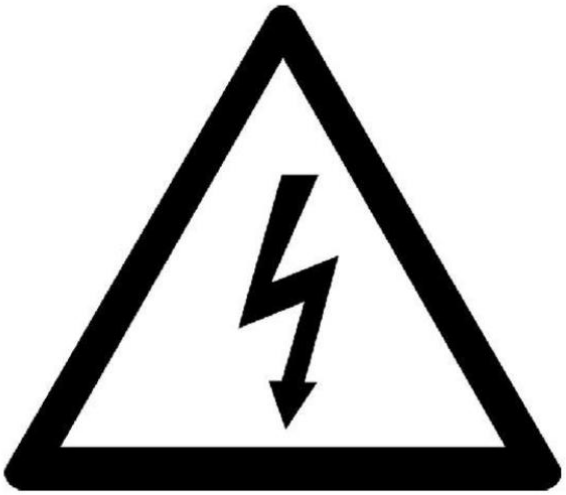
Removing this service panel you have access to:

- Thermostatic valve
- High temperature thermostat for heater protection
- Fuse
- Contactor (Compressor/Heater)
- DC/DC conv. For fans.
- Fans fuse

19. Labels descriptions

1- Cutting hazard safety label

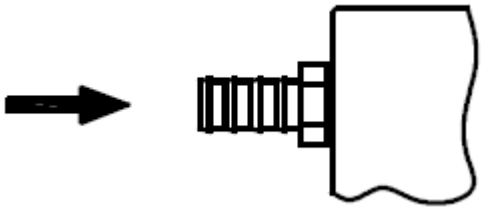
2- Dangerous voltage safety label



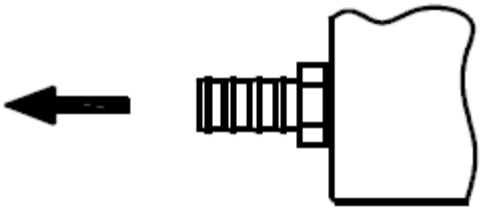
DANGER

Dangerous voltage may exist for 3 minutes after removing power

3- Inlet connection label



4- Outlet connection label



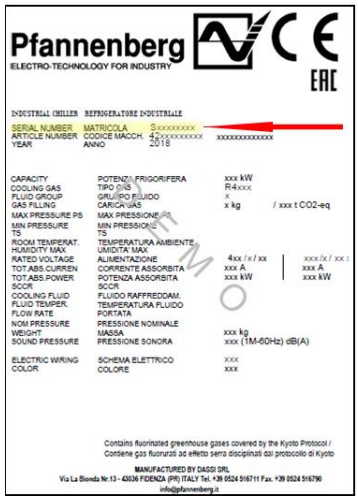
5- Hazard voltage [lightning] safety label

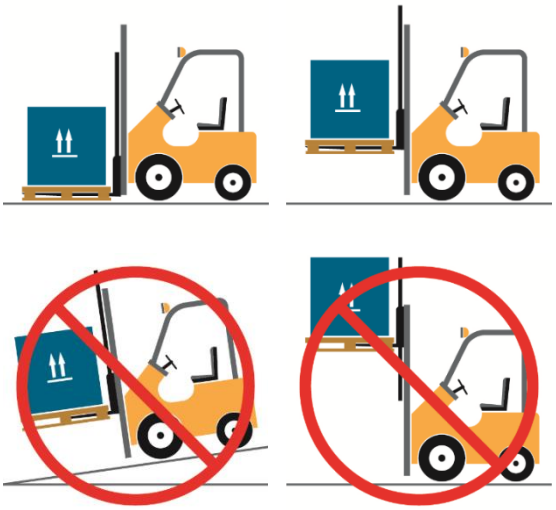
6- Turn off the power before work on the chiller safety label

7- Use only ethylene/polypropylene glycol label

8- Eyebolts fixing points safety label

Appendix I





DOCUMENT REVISION HISTORY			
Date	**Revision**	**Description**	**Name**
16/09/20	**00-_**	**First Release**	**L.Z**
15/12/20	**01-A**	**Added labels descriptions and tank drain point**	**L.Z**
02/05/2022	**01-B**	**Added WEEE regulation**	**PP**
01/09/2022	**01-C**	**updated machine images**	**PP**

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All information contained was thoroughly checked 2019.
However, we make no guarantee as to the completeness and correctness of the specifications.

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