



# INSTALLATION MANUAL

GROUND SOURCE INVERTER HEAT PUMP **IGLU Aleut I / Aleut WTI**



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**Correct Disposal of This Product**  
**(Waste Electrical & Electronic Equipment)**



**(Applicable in countries with separate collection systems)**

This marking on the product, accessories or literature indicates that the product and its electronic accessories should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

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# 1.Important safety instructions



This manual contains critical safety instructions for the installation, operation, and maintenance of the IGLU Aleut Heat Pump. These instructions must be followed exactly to ensure safe and correct operation.

Installation and servicing of the IGLU Aleut must be performed only by IGLU TECH Certified Installers. The unit involves pressurized refrigerants and high-voltage components, requiring qualified technical expertise.

IGLU TECH assumes no liability for injury, equipment damage, or property loss caused by unauthorized servicing or failure to follow the instructions provided. All warnings and cautions included in this manual must be strictly observed.

## Product specifications

All specifications and descriptions in this document are accurate as of the time of printing. However, because IGLU TECH is committed to continuous improvement, we may make product modifications at any time. The images in this document are for demonstration purposes only. Product details may vary slightly depending on the version and region.

## Errors or omissions

If you notice any inaccuracies or omissions in this manual, please email us at: [info@iglutech.eu](mailto:info@iglutech.eu)

## Meaning of warnings and symbols

| Symbol / Label                                                                      | Meaning                                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>WARNING:</b> indicates a hazardous situation which, if not avoided, could result in injury or death.                                  |
|  | <b>CAUTION:</b> indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.          |
|  | <b>NOTE:</b> indicate an important step or tip that leads to the best results but is not safety or damage related                        |
|  | <b>REFER TO OPERATING INSTRUCTIONS:</b> indicates that the user should refer to operating or installation instructions before proceeding |
|  | <b>RISK OF ELECTRIC SHOCK:</b> indicates components that present the risk of electrical shock.                                           |
|  | <b>WARNING: FLAMMABLE MATERIAL</b>                                                                                                       |

## **2.About this document**

### **2.1 Introduction**

This installation manual provides information on the installation of the IGLU heat pump. It is an integral part of the product and must be easily accessible to the installer. The manual must be available throughout the life of the device. In the event of a change in the owners of the device, the manual must be passed on to the new owners or users.

Read the instructions before installing the heat pump. Follow all instructions as specified by the manufacturer.

If you have any questions, please contact the company that performs the installation of heat pumps or your local manufacturer's representative.

This installation manual was written for several types of devices; you must always follow the parameters applicable to the respective type of equipment.

### **2.2 Purpose**

The manual is intended only for people who install the devices. Treat all constituents responsibly. The heat pump may only be used for its intended purpose, which means:

- Heating
- Domestic hot water preparation
- Cooling

The device can only be operated according to its technical parameters.

### **2.3 Liability**

The manufacturer shall not be liable for damage caused by improper use or installation of the heat pump. The manufacturer's liability shall also not apply:

- If work has been performed that differs from the specifications in these operating instructions.
- If work has been carried out on the equipment which is not described in this manual, or which has not been approved in writing by the manufacturer.
- If the equipment or its components have been modified, altered, or removed without the written consent of the manufacturer.

If the heat pump does not operate in proper conditions or is not used properly, the present rules and requirements are not followed or the checks are not performed, the manufacturer shall not bear liability for the operation of the product. The heat pump operator must take precautions to prevent accidents and injuries to bystanders. The user is responsible for the safety of the heating system and compliance with environmental protection requirements.

If a fault is detected, it is necessary to react promptly, within a reasonable time and as provided in this user manual, because failure to rectify a fault in a timely manner may result in other faults or damage.

If the fault or other actions were carried out by an unqualified worker and in prejudice to the rules, the manufacturer cannot be held liable for the consequences and the warranty obligations may no longer apply.

The warranty does not apply to normal wear and tear, external damage due to improper maintenance or negligence.

## **2.4 Warranty**

The product is covered by an IGLU TECH manufacturer's warranty.

To maintain warranty coverage, it is essential that the product is installed, operated, and maintained strictly in accordance with the instructions and requirements provided in this manual. Failure to comply with these instructions — including improper installation, unauthorized modifications, use of non-approved components, or lack of maintenance — will void the warranty.

Details regarding the warranty and post-warranty periods, including all applicable terms and conditions, are provided in the purchase documents.

## **2.5 Product packaging and transportation**

After purchasing a heat pump:

- Inspect the delivered product for external damage during delivery.
- In the event of delivery defects, submit a claim to the company that sold the device immediately.

The heat pump may only be transported and stored in an upright position. The device can only be temporarily tilted, not laid down. The device can be stored at a temperature no lower than 10 °C.

## **2.6 Display of energy consumption, energy yields and efficiencies.**

The product, the system control and the app show approximate values for energy consumption, energy yields and efficiencies, which are extrapolated based on calculation algorithms. The values that are displayed in the app may differ from the other display options due to staggered transfer intervals. The determined values depend on:

- Installation and system of heating installation
- User behaviour
- Seasonal weather effects
- Various tolerances of unit-internal components

The recording of the values only includes the product in the factory-delivered condition. Supplementary accessories, even if they are installed on the product, as well as any other components in the heating system and other external consumers, are not part of data recording. Deviations between the determined values and the actual values may be significant. The determined values are therefore not suitable for creating or comparing energy billing, for example.

### 3. Applicability of the Installation Manual

The Installation Manual is applicable to the following units:

| Model             | Model Code      |
|-------------------|-----------------|
| IGLU Aleut 4 WTI  | AS004IWNNNNSra  |
|                   | AS004IWNPNNNSra |
|                   | AS004IWNNNNNTra |
|                   | AS004IWNPNNNTra |
|                   | AS004IWNNNNNSna |
| IGLU Aleut 7 WTI  | AS007IWNNNNSra  |
|                   | AS007IWNPNNNSra |
|                   | AS007IWNNNNNTra |
|                   | AS007IWNPNNNTra |
|                   | AS007IWNNNNNSna |
| IGLU Aleut 12 WTI | AS012IWNNNNNTra |
|                   | AS012IWNPNNNTra |
|                   | AS012IWNNNNNSna |
| IGLU Aleut 18 WTI | AS018IWNNNNNTra |
|                   | AS018IWNPNNNTra |
| IGLU Aleut 4 I    | AL004INNNNNSra  |
|                   | AL004INANNNSra  |
|                   | AL004INNNNNNTra |
|                   | AL004INANNNTra  |
|                   | AL004INNNNNNSna |
| IGLU Aleut 7 I    | AL007INNNNNSra  |
|                   | AL007INANNNSra  |
|                   | AL007INNNNNNSna |
|                   | AL007INNNNNNTra |
|                   | AL007INANNNTra  |
| IGLU Aleut 12 I   | AL012INNNNNNTra |
|                   | AL012INANNNTra  |
|                   | AL012INNNNNNSna |
| IGLU Aleut 18 I   | AL018INNNNNNTra |
|                   | AL018INANNNTra  |

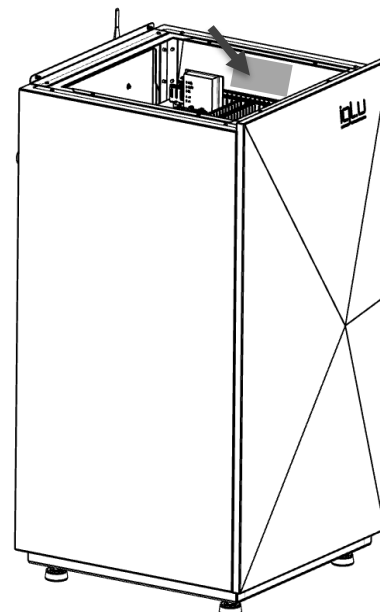


#### NOTE

The exact model code can be found on the internal product label attached to the unit itself or on the packing box label.

## The sequence of IGLU TECH products configuration

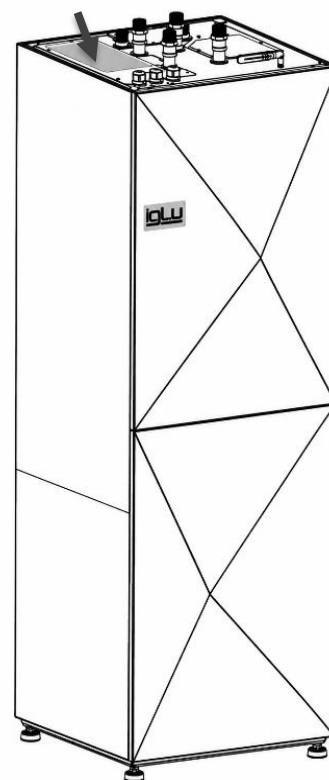
X1 – IGLU Aleut/IGLU Aleut WT/IGLU Aleut I/IGLU Aleut WTI – AL;  
 X1 – IGLU ALEUT WTI (598x674x1876) – AS;  
 X1 – IGLU Inuit /IGLU Inuit WT – IN;  
 X1 – IGLU Inuit WT (598x674x1876) – IS;  
 X1 – IGLU Max – MA;  
 X1 – IGLU Inuit Mono/IGLU Inuit Mono WT – MB;  
 X2 – Capacity of pump – 5/7/9... kW;  
 X3 – Kind of compressor (I – inverter/F – fixed speed);  
 X4 – Water tank – (W);  
 X5 – Active cooling – (A);  
 X6 – Passive cooling – (P);  
 X7 – Construction – Split (S);  
 X8 – Unit location – Inside/Outside, (I/O);  
 X9 – Energy supply:  
     Sr - single phase 1P 230 V;  
     Tr - triple phase 3P 400V;  
     Sn – single phase to north 2P 230 V;  
     Tn – triple phase to north 3P 230 V;  
 X10 – Agent (R 410A – a; R 407C – b; R32 – c; R 290– d);  
 N – not applicable;



### Product label with the serial number and QR code

The serial number and QR code of the IGLU Aleut heat pump are located:

- On the top of the unit (Aleut WTI model)
- Inside the unit, accessible after removing the top panel (Aleut I model)
- On the packaging box (Aleut WTI and Aleut I models)



### An example of the full code of a specific heat pump model:

| X1 | X2  | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 |
|----|-----|----|----|----|----|----|----|----|-----|
| AS | 007 | I  | W  | N  | P  | N  | N  | Sr | a   |

## 4. Safety precautions

The device is safe to use as intended. The construction and design of the device comply with all safety regulations. Prior to starting work, any person involved must read and understand the operating instructions. This also applies if the person concerned has already worked on such or similar equipment or has been trained by the manufacturer. Any person carrying out installation work must meet the health and safety requirements that apply everywhere. This is especially true when using personal protective equipment.



### **WARNING!**

Work on the device and its components may only be carried out by qualified specialists (heating, refrigeration, coolant technicians and electricians).



### **CAUTION**

Observe the safety signs on and inside the device

### 4.1 General Safety Information



Carefully follow the precautions listed below because they are essential to guarantee the safety of IGLU TECH products.

- Carefully read the content of this manual before installing the ground source heat pump and store the manual in a safe place in order to be able to use it as a reference after the installation.
- All materials supplied in this manual are indispensable for the safety of the equipment. Users shall establish appropriate safety and health practices and determine the applicability of regulatory limitations based on the following descriptions before use.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the ground source heat pump is not installed in an easily accessible area (vandalism/ sabotage/ other harmful activities).
- For maximum safety, installers shall always carefully read the warnings mentioned in this installation manual.
- Store the user and installation manual in a safe location and remember to hand it over to the new owner if the ground source heat pump is sold or transferred of ownership.
- Make sure installation, testing and applied materials comply with applicable legislation.
- Wear adequate personal protective equipment (protective gloves, safety glasses,...) when installing, maintaining or servicing the system.
- The manufacturer shall not be responsible for damages arising from noncompliant units or parts.
- The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and hydraulic lines. Failure to comply with these instructions or to comply with the requirements outlined in the "Operating limits" indicated in the manual shall immediately invalidate the warranty.
- To prevent serious system damage and user injuries, precautions and other notices shall be observed.

- Do not use the units if you see some damages on the units and recognize something problematic such as loud noise or smell of burning.
- To prevent electric shocks, fires or injuries, always stop the unit, ultimately rendering the product powerless. Contact to technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- Always remember to inspect the unit, electric connections, refrigerant pipework and protections regularly. These operations shall be performed by qualified personnel only.
- Always make sure that the power supply is compliant with local safety standards.
- Be sure not to perform power cable modification, extension wiring, and multiple wire connection. It may cause electric shock or fire due to poor connection, poor insulation, or current limit exceedance.
- The unit contains moving and electrical parts, which should always be kept out of the reach of children.
- Do not attempt to repair, move, alter or reinstall the unit by unauthorized personnel. These operations may cause product damage, electric shocks, and fires.
- All the materials used for the manufacturing and packaging of the ground source heat pump are recyclable.
- The packing material and must be disposed of in accordance with local regulations.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the appliance use by a person responsible for their safety. Children should be supervised to ensure they do not play with the appliance.
- Do not use means to accelerate the defrosting operation or to clean, other than those recommended.
- Be aware that refrigerants may not contain an odour.
- Determine the installation location regarding the conditions cited in this reference guide and obtain the user's approval.
- The outdoor unit must not be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.
- Do not pierce or burn.

## 4.2 Selection of the installation place

- Provide sufficient space around the unit for servicing and air circulation (see "installation dimensions and clearances" section)
- Make sure the installation site withstands the weight and vibration of the unit.
- The device must be mounted on a flat and stationary surface with a permissible load of at least 500 kg (static load). Minor surface irregularities can be compensated by adjusting the feet of the device.
- Make sure the unit is level.
- Do not use extra platforms.
- There must be no aggressive chemicals in the environment.
- There are no sources of ignition such as dust, gases, vapours or naked flames at the installation site.
- **Do NOT** install the unit in the following places:
  - In potentially explosive atmospheres.
  - In places where there is machinery that emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
  - In places where there is a risk of fire due to the leakage of flammable gases (example:

thinner or gasoline), carbon fibre, ignitable dust.

-In places where corrosive gas (example: sulphurous acid gas) is produced. Corrosion of copper pipes or soldered parts may cause the refrigerant to leak.

- When choosing the installation place of the heat pump, keep in mind that the heat pump produces a certain level of noise (see Technical Data Sheet).
- Never install the appliance directly below or next to bedrooms.
- The heat pump should not be installed close to walls; the front of the unit should always be accessible.
- The ambient temperature near the heat pump must be between 10°C and 35°C, and the relative humidity must not exceed 80%.
- Make sure the area is well ventilated. Do NOT block any ventilation openings
- A drainage system must be provided in the room where the unit is installed. In this case, leaking water can be drained.
- Please take note and adhere to the applicable local standards, guidelines, and regulations, particularly concerning the minimum required volume based on the refrigerant capacity of the heat pump system (EN 378-1)

| Refrigerant | Limit                  |
|-------------|------------------------|
| R 410 A     | 0,44 kg/m <sup>3</sup> |

$$\text{Minimum room volume} = \frac{\text{Refrigerant capacity [kg]}}{\text{Limit [kg/m}^3\text{]}}$$

#### 4.3 Sound emissions

- The installation site should not be located in a corner or close to a bedroom or living space. The surrounding walls may amplify the noise of the appliance.
- Ensure that the entire appliance frame is in full contact with the substrate. Uneven substrates can increase sound emissions.
- Avoid installation on large, echoing floor areas, e.g. tiled floors.
- Implement pipe outlets through walls and ceilings with anti-vibration insulation.
- Secure the supply lines with structure-borne noise attenuation on noise-sensitive walls.
- Align the appliance feet.
  - For installation on floating screeds, make provisions for quiet heat pump operation.
  - Isolate the installation surface around the heat pump by means of a recess. After completing the installation, seal the recess with a waterproof, sound insulating material, such as silicone.

#### 4.4 Refrigerant – in case of R410A



##### **WARNING**

The unit contains coolant!

If the coolant leaks, it poses risk to people and the environment, therefore, you must:

- turn off the system;
- make sure the installation room is well ventilated;
- Do not release refrigerant into the environment.
- inform the manufacturer's customer service.



### CAUTION

The refrigerant circuit is factory sealed. It must not be opened or serviced except by certified personnel, in compliance with applicable legislation - EN 378, EU F-Gas regulation



### WARNING

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
  - Do NOT touch any accidental leaking refrigerant.
- 
- NEVER pressurize the product with a pressure higher than the maximum allowable pressure (as indicated in the Technical Data Sheet).
  - Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, ventilate the area immediately. Possible risks:
    - Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.
    - Toxic gas might be produced if refrigerant gas comes into contact with fire.
  - ALWAYS recover the refrigerant. Do NOT release them directly into the environment. Use certified recovery equipment and vacuum pumps.
  - To avoid compressor breakdown, do NOT charge more than the specified amount of refrigerant.
  - When the refrigerant system is to be opened, refrigerant MUST be treated according to the applicable legislation.
  - In case recharge is required, see the nameplate of the unit. It states the type of refrigerant and necessary amount.
  - Only use tools exclusively for the refrigerant type used in the system, this to ensure pressure resistance and prevent foreign materials from entering into the system.
  - Open refrigerant cylinders slowly.
  - Charge the refrigerant in liquid form. Adding it in gas form may prevent normal operation
  - When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately. If the valve is NOT closed immediately, remaining pressure might charge additional refrigerant. **Possible consequence:** Incorrect refrigerant amount.

## 4.5 Brine Handling and Safety

- The selection of the brine MUST be in accordance with the applicable legislation.
- Use only approved antifreeze solutions (e.g. ethylene glycol or propylene glycol, depending on local regulations).
- Take sufficient precautions in case of brine leakage. If brine leaks, ventilate the area immediately and contact authorized service personnel.
- In case of a brine leak, contact with leaked brine or hot parts inside the unit can create a hazardous situation.
- The use and installation of the application MUST comply with the safety and environmental precautions specified in the applicable legislation.
- A dirt strainer must be fitted on the return line from brine system, as close to the heat pump as possible.

## 4.6 Heating and Domestic Hot Water Circuit Safety

- Heating systems may contain suspended solids (e.g. rust, sludge, magnetite). To ensure long service life and reliability, system water must be kept as clean as possible.
- If magnetite is expected, the system should be cleaned and a magnetic filter installed.
- A dirt strainer must be fitted on the return line from the heating system, as close to the heat pump as possible.
- Chemical or oil contamination of the water circuit must be avoided.
- In areas with hard water, a softening filter may be necessary to reduce scale formation and protect components.
- Only potable water that complies with the applicable national drinking water quality requirements and the requirements of Directive (EU) 2020/2184 on the quality of water intended for human consumption shall be supplied to the domestic hot water (DHW) tank.

## 4.7 Electrical safety



### **DANGER!**

Danger of fatal injuries due to electric shock.

The electrical connection may only be installed by a qualified electrician.

Always disconnect the power supply of the Ground Source Heat Pump before servicing it or accessing components inside the unit.

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- A main switch or other means of disconnection, with contact separation in all poles and providing full disconnection under overvoltage category III conditions, must be installed in the fixed wiring at the user's distribution panel.
- ONLY use copper wires.
- Make sure the field wiring complies with the applicable legislation.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required fuses or circuit breakers.
- Make sure to install an earth leakage protector. Failure to do so may cause electrical shock or fire.
- When installing the earth leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the earth leakage protector.
- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.

- When disconnecting the power supply: disconnect the current-carrying cables first, before separating the earth connection.
- The length of the conductors between the power supply stress relief and the terminal block itself must be as such that the current-carrying wires are tautened before the earth wire is in case the power supply is pulled loose from the stress relief.
- Do NOT connect wiring of different thicknesses to the power terminal block (slack in the power wiring may cause abnormal heat).
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will damage the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.
- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting up the unit.

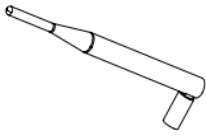
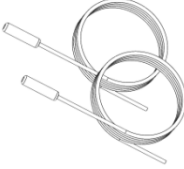
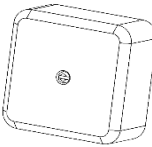
## 5. Handling the box



### NOTE

- Upon receipt of the product, carefully inspect the packaging and unit for any visible transport damage. Any damage or missing parts must be reported immediately to the distributor or supplier before installation or storage
- After inspection, keep the product in its original or equivalent protective packaging to prevent mechanical damage, dirt, or moisture ingress. The unit must remain covered and protected until final installation.
- The product weighs over 50kg, make sure that the product is carried by at least two people, or use suitable lifting equipment when moving the unit.
- Use approved lifting and transport equipment, that complies with your local safety regulations.
- During transport, do not tilt the heat pump by any more than the maximum angle of 45°, to prevent oil or refrigerant displacement inside the compressor.
- Follow your workplace's risk assessment and safe working practices when lifting or handling the product.
- Keep all supplied accessories together with the unit until installation is completed.
- After installation, hand over the installation and user manuals to the customer.

## 5.1 Accessories IGLU Aleut I / Aleut WTI

| Installation manual (1)                                                           | User manual (1)                                                                   | Technical Data sheet (1)                                                            |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |
| Wi-Fi Antenna (1)                                                                 | Temperature sensor (2)                                                            | Internal Temperature sensor box (1)                                                 |
|  |  |  |
| Anti-vibration mount (4)                                                          | Outdoor temperature sensor box (1)                                                |                                                                                     |
|  |  |                                                                                     |

\*Aleut I series models include three temperature sensors in the accessory box.

## 6. Unit installation

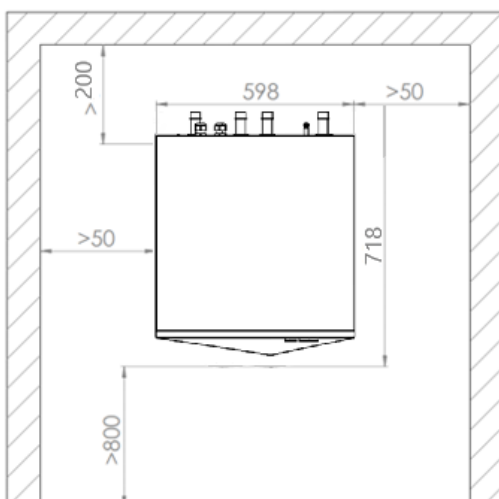
### 6.1 Installation dimensions and clearances



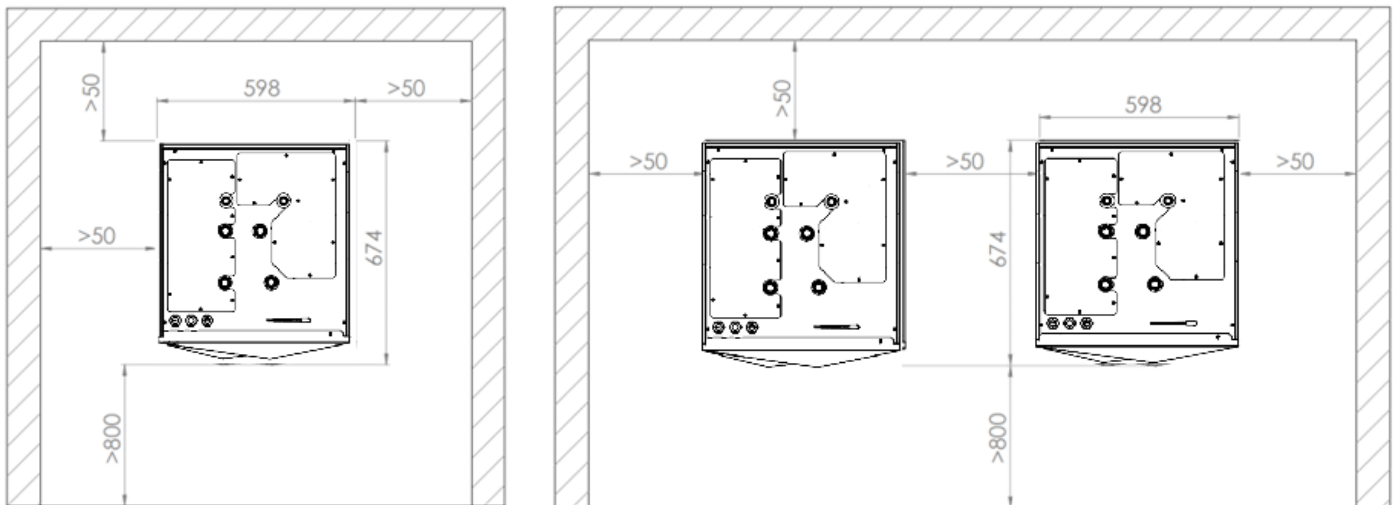
#### CAUTION

- The units must be installed according to distances declared, in order to permit accessibility from each side, to guarantee correct operation of maintenance or repairing of the products. The unit's parts must be accessible and serviceable under safe working conditions (for people or things).
- When selecting the installation site, refer to the section "*Selection of the Installation Place.*"

### IGLU ALEUT I without integrated water tank (598x718x1106)



## IGLU Aleut WTI with integrated water tank (598x674x1876)



### 6.2 Opening ALEUT I unit

Normally the unit should remain closed, except for:

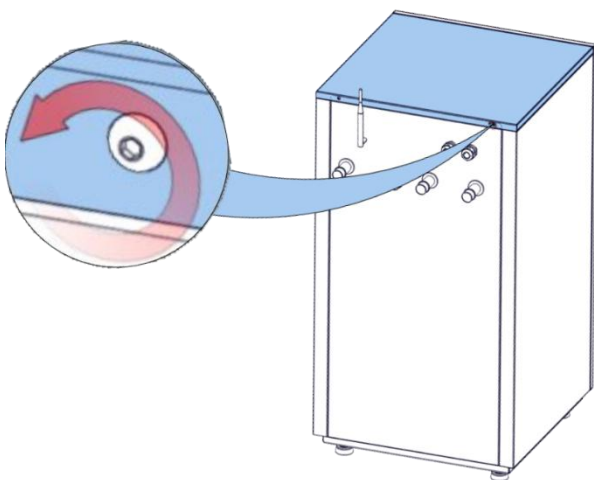
- When connecting the electrical wiring
- When maintaining or servicing the unit



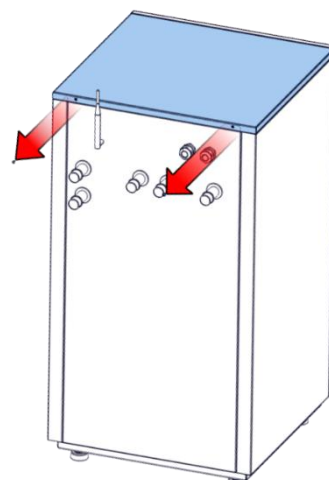
#### **WARNING**

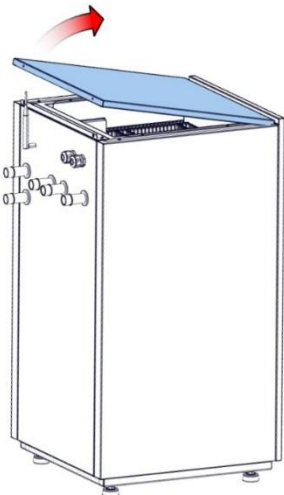
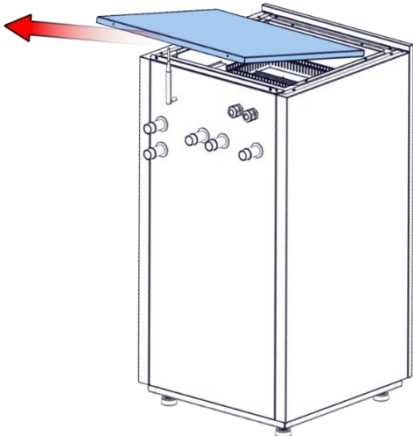
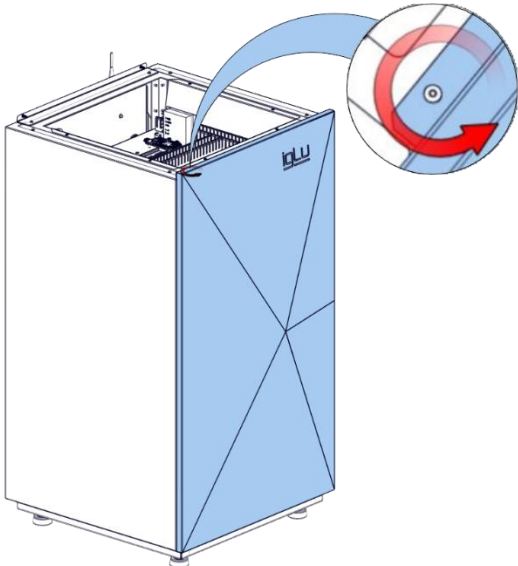
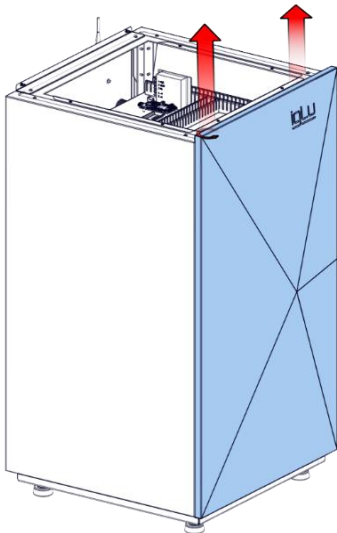
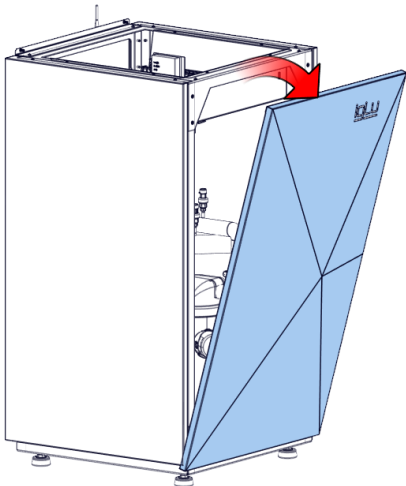
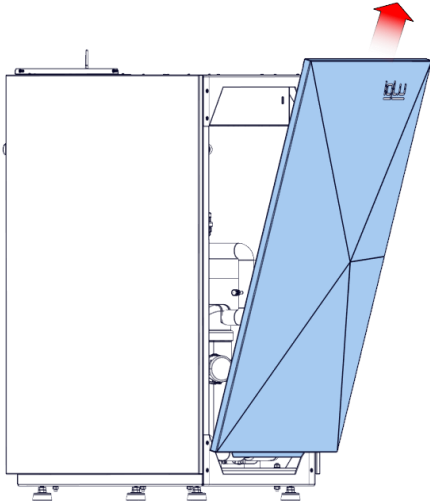
Do not leave the unit unattended when the service cover is removed. Installation and servicing must be performed only by Qualified Installers.

1. Locate the two screws on the top of the back shield



2. Unscrew them and place the screws in a safe location



|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 3. Lift the top shield as shown in the illustration                                 | 4. Pull the top shield towards you to remove it                                      |
|    |    |
| 5. Locate the two screws on the top of the front shield                             | 6. Unscrew them and place the screws in a safe location                              |
|   |  |
| 7. Tilt the front shield towards you                                                | 8. Carefully lift the front shield from the locking tabs and remove it               |
|  |  |

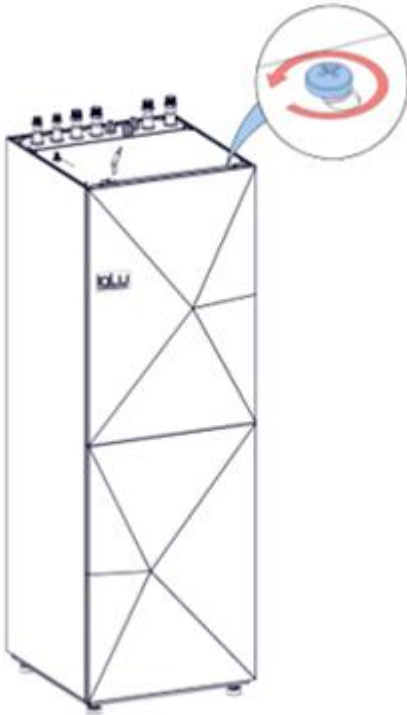
### 6.3 Opening Aleut WTI unit.



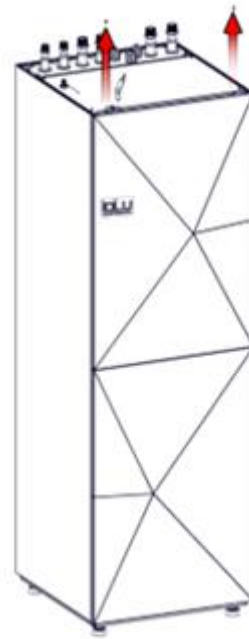
#### NOTE

The appearance of the unit may differ from the picture depending on the model, but the principle for opening the unit with an integrated water tank is the same.

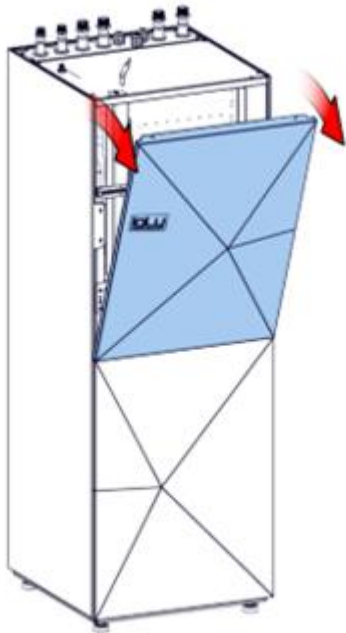
1. Locate the two screws on the top of the front shield



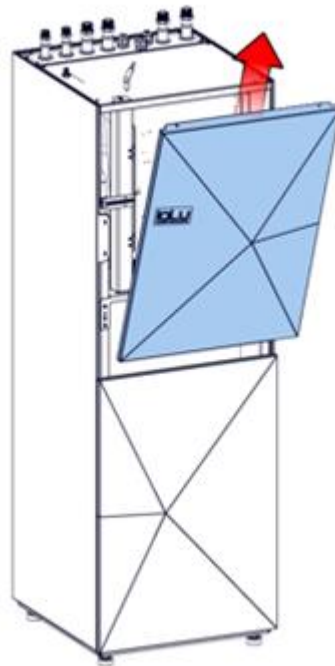
2. Unscrew them and place the screws in a safe location.



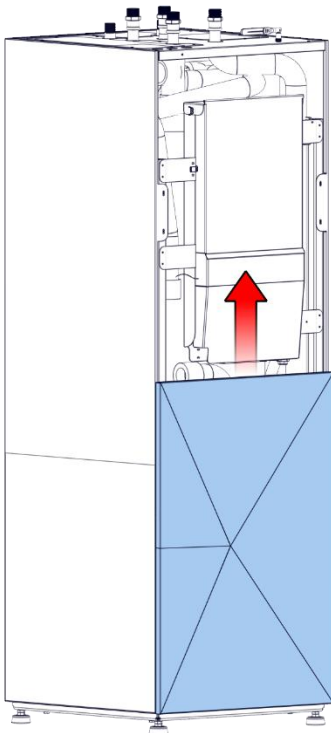
3. Tilt the front shield towards you.



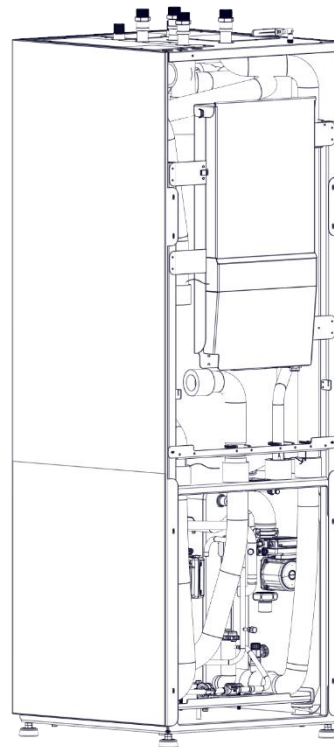
4. Carefully remove the shield by lifting it from the locking tabs.



5. Carefully lift the bottom front shield from the locking tabs



6. The unit is open, and now you can service it.



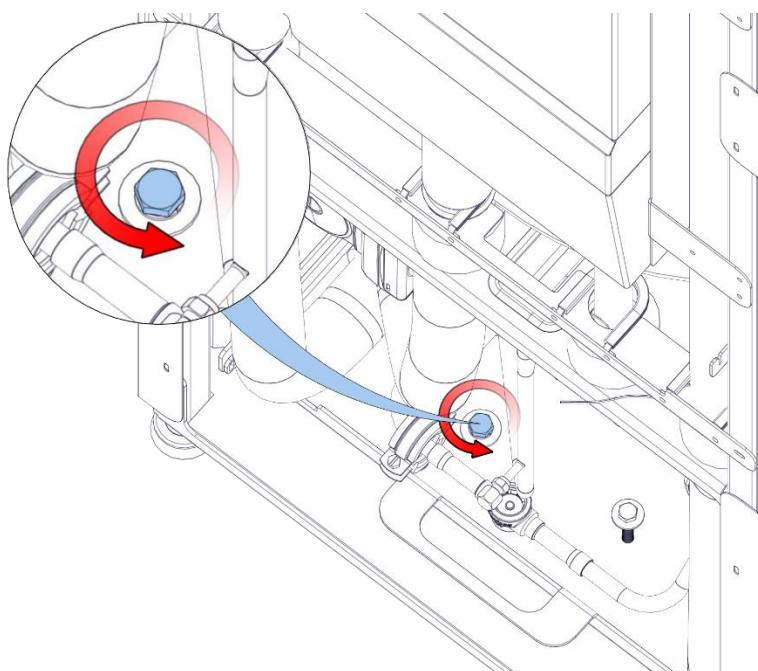
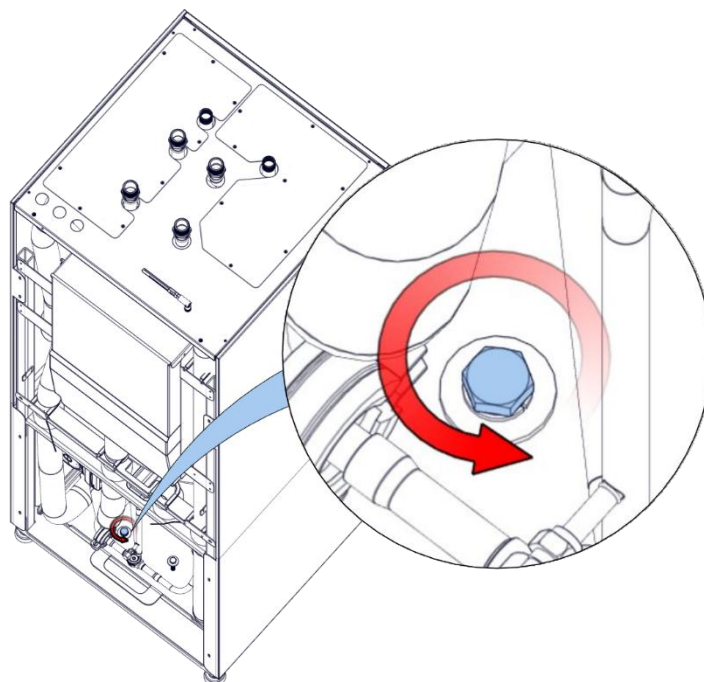
## 6.4 Removal of the transport safety screw of Aleut WTI



### CAUTION

When the Aleut WTI heat pump is in position, before the start up remove the transport safety screw. (If the heat pump should be moved further, put back the transportsafety screw.) The transport safety screw is located on the left side of the compressor near the sight glass on Aleut WTI heat pump.

**\*Aleut I series models without an integrated water tank do not have a transport safety screw.**



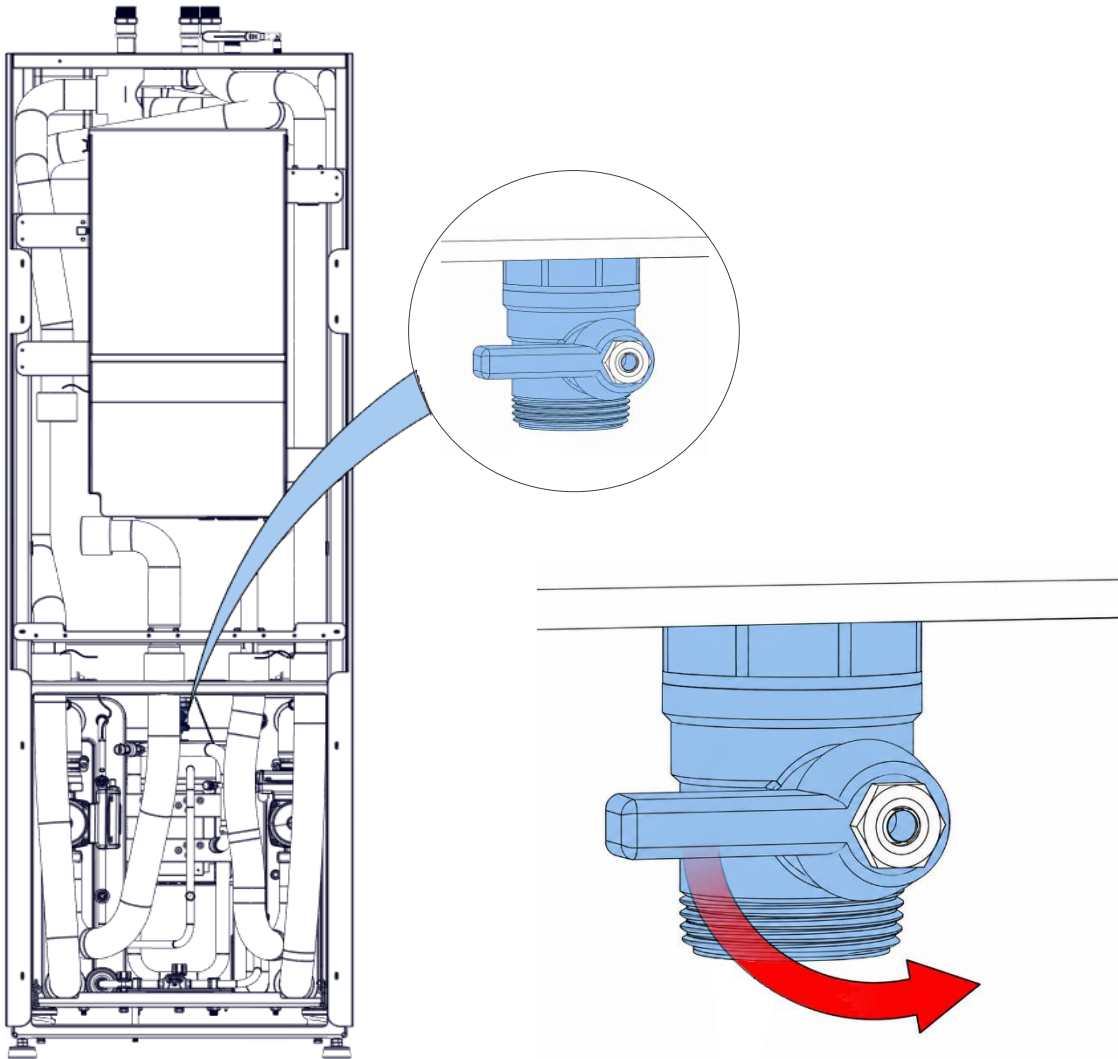
## 6.5 Draining the DHW Tank



### WARNING

- Servicing must be carried out only by a qualified installer.
- Before draining the DHW tank, ensure that the water has cooled sufficiently to prevent the risk of scalding

1. Open the heat pump by removing the covers. (refer to the section “Opening the indoor unit”).
2. Connect a drainage hose to the valve outlet.
3. Open the valve to begin draining the water from the tank.



## 7. Hydraulic Installation Safety and Requirements

Before connecting the heat pump, prepare the outdoor circuit (brine loop), the heating circuit, and, if provided, the domestic hot water circuit. Each circuit must be equipped with a filling point, expansion vessel, safety valve, filter, and pressure gauge.

- **Buffer tank** –When circulation in each space heating/cooling circuit is controlled by thermostatic valves or zone actuators, a buffer tank shall be installed to ensure sufficient system water volume and maintain the minimum required flow through the heat pump. In all other cases, the installation of a buffer tank is recommended.
- **Connecting piping – Legislation.** Make all piping connections in accordance with the applicable legislation and the instructions provided in this manual, respecting the water inlet and outlet.
- **Connecting piping – Force.** Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.
- **Connecting piping – Tools.** Only use appropriate tooling to handle brass, which is a soft material. If NOT, pipes will get damaged.
- **Connecting piping – Air, moisture, dust.** If air, moisture or dust gets into the circuit, problems may occur. To prevent this:
  - Only use clean pipes
  - Hold the pipe end downwards when removing burrs.
  - Cover the pipe end when inserting it through a wall, to prevent dust and/or particles from entering the pipe.
  - Use a decent thread sealant to seal connections.
- **Closed circuit.** Use the indoor unit ONLY in a closed water system for brine circuit and space heating circuit. Using the system in an open water system will lead to excessive corrosion.
- **Piping length.** It is recommended to avoid long runs of piping between the domestic hot water tank and the hot water end point (shower, bath..) and to avoid dead ends.
- **Field supply components** – Fluid pressure and temperature. Check that all components in the field piping can withstand the fluid pressure and fluid temperature.
- **Fluid pressure** – Space heating and brine circuit. The maximum fluid pressure of the space heating and brine circuit is 3 bar.
- **Fluid pressure** – Domestic hot water tank. The operating pressure of the domestic hot water tank is 10 bar. Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded.
- **Drainage** – Low points. Provide drain taps at all low points of the system in order to allow complete drainage of the circuit.
- **Drainage** – Pressure relief valve (space heating/cooling circuit). Connect the drain hose properly to the drain to avoid water dripping out of the unit.
- **Zn-coated parts.** NEVER use Zn-coated parts in the fluid circuit. Because the unit's internal circuit uses copper piping, excessive corrosion may occur. Zncoated parts used in the brine circuit may lead to the precipitation of certain components in the anti-freeze fluids corrosion inhibitor.
- **Non-brass metallic piping.** When using non-brass metallic piping, insulate the brass and non-brass properly so that they do NOT make contact with each other. This to prevent galvanic corrosion
- **Domestic hot water tank – Capacity.** To avoid stagnation of water, it is important that the storage capacity of the domestic hot water tank meets the daily consumption of domestic hot water.
- **Domestic hot water tank** –Immediately after installation, the domestic hot water tank must be flushed with fresh water.
- **Domestic hot water tank** – Disinfection. For the disinfection function of the domestic hot water tank see “User manual”
- **Hygienic measures.** The installation must be in compliance with the applicable legislation and may require additional hygienic installation measures.

## 7.1 Circulation pump performance curves – Heating side

The performance curves of circulation pumps are illustrated in the graph. The upper diagram shows the pump head (H) in meters [m] or pressure (p) in kilopascals [kPa] plotted against the flow rate (Q) in cubic meters per hour [m³/h] or liters per second [l/s].

The lower diagram displays the corresponding absorbed power (P<sub>1</sub>) in watts [W] as a function of the same flow rate.

Both curves use a common horizontal axis for flow rate, allowing for a direct comparison between hydraulic performance and power consumption.

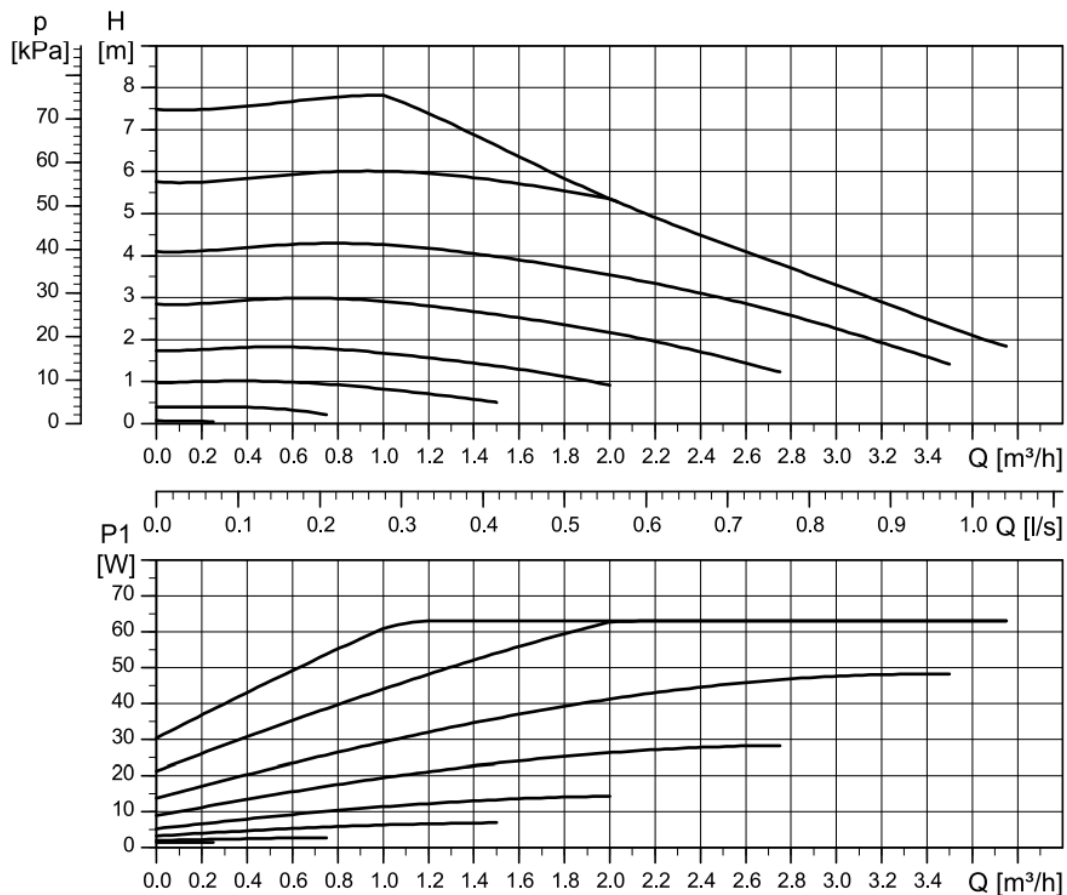
The power curve demonstrates that the pump consumes minimal power at low flow rates. As the flow rate increases, the absorbed power rises significantly.



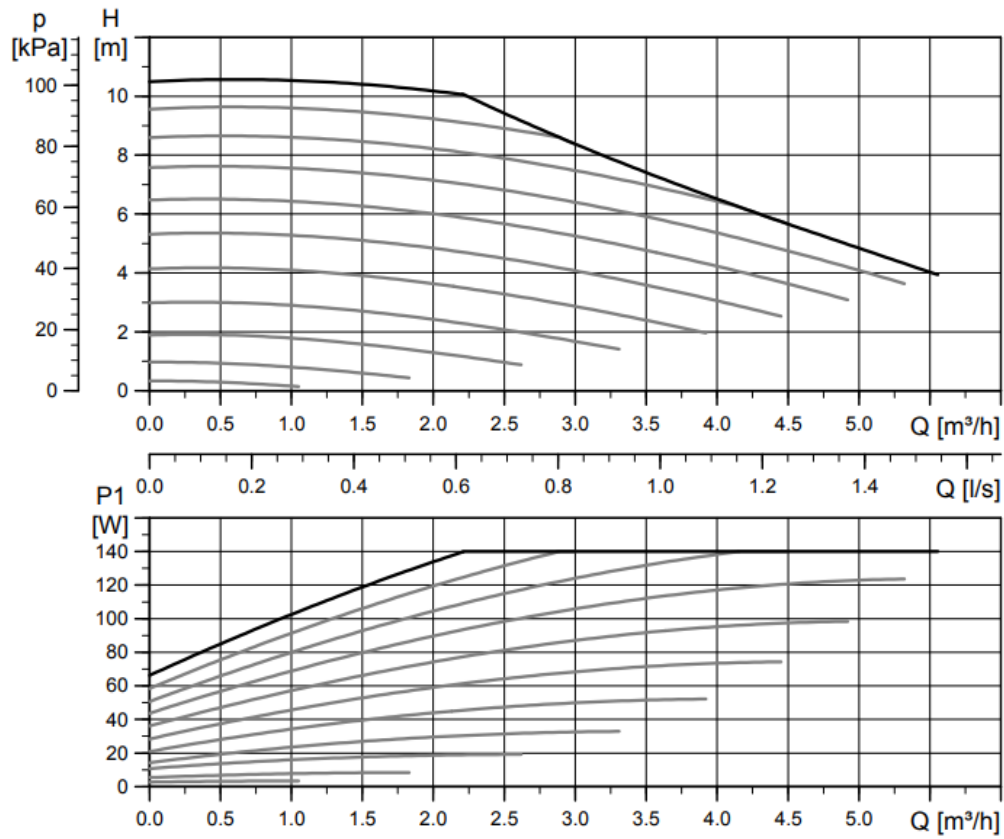
### CAUTION

These curves are for reference only and should not be used as guaranteed performance values. If minimum performance is required, individual measurements must be made.

### Aleut 4 / 7 I – Aleut 4 / 7 WTI



## Aleut 12/18 I – Aleut 12/18 WTI



**Reference table – Available heat pump head (kPa) - Heating side**

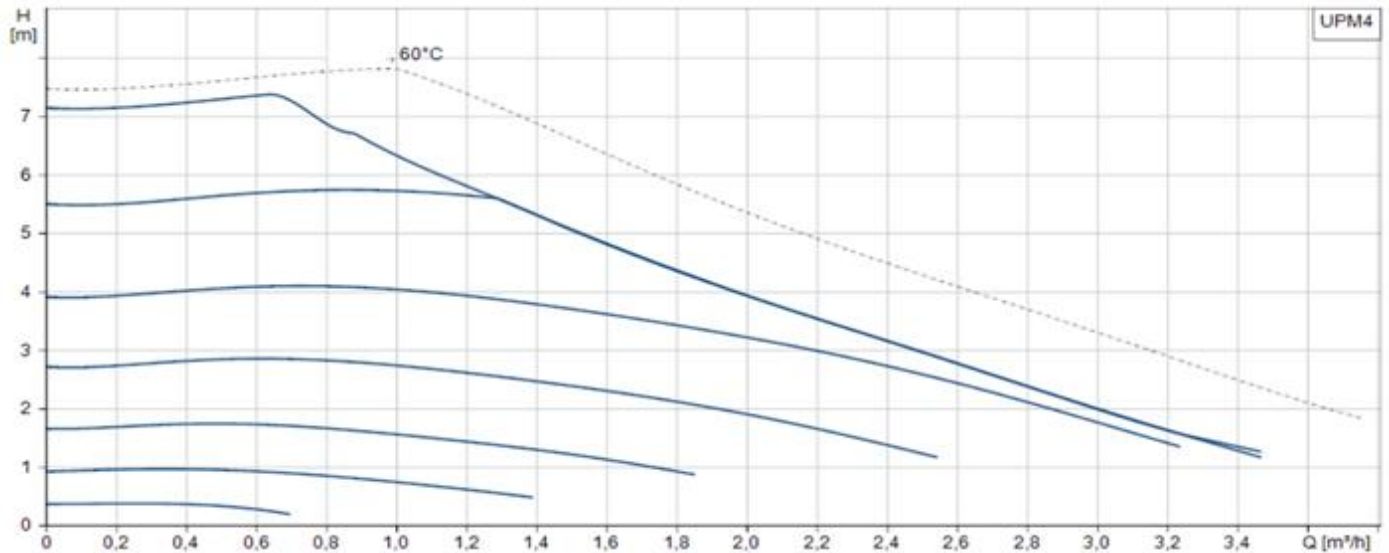
| Model name                | Pump Head (kPa) |
|---------------------------|-----------------|
| Aleut 4 I / Aleut 4 WTI   | 73,76           |
| Aleut 7 I / Aleut 7 WTI   | 73,56           |
| Aleut 12 I / Aleut 12 WTI | 96,56           |
| Aleut 18 I / Aleut 18 WTI | 91,88           |

## 7.2 Circulation pump performance curves – Source side – glycol – water mixture

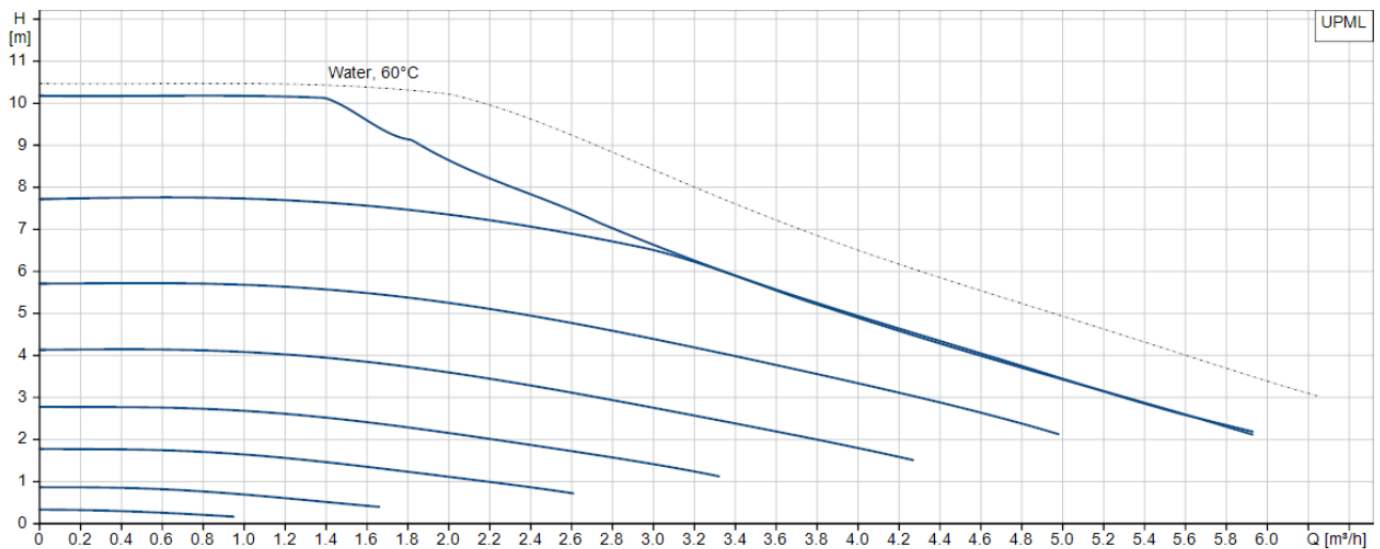
The circulation pump performance curves for the **source (brine) side** are illustrated in the graphs below. The upper diagram shows the pump head (H) in meters [m] plotted against the volumetric flow rate (Q) in cubic meters per hour [m<sup>3</sup>/h]. The curves represent different operating stages of the internal source-side circulation pump.

**NOTE:** The shown performance curves and related calculations are based on operation with a in the source-side circuit.

**Aleut 4 / 7 I - Aleut 4/ 7 WTI**



**Aleut 12/18 I – Aleut 12/18 WTI**



**Reference table – Available heat pump brine (kPa) – Source side (glycol–water mixture)**

| Model name                | Source Head (kPa) |
|---------------------------|-------------------|
| Aleut 4 I / Aleut 4 WTI   | 52,90             |
| Aleut 7 I / Aleut 7 WTI   | 33,12             |
| Aleut 12 I / Aleut 12 WTI | 60,20             |
| Aleut 18 I / Aleut 18 WTI | 37,45             |



### CAUTION

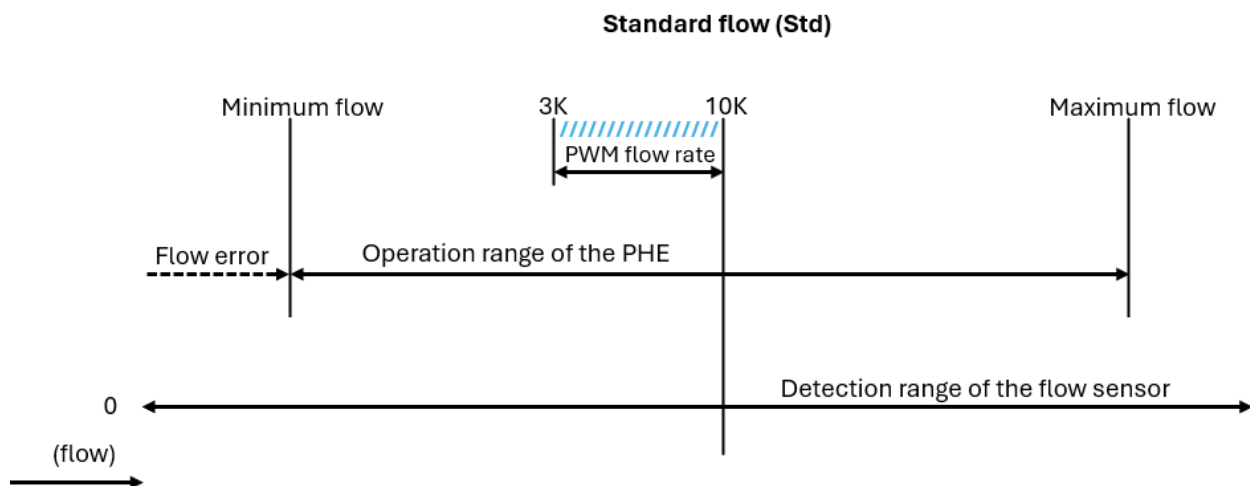
The available pump head values shown in the table above represent the external available pressure provided by the internal circulating pump after deducting the pressure loss of the heat pump's internal heat exchanger and components. The external system must be designed so that its total pressure drop at design flow does not exceed these values. If the total pressure drop is higher, an additional circulation pump must be installed in the external circuit.

## 7.3 Flow rate

The heat pump delivers its rated capacity at exactly the designed flow rate (also standard or nominal flow). Therefore, it is required to always meet with the designed flow rate as indicated in our technical data sheet.

The installer is responsible to meet with the exact designed flow rate (Water Flow Rate (Std))[H/C], as stated in the applicable TDS).

- In case the flow is too high, it should be balanced out by increasing the pressure drop of a balancing (or flow regulator) valve.
- If the flow is too low, an additional pump must be installed to assist the built-in pump. The control logic for the PWM pump can adjust the flow between 3K and 10K of the standard flow to meet with the required temperature differences in the heating and cooling processes.



### CAUTION

- If the flow rate is too low, the generated heat might not meet with the designed capacity.
- If the flow rate is too high, it may cause noise, cavitation and erosion and impact on the efficiency of the product.

## 7.5 Minimum active water volume

The minimum active water volume of the system is the amount of water which is always pumped around, even when all valves in the system are closed. The use of a buffer tank can increase the active volume and therefore the operation time between compressor start and stop.

Ideally, systems should be designed for around 12 to 15 minutes of operation, in order to meet with our declared efficiencies.

This time frame is based on a maximum of 4 On/Off cycles per hour. The required minimum active water volume can be calculated via the below stated formula:

$$V_{\min} = \frac{t_{\min} \times \Phi_{\min}}{C_{\text{water}} \times \Delta T}$$

**V<sub>min</sub>** : Minimum active volume [dm<sup>3</sup>, l]  
**t<sub>min</sub>** : Minimum allowed operation time is 12 min or 720 sec per cycle [s, sec]  
**Φ<sub>min</sub>** : Minimum compressor output [kW = kJ/s]  
**C<sub>water</sub>** : Specific heat of water (4,2) [kJ/kg\*K]  
**ΔT** : Temperature increase (5 - 10 K)

**Reference Table (Design ΔT = 5 K, t<sub>min</sub> = 15 min)**

| Model                     | Vmin (L) |
|---------------------------|----------|
| Aleut 4 I / Aleut 4 WTI   | 77       |
| Aleut 7 I / Aleut 7 WTI   | 77       |
| Aleut 12 I / Aleut 12 WTI | 116      |
| Aleut 18 I / Aleut 18 WTI | 171      |



#### **CAUTION**

High number of compressor cycles per hour increases electricity consumption and may significantly reduce the service life of the compressor.

## **7.6 Expansion vessel**



#### **CAUTION**

Aleut I and Aleut WTI units are not equipped with integrated expansion vessels. External expansion vessels must therefore be installed for the outdoor, indoor, hot water water circuit.

When it is required to change the default pre-pressure of the expansion vessel, keep in mind the following guidelines:

- Use only dry nitrogen to set the expansion vessel pre-pressure.
- Inappropriate setting of the expansion vessel pre-pressure will lead to malfunction of the system. Therefore, the pre-pressure should only be adjusted by a licensed installer.

## 8. Outdoor circuit

### 8.1 Installation and filling

The outdoor circuit can be vertical (boreholes) or horizontal. The horizontal circuit must be installed below the freezing zone, depending on the ground of the installation site. Fill the outdoor circuit with glycol, which ensures that it does not freeze in temperatures up to -15°C. **Do not use the salt-based solution.** The following fluids are approved for the outdoor circuit:

- monoethylene glycol;
- propylene glycol.

**It is recommended to use a mixture of water and monoethylene glycol concentrate in a ratio of 3:1.**

The applicable rules and regulations must be observed when installing and filling the outdoor circuit. There must be no stones or sharp objects in the ground where the outdoor circuit is installed that could damage the pipes. Prior to filling the system, make sure that the system is tightly sealed.

When installing the outdoor circuit, it is necessary to protect the pipes from penetration of dirt or gravel. If the system is dirty, the heat pump may become clogged and individual components of the device may be damaged or corrupted.



#### CAUTION

- Do not use pure water in the outdoor/brine circuit because of freezing risks.
- When using glycol, the efficiency of the heat pump may decrease depending on the concentration.

### 8.2 Freeze protection by glycol

Freeze protection solutions must use propylene glycol with a toxicity rating of Class 1 as listed in Clinical Toxicology of Commercial Products, 5th Edition.



#### WARNING

- Ethylene glycol is toxic and must not be used in the primary water circuit in case of any cross-contamination of the portable circuit.
- If you add glycol to the water, do NOT install anti-freeze valve, to avoid Glycol leaking out of the anti-freeze valves into the environment.

If an anti-freeze protection is used, it will result in increased pressure drop and it may also cause a slight capacity reduction.



## CAUTION

- Due to the presence of glycol, corrosion of the system is possible. Uninhibited glycol will turn acidic under the influence of oxygen. The acidic uninhibited glycol attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system.
- A glycol with corrosion inhibitors is selected to counteract acids formed by the oxidation of glycols.
- No automotive glycol is used because their corrosion inhibitors have a limited lifetime and contain silicates which can foul or plug the system.

Galvanized pipes are NOT used in glycol systems since the presence may lead to the precipitation of certain components in the glycol's corrosion inhibitor.

The required concentration of glycol depends on the lowest expected outdoor temperature, and on whether you want to protect the system from bursting or from freezing. To prevent the system from freezing, more glycol is required. Add glycol according to the table below.

| Freezing Points of Propylene Glycol - Water Mixtures |                     |                     |
|------------------------------------------------------|---------------------|---------------------|
| Percent Propylene Glycol [wt.%]                      | Freezing Point [°F] | Freezing Point [°C] |
| 0                                                    | 32                  | 0                   |
| 10                                                   | 26                  | -3                  |
| 20                                                   | 20                  | -7                  |
| 30                                                   | 10                  | -12                 |
| 36                                                   | 0                   | -18                 |
| 40                                                   | -5                  | -20                 |
| 43                                                   | -10                 | -23                 |
| 48                                                   | -20                 | -29                 |

### 8.3 Outdoor Circuit Components

#### Filling and circulating unit

The outdoor system refiller must be installed next to the circuit inlet so that the system can be replenished when the system pressure drops and the external and glycol mixing procedure can be performed when filling the outdoor circuit. **The filling unit is not included in the heat pump package.**

#### Automatic air release valves

In order to ensure that no air clogs occur in the outdoor circuit system and that the heat pump does not signal an alarm as a result, it is necessary to install automatic air release valves on the outdoor circuit. The air release valves must be installed at the highest points of the circuit.

#### Outdoor circuit pump

The outdoor circuit pump is included in the heat pump set and is installed in the device at the factory. The circulation pump is controlled by the central processor while maintaining optimal flow. The control system monitors the operation of the circulation pumps and a warning is received in the event of a deviation.

## 9. Internal circuit

To avoid gas formation, it is recommended not to use galvanised pipe systems.



### WARNING!

The area of the domestic hot water tank heat exchanger must correspond to the capacity of the heat pump. The water capacity must be such that the heat output of the heat pump is transmitted as efficiently as possible.



### NOTE

Integrate the hot water tank into the heat pump system to match the heating system scheme you have selected.

### 9.1 Heating system rinsing and filling

The heating circuit is normally filled with clean water. Set the pre-charge pressure of the expansion vessel to **1.5 bar**. Replenishment of the heating circuit is usually stationary, pre-connected to the mains water inlet, and should be performed in accordance with the system design.

The heat pump is an integral part of the heating system. Heat pump failures are usually caused by poor water quality in the heating system, or by presence of air in the system. The presence of air in the system produces corrosive products such as magnetite or sediment. Magnetite has an abrasive effect that is especially enhanced in pumps, valves, or eddy-flow components, such as a condenser. Prior to installing a heat pump in a heating system that needs to be filled or uses water that is not pure, auxiliary measures such as the installation of filters and automatic outlets must be taken. Filling with untreated drinking water will inevitably result in formation of a sediment. Effect: formation of limescale deposits on the heat transfer surfaces. Decreased efficiency and energy consumption increases. 1 millimetre of lime deposits causes an energy loss of 10%. In extreme cases, this can even damage the heat exchangers.

Do not use water treatment additives in the heating system. Additives can be used to adjust the pH of the water, the recommended pH of the water is 7.5-9. The safest and most efficient operation of the system is achieved by using low-salt water.

When combining a heat pump with a water tank, it may be necessary to fill the system with desalinated water to protect the water tank from corrosion. This reduces electrical conductivity and risk of corrosion.



### WARNING!

Sediment in the piping can damage the heat pump. To prevent this, make sure to flush the pipes. Damage to sediment and corrosion heating systems is low if:

- planning and start-up are carried out properly.
- the system is closed in terms of corrosion.
- The pressure in the heating system is adequate.
- regular maintenance and prevention.

It is recommended that a system log be kept containing the relevant maintenance data.

### **Damage that may occur due to a malfunctioning system**

- Component failures (e.str., pumps, valves)
- Internal and external leaks (e.str., from heat exchangers)
- Reduction in cross-section and flow blockage (e.str., heat exchanger, pipes, pumps can become clogged due to limescale or corrosion)
- Faster wear
- Gas cushion formation (cavitation)
- Adverse effects due to heat transfer (coatings, sedimentation) and associated noise (e.str., roaring, flow noise)

### **Heating circuit frost protection with Glycol**

As additional frost protection, the heating circuit may be filled with a water/glycol mixture. This option is recommended only in case where: There is a risk of freezing during long shutdowns.

The glycol concentration must not exceed 15%, as higher concentrations significantly reduce heat pump efficiency and increase pumping power. Glycol reduces the heat transfer performance of the system, so use only if strictly necessary. Use only glycols with suitable corrosion inhibitors; automotive glycols are not permitted.



#### **CAUTION**

If a glycol mixture is used, a backflow prevention device (non-return valve) must be installed on the mains water supply to prevent glycol from entering the potable water system. Filling must comply with all applicable local drinking water and environmental regulations.

## **9.2 Indoor Circuit Components**

### **Flow through the heating system**

When thermostatic valves or zone actuators may close all heating circuits, a differential pressure bypass valve shall be installed. The bypass valve is not supplied with the heat pump.

A buffer tank must be installed to ensure a sufficient water volume when all thermostatic valves are closed, and the flow circulates only through the bypass valve.



#### **CAUTION**

The buffer tank is required when individual heating zones are controlled by thermostatic valves or zone actuators.

## Differential bypass valve

Differential pressure bypass valve shall be installed between the supply and return pipes, downstream of the circulation pump and upstream of the zone control valves, in accordance with the flow direction indicated on the valve body. The valve shall be adjusted to maintain the minimum required flow rate through the heat pump.

- Mind the minimum water volume when choosing the installation location of the overpressure bypass valve (at the indoor unit, or at the collector).
- Mind the minimum flow rate when adjusting the overpressure bypass valve setting.

## Pressure relief valve

The heat pump itself is not equipped with a pressure relief valve. To protect the heating circuit against excessive pressure, an external pressure relief valve with a set pressure not exceeding 3.0 bar must be installed by the installer on the heating circuit (supply pipe of the heat transfer fluid) in accordance with applicable regulations.



### CAUTION

Ensure that the discharge from the pressure relief valve is safely managed: the discharge pipe must be installed in a continuously downward direction. It must terminate in a frost-free environment, and prevent any risk of water backflow or freezing. Do not allow discharged water to come into contact with any electrical components or wiring.

## Safety valve for Domestic Hot Water tank (DHW)

**Domestic hot water tank.** The operating pressure of the domestic hot water tank is 10 bar. Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded.

A safety valve must be installed on the domestic hot water (DHW). The safety valve shall be installed on the cold-water inlet to the tank. The selection of the safety valve must be based on the characteristics of the potable water supply system. The set pressure of the safety valve shall be chosen to ensure safe operation of the system but must not exceed 8 bar.

The filter/strainer must also be installed on the cold-water inlet to the DHW tank to prevent contaminants and debris from entering the tank and associated components.

## Filter/Strainer

The heat pump does not include a filter or a strainer. The installation of a filter or strainer is mandatory in the water circuit of the system. It must be installed on the inlet pipe to the heat pump

During system operation, dust and foreign particles may circulate within the water loop. Without proper filtration, these contaminants can block the heat exchangers and cause corrosion or damage to internal components, leading to reduced system performance or failure.

## Internal circuit circulation pump

The internal circuit pumps are included in the heat pump set and is installed in the unit at the factory. The circulation pumps are controlled by the central processor while maintaining optimal flow. The control system monitors the operation of the circulation pumps and a warning is received in the event of a deviation.

For the available external static pressure of the integrated circulations pump in the indoor unit, refer to Section ***“7.1 Circulation pump performance curves – Heating side”*** or Section ***“7.3 Circulation pump performance curves – Source side – glycol – water mixture”***.

### 9.3 Air purging of Aleut WTI

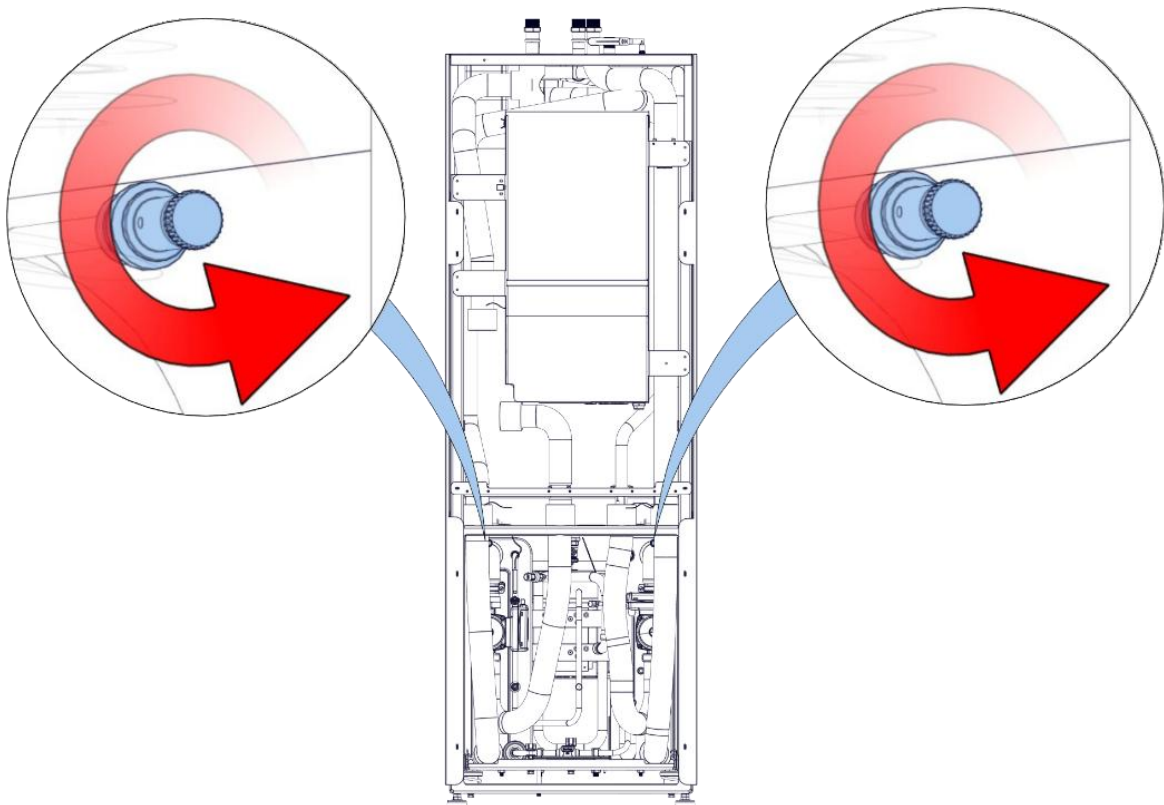
During system filling, maintenance, or startup, the mechanical air relief valve should be opened to allow trapped air to escape from the system. Once a steady stream of water flows from the valve without any air bubbles, it indicates that the air has been successfully purged. At this point, the valve should be closed tightly to ensure a proper seal and prevent any water leakage.

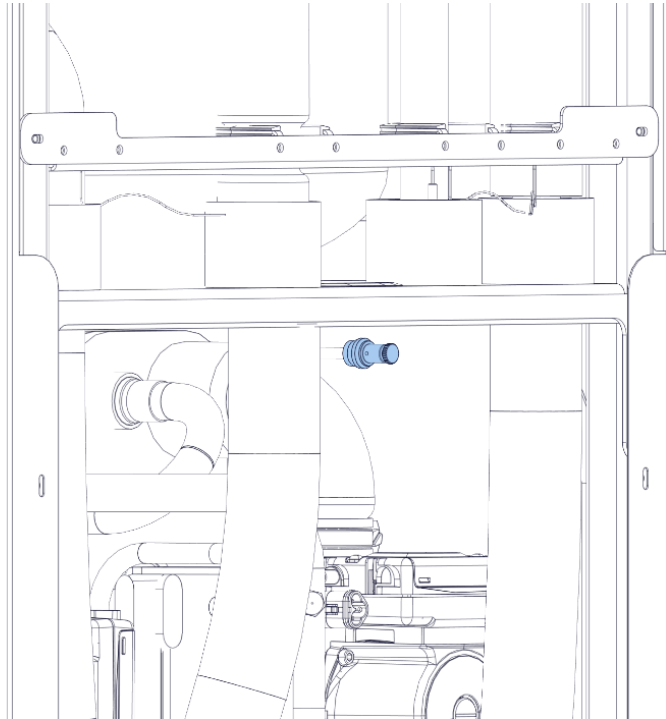


#### CAUTION

- Do not overtighten the valve when closing it, as this can damage the sealing mechanism or make future use difficult.
- Do not allow discharged water to come into contact with any electrical components or wiring.

In Aleut WTI models, the mechanical air relief valve is located between the plate heat exchanger and the circulation pump. There are two mechanical air relief valves, one on each side. The location of these components is illustrated below.





#### 9.4 Thermal insulation requirements

All heat- and cold-conductive components of the piping system — including heating circuits, domestic hot water lines, and tank connections — must be insulated using appropriate thermal insulation materials.

Thermal insulation must comply with the following standard:

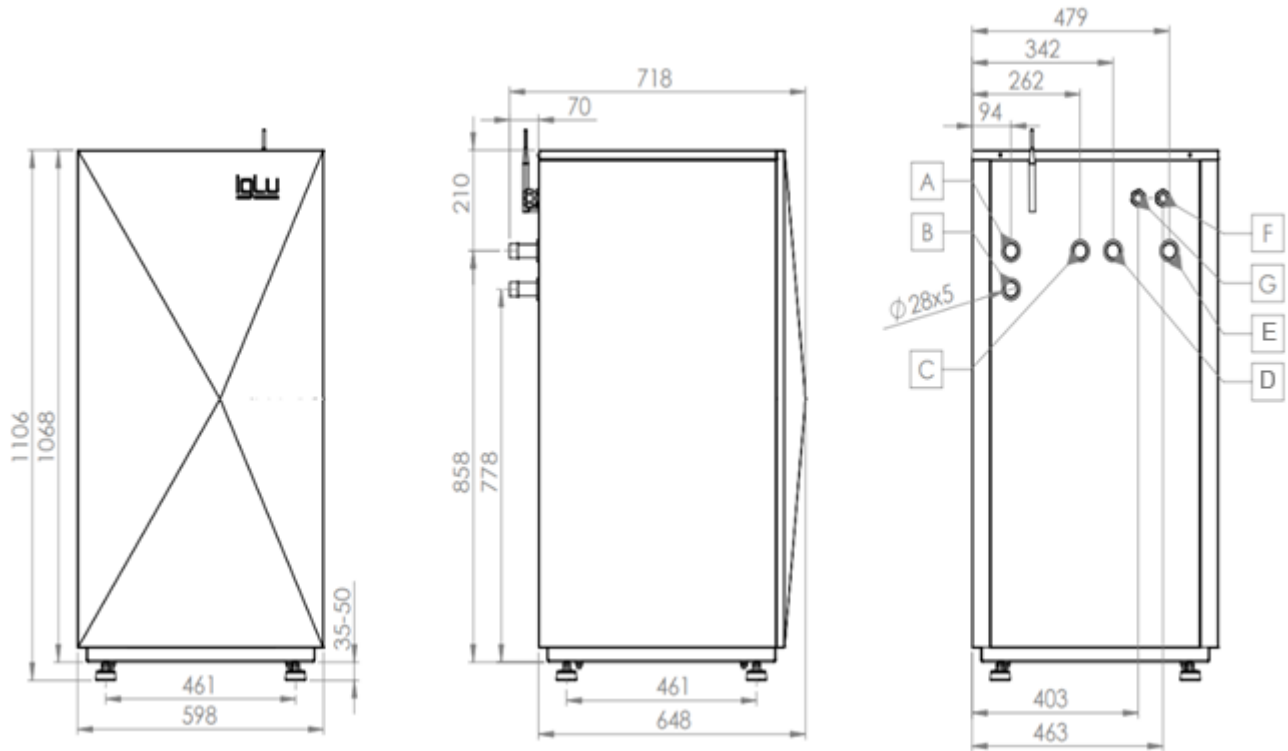
**„EN 12828 – Heating systems in buildings – Design for water-based heating systems:** This standard defines insulation requirements for heating circuits, including the use of suitable materials, full coverage across fittings and joints, and protection against condensation.“



#### **NOTE**

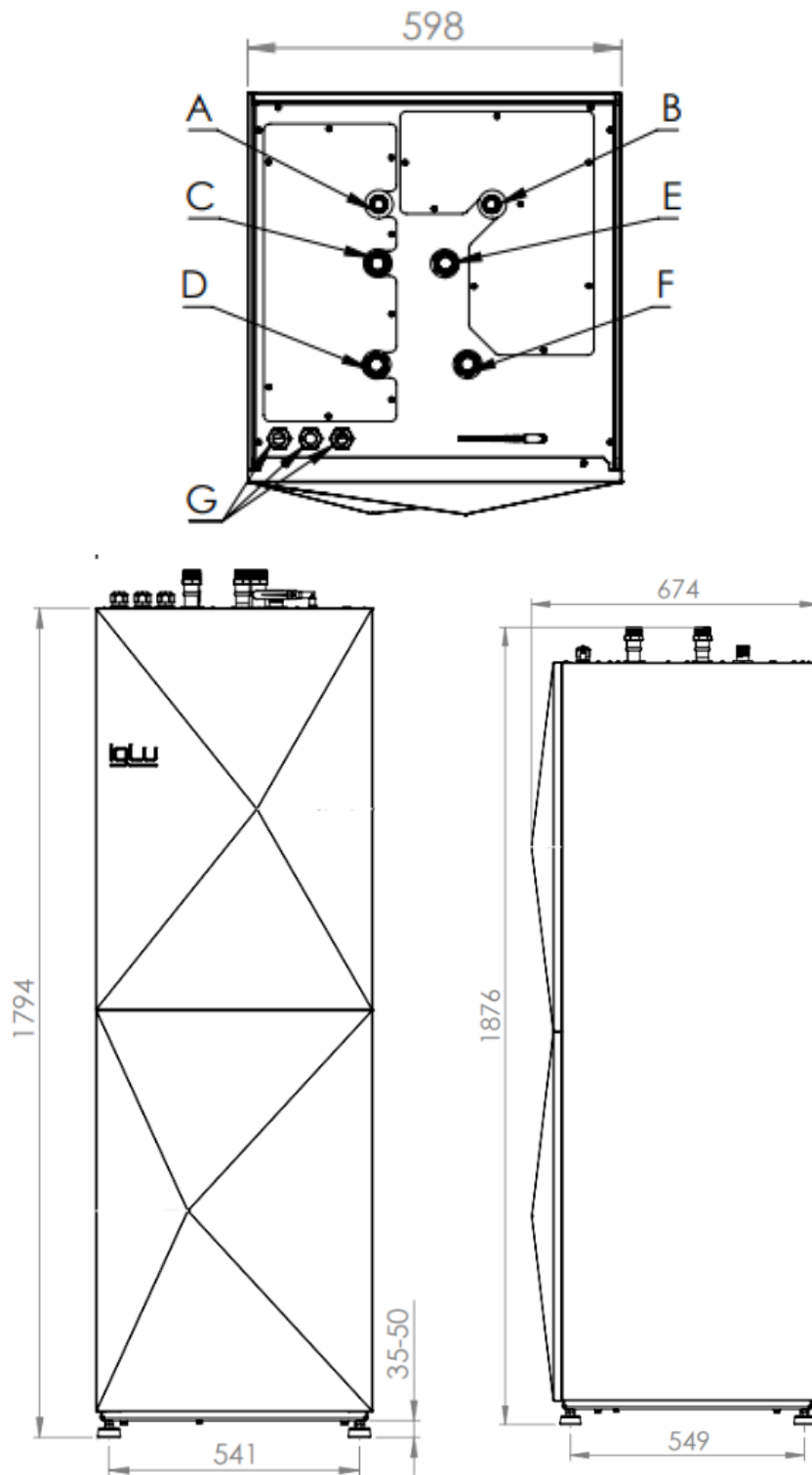
Proper insulation ensures energy efficiency, user safety, and reliable system operation.

## 9.5 Piping Connections of IGLU Aleut I



| Name | Unit of measurement | Size  | Material | Meaning                  |
|------|---------------------|-------|----------|--------------------------|
| A    | mm                  | 28    | CU       | Supply to system (OUT)   |
| B    | mm                  | 28    | CU       | Return from system (IN)  |
| C    | mm                  | 28    | CU       | Supply to DHW tank (OUT) |
| D    | mm                  | 28    | CU       | Return from brine (IN)   |
| E    | mm                  | 28    | CU       | Supply to brine (OUT)    |
| F    | -                   | PG-21 | ABS      | Electrical input         |
| G    | -                   | PG-21 | ABS      | Electrical input         |

## 9.6 Piping Connections of IGLU Aleut WTI



| Name | Size  | Material | Meaning                 |
|------|-------|----------|-------------------------|
| A    | 3/4"  | BRASS    | Hot water DHW (OUT)     |
| B    | 3/4"  | BRASS    | Cold water DHW (IN)     |
| C    | 1"    | BRASS    | Return from system (IN) |
| D    | 1"    | BRASS    | Supply to system (OUT)  |
| E    | 1"    | BRASS    | Return from brine (IN)  |
| F    | 1"    | BRASS    | Supply to brine (OUT)   |
| G    | PG-21 | ABS      | Electrical input        |

## 10. Indoor Unit Installation and Application Examples

The hydraulic application examples given below are for illustration purposes only. The unit is only to be used in a closed-water system. Application in an open water circuit can lead to excessive corrosion of the water piping.

IGLU TECH cannot be responsible for incorrect or unsafe situations in the water system. Make sure that the boiler, radiators, convectors, solar collectors, UFHs, FCUs, additional pumps, piping, and controls in the water system are in accordance with relevant local laws and regulations under the installer's responsibility.

IGLU TECH shall not be held liable for any damage resulting from not observing this rule. Please note that IGLU TECH does not provide specific water system components such as Pressure relief valves, Air vent valve, buffer tank, etc. Installers and end-users shall consider how to install the below-designated components in the overall water system depending on the installation conditions. If the components are not installed in an appropriate location, the water system cannot be operated as designed.



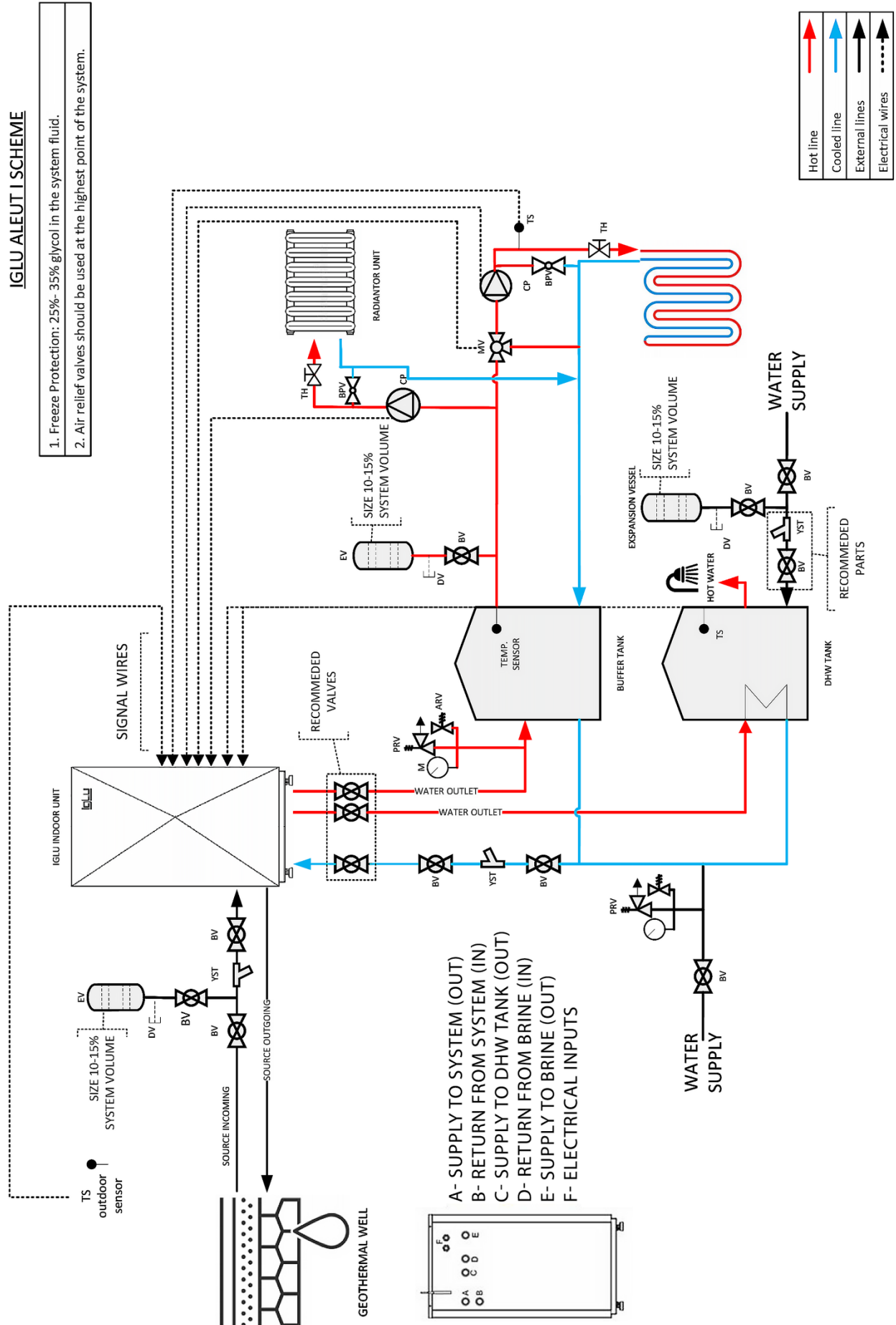
### CAUTION

When circulation in each space heating/cooling circuit is controlled by thermostatic valves or zone actuators, a buffer tank shall be installed to ensure sufficient system water volume and maintain the minimum required flow through the heat pump. In all other cases, the installation of a buffer tank is recommended.

### 10.1 Indoor Unit Hydraulic Scheme abbreviations and legends.

| ABBREVIATIONS               |  |                         |  |
|-----------------------------|--|-------------------------|--|
| Ball valve (BV)             |  | Drain valve (DV)        |  |
| Check valve (CV)            |  | Circulating pump (CP)   |  |
| Y Strainer (YST)            |  | Temperature sensor (TS) |  |
| Monometer (M)               |  | Expansion vessel (EV)   |  |
| Pressure relief valve (PRV) |  | By-pass valve (BPV)     |  |
| Air relief valve (ARV)      |  | Thermostat (TH)         |  |
| Mixing valve (MV)           |  | Hot water               |  |

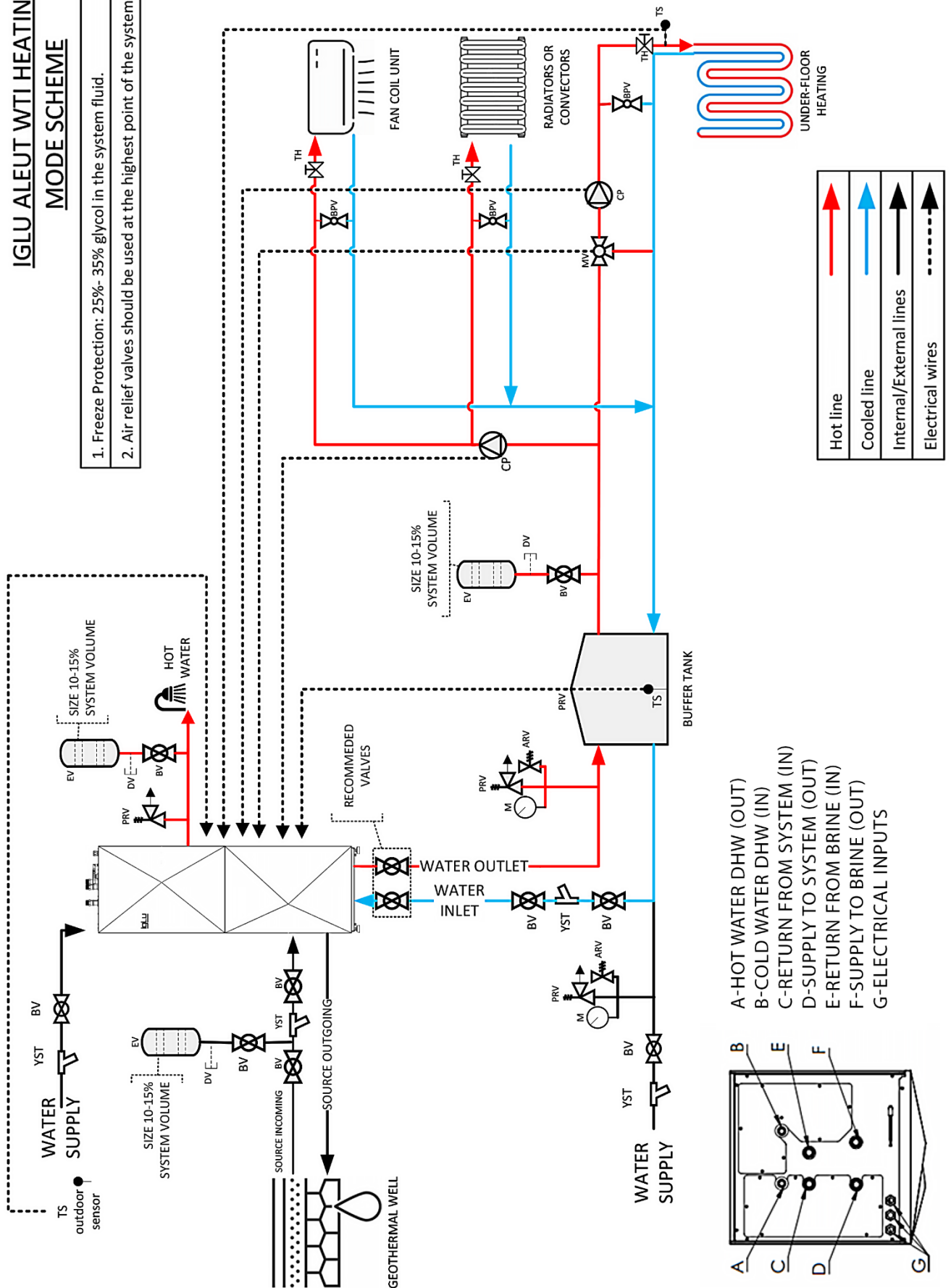
## 10.2 Hydraulic Scheme- IGLU ALEUT I (without integrated water tank)



## 10.4 Hydraulic Scheme – IGLU ALEUT WTI (with integrated water tank)

### IGLU ALEUT WTI HEATING MODE SCHEME

1. Freeze Protection: 25%- 35% glycol in the system fluid.
2. Air relief valves should be used at the highest point of the system.



## 11. Electrical installation

### 11.1 Precautions when connecting the electrical wiring



#### WARNING

- Make sure first the water piping is connected before the electrical wiring work.
  - When removing or relocating the equipment, power off first and then disconnect the electrical wiring.
  - Connect the ground source heat pump to a protected earth (PE) before connecting the phase and neutral to the product.
  - Follow the local installation standards and regulations when installing electrical wiring. Electrical wiring should be installed by a certified electrician or certified installer. Failing to comply, might lead to damaging the product, starting a fire and personal injury, electrocution or death.
- Make sure that wiring work must be done by an authorized electrician. The wiring materials and wiring work must comply with the applicable legislation.
  - Always verify that a suitable grounding connection is available.
  - Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
  - Always verify that the cut-off and protection switches are suitably dimensioned.
  - Verify that the ground source heat pump is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
  - Always verify that electric connections (cable entry, the section of leads, protections...) comply with the electric specifications, local regulations and installation standards and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of ground source heat pumps.
  - Depending on the condition of power supply, unstable power or voltage may cause malfunction of the parts or control system. (Avoid using power supply from an electric generator, like on a ship etc).



- Make sure that you earth the cables.
  - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire. If earthing is not complete, electric shock or fire may occur.
- Install the circuit breaker.
  - Failing to install a circuit breaking device may result in electric shock and fire occurrence.
- Be sure to install both an earth leakage detector and circuit breaker with specified capacity in accordance with relevant local and national regulations.
  - If it is not installed properly, it may cause electric shocks and fire.

## 11.2 Electrical connection work

- Risk of electric shock! Always disconnect the device from the power supply prior to work on the electrical system parts.
- **Three-phase models:** Connect the heat pump to a 400 V three-phase power supply, with one neutral and one earth conductor. Use circuit breakers according to the specifications provided in the table below
- **Single-phase models:** Connect the heat pump to a 230 V one-phase power supply, with one neutral and one earth conductor. Use circuit breakers according to the specifications provided in the table below.
- Ensure that the power supply meets the local safety regulations.
- Check that the voltage and frequency of the power supply match the required specifications, and confirm that the power provided is adequate to support the functioning of any other household appliances on the same electrical circuit.
- Always ensure that the safety switches are correctly chosen.
- Improper installation can lead to electric shocks and fire hazards.
- Connect the power cable (see section "Electrical connection schemes") according to the heat pump model. Connect the power cable where L1, L2, L3, N and PE are marked, respectively.

## 11.3 User Electrical Panel – Safety Precautions and Recommendations



### CAUTION

The user's electrical panel must be equipped with properly dimensioned circuit breakers providing over-current and electric leakage protection as specified in the table

| IGLU Aleut geothermal heat pumps   | Circuit breakers | Power cable          |
|------------------------------------|------------------|----------------------|
| Aleut 4I (1P) & Aleut 4 WTI (1P)   | C25              | 3x4mm <sup>2</sup>   |
| Aleut 7I (1P) & Aleut 7 WTI (1P)   | C40              | 3x6mm <sup>2</sup>   |
| Aleut 4I (3P) & Aleut 4 WTI (3P)   | C16              | 5x2,5mm <sup>2</sup> |
| Aleut 7I (3P) & Aleut 7 WTI (3P)   | C20              | 5x2,5mm <sup>2</sup> |
| Aleut 12I (3P) & Aleut 12WTI (3P)  | C25              | 5x4mm <sup>2</sup>   |
| Aleut 18 I (3P) & Aleut 18WTI (3P) | C32              | 5x4mm <sup>2</sup>   |

\*For Norwegian Heat pump models:

| IGLU Aleut geothermal heat pumps    | Circuit breakers | Power cable        |
|-------------------------------------|------------------|--------------------|
| Aleut 7 I (2P) / Aleut 7 WTI (2P)   | C40              | 3x6mm <sup>2</sup> |
| Aleut 12 I (2P) / Aleut 12 WTI (2P) | C40              | 3x6mm <sup>2</sup> |

## 11.4 Sensors and auxiliary components

### Temperature sensors

The temperature sensors for the outdoor and water heater are connected to the terminal blocks, two-core 0.5 ÷ 1mm<sup>2</sup> cable must be routed from the heat pump to the outdoor temperature installation location. It is recommended that the outdoor sensor be installed on the north side or in a place that is not exposed to direct sunlight.

In models without integrated water heater, a two-core 0.5 ÷ 1.0 mm<sup>2</sup> cable must be routed from the heat pump to the hot water tank.

\*For north Europe countries (ex.Norway) accordingly

### Characteristics of temperature sensors NTC 10K

| T [°C] | R [Ω]  | T [°C] | R [Ω] | T [°C] | R [Ω] |
|--------|--------|--------|-------|--------|-------|
| -30.0  | 175203 | 50.0   | 3605  | 130.0  | 298   |
| -25.0  | 129289 | 55.0   | 2989  | 135.0  | 262   |
| -20.0  | 96360  | 60.0   | 2490  | 140.0  | 232   |
| -15.0  | 72502  | 65.0   | 2084  | 145.0  | 206   |
| -10.0  | 55047  | 70.0   | 1753  | 150.0  | 183   |
| -5.0   | 42158  | 75.0   | 1481  | 155.0  | 163   |
| 0.0    | 32555  | 80.0   | 1256  | 160.0  | 145   |
| 5.0    | 25339  | 85.0   | 1070  | 165.0  | 130   |
| 10.0   | 19873  | 90.0   | 915   | 170.0  | 117   |
| 15.0   | 15699  | 95.0   | 786   | 175.0  | 105   |
| 20.0   | 12488  | 100.0  | 677   | 180.0  | 95    |
| 25.0   | 10000  | 105.0  | 586   | 185.0  | 85    |
| 30.0   | 8059   | 110.0  | 508   | 190.0  | 77    |
| 35.0   | 6535   | 115.0  | 443   | 195.0  | 70    |
| 40.0   | 5330   | 120.0  | 387   | 200.0  | 64    |
| 45.0   | 4372   | 125.0  | 339   |        |       |

### Backup Heater

The unit has built-in backup heater. It is an electric element that activates only to reach the higher temperature needed for hot water preparation or to provide emergency heating if the compressor cannot operate.



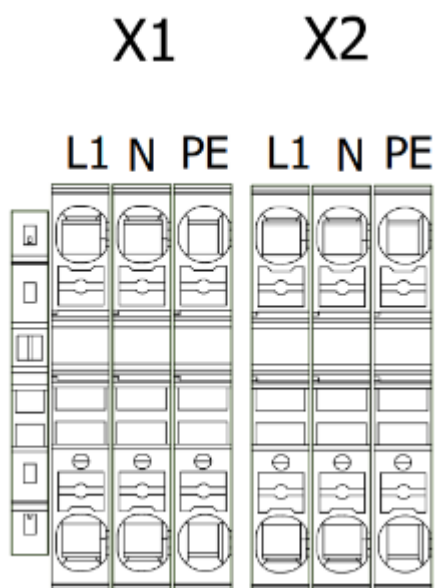
#### CAUTION

The backup heater is an integral part of the heat pump. We recommend not disconnecting, modify, or disable the backup heater or its wiring. Doing so may result in loss of domestic hot water, insufficient heating capacity, or failure of emergency heating functions.

## 11.5 Electrical connection scheme for variable capacity heat pumps without water tank, (1 P, 230 V) – IGLU Aleut 4 / 7 I

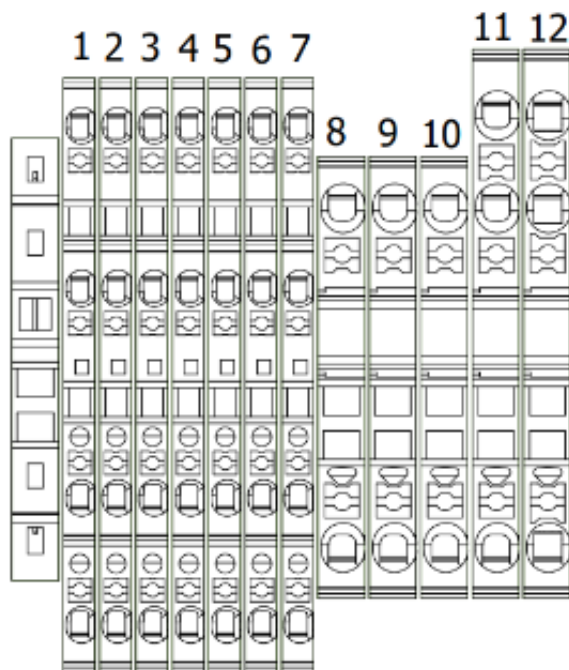


The electrical connection scheme show bridges (or jumpers), which indicate a connection between terminals. These connections are already made by the manufacturer.

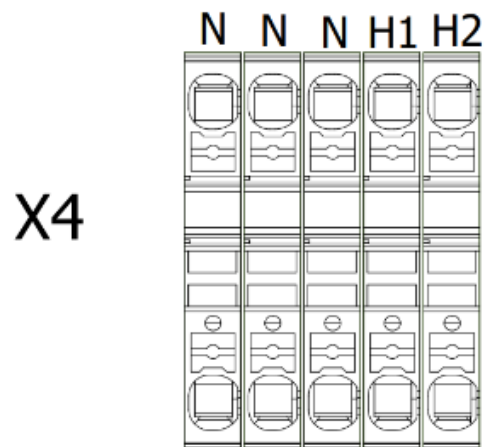


|    | No. | Component | Connection | Purpose             | Jump |
|----|-----|-----------|------------|---------------------|------|
| X1 | 1   | EL000424  | L1         | Main Input          |      |
|    | 2   | EL000425  | N          | Main Input          |      |
|    | 3   | EL000426  | PE         | Main Input          |      |
| X2 | 4   | EL000424  | L1         | Backup heater input |      |
|    | 5   | EL000425  | N          | Backup heater input |      |
|    | 6   | EL000426  | PE         | Backup heater input |      |

X3

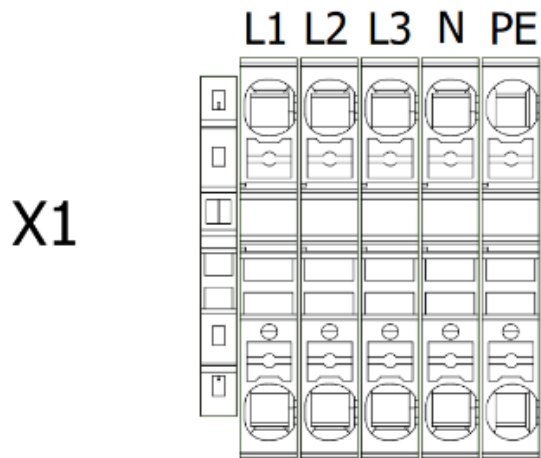


|                                               |     |          |      |                         |     |
|-----------------------------------------------|-----|----------|------|-------------------------|-----|
| X3                                            | 1.1 | EL000419 | AI3  | Boiler T                | X   |
|                                               | 1.2 |          | COM  | COM                     |     |
|                                               | 2.1 | EL000419 | AI4  | Buffer tank T           | X   |
|                                               | 2.2 |          | COM  | COM                     |     |
|                                               | 3.1 | EL000419 | AI5  | Outdoor T               | X   |
|                                               | 3.2 |          | COM  | COM                     |     |
|                                               | 4.1 | EL000419 | AI6  | Indoor T                | X   |
|                                               | 4.2 |          | COM  | COM                     |     |
|                                               | 5.1 | EL000419 | AI10 | Floor T                 | X   |
|                                               | 5.2 |          | COM  | COM                     |     |
|                                               | 6.1 | EL000419 | AI14 | Cooling T               | X   |
|                                               | 6.2 |          | COM  | COM                     |     |
|                                               | 7.1 | EL000419 | DI6  | Cooling requirement     | **X |
|                                               | 7.2 |          | DIC  | COM                     | **X |
|                                               | 8   | EL000420 | L    | Cooling valve (L3)      |     |
|                                               | 9   | EL000420 | NO2  | Cooling valve ON/OFF    |     |
|                                               | 10  | EL000420 | NO6  | Buffer tank pump ON/OFF |     |
|                                               | 11  | EL000422 | N    | Cooling valve (N)       |     |
|                                               |     |          | N    | Buffer tank pump (N)    |     |
|                                               | 12  | EL000423 | PE   | Buffer tank pump (PE)   |     |
| **Applicable only with active/passive cooling |     |          |      |                         |     |



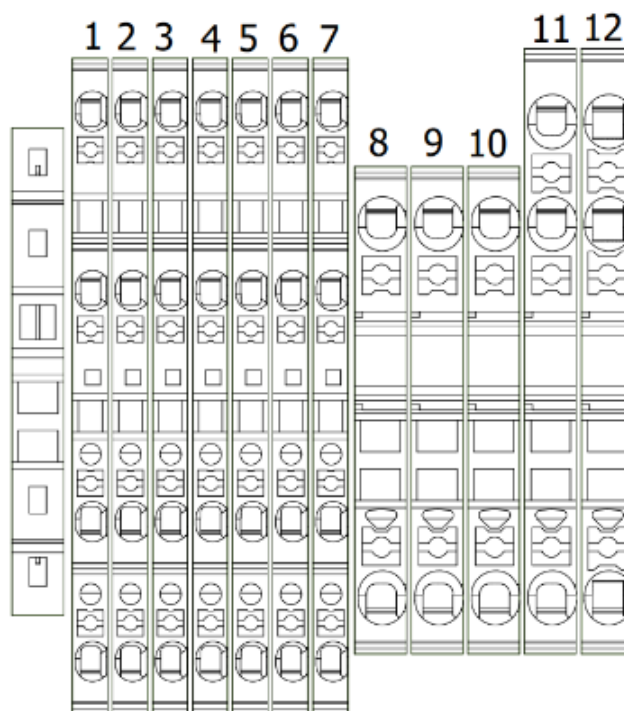
|           |          |                 |           |                   |          |
|-----------|----------|-----------------|-----------|-------------------|----------|
| <b>X4</b> | <b>1</b> | <b>EL000425</b> | <b>N</b>  | Heating element N | <b>X</b> |
|           | <b>2</b> | <b>EL000425</b> | <b>N</b>  | Heating element N | <b>X</b> |
|           | <b>3</b> | <b>EL000425</b> | <b>N</b>  | Heating element N | <b>X</b> |
|           | <b>4</b> | <b>EL000420</b> | <b>DC</b> | Choke H1          |          |
|           | <b>5</b> | <b>EL000420</b> | <b>DC</b> | Choke H2          |          |

#### 11.6 Electrical connection scheme for variable capacity heat pumps without water tank, (3 P, 400 V) – IGLU Aleut 7/12/18 I



| No.      | Component       | Connection | Purpose    | Jump |
|----------|-----------------|------------|------------|------|
| <b>1</b> | <b>EL000424</b> | <b>L1</b>  | Main Input |      |
| <b>2</b> | <b>EL000424</b> | <b>L2</b>  | Main Input |      |
| <b>3</b> | <b>EL000424</b> | <b>L3</b>  | Main Input |      |
| <b>4</b> | <b>EL000425</b> | <b>N</b>   | Main Input |      |
| <b>5</b> | <b>EL000426</b> | <b>PE</b>  | Main Input |      |

X2



|                                              |     |          |      |                         |     |
|----------------------------------------------|-----|----------|------|-------------------------|-----|
| X2                                           | 1.1 | EL000419 | AI3  | Boiler T                | X   |
|                                              | 1.2 |          | COM  | COM                     |     |
|                                              | 2.1 | EL000419 | AI4  | Buffer tank T           | X   |
|                                              | 2.2 |          | COM  | COM                     |     |
|                                              | 3.1 | EL000419 | AI5  | Outdoor T               | X   |
|                                              | 3.2 |          | COM  | COM                     |     |
|                                              | 4.1 | EL000419 | AI6  | Indoor T                | X   |
|                                              | 4.2 |          | COM  | COM                     |     |
|                                              | 5.1 | EL000419 | AI10 | Floor T                 | X   |
|                                              | 5.2 |          | COM  | COM                     |     |
|                                              | 6.1 | EL000419 | AI14 | Cooling T               | X   |
|                                              | 6.2 |          | COM  | COM                     |     |
|                                              | 7.1 | EL000419 | DI6  | Cooling requirement     | **X |
|                                              | 7.2 |          | DIC  | COM                     | **X |
|                                              | 8   | EL000420 | L    | Cooling valve (L3)      |     |
|                                              | 9   | EL000420 | NO2  | Cooling valve ON/OFF    |     |
|                                              | 10  | EL000420 | NO6  | Buffer tank pump ON/OFF |     |
|                                              | 11  | EL000422 | N    | Cooling valve (N)       |     |
|                                              |     |          | N    | Buffer tank pump (N)    |     |
|                                              | 12  | EL000423 | PE   | Buffer tank pump (PE)   |     |
| **Aplicable only with active/passive cooling |     |          |      |                         |     |



### CAUTION

The X3 terminal, shown below, is used only in the IGLU Aleut 7/12 I

X3



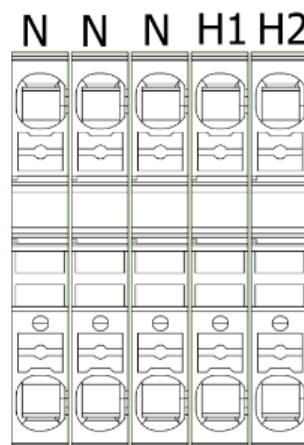
|    |   |          |   |                   |   |
|----|---|----------|---|-------------------|---|
| X3 | 1 | EL000425 | N | Heating element N | X |
|    | 2 | EL000425 | N | Heating element N | X |
|    | 3 | EL000425 | N | Heating element N | X |



### CAUTION

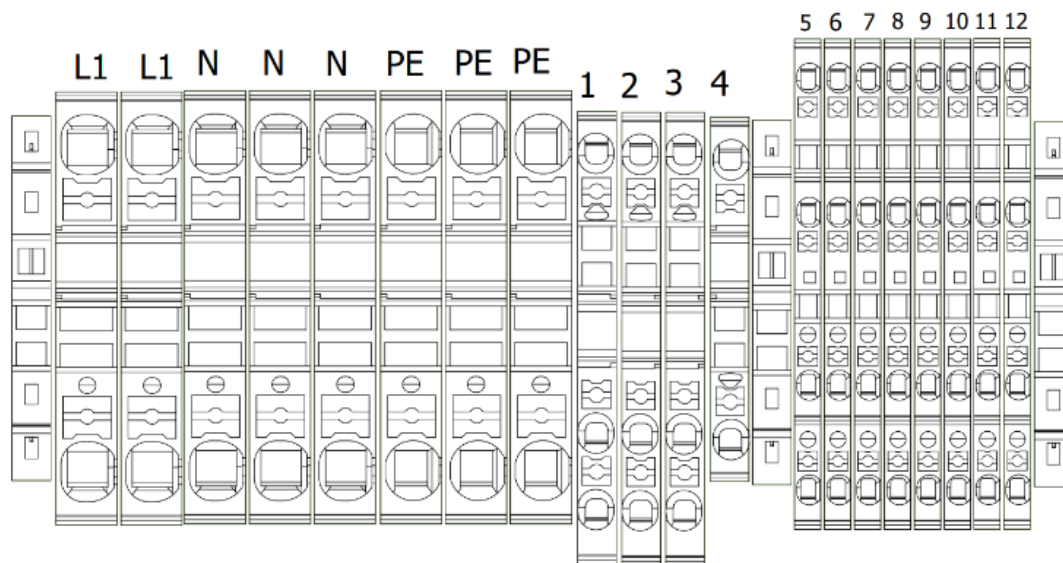
The X3 terminal, shown below, is used only in the IGLU Aleut 18 I

X3



|    |   |          |    |                   |   |
|----|---|----------|----|-------------------|---|
| X3 | 1 | EL000425 | N  | Heating element N | X |
|    | 2 | EL000425 | N  | Heating element N | X |
|    | 3 | EL000425 | N  | Heating element N | X |
|    | 4 | EL000420 | H1 | Choke             |   |
|    | 5 | EL000420 | H2 | Choke             |   |

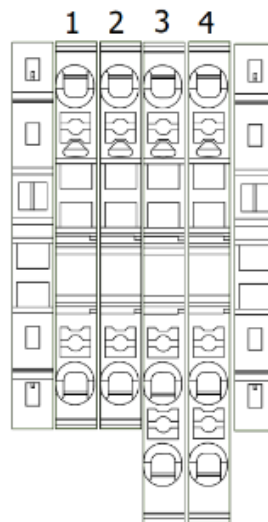
## 11.7 Electrical connection scheme for variable capacity heat pumps with water tank, (1 P, 230 V) – IGLU Aleut 4 / 7 WTI



|    | No.  | Component  | Connetion         | Purpose              |     |
|----|------|------------|-------------------|----------------------|-----|
| X1 | 1    | EL000424   | Main input L1     | Main input L1        |     |
|    | 2    | EL000424   | Main input L1     | Backup heater L1     |     |
|    | 3    | EL000425   | Main input N      | N                    | X   |
|    | 4    | EL000425   | Heating element N | N                    | X   |
|    | 5    | EL000425   | Heating element N | N                    | X   |
|    | 6    | EL000426   | Main input GND    | Main input GND       | X   |
|    | 7    | EL000426   | Compressor PE     | Heating element PE   | X   |
|    | 8    | EL000426   | GND - Buffer tank | GND - Buffer tank    | X   |
| X2 | 1    | EL000422   | N                 | Unit N               | X   |
|    | 2    | EL000422   | N                 | Unit N               | X   |
|    | 3    | EL000421   | L3 230V           | L3 (Valves)          |     |
|    | 4    | EL000421   | NO6               | Buffer tank pump     |     |
|    | 5.1  | EL000419   | NO2               | Cooling valve        |     |
|    | 5.2  |            | NO3               | Hot water valve      |     |
|    | 6.1  | EL000419   | DI9               | Cooling requirement  | **X |
|    | 6.2  |            | COM               | GND                  | **X |
|    | 7.1  | EL000419   | AI4               | Buffer tank T        |     |
|    | 7.2  |            | COM               | GND                  | X   |
|    | 8.1  | EL000419   | AI5               | Outdoor T            |     |
|    | 8.2  |            | COM               | GND                  | X   |
|    | 9.1  | EL000419   | AI6               | Indoor T             |     |
|    | 9.2  |            | COM               | GND                  | X   |
|    | 10.1 | EL000419   | AI10              | Floor T              |     |
|    | 10.2 |            | COM               | GND                  | X   |
|    | 11.1 | **EL000419 | AI14              | Cooling T            |     |
|    | 11.2 |            | COM               | GND                  | X   |
|    | 12.1 | **EL000419 | NO17              | Mixing valve [open]  |     |
|    | 12.2 |            | NO18              | Mixing valve [close] |     |

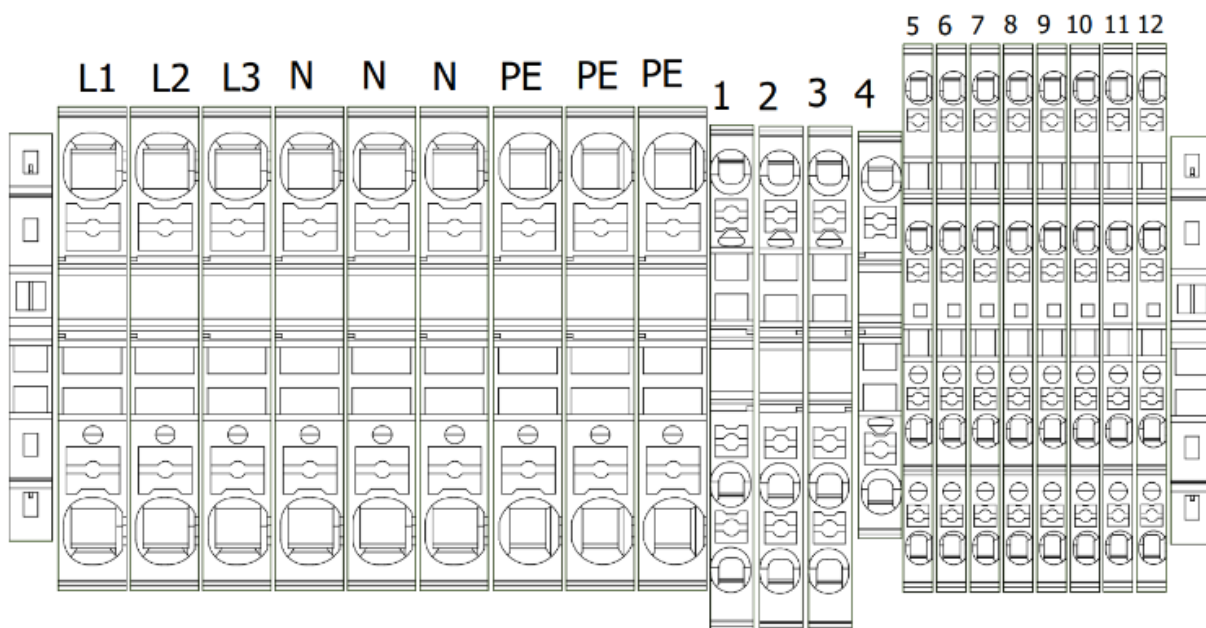
**\*\*Applicable only with passive cooling**

# -X7



| No. | Compoent | Connection  | Purpose               |
|-----|----------|-------------|-----------------------|
| 1   | EL000420 | NO7 -> X4:1 | Outside pump (ON/OFF) |
| 2   | EL000420 | NO1 -> X4:4 | Inside pump (ON/OFF)  |
| 3   | EL000421 | L3 230V     | 230V                  |
| 4   | EL000422 | N           | Unit N                |

## 11.8 Electrical connection scheme for variable capacity heat pumps with water tank, (3 P, 400 V) – IGLU Aleut 4/7/12/18 WTI



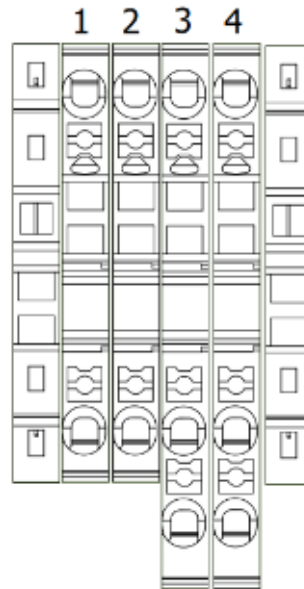
| X1 | No.  | Component  | Connetion         | Purpose              |     |
|----|------|------------|-------------------|----------------------|-----|
|    | 1    | EL000424   | Main input L1     | Main input L1        |     |
|    | 2    | EL000424   | Main input L2     | Main input L2        |     |
|    | 3    | EL000424   | Main input L3     | Main input L3        |     |
|    | 4    | EL000425   | Main input N      | N                    | X   |
|    | 5    | EL000425   | Heating element N | N                    | X   |
|    | 6    | EL000425   | Heating element N | N                    | X   |
|    | 7    | EL000426   | Main input GND    | Main input GND       | X   |
|    | 8    | EL000426   | Compressor PE     | Heating element PE   | X   |
|    | 9    | EL000426   | GND - Buffer tank | GND - Buffer tank    | X   |
| X2 | 1    | EL000422   | N                 | Unit N               | X   |
|    | 2    | EL000422   | N                 | Unit N               | X   |
|    | 3    | EL000421   | L3 230V           | L3 (Valves)          |     |
|    | 4    | EL000421   | NO6               | Buffer tank pump     |     |
|    | 5.1  | EL000419   | NO2               | Cooling valve        |     |
|    | 5.2  |            | NO3               | Hot water valve      |     |
|    | 6.1  | EL000419   | DI9               | Cooling requirement  | **X |
|    | 6.2  |            | COM               | GND                  | **X |
|    | 7.1  | EL000419   | AI4               | Buffer tank T        |     |
|    | 7.2  |            | COM               | GND                  | X   |
|    | 8.1  | EL000419   | AI5               | Outdoor T            |     |
|    | 8.2  |            | COM               | GND                  | X   |
|    | 9.1  | EL000419   | AI6               | Indoor T             |     |
|    | 9.2  |            | COM               | GND                  | X   |
|    | 10.1 | EL000419   | AI10              | Floor T              |     |
|    | 10.2 |            | COM               | GND                  | X   |
|    | 11.1 | **EL000419 | AI14              | Cooling T            |     |
|    | 11.2 |            | COM               | GND                  | X   |
|    | 12.1 | **EL000419 | NO17              | Mixing valve [open]  |     |
|    | 12.2 |            | NO18              | Mixing valve [close] |     |

**\*\*Aplicable only with passive cooling**

**CAUTION:**

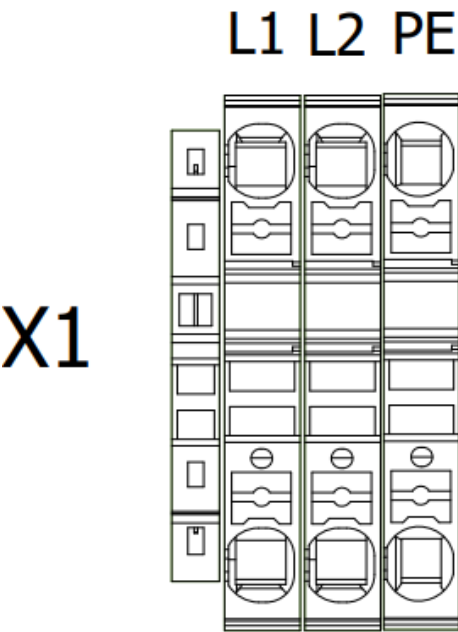
Only IGLU Aleut 4 WTI (3phase) and Aleut 7 WTI (3phase) uses -X7 terminal.

# -X7

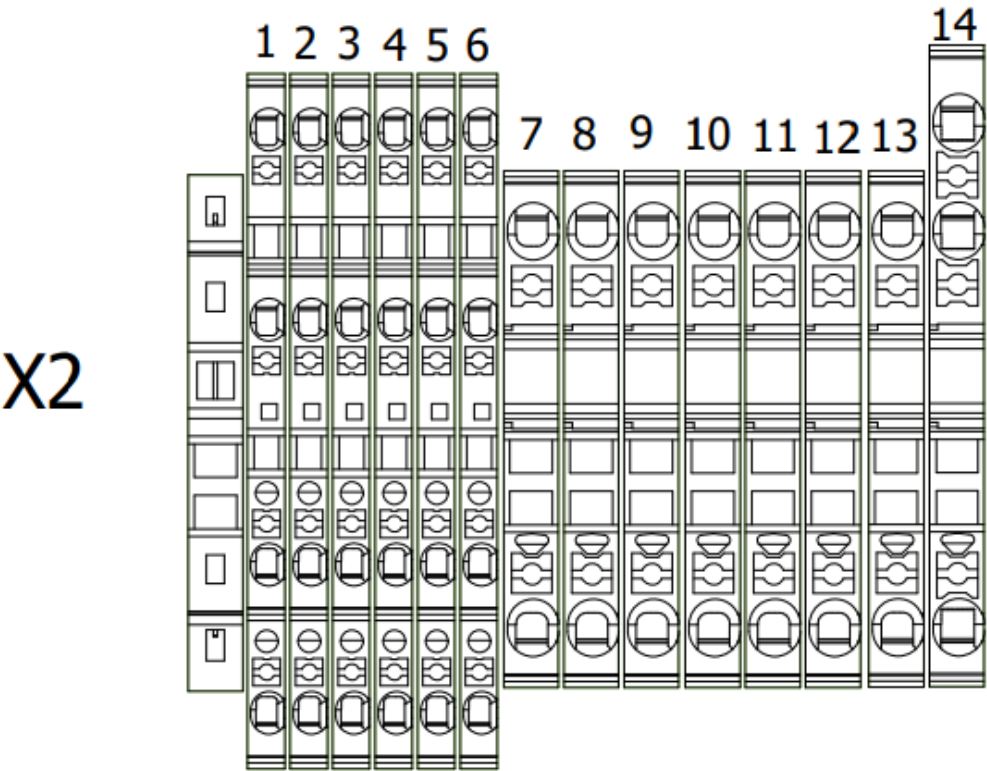


| No. | Compoent | Connection  | Purpose               |
|-----|----------|-------------|-----------------------|
| 1   | EL000420 | NO7 -> X4:1 | Outside pump (ON/OFF) |
| 2   | EL000420 | NO1 -> X4:4 | Inside pump (ON/OFF)  |
| 3   | EL000421 | L3 230V     | 230V                  |
| 4   | EL000422 | N           | Unit N                |

**11.9 Electrical connection scheme for variable capacity heat pumps with water tank, (2 P, 230 V) – IGLU Aleut 4 I / 7 I / 12 I - Applicable to Norwegian Installations Only**



| No. | Component | Connection | Purpose    | Jumper |
|-----|-----------|------------|------------|--------|
| 1   | EL000617  | L1         | Main Input |        |
| 2   | EL000617  | L2         | Main Input |        |
| 3   | EL000633  | PE         | Main Input |        |



|     |          |      |                         |   |
|-----|----------|------|-------------------------|---|
| 1.1 | EL000419 | AI3  | Boiler T                | X |
| 1.2 |          | COM  | COM                     |   |
| 2.1 | EL000419 | AI4  | Buffer tank T           | X |
| 2.2 |          | COM  | COM                     |   |
| 3.1 | EL000419 | AI5  | Outdoor T               | X |
| 3.2 |          | COM  | COM                     |   |
| 4.1 | EL000419 | AI6  | Indoor T                | X |
| 4.2 |          | COM  | COM                     |   |
| 5.1 | EL000419 | AI10 | Floor T                 | X |
| 5.2 |          | COM  | COM                     |   |
| 6,1 | EL000419 | DI6  | Cooling requirement     | X |
| 6,2 |          | DIC  | COM                     | X |
| 7   | EL000420 | L2   | Cooling valve (L2)      |   |
| 8   | EL000420 | L3   | Cooling valve (L3)      |   |
| 9   | EL000420 | NO2  | Cooling valve ON/OFF    |   |
| 10  | EL000420 | NO3  | Three-way valve ON/OFF  |   |
| 11  | EL000420 | L2   | Buffer tank pump (L2)   |   |
| 12  | EL000420 | L3   | Buffer tank pump (L3)   |   |
| 13  | EL000420 | NO6  | Buffer tank pump ON/OFF |   |
| 14  | EL000423 | PE   | Buffer tank pump (PE)   |   |

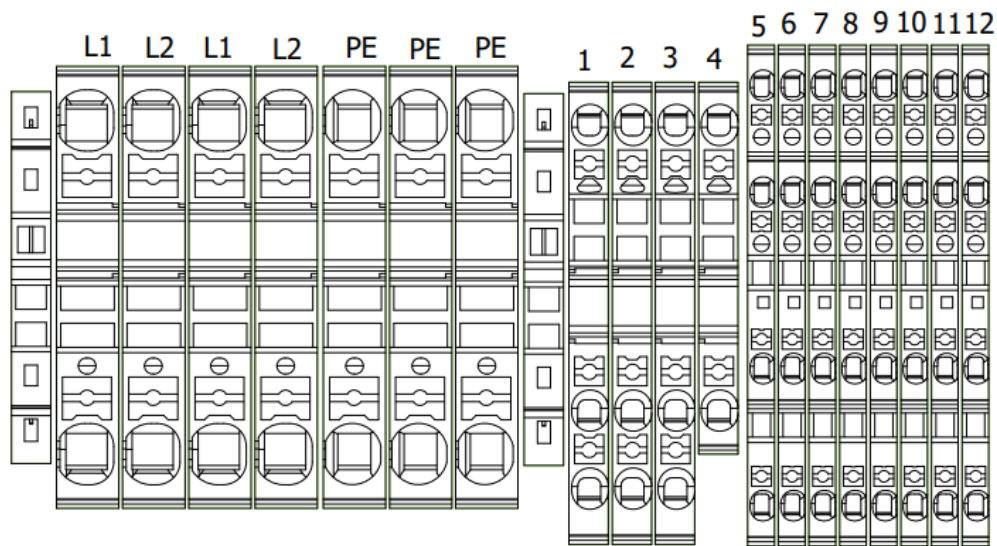
PE



X3

|   |          |    |              |
|---|----------|----|--------------|
| 1 | EL000423 | PE | Heater Input |
|---|----------|----|--------------|

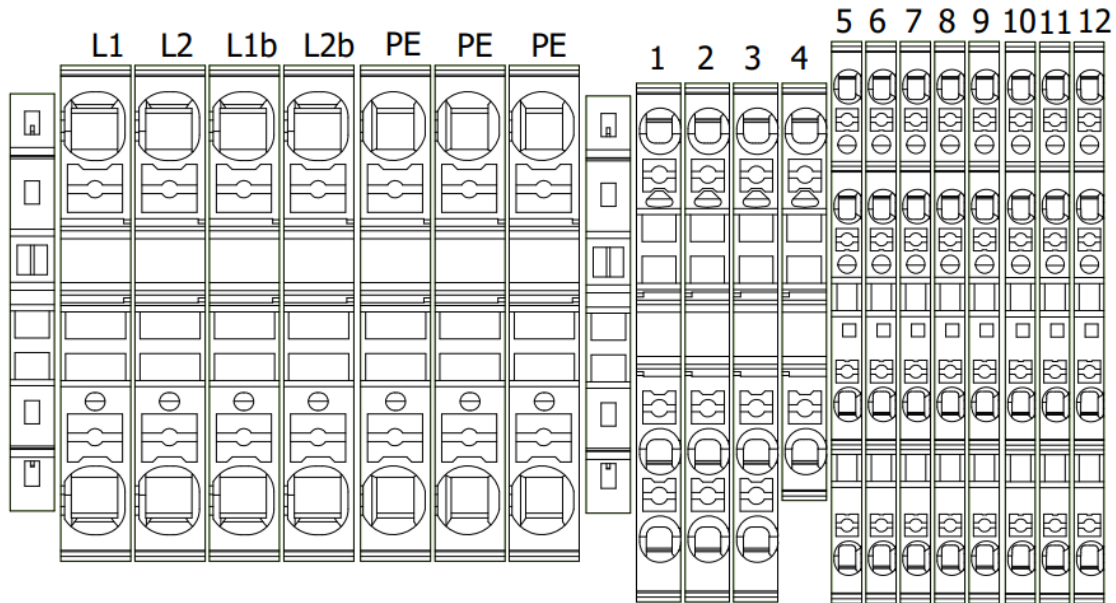
**11.10 Electrical connection scheme for variable capacity heat pumps with water tank, (2 P, 230 V) – IGLU Aleut 4 WTI / 7WTI - Applicable to Norwegian Installations Only**



| X1 | No.  | Component | Connexion         | Purpose              |     |
|----|------|-----------|-------------------|----------------------|-----|
|    | 1    | EL000424  | Main input L1     | Main input L1        |     |
|    | 2    | EL000424  | Main input L1     | Main input L2        |     |
|    | 3    | EL000424  | Main input L1     | Backup heater L1     |     |
|    | 4    | EL000424  | Main input        | Bacup heater L2      |     |
|    | 8    | EL000426  | Main input GND    | Main input GND       | X   |
|    | 9    | EL000426  | Compressor PE     | Heating element PE   | X   |
|    | 10   | EL000426  | GND - Buffer tank | GND - Buffer tank    | X   |
| X2 | 1    | EL000421  | L2 110V           | Unit 110V            | X   |
|    | 2    | EL000421  | L2 110V           | Unit 110V            | X   |
|    | 3    | EL000421  | L3 110V           | L3 (Valves)          |     |
|    | 4    | EL000420  | NO6               | Buffer tank pump     |     |
|    | 5.1  | EL000419  | NO2               | Cooling valve        |     |
|    | 5.2  |           | NO3               | Hot water valve      |     |
|    | 6.1  | EL000419  | DI9               | Cooling requirement  | X** |
|    | 6.2  |           | COM               | GND                  | X** |
|    | 7.1  | EL000419  | AI4               | Buffer tank T        |     |
|    | 7.2  |           | COM               | GND                  | X   |
|    | 8.1  | EL000419  | AI5               | Outdoor T            |     |
|    | 8.2  |           | COM               | GND                  | X   |
|    | 9.1  | EL000419  | AI6               | Indoor T             |     |
|    | 9.2  |           | COM               | GND                  | X   |
|    | 10.1 | EL000419  | AI10              | Floor T              |     |
|    | 10.2 |           | COM               | GND                  | X   |
|    | 11.1 | EL000419  | AI14              | Cooling T            |     |
|    | 11.2 |           | COM               | GND                  | X   |
|    | 12.1 | EL000419  | NO17              | Mixing valve [open]  |     |
|    | 12.2 |           | NO18              | Mixing valve [close] |     |

**Aplicable only with passive cooling**

### 11.11 Electrical connection scheme for variable capacity heat pumps with water tank, (2 P, 230 V) – IGLU Aleut 12 WTI - Applicable to Norwegian Installations Only



| No.  | Component | Connetion         | Purpose              |   |
|------|-----------|-------------------|----------------------|---|
| 1    | EL000424  | Main input L1     | Main input L1        |   |
| 2    | EL000424  | Main input L2     | Main input L2        |   |
| 3    | EL000424  | Heater input L1b  | Heater input L1b     |   |
| 4    | EL000424  | Heater input L2b  | Heater input L2b     |   |
| 5    | EL000426  | Main input GND    | Main input GND       | X |
| 6    | EL000426  | Heater input PE   | Heater input PE      | X |
| 7    | EL000426  | GND - Buffer tank | GND - Buffer tank    | X |
|      |           |                   |                      |   |
| 1    | EL000421  | L2 110V           | Unit 110V            | X |
| 2    | EL000421  | L2 110V           | Unit 110V            | X |
| 3    | EL000421  | L1 110V           | L3 (Valves)          |   |
| 4    | EL000420  | NO6               | Buffer tank pump     |   |
| 5.1  | EL000419  | NO2               | Cooling valve        |   |
| 5.2  |           | NO3               | Hot water valve      |   |
| 6.1  | EL000419  | DI9               | Cooling requirement  | X |
| 6.2  |           | COM               | GND                  | X |
| 7.1  | EL000419  | AI4               | Buffer tank T        |   |
| 7.2  |           | COM               | GND                  | X |
| 8.1  | EL000419  | AI5               | Outdoor T            |   |
| 8.2  |           | COM               | GND                  | X |
| 9.1  | EL000419  | AI6               | Indoor T             |   |
| 9.2  |           | COM               | GND                  | X |
| 10.1 | EL000419  | AI10              | Floor T              |   |
| 10.2 |           | COM               | GND                  | X |
| 11.1 | EL000419  | AI14              | Cooling T            |   |
| 11.2 |           | COM               | GND                  |   |
| 12.1 | EL000419  | NO17              | Mixing valve [open]  |   |
| 12.2 |           | NO18              | Mixing valve [close] |   |

Applicable only with passive cooling

## 12. Pre-Startup Checklist

Before requesting startup by authorized service personnel, the installer must verify that the following conditions are met.

### General Installation

- ☐ The heat pump has been installed in accordance with this Installation Manual.
- ☐ The installation room is clean, dry, and adequately ventilated.
- ☐ Clearances for service access have been respected.

### Hydraulic Circuits

- ☐ The heating circuit has been flushed, filled, and properly vented.
- ☐ The pressures in outdoor and indoor circuits meet the requirements
- ☐ The brine circuit has been flushed, filled with the correct glycol concentration, and properly vented.
- ☐ Expansion vessels are installed, correctly sized, and pre-charged to the proper pressure.
- ☐ Safety valves are installed, and discharge pipes are safely routed to a drain.
- ☐ Dirt strainers and magnetic/cyclone filters are installed and accessible.
- ☐ Piping is leak-tight and properly insulated.
- ☐ Drain taps are installed at low points for future maintenance.

### Electrical Installation

- ☐ The electrical installation has been completed in accordance with local legislation and the wiring diagram.
- ☐ The cables have been laid in accordance with the requirements up to the outdoor and hot water tank and control panel.
- ☐ A dedicated power supply, correctly rated fuses, and an RCD/ELCB (compatible with inverter noise) are installed.
- ☐ Protective earth (PE) is connected.
- ☐ All cables are securely connected, protected from mechanical stress, and correctly routed.

### Domestic Hot Water

- ☐ The DHW tank has been flushed with fresh water immediately after installation, and hygienic measures have been followed.
- ☐ The DHW safety valve and expansion vessel are installed.
- ☐ Pipe runs are as short as possible to avoid stagnation.

### Connectivity

- ☐ Wi-Fi or wired internet connection is available to be able to monitor and control the heat pump remotely.

**NOTE**

The startup may only be carried out by qualified installers authorized by the manufacturer. For the detailed startup procedure, refer to the “**IGLU Heat Pump Startup Manual for Installers.**” Upon completion of commissioning, the responsible service technician must complete and sign the official start-up report.

### 13. Maintenance Instructions

Regular maintenance ensures optimal efficiency, reliability, and lifetime of the ground source heat pump system.

**CAUTION**

- Disconnect the heat pump from the power supply before any maintenance work.
- Maintenance work must be performed by a qualified service technician or an authorized installer.
- Observe all national and local regulations related to refrigerants, electrical work, and pressure systems.

| Maintenance work                                                                                                            | Frequency       |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>General system condition</b>                                                                                             |                 |
| Inspect indoor and outdoor pipework, insulation, and fittings. Check for corrosion, mechanical damage, or signs of leakage. | Every 6 months  |
| Check the general condition of the unit and ensure it is leak-tight. Check for brine or water leakage inside the unit.      | Every 6 months  |
| Check performance of overall system (functional test)                                                                       | Every 6 months  |
| Report any abnormalities or recurring alarms to distributor/service partner                                                 | As needed       |
| <b>Ground / Water loop system</b>                                                                                           |                 |
| Check water flow rate: Ensure it matches system specifications.                                                             | Every 6 months  |
| Inspect water pump operation: Check for noise, vibration, or leaks.                                                         | Every 6 months  |
| Test entering and leaving water temperatures.                                                                               | Every 6 months  |
| Flush loop system periodically to remove sediment or buildup.                                                               | Every 6 months  |
| Check glycol mixture concentration (for closed-loop systems).                                                               | Every 6 months  |
| Test pressure and expansion tank (closed loops).                                                                            | Every 6 months  |
| Clean and flush all filters and strainers in brine and heating circuits                                                     | Every 6 months  |
| <b>Heat exchanger (Water side)</b>                                                                                          |                 |
| Inspect and clean the plate/tube-in-tube heat exchanger.                                                                    | Annually        |
| Descale the water side if mineral buildup is suspected                                                                      | Annually        |
| Confirm heat transfer efficiency (compare temperature delta across exchanger)                                               | Annually        |
| <b>Refrigeration system</b>                                                                                                 |                 |
| Check refrigerant pressures and superheat/subcooling                                                                        | Annually        |
| Inspect refrigerant lines for leaks, insulation, and vibrations.                                                            | Annually        |
| Test expansion valve operation                                                                                              | Annually        |
| Verify reversing valve (for heating/cooling changeover).                                                                    | Annually        |
| <b>Electrical and Controls</b>                                                                                              |                 |
| Inspect electrical connections and safety devices                                                                           | Every 6 months  |
| Check temperature sensors calibration and operation                                                                         | Every 6 months  |
| Inspect capacitors, contactors, and relays.                                                                                 | Every 6 months  |
| Test safety switches and control logic                                                                                      | Every 6 months  |
| Check control software and firmware; update if available                                                                    | On Availability |



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