

HRC⁷⁰

**High temperature Heat Pumps
from 17 to 25 kW**

Installation and user manual



HRC⁷⁰ 17 / 3 m
Ref. 151430

HRC⁷⁰ 17 / 3 t
Ref. 151435

HRC⁷⁰ 20 / 3 t
Ref. 151445

HRC⁷⁰ 25 / 3 t
Ref. 151450



The information contained in this document is non-contractual. We reserves the right to modify the technical specifications or characteristics of any of their appliances without prior notice.

Manual ref. : 1898302
Edition n° : 23.29

**Made in
France**



CONTENTS

1 - PLEASE READ IMMEDIATELY 4

1.1 - Important information.....	4
1.2 - Safety advice and instructions	4
1.3 - Symbols used	5
1.4 - Rating plate.....	5
1.5 - Delivery terms and conditions.....	6
1.6 - Storage and transport.....	6
1.6.1 - General information	6
1.6.2 - Transporting with a forklift truck	6
1.6.3 - Transporting manually.....	6

2 - INTRODUCTION..... 7

2.1 - Standard configurations.....	7
2.2 - Operation of the Heat Pump	7
2.3 - Accessories (included)	7
2.4 - Accessories available to order	7

3 - INSTALLATION..... 8

3.1 - Installing the HRC ⁷⁰	8
3.1.1 - Installation site	8
3.1.1.1 - Heat Pump installation site	9
3.1.1.2 - Condensates drainage	10
3.1.1.3 - Heater cable for external condensates drainage	10
3.1.1.4 - Protection screen for the finned heat exchanger.....	10
3.2 - Hydraulic installation.....	11
3.2.1 - Hydraulic connections on the installation	11
3.2.2 - Hydraulic connections : Heat Pump circuit	12
3.2.3 - Heat Pump and Pilot pressure-relief valves	12
3.2.4 - Desludging.....	12
3.2.5 - Heat Pump water inlet filter (supplied)	13
3.2.6 - Backflow prevention device	13
3.2.7 - Purging the heating circuit	13
3.2.8 - Insulating the piping	13
3.2.9 - Expansion vessel	13
3.2.10 - Frost protection and water treatment	13
3.3 - Electrical control connections.....	13
3.3.1 - Connecting to the Heat Pump control	13
3.3.1.1 - 2-core sheathed cable.....	13
3.4 - Connecting to the power supply	14
3.4.1 - Recommendations for connecting the system to the power supply ..	14
3.4.2 - Connecting the HRC ⁷⁰ Heat Pump to the power supply	14
3.4.2.1 - HRC ⁷⁰ Heat Pump : 230V single-phase connection	16
3.4.2.2 - HRC ⁷⁰ Heat Pump : 400V three-phase connection.....	16
3.4.3 - Electrical protection for the compressors.....	16

4 - SET-UP..... 17

5 - MAINTENANCE AND TROUBLESHOOTING 17

5.1 - General information	17
5.2 - Maintenance on the hydraulic circuit.....	17
5.2.1 - Water circuit.....	17
5.2.2 - Maintenance of the heating circuit.....	18
5.3 - Maintenance of the Heat Pump	18
5.4 - Maintenance of the electrical components	18

5.5 - Errors which are not signalled by error message or alert.....	19
---	----

5.6 - Compressor start-up faults.....	20
---------------------------------------	----

5.7 - Alerts and errors which are signalled by the appliance.....	20
---	----

5.8 - Sensor data curve charts.....	21
-------------------------------------	----

5.8.1 - Water inlet and outlet HRC ⁷⁰ Heat Pump and HRC ⁷⁰ Pilot de-icing sensor - Air intake sensor - Sensors installed on compressors 1 and 2 - Swimming pool sensor - DHW sensor	21
---	----

5.8.2 - Exterior sensor	21
-------------------------------	----

5.9 - Modification.....	21
-------------------------	----

5.10 - Decommissioning	21
------------------------------	----

5.10.1 - Interim Product Retirement	21
---	----

5.10.2 - Final decommissioning of the product.....	21
--	----

5.11 - Recycling, decommissioning and disposal	21
--	----

5.11.1 - Disposal of refrigerant fluid.....	21
---	----

6 - SPARE PARTS 22

6.1 - HRC ⁷⁰ Heat Pump.....	22
--	----

6.2 - Electrical boxes.....	23
-----------------------------	----

7 - WARRANTY 24

7.1 - Limitations of warranty.....	24
------------------------------------	----

7.1.1 - General information	24
-----------------------------------	----

7.1.2 - Exclusion from warranty	24
---------------------------------------	----

7.1.2.1 - Heating circuit water	24
---------------------------------------	----

7.1.2.2 - Handling.....	24
-------------------------	----

7.1.2.3 - Installation site.....	24
----------------------------------	----

7.1.2.4 - Electrical connections	24
--	----

7.1.2.5 - Hydraulic connections	24
---------------------------------------	----

7.1.2.6 - Accessories.....	24
----------------------------	----

7.1.2.7 - Maintenance	24
-----------------------------	----

APPENDICES 25

A1 - Dimensions.....	25
----------------------	----

A2 - Technical specifications.....	26
------------------------------------	----

A2.1 - General specifications	26
-------------------------------------	----

A2.2 - Performances.....	27
--------------------------	----

A3 - EU declaration	28
---------------------------	----

A4 - Frost protection	28
-----------------------------	----

A5 - Sizing the expansion vessel.....	28
---------------------------------------	----

A6 - Treatment of the water in the heating circuit	29
--	----

A6.1 - Preparing the hydraulic circuit (rinsing)	29
--	----

A6.2 - Filling water	29
----------------------------	----

A6.3 - Treatment of the heating circuit	29
---	----

A6.4 - Protection from freezing	29
---------------------------------------	----

A7 - Product performances tables	31
--	----

A7.1 - HRC ⁷⁰ Heat Pump 17kW single-phase	31
--	----

A7.2 - HRC ⁷⁰ Heat Pump 17kW three-phase.....	32
--	----

A7.3 - HRC ⁷⁰ Heat Pump 20kW three-phase.....	33
--	----

A7.4 - HRC ⁷⁰ Heat Pump 25kW three-phase.....	34
--	----

HRC ⁷⁰ Heat Pump - 17 kW single-phase - Internal wiring diagram.....	36
---	----

HRC ⁷⁰ Heat Pump- 17 kW and 20 kW three-phase - Internal wiring diagram ...	38
--	----

HRC ⁷⁰ Heat Pump- 25 kW three-phase - Internal wiring diagram.....	40
---	----

A8 - Electricity provider information form	42
--	----

NOTES / MAINTENANCE	43
---------------------------	----

1 - PLEASE READ IMMEDIATELY

1.1 - Important information

These installation and operating instructions form part of the appliances which they refer to.

In order for the warranty to be valid, they must be read before using the appliance.

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

It will be considered as evidence in case of litigation.



ELECTRICAL INSTALLATION RECOMMENDATIONS

- **It is the responsibility of the installer and of the client to ensure that the appliance is compatible with the power grid before connecting the HRC⁷⁰ Heat Pump (see the electricity provider information form in the Appendix)**
- **The power grid impedance value must be less than the Heat Pump impedance Z_{max} value (see § «Connecting the HRC⁷⁰ Heat Pump to the power supply»).**
- **If the electrical installation standards are not respected there could be irreversible damages to the HRC⁷⁰ Heat Pump which are not covered by the manufacturer's warranty.**

The high temperature Heat Pump absorbs the calories present in exterior air, and transforms them into useful energy which is then transferred to the heating water for your home. We cannot be held responsible for any other usage of the appliance.

The safety advice and instructions present in this document must be strictly respected.

Before making any connections to the installation, make sure the appliances are compatible with the installation.

Before switching on the appliance, check that the network voltage to be applied to the appliance is the same as the one on the rating plate of the appliance.

Before undertaking any maintenance work, handling, or in the case of the appliance not functioning or malfunctioning, always disconnect the appliance from the power supply and seek advice from a technician or specialist.

We cannot be held liable for damages caused by not following the instructions provided, nor any problems or errors caused from improper handling, improper installation, or misuse.

The installation and operating instructions are subject to change without prior notice.



HYDRAULIC INSTALLATION RECOMMENDATIONS

- **Clean and flush the hydraulic heating circuit before connecting the appliances (Heat Pump and Pilot).**
 - **The appliance only works when filled with water. Never switch the appliance on if it is not properly filled with water and purged of air.**
 - **The filter valve ensures the protection of the Heat Pump. An annual inspection of the condition of the filter must be carried out.**
 - **It is recommended to carry out periodic inspections for sludge and limescale and to clean when necessary. The appliance must always be switched off before any cleaning is undertaken.**
 - **Always switch off the appliance before working on any electrical components.**
- Caution:** The fan may continue turning through inertia even when the appliance is switched off. Wait for the fan to stop before working on the appliance.
- **Never get water on the control components or electrical parts. Always switch off the appliance before cleaning.**

1.2 - Safety advice and instructions

- The Heat Pump must only be installed outside.
- This appliance should not be used by: children under 8 years old; anyone with reduced physical, sensory or mental capabilities; or by anyone who has 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.
- Installation of the Heat Pump indoors is **strictly prohibited**.
- The Heat Pump operates using an air temperature range of -20°C to 40°C. When the temperature falls below -20°C, the installation no longer heats using the Heat Pump, but using the back-up.

• 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.
- All work must be carried out by a qualified professional with the appliance switched off.
- 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 2006/95/CEE (standard EN 60.335.1).
 - Electromagnetic compatibility 2004/108/CEE (standard EN 55014.1 / EN 55014.2).
- Any work on the refrigerant circuit must be carried out by a qualified professional with a category 1 certificate of aptitude. The release of refrigerant fluid into the atmosphere is prohibited, the refrigerant fluid must be recovered before any work is undertaken on the refrigerant circuit.
- The HRC⁷⁰ 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.
- 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**.

1.3 - Symbols used



Identifies important warnings and recommendations.



Consult the installation manual before all work on the product: handling, installation, use and maintenance.



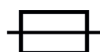
Contains controlled substances, do not dispose of in the garbage. In case of disposal, please respect the regulations for the recovery of electrical and electronic equipment.



Type and refrigerant charge.
PS High: Max high service pressure
PS Low: Max low service pressure



Heating capacity :
nom: nominal
max: maximal



Max current protection (A)



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

1.4 - Rating plate

Manufacturer's identity	intuis AUER Rue de la République 80210 Feuquières en Vimeu	HRC⁷⁰ 17 tri /3	Appliance identity
intuis reference of the appliance	Réf : 151435	EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com	Certification agency
Appliance type	Pompe à chaleur		
Serial number of the appliance	Ser.n° : 151435-232300000		Protection rating
Appliance electric data	400V tri ~ 50Hz I_{max} : 13A - P_{max} : - kW	CE 0082	CE marking
PED's category According to 2014/68/UE	PED cat. II IPX4	1897891	Notified organism identifying
	 P_{nom}* : 7,90kW COP* : 4,90 (A7W35)	 P : 0,3MPa (3 bar)	Rating plate reference
	R290 (groupe 1) : 0,900kg PS High : 3,1MPa (31 bar) PS Low : 1,7MPa (17 bar) Ts min : -20°C Ts max : +40°C		
	Made In France Hermétiquement scellé / Hermetically sealed	 245 kg	appliance weight

*Selon EN14511 / According to EN14511

Description :

Serial number of the appliance

151435 - 23 23 00000

Reference of
the appliance

Year of
manufacture
2023

Week of
manufacture

Appliance
number in the
series



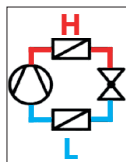
P_{nom}* : 7,90kW
COP* : 4,90 (A7W35)

Nominal performances
According to EN 14511



P : 0,3MPa
(3 bar)

Maximum hydraulic system
pressure



R290 (groupe 1) : 0,900kg

PS High : 3,1MPa (31 bar)

PS Low : 1,7MPa (17 bar)

Ts min : -20°C

Ts max : +40°C

Refrigerant type / quantity

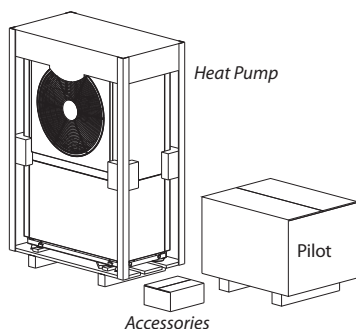
Maximal pressure of the refrigerant
circuit

Outside temperature limits operating

1.5 - 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.



1.6 - Storage and transport

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

1.6.1 - General information

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

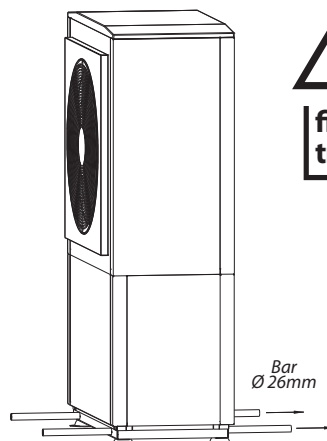
1.6.2 - Transporting with a forklift truck

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.

1.6.3 - Transporting manually

The Heat Pump can be transported manually. For the 17kW to 25kW Heat Pump, use two(2) Ø26mm bars (not supplied) or straps inserted through the holes provided for this purpose.



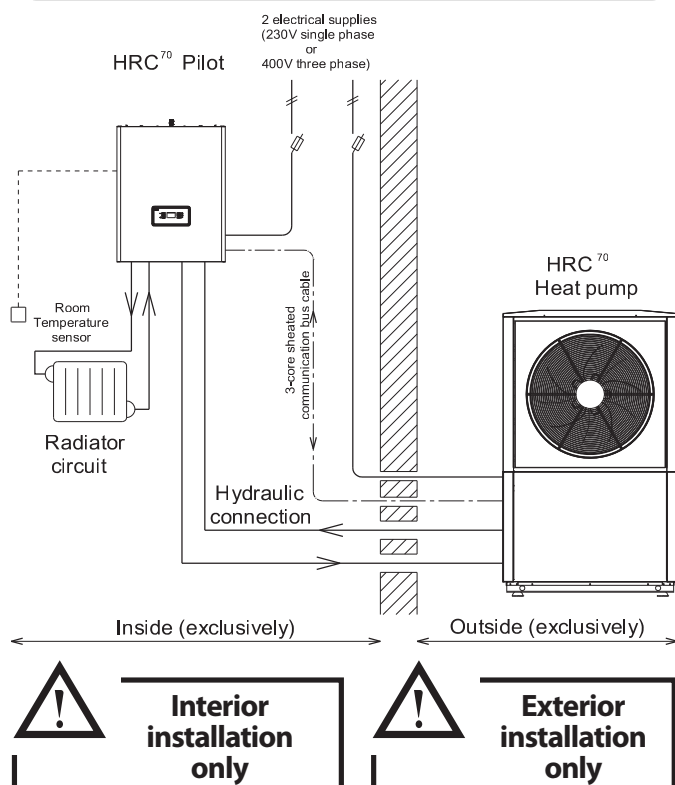
**Do not damage
the heat exchanger
fins during handling or
transport.**



**Heat Pumps
should never
be laid flat. Do not
incline more than 30°**

2 - INTRODUCTION

2.1 - Standard configurations



The ensemble is composed of an exterior unit (Monoblock high temperature Heat Pump to be installed outdoors **exclusively**) and of an interior unit (Pilot, to be installed indoors **exclusively**) connected together through a hydraulic connection and a communication bus.

The air to water Heat Pump, draws calories from the exterior air and transfers them to the heating water circuit with high energy efficiency.

The Pilot ensures the regulation and hydraulic distribution of the installation.

Note: The Heat Pump is exclusively designed for heating purposes. It cannot be used for cooling.

If the heating capacity required is higher than heating capacity delivered by the Heat Pump, the Pilot can provide an extra power boost from the boiler, or from the electrical back-up based on needs.

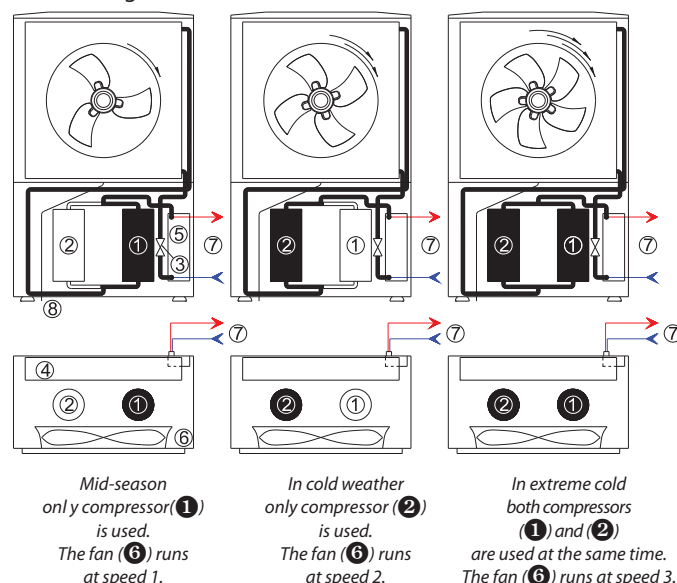
2.2 - Operation of the Heat Pump

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 (4) 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 (evacuation in (8)).

The capacitor (5), a plated heat exchanger which is hydraulically linked to the heating installation (7), via the Pilot, enables to heat the water in the heating circuit, and in turn enables the heating of the building.



2.3 - Accessories (included)

The components described below are delivered with the Heat Pump but they are not mounted :

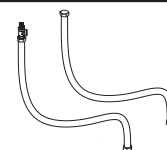
→ 2-core sheathed cable linking the Heat Pump and the Pilot (lg 10m)

Pre-installed on the Heat Pump, only needs to be connected to the Pilot.

→ 1" 1/4 filter valve

(delivered with the hydraulic connection kit)

→ Hydraulic connection kit lg 1.5m



2.4 - Accessories available to order

→ 2-core sheathed cable connecting the Heat Pump and the Pilot (lg 20m)

20m length for connection instead of the 10m length delivered as standard.

→ 2-core sheathed cable connecting the Heat Pump and the Pilot (lg 50m)

50m length for connection instead of the 10m length delivered as standard.

→ External heater cable

Used to prevent frost from forming on the external condensates drainage pipe.

3 - INSTALLATION

3.1 - Installing the HRC⁷⁰

The Heat Pump must always be transported in a vertical position, including during installation. It should be transported with the help of a forklift.

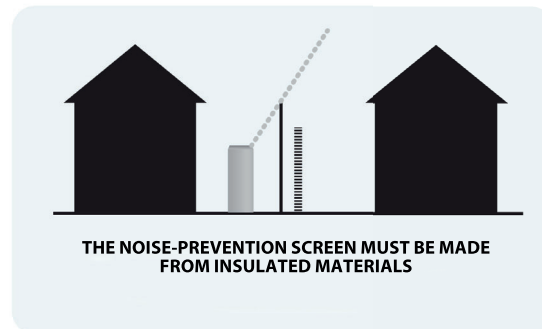
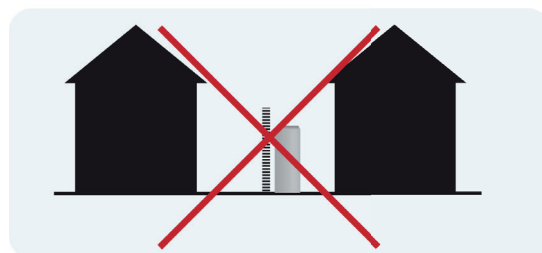
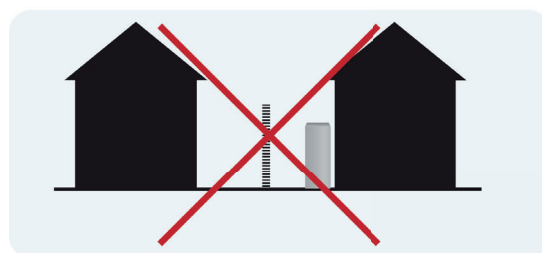
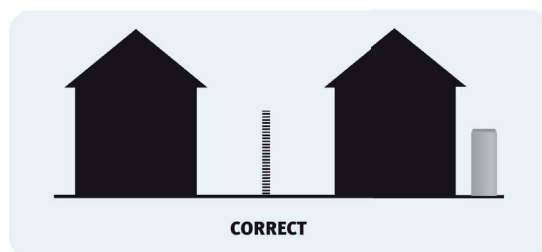
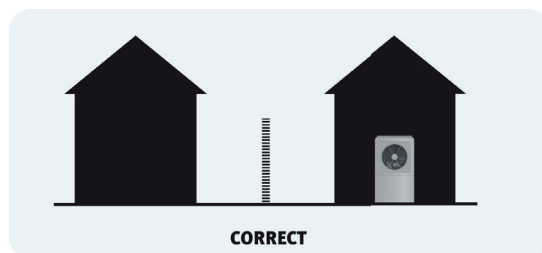
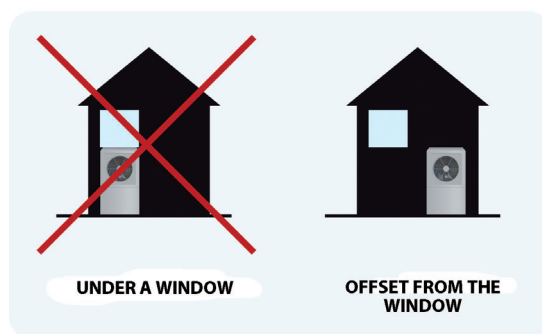
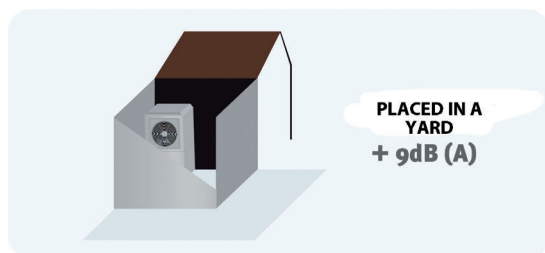
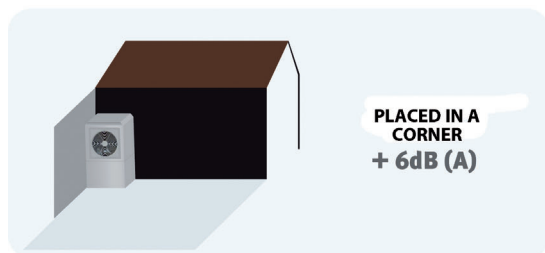
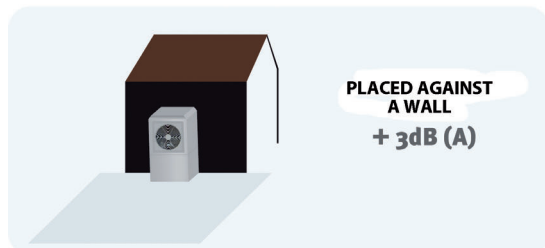
Do not use the hydraulic connections to move the appliance, take hold of it using the four bottom corners of the appliance.

Installation must be carried out by a qualified installer, taking all necessary precautions to avoid any risk of accidents or of material damage.

3.1.1 - Installation site

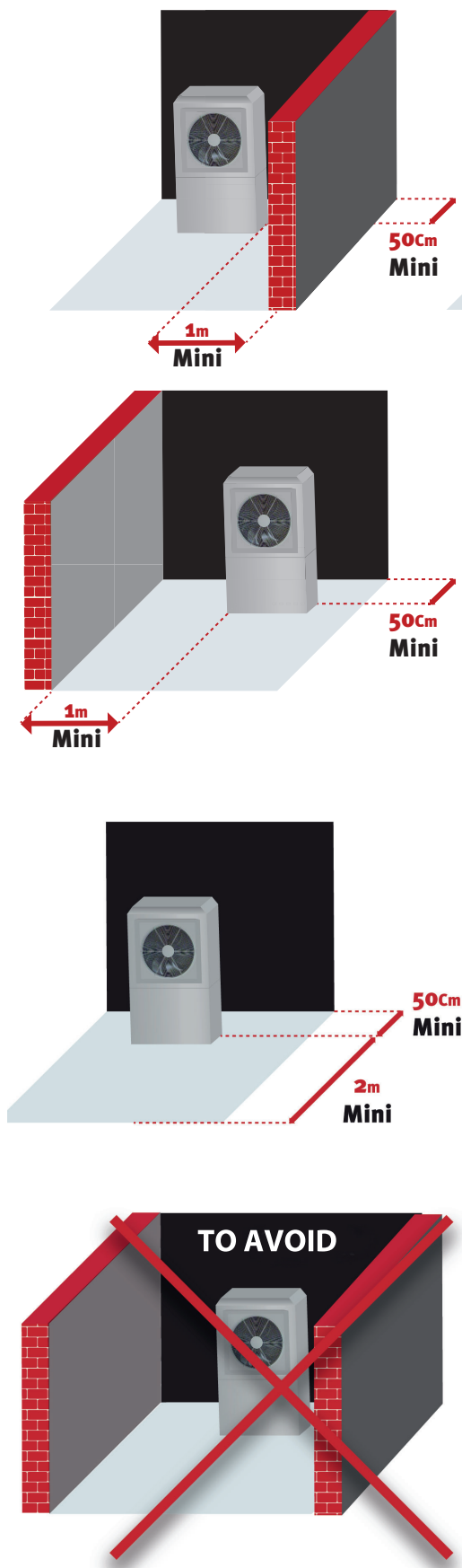
The Heat Pump is designed to be installed outdoors exclusively, while respecting a minimum of free space around the appliance in an area free from excessive levels of dust. It should never be placed in an enclosed space.

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).



3.1.1.1 - Heat Pump installation site

Minimum distances to respect for proper installation of the Heat Pump: (mm) :

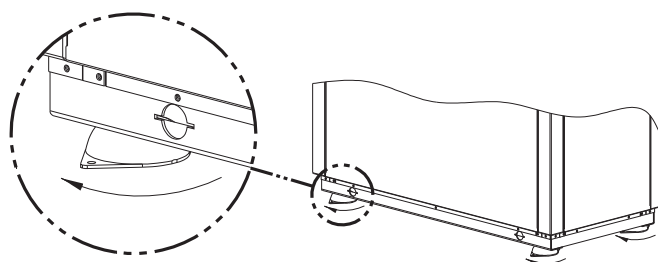


Always make sure the heat exchanger fins are protected when handling the appliance.

The Heat Pump must be handled with caution and without being subjected to impacts, especially when placing on the ground.



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.



The Heat Pump must only be installed outdoors.

- Any installation in an enclosed space without proper ventilation is prohibited.
- Do not restrict air intake or ventilation exhaust. No object should impede the flow of air over the heat exchanger. The Heat Pump should be placed out of the way of prevailing winds.
- Do not install the Heat Pump near sources of excessive heat, combustible materials, or near ventilation points of adjacent buildings.
- Do not install the Heat Pump 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.
- Do not install the Heat Pump in an area with flammable gas, acidic substances, or alkalines which could cause irreversible damage to the copper-aluminium heat exchanger.
- 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.

3.1.1.2 - 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 must be clean and free of all debris (leaves, grass, etc...).

If the condensates drainage pipe is connected to the rainwater run-off system, it is advised to use a siphon.

Do not use any tools to remove ice (risk of damage to the heat exchanger).

The Heat Pump is delivered with a flexible and transparent condensates drainage pipe (Ø20/25mm) which does not drain outdoors.

Before activation of the appliance, it is mandatory to connect this flexible pipe to one of the two holes provided for this purpose:

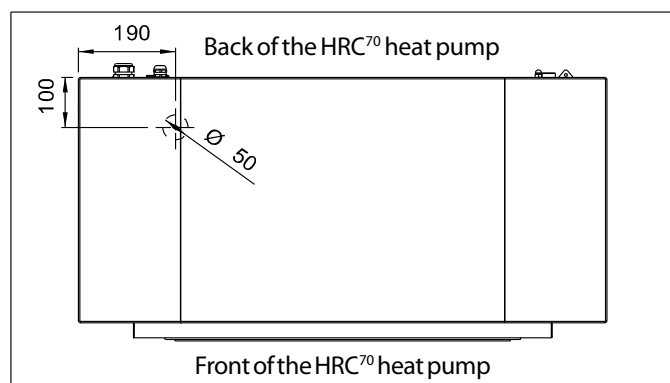
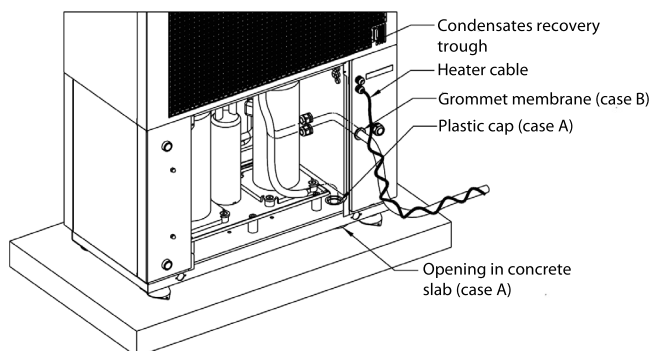
- Remove the back panel of the appliance.
- Position the flexible hose in its chosen place after having drilled a hole in the grommet.

a - Draining from underneath the Heat Pump

This solution is recommended to minimise the risk of ice at the condensates drainage point.

b - Draining from the back of the Heat Pump

Is an acceptable solution but in this case an external heater cable (Ref. 751004) needs to be connected. Please refer to § «Heater cable for external condensates drainage» as well as the instructions provided with the heater cable itself.

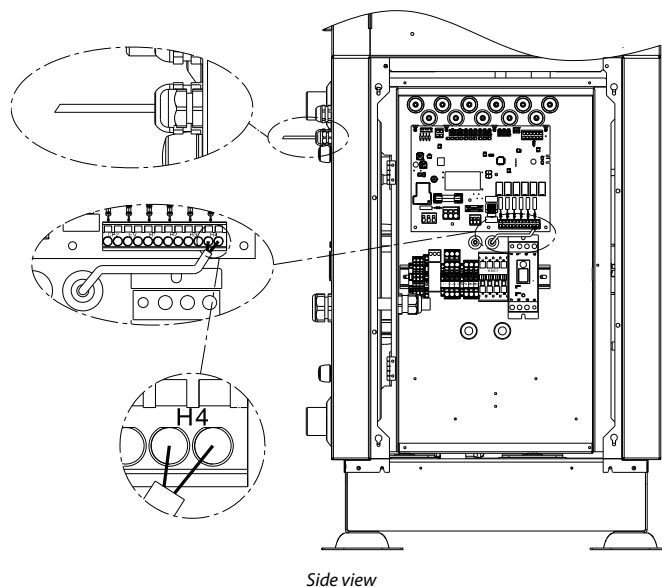


View from above
showing position of opening in concrete slab (case a)

3.1.1.3 - Heater cable for external condensates drainage

The Heat Pump allows for the addition of an external heater cable to prevent freezing of the condensates drainage circuit. The heater cable (optional Ref.751004) is connected to the electrical box on the terminals marked HG on the electronics board.

It must be installed in accordance with the instructions supplied with the cable, in or around the condensates drainage pipe, outside the Heat Pump.



3.1.1.4 - Protection screen for the finned heat exchanger

The plastic screen which protects the finned heat exchanger during transport may be removed once the Heat Pump is in position in its definitive installation site.

To remove the plastic screen, simply cut it away from its attachment points.

There is always a risk of damage to the fins from external factors (for example, being close to a well-frequented walkway or thoroughfare), therefore, it is preferable to keep the plastic screen in place.

Caution: The fins are fragile and sharp. Make sure that the air passages are kept clean and clear of any blockages (take care not to bend the fins while doing so).



Never clean the finned heat exchanger with a high-pressure hose or any other pressurised cleaning equipment. This could damage the fins.

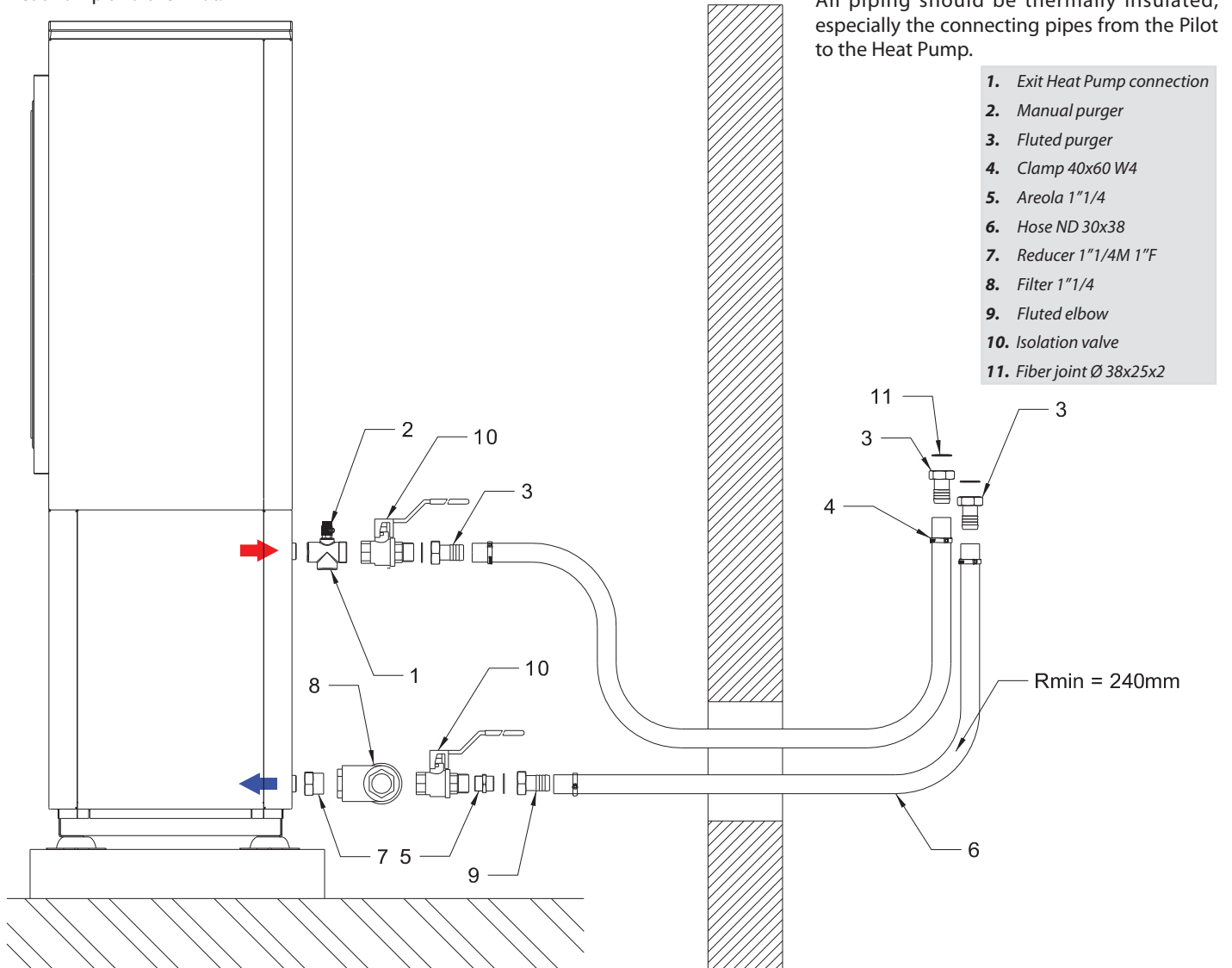
3.2 - Hydraulic installation

3.2.1 - Hydraulic connections on the installation



The Heat Pump is equipped with a hydraulic pressure relief valve set at 2.5 bars. A service pressure below this value should be maintained.

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.



- a)** • Install the connection (**Rep.1**) onto the «outlet» of the Heat Pump, it must be in a horizontal position.
 - Fix the reduction and manual purger (**Rep.2**) on the connection (**Rep.1**).
 - Install the isolation valve (**Rep.10**).
- b)** • At the inlet of the heat pump, mount the reduction (**Rep.7**) on the heat exchanger pricking.
 - Install the filter (**Rep.8**). It must be placed horizontally.
 - Install the isolation valve (**Rep.10**), then the areola 1 1/4 (**Rep.5**).
- c)** • On each hose (**Rep.6**), prepare only one end :
 - place the clamp (**Rep.4**) on the end of the hose (**Rep.6**) without tightening.
 - assemble the fluted tip (**Rep.3**) with the nut and place it in the hose (**Rep.6**).
 - on the second hose, proceed the same way with the splined elbow (**Rep.9**).
 - allow the nut move freely.
 - tighten the clamp (**Rep.4**).
- d)** • Fix each hose assembled as described above onto the «inlet» and «outlet» of the Heat Pump using the joint (**Rep.11**). The hose with the fluted tip is to be connected to the outlet of the heat pump (red arrow on the drawing). The hose with the fluted elbow is to be connected to the inlet of the heat pump (blue arrow on the drawing).
- e)** • Pass the hoses (**Rep.6**) [non-assembled ends] through the wall of the home.
 - Prepare the ends of the hoses as described in step **c)** (2 fluted tip).
 - Connect pre-assembled hoses (**Rep.6**) to your piping.
- f)** • Insulate the hoses and pipes.

3.2.2 - Hydraulic connections : Heat Pump circuit

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 8°C when the Heat Pump is operating at full power (take a temperature measure when the HRC⁷⁰ 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	17kW	20kW	25kW
Minimum nominal flow rate (L/h)	2000	2450	3000
Maximum pressure (bar)	2.5	2.5	2.5

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

The Heat Pump's hydraulic connection to the Pilot can be done using steel, copper, or reticulated polyethylene pipes with a minimum equivalent diameter of 1".

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.

3.2.3 - Heat Pump and Pilot pressure-relief valves

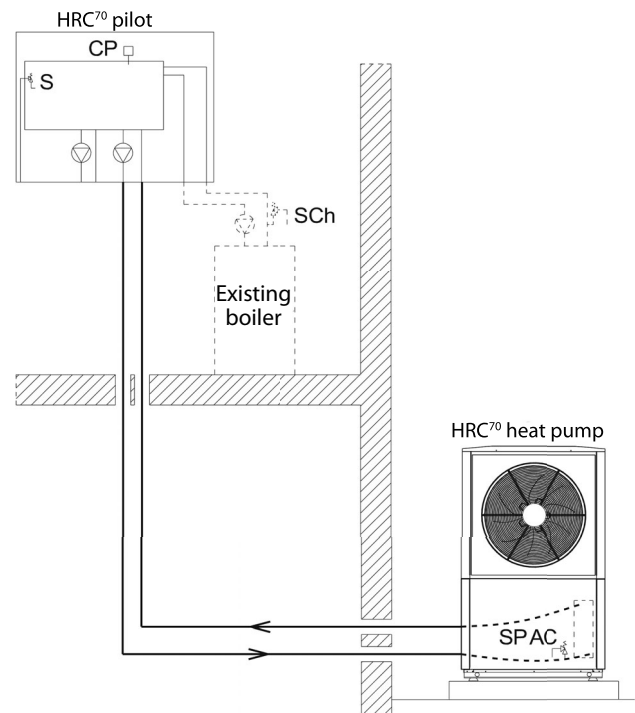
The Heat Pump and the Pilot are both equipped with pressure-relief valves.

The pressure-relief valve on the Heat Pump sets the maximum acceptable pressure in the installation (2.5 bars when hot). The maximum service pressure on the Heat Pump must, consequently be lower than 2.5 bars.

Example : If the Heat Pump is positioned 5m below the Pilot, the pressure reading on the Pilot would be 0.5 bars less than the real pressure of the water in the Heat Pump. In this case, the maximum service pressure for the Pilot would be 2 bars. Therefore it would be advisable to fill the heating circuit at an intermediary pressure (between 1 and 1.5 bars).

In case of operating with a back-up boiler, these pressure-relief valves **MUST** be installed in addition to the ones which the boiler is already equipped with.

The connections and the evacuation conduits for the pressure-relief valves must be made from materials which are resistant to high temperatures and corrosion.



- CP : Pilot pressure gauge
- S : Pressure-relief valve for the Pilot, set at 3 bars
- Sch : Pressure-relief valve for existing boiler
- SPAC : Pressure-relief valve for Heat Pump set at 2.5 bars

3.2.4 - Desludging

The HRC⁷⁰ Pilot has an integrated desludging function which collects oxides, limescale, and other particles which may become detached from the inner walls of the heating circuit. The lower part of the system is equipped with a sludge valve which should be briefly activated at least once per year (see § «Maintenance and repairs»). For underfloor heating installations, we would advise you to install a settling tank, which will complement the actions taken by the Pilot.

3.2.5 - Heat Pump water inlet filter (supplied)

A filter 1"1/4 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.

3.2.6 - Backflow prevention device

French law (articles 16.7 and 16.8 of the "Règlement Sanitaire Départemental") stipulates that a type CB backflow prevention device must be installed. This device must be at different, non-regulated pressure zones, in accordance with the NF P 43-011 standard. This is also an obligatory requirement in other countries, which makes it important to verify the current laws and standards in effect in the country of installation and ensure that your installation is in compliance with them. The backflow prevention device is designed to prevent incoming heating water from entering the drinking water circuit. It must be connected to the mains drainage system.

3.2.7 - Purging the heating circuit

All necessary measures must be taken to ensure that the installation can be continuously degassed. Automatic air purging valves should be placed at each high point of the installation, and manual air purging valves should be installed on each radiator.

3.2.8 - Insulating the piping

Insulants must conform to the DTU 67.1 standard, or the current regulations in effect in the country of installation.

All visible piping and accessories (circulator pump, expansion vessel, valves, etc...) must be either insulated or placed in insulated sleeves. Remember to insulate the distribution manifolds and the inlet and outlet flow pipes to the underfloor heating circuit. Remember to insulate the piping which connects the Heat Pump to the Pilot.

3.2.9 - Expansion vessel

An expansion vessel needs to be installed onto the heating circuit. See Appendix A5 for information on proper sizing of the expansion vessel.

3.2.10 - Frost protection and water treatment

See Appendices A4 and A6.

3.3 - Electrical control connections

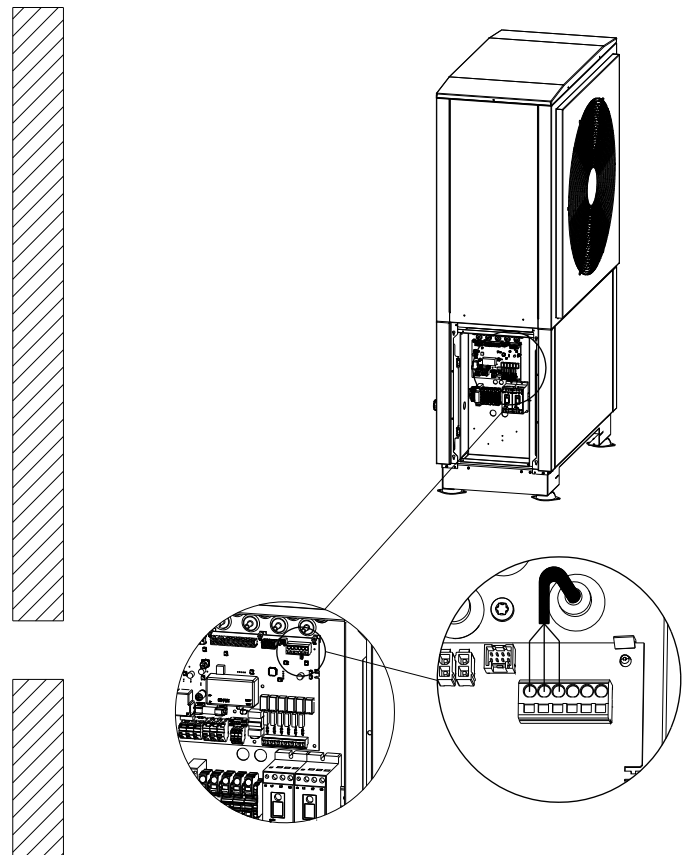
3.3.1 - Connecting to the Heat Pump control

3.3.1.1 - 2-core sheathed cable

The Heat Pump is pre-equipped with a non-polarised, 2-core sheathed cable (communication bus). This 10m cable is supplied with, and already connected to, the Heat Pump. It must be connected to the Pilot.

If the connection needed is longer than 10m replace this cable with a 20m cable (Ref.753102)(Ref. 751005) or a 50m cable (Ref.754103) available as an option.

- On the Pilot, cut the bus link to the right length : **LOOPS ARE FORBIDDEN.**



Connection detail on the IMPERATIVE grounded heat pump of the link cable shield.

3.4 - Connecting to the power supply

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 power circuit for each appliance separately : the Heat Pump and the Pilot.
- The different temperature sensors, thermostats, and load shedding device on the Pilot.
- 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.

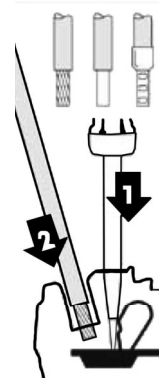
Terminal strips

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

For handling, use the following :

- for 2,5mm² control terminals or 4mm² - 6mm² power terminals (tetra), use a 3,5 x 0,5mm flat-head screwdriver.
- for 10mm² mains power terminals (single-phase), use a 5,5 x 0,8mm flat-head screwdriver.

- 1 : Insert the screwdriver into the flap just above or below the identification number.
- 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 10 and 12mm.
- for the mains power terminals: between 18 and 20mm.
- for the intermediary power terminals: between 11 and 13mm.

3.4.1 - 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°2006/95/CE
- Electromagnetic compatibility n° 2004/108/CE

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

See Appendix A2 for components adapted to the heat pump.

3.4.2 - Connecting the HRC⁷⁰ Heat Pump to the power supply



ELECTRICAL INSTALLATION RECOMMENDATIONS

- **It is the responsibility of the installer and of the client to ensure that the appliance is compatible with the power grid before connecting the HRC⁷⁰ Heat Pump (see the electricity provider information form in the Appendix)**
- **The power grid impedance value must be less than the Heat Pump impedance Z_{max} value (see § «Connecting the HRC⁷⁰ Heat Pump to the power supply»).**
- **If the electrical installation standards are not respected there could be irreversible damages to the HRC⁷⁰ Heat Pump which are not covered by the manufacturer's warranty.**

The HRC⁷⁰ 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.

It is equipped with a progressive start-up, which limits the current at start-up to 45A in single-phase, and 60A in three-phase.

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

- Maximum current required
- Distance between the HRC⁷⁰ Heat Pump and the power supply
- overall protection
- The neutral operating system

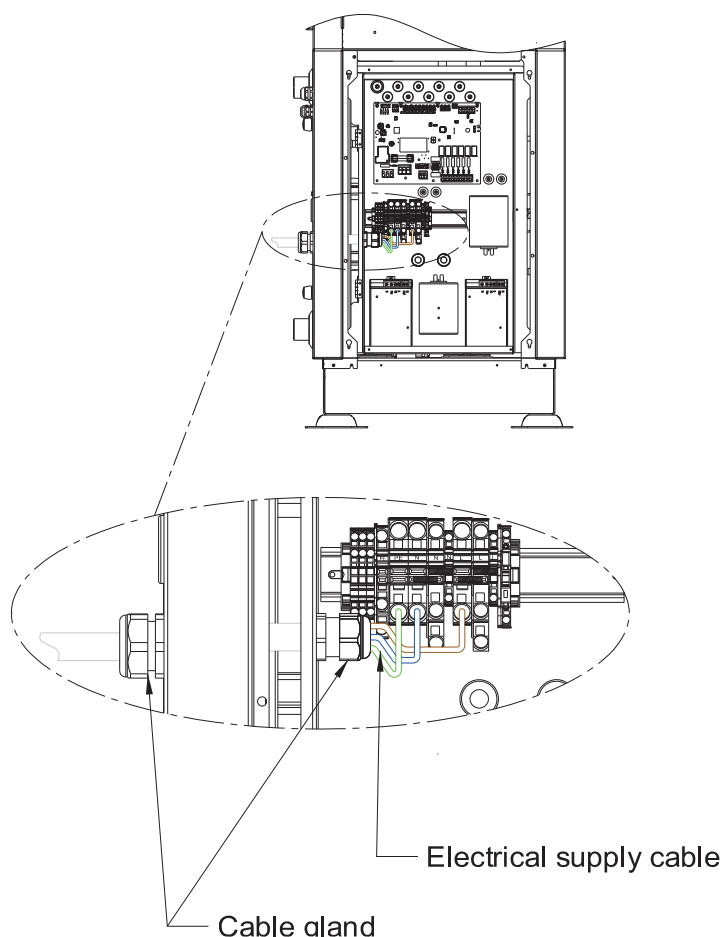
Make sure to strip the cable before placing it into the terminals, and make sure that the copper is in good condition.

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.

To access the terminals: remove the panel on the bottom left-hand side (2 screws) and open the electrical box (8 screws).

The electrical power supply cable should first be inserted through an exterior compression gland and then through a cable grommet on the electrical box.



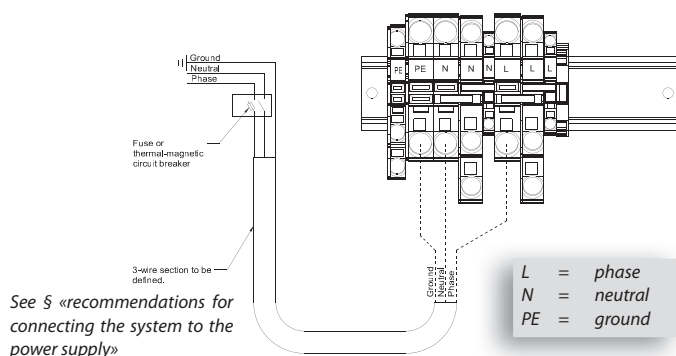
HRC ⁷⁰ heat pump model	HRC ⁷⁰ 17 / 3 single-phase	HRC ⁷⁰ 17 / 3 three-phase	HRC ⁷⁰ 20 / 3 three-phase	HRC ⁷⁰ 25 / 3 three-phase
Power supply voltage	230V single-phase	400V three-phase	400V three-phase	400V three-phase
Maximum power consumption	7.5 kVA	7.5 kVA	9.5 kVA	11.5 kVA
Maximum current requirements	32 A	13 A	15 A	18 A
Maximum start-up currents	45 A	48 A	48 A	60 A
Presence of a progressive starter	Included	No	No	CP1 : No / CP2 : Included
Phi tangent on heat pump start-up	1.53	2.46	2.46	2.37
Heat pump (Z_{max}) impedance(ohm)	0.181	-	-	-
Phase impedance (Z_{max}) (ohm)	-	0.248	0.248	0.175
Neutral impedance (Z_{max}) (ohm)	-	0.166	0.166	0.117
Heat pump regulation mode	Fixed speed	Fixed speed	Fixed speed	Fixed speed
Number of power stages	3	3	2	3
Circuit breaker dimensions ⁽¹⁾	40 A single phase	16 A three phase	16 A three phase	20 A three phase
Power supply cable cross-section by phase ⁽²⁾	10 mm ²	4 mm ²	4 mm ²	6 mm ²
Number of conductors ⁽²⁾	2x 10 mm ² + T*	4x 4 mm ² + T*	4x 4 mm ² + T*	4x 6 mm ² + T*
Back-up heating elements (kVA)	See the «Connecting the pilot to the power supply» table			

⁽¹⁾ D-curve two-pole or three-pole general circuit breaker.

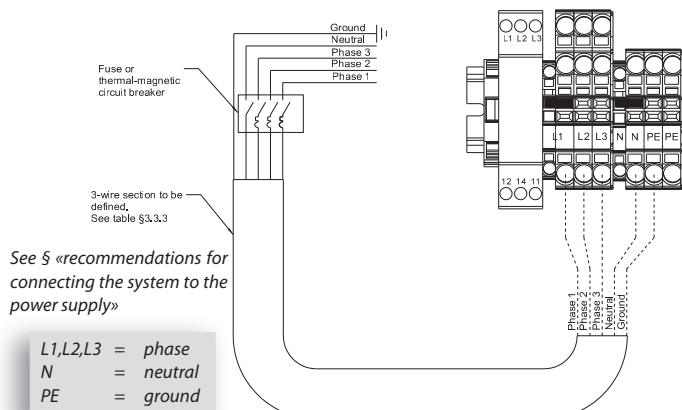
⁽²⁾ The figures given here are indicative. They must be checked, and modified if necessary according to the conditions of installation and on the current rules and regulations in effect.
If the length of the cable exceeds 15m, or if the network could be subject to drops in voltage over 10V, use a thicker cable.

^(*) The cross-section of the ground cable must be equal to the thickest section of the power supply cable.

3.4.2.1 - HRC⁷⁰ Heat Pump : 230V single-phase connection



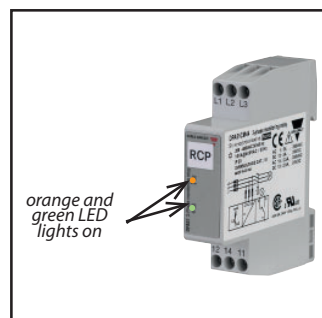
3.4.2.2 - HRC⁷⁰ Heat Pump : 400V three-phase connection



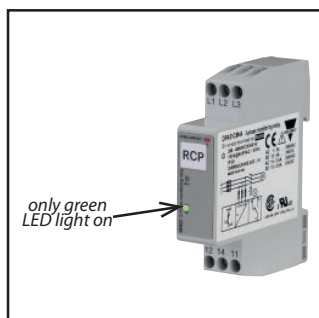
• Three-phase monitor relay for the HRC⁷⁰ Heat Pump 17kW, 20kW and 25kW

A phase monitor relay is installed to prevent phase failure, which could damage the compressors. If the phases are reversed, it will stop the power supply to the Heat Pump.

CORRECT WIRING



INCORRECT WIRING



In case of INCORRECT WIRING :



Caution: never work with live voltage!

If the phase order is reversed, or there is a phase missing, the relay cuts the power supply to the circuit board. A «BUS Err» error message will appear. This is indicated on the phase monitor relay by the orange light at the top being off and the green light at the bottom being on. To correct the error, reverse the two phases on the mains power terminal.

When the Pilot is switched on, a «BUS Err» error message will be displayed. Reverse the two phases on the three-phase power cable of the Heat Pump. Switch the power back on and check the voltage on each phase.

3.4.3 - Electrical protection for the compressors

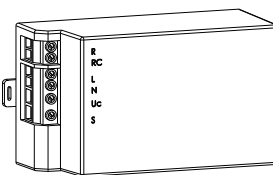
The HRC⁷⁰ Heat Pump is equipped with a progressive start-up device to limit the intensity of the current when the motor starts up, in compliance with the NF C-15-100 standard: 45A per phase in single-phase and 60A per phase in three-phase.



The electrical protection devices for the compressors constantly monitor the current and voltage. In case of over-voltage, under-voltage, or an abnormally high current, the compressor is stopped.

• Progressive start-up of the HRC⁷⁰ Heat Pump when using a single-phase system

The progressive start-up device constantly monitors the compressor by measuring the current and voltage. In case of over-voltage, under-voltage, or an abnormally high current, the compressor is stopped.



How it works :

- The progressive start-up device controls the start-up phase until the motor reaches its stable operating speed.
- If the motor cannot start, it is because the power supply has been cut off by the progressive start-up device.

In order to protect the compressor, the motor will not be able to start-up again until 5 minutes after it has been stopped.

Start-up errors :

- If the compressor fails to start-up, 2 LEDs (orange and green) will be flashing to indicate the error (see § «Compressor start-up errors»).

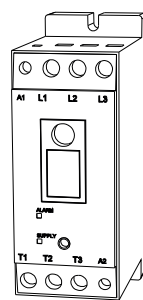
• Progressive start-up of the HRC⁷⁰ Heat Pump when using a 25kW three-phase system

The progressive start-up device also serves to control the phases (phase order or missing phase, which could damage the compressor).

If the order of phases is inverted or if there is a missing phase, the relay cuts the power supply to the compressor. This error is indicated by the LED light flashing every second.

The progressive start-up device controls the power supply voltage. If the voltage is under 195V, the compressor is stopped or does not start-up. This error is indicated by the LED light flashing rapidly (10 flashes per second).

In case of a compressor error (over-current, short circuit, or error on the start-up device itself) the error is indicated by an intermittent flashing of the LED (light on for 5 seconds, and then off for 5 seconds).



4 - SET-UP

- All work carried out on the hydraulic circuits and the electrical installations must be carried out in compliance with regulations in effect in the country of installation, by a qualified professional.
- Fill the installation with water and treat the water.
- Purge the heating circuits (open the air valves situated at the highest points of the installation until all trapped air has been released).
- Check that all circuits are properly sealed.
- Check that the power supply voltage is correct at the mains switch.
- Ensure the correct tightness of the hydraulic connections, and check that there are no leaks.
- Check that all the valves are open, that the heating circuit is filled with water, and that nothing is blocking the flow of water in the heat exchanger and the hydraulic circuit.
- Check that the sludge valve is properly installed and that nothing is blocking its screen filter.
- Once all of these checks have been completed, switch the appliance on.
- Configure the installation.

If necessary, this configuration can be modified through the «Installer» menu.



The installation must never be switched on WITHOUT WATER in the heating circuit.



It is OBLIGATORY to refer to the technical manual provided with the HRC⁷⁰ for set-up.

5 - MAINTENANCE AND TROUBLESHOOTING



•In order to ensure the best performance results from your HRC⁷⁰ 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.

5.1 - 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.

5.2 - Maintenance on the hydraulic circuit

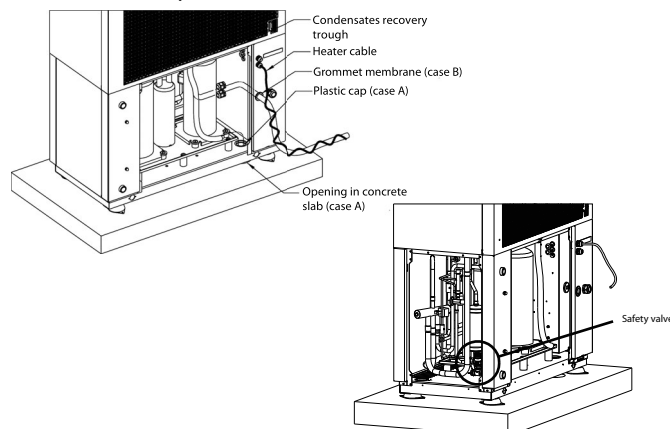
5.2.1 - Water circuit

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:

- Remove the back panel
- Check the drainage hole for blockages
- Clean the condensates recovery trough as deposits from air intake may accumulate there
- Clean the flexible drainage hose:
 - Case a : drainage from underneath
 - Case b : drainage from the back

Check that the pressure-relief valve is properly sealed. It should not leak if the water pressure is under 2.5 bars.



5.2.2 - Maintenance of the heating circuit

- Release any trapped air in the HRC⁷⁰ Pilot+.
- Check that the entire circuit is watertight, including the pressure-relief valves.
- Check the water pressure. It must not be lower than the pressure of the expansion vessel, and should never be more than 2.5 bars when hot. If the water pressure is too low, check the watertightness of the circuit before adding more water.
- Check the composition and general state of the water in the heating circuit.
- Check the hydraulic circuit, including the cleaning of the filter, inspecting the water quality (PH level, anti-freeze, etc...).

5.3 - Maintenance of the Heat Pump

The HRC⁷⁰ 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 HRC⁷⁰ 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 HRC⁷⁰ 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.

5.4 - 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 HRC⁷⁰ Heat Pump and the HRC⁷⁰ 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.

5.5 - Errors which are not signalled by error message or alert

Errors not displayed on the screen	Possible causes	Solutions
The Heat Pump will not start	<ul style="list-style-type: none"> •The installation is in summer mode •The room thermostat is not sending a heating request 	<ul style="list-style-type: none"> •Check values of PAR.209 and 215, and place it in winter mode and then auto. •Check that the room thermostat is properly connected to the Pilot and the power supply. •Check that the room thermostat is properly configured.
	<ul style="list-style-type: none"> • There is no voltage at the appliance's terminals 	<ul style="list-style-type: none"> •Check the power supply throughout the Heat Pump (Check that there is voltage and the values: compressor start-up is prevented if voltage is too high or too low.
	<ul style="list-style-type: none"> •The circuit breaker cuts the power at each start-up 	<ul style="list-style-type: none"> •The nominal current of the circuit breaker is insufficient. •Check the ground insulation of the compressor, of the fan, and of other electrical components (e.g. circulator pump). •The circuit breaker used on the Heat Pump will not allow the motor to start-up: install a D-curve circuit breaker. •The Heat Pump has a defective electrical component.
The Heat Pump will start, but does not provide enough heat	<ul style="list-style-type: none"> •The Heat Pump is too small to meet heating requirements 	<ul style="list-style-type: none"> •Check that all of the Heat Pump's start-up stages engage properly. •Check the HP/HC and DEL cables and PAR.217 and 218 •Check that the Heat Pump can properly engage the use of the back-up. It must be pre-configured. •Absence of a check valve on the boiler. •Ensure the electrical back-ups are authorised to operate. •Check the values given by the exterior temperature sensor.
	<ul style="list-style-type: none"> •The compressor(s) are not working 	<ul style="list-style-type: none"> •Check that state of the progressiver starters. •Check the three-phase cables.
	<ul style="list-style-type: none"> •The compressor has been stopped by its internal thermal safety device 	<ul style="list-style-type: none"> •Check that the conditions of operation are not outside of the authorised operating range.

5.6 - Compressor start-up faults

Single-phase starter for the HRC⁷⁰ 17kW single-phase Heat Pump

Green Led	Red Led	Potential causes	Actions to be taken
On	-	• Normal operation	-
Flashing	-	• Insufficient voltage	• Check the power supply voltage on the Heat Pump : it must be over 200V (minimum)
-	Flashing : 2 flashes	• Abnormal drop in voltage at start-up	• Insufficient power grid voltage • Check the compliance of the power supply from the general meter to the Heat Pump • Contact your electricity provider to ensure the proper sizing of the power grid connections
-	Flashing : 3 flashes	• Over-voltage at start-up	• Contact a manufacturer-approved technical center
-	Flashing : 4 flashes	• Internal starter defect	• Replace the starter
-	Flashing : 5 flashes	• Start-up process incomplete	• Check the power supply to the Heat Pump before and during start-up. It must not be lower than 200V.

Three-phase starter for the HRC⁷⁰ 17kW, 20kW and 25kW three-phase Heat Pump


-	Alarm light	Potential causes	Actions to be taken
-	Flashing : 2 flashes	• Phases are inverted	• Inverse the 2 phases on the power supply of the starter
-	Flashing : 3 flashes	• Power supply voltage is outside authorised range	• Check the voltage on the three-phase network • Check the compliance of the power supply from the general meter to the heat pump • Contact your electricity provider to ensure the proper sizing of the power grid connections
-	Flashing : 4 flashes	• Non-compliant power supply frequency	• Contact a manufacturer-approved technical center • Contact your electricity provider
-	Flashing : 5 flashes	• Compressor blocked	• Contact a manufacturer-approved technical center
-	Flashing : 6 flashes	• Start-up process incomplete	• Check the power supply to the heat pump before and during start-up. It must not be lower than 350V.
-	Flashing : 7 flashes	• Starter overheating	• Contact a manufacturer-approved technical center
-	Flashing : 8 flashes	• Over-voltage at start-up	• Contact a manufacturer-approved technical center
-	Flashing : 9 flashes	• Imbalance of phases	• Check the voltage on the three-phase network • Check the compliance of the power supply from the general meter to the heat pump • Contact your electricity provider

5.7 - Alerts and errors which are signalled by the appliance

Errors are signalled by the back-lighting flashing and by a sound-signal.

Press the dial to stop the sound signal. The alarm will stop, but the error will continue to be displayed.

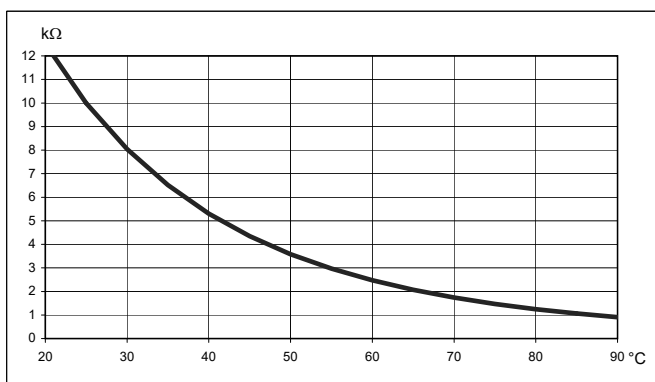
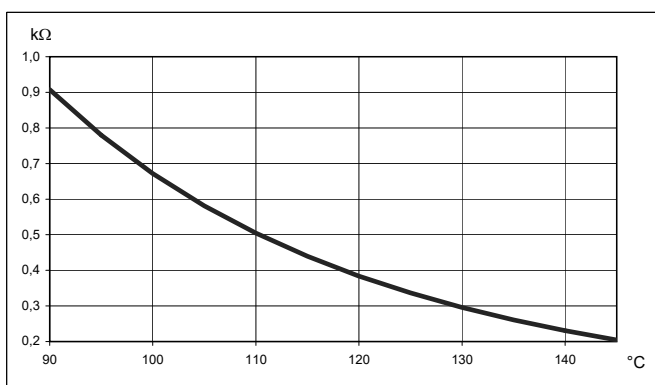
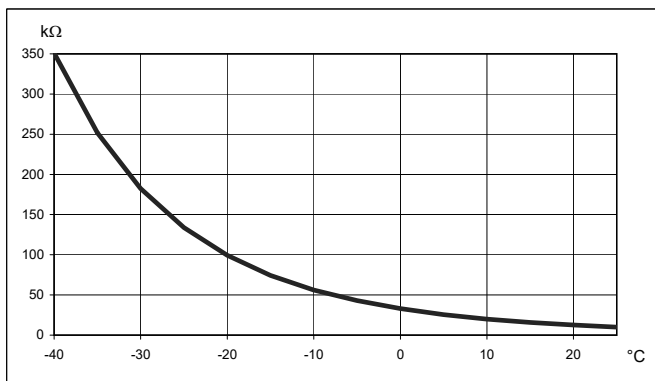
If it is an automatic reset fault, the signal will disappear once the problem has been resolved.

If it is a manual reset fault, rectify the problem and then press on the dial to make the signal disappear. Manual reset faults are indicated with the following symbol: «  ».

Note : The swimming pool sensor error is only signalled when the ohmic value is too low. The absence of a swimming pool sensor does not generate a fault as it can mean either that there is no swimming pool, or that the swimming pool function has been deactivated.

5.8 - Sensor data curve charts

5.8.1 - Water inlet and outlet HRC⁷⁰ Heat Pump and HRC⁷⁰ Pilot de-icing sensor - Air intake sensor - Sensors installed on compressors 1 and 2 - Swimming pool sensor - DHW sensor



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		

5.8.2 - Exterior sensor

Temp. (°C)	Resist. R (KOhms)	Temp. (°C)	Resist. R (KOhms)	Temp. (°C)	Resist. R (KOhms)	Temp. (°C)	Resist. R (KOhms)
-30	171,800	-11	61,930	8	24,947	27	11,079
-29	161,817	-10	58,880	9	23,853	28	10,645
-28	152,994	-9	56,004	10	22,800	29	10,231
-27	144,697	-8	53,280	11	21,819	30	9,804
-26	136,894	-7	50,702	12	20,879	31	9,460
-25	129,800	-6	48,263	13	19,986	32	9,101
-24	122,646	-5	45,950	14	19,137	33	8,759
-23	116,145	-4	43,769	15	18,300	34	8,434
-22	110,025	-3	41,699	16	17,565	35	8,054
-21	104,261	-2	39,739	17	16,839	36	7,749
-20	98,930	-1	37,881	18	16,151	37	7,456
-19	93,713	0	36,130	19	15,500	38	7,176
-18	88,888	1	34,453	20	14,770	39	6,909
-17	84,339	2	32,871	21	14,168	40	6,652
-16	80,047	3	31,371	22	13,590	41	6,408
-15	76,020	4	29,948	23	13,039	42	6,173
-14	72,174	5	28,600	24	12,514	43	5,947
-13	68,564	6	27,317	25	12,000	44	5,731
-12	65,153	7	26,101	26	11,535	45	5,522

5.9 - Modification

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

5.10 - Decommissioning

5.10.1 - Interim Product Retirement

In case of extended absence with power cut electrical housing and product, have a qualified professional drain the product or protect it from freezing.

5.10.2 - Final decommissioning of the product

Outsource the decommissioning of the product to a dedicated installer.

5.11 - Recycling, decommissioning and disposal

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



The above symbol requires :

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

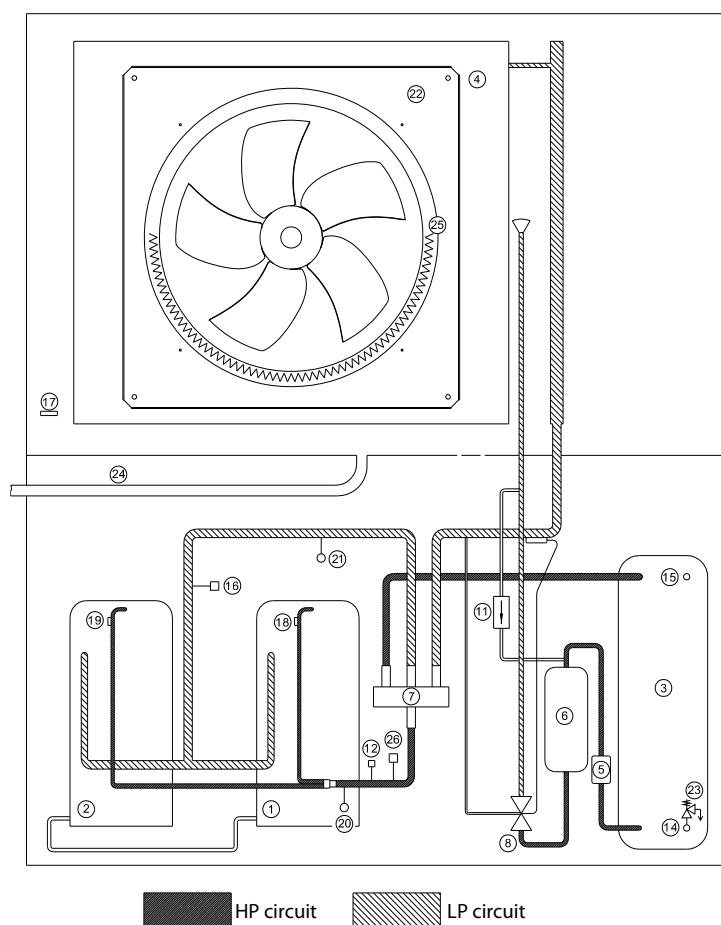
5.11.1 - Disposal of refrigerant fluid

The product contains R290 (propane) refrigerant fluid.

- Always refer refrigerant fluid disposal to qualified personnel.
- Respect the general safety conditions

6 - SPARE PARTS

6.1 - HRC⁷⁰ Heat Pump



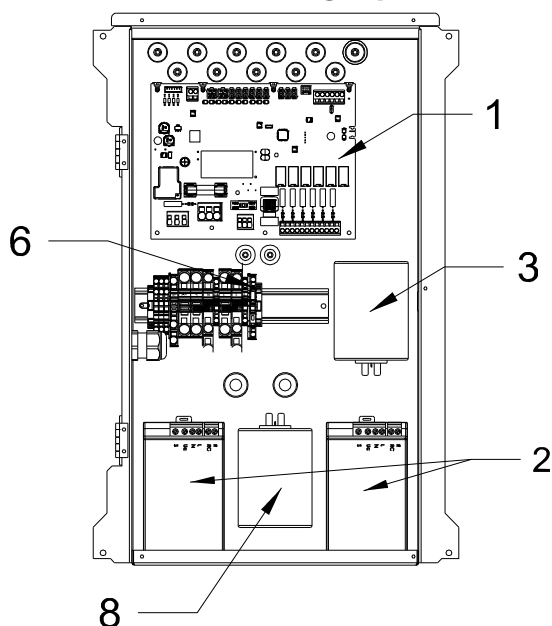
Rep.	Reference				Description
	17kW single phase	17kW three phase	20kW three phase	25kW three phase	
1	B4995123	B4995134	B4995127	B4995127	Compressor 1 replacement kit
2	B4995124	B4995135	B4995135	B4995128	Compressor 2 replacement kit
3	B1472868	B1472868	B1472868	B1472877	Plated heat exchanger
4	B1472866	B1472866	B1472866	B1472866	Finned heat exchanger 4 row
5	B1472837	B1472837	B1472837	B1472837	Dehumidifying filter
6	B1472832	B1472832	B1472832	B1472854	Reservoir tank
7	B4995125	B4995125	B4995125	B4995129	Brazed 4-way valve kit
8	B4995126	B4995126	B4995130	B4995130	Pressure reducer kit
11	B1239192	B1239192	B1239192	B1239192	1/4" check valve
12	B1239211	B1239211	B1239211	B1239211	Pressure switch
14	B1244578	B1244578	B1244578	B1244578	Temperature sensor lg 2000mm
15	B1244578	B1244578	B1244578	B1244578	Temperature sensor lg 2000mm
16	B1239225	B1239225	B1239225	B1239225	Pressure sensor BP frigo
Not visible	B1244042	B1244042	B1244042	B1244042	Pressure sensor cable
17	B1244522	B1244522	B1244522	B1244522	NTC sensor 900mm
18	B1244578	B1244578	B1244578	B1244578	Temperature sensor lg 2000mm
19	B1244578	B1244578	B1244578	B1244578	Temperature sensor lg 2000mm
20	B1472730	B1472730	B1472730	B1472730	Loading pipe (High pressure sensor)
21	B1472730	B1472730	B1472730	B1472730	Loading pipe (Low pressure sensor)
22A	B4995190	B4995190	B4995190	B4995190	Replacement fan kit - Ø630
22B	B4995349	B4995349	B4995349	B4995349	Replacement fan kit - Ø710
23	B1239128	B1239128	B1239128	B1239128	Pressure relief valve 2,5 bar
24	B4948083	B4948083	B4948083	B4948083	Condensates drainage hose
25	B4993002	B4993002	B4993002	B4993002	Fan heater cable
26	B1239268	B1239268	B1239268	B1239268	HP sensor

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.

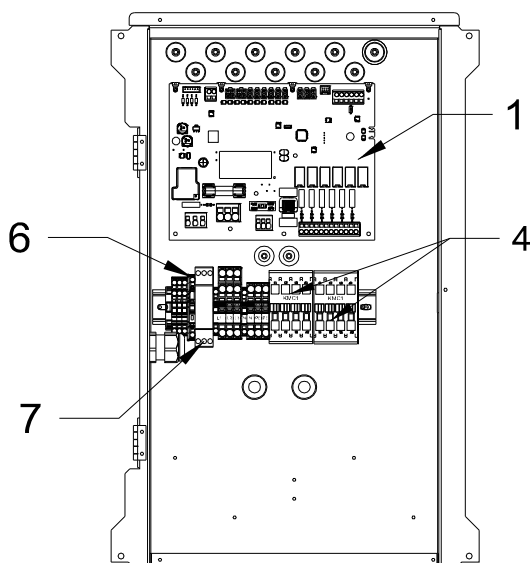
6.2 - Electrical boxes

HRC⁷⁰ 17kW single-phase

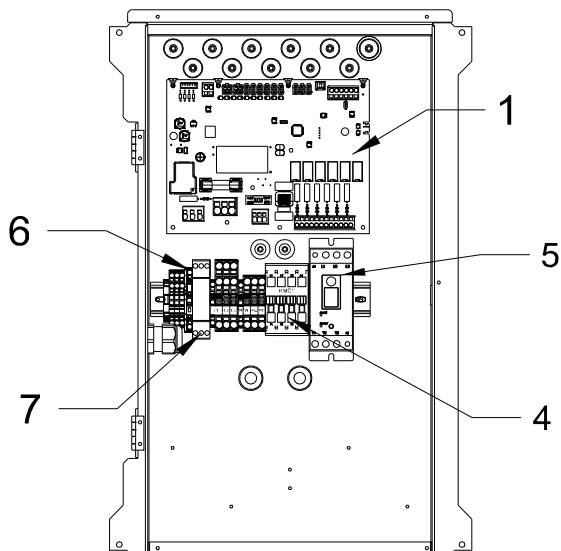


Rep.	Reference	Description
1	B4994719	Heat Pump C9+ electronics board
2	B1244295	Starter CSS-25U -E-
3	B1244468	Capacitor 50MF-COMP-ZH06
4	B1243847	30A three-phase contactor
5	B1244037	Three-phase starter
6	B1243147	4A 5x20 fuse
7	B1943752	Phase controller
8	B1244469	Capacitor 45MF-COMP-ZH09

HRC⁷⁰ 17kW and 20 kW three-phase



HRC⁷⁰ 25kW three-phase



Reference points on schematic cabling diagram

Electrical connections to screw in	DC1	Compressor 1 starter
	DC2	Compressor 2 starter
	RCP	Phase monitor relay
	KMC1	Compressor 1 contactor
	KMC2	Compressor 2 contactor
	DP	Compressor 2 progressive starter
	K1 à K3	Electrical stage contactor
	BUS	2-core sheathed communication cable
Electrical connections with Faston terminals	C1	Compressor 1 - 45µF capacitor
	C2	Compressor 2 - 50µF capacitor
	K1	Compressor 1
	K2	Compressor 2
	AQS	110°C safety aquastat
	T	6kW electrical immersion heater

7 - WARRANTY

The warranty covers the HRC⁷⁰ Heat Pump and the HRC⁷⁰ 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 center, 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 center. 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 HRC⁷⁰ 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.

7.1 - Limitations of warranty

7.1.1 - 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.

7.1.2 - Exclusion from warranty

7.1.2.1 - 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.

7.1.2.2 - 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 **HRC⁷⁰ Heat Pump** because it was leaning or laid flat.

7.1.2.3 - Installation site

Cases (not limited) for exclusion from warranty:

- Placement of the **HRC⁷⁰ 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 HRC⁷⁰ 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.

7.1.2.4 - 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...).

7.1.2.5 - Hydraulic connections

Cases (not limited) for exclusion from warranty:

- Inverting the inlet/outlet connections.
- Water pressure over 2,5 bars.
- 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.

7.1.2.6 - 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.

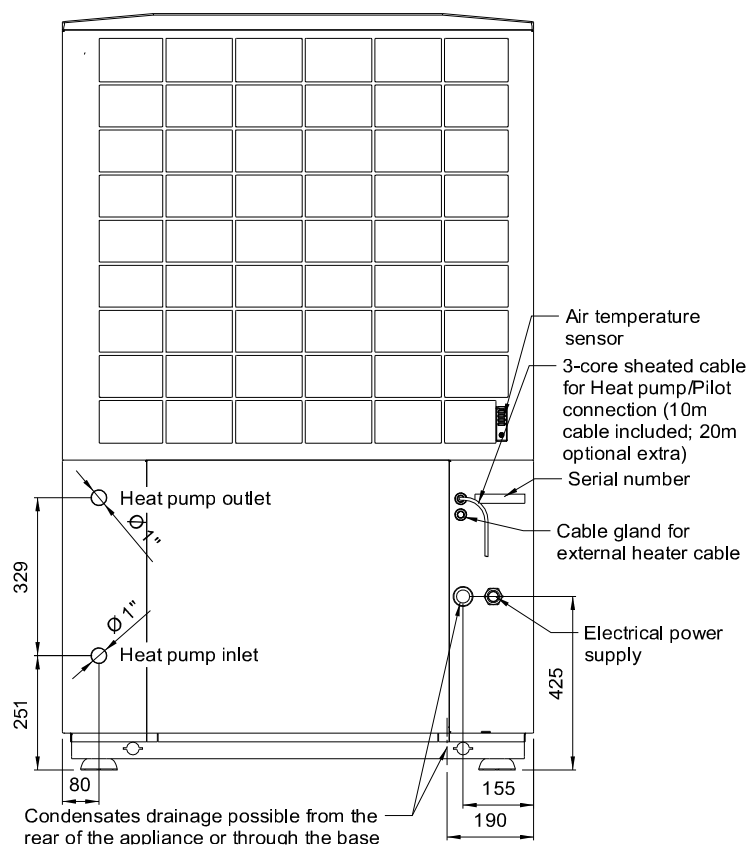
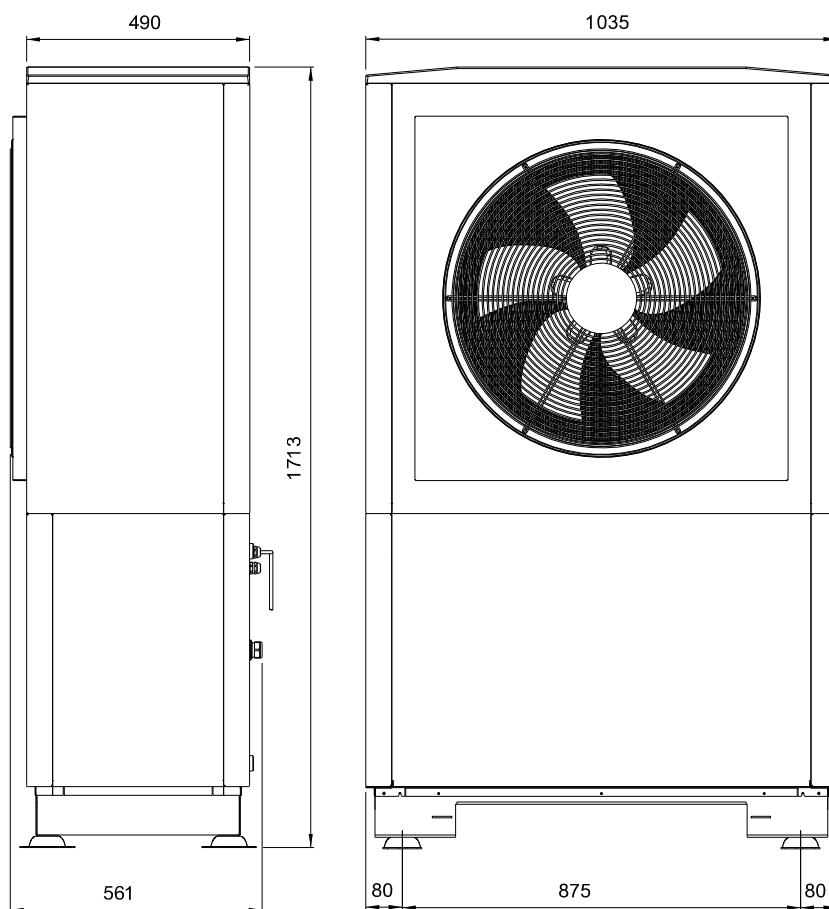
7.1.2.7 - Maintenance

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.

APPENDICES

A1 - Dimensions



A2 - Technical specifications

A2.1 - General specifications

	HRC ⁷⁰ 17 single-phase	HRC ⁷⁰ 17 three-phase	HRC ⁷⁰ 20 three-phase	HRC ⁷⁰ 25 three-phase
Maximum temperature	70°C	70°C	70°C	70°C
R290 refrigerant fluid	0,900 kg	0,900 kg	0,900 kg	0,900 kg
Maximal pressure of the refrigerant circuit	Low pressure : 17 bar High pressure : 31 bar	Low pressure : 17 bar High pressure : 31 bar	Low pressure : 17 bar High pressure : 31 bar	Low pressure : 17 bar High pressure : 31 bar
Exterior air Temperature range	-20°C +40°C	-20°C +40°C	-20°C +40°C	-20°C +40°C
Electrical supply	1~ / 230 V / 50 Hz	3~ / 400 V / 50 Hz	3~ / 400 V / 50 Hz	3~ / 400 V / 50 Hz
Maximum current needed	32 A	13 A	15 A	18 A
Maximum start-up current	45 A	48 A	48 A	60 A
Progressive starter	Included	No	No	CP1 : No / CP2 : Included
Main circuit breaker (Curve D)	40 A single-phase	16 A three-phase	16 A three-phase	20 A three-phase
Minimum power cable width	3G 10 mm ² *	5G 4 mm ² *	5G 4 mm ² *	5G 6 mm ² *
Main body materials	Steel	Steel	Steel	Steel
Dimensions W x H x P (mm)	1035 x 1713 x 561	1035 x 1713 x 561	1035 x 1713 x 561	1035 x 1713 x 561
Weight when empty	219 kg	214 kg	226 kg	228 kg
Nominal water flow rate	2000 l/h	2000 l/h	2450 l/h	3000 l/h
Plumbing connections	26 / 34 male	26 / 34 male	26 / 34 male	26 / 34 male
Maximum water pressure	2,5 bar	2,5 bar	2,5 bar	2,5 bar
Ø condensates drainage pipes	20 / 25 mm	20 / 25 mm	20 / 25 mm	20 / 25 mm
Air flow rate	3000 m ³ /h à 7000 m ³ /h	3000 m ³ /h à 7000 m ³ /h	3000 m ³ /h à 7000 m ³ /h	3000 m ³ /h à 7000 m ³ /h
Adjustable silent blocks	Included	Included	Included	Included
Sound pressure level at 1m Power stage 1 / 2 / 3	51 / 52 / 59 dB(A)	51 / 52 / 59 dB(A)	53 / 60 dB(A)	53 / 54 / 61 dB(A)

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

A2.2 - Performances

	Outdoor air temp	HRC ⁷⁰ 17kW single-phase				HRC ⁷⁰ 17kW three-phase				HRC ⁷⁰ 20kW three-phase				HRC ⁷⁰ 25kW three-phase			
		Water temperature				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	30/35	40/45	47/55	55/65
MAX heating capacity*	20 °C	20,50	20,00	19,50	18,50	20,50	20,00	19,50	18,50	24,00	23,00	22,00	21,00	30,00	29,00	28,00	26,50
Heating capacity nominal**		9,45	8,93	8,72	8,40	9,56	9,03	8,82	8,61	13,34	12,81	12,49	12,18	13,34	12,81	12,49	12,18
Nominal COP		5,64	4,37	3,68	2,99	5,67	4,38	3,70	3,01	5,34	4,25	3,61	2,95	5,34	4,25	3,61	2,95
MAX heating capacity*	15 °C	20,00	19,00	18,00	17,50	20,00	19,00	18,00	17,50	23,50	22,50	21,00	20,00	28,50	27,00	26,00	25,00
Heating capacity nominal**		9,00	8,50	8,30	8,00	9,10	8,60	8,40	8,20	12,70	12,20	11,90	11,60	12,70	12,20	11,90	11,60
Nominal COP		5,53	4,28	3,44	2,82	5,56	4,29	3,46	2,84	5,24	4,17	3,37	2,78	5,24	4,17	3,37	2,78
MAX heating capacity*	12 °C	18,50	18,00	17,25	16,50	18,50	18,00	17,25	16,50	22,50	21,00	20,00	19,00	26,50	25,50	24,50	23,50
Heating capacity nominal**		8,55	8,13	7,85	7,51	8,65	8,23	7,95	7,71	12,03	11,53	11,23	10,89	12,03	11,53	11,23	10,89
Nominal COP		5,11	4,06	3,31	2,65	5,31	4,14	3,36	2,70	5,01	4,03	3,31	2,69	5,01	4,03	3,31	2,67
MAX heating capacity*	7 °C	17,00	16,50	15,75	15,00	17,00	16,50	15,75	15,00	20,00	18,50	17,00	16,00	23,50	22,50	21,50	21,00
Heating capacity nominal**		7,80	7,50	7,10	6,70	7,90	7,60	7,20	6,90	10,90	10,40	10,10	9,70	10,90	10,40	10,10	9,70
Nominal COP		4,40	3,70	3,10	2,37	4,90	3,90	3,20	2,47	4,60	3,80	3,20	2,56	4,60	3,80	3,20	2,48
MAX heating capacity*	2 °C	15,75	15,00	14,50	14,00	15,75	15,00	14,50	14,00	17,50	16,50	16,00	15,50	21,50	20,50	20,00	19,25
Heating capacity nominal**		7,78	8,10	7,54	6,86	8,60	8,30	7,73	6,95	8,26	8,30	7,73	6,95	10,46	11,00	10,26	9,49
Nominal COP		3,40	3,00	2,60	2,06	3,70	3,10	2,70	2,15	3,70	3,10	2,70	2,06	3,40	2,90	2,50	1,99
MAX heating capacity*	-7 °C	14,00	13,00	12,50	12,00	14,00	13,00	12,50	12,00	15,50	15,00	14,75	14,50	18,50	18,25	18,00	17,50
Heating capacity nominal**		12,88	12,51	11,13	10,68	12,91	12,67	11,15	10,70	14,11	13,90	13,13	12,91	16,84	16,61	16,02	15,58
Nominal COP		3,21	2,73	2,24	1,88	3,22	2,78	2,27	1,89	3,18	2,70	2,22	1,87	3,15	2,60	2,20	1,86
MAX heating capacity*	-10 °C	13,00	12,00	11,50	10,75	13,00	12,00	11,50	10,75	14,50	14,00	13,50	12,75	17,50	17,00	16,50	15,50
Heating capacity nominal**		11,96	11,16	10,81	10,21	11,96	11,16	10,81	10,21	13,20	13,02	12,69	12,11	15,93	15,81	15,51	14,73
Nominal COP		2,95	2,51	2,06	1,73	2,96	2,56	2,09	1,74	2,93	2,48	2,04	1,72	2,90	2,39	2,02	1,71
MAX heating capacity*	-15 °C	11,00	10,00	9,50	9,00	11,00	10,00	9,50	9,00	12,00	11,50	11,00	10,00	15,00	14,50	14,00	13,00
Heating capacity nominal**		10,23	9,30	9,03	8,64	10,23	9,30	9,03	8,64	11,16	10,70	10,34	9,50	13,95	13,49	13,16	12,35
Nominal COP		2,69	2,29	1,88	1,76	2,70	2,33	1,90	1,79	2,66	2,26	1,86	1,75	2,64	2,18	1,84	1,72
MAX heating capacity*	-20 °C	9,50	8,50	7,75	7,50 ⁽¹⁾	9,50	8,50	7,75	7,50 ⁽¹⁾	11,00	10,50	10,00	9,75 ⁽¹⁾	13,50	13,00	12,50	12,00 ⁽¹⁾
Heating capacity nominal**		8,93	8,08	7,44	7,28 ⁽¹⁾	8,93	8,08	7,44	7,28 ⁽¹⁾	10,34	9,87	9,50	9,26 ⁽¹⁾	12,69	12,22	11,88	11,40 ⁽¹⁾
Nominal COP		2,47	2,10	1,73	1,64 ⁽¹⁾	2,48	2,14	1,75	1,66 ⁽¹⁾	2,45	2,08	1,71	1,62 ⁽¹⁾	2,43	2,00	1,69	1,61 ⁽¹⁾

* Max heating capacity without de-icing.

**According to EN14511.

⁽¹⁾ Water regime 50/60

A3 - 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.
- European pressure equipment Directive : 2014/68/UE

A4 - 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.

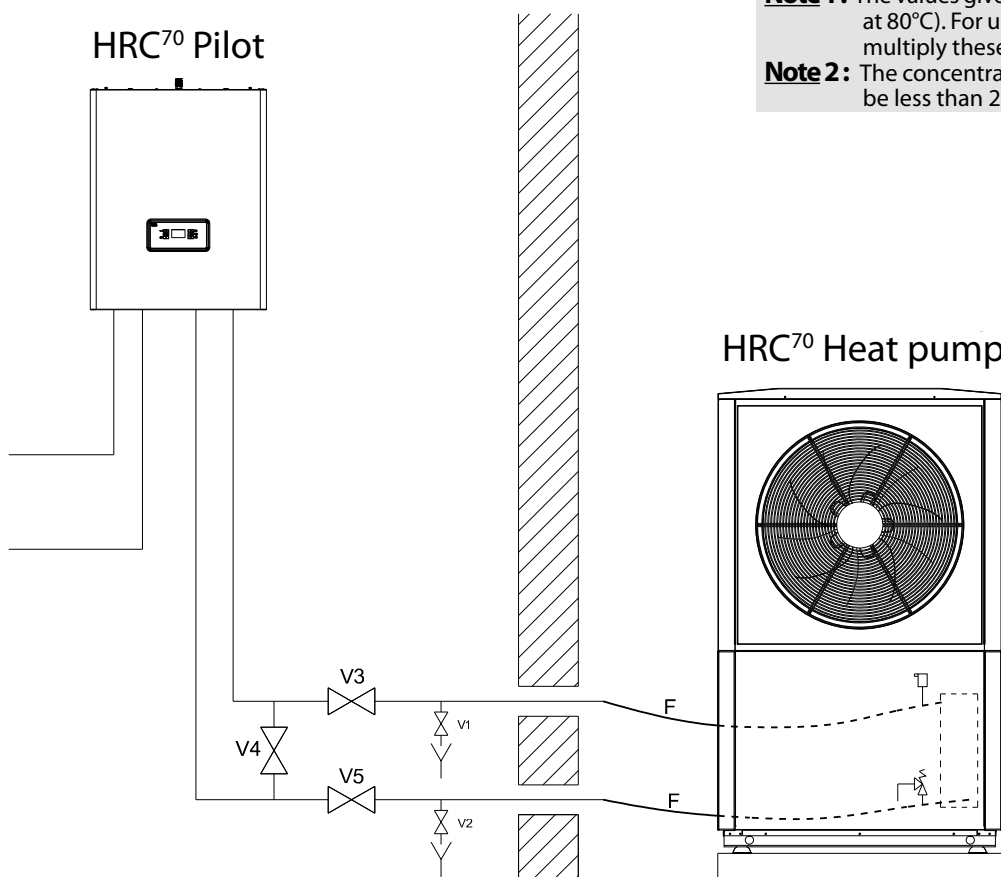
However, in the case of installation without a back-up, or if the HRC⁷⁰ Pilot or HRC⁷⁰ Heat Pump is being switched off during the winter months (ex. accidental stop, secondary residence, etc...), an additional anti-freeze protection is necessary.

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).

Diagram for draining equipment



Ensure that the HRC⁷⁰ Heat Pump is drained.



A5 - Sizing the expansion vessel

- For a heating installation with radiators:

The expansion vessel equipping the boiler may be sufficient. Always check that the capacity of the existing expansion vessel corresponds to the total volume of the installation (take into account the 60L needed for the HRC⁷⁰ Pilot tank when calculating the total volume of the installation without forgetting the volume of a buffer tank, if applicable).

- Sizing the expansion vessel:

The volume of the expansion vessel which is required for the HRC⁷⁰ Heat Pump depends on the height of the installation. You will need to adjust the pre-charged pressure of the expansion vessel and check that the capacity of the vessel corresponds to the total volume of the installation:

Height of installation (m)	2.5	5	7.5	10	12.5	15
Pre-charged pressure (bars) ⁽¹⁾	0.25	0.5	0.75	1	1.25	1.5
Volume of water in the installation covered by 1 liter of the expansion vessel (liters) ⁽²⁾	25% glycol	15.9	14.5	13.0	11.6	10.1
	30% glycol	15.6	14.2	12.7	11.3	9.9
	35% glycol	14.7	13.4	12.1	10.7	9.4
	40% glycol	14.0	12.7	11.4	10.2	8.9

⁽¹⁾ : Deflate and check pressure in expansion vessel if necessary.

⁽²⁾ : As a guideline, take into account:

- 11 litres per kW heating capacity for steel radiators
+ 60 liters for HRC⁷⁰ Pilot
+ buffer tank (if applicable)
- 13 litres per kW heating capacity for cast-iron radiators
+ 60 liters for HRC⁷⁰ Pilot
+ buffer tank (if applicable)
- 17 litres per kW heating capacity for underfloor heating
+ 60 liters for HRC⁷⁰ Pilot
+ buffer tank (if applicable)

Or, if known, use the exact volume.

Example

- Installation with 12kW cast-iron radiators
- Height of installation = 10m
- Frost/ice protection using 25% glycol

Total volume of installation = 12 x 13 + 60 = 216 liters

1 liter of expansion vessels covers 11,6 liters of the volume of the installation, so here you would need an expansion vessel with a minimum volume of 18 liters (216 / 11,6).

Note 1: The values given here are for a radiator installation (water at 80°C). For use with an underfloor heating installation, multiply these values by 2.

Note 2: The concentration of monopropylene glycol should not be less than 25%.

During normal operation :

- V1 - V2 and V4 are closed
- V3 and V5 are open

In case of prolonged stop (winter) :

- V3 and V5 are closed
- V1 - V2 and V4 are open

V1 - V2 : Drainage valves
V3 - V4 - V5 : Insulating valves

A6 - 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.

A6.1 - Preparing the hydraulic circuit (rinsing)

Before installing the HRC⁷⁰ Pilot and the HRC⁷⁰ 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 abovementioned waste from getting into the HRC⁷⁰ Heat Pump heat exchanger, or from obstructing the filter installed on the incoming water inlet.

A6.2 - 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.**

A6.3 - 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.

Futhermore, 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 ou 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.

A6.4 - Protection from freezing

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.

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 to prevent having to drain the hydraulic circuit of the Heat Pump located outside of the building.

For anti-freeze product, use «monopropylene glycol» with an added corrosion inhibitor.



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
% de 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.**

A7 - Product performances tables

A7.1 - HRC⁷⁰ Heat Pump 17kW single-phase

(Conforms to standard: EU n°811/2013)

Fiche d'information technique produit (conformement 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		HRC ⁷⁰ 17kW / 3 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	13	13
Puissance de chauffage nominale / <i>Nominal heat output (*2)</i>		Prated	kW	15	14
Puissance de chauffage nominale / <i>Nominal heat output (*3)</i>		Prated	kW	10	9
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	10,5	10,0
Tj = +2°C		Pdh	kW	8,3	8,3
Tj = +7°C		Pdh	kW	8,0	7,8
Tj = +12°C		Pdh	kW	8,9	8,7
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		Pdh	kW	10,8	10,3
Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i>		Pdh	kW	8,9	8,2
Tj = -15°C		Pdh	kW	9,5	8,8
Température bivalente / <i>Bivalence temperature</i>		Tbiv	°C	-5	
Puissance calorifique sur intervalle cyclique / <i>Output for cyclical interval heating mode</i>		Pcych	kW	-	
Coefficient de dégradation / <i>Degradation coefficient</i>		Cdh	-	1,0	
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*1)</i>		ηs	%	151	125
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i>		ηs	%	121	100
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i>		ηs	%	196	167
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	-	2,56	2,07
Tj = +2°C		COPd	-	3,74	3,12
Tj = +7°C		COPd	-	5,56	4,40
Tj = +12°C		COPd	-	6,28	5,61
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		COPd	-	2,69	2,22
Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i>		COPd	-	2,15	1,74
Tj = -15°C		COPd	-	2,34	1,95
Température limite de fonctionnement / <i>Operating limit temperature</i>		TOL	°C	-20	
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	0,023	
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	0,005	
Dispositif de chauffage d'appoint / <i>Supplementary heater</i>					
Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i>		Psup	kW	3,4	3,3
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>		-	-	fixe	
Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i>		Q _{HE}	kWh	7203	8265
Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i>		Q _{HE}	kWh	11590	13239
Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i>		Q _{HE}	kWh	2552	2967
Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i>		L _{WA}	dB	- / 60	
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

A7.2 - HRC⁷⁰ Heat Pump 17kW three-phase

(Conforms to standard: EU n°811/2013)

Fiche d'information technique produit (conformement 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		HRC ⁷⁰ 17kW /3 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>	oui yes		
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	14	13
Puissance de chauffage nominale / <i>Nominal heat output (*2)</i>		Prated	kW	15	14
Puissance de chauffage nominale / <i>Nominal heat output (*3)</i>		Prated	kW	10	9
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	10,4	9,9
Tj = +2°C		Pdh	kW	8,8	8,3
Tj = +7°C		Pdh	kW	8,1	7,7
Tj = +12°C		Pdh	kW	9,0	8,7
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		Pdh	kW	10,1	9,6
Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i>		Pdh	kW	8,5	7,8
Tj = -15°C		Pdh	kW	9,2	8,4
Température bivalente / <i>Bivalence temperature</i>		Tbiv	°C	-3	
Puissance calorifique sur intervalle cyclique / <i>Output for cyclical interval heating mode</i>		Ppsych	kW	-	
Coefficient de dégradation / <i>Degradation coefficient</i>		Cdh	-	1,0	
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*1)</i>		ηs	%	165	125
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i>		ηs	%	133	99
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i>		ηs	%	217	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	-	2,85	2,09
Tj = +2°C		COPd	-	4,15	3,12
Tj = +7°C		COPd	-	6,12	4,66
Tj = +12°C		COPd	-	6,92	5,94
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		COPd	-	3,32	2,39
Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i>		COPd	-	2,39	1,69
Tj = -15°C		COPd	-	2,60	1,89
Température limite de fonctionnement / <i>Operating limit temperature</i>		TOL	°C	-20	
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	0,023	
Mode arrêt thermostat / <i>Thermostat-off mode</i>		P _{TO}	kW	0,010	
Mode veille / <i>Standby mode</i>		P _{SB}	kW	0,005	
Mode résistance de carter / <i>Crankcase heater mode</i>		P _{CK}	kW	0,005	
Dispositif de chauffage d'appoint / <i>Supplementary heater</i>					
Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i>		Psup	kW	3,9	3,8
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>		-	-	fixe	
Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i>		Q _{HE}	kWh	6798	8463
Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i>		Q _{HE}	kWh	10462	13212
Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i>		Q _{HE}	kWh	2400	2811
Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i>		L _{WA}	dB	- / 60	
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

A7.3 - HRC⁷⁰ Heat Pump 20kW three-phase

(Conforms to standard: EU 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		HRC ⁷⁰ 20kW /3 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>		oui yes	
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	17	16
Puissance de chauffage nominale / <i>Nominal heat output (*2)</i>		Prated	kW	19	19
Puissance de chauffage nominale / <i>Nominal heat output (*3)</i>		Prated	kW	11	11
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	13,9	13,5
Tj = +2°C		Pdh	kW	8,8	8,5
Tj = +7°C		Pdh	kW	11,1	10,9
Tj = +12°C		Pdh	kW	12,5	12,2
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		Pdh	kW	14,1	13,7
Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i>		Pdh	kW	11,7	11,2
Tj = -15°C		Pdh	kW	12,6	12,1
Température bivalente / <i>Bivalence temperature</i>		Tbiv	°C	-6	
Puissance calorifique sur intervalle cyclique / <i>Output for cyclical interval heating mode</i>		Pcyc	kW	-	
Coefficient de dégradation / <i>Degradation coefficient</i>		Cdh	-	1,0	
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*1)</i>		ηs	%	164	129
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i>		ηs	%	133	102
Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i>		ηs	%	199	169
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	-	2,85	2,03
Tj = +2°C		COPd	-	4,15	3,28
Tj = +7°C		COPd	-	5,81	4,63
Tj = +12°C		COPd	-	6,56	5,91
Tj = température bivalente / <i>Tj = Bivalence temperature</i>		COPd	-	2,92	2,11
Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i>		COPd	-	2,39	1,71
Tj = -15°C		COPd	-	2,60	1,90
Température limite de fonctionnement / <i>Operating limit temperature</i>		TOL	°C	-20	
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	0,023	
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	0,005	
Dispositif de chauffage d'appoint / <i>Supplementary heater</i>					
Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i>		Psup	kW	3,5	3,4
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>		-	-	fixe	
Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i>		Q _{HE}	kWh	8236	10169
Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i>		Q _{HE}	kWh	13999	17617
Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i>		Q _{HE}	kWh	3003	3421
Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i>		L _{WA}	dB	- / 61	
Débit d'air nominal à l'extérieur / <i>Rated Air flow outdoor</i>		-	m ³ /h	4500	
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

A7.4 - HRC⁷⁰ Heat Pump 25kW three-phase

(Conforms to standard: EU 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		HRC ⁷⁰ 25kW /3 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	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 / Heating seasonal energy efficiency class				A++	A+
Puissance de chauffage nominale / Nominal heat output (*1)		Prated	kW	22	19
Puissance de chauffage nominale / Nominal heat output (*2)		Prated	kW	24	21
Puissance de chauffage nominale / Nominal heat output (*3)		Prated	kW	13	13
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	17,1	14,7
Tj = +2°C		Pdh	kW	11,1	11,2
Tj = +7°C		Pdh	kW	11,1	10,9
Tj = +12°C		Pdh	kW	12,5	12,2
Tj = température bivalente / Tj = Bivalence temperature		Pdh	kW	17,6	15,1
Tj = température limite fonctionnement / Tj = Operating limit temperature		Pdh	kW	14,4	11,8
Tj = -15°C		Pdh	kW	15,5	12,7
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	-	1,0	
Efficacité énergétique saisonnière / Seasonal energy efficiency (*1)		ηs	%	150	119
Efficacité énergétique saisonnière / Seasonal energy efficiency (*2)		ηs	%	123	95
Efficacité énergétique saisonnière / Seasonal energy efficiency (*3)		ηs	%	206	154
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	-	2,58	1,97
Tj = +2°C		COPd	-	3,79	2,99
Tj = +7°C		COPd	-	5,89	4,51
Tj = +12°C		COPd	-	6,63	4,81
Tj = température bivalente / Tj = Bivalence temperature		COPd	-	2,74	2,01
Tj = température limite fonctionnement / Tj = Operating limit value temperature		COPd	-	2,14	1,73
Tj = -15°C		COPd	-	2,33	1,92
Température limite de fonctionnement / Operating limit temperature		TOL	°C	-20	
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	0,023	
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	0,005	
Dispositif de chauffage d'appoint / Supplementary heater					
Puissance thermique nominale d'appoint / Nominal heat output of supplementary heater		Psup	kW	5,6	4,8
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		-	-	fixe	
Consommation annuelle d'énergie / Annual energy consumption (*1)		Q _{HE}	kWh	11775	12647
Consommation annuelle d'énergie / Annual energy consumption (*2)		Q _{HE}	kWh	18551	20431
Consommation annuelle d'énergie / Annual energy consumption (*3)		Q _{HE}	kWh	3311	4401
Puissance sonore intérieure - extérieure / Sound power level - indoor - outdoor		L _{WA}	dB	- / 66	
Débit d'air nominal à l'extérieur / Rated Air flow outdoor		-	m ³ /h	4500	
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

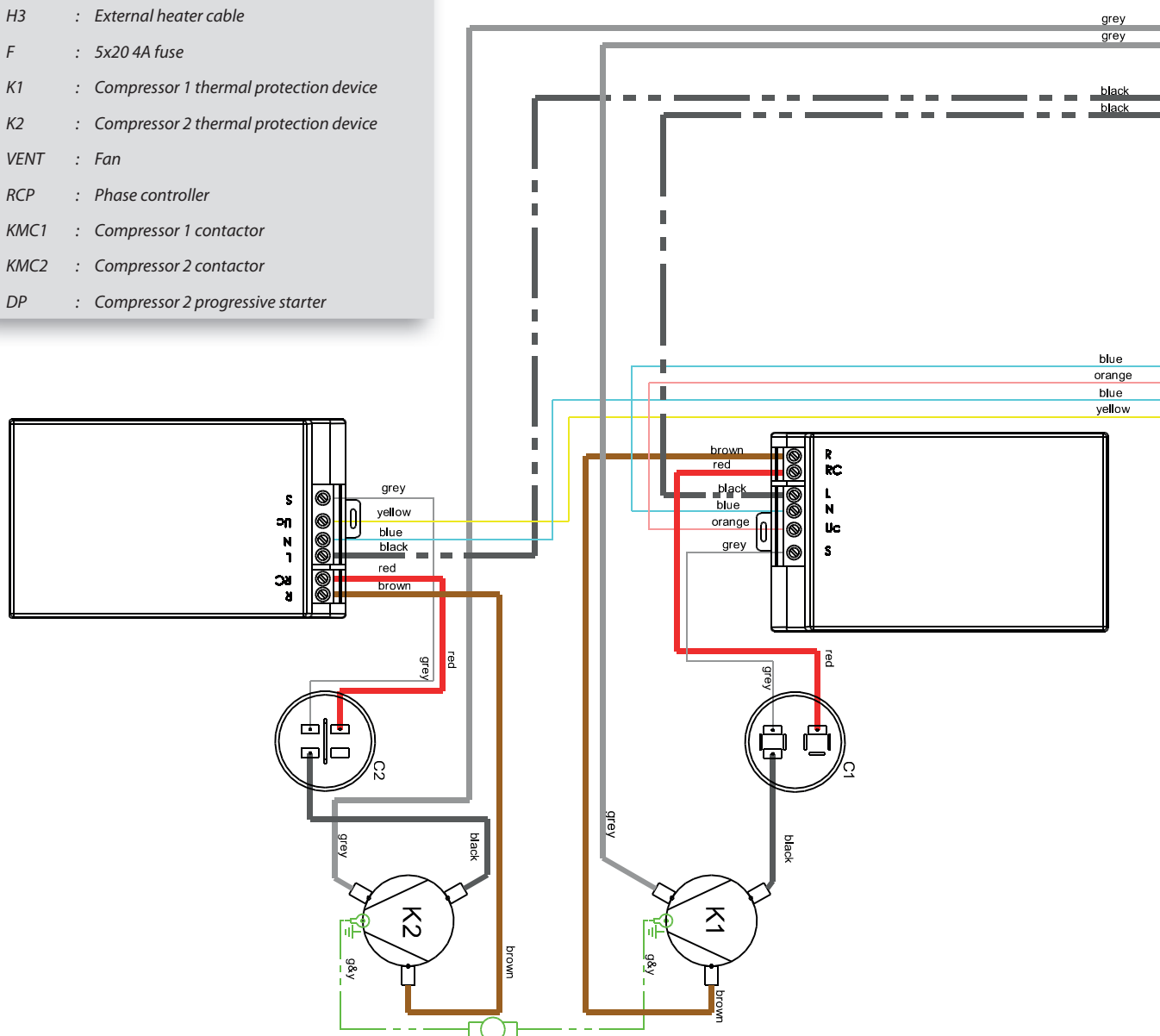
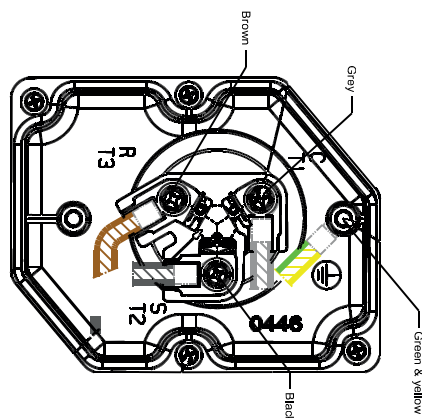
(*2) Conditions climatiques plus froides / Colder climatic conditions

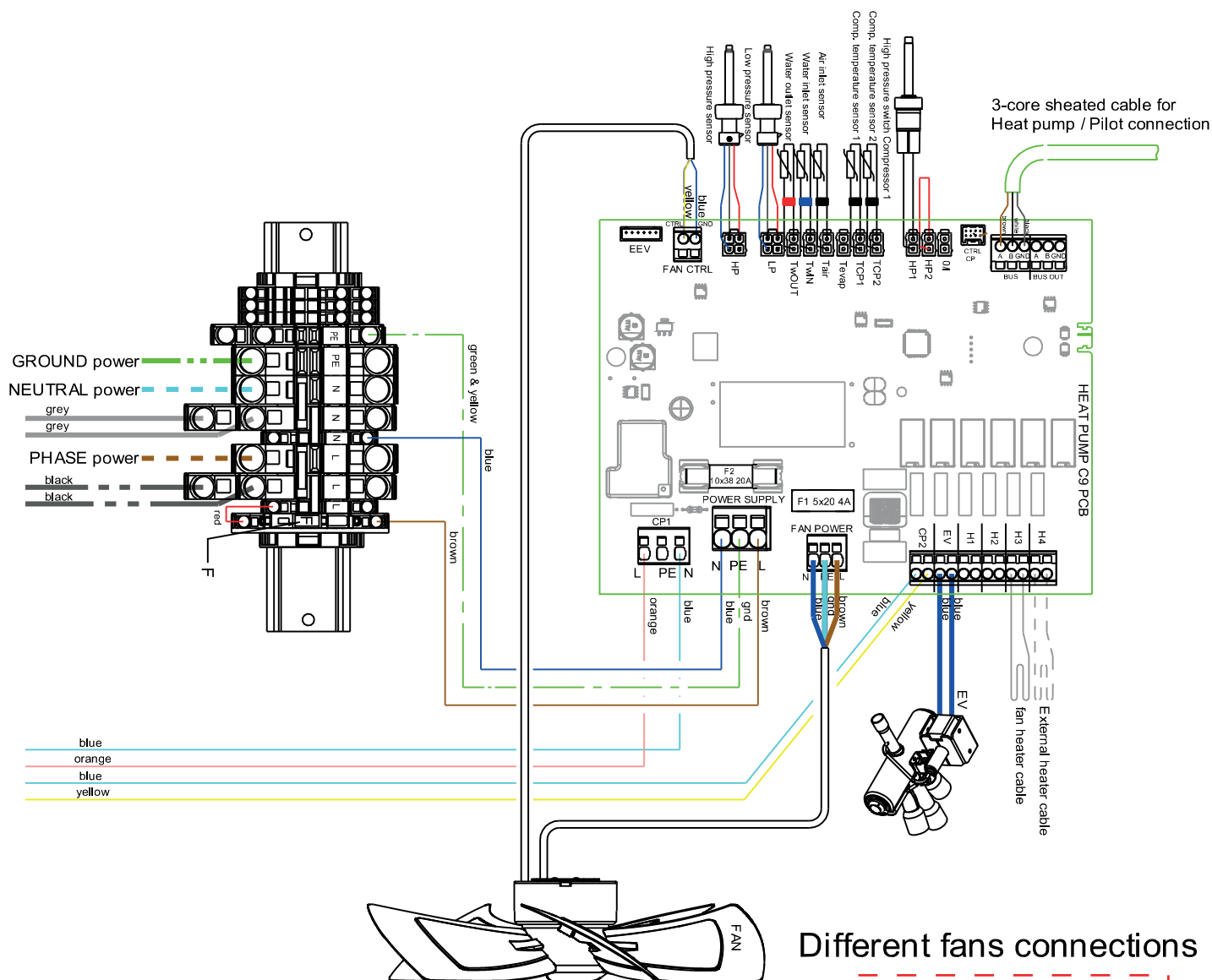
(*3) Conditions climatiques plus chaudes / Warmer climatic conditions

HRC⁷⁰ Heat Pump - 17 kW single-phase - Internal wiring diagram

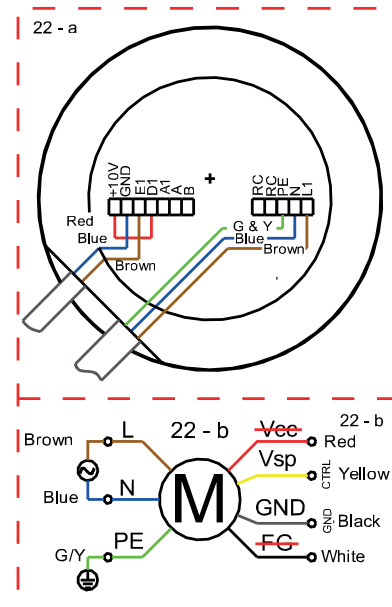
TwOUT	: Water outlet temperature sensor
TwIN	: Water inlet temperature sensor
Tair	: Air intake temperature sensor
TCP1	: Compressor 1 temperature sensor
TCP2	: Compressor 2 temperature sensor
HP1	: Compressor 1 high pressure - pressure switch
HP2	: Compressor 2 high pressure - pressure switch
BP	: Low pressure - pressure switch
CP1	: Compressor 1 start-up control
CP2	: Compressor 2 start-up control
EV	: De-icing solenoid valve cycle inversion control
H1	: Compressor 1 RK1 heater cable
H2	: Compressor 2 RK2 heater cable
H3	: External heater cable
F	: 5x20 4A fuse
K1	: Compressor 1 thermal protection device
K2	: Compressor 2 thermal protection device
VENT	: Fan
RCP	: Phase controller
KMC1	: Compressor 1 contactor
KMC2	: Compressor 2 contactor
DP	: Compressor 2 progressive starter

Copeland single phase compressor connection



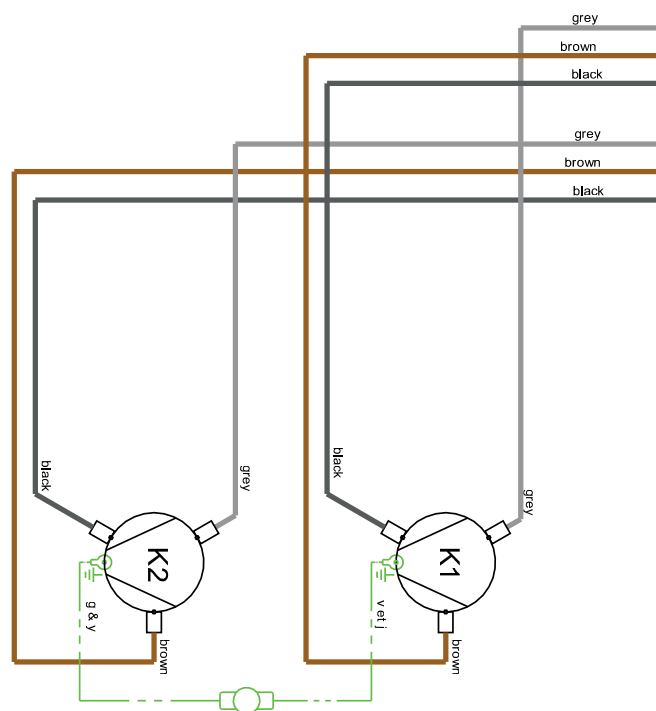
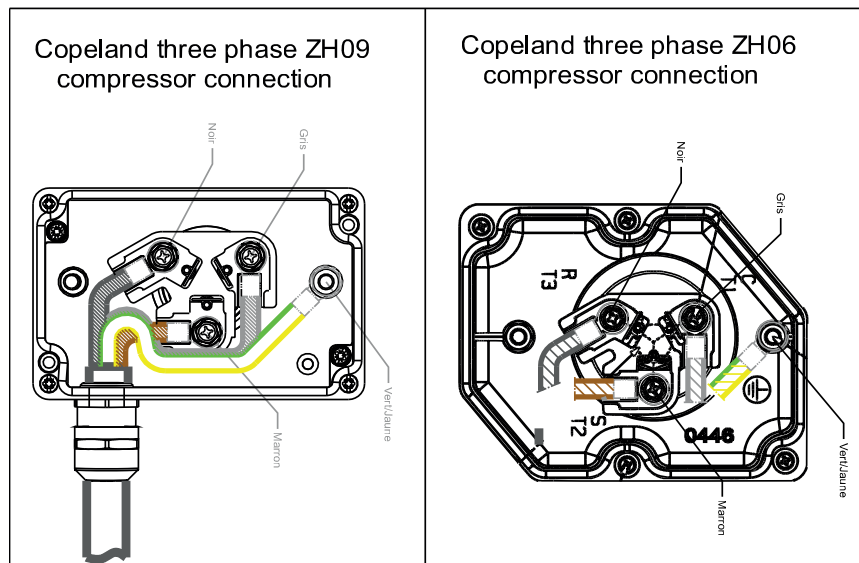


Different fans connections



HRC⁷⁰ Heat Pump- 17 kW and 20 kW three-phase - Internal wiring diagram

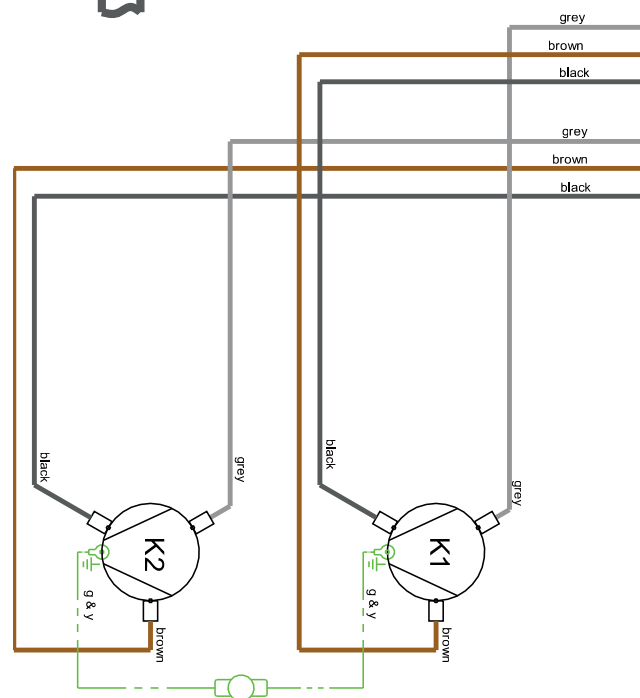
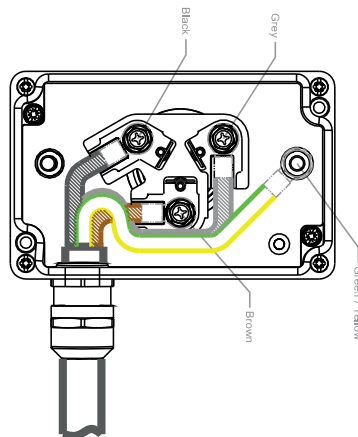
<i>TwOUT</i>	: Water outlet temperature sensor
<i>TwIN</i>	: Water inlet temperature sensor
<i>Tair</i>	: Air intake temperature sensor
<i>TCP1</i>	: Compressor 1 temperature sensor
<i>TCP2</i>	: Compressor 2 temperature sensor
<i>HP1</i>	: Compressor 1 high pressure - pressure switch
<i>HP2</i>	: Compressor 2 high pressure - pressure switch
<i>BP</i>	: Low pressure - pressure switch
<i>CP1</i>	: Compressor 1 start-up control
<i>CP2</i>	: Compressor 2 start-up control
<i>EV</i>	: De-icing solenoid valve cycle inversion control
<i>H1</i>	: Compressor 1 RK1 heater cable
<i>H2</i>	: Compressor 2 RK2 heater cable
<i>H3</i>	: External heater cable
<i>F</i>	: 5x20 4A fuse
<i>K1</i>	: Compressor 1 thermal protection device
<i>K2</i>	: Compressor 2 thermal protection device
<i>VENT</i>	: Fan
<i>RCP</i>	: Phase controller
<i>KMC1</i>	: Compressor 1 contactor
<i>KMC2</i>	: Compressor 2 contactor
<i>DP</i>	: Compressor 2 progressive starter



HRC⁷⁰ Heat Pump- 25 kW three-phase - Internal wiring diagram

<i>TwOUT</i>	: Water outlet temperature sensor
<i>TwIN</i>	: Water inlet temperature sensor
<i>Tair</i>	: Air intake temperature sensor
<i>TCP1</i>	: Compressor 1 temperature sensor
<i>TCP2</i>	: Compressor 2 temperature sensor
<i>HP1</i>	: Compressor 1 high pressure - pressure switch
<i>HP2</i>	: Compressor 2 high pressure - pressure switch
<i>BP</i>	: Low pressure - pressure switch
<i>CP1</i>	: Compressor 1 start-up control
<i>CP2</i>	: Compressor 2 start-up control
<i>EV</i>	: De-icing solenoid valve cycle inversion control
<i>H1</i>	: Compressor 1 RK1 heater cable
<i>H2</i>	: Compressor 2 RK2 heater cable
<i>H3</i>	: External heater cable
<i>F</i>	: 5x20 4A fuse
<i>K1</i>	: Compressor 1 thermal protection device
<i>K2</i>	: Compressor 2 thermal protection device
<i>VENT</i>	: Fan
<i>RCP</i>	: Phase controller
<i>KMC1</i>	: Compressor 1 contactor
<i>KMC2</i>	: Compressor 2 contactor
<i>DP</i>	: Compressor 2 progressive starter

Copeland three phase compressor connection



A8 - Electricity provider information form

This form is to given to the electricity provider for all preliminary evaluation for the installation of an HRC Heat Pump in case of an insufficient power grid.

This table contains information on both electrical and technical data about the HRC Heat Pump.

This technical data is provided in the table § «Connecting the HRC⁷⁰ Heat Pump to the power supply ».

The electricity provider can then proceed to increase the power grid if necessary.

Name of client			
Address			
Client reference number on electricity bill			
Name and address of installer (attach a copy of mandate)			
Connections	Single-phase <input type="checkbox"/> Three-phase <input type="checkbox"/> *		
Circuit breaker	Setting : _____ A		
Heat Pump (HP)			
Type de pump	Single-phase <input type="checkbox"/> Three-phase <input type="checkbox"/> *		
Make, model, and reference number	_____		
Type of compressor (<u>without back-up heating</u>)	Single-phase <input type="checkbox"/> Three-phase <input type="checkbox"/> *		
Nominal heating capacity of the Heat Pump without elements for back-up heating (kVA)	_____ (kVA) *		
Or	Or		
Heat Pump nominal current without elements for back-up heating (A)	_____ (A) *		
Heat Pump start-up curent (A)	_____ (A) *		
Heat Pump impedance (Z_{max}) declared by the manufacturer	_____ (Ω)		
Heat Pump power regulating mode	Fixed speed <input type="checkbox"/>	Variable speed <input type="checkbox"/>	
Is there a start-up support system in place for fixed- speed systems?	Yes <input type="checkbox"/> *	No <input type="checkbox"/> *	-
Elements for heating back-up	Single-phase <input type="checkbox"/>		Three-phase <input type="checkbox"/> *
	_____ (kVA)		
* mandatory fields			

NOTES / MAINTENANCE

[illegible]



Industrial and Development site

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

Spare Parts Department

Tel. : 03 22 61 21 21
Fax : 03 22 61 33 35
E-mail : pieces@auer.fr

Technical Assistance Department*

E-mail : enr@auer.fr

**Technical assistance is reserved for professionals*