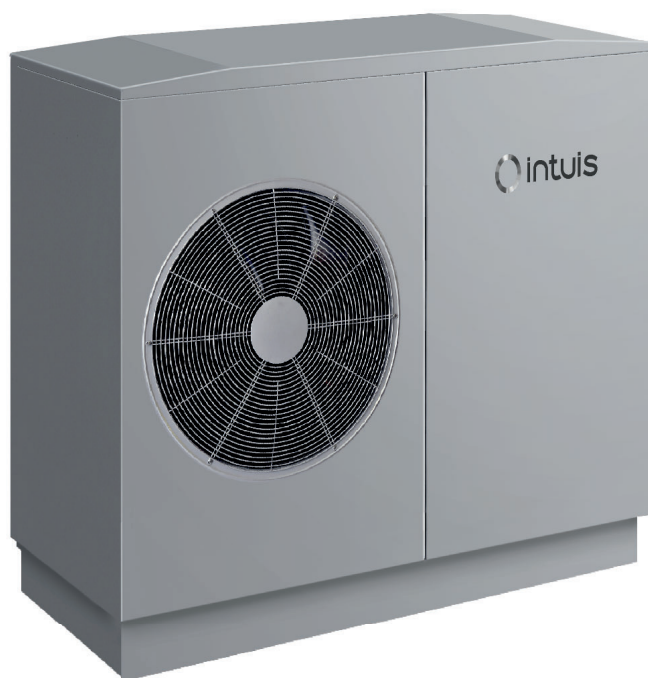
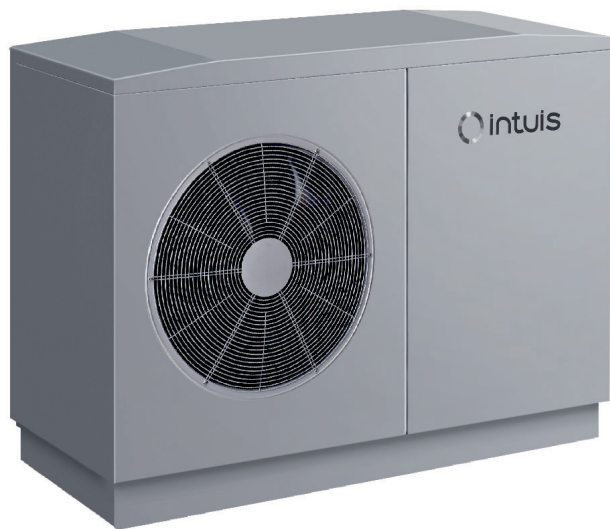


HTi⁷⁰

*High temperature, ultra modulating
Heat pump*

Installation and User manual



HTi⁷⁰ 6 kW mono
Ref. 155000

HTi⁷⁰ 8 kW mono
Ref. 155010

HTi⁷⁰ 8 kW tri
Ref. 155050

The information contained in this document is non-contractual. The manufacturer reserves the right to modify any technical specifications and equipment of any appliances without prior notice.



BVCert. 6020118*

**Made in
France**



Manual ref.: 1898536
Edition n° 25.28

* Concerns HTi⁷⁰ 6-8 mono and HTi⁷⁰ 8 tri models, only for Premium+ Pilot, DS170D Pilot and ORIUM Pilot.

TABLE OF CONTENTS

1 - SAFETY 3

2 - PLEASE READ IMMEDIATELY 4

2.1 - Conservation of documents	4
2.2 - Symbols used	4
2.3 - Abbreviations and acronyms.....	4
2.4 - Certification «Origine France Garantie».....	5
2.5 - Rating plate.....	5

3 - DELIVERY AND STORAGE..... 6

3.1 - Delivery terms and conditions.....	6
3.2 - Storage and transport.....	6
3.2.1 - General information	6
3.2.2 - Transporting with a forklift	6
3.2.3 - Transporting manually.....	6

4 - INTRODUCTION..... 7

4.1 - Operation.....	7
4.2 - Accessories (included)	7
4.3 - Accessories available to order	7

5 - INSTALLATION..... 8

5.1 - Standard configuration	8
5.2 - Placement.....	9
5.2.1 - Seaside installation	9
5.2.2 - Noise levels	9
5.2.3 - Safe area.....	9
5.2.3.1 - Ground security area	9
5.2.3.2 - Security area in front of a wall.....	10
5.2.4 - Accepted installation sites	10
5.2.5 - Prohibited installation sites	10
5.3 - Setting up	11
5.3.1 - Condensates drainage	11
5.4 - Hydraulic installation.....	12
5.4.1 - Hydraulic connections on the installation	12
5.4.2 - Hydraulic connection between Heat pump and pilot.....	13
5.4.3 - Heat pump water inlet filter (supplied)	13
5.5 - Connecting to the power supply	13
5.5.1 - General recommendations	13
5.5.2 - Accessing the connection terminals	14
5.5.3 - Recommendations for connecting the system to the power supply ..	14
5.5.4 - Connection to the power supply	14
5.5.4.1 - Single-phase connection	14
5.5.4.2 - Three-phase connection	15
5.5.5 - Communication bus cable between the heat pump and the pilot.....	15

6 - MAINTENANCE AND TROUBLESHOOTING 16

6.1 - General information	16
6.2 - Maintenance on the hydraulic circuit.....	16
6.3 - Maintenance of the Heat pump	16
6.4 - Maintenance of the electrical components.....	16
6.5 - Consulting the meters	16
6.6 - Sensor data curve charts.....	17

6.6.1 - Water inlet and outlet - Air intake sensor - Sensors installed on compressors 1 and 2	17
---	----

6.7 - Modification.....	17
-------------------------	----

6.8 - Decommissioning.....	17
----------------------------	----

6.8.1 - Interim Decommissioning of Product	17
--	----

6.8.2 - Final decommissioning of the product	17
--	----

6.9 - Recycling and Disposal.....	17
-----------------------------------	----

6.9.1 - Disposal of refrigerant	17
---------------------------------------	----

7 - LIST OF SPARE PARTS 18

8 - WARRANTY 20

8.1 - Warranty coverage	20
-------------------------------	----

8.2 - Limitations of warranty.....	20
------------------------------------	----

8.2.1 - General information	20
-----------------------------------	----

8.2.2 - Cases (not limited to) for exclusion from warranty	20
--	----

8.2.2.1 - Heating circuit water	20
---------------------------------------	----

8.2.2.2 - Handling.....	20
-------------------------	----

8.2.2.3 - Installation site.....	20
----------------------------------	----

8.2.2.4 - Electrical connections	20
--	----

8.2.2.5 - Hydraulic connections	20
---------------------------------------	----

8.2.2.6 - Accessories	21
-----------------------------	----

8.2.2.7 -Maintenance.....	21
---------------------------	----

APPENDIX 22

A1 - Technical specifications.....	22
------------------------------------	----

A1.1 - General characteristics.....	22
-------------------------------------	----

A1.2 - Performances.....	22
--------------------------	----

A2 - EU declaration	23
---------------------------	----

A3 - Frost protection	23
-----------------------------	----

A4 - Treatment of the water in the heating circuit	23
--	----

A4.1 - Preparing the hydraulic circuit (rinsing)	23
--	----

A4.2 - Filling water.....	23
---------------------------	----

A4.3 - Treatment of the heating circuit	23
---	----

A5 - Dimensions.....	24
----------------------	----

A5.1 - HTi ⁷⁰ 6 kW Heat pump	24
---	----

A5.2 - HTi ⁷⁰ 8 kW Heat pump	25
---	----

A6 - Product technical information sheet	26
--	----

A6.1 - HTi ⁷⁰ 6 kW mono Heat pump	26
--	----

A6.2 - HTi ⁷⁰ 8 kW mono Heat pump	27
--	----

A6.3 - HTi ⁷⁰ 8 kW tri Heat pump.....	28
--	----

A7 - Internal wiring diagram	29
------------------------------------	----

A7.1 - HTi ⁷⁰ 6 & 8 kW mono Heat pump.....	29
---	----

A7.2 - HTi ⁷⁰ 8 kW tri Heat pump.....	30
--	----

NOTES / MAINTENANCE 31

1 - SAFETY

Danger resulting from improper qualifications

- Any work carried out by an unqualified person can result in damage to the installation or in physical injury.
- Do not perform maintenance on this appliance unless you are a qualified professional.
- If the appliance is malfunctioning or not working, cut the electricity supply to the electrical components and seek advice from a qualified professional.

Danger resulting from improper use

This appliance should not be used by anyone (including children under the age of 8 years old) with reduced physical, sensory or mental capabilities, or by anyone with insufficient experience or knowledge of the appliance; unless they are being supervised by someone who is responsible for their safety and in possession of the operating instructions of the appliance, or if they have been instructed in the proper use and in the risks of operating the appliance.

Children must not play with the appliance. Cleaning and maintenance of the appliance must not be undertaken by children without supervision.

Applicable areas of use

The appliance is intended for use as an appliance for the production of domestic hot water: it must be connected to a heating installation, and while complying with the instructions, connected to the drinking water network.

The intended use of the appliance includes the following points:

- Following the instructions for operating, installing and maintaining this appliance and all of its components.
- Ensuring the compliance of the appliance to all inspection and maintenance conditions which are listed in this manual.

Danger of death by electrocution

- Touching live electrical wires can cause severe bodily injury, and lead to death by electrocution. All installation and maintenance work must be carried out with the appliance switched off and by a qualified professional. Before carrying out any work on the appliance:
 - Cut-off the electricity supply.
 - Ensure that there is no possibility of the power supply becoming active again.
 - Wait at least 5 minutes for the capacitors to lose their charge.
- Do not get water on any of the control or electrical components. Always disconnect the appliance from the electricity supply before carrying out work on any of the electrical components.

Danger of death if the pressure relief valves are missing or defective

A defective pressure relief valve may prove dangerous and could lead to burns or other injuries by, for example, the pipes bursting.

The information presented in this document does not contain all of the schematic diagrams needed for a professional installation of the pressure relief valves.

- Install the necessary pressure relief valves on the circuit.
- Inform the user concerning the function and the placement of the pressure relief valves.
- Respect all applicable national and international regulations, standards and decrees.

Risk of material damage

The heat pump can only work when filled with water. Never switch on the appliance if it is not completely filled with water and purged of air.

It is forbidden to:

- Store loads directly on the heat pump (risk of damaging the appliance and compromising its performance;
 - Climb onto the appliance (danger of falling and risk of damaging the equipment).
- **Risk in the event of an external fire**

As a reminder, the R290 refrigerant contained in the heat pump circuit is flammable. If there is a fire near the heat pump, there is a risk of explosion. Do not expose the outdoor unit to naked flames, sparks or any other source of ignition.

Rules and regulations (decrees, standards, laws)

Once the appliance is installed and switched on, all decrees, directives, technical rules, safety measures and standards, must be respected in their current version in effect.

The electrical supply must conform to all applicable regulations in the country of installation, as well as the NFC 15-100 standard.

- A method of disconnection ensuring a complete cut-off must be installed in the fixed piping to conform to installation regulations (do not use a movable outlet).
- Protect the appliance with a 2-pole circuit breaker with a minimum contact opening of 3mm and must be grounded.
- The devices for electrical cut-off must remain accessible.
- Water may drain from the discharge pipe of the pressure limiting device. This pipe should be kept open to open air.
- The pressure relief valve is mounted on the condenser. Ensure that the drainage is properly

oriented to prevent water from leaking onto the electrical components.

- This appliance must be installed in accordance with national electrical installation regulations. Check that the appliance is equipped with a properly sized and properly connected grounding cable.

This CE approved unit is in compliance with the following standards:

- Low voltage 2014/35/UE (standard EN 60335.1).
- Electromagnetic compatibility 2014/30/UE (standard EN 55014.1 / EN 55014.2).

Maintenance - Troubleshooting

- Maintenance and cleaning of the pilot must be carried out at least once a year by a qualified professional.
- The appliance should be cleaned carefully so as not to damage its electronics from the outside. The use of a high pressure cleaner is **PROHIBITED**.

The HTi⁷⁰ Heat Pump uses R290 refrigerant fluid. Given the flammable nature of the fluid, any work on the refrigerant circuit must be done with appropriate materials and by conforming to all regulations in effect. In case of handling of fluid (recovery, evacuation or refilling), the appliance must be switched off. Do not smoke or light any flame (e.g. lighter, blowtorch) when handling refrigerant fluid. If work must be carried out on the refrigerant circuit using a flame (blowtorch) the refrigerant circuit must first be evacuated and replaced with a nitrogen atmosphere.



REFRIGERANT CIRCUIT

- **Any intervention on the refrigeration circuit must be made by a qualified person who holds a Category 1 certificate of fitness.**

Refrigerant R290, contained in the heat pump circuit, does not pose an environmental hazard but is flammable.

- **Refrigerant R290 is odourless.**
- **Do not damage the refrigeration circuit tubes,**
- **Do not handle flame or other flammable sources inside the device,**
- **In the event of a leakage of the refrigerant, unplug the plug, ventilate the room and contact the customer service,**
- **Do not pierce or burn the appliance: the recovery of the fluid is mandatory in case of intervention on the refrigeration circuit.**

2 - PLEASE READ IMMEDIATELY

This technical installation manual forms part of the appliance which it refers to. In order for the warranty to be valid, the instructions must be read prior to using the appliance.

The safety advice and instructions provided in this manual must be strictly respected.

Our society is not liable for any damages caused from not following the instructions provided, or improper handling, installation or use.

This technical installation manual can be modified without prior notice.

2.1 - Conservation of documents

This manual must be safeguarded and passed on to successive users for future reference.

It will be considered as evidence in case of litigation.

2.2 - Symbols used



Indicates warnings and important recommendations.



Consult the installation manual before any intervention on the product, before handling, installation, use, and maintenance.



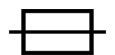
Contains regulated substances, do not throw in the garbage. If disposing, please respect all regulations pertaining to the recovery of electric and electronic equipment.



Type and refrigerant charge.
PS : Max high service pressure



Heat power output produced.



Max current protection (A)



Caution : contains a flammable refrigerant fluid. Please make sure to respect the installation and handling precautions.



Classification of the refrigerant used in the heat pump (R290/Propane)

2.3 - Abbreviations and acronyms

DHW Domestic Hot Water
DCW Domestic Cold Water
T° Temperature
HP Heat pump

2.4 - Certification «Origine France Garantie»

The «**Origine France Garantie**» certification applies only to HTi⁷⁰ 6-8 kW mono and HTi⁷⁰ 8 kW tri models in combination with some pilot.

	Premium ⁺ Pilot	DS170D Pilot	ORIUM Pilot
HTi ⁷⁰ 6 kW mono	Ref. 155006	Ref. 155004	Ref. 155009
HTi ⁷⁰ 8 kW mono	Ref. 155016	Ref. 155014	Ref. 155019
HTi ⁷⁰ 8 kW tri	Ref. 155056	Ref. 155054	Ref. 155059

2.5 - Rating plate

Manufacturer's identity: intuitis
intuis-Thermo
Rue de la République
80210 Feuquières en Vimeu

Appliance identity: HTi⁷⁰ 6 kW mono
intuis reference of the appliance: Réf : 155000
Certification agency: EUROVENT CERTIFIED PERFORMANCE

Appliance type: Pompe à chaleur / Heat pump

Serial number of the appliance: Ser.n° : 155000-252300000

Appliance electric data: 230 V mono ~ 50/60 Hz
Imax : 15 A - Pmax : - kW

PED's category According to 2014/68/EU: PED cat. 1

Protection rating: IPX4

CE marking: CE

Rating plate reference: 1897761

Appliance weight: 81 kg

Technical specifications:
Pnom* : 4,06 kW
COP* : 4,59 (A7W35)
P : 0,3 MPa (3 bar)
R290 (groupe 1) : 0,420 kg
PS : 3,1 MPa (31 bar)
Ts min : -20°C
Ts max : +40°C

Fabrique en France / Made In France
Hermétiquement scellé / Hermetically sealed
*Selon EN14511 / According to EN14511

Description :

Serial number of the appliance

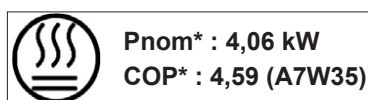
155000 - 25 23 00000

Reference of the appliance

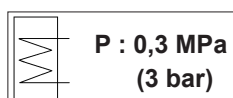
Year of manufacture
2025

Week of manufacture

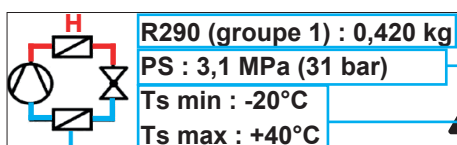
Appliance number in the series



Nominal performances
According to EN 14511



Maximum hydraulic system pressure



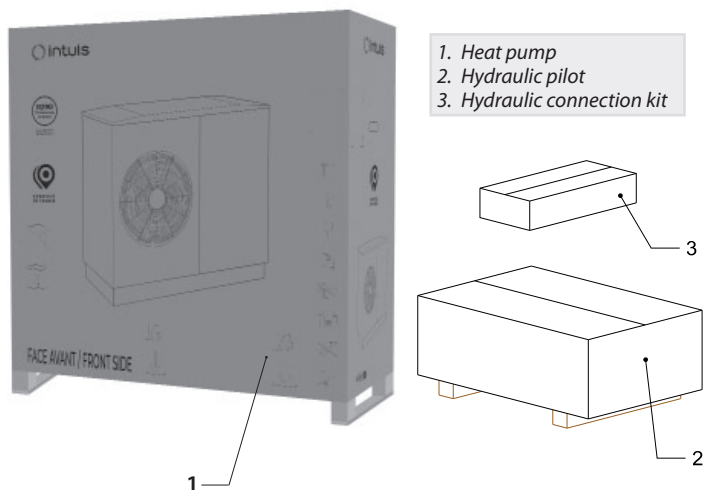
Refrigerant type/quantity
Maximal pressure of the refrigerant circuit
Outside temperature limits operating

3 - DELIVERY AND STORAGE

3.1 - Delivery terms and conditions

In general, the material is transported at the recipient's own risk.

It is important to verify that all of the elements have been received and that no damage has been sustained during transport upon receipt of the appliance and before beginning the installation procedures.



3.2 - Storage and transport

Admissible storage and transport temperatures of the appliance are between -20°C and +60°C.

The appliance must be stored in a room that does not contain sources of ignition that are continuously operating (for example, bare fires, gas appliance or electric radiator in operation).

3.2.1 - General information

The appliances must be stored and transported packaged and on their wooden pallets, in a vertical position, and completely empty of water.

It is not possible to lay heat pumps down. Do not tilt them more than 30°.

3.2.2 - Transporting with a forklift

When transporting with a forklift truck, the Heat Pump must be on its wooden pallet.

When moving the Heat Pump do not lower or raise the unit suddenly as the Heat Pump can easily lose its equilibrium. The Heat Pump should be suitably secured to prevent it from tipping.

3.2.3 - Transporting manually

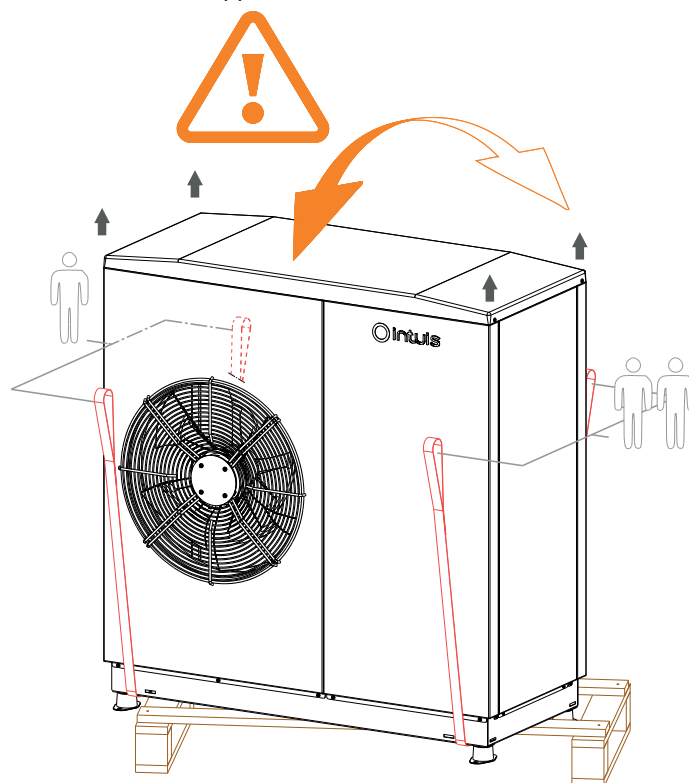
The Heat pump can be transported manually.

The Heat pump must always be transported in a horizontal position, including during installation.

Do not handle the unit by its hydraulic connections.

It's possible to transport the appliance with straps (not supplied)

The appliance can be moved using the straps (supplied). Please refer to the instructions supplied with the kit.



Installation procedures must be carried out by a qualified professional, so as to prevent any risks of bodily harm and/or material damage.

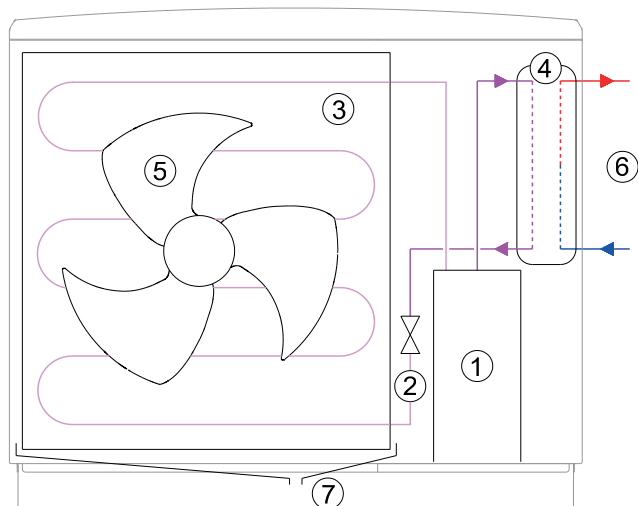


Do not incline more than 30°



Maintain a protective covering on the finned heat exchanger during handling.

4 - INTRODUCTION



- | | |
|---------------------|---------------------------|
| 1. Compressor | 5. Ventilator |
| 2. Pressure reducer | 6. Heating inlet / outlet |
| 3. Evaporator | 7. Condensates drainage |
| 4. Condenser | |

4.1 - Operation

The Heat pump is a closed and pressurised system in which the refrigerant serves as the medium for transferring energy.

A safety pressure switch is used on the refrigeration circuit, it is located on the high pressure part of the circuit at the output of the compressors. It is a dry contact that when the pressure becomes too high (>31 bar) opens. Once opened, it cuts the power to the compressors, independently of the electronics and thus protects all circuit components.

The evaporator ③ is a cooling exchanger which draws calories from the air. The humidity in the air condenses on contact with the cold surface, and forms condensation which must be drained regularly during operation of the Heat pump (evacuation in ⑦).

The condenser ④ is a plated heat exchanger which allows to transfer the heat towards the heating water of the installation ⑥.

The operating range of the Heat pump ranges from an air temperature of -20°C to 40°C.

Note:

The Heat Pump is exclusively designed for heating purposes. It cannot be used for cooling.
The manufacturer cannot be held responsible for any other usage of the appliance.



It is **FORBIDDEN**:

- to operate the Heat pump using air intake containing solvents or explosive materials.
- to use air intake containing grease, dust, or aerosol particles.
- to connect vented exhaust hoods to the appliance.



Use of the appliances are **FORBIDDEN** if the installation is not filled with water.

4.2 - Accessories (included)

The components described below are delivered with the Heat Pump:

→ **2-core sheathed cable linking the Heat Pump and the Pilot** (lg 10 m)

→ **Hydraulic Fitting** (Ref. 754206)
(included a 1" filter valve, a safety valve assembly 1", a hydraulic connection [reduction F3/4 M1" + nipple MM 1"])

4.3 - Accessories available to order

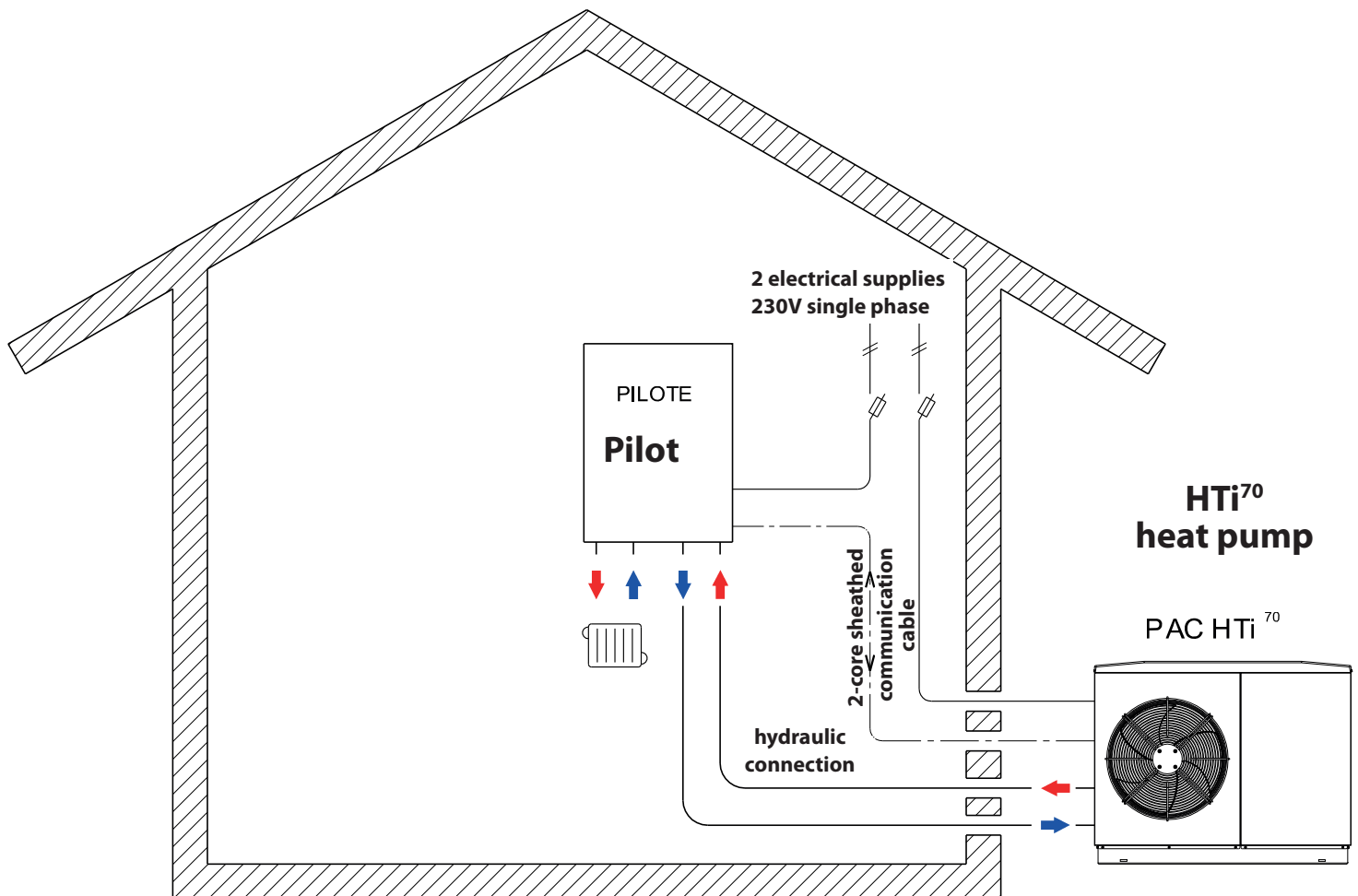
→ **2-core sheathed cable** (Ref. 753102)
Linking the Heat Pump and the Pilot (lg 20 m)
20m length for connection instead of the 10m length delivered as standard.

→ **External defrost kit** (Réf. 754101)
To keep the external condensate evacuation duct from freezing.

→ **Adjustable raiser kit for heat pump** (Réf. 754600)
Allows raise of the heat pump and catch up with ground levels.

5 - INSTALLATION

5.1 - Standard configuration



- The Heat pump must be installed outside exclusively.
- Avoid any obstruction of the airflow of the ventilator.

Ensure that there is nothing blocking the exchanger's air circulation. Ensure that the Heat pump is placed so that it is sheltered from dominant winds.



PROHIBITED INSTALLATION

It is prohibited to install the Heat pump:

- In a non-ventilated room.
- Near sources of excessive heat, combustible materials, or near ventilation points of adjacent buildings.
- Near a kitchen or workshop exhaust ducts; this can result in a mixture of oil and air settling onto the heat exchanger fins which could hamper its performance.
- In an area with flammable gas, acidic substances, or alkalines which could cause irreversible damage to the copper-aluminium heat exchanger.



IMPORTANT INSTALLATION RULES

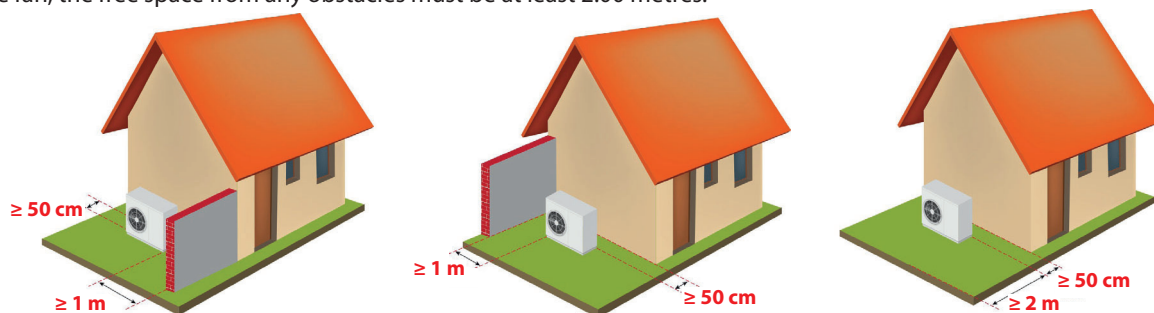
- Avoid installing the Heat pump in a location subject to noise reverberation such as near windows or near the corners of buildings.
- As the condensates draining trough slopes downward, the Heat pump must be installed on a level base.
- The Heat pump must be easily accessible so as to facilitate access for inspections and maintenance.

5.2 - Placement

The Heat Pump is designed to be installed outdoors exclusively, while respecting a minimum of free space around the appliance in an area free from excessive levels of dust. It should never be placed in an enclosed space.

The Heat Pump is designed to operate in rainy weather conditions, although it can be installed under a well-ventilated shelter (With an opening large enough to allow sufficient air flow for intake and exhaust).

Regarding the fan, the free space from any obstacles must be at least 2.00 metres.



5.2.1 - Seaside installation

Generally speaking, the components of our products are treated to resist corrosion, but traces may nevertheless appear, affecting the aesthetics without compromising the operation of the appliance.

In areas close to the coast, the salty air, which is particularly corrosive and often laden with sand particles, can accelerate the degradation of materials, which is why, without being exhaustive, we recommend certain precautions:

- Install the machine behind a shelter in compliance with the normal installation conditions specified in this manual: This solution limits direct exposure to sea air and reduces the effects of humidity, sand and salt.
- Regular cleaning: Frequent rinsing of exposed surfaces with fresh water helps to remove accumulated salt and sand, the main cause of corrosion.
- Applying protective coatings: Some manufacturers offer protective coatings specially designed for marine environments (blygold type).

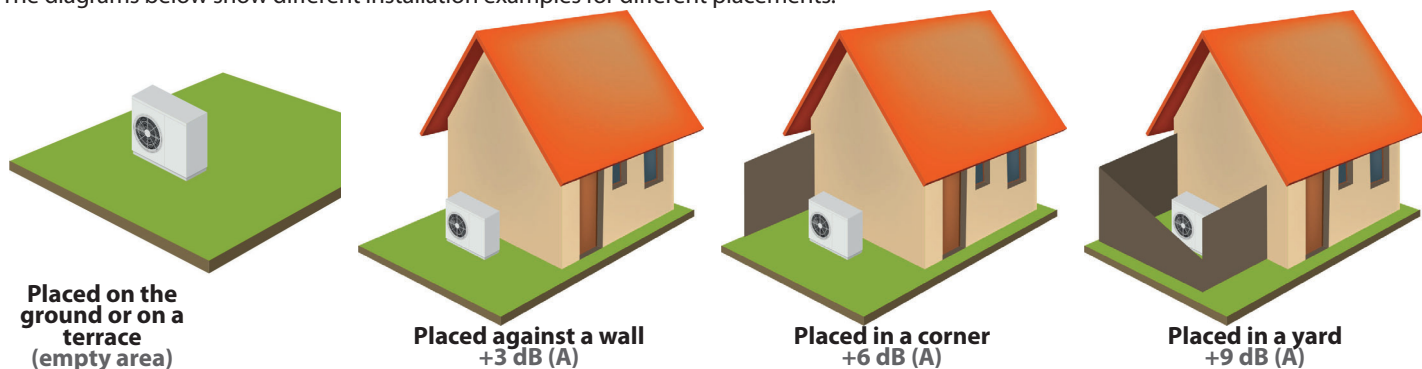
By taking these precautions, we can limit the impact of aggressive environments on our equipment. If you have any questions or specific requirements, please do not hesitate to contact our team.

5.2.2 - Noise levels

The Heat Pump is equipped with a large diameter fan so as to allow for an appropriate air flow rate. This flow rate can rise up to 9.000 m³/h. The fan speed is adjustable to limit the noise level.

Depending on the installation conditions, the noise levels may be different, in particular if the walls closest to the Heat Pump cause a reverberation and amplification of noise.

The diagrams below show different installation examples for different placements.

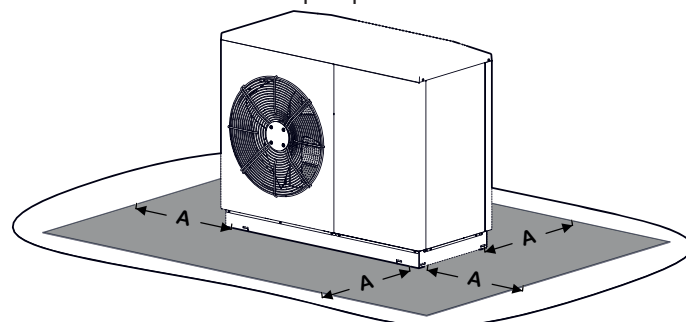


5.2.3 - Safe area

The heat pump contains a flammable refrigerant. In case of leak, the refrigerant could accumulate near the ground (higher density than air). or spread through openings in the building. In order to limit the risk of a toxic, suffocating, explosive or dangerous atmosphere, a safety perimeter must be established around the machine. This perimeter must not include a window, door, or any openings towards the interior of the building.

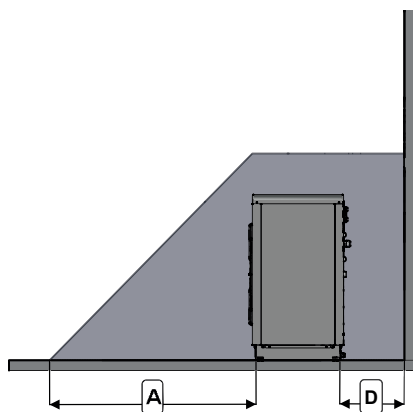
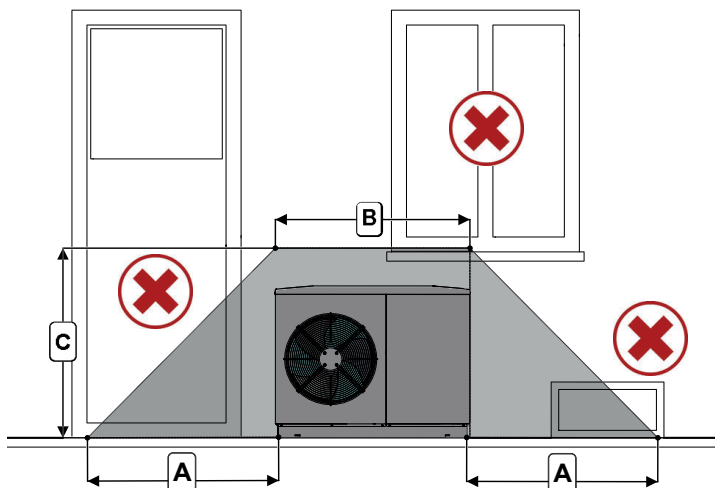
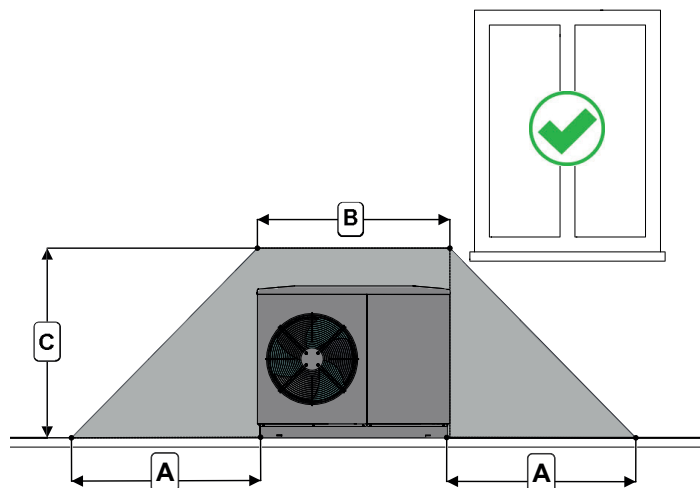
5.2.3.1 - Ground security area

Observe this area if the heat pump is in free field.



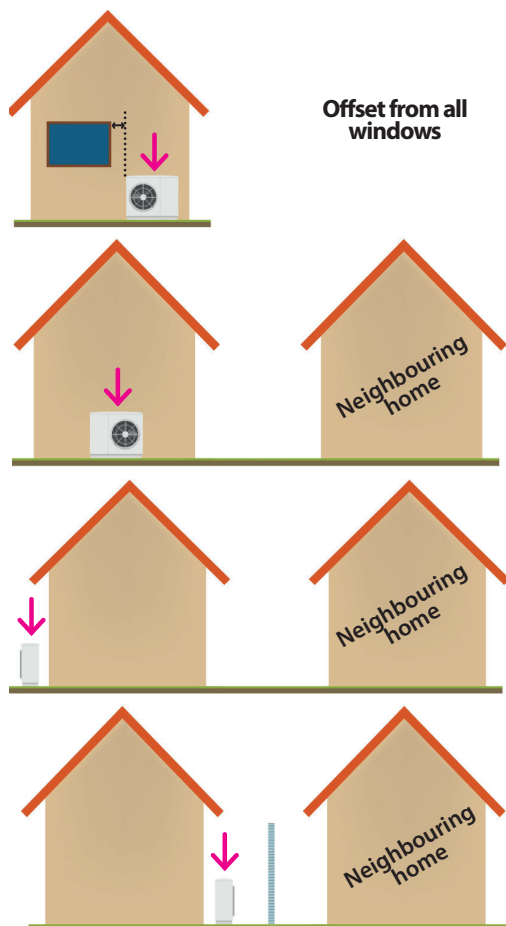
5.2.3.2 - Security area in front of a wall

This area must be respected if the heat pump is against a wall and close to the opening of a building.



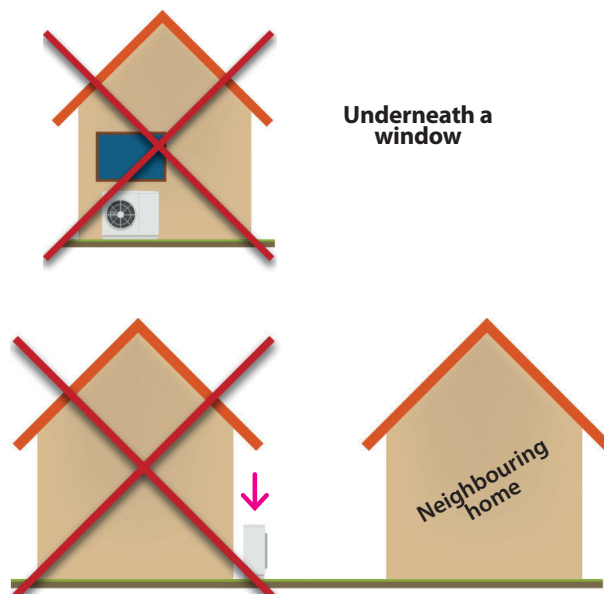
Distances from the security perimeter (mm)		
	HTi ⁷⁰ 6 kW	HTi ⁷⁰ 8 kW
A	1000	1000
B	1000	1000
C	1300	1600
D	500	500

5.2.4 - Accepted installation sites



The noise prevention screen must be made of insulated materials.

5.2.5 - Prohibited installation sites



5.3 - Setting up

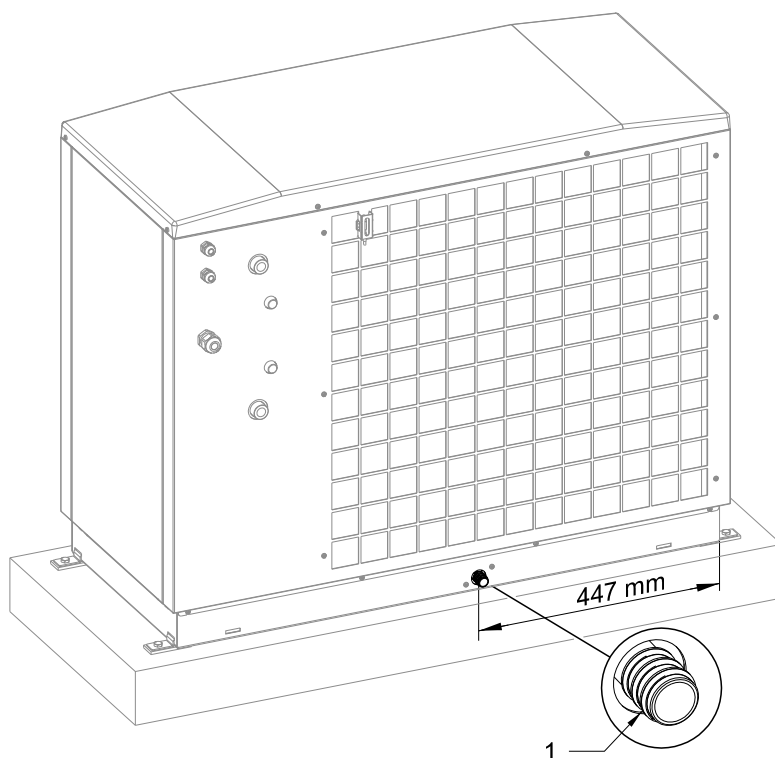


The Heat pump must be installed on a hard and stable base, which is sufficiently raised from ground level to avoid risks of damage in case of flooding or snow.

(Refer to leaflet no. B1899193 supplied in the accessories box that comes as standard with the heat pump).

- Remove the 4 clips securing the heat pump to the transport pallet.
- Using the transport straps, turn the heat pump slightly on the pallet.
- Attach the four anti-vibration pads (included in the accessories box) to the mounting brackets on the underside of the heat pump.

5.3.1 - Condensates drainage



When the appliance is operating in frost protection mode, the condensed water must be drained off. In order for the condensates to drain properly, the drainage trough and hole **1** must be clean and free of all debris (leaves, grass, etc...).

During cold weather, ice may form on the evaporator. The heat pump has an automatic defrosting system to eliminate this problem. Do not use tools to take off ice at risk of deterioration the evaporator.

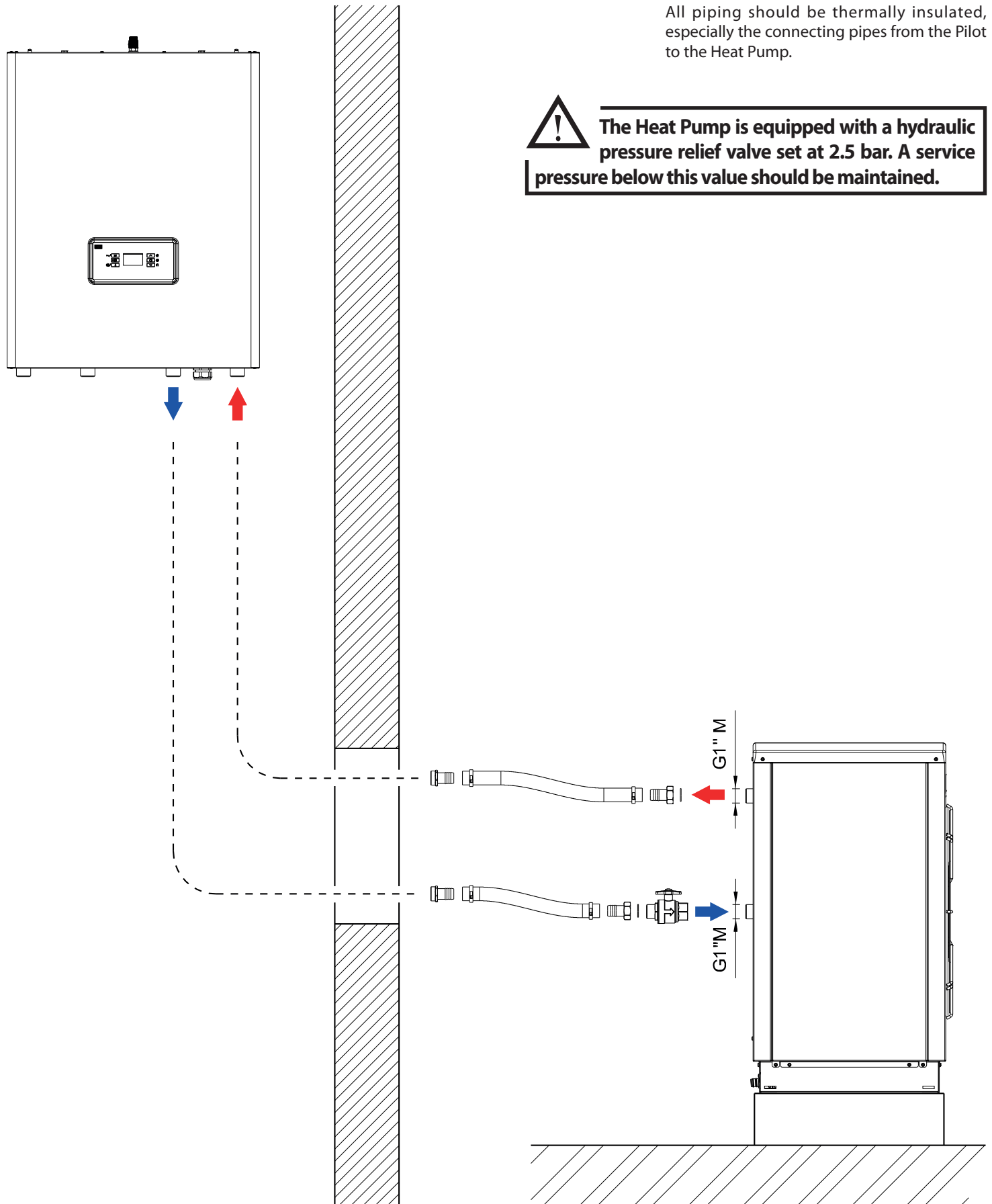
The condensates can be connected to the sewer with the optional external defrost kit (**Ref. 754101**). It is composed of a reinforced PVC pipe and a heating cord allowing the flow in freezing period.

It is also possible to let the condensate flow freely on the back of the heat pump. In this case, provision must be made into the ground for deep water drainage.

5.4 - Hydraulic installation

5.4.1 - Hydraulic connections on the installation

In order to ensure that fluids can circulate properly, it is advisable to check that the sizing of piping in the circuit is appropriate between the Heat Pump and the Pilot.



5.4.2 - Hydraulic connection between Heat pump and pilot

A sufficient flow rate should be ensured so that the range of temperature between the outlet and inlet of the Heat Pump does not exceed 5°C when the Heat Pump is operating at full power (take a temperature measure when the HTi Heat Pump is in heating mode and the system is fully functioning):

The hydraulic connection section between the Heat Pump and the Pilot must be sufficient.

Using the tables provided in the hydraulic pilot installation manual, determine the minimum inner diameter of the connection of piping needed depending on the distance* which separates the Heat Pump and the Pilot.

Heat pump model	6 kW	8 kW
Minimum nominal flow rate	900 l/h	1350 l/h
Maximum pressure	2.5 bar	2.5 bar
Hydraulic connection	1"	1"

Make sure that all sections of piping are equipped with functional and accessible air valves.

The hydraulic kit must be installed using flexible piping on the water inlet and outlet points of the Heat pump in order to prevent any vibrations from being transmitted to the heating system.

5.4.3 - Heat pump water inlet filter (supplied)

A 1" valve with a built-in 500µm filter must be installed on the water inlet piping on the Heat pump:

- Respect the direction of flow on the filter (arrow on the valve).



Clean the filter several times as soon as the Heat pump circulator pump has been activated (make sure to switch off the Heat pump circulator pump before cleaning).

- Clean the filter at least once per year.



Please refer to the pilot's user manual for any additional recommendations concerning hydraulic connection.

5.5 - Connecting to the power supply

5.5.1 - General recommendations

Ensure that the power supply is sufficient to supply both the Heat pump and the electrical back-up if necessary, taking into account any other domestic usage of electricity.

Connection to the power supply for each appliance must be done by a qualified professional with the mains power switched off.



The rules and regulations in the country of installation MUST be respected (standard C15-100).

- **The electrical lines for general power supply to the circuits must be made in compliance with your country's current rules and regulations (standard C15-100).**
- **Standard C15-100 determines the cable section to be used based on acceptable currents.**
- **Standard C15-100 determines the cable section to be used based on the following elements:**
 - **Nature of the conductor:**
 - type of insulation, number of strands, etc...
 - **Installation mode:**
 - influence of conductor and cable groups
 - ambient temperature
 - tightly or non-tightly installed
 - length of cables, etc...



During transport, the electrical connections may be subject to accidental loosening.

- **To eliminate any risk of abnormal heating, it is necessary to ensure the placement of the faston type electrical connections are secure and tighten the screw connections.**

See§ «Spare parts - electrical boxes»

Each appliance is delivered from the factory completely pre-wired. However, it is necessary to connect the following elements to the relevant terminals:

- The electrical supply of the Heat pump's power supply circuit.
- The 2-core sheathed connecting cable (10m length supplied) between the Heat pump and the Pilot.

Under no circumstances will the manufacturer be held liable for any problems which may arise due to improper installation and/or choice of power supply cable.

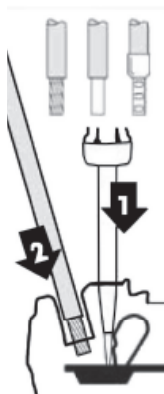
Connecting terminals

The terminal strips are spring-loaded «Cage Clamps».

For Handling, use the following :

- for 2.5 mm² or 4 mm² control terminals, use a 3.5 x 0.5 mm flat-head screwdriver.
- for 6 mm² power terminal, use a 5.5 x 0.8 mm flat-head screwdriver.

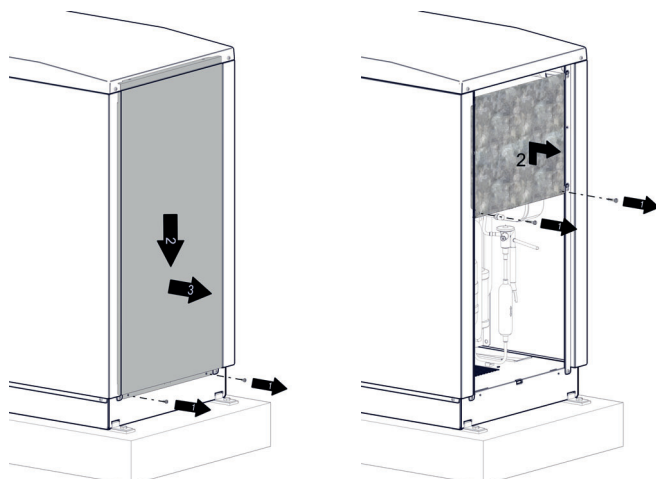
- 1 : Insert the screwdriver into the rectangular window located on top of the terminal block.
- 2 : Insert the wire into the «Cage Clamp» when the flap is open.
- 3 : Remove the screwdriver.



Note : The wires must be stripped to the following lengths :

- for the 2.5mm² control terminals between 8 and 10mm;
- for the 4mm² control terminals between 10 and 12mm;
- for the 6mm² power terminal between 13 and 15mm.

5.5.2 - Accessing the connection terminals



- 1 : Remove the 2 screws
- 2 : Slide the panel downwards
- 3 : Pull the panel forwards

- 1 : Remove the two screws
- 2 : Slide upwards and pull forwards

5.5.3 - Recommendations for connecting the system to the power supply

Check:

- **The power consumption**
- **Number and thickness of the power supply cables**
- **Fuse or circuit breaker ratings**

The power supply must come from an electrical protection and sectioning device which complies with all current rules and regulation in effect in the country of use.

This CE-approved unit complies with all the essential requirements of the following directives:

- Low voltage n° 2014/35/UE;
- Electromagnetic compatibility n° 2014/30/UE.

Ensure that the installation is equipped with a properly sized and connected grounding cable.

Ensure that the voltage and frequency of the general power supply fits requirements.

The acceptable variation in voltage is:

- | | |
|---------------|-------------------------------|
| 230 V +/- 10% | 50 Hz for single-phase models |
| 400 V +/- 10% | 50 Hz for three-phase models |

See Appendix A1 for components adapted to the heat pump.

5.5.4 - Connection to the power supply

The HTi⁷⁰ Heat pump is CE-marked. It is compliant with French standard NF C15-100 as well as European standards EN 61000-3-3 and EN 61000-3-11, among others.

The power supply cable should be sized carefully according to the following factors:

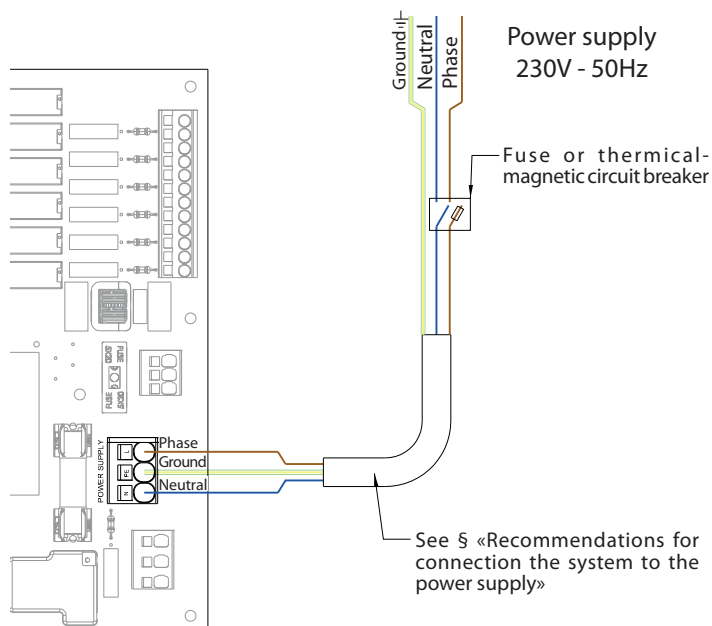
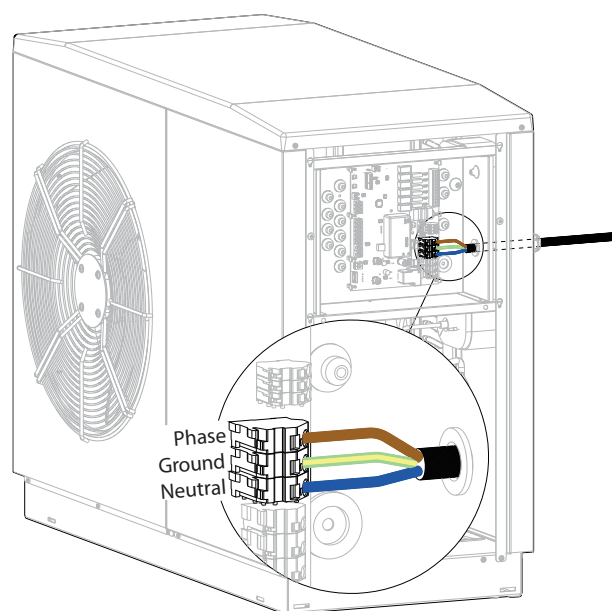
- Maximum current required
- Distance between the HTi⁷⁰ Heat pump and the power supply
- Overall protection
- The neutral operating system

Make sure to strip the cable before placing it into the terminals, and make sure that the copper is in good condition.

A method of disconnection must always be installed in compliance with the installation rules.

If the power supply cable is damaged, it must be replaced by a qualified professional to avoid any risk of danger.

5.5.4.1 - Single-phase connection

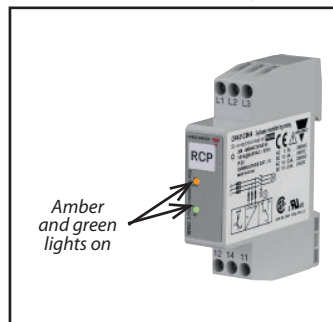


5.5.4.2 - Three-phase connection

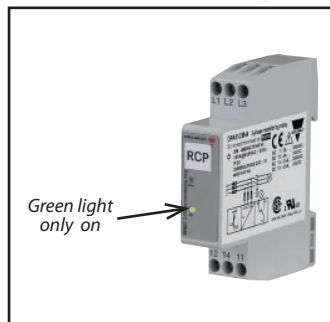
• A phase controller relay HTi⁷⁰ three-phase 8 kW heat pump.

In order to prevent a phase fault or bad sequence -which could cause compressor damage- a phase controller relay is installed. It prohibits the power supply to the heat pump if phases are reversed.

Proper wiring



Incorrect wiring



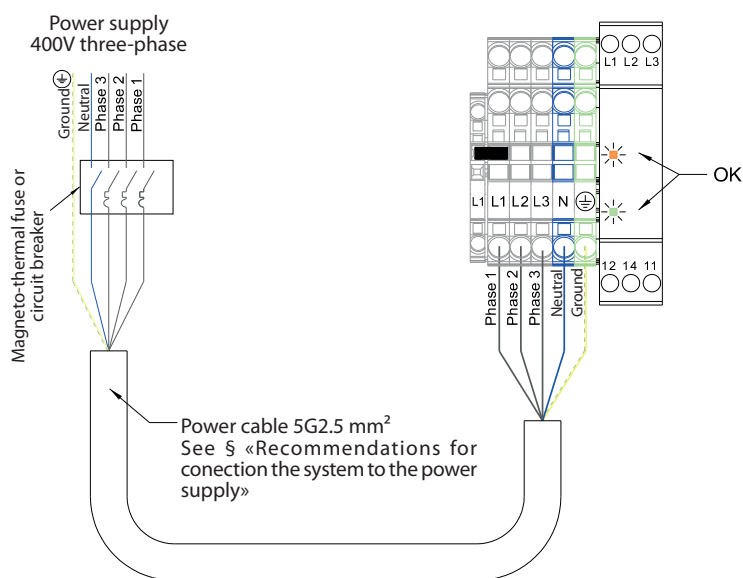
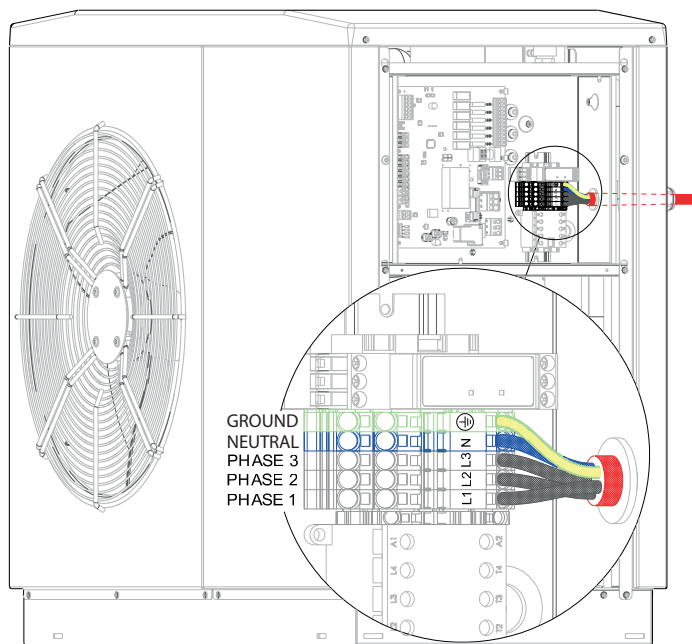
In case of incorrect wiring :



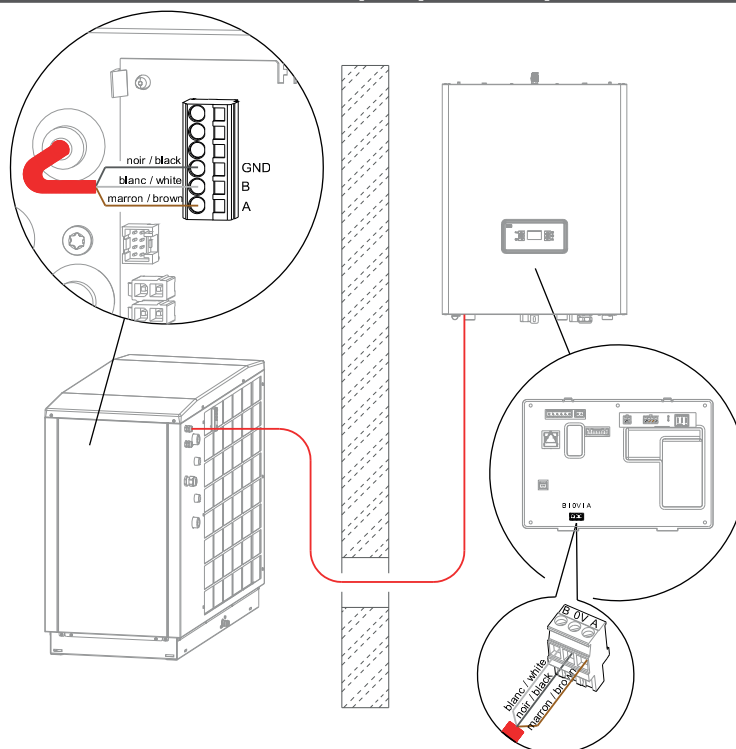
Be careful, never work under tension

If the order of the phases is reversed or if a phase is missing, the relay cuts the power supply to the electronic board. A «BUS Err» defect appears. On the phase controller relay, this is indicated by the absence of the orange light on the top and the green light on the bottom. To correct this fault situation, two phases must be reversed on the power terminal block general power cable.

When the hydraulic driver is powered on, a «BUS fault» is displayed. Reverse two phases on the heat pump three-phase power cable. Power back on and check the voltage on each phase.



5.5.5 - Communication bus cable between the heat pump and the pilot



6 - MAINTENANCE AND TROUBLESHOOTING



- In order to ensure the best performance results from your HTi⁷⁰ Heat pump it should be subject to regular maintenance.
- An annual maintenance check is recommended to be carried out by a qualified professional on the hydraulic heating circuit.
- All work carried out on the refrigerant circuit must be done by a qualified professional with a category 1 certificate of aptitude.
- Always switch the appliance off before opening it.

6.1 - General information

After the appliance has been operating for a few days, it is advised to check that the water circuit is properly sealed, and that condensates are draining properly.

Note: In case of maintenance work or decommissioning of an appliance, please respect all environmental protection instructions concerning recovery, recycling, and disposal of consumables and components.

6.2 - Maintenance on the hydraulic circuit

Inspection of the water circuit consists of removing sludge, checking the filters, and stopping up any leaks that may have appeared. Clean or replace clogged or dirty filters.

From time to time check that the condensates are draining properly.

6.3 - Maintenance of the Heat pump

The HTi⁷⁰ Heat pump contains R290 refrigerant fluid. It is not subject to regulations concerning greenhouse gasses, and does not necessitate mandatory annual maintenance by a qualified professional.

However, it is still recommended to carry out periodic (at least once per year) cleaning of the evaporator fins if it is obstructed by dust or leaves: this should be done using a vacuum cleaner or by spraying with water.



Never clean the finned heat exchanger with high-pressure cleaning equipment as it could damage the fins.

In case of repair work on the HTi⁷⁰ Heat pump, the refrigerant circuit, or the electrical box, it is important to follow the following instructions:

Any work on the refrigerant circuit must be undertaken by a qualified professional with a category 1 certificate of aptitude. 1. It is forbidden to release gas from the refrigerant circuit into the atmosphere, and it is obligatory to recover the refrigerant before undertaking any work on the circuit.

The HTi⁷⁰ Heat pump uses R290 refrigerant fluid. Given the flammable nature of this fluid, any work on the refrigerant circuit must be carried out using suitable equipment which complies with the current rules and regulations in effect.

When handling the fluid (recovery, draining, or refilling), the appliance must be disconnected from the power supply. Do not smoke. Do not generate any flame (lighter, blowtorch) while handling the fluid. If work is necessary on the refrigerant circuit using a flame (blowtorch), the refrigerant circuit must be emptied and replaced with nitrogen.



Keep in mind that there may be some refrigerant fluid remaining in certain parts of the circuit after it has been emptied and replaced with nitrogen. (Creation of a flame is possible).

6.4 - Maintenance of the electrical components



- Always disconnect the appliance from the power supply before accessing the electrical terminals.
- Do not get water on any of the electrical components.

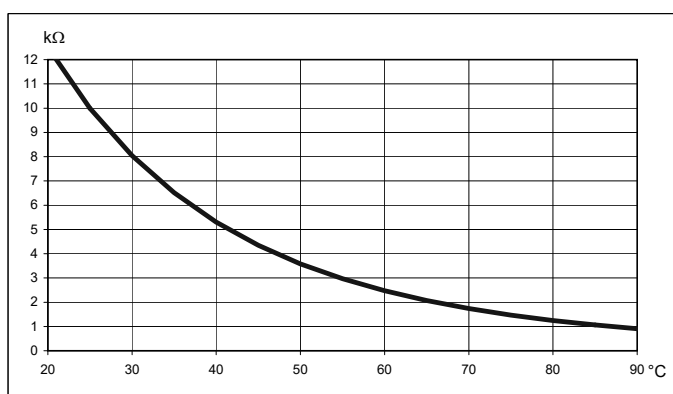
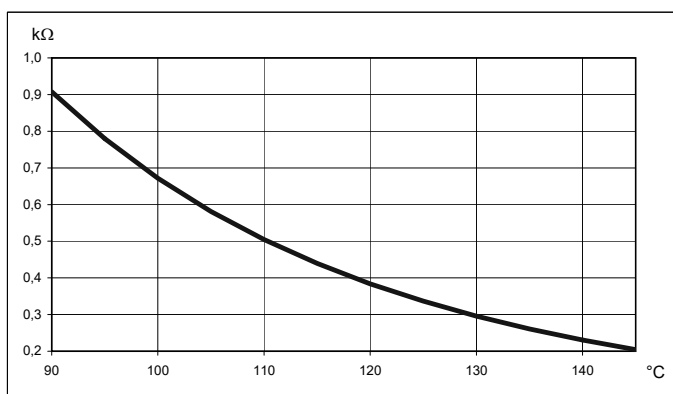
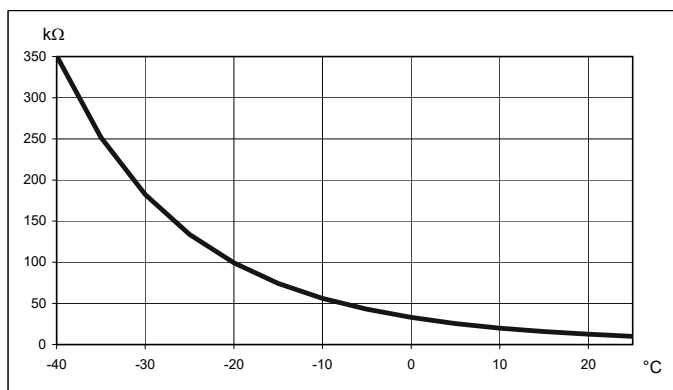
- Check on both the HTi⁷⁰ Heat pump and the HTi⁷⁰ Pilot that the electrical supply cables are properly connected to the terminals.
- Check the electrical connections for oxidization or overheated sections.
- Check the tightness of the cables on the compressor starters.
- Clean any dust from the electrical box and check the connections.
- Check that the ground cable is properly connected.

6.5 - Consulting the meters

Consultation of the meters can be done from the hydraulic pilot's display screen (refer to the Pilot's user manual).

6.6 - Sensor data curve charts

6.6.1 - Water inlet and outlet - Air intake sensor - Sensors installed on compressors 1 and 2



Temp. (°C)	Sensor value (KOhms)	Temp. (°C)	Sensor value (KOhms)	Temp. (°C)	Sensor value (KOhms)	Temp. (°C)	Sensor value (KOhms)
-40	351.078	10	20.017	60	2.472	110	0.504
-35	251.277	15	15.768	65	2.068	115	0.439
-30	182.451	20	12.513	70	1.739	120	0.384
-25	133.827	25	10.000	75	1.469	125	0.336
-20	99.221	30	8.045	80	1.246	130	0.296
-15	74.316	35	6.514	85	1.061	135	0.261
-10	56.202	40	5.306	90	0.908	140	0.231
-5	42.894	45	4.348	95	0.779	145	0.204
0	33.024	50	3.583	100	0.672		
5	25.607	55	2.968	105	0.581		

6.7 - Modification

Any modification of the device is **prohibited**. Any replacement of components must be done by a professional with original parts from the manufacturer.

6.8 - Decommissioning

6.8.1- Interim Decommissioning of Product

In the event of a prolonged absence with a power cut to the housing and product, ask a qualified professional to drain the product or protect it from freezing.

6.8.2- Final decommissioning of the product

Turn off the product to a specialized installer.

6.9 - Recycling and Disposal

Entrust the disposal of the packaging to the installer who installed the product.



The above symbol requires:

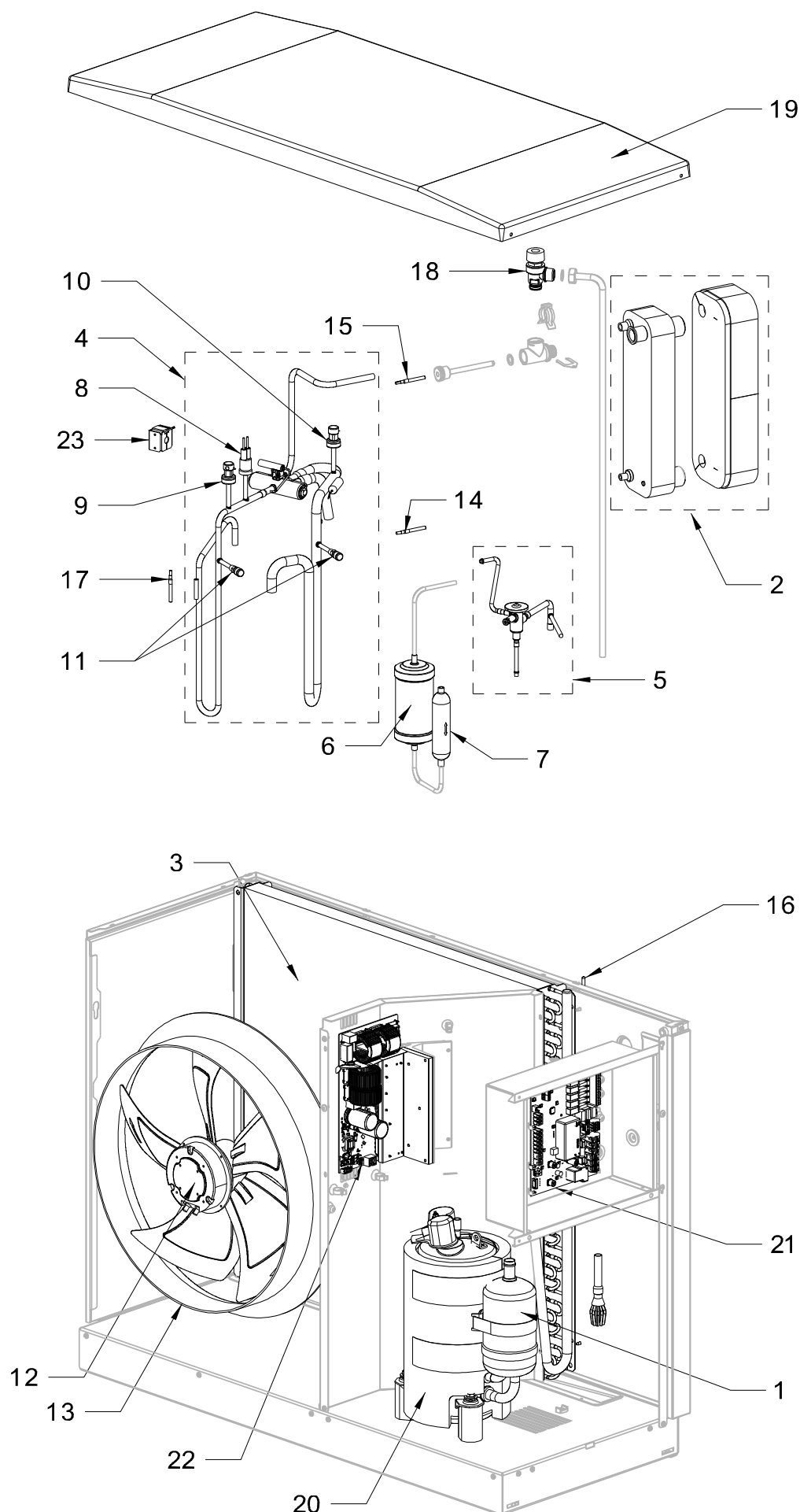
- Do not dispose of the product with the household waste.
- Dispose of the product at a collection point for used electrical and electronic equipment.

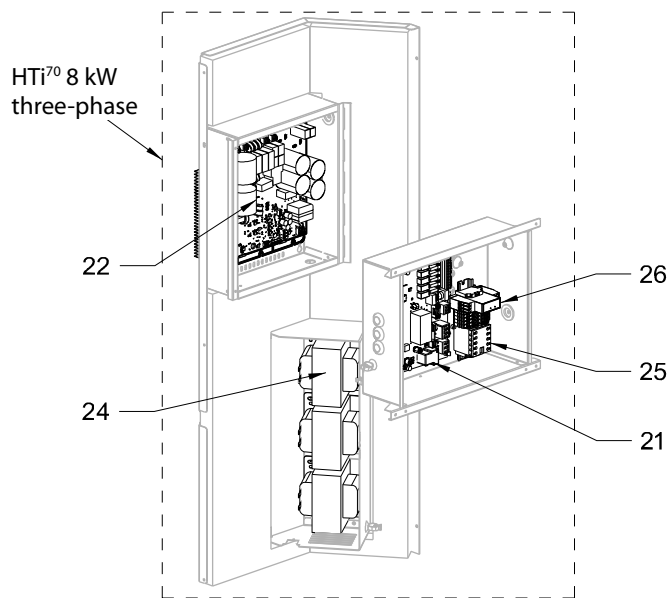
6.9.1- Disposal of refrigerant

The product contains refrigerant R290 (propane).

- Routinely dispose of refrigerant to qualified personnel.
- Follow the general safety conditions.

7 - LIST OF SPARE PARTS





Rep.	Reference number			Designation
	155000 HTi ⁷⁰ 6 mono	155010 HTi ⁷⁰ 8 mono	155050 HTi ⁷⁰ 8 tri	
1	B4994445	B4994445	B4994445	Compressor replacement kit
2	B4994909	B4994910	B4994910	Condenser kit
3	B1473042	B1473043	B1473043	Evaporator
4	B4994304	B4994305	B4994305	4-way valve kit
5	B4994306	B4994306	B4994306	Pressure reducing kit
6	B1473040	B1473040	B1473040	Liquid reservoir tank
7	B1473041	B1473041	B1473041	Dehumidifying filter
8	B1239269	B1239269	B1239269	High pressure switch
9	B1239268	B1239268	B1239268	High pressure sensor
10	B1239225	B1239225	B1239225	Low pressure sensor
11	B1473030	B1473030	B1473030	Charging tube
12-a	B1244594	B1244594	B1244594	3 blades fan
12-b	B1244839	B1244839	B1244839	5 blades fan
13-a	B4994697	B4994697	B4994697	3 blades fan housing
13-b	B4994944	B4994944	B4994944	5 blades fan housing
14	B1244833	B1244833	B1244833	Water inlet temperature sensor
15	B1244577	B1244577	B1244577	Water outlet temperature sensor
16	B1244522	B1244522	B1244522	Air temperature sensor
17	B1244834	B1244834	B1244834	Compressor temperature sensor
18	B1239285	B1239285	B1239285	Pressure relief valve 2.5 bar
19	B4994309	B4994309	B4994309	Cover kit
20	B16571018	B16571018	B16571018	Compressor insulation
Non visible	B1242215	B1242215	B1242215	Heating wiring compressor
21	B4994719	B4994719	B4994719	HP C9+ circuit board replacement kit
22	B1244595	B1244595	B1244940	Compressor power board
23	B1239242	B1239242	B1239242	4-way valve solenoid
24			B1244941	Choke
25			B1243561	Contacteur
26			B1943123	Phase controller
Non visible	B4994310	B4994310	B4994912	Complete wiring kit
Non visible	B1244728	B1244728	B1244728	C9 connection wires
Non visible	B1244853	B1244853	B1244853	Heating cord for defrost tank

Note : Availability of spare parts:

The spare parts of our products are kept available for 10 years, from the date of stop of mass production, except events beyond our control.

8 - WARRANTY

8.1 - Warranty coverage

The warranty covers the HTi⁷⁰ Heat pump and the HTi⁷⁰ Pilot components for a period of two (2) years, starting from the date the appliance was activated, if the warranty form was sent back to the manufacturer. In the absence of this document, the date of manufacture will be used to determine the start date of the warranty.

If the appliance was installed by a manufacturer-approved technical centre, you will be entitled to an additional year on your warranty. A comprehensive warranty will apply for the first year (parts, labour and on-site support) followed by two more years of coverage for parts only.

The appliance is guaranteed against all manufacturing defects, provided that it was installed according to the instructions provided in this manual and in compliance with all current rules and regulations in the country of installation. All electrical connections should comply with the C15-100 standard.

Under no circumstances does a defective part warrant the replacement of the whole appliance.

The warranty only applies to parts which we identify as having been defective at manufacture. If necessary, the part or product should be returned to the manufacturer, but only with prior agreement from our technical department. Labour, transport, and packaging costs are the responsibility of the user. Repairs on a device will not result in compensation.

The warranty on replacement parts ends at the same time as the warranty of the appliance.

The warranty only applies to the appliance and its components and excludes any part or installation external to the appliance: electrical parts, hydraulic components, etc...

The warranty will not apply in the absence of, insufficient, or improper, maintenance of the appliance.

It is essential to carry out regular annual maintenance on the appliances and on the installation to ensure sustained use and durability. This maintenance should be carried out by your installer, or by a manufacturer-approved technical centre. In the absence of regular maintenance the warranty is rendered null and void.

Any work on the refrigerant circuit must be undertaken by a qualified professional with a category 1 certificate of aptitude. It is forbidden to release gas from the refrigerant circuit into the atmosphere, and it is obligatory to recover the refrigerant before undertaking any work on the circuit.

The HTi⁷⁰ Heat pump uses R290 refrigerant fluid. Given the flammable nature of the fluid, any work on the refrigerant circuit must be done with appropriate materials and conforming to all regulations in effect.

If an appliance is presumed to be the cause of any damage, it must not be moved or tampered with before an expert assessment has been carried out.

8.2 - Limitations of warranty

8.2.1 - General information

The warranty does not apply to defects or damage caused by situations or events such as:

- Misuse, abuse, negligence, improper transport or handling.
- Incorrect installation, or installation which has been carried out without following the instructions in the manual and user guide.
- Insufficient maintenance.
- Modifications or changes carried out on the appliance.
- Impacts from foreign objects, fire, earthquakes, floods, lightning, ice, hailstones, hurricanes or any other natural disaster.
- Movement, imbalance, collapse or settling of the ground or the structure where the appliance is installed.
- Any other damage which is not due to defects in the product.

We do not guarantee against variations in the colour of the appliance or damage caused by air pollution, exposure to chemical elements, or changes brought about by adverse weather conditions.

The products are not guaranteed against dirt, rust, grease or stains which occur on the surface of the appliance. We are not responsible for any variations in colour.

8.2.2 - Cases (not limited to) for exclusion from warranty

8.2.2.1 - Heating circuit water

Cases (not limited) for exclusion from warranty:

- Not rinsing the heating circuit
- Using rain or well-water
- Not treating the water for filling the heating circuit according to the instructions in the installer instruction manual.

8.2.2.2 - Handling

Cases (not limited) for exclusion from warranty:

- Any damage sustained by impacts or falls during handling after delivery from the factory.
- Deterioration in the condition of the appliance after handling where the instructions in the manual have not been followed.
- Deterioration of the **HTi⁷⁰ Heat pump** because it was leaning or laid flat.

8.2.2.3 - Installation site

Cases (not limited) for exclusion from warranty:

- Placement of the **HTi⁷⁰ Pilot** in a location where it could be subject to ice/frost or other adverse weather conditions.
- Absence of frost protection for the appliances in the installation.
- Placement of the Heat pump on a surface which cannot support the weight of the appliance, or installation of the HTi⁷⁰ Pilot on a vertical surface which is not appropriate for the weight of the appliance.
- Not respecting the horizontal positioning of the Heat pump.
- Not positioning the appliance in accordance with the instructions in the installer manual.

Costs incurred due to access difficulties are not the manufacturer's responsibility.

The warranty for this equipment expressly excludes any cover for damage due to corrosion or rust of the external metal casing of heat pumps installed on the seashore (sheet metal, evaporator fan).

Prolonged exposure to salty air and marine environmental conditions can accelerate the degradation of metal surfaces. Without compromising the performance of our machines, this natural wear and tear is not covered by the manufacturer's or installer's warranty.

Users are advised to carry out regular maintenance, including frequent rinsing of exposed surfaces with fresh water, to limit the effects of corrosion.

8.2.2.4 - Electrical connections

Cases (not limited) for exclusion from warranty:

- Faulty electrical connection which does not conform to the national standards in effect.
- Not following the electrical connection diagrams provided in the installer manual.
- Electrical supply being significantly over- or under- the required voltage.
- Not respecting the supply cable sections.
- Absence of, or insufficient electrical protection throughout the appliance (fuses / circuit breaker, grounding...).

8.2.2.5 - Hydraulic connections

Cases (not limited) for exclusion from warranty:

- Reversing the inlet/outlet connections.
- Water pressure over 2.5 bar.
- Absence of, improper mounting of, or obstruction of pressure-relief valves.
- External corrosion due to piping being improperly sealed, or due to condensates not draining properly.
- Inappropriate connection for the draining and recovery of condensates.
- Installation which does not comply with the instructions provided in the installer manual.

8.2.2.6 - Accessories

The warranty does not cover faults or defects resulting from:

- Installation of accessories which do not comply with our recommendations.
- The use of accessories which do not come from the manufacturer of the appliance.

8.2.2.7 - Maintenance

Cases (not limited) for exclusion from warranty:

- Not respecting the maintenance instructions provided in the installer manual.
- Not maintaining:
 - . the evaporator
 - . the condensates drainage system
- Not using parts issued by the manufacturer.
- Outer casing and bodywork being subjected to any external damage.
- Abnormal sludge levels.
- Not cleaning the protective filters.

APPENDIX

A1 - Technical specifications

A1.1 - General characteristics

	155000 HTi ⁷⁰ 6 kW mono	155010 HTi ⁷⁰ 8 kW mono	155050 HTi ⁷⁰ 8 kW tri
Electrical supply	230 V single-phase	230 V single-phase	400 V three-phase
Maximum power consumption	3,6 kVA	3,6 kVA	3,6 kVA
Maximum current needed	15 A	15 A	5,5 A
Progressive starter	No	No	No
Heat pump regulation mode	Variable speed	Variable speed	Variable speed
Circuit breaker calibration (curve D)	16 A single-phase	16 A single-phase	10 A three-phase
Supply section	3G 2,5mm ² *	3G 2,5mm ² *	5G 2,5mm ² *
Maximum temperature	70 °C	70 °C	70 °C
R290 refrigerant fluid	0,420 kg	0,600 kg	0,600 kg
Range of exterior air temperature	-20 à +40 °C	-20 à +40 °C	-20 à +40°C
Construction	Steel	Steel	Steel
Dimensions W x H x P (mm)	1035 x 820 x 484	1035 x 1070 x 484	1035 x 1070 x 484
Weight when empty	81 kg	94 kg	108 kg
Nominal water flow rate	900 l/h	1350 l/h	1350 l/h
Hydraulic connection	26 / 34 male	26 / 34 male	26 / 34 male
Maximum hydraulic pressure	2,5 bar	2,5 bar	2,5 bar
Ø condensates drainage	18 / 22 mm	18 / 22 mm	18 / 22 mm
Max air flow rate	3000 m ³ /h	3500 m ³ /h	3500 m ³ /h
Sound levels at 1m	50,8 dB(A)	51,5 dB(A)	51,5 dB(A)

* According to NFC 15-100; UTE 15-105.

A1.2 - Performances

	Outdoor air temp	155000 - HTi ⁷⁰ 6 kW mono				155010 - HTi ⁷⁰ 8 kW mono				155050 - HTi ⁷⁰ 8 kW tri			
		Water temperature				Water temperature				Water temperature			
		30/35	40/45	47/55	55/65	30/35	40/45	47/55	55/65	30/35	40/45	47/55	55/65
Max heating capacity*	20 °C	6,00	6,00	6,00	6,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Heating capacity nominal**		2,72	2,73	2,71	2,72	3,81	3,81	3,78	3,79	3,81	3,81	3,78	3,79
Nominal COP		6,48	4,46	3,88	2,59	8,32	5,21	4,83	3,89	8,32	5,21	4,83	3,89
Max heating capacity*	15 °C	6,00	6,00	6,00	6,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Heating capacity nominal**		2,80	2,84	2,81	2,83	3,94	3,92	3,95	3,93	3,94	3,92	3,95	3,93
Nominal COP		6,04	4,36	3,35	2,42	7,11	5,01	4,46	3,43	7,11	5,01	4,46	3,43
Max heating capacity*	12 °C	6,00	6,00	6,00	6,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Heating capacity nominal**		2,90	2,95	2,92	2,94	3,95	4,04	4,07	3,90	3,95	4,04	4,07	3,90
Nominal COP		5,67	4,03	3,08	2,40	6,54	4,62	3,89	2,56	6,54	4,62	3,89	2,56
Max heating capacity*	7 °C	6,00	6,00	6,00	6,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Heating capacity nominal**		4,06	4,05	4,24	4,19	5,72	5,62	5,79	5,92	5,89	5,76	5,79	5,92
Nominal COP		4,59	3,51	3,01	2,38	4,85	3,80	3,23	2,83	4,71	3,90	3,23	2,83
Max heating capacity*	2 °C	6,00	6,00	6,00	6,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Heating capacity nominal**		4,41	4,40	4,25	4,58	5,82	6,06	5,82	6,28	5,96	6,06	5,94	6,28
Nominal COP		3,84	3,09	2,44	2,19	3,51	3,15	2,59	2,38	3,59	3,15	2,64	2,38
Max heating capacity*	-7 °C	6,00	6,00	5,70	5,50	8,00	7,76	7,45	6,85	8,00	7,76	7,45	6,85
Heating capacity nominal**		4,93	5,16	5,11	5,33	6,23	6,08	6,33	5,95	6,23	6,17	6,33	5,95
Nominal COP		2,98	2,52	2,19	1,92	3,13	2,72	2,38	2,18	3,13	2,77	2,38	2,18
Max heating capacity*	-10 °C	5,81	5,49	5,11	4,90	7,10	6,40	6,10	5,80	7,10	6,40	6,10	5,80
Heating capacity nominal**		4,88	4,83	4,80	4,75	6,04	5,70	5,55	5,34	6,04	5,70	5,55	5,34
Nominal COP		2,77	2,46	2,08	1,85	2,79	2,48	2,11	1,86	2,79	2,48	2,11	1,86
Max heating capacity*	-15 °C	5,50	4,64	4,14	3,92	6,70	6,00	5,50	5,00	6,70	6,00	5,50	5,00
Heating capacity nominal**		4,79	4,27	3,93	3,82	5,76	5,34	5,01	4,60	5,76	5,34	5,01	4,60
Nominal COP		2,45	2,22	1,95	1,76	2,53	2,31	2,05	1,82	2,53	2,31	2,05	1,82
Max heating capacity*	-20 °C	5,11	3,83	3,56	3,30 ⁽¹⁾	5,30	5,00	4,80	4,50 ⁽¹⁾	5,30	5,00	4,80	4,50 ⁽¹⁾
Heating capacity nominal**		4,65	3,64	3,42	3,23 ⁽¹⁾	4,88	4,60	4,51	4,32 ⁽¹⁾	4,88	4,60	4,51	4,32 ⁽¹⁾
Nominal COP		2,18	1,98	1,72	1,63 ⁽¹⁾	2,19	1,98	1,73	1,63 ⁽¹⁾	2,19	1,98	1,73	1,63 ⁽¹⁾

* Max heating capacity without de-icing.

**According to EN14511.

⁽¹⁾ Water regime 50/60

A2 - EU declaration

This device complies with international electrical safety standards IEC 60335-1, IEC 60335-2-40. The CE marking present on the device attests to its conformity with the following Community Directives, of which it meets the essential requirements:

- Low Voltage Directive (LV): 2014/35/EU.
- Electromagnetic Compatibility Directive: (EMC): 2014/30/EU.
- Ecoconception Directive for Energy-related products: 2009/125/EC.
- Limiting Hazardous Substances (ROHS): 2011/65/EU.

A3 - Frost protection

In cases where the HRC⁷⁰ Heat Pump cannot operate (exterior temperature is outside of the operating range), and a back-up is authorised (boiler or electrical), it will automatically be protected from frost or ice as the circulator pump will operate and draw heat from the heating circuit which has its temperature maintained by the HRC⁷⁰ Pilot's electrical back-up or back-up boiler.

The water temperature remains over 5°C.

In all cases the piping must be properly insulated.

Underground piping should be installed within protective guttering. However, in the case of installation without a back-up, or if the HRC⁷⁰ Pilot or HRC⁷⁰ Heat Pump is being switched off during the winter months (ex. accidental stop, secondary residence, etc...), an additional anti-freeze protection is necessary.

Apply glycol to the heating circuit (with a minimum concentration of 25% glycol) or make sure to have hydraulic circuit draining measures in place for the HRC⁷⁰ Heat Pump and its accessories (described below).



Do not use mono-ethylene glycol (toxic product)

Choose the % of glycol based on the minimum exterior temperature to protect the water circuit from freezing (the concentration should not be under 25%) :

Exterior temperature (°C)	-10	-15	-20	-25
% of glycol needed	25	30	35	40



When using a concentrated protect which needs to be diluted with water, mix the water + anti-freeze + inhibitor mixture together prior to inserting it into the installation.

RENDERING THE WARRANTY NULL AND VOID



All deterioration of the appliance due to an inappropriate quality of water and / or the presence of corrosion in the absence of treatment products as described above, and / or an improper purging of air of the installation will render the warranty to be null and void.



Regularly check the pH level and % of glycol in the installation.

- **Never top-up the glycol in your installation without measuring the pH to check that the drop in glycol % is not due to a deterioration of the glycol.**
- **When the pH is acidic (<7) replace all of the glycol after having already drained and rinsed the installation.**

A4 - Treatment of the water in the heating circuit



It is MANDATORY to read the additional document concerning the quality of water used for filling the installation. This document is included with this manual as well as in the packet with the warranty information.

This document also contains information which is PERTINENT to the WARRANTY of the material.

A4.1 - Preparing the hydraulic circuit (rinsing)

Before installing the Pilot and the HTi Heat Pump, it is necessary to rinse the installation with an appropriate product.

This permits the elimination of all traces left from soldering, soldering fluxes, grout, grease, sludge, metallic particles, etc..in radiators, underfloor heating, etc...

This prevents any of the above mentioned waste from getting into the HTi Heat Pump heat exchanger, or from obstructing the filter installed on the incoming water inlet.

A4.2 - Filling water

The materials used for producing a heating circuit are of different natures. Instances of corrosion may occur through galvanic coupling in both new and existing installations.

The filling of the heating circuit must be done only with untreated water (no water softener) from the drinking water network. **Filling with water from any other source (well water, rain water etc...) will render the warranty null and void.**

A4.3 - Treatment of the heating circuit



Central heating installations must be cleaned in order to eliminate debris (copper, filings, soldering waste) related to the set-up of the installation or from chemical reactions between the metals.

Furthermore, it is important to **protect the central heating installations from risks of corrosion, limescale, and microbiological development** through use of a corrosion inhibitor which is suitable for all kinds of installations (steel or cast-iron radiators, PEX underfloor heating).



PRODUCTS USED FOR THE TREATMENT OF HEATING WATER MUST BE APPROVED BY THE LOCAL OR NATIONAL PUBLIC HYGIENE AND HEALTH AUTHORITY.

We recommend the use of products in the SENTINEL range for preventative and curative treatment of the heating circuit.

• For new installations : (less than 6 months old):

- Clean the installation with a universal cleaner to eliminate the debris from the installation (copper, fibres, soldering fluxes) Example : SENTINEL X300 or SENTINEL X800.
- Thoroughly rinse the installation until the water runs clear, with no traces of impurities left.

- Protect the installation against corrosion with a corrosion inhibitor, example: SENTINEL X100. Or against corrosion and freezing with an inhibitor with an anti-freeze additive. Example : SENTINEL X500 or SENTINEL R600.

• For existing installations:

- Desludge the installation with a desludging product to eliminate any sludge from the installation. Example : SENTINEL X400 or SENTINEL X800.
- Thoroughly rinse the installation until the water runs clear, with no traces of impurities left.
- Protect the installation against corrosion with a corrosion inhibitor, example: SENTINEL X100. Or against corrosion and freezing with an inhibitor with an anti-freeze additive. Example : SENTINEL X500 or SENTINEL R600.

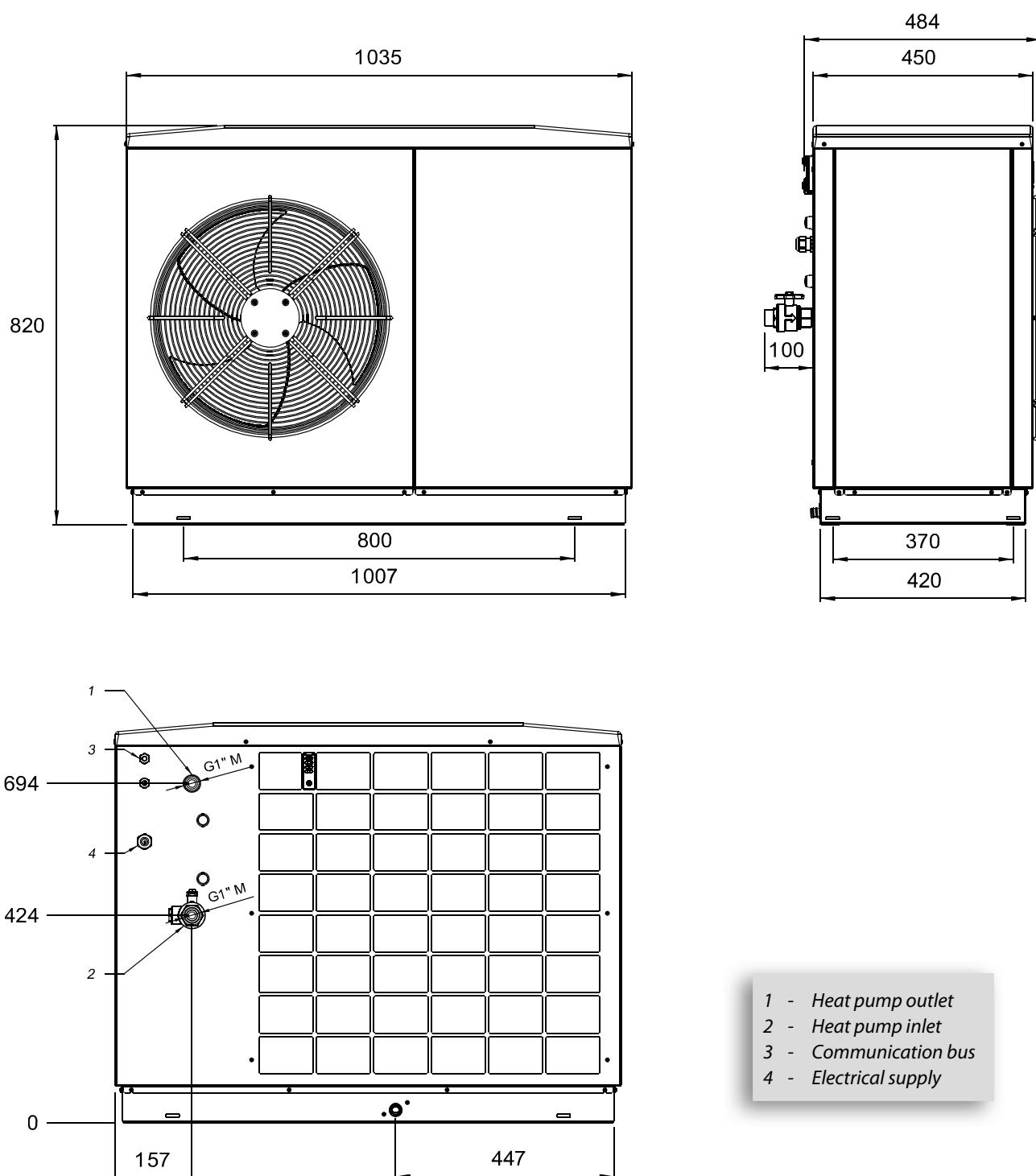
Corrosion inhibitor :

- protects against the formation of limescale
- prevents «pinhole» type corrosion
- prevents, in new installations, the formation of sludge and the proliferation of bacteria (in low temperature networks: algae)
- prevents the formation of hydrogen
- eliminates the sound of the generators

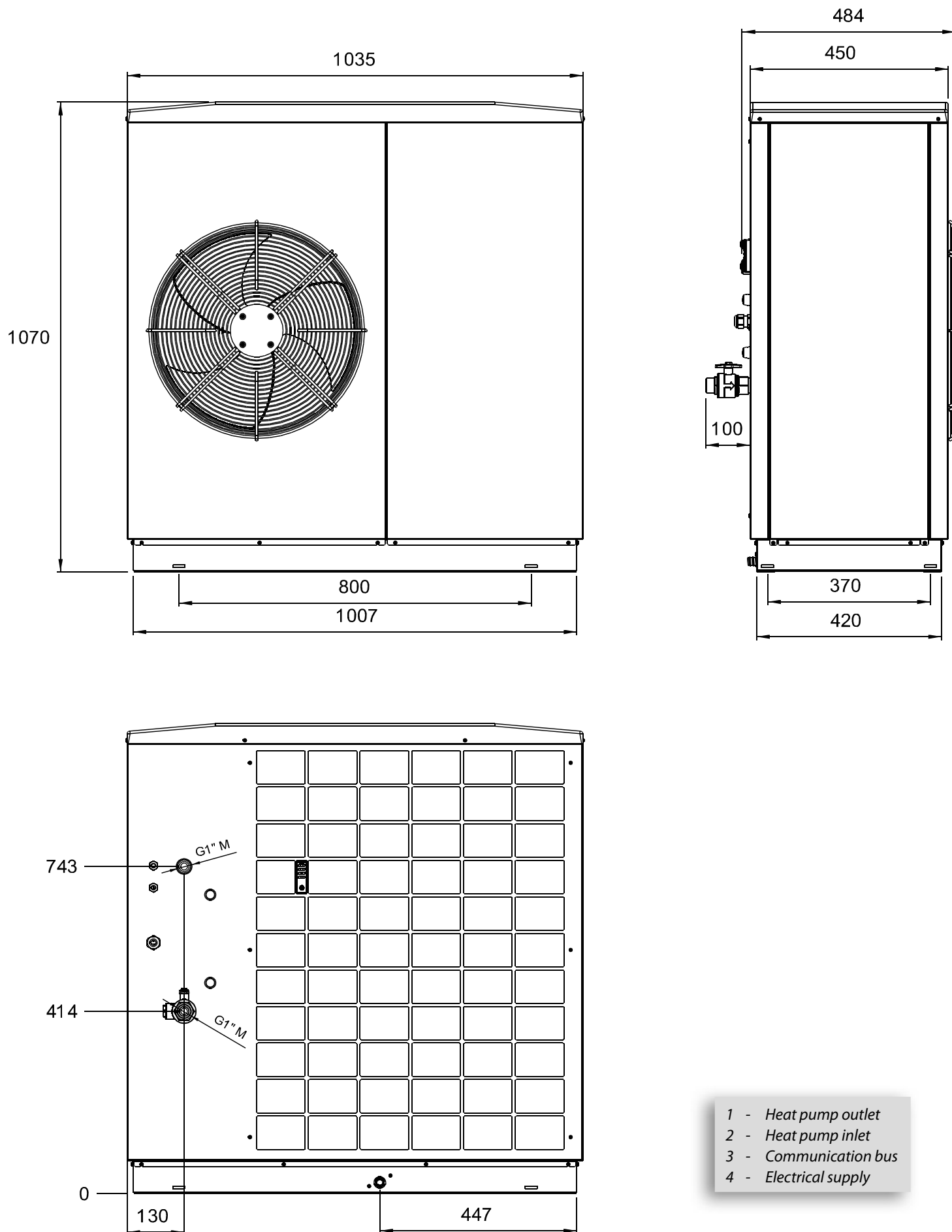
Treatment products from other manufacturers can be used if they guarantee that the product is appropriate for all the materials used in the appliance and offers efficient resistance to corrosion. To find this information refer to their user manual.

A5 - Dimensions

A5.1 - HTi⁷⁰ 6 kW Heat pump



- 1 - Heat pump outlet
- 2 - Heat pump inlet
- 3 - Communication bus
- 4 - Electrical supply



A6 - Product technical information sheet

A6.1 - HTi⁷⁰ 6 kW mono Heat pump

Compliant with EU regulation n°811/2013

Fiche d'information technique produit (conformément au règlement UE n°811/2013, 813/2013)

Product data sheet (in accordance with EU regulation n°. 811/2013, 813/2013)

Marque / Brand name		intuis			
Modèle / Model		HTI ⁷⁰ 6 kW mono Premium+			
Pompe à chaleur air-eau <i>Air-to-water heat pump</i>	oui yes	Pompe à chaleur basse température <i>Low-temperature heat pump</i>		non no	
Pompe à chaleur eau-eau <i>Water-to-water heat pump</i>	non no	Equipée d'un dispositif d'appoint <i>Equipped with a supplementary heater</i>		oui yes	
Pompe à chaleur eau glycolée-eau <i>Brine-to-water heat pump</i>	non no	Dispositif de chauffage mixte par pompe à chaleur <i>Heat pump combination heater</i>		non no	
Caractéristique Item		Symbole Symbol	Unité Unit	35°C	55°C
Classe d'efficacité énergétique chauffage / <i>Heating seasonal energy efficiency class</i>				A+++	A++
Puissance de chauffage nominale / <i>Nominal heat output (*1)</i>		Prated	kW	6	6
Puissance de chauffage nominale / <i>Nominal heat output (*2)</i>		Prated	kW	8	8
Puissance de chauffage nominale / <i>Nominal heat output (*3)</i>		Prated	kW	3	3
Puissance calorifique déclarée à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes. <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		Pdh	kW	5,6	5,7
Tj = +2°C		Pdh	kW	3,2	3,2
Tj = +7°C		Pdh	kW	1,9	1,8
Tj = +12°C		Pdh	kW	1,8	1,7
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		Pdh	kW	5,7	5,7
Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i>		Pdh	kW	5,7	5,7
Tj = -15°C		Pdh	kW	5,1	4,6
Température bivalente / <i>Bivalence temperature</i>		Tbiv	°C	-10	
Puissance calorifique sur intervalle cyclique / <i>Output for cyclical interval heating mode</i>		Pcych	kW	-	
Coefficient de dégradation / <i>Degradation coefficient</i>		Cdh	-	0,9	
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*1)</i>		ηs	%	186	136
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i>		ηs	%	143	106
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i>		ηs	%	257	176
Coefficient de performance déclaré à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		COPd	-	2,88	2,27
Tj = +2°C		COPd	-	4,69	3,44
Tj = +7°C		COPd	-	6,57	4,58
Tj = +12°C		COPd	-	7,92	5,78
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		COPd	-	2,83	2,05
Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i>		COPd	-	2,83	2,05
Tj = -15°C		COPd	-	2,35	1,84
Température limite de fonctionnement / <i>Operating limit temperature</i>		TOL	°C	-10	
Efficacité sur intervalle cyclique / <i>Cycling interval efficiency</i>		COPcyc	-	-	
Température maximale eau de chauffage / <i>Max. temperature for the heating water</i>		WTOL	°C	70	
Puissance électrique consommée dans les autres modes que le mode actif / <i>Power consumption in modes other than active mode</i>					
Mode arrêt / <i>OFF mode</i>		P _{OFF}	kW	0,005	
Mode arrêt thermostat / <i>Thermostat-off mode</i>		P _{TO}	kW	0,008	
Mode veille / <i>Standby mode</i>		P _{SB}	kW	0,005	
Mode résistance de carter / <i>Crankcase heater mode</i>		P _{CK}	kW	0,008	
Dispositif de chauffage d'appoint / <i>Supplementary heater</i>					
Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i>		Psup	kW	0,0	0,0
Type d'énergie chauffage d'appoint / <i>Type of energy input of supplementary heater</i>		-	-	électrique / electric	
Autres caractéristiques / <i>Other items</i>					
Régulation de la puissance thermique / <i>Heating capacity control</i>		-	-	variable	
Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i>		Q _{HE}	kWh	2494	3380
Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i>		Q _{HE}	kWh	5355	7545
Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i>		Q _{HE}	kWh	660	927
Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i>		L _{WA}	dB	- / 52	
Débit d'air nominal à l'extérieur / <i>Rated Air flow outdoor</i>		-	m ³ /h	3500	
Coordonnées de contact / <i>Contact details</i>		intuis, rue de la République 80210 Feuquières-en-Vimeu			
Les précautions particulières qui doivent être prises lors du montage, l'installation et l'entretien, sont décrites dans la notice d'installation et d'utilisation. <i>All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.</i>					

(*1) Conditions climatiques moyennes / Average climatic conditions

(*2) Conditions climatiques plus froides / Colder climatic conditions

(*3) Conditions climatiques plus chaudes / Warmer climatic conditions

A6.2 - HTi⁷⁰ 8 kW mono Heat pump

Compliant with EU regulation n°811/2013

Fiche d'information technique produit (conformément au règlement UE n°811/2013, 813/2013)

Product data sheet (in accordance with EU regulation n°. 811/2013, 813/2013)

Marque / Brand name		intuis			
Modèle / Model		HTi ⁷⁰ 8 kW mono Premium+			
Pompe à chaleur air-eau <i>Air-to-water heat pump</i>	oui yes	Pompe à chaleur basse température <i>Low-temperature heat pump</i>		non no	
Pompe à chaleur eau-eau <i>Water-to-water heat pump</i>	non no	Equippée d'un dispositif d'appoint <i>Equipped with a supplementary heater</i>		oui yes	
Pompe à chaleur eau glycolée-eau <i>Brine-to-water heat pump</i>	non no	Dispositif de chauffage mixte par pompe à chaleur <i>Heat pump combination heater</i>		non no	
Caractéristique Item		Symbole Symbol	Unité Unit	35°C	55°C
Classe d'efficacité énergétique chauffage / Heating seasonal energy efficiency class				A+++	A+++
Puissance de chauffage nominale / Nominal heat output (*1)		Prated	kW	8	8
Puissance de chauffage nominale / Nominal heat output (*2)		Prated	kW	9	9
Puissance de chauffage nominale / Nominal heat output (*3)		Prated	kW	4	4
Puissance calorifique déclarée à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes. <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		Pdh	kW	6,5	6,3
Tj = +2°C		Pdh	kW	4,1	4,1
Tj = +7°C		Pdh	kW	3,0	2,9
Tj = +12°C		Pdh	kW	1,9	1,8
Tj = température bivalente / Tj = Bivalence temperature		Pdh	kW	6,1	6,1
Tj = température limite fonctionnement / Tj = Operating limit temperature		Pdh	kW	5,9	5,7
Tj = -15°C		Pdh	kW	5,6	4,9
Température bivalente / Bivalence temperature		Tbiv	°C	-5	
Puissance calorifique sur intervalle cyclique / Output for cyclical interval heating mode		Pcych	kW	-	
Coefficient de dégradation / Degradation coefficient		Cdh	-	0,9	
Efficacité énergétique saisonnière / Seasonal energy efficiency (*1)		ηs	%	190	150
Efficacité énergétique saisonnière / Seasonal energy efficiency (*2)		ηs	%	141	115
Efficacité énergétique saisonnière / Seasonal energy efficiency (*3)		ηs	%	279	231
Coefficient de performance déclaré à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		COPd	-	3,11	2,44
Tj = +2°C		COPd	-	4,56	3,82
Tj = +7°C		COPd	-	7,52	5,42
Tj = +12°C		COPd	-	8,89	6,46
Tj = température bivalente / Tj = Bivalence temperature		COPd	-	3,37	2,52
Tj = température limite fonctionnement / Tj = Operating limit value temperature		COPd	-	2,83	2,18
Tj = -15°C		COPd	-	2,38	1,98
Température limite de fonctionnement / Operating limit temperature		TOL	°C	-10	
Efficacité sur intervalle cyclique / Cycling interval efficiency		COPcyc	-	-	
Température maximale eau de chauffage / Max. temperature for the heating water		WTOL	°C	70	
Puissance électrique consommée dans les autres modes que le mode actif / Power consumption in modes other than active mode					
Mode arrêt / OFF mode		P _{OFF}	kW	0,005	
Mode arrêt thermostat / Thermostat-off mode		P _{TO}	kW	0,008	
Mode veille / Standby mode		P _{SB}	kW	0,005	
Mode résistance de carter / Crankcase heater mode		P _{CK}	kW	0,008	
Dispositif de chauffage d'appoint / Supplementary heater					
Puissance thermique nominale d'appoint / Nominal heat output of supplementary heater		Psup	kW	1,6	1,8
Type d'énergie chauffage d'appoint / Type of energy input of supplementary heater		-	-	électrique / electric	
Autres caractéristiques / Other items					
Régulation de la puissance thermique / Heating capacity control		-	-	variable	
Consommation annuelle d'énergie / Annual energy consumption (*1)		Q _{HE}	kWh	3188	4083
Consommation annuelle d'énergie / Annual energy consumption (*2)		Q _{HE}	kWh	6028	7231
Consommation annuelle d'énergie / Annual energy consumption (*3)		Q _{HE}	kWh	820	991
Puissance sonore intérieure - extérieure / Sound power level - indoor - outdoor		L _{WA}	dB	- / 54	- / 53
Débit d'air nominal à l'extérieur / Rated Air flow outdoor		-	m ³ /h	3500	
Coordonnées de contact / Contact details		intuis, rue de la République 80210 Feuquières-en-Vimeu			
Les précautions particulières qui doivent être prises lors du montage, l'installation et l'entretien, sont décrites dans la notice d'installation et d'utilisation. All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.					

(*1) Conditions climatiques moyennes / Average climatic conditions

(*2) Conditions climatiques plus froides / Colder climatic conditions

(*3) Conditions climatiques plus chaudes / Warmer climatic conditions

A6.3 - HTi⁷⁰ 8 kW tri Heat pump

Compliant with EU regulation n°811/2013

Fiche d'information technique produit (conformément au règlement UE n°811/2013, 813/2013)

Product data sheet (in accordance with EU regulation n°. 811/2013, 813/2013)

Marque / Brand name		intuis			
Modèle / Model		HTI ⁷⁰ 8 kW tri Premium+			
Pompe à chaleur air-eau <i>Air-to-water heat pump</i>	oui yes	Pompe à chaleur basse température <i>Low-temperature heat pump</i>	non no		
Pompe à chaleur eau-eau <i>Water-to-water heat pump</i>	non no	Equippée d'un dispositif d'appoint <i>Equipped with a supplementary heater</i>	oui yes		
Pompe à chaleur eau glycolée-eau <i>Brine-to-water heat pump</i>	non no	Dispositif de chauffage mixte par pompe à chaleur <i>Heat pump combination heater</i>	non no		
Caractéristique <i>Item</i>		Symbole <i>Symbol</i>	Unité <i>Unit</i>	35°C	55°C
Classe d'efficacité énergétique chauffage / <i>Heating seasonal energy efficiency class</i>				A+++	A++
Puissance de chauffage nominale / <i>Nominal heat output (*1)</i>		Prated	kW	8	8
Puissance de chauffage nominale / <i>Nominal heat output (*2)</i>		Prated	kW	9	9
Puissance de chauffage nominale / <i>Nominal heat output (*3)</i>		Prated	kW	4	4
Puissance calorifique déclarée à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes. <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		Pdh	kW	6,5	6,3
Tj = +2°C		Pdh	kW	4,1	4,1
Tj = +7°C		Pdh	kW	3,0	2,9
Tj = +12°C		Pdh	kW	1,9	1,8
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		Pdh	kW	6,1	6,1
Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i>		Pdh	kW	5,9	5,7
Tj = -15°C		Pdh	kW	5,6	4,9
Température bivalente / <i>Bivalence temperature</i>		Tbiv	°C	-5	
Puissance calorifique sur intervalle cyclique / <i>Output for cyclical interval heating mode</i>		Pcyc	kW	-	
Coefficient de dégradation / <i>Degradation coefficient</i>		Cdh	-	0,9	
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*1)</i>		ηs	%	190	149
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i>		ηs	%	141	114
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i>		ηs	%	276	223
Coefficient de performance déclaré à charge partielle pour une température intérieure de 20°C , une température extérieure Tj avec application basse et moyenne température (35°C / 55°C) et les conditions climatiques moyennes <i>Declared capacity for part load at indoor temperature 20°C, outdoor temperature Tj, low and medium temperature application (35°C / 55°C) and average climate condition.</i>					
Tj = -7°C		COPd	-	3,11	2,44
Tj = +2°C		COPd	-	4,56	3,82
Tj = +7°C		COPd	-	7,52	5,42
Tj = +12°C		COPd	-	8,89	6,46
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		COPd	-	3,37	2,52
Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i>		COPd	-	2,83	2,18
Tj = -15°C		COPd	-	2,38	1,98
Température limite de fonctionnement / <i>Operating limit temperature</i>		TOL	°C	-10	
Efficacité sur intervalle cyclique / <i>Cycling interval efficiency</i>		COPcyc	-	-	
Température maximale eau de chauffage / <i>Max. temperature for the heating water</i>		WTOL	°C	70	
Puissance électrique consommée dans les autres modes que le mode actif / <i>Power consumption in modes other than active mode</i>					
Mode arrêt / <i>OFF mode</i>		P _{OFF}	kW	0,005	
Mode arrêt thermostat / <i>Thermostat-off mode</i>		P _{TO}	kW	0,014	
Mode veille / <i>Standby mode</i>		P _{SB}	kW	0,005	
Mode résistance de carter / <i>Crankcase heater mode</i>		P _{CK}	kW	0,014	
Dispositif de chauffage d'appoint / <i>Supplementary heater</i>					
Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i>		Psup	kW	1,6	1,8
Type d'énergie chauffage d'appoint / <i>Type of energy input of supplementary heater</i>		-	-	électrique / electric	
Autres caractéristiques / <i>Other items</i>					
Régulation de la puissance thermique / <i>Heating capacity control</i>		-	-	variable	
Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i>		Q _{HE}	kWh	3212	4107
Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i>		Q _{HE}	kWh	6030	7284
Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i>		Q _{HE}	kWh	828	1029
Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i>		L _{WA}	dB	- / 54	- / 57,6
Débit d'air nominal à l'extérieur / <i>Rated Air flow outdoor</i>		-	m ³ /h	3500	
Coordonnées de contact / <i>Contact details</i>		intuis, rue de la République 80210 Feuquières-en-Vimeu			
Les précautions particulières qui doivent être prises lors du montage, l'installation et l'entretien, sont décrites dans la notice d'installation et d'utilisation. <i>All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions</i>					

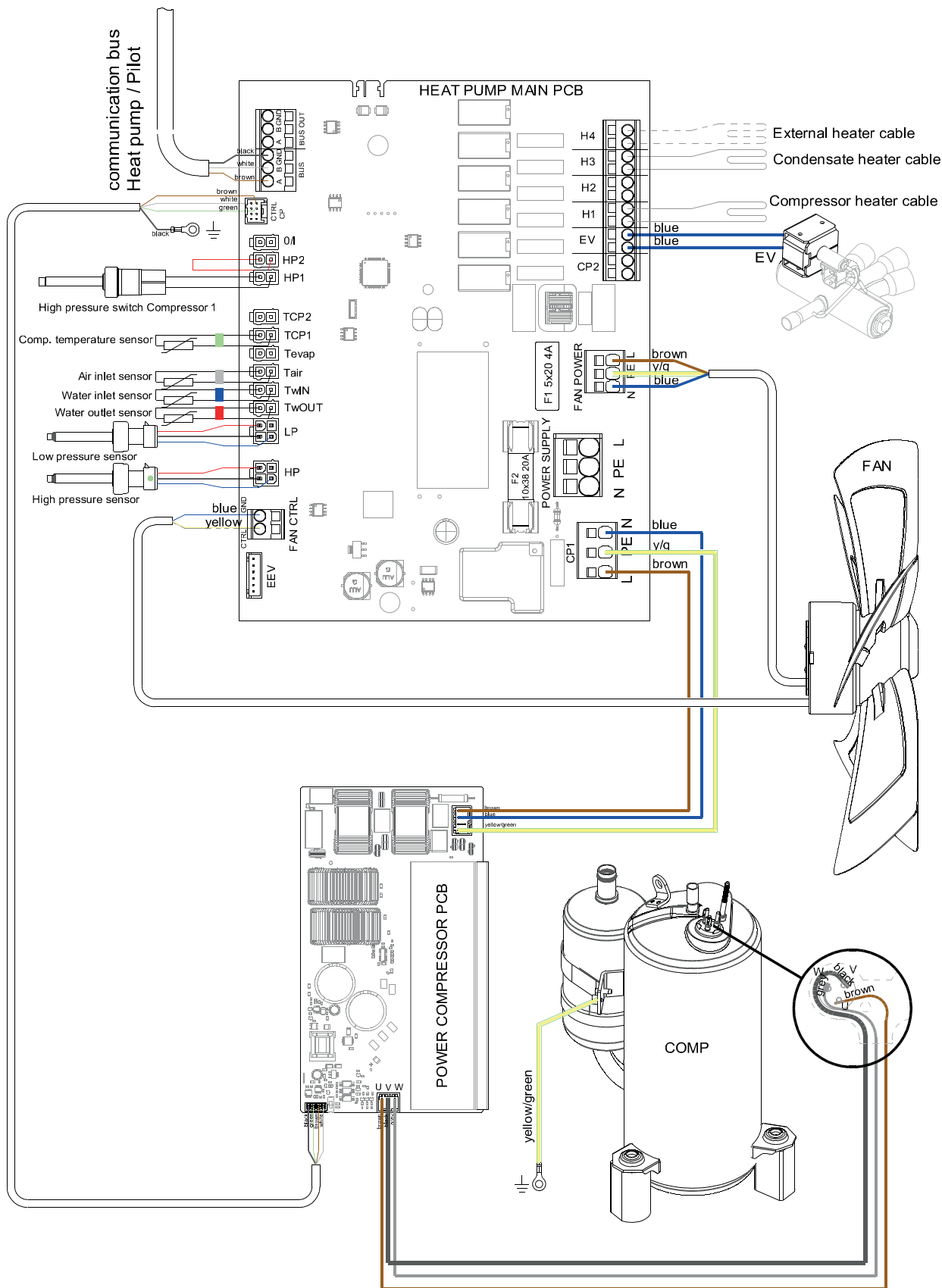
(*1) Conditions climatiques moyennes / Average climatic conditions

(*2) Conditions climatiques plus froides / Colder climatic conditions

(*3) Conditions climatiques plus chaudes / Warmer climatic conditions

A7 - Internal wiring diagram

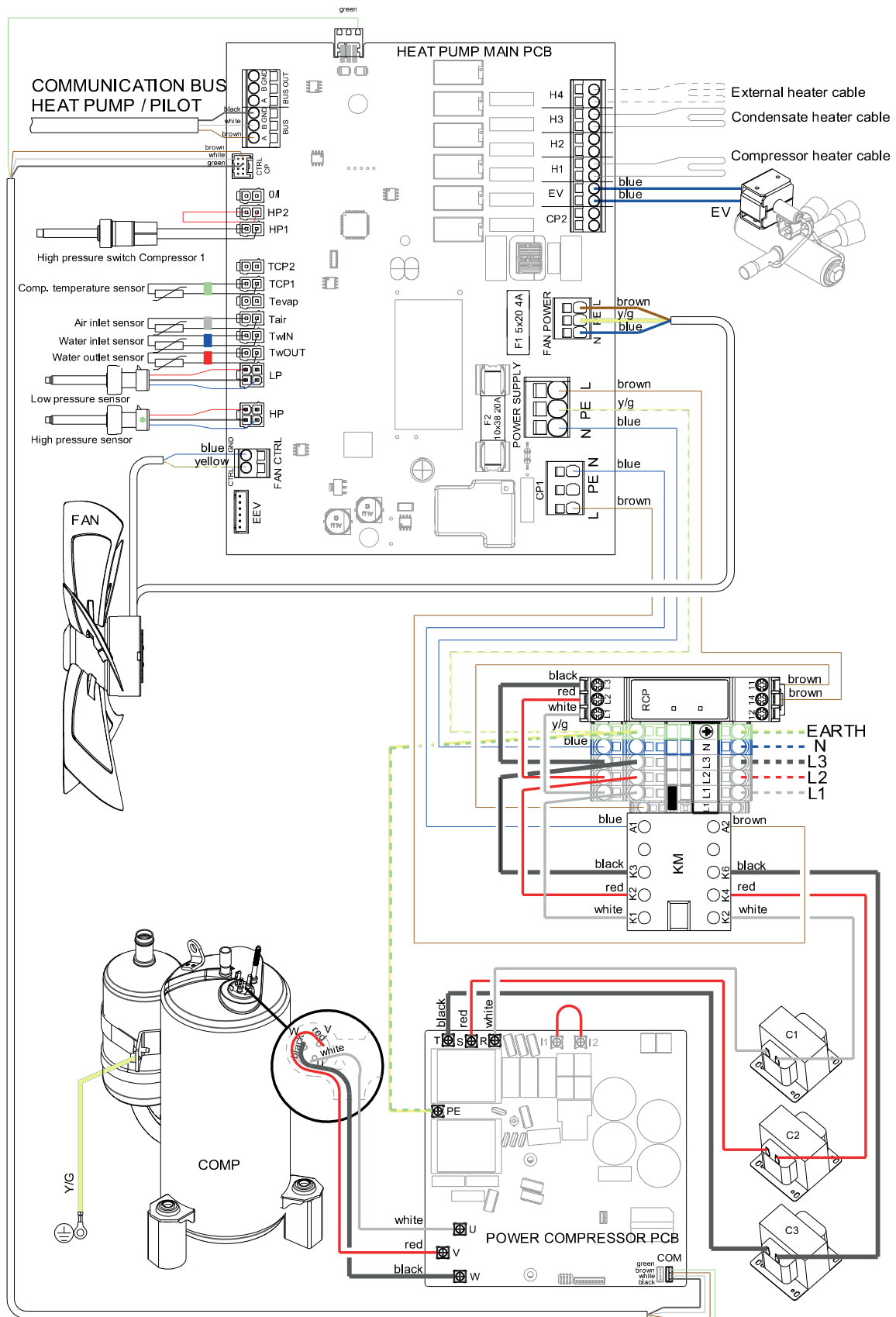
A7.1 - HTi⁷⁰ 6 & 8 kW mono Heat pump



TwoUT - Water outlet temperature sensor
TwoIN - Water inlet temperature sensor
Tévap - Condenser outlet temperature sensor
Tair - Air intake temperature sensor
TCP1 - Compressor 1 temperature sensor
HP - High pressure sensor

LP - Low pressure sensor
HP1 - Compressor 1 high pressure switch
F1 - Fuse 5x20 - 4 A
F2 - Fuse 10x38 - 20 A
EV - Defrosting solenoid valve
CC - Condensate drain pan defrost heating cord

A7.2 - HTi⁷⁰ 8 kW tri Heat pump



TwOUT - Water outlet temperature sensor
 TwIN - Water inlet temperature sensor
 Tévap - Condenser outlet temperature sensor
 Tair - Air intake temperature sensor
 TCP1 - Compressor 1 temperature sensor
 HP - High pressure sensor

LP - Low pressure sensor
 HP1 - Compressor 1 high pressure switch
 F1 - Fuse 5x20 - 4 A
 F2 - Fuse 10x38 - 20 A
 EV - Defrosting solenoid valve
 CC - Condensate drain pan defrost heating cord

NOTES / MAINTENANCE

[illegible]



www.intuis.fr

Industrial and development site

Rue de la République
CS 40029
80210 Feuquières-en-Vimeu

Customer service

+33 (0)9 78 45 10 26
service-consommateur@intuis.fr
service-client@intuis.fr

