igl.u
HEAT PUMPS

INSTALLATION MANUAL

GROUND SOURCE HEAT PUMPS **IGLU Aleut**

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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 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

PURPOSE

The manual is intended only for persons 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.

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 a written consent of the manufacturer.

WARRANTY

- The product has a 24-month warranty upon submission of the purchase documents.
- The product warranty can be extended up to 60 months with annual heat pump maintenance.
- Warranty and post-warranty provisions are available in the purchase documents.

SAFETY

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.

DANGER!
Danger of fatal injuries due to electric shock!
The electrical connection may only be installed by a qualified electrician.
Prior to opening the device, disconnect the system from the power supply and prevent it from being switched on again!

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

WARNING!
Observe the safety signs on and inside the device.

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;
- inform the manufacturer's customer service.

! ATTENTION
Do not use pure water in the outdoor circuit.

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 ºC.

SELECTION OF THE INSTALLATION PLACE

- When choosing the installation place of the heat pump, keep in mind that the heat pump produces a certain level of noise (see table “Heat pump technical data”).
- The device must be mounted on a flat and stationary surface with a permissible load of at least 500 kstr. Minor surface irregularities can be compensated by adjusting the feet of the device.
- The ambient temperature near the heat pump must be between 10°C and 35°C, and the relative humidity must not exceed 80%.
- There must be no aggressive chemicals in the environment.
- The heat pump should not be installed close to walls; the front of the unit should always be accessible.
- A drainage system must be provided in the room where the unit is installed. In this case, leaking water can be drained.
- Do not use extra platforms.
- 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 407 C	0,31 kg/m³
R 410 A	0,44 kg/m³

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

PRELIMINARY PREPARATION OF THE PIPELINES

The connecting pipes for the outdoor circuit, the heating circuit and, if provided, the hot water circuit must be laid up to the intended location of the heat pump. Install an expansion vessel, safety valves, coarse suction filters and pressure gauges for the outdoor, heating circuit water tank. The circuits must have a provided filling point.

OUTDOOR CIRCUIT

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.

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.

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.

Set the pressure of the heating circuit in the expansion vessel to 1.5 bar. Usually the replenishment of the heating circuit is stationary, pre-connected to the water inlet, in which case the replenishment takes place individually according to the system. If the filler in the heating circuit is not water, then the system is filled with the appropriate liquid. As an additional protection against freezing, in some cases the water in the heating system may be mixed with glycol, however, this concentration should not exceed 15%. In this case, the efficiency of the heat pump decreases.

Flow through the heating system

A bypass is required in the mixing circuit, if an adjustable circulation pump is used, which is controlled by differential pressure. **Bypass is not included with the heat pump.** If a buffer tank bypass is installed in parallel with the heating system, no bypass is required.

Heating system filter and valves

The heat pump does not include a filter and a safety valve. These components must be installed on the pre-prepared heating system return line. The safety valve shall be installed vertically.

WARNING!
Do not leave the safety valve closed.

Internal circuit circulation pump

The internal 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.

Heating system rinsing and filling

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;

- 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)

THERMAL INSULATION

All heat and cold conductive parts of the piping must be insulated with special means of thermal insulation in accordance with current standards. The main normative document, which defines the requirements for thermal insulation, is Order No 1-245 of the Minister of Energy of the Republic of Lithuania “ON THE APPROVAL OF RULES FOR INSTALLATION OF THERMAL INSULATION OF EQUIPMENT AND HEAT TRANSMISSION NETWORKS” of 20 September 2017.

ELECTRICAL CONNECTION WORKS

DANGER!
Risk of electric shock! Always disconnect the device from the power supply prior to work on the electrical system parts.

- For models without water tank, remove the upper cover of the heat pump, unscrew the screws in the back of the unit. For with a water tank - unscrew the screws of the front heat pump cover in the upper part of the unit.
- Connect the power cable (see section "Electrical connection diagrams") according to the heat pump model. For heat pumps without a water tank, connect the power cable to the X1, where L1, L2, L3, N and PE are marked, respectively. For models of heat pumps with water tank, at the X1 terminals of the heat pump inlet, respectively: L1, L2, L3 phases and N and PE conductors.

Temperature sensors

The temperature sensors for the outdoor and water heater are connected to the terminal blocks, which are shown in the layout diagram of the control elements (see, Section: “Heat pump electrical connection diagram”). A two-core 0.5 ÷ 1mm^2 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^2 cable must be routed from the heat pump to the hot water tank.

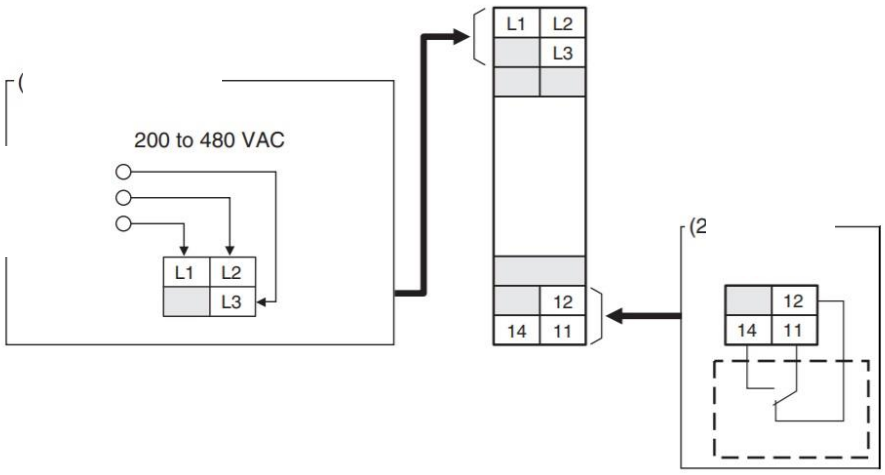
☞ **Next: Heat pump electrical connection diagram.**

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		

Phase sequence relay

The heat pump features a built-in phase sequence relay that ensures that the compressor is running in the correct phase sequence. The relay is equipped with PWR and OUT indicator lights. When the heat pump is switched on and the phases are in the correct sequence, the PWR display lights up yellow and OUT lights up green. If it is not connected properly, the PWR indicator lights up in yellow and the OUT indicator does not light up. In this case, reset the correct phase sequence so that the OUT indicator lights up in green.



WARNING!
Do not connect anything to the terminals that are dark grey
The phase sequence relay also responds to voltage that is too low or too high. If the voltage is too low or too high, the compressor operation will stop. When the voltage is within tolerance again, the compressor operation is resumed.

Control panel

The control panel is installed in the room according to which you want to control the heating temperature. The panel must be easily accessible in a point about 1.5 m above the floor. An online 5cat network cable must be routed from the heat pump to the control panel mounting location.

START OF OPERATION

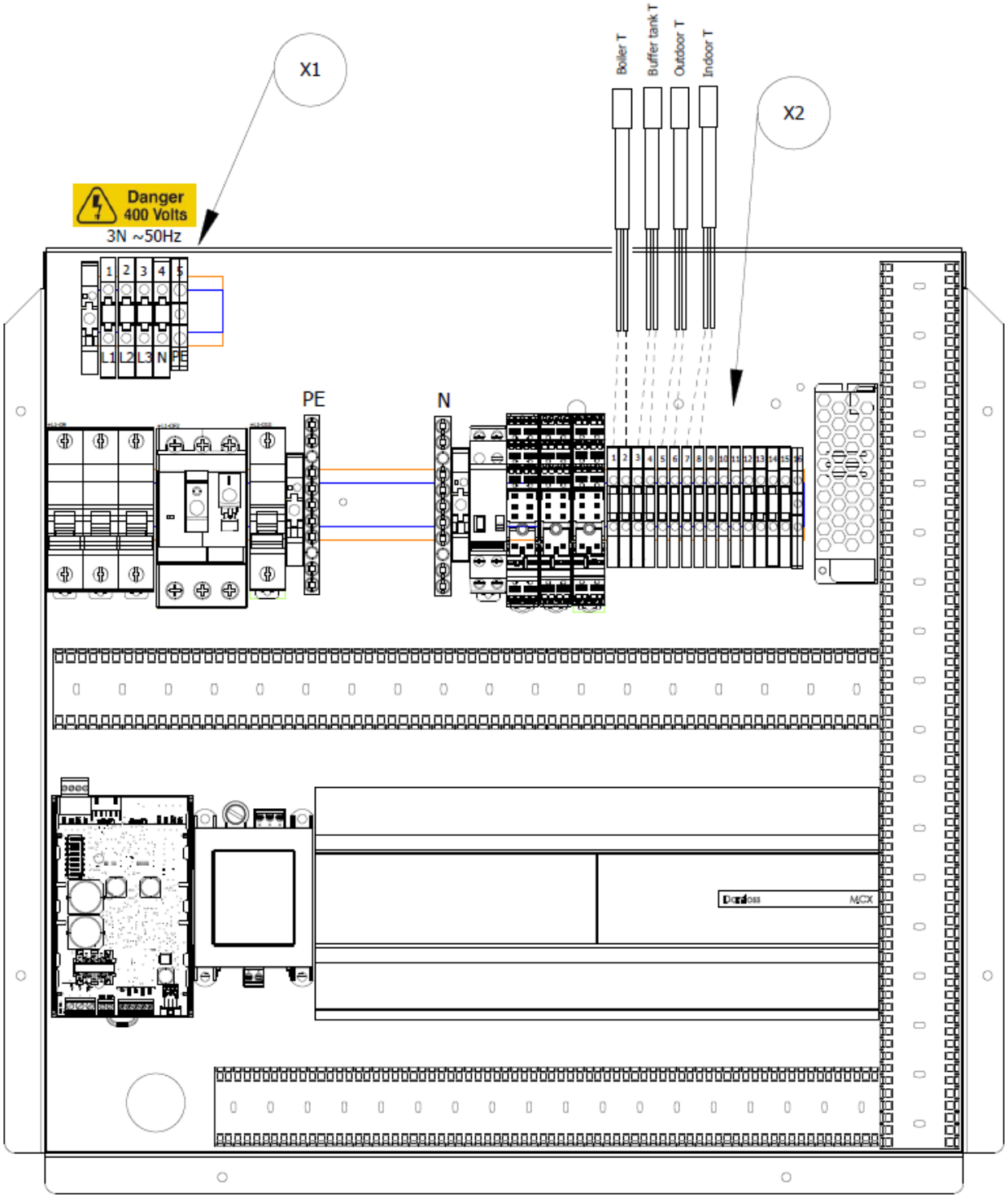
Prior to start of operation of the heat pump, be sure to check that:

- the heat pump has been installed in accordance with the requirements of this operating manual;
- the electrical installation works have been properly performed;
- the heating circuit has been flushed and properly filled;
- all valves and shut-off devices in the heating system are open;
- all piping systems and components are leakproof;
- the pressures in outdoor and indoor circuits meet the requirements;
- the cables have been laid in accordance with the requirements up to the outdoor and hot water tank and control panel;
- Wi-Fi or wired internet connection is available to be able to monitor and control the heat pump remotely.

The heat pump must be started by the customer service personnel authorised by the manufacturer. **Start-up and adjustment work is performed against remuneration!** Once the work is completed, the person responsible for the start-up shall fill our and sign the heat pump start-up report.

Electrical connection schemes (3P, 400V ~50Hz)

Electrical connection scheme for fixed capacity heat pumps without water tank – IGLU Aleut 5/7/9/11/13/16



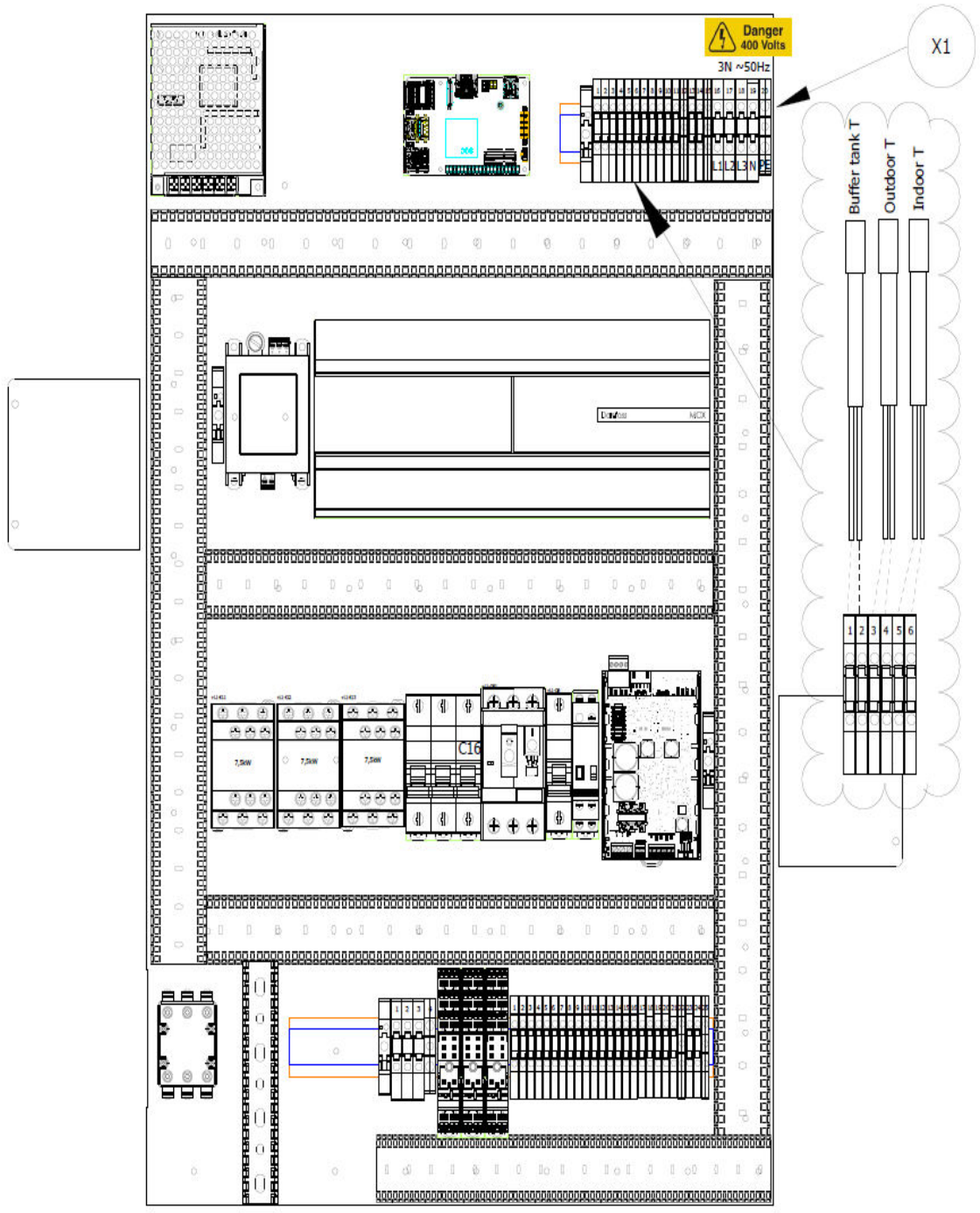
Electrical connection scheme – IGLU Aleut 5/7/9/11/13/16

Note: the configuration of electrical cabinet may differ dependent from the particular heat pump and it's capacity but the connections of the electrical terminals remain the same (X1; X2)

X1		X2	
1	L1 Main input	1	Boiler temperature sensor
2	L2 Main input	2	COM
3	L3 Main input	3	Buffer tank temperature sensor
4	N Main input	4	COM
5	PE Main input	5	Outdoor temperature sensor
		6	COM
		7	Indoor temperature sensor
		8	COM
		9	Fan coil passive cooling requirement
		10	COM
		11	Cooling valve (N)
		12	Cooling valve (L3)
		13	Cooling valve ON/OFF
		14	Buffer tank pump (N)
		15	Buffer tank pump ON/OFF
		16	Buffer tank pump (PE)

Electrical connection terminals – IGLU Aleut 5/7/9/11/13/16

Electrical connection scheme for fixed capacity heat pumps with water tank – IGLU Aleut 5/7/9/11/13/16 WT

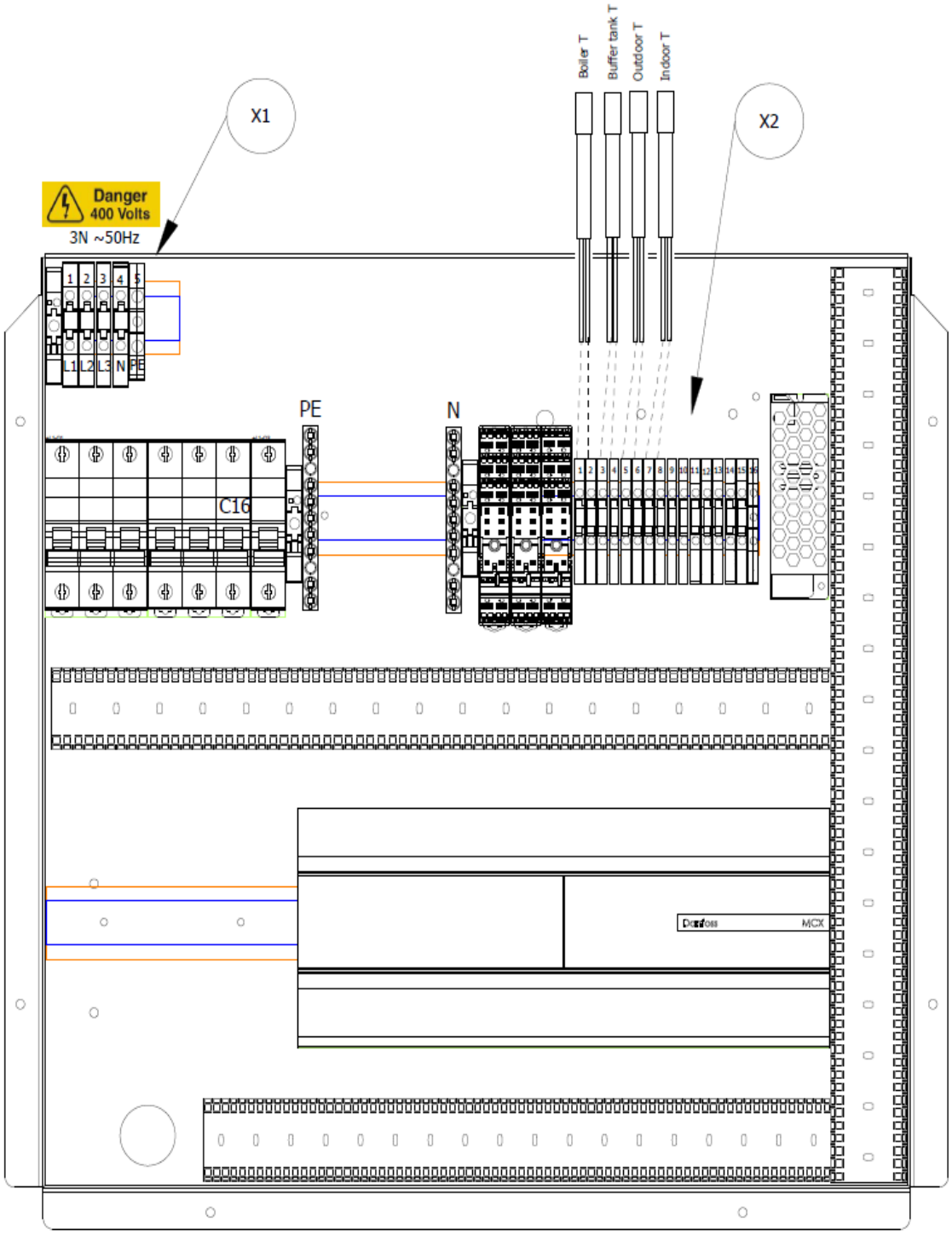


Electrical connection scheme – IGLU Aleut 5/7/9/11/13/16 WT

Note: the configuration of electrical cabinet may differ dependent from the particular heat pump and it's capacity but the connections of the electrical terminals remain the same (X1)

X1			
1	Buffer tank temperature sensor	11	N
2	COM	12	PE
3	Outdoor temperature sensor	13	Buffer tank pump ON/OFF (L3)
4	COM	14	N
5	Indoor temperature sensor NTC10K	15	PE
6	COM	16	L1 Main input
7	Fan coil passive cooling	17	L2 Main input
8	COM	18	L3 Main input
9	Passive cooling valve ON/OFF (L3)	19	N Main input
10	L3	20	PE Main input

Electrical connection terminals - IGLU Aleut 5/7/9/11/13/16 WT

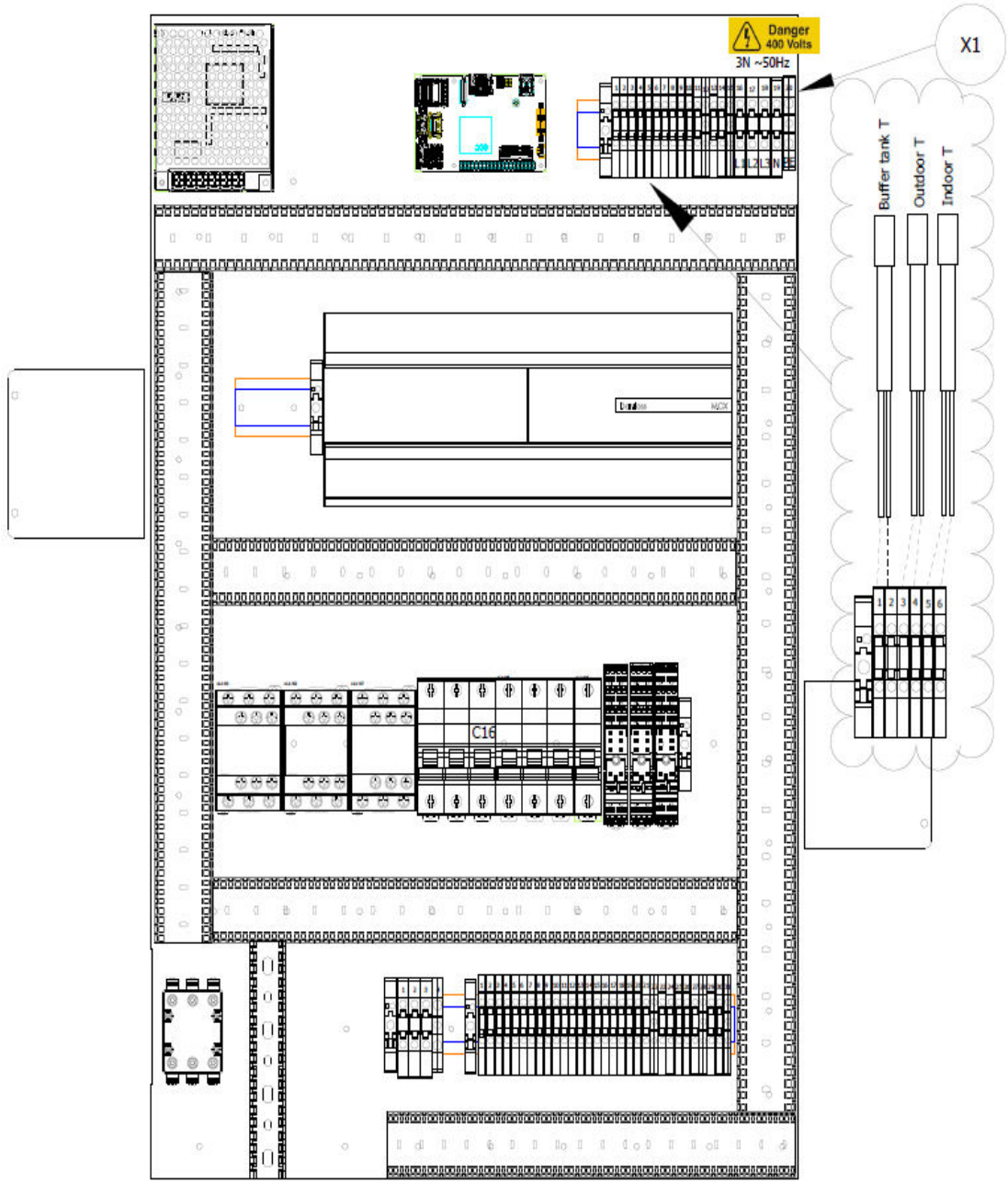


Electrical connection scheme – IGLU Aleut 7/12/18 I

Note: the configuration of electrical cabinet may differ dependent from the particular heat pump and it's capacity but the connections of the electrical terminals remain the same (X1; X2)

X1		X2	
1	L1 Main input	1	Boiler temperature sensor NTC10K
2	L2 Main input	2	COM
3	L3 Main input	3	Buffer tank temperature sensor NTC10K
4	N Main input	4	COM
5	PE Main input	5	Outdoor temperature sensor NTC10K
		6	COM
		7	Indoor temperature sensor NTC10K
		8	COM
		9	Fan coil passive cooling requirement
		10	COM
		11	Cooling valve (N)
		12	Cooling valve (L3)
		13	Cooling valve ON/OFF
		14	Buffer tank pump (N)
		15	Buffer tank pump ON/OFF
		16	Buffer tank pump (PE)

Electrical connection terminals - IGLU Aleut 7/12/18 I



Electrical connection scheme – IGLU Aleut 7/12/18 WTI

Note: the configuration of electrical cabinet may differ dependent from the particular heat pump and it's capacity but the connections of the electrical terminals remain the same (X1)

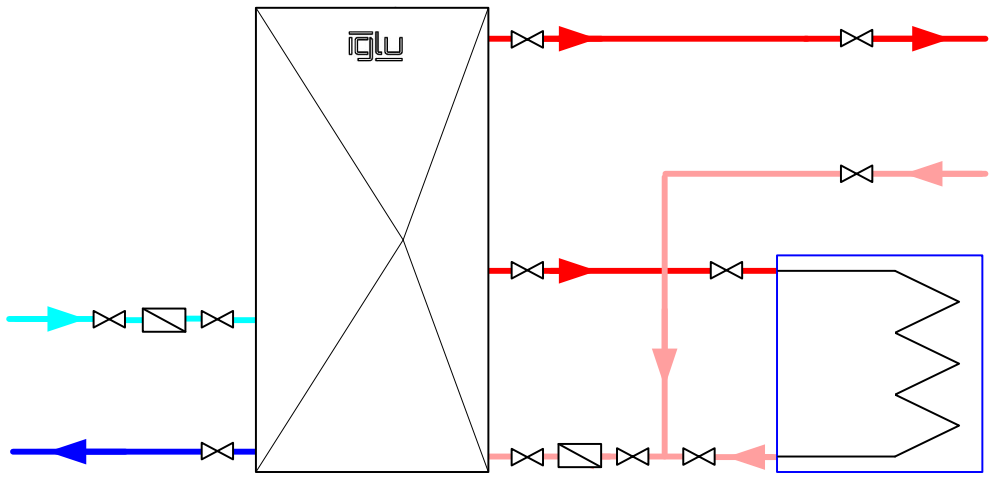
X1			
1	Buffer tank temperature sensor	11	N
2	COM	12	PE
3	Outdoor temperature sensor	13	Buffer tank pump ON/OFF (L3)
4	COM	14	N
5	Indoor temperature sensor	15	PE
6	COM	16	L1 Main input
7	Fan coil passive cooling	17	L2 Main input
8	COM	18	L3 Main input
9	Passive cooling valve ON/OFF (L3)	19	N Main input
10	L3	20	PE Main input

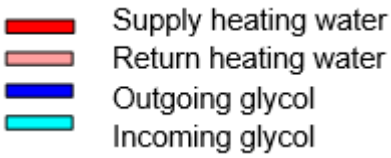
Electrical connection terminals - IGLU Aleut 7/12/18 WTI

HEAT PUMP CLASSIC CONNECTION DIAGRAM

The most popular heating system connection diagram, which is the most cost-effective in terms of cost and installation. When the hot water is heated to the set temperature, a three-way valve inside the heat pump switches to home heating, where the heat is transferred to the home in a low-temperature medium. The manufacturer recommends the use of underfloor heating for this connection method.

Each heat pump has the ability to connect to the Internet, so you can see the heat pump settings and control the system remotely.

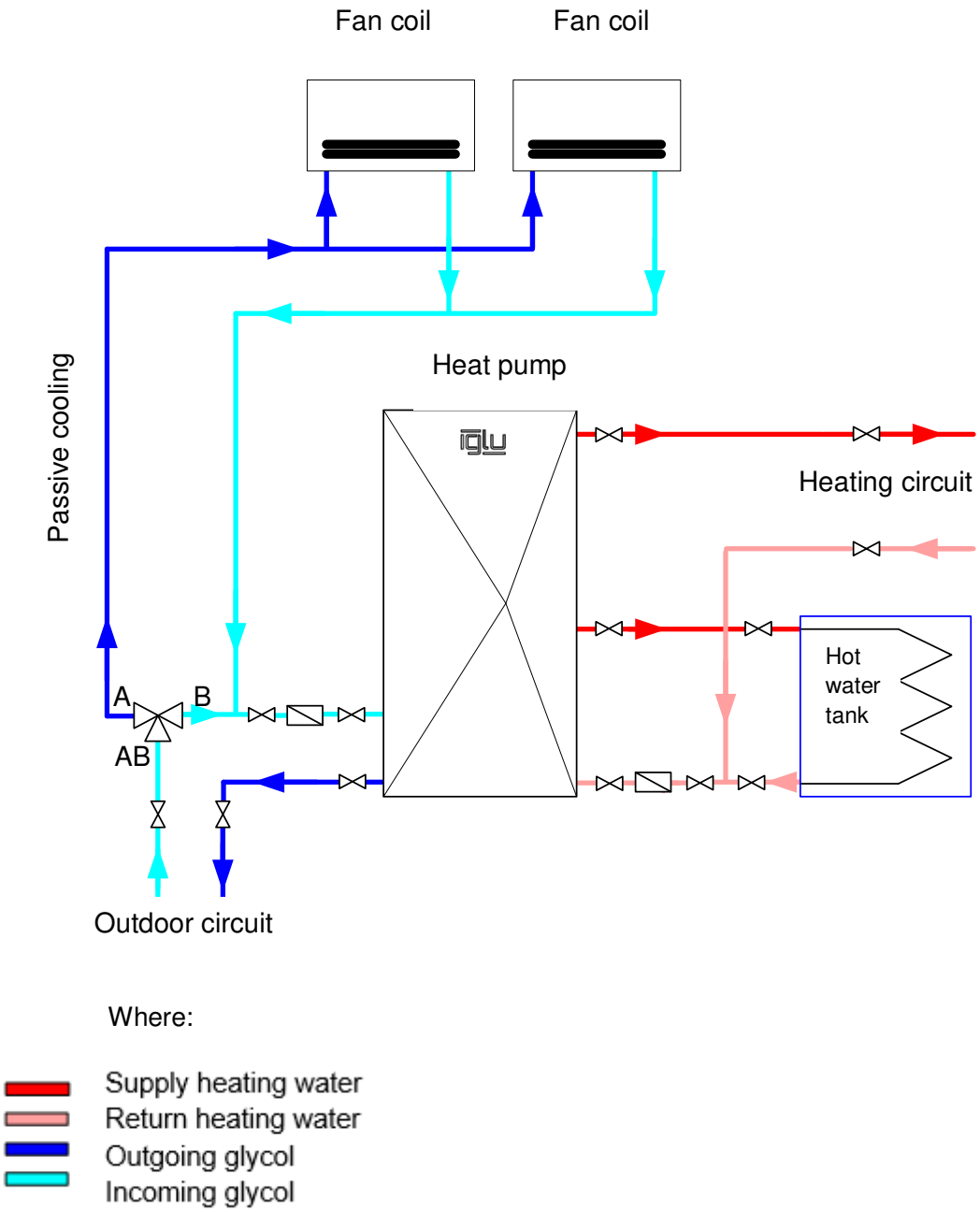




CONNECTION DIAGRAM FOR HEAT PUMP WITH PASSIVE COOLING

This diagram shows the hydraulic diagram of the heating system when passive cooling is used. This connection method ensures comfort all year round. The heating system is similar to the classic one, but in this case it is necessary to lay the pipes to the fan radiators (fan coils). In addition, a three-way valve is installed on the outdoor circuit, which regulates the direction of glycol flowing from the outdoor circuit during the warm season. The outdoor circuit cannot be used for cooling and heating at the same time.

Each heat pump has the ability to connect to the Internet, so you can see the heat pump settings and control the system remotely.



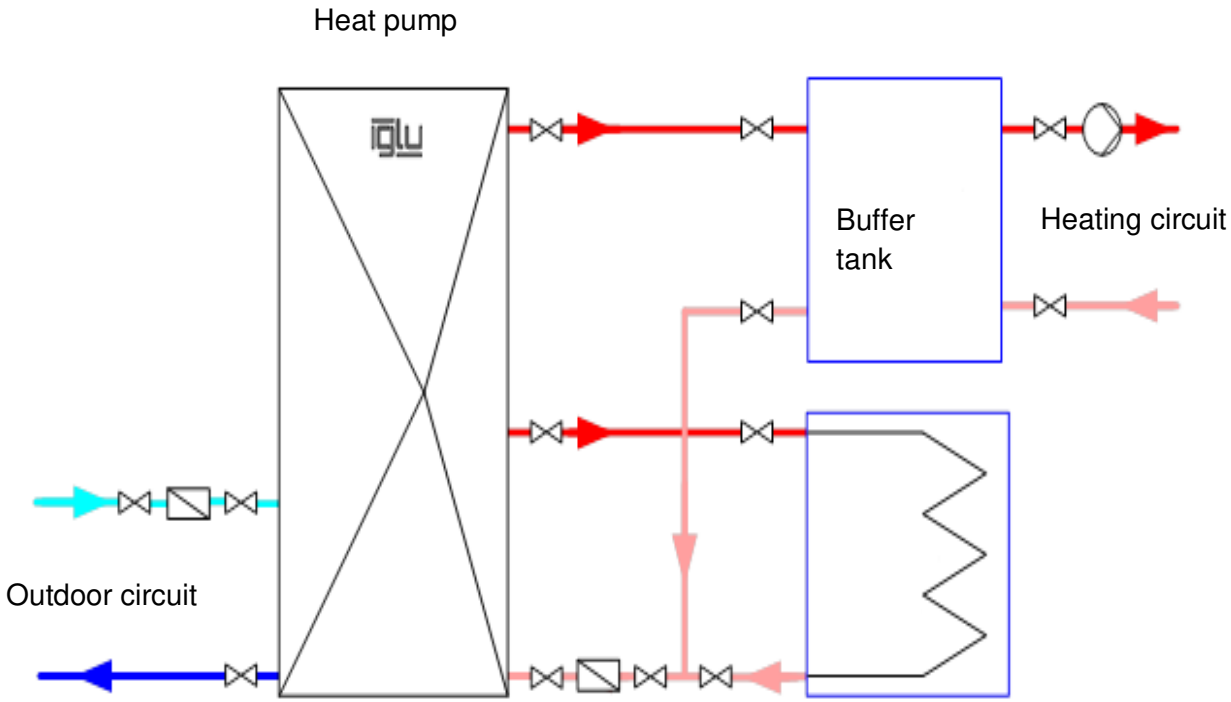
Where:

Supply heating water
Return heating water
Outgoing glycol
Incoming glycol

HEATING SYSTEM WITH BUFFER CAPACITY

This diagram provides a hydraulic diagram of the heating system, when the temperature control of individual room circuits by actuators is provided in the object. It is recommended to install a buffer tank for fixed capacity heat pumps when planning to regulate the temperature for individual rooms. Otherwise, without installing the buffer tank, up to 30% of the heating circuit can be closed at the same time. Variable capacity heat pumps do not require buffer capacity.

Each heat pump has the ability to connect to the Internet, so you can see the heat pump settings and control the system remotely.



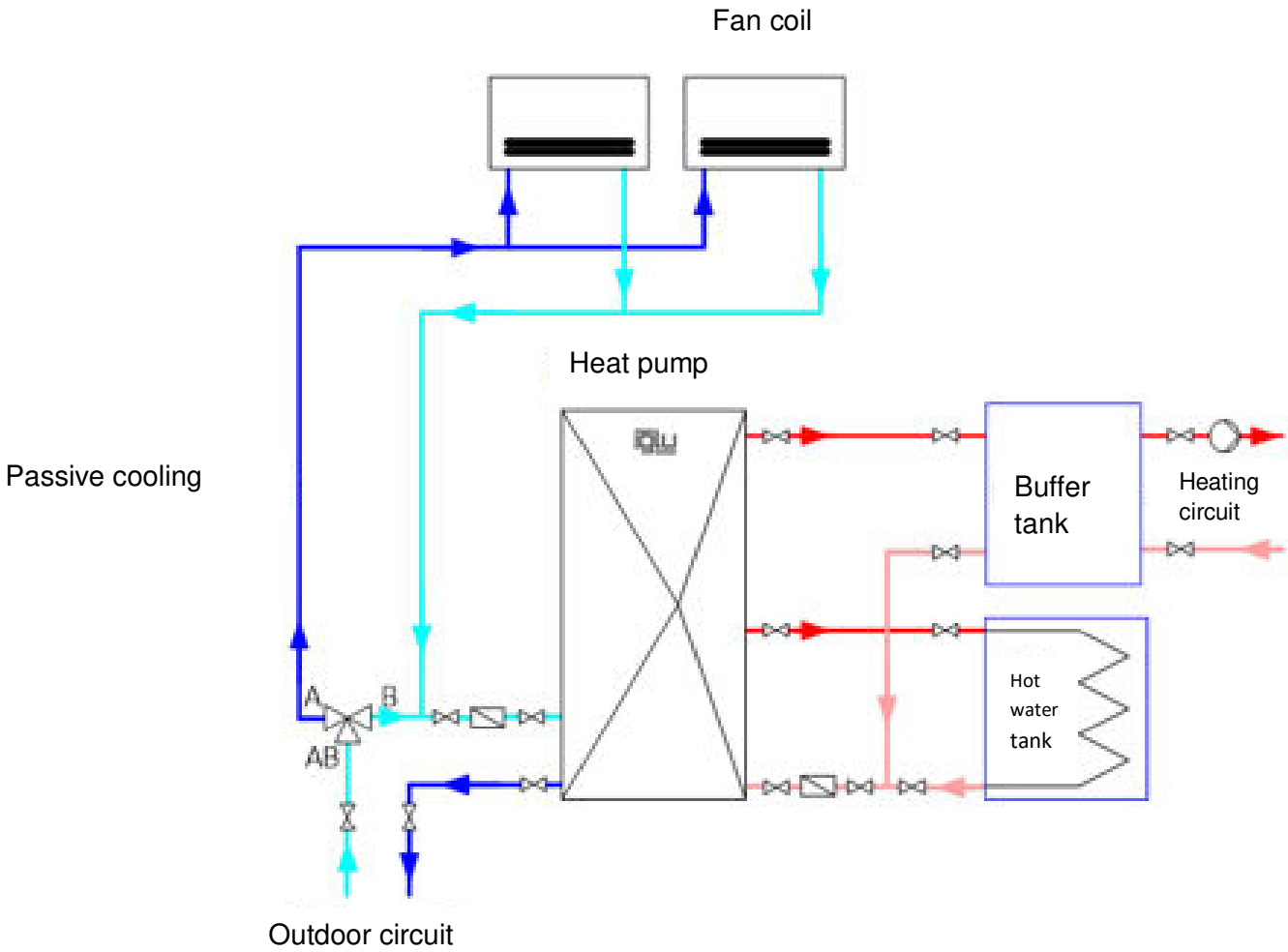
Where:

Supply heating water
Return heating water
Outgoing glycol
Incoming glycol

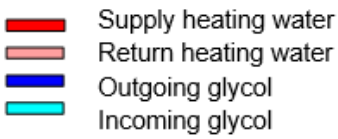
HEATING SYSTEM WITH PASSIVE COOLING AND BUFFER CAPACITY

This connection method allows to take full advantage of the heating and cooling functions. The diagram shows the hydraulic diagram of the heating system, when the temperature control of individual room circuits by actuators and cooling function using fan radiators is provided in the object. It is recommended to install a buffer tank for fixed capacity heat pumps when planning to regulate the temperature for individual rooms. Otherwise, without installing the buffer tank, up to 30% of the heating circuit can be closed at the same time. Variable capacity heat pumps do not require buffer capacity. For fan radiators, additional pipes must be laid from the outdoor circuit to which they will be connected via a three-way valve. The outdoor circuit cannot be used for cooling and heating at the same time.

Each heat pump has the ability to connect to the Internet, so you can see the heat pump settings and control the system remotely.



Where:



Annex No 1

Technical data of IGLU Aleut fixed capacity heat pumps

		5 kW	7 kW	9 kW	11 kW	13 kW	16 kW
Model		**IGLU Aleut 5**	**IGLU Aleut 7**	**IGLU Aleut 9**	**IGLU Aleut 11**	**IGLU Aleut 13**	**IGLU Aleut 16**
Brine circuit							
Rated flow (DT = 3K)[2)]	m^3/h	1,50	2,0	2,50	3,00	3,50	4,0
Permissible external pressure drop[2)]	kPa	73	80	89	70	55	52
Maximum pressure	bar	4					
Volume (internal)	l	5					6
Operating temperature	°C	from -10 to +20					
Connection (Cu)	mm	28					
Compressor							
Type		Spiral “Scroll”					
Mass of refrigerant R 407C[3)]	kg	1,20	1,30	1,35	1,40	1,50	-
Mass of refrigerant R 410A[3)]	kg	-					2,15
Maximum pressure	bar	30					
Heating system							
Rated flow (DT = 7K)	m^3/h	1,00	1,50	2,00	2,00	2,20	2,20
Min, flow temperature	°C	15					
Max, flow temperature	°C	65					
Max, permissible operating pressure	bar	4,0					
Connection (Cu)	mm	28					
Power network connection values							
Model		**IGLU Aleut 5**	**IGLU Aleut 7**	**IGLU Aleut 9**	**IGLU Aleut 11**	**IGLU Aleut 13**	**IGLU Aleut 16**
External circuit breaker (**3P, 400 V**), electric heater 9 kW	A	C25 (3P)	C25 (3P)			C32 (3P)	
RLA – rated load amps (**3P, 400** V), electric heater 9 kW	A	4,5	6,1	6,4	8,3	9,6	12,2
Compressor rated power (B0/W35), (**3P, 400 V**), electric heater 9 kW	kW	1,86	2,68	3,30	3,83	4,26	5,26
External circuit breaker (3P, 230V), electric heater 6 kW	A	-	C32 (3P)	C32 (3P)			-
RLA – rated load amps (3P, 230 V), electric heater 6 kW	A	-	11,2	16	16	16,7	-
Compressor rated power (B0/W35), (3P, 230 V), electric heater 6 kW	kW	-	4,48	6,4	6,4	6,68	-
Type of protection	IP	IP20					
General information							
Permissible ambient temperatures	°C	from +10 to +35					
Sound power level[4)]	dBA	42					45
Dimensions (width x depth x height)	mm	600 x 600 x 1100					
Weight (without packaging)	kg	102	110	115	130	135	145

Recommended maximum heating coil area for hot water tank:

Thermal power, kW	***Coil area, m^2***
5 – 7	< 2,5
9 – 11	< 3
13	< 3,5
16 – 18	< 4

2) With ethylene glycol

3) Greenhouse potential, R 407C - GWP100 = 1774; R 410A - GWP100=2088

4) According to EN 3743-1

Technical data of IGLU Aleut fixed capacity heat pumps with water tank

		5 kW	7 kW	9 kW	11 kW	13 kW	16 kW
Model		**IGLU Aleut 5 WT**	**IGLU Aleut 7 WT**	**IGLU Aleut 9 WT**	**IGLU Aleut 11 WT**	**IGLU Aleut 13 WT**	**IGLU Aleut 16 WT**
Brine circuit							
Rated flow (DT = 3K)[2)]	m³/h	1,50	2,0	2,50	3,00	3,50	4,0
Permissible external pressure drop[2)]	kPa	73	80	89	70	55	52
Maximum pressure	bar	4					
Volume (internal)	l	5					6
Operating temperature	°C	from -10 to +20					
Connection (Cu)	mm	28					
Compressor							
Type		Spiral “Scroll”					
Mass of refrigerant R 407C[3)]	kg	1,20	1,30	1,35	1,40	1,50	-
Mass of refrigerant R 410A[3)]	kg	-					2,15
Maximum pressure	bar	30					
Heating system							
Rated flow (DT = 7K)	m³/h	1,00	1,50	2,00	2,00	2,20	2,20
Min, flow temperature	°C	15					
Max, flow temperature	°C	65					
Max, permissible operating pressure	bar	4,0					
Hot water tank volume	l	200					
Capacity material	-	Stainless steel 1,4404					
Connection (Cu)	mm	28					
Power network connection values							
Model		**IGLU Aleut 5 WT**	**IGLU Aleut 7 WT**	**IGLU Aleut 9 WT**	**IGLU Aleut 11 WT**	**IGLU Aleut 13 WT**	**IGLU Aleut 16 WT**
External circuit breaker (**3P, 400 V**), electric heater 9 kW	A	C25 (3P)	C25 (3P)			C32 (3P)	
RLA – rated load amps (**3P, 400** V), electric heater 9 kW	A	4,5	6,1	6,4	8,3	9,6	12,2
Compressor rated power (B0/W35), (**3P, 400 V**), electric heater 9 kW	kW	1,86	2,68	3,30	3,83	4,26	5,26
External circuit breaker (3P, 230V), electric heater 6 kW	A	-	C32 (3P)	C32 (3P)			-
RLA – rated load amps (3P, 230 V), electric heater 6 kW	A	-	11,2	16	16	16,7	-
Compressor rated power (B0/W35), (3P, 230 V), electric heater 6 kW	kW	-	4,48	6,4	6,4	6,68	-
Type of protection	IP	IP20					
General information							
Permissible ambient temperatures	°C	from +10 to +35					
Sound power level[4)]	dBA	42					45
Dimensions (width x depth x height)	mm	700 x 750 x 1750					
Weight (without packaging)	kg	187	195	200	215	220	230

2) With ethylene glycol
3) Greenhouse potential, R 407C - GWP100 = 1774; R 410A - GWP100=2088
4) According to EN 3743-1

Technical data of IGLU Aleut variable capacity heat pumps

	Units	IGLU Aleut 7 I	IGLU Aleut 12 I	IGLU Aleut 18 I
Power network connection values				
External circuit breaker; (3P, 400 V), electric heater 9 kW	A	C25 (3P)	C25 (3P)	C32 (3P)
Inverter Max. current., (3P, 400 V), electric heater 9 kW	A	22	9	20
External circuit breaker; (3P, 230 V / 2P, 110 V) electric heater 6 kW	A	C32 (3P)/C32 (2P)		-
Inverter Max. current (3P, 230 V / 2P, 110 V) electric heater 6 kW	A	22/22	9/26	-
Type of protection	IP	IP 20		
Brine circuit				
Rated flow (DT = 3K)[2)]	m^3/h	2,0	3,0	4,0
Permissible external pressure drop[2)]	kPa	80	70	52
Maximum pressure	bar	4		
Volume (internal)	l	5		6
Operating temperature	°C	from -10 to +20		
Connection (Cu)	mm	28		
Compressor				
Type		“Scroll”		
Mass of refrigerant R410A[3)]	kg	1,3	1,5	2,2
Maximum pressure	bar	45		
Heating system				
Max. permissible operating pressure	bar	4,00		
Max. supply temperature	°C	65		
Nominal flow (DT = 6K)	m^3/h	1	1,4	2,1
Min. flow temperature	°C	15		
Connection (Cu)	mm	28		
General information				
Permissible ambient temperatures	°C	from +10 to +35		
Sound power level)[4)]	dBA	39	39	39
Dimensions (width x depth x height)	mm	600 x 600 x 1750		
Weight (without packaging)	kg	132	160	175

Recommended maximum heating coil area for hot water tank:

Thermal power, kW	***Coil area, m^2***
5 – 7	< 2,5
9 – 11	< 3
13	< 3,5
16 – 18	< 4

2) With ethylene glycol
3) Greenhouse potential, R 407C - GWP100 = 1774; R 410A - GWP100=2088
4) According to EN 3743-1

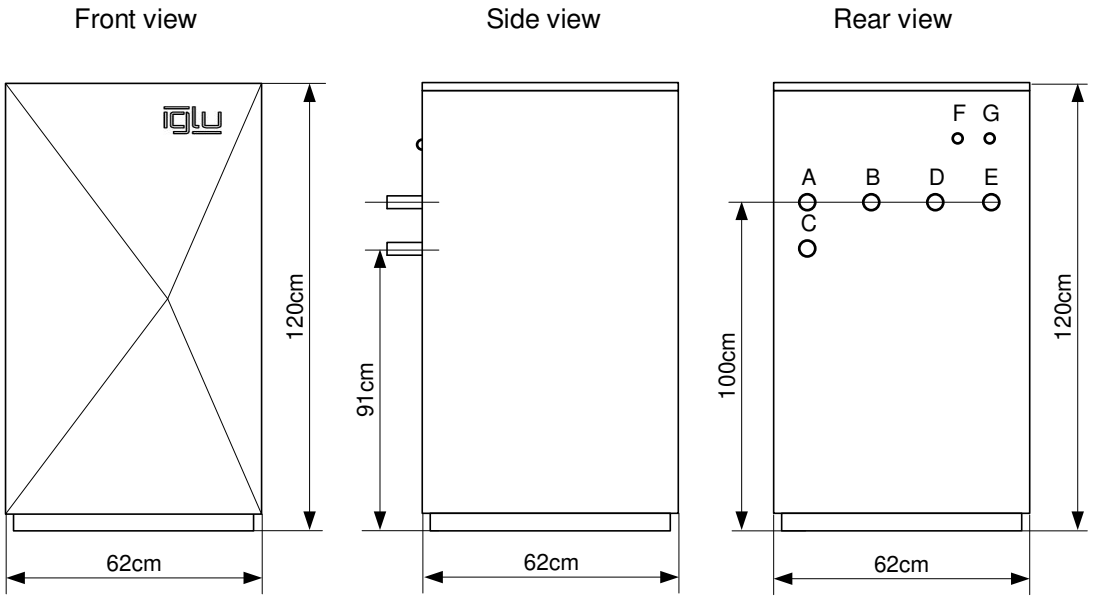
Technical data of IGLU Aleut variable capacity heat pumps with water tank

	Units	IGLU Aleut 7 WTI	IGLU Aleut 12 WTI	IGLU Aleut 18 WTI
Power network connection values				
External circuit breaker; (3P, 400 V), electric heater 9 kW	A	C25 (3P)	C25 (3P)	C32 (3P)
Inverter Max. current., (3P, 400 V), electric heater 9 kW	A	22	9	20
External circuit breaker; (3P, 230 V / 2P, 110 V) electric heater 6 kW	A	C32 (3P)/C32 (2P)		-
Inverter Max. current; (3P, 230 V / 2P, 110 V) electric heater 6 kW	A	22/22	9/26	-
Type of protection	IP	IP20		
Brine circuit				
Rated flow (DT = 3K)[2)]	m3/h	2,0	3,0	4,0
Permissible external pressure drop[2)]	kPa	80	70	52
Maximum pressure	bar	4		
Volume (internal)	l	5		6
Operating temperature	°C	from -10 to +20		
Connection (Cu)	mm	28		
Compressor				
Type		“Scroll”		
Mass of refrigerant R410A[3)]	kg	1,3	1,5	2,2
Maximum pressure	bar	45		
Heating system				
Hot water tank volume	l	200		
Max. permissible operating pressure	bar	4.00		
Max. supply temperature	°C	65		
Nominal flow (DT = 6K)	m3/h	1	1,4	2,1
Min. flow temperature	°C	15		
DHW tank material	-	Stainless steel 1,4404		
Connection (Cu)	mm	28		
General information				
Permissible ambient temperatures	°C	from +10 to +35		
Sound power level[4)]	dBA	39	39	39
Dimensions (width x depth x height)	mm	700 x 750 x 1750		
Weight (without packaging)	kg	245	260	284

2) With ethylene glycol
3) Greenhouse potential, R 407C - GWP100 = 1774; R 410A - GWP100=2088
4) According to EN 3743-1

Annex No 2

Heat pump without integrated water tank dimensions and connection nozzles



Where:

A – supply heating water connection nozzle;

B – nozzle of heating water supplied to the water tank;

C – return heating water connection nozzle;

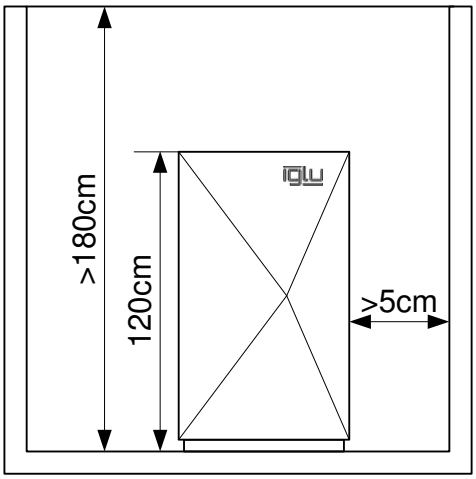
D – incoming glycol connection nozzle;

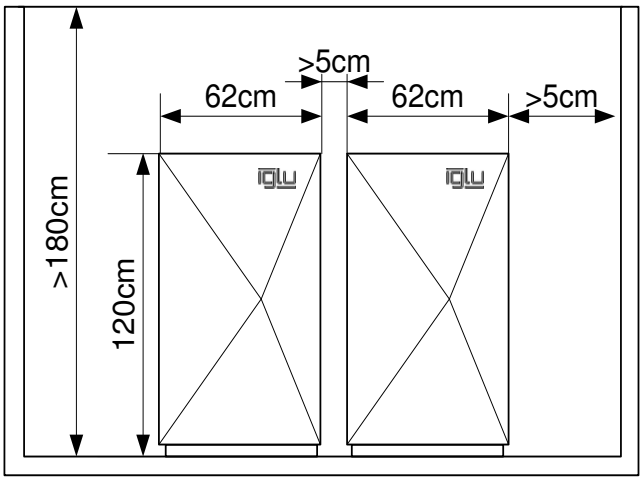
E – outgoing glycol connection nozzle;

F, G – openings for electrical connection cables.

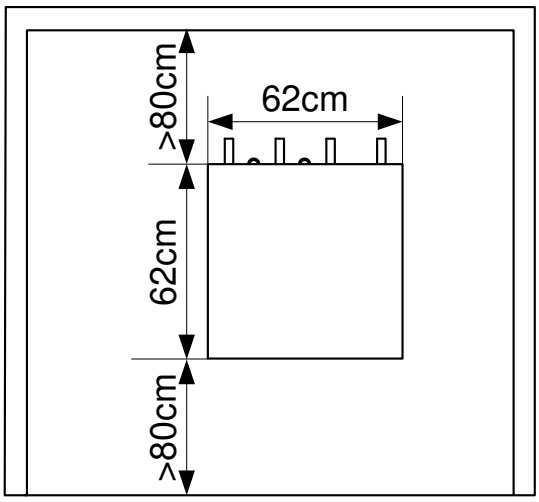
Annex No 3

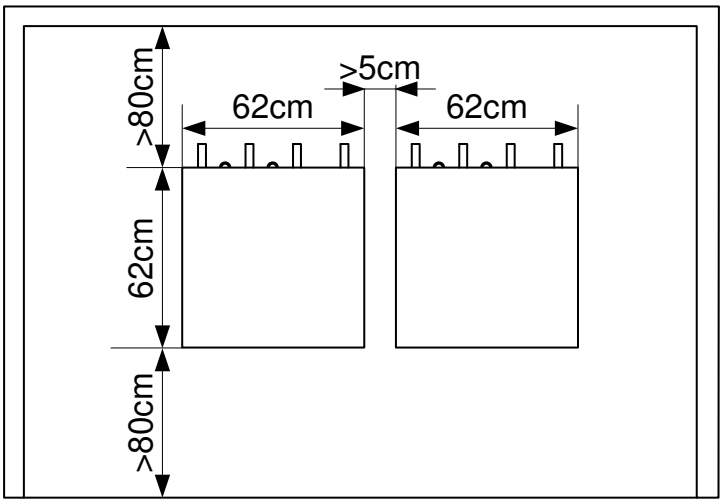
Design dimensions of the heat pump without integrated water tank from the front





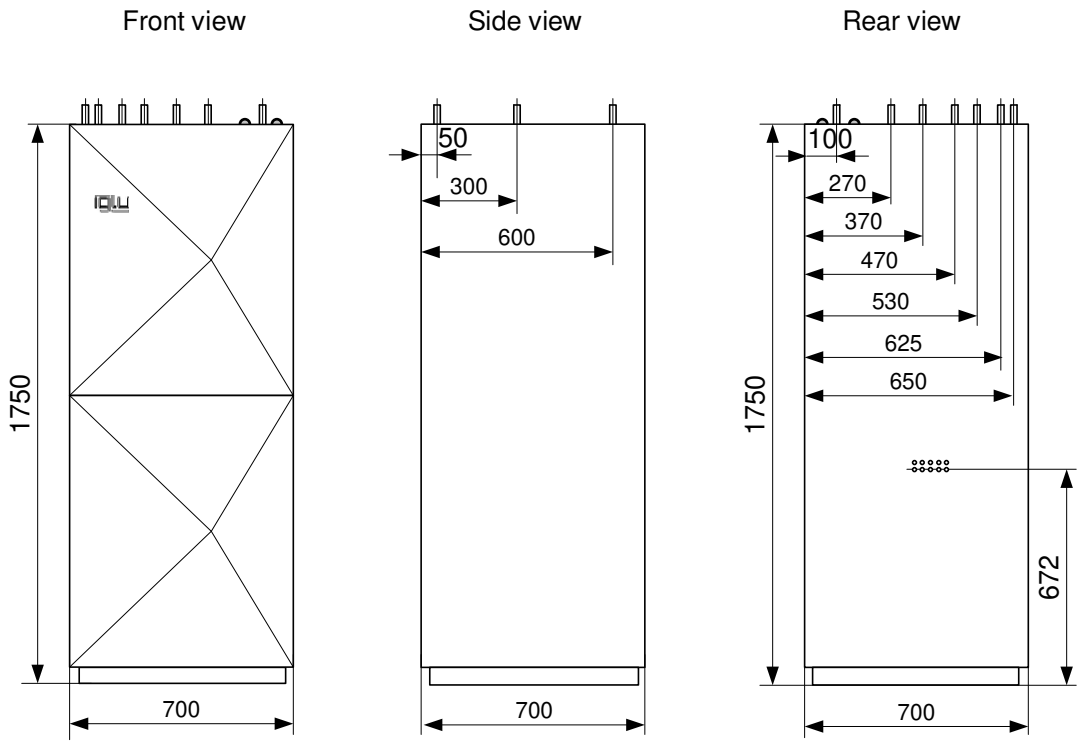
Design dimensions of the heat pump from the top



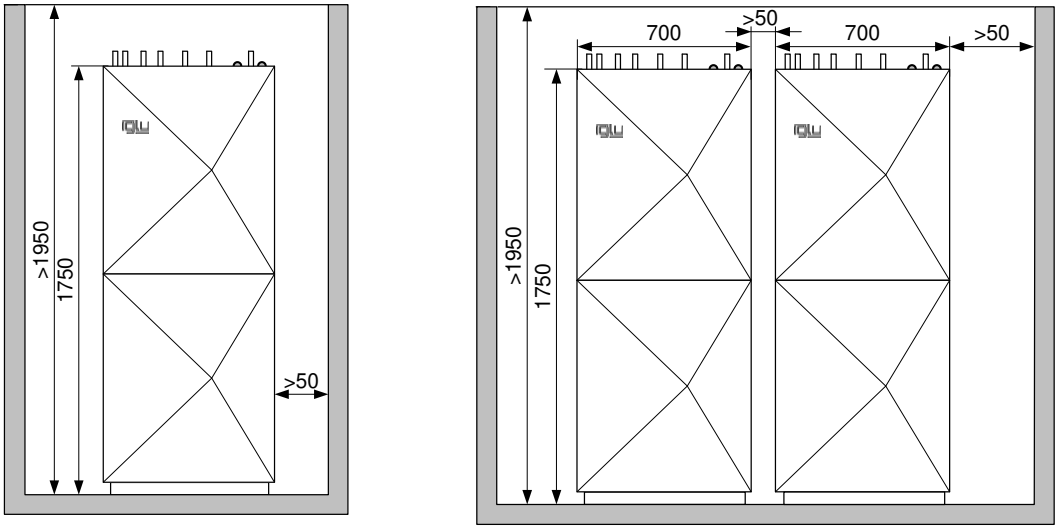


Annex No 4

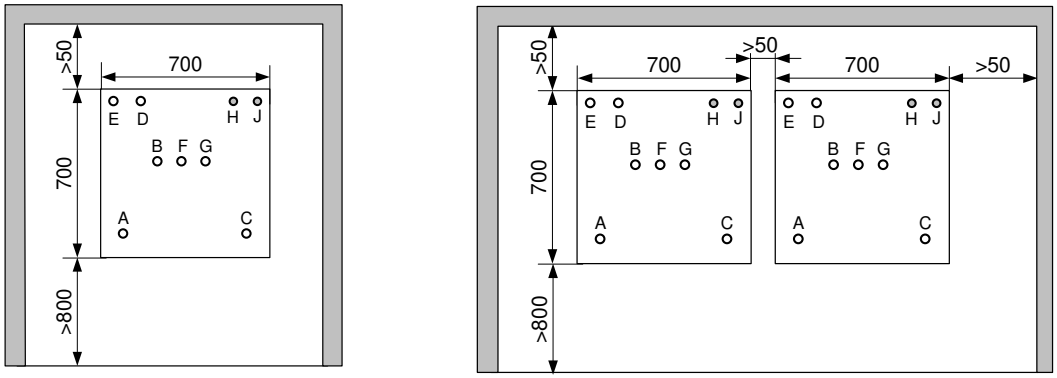
Heat pump with integrated water tank dimensions and connection nozzles



Design dimensions of the heat pump with integrated water tank from the front



Design dimensions of the heat pump from the top



Where:

A – supply heating water connection nozzle;

B – nozzle of cold water inlet nozzle;

C – return heating water connection nozzle;

D – incoming glycol connection nozzle;

E – outgoing glycol connection nozzle;

F – air release valve;

G – hot water outlet nozzle;

H, J – openings for electrical connection cables.

Notes