

HRC⁷⁰ 32 tri /3

*High temperature, modulating
Heat Pump*

Installation and User manual



HRC⁷⁰ 32 /3

Ref. 151460



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.

*Made in
France*



CE
0082

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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.

RECOMMENDATIONS FOR ELECTRICAL INSTALLATION



- 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.

RECOMMENDATIONS FOR HYDRAULIC INSTALLATION



- 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 of the WW 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.

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.

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.




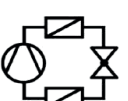



The HRC⁷⁰ Heat Pump uses R290 refrigerant fluid. Given the flammable nature of the fluid, any work on the refrigerant circuit must be done with appropriate materials and by conforming to all regulations in effect. In case of handling of fluid (recovery, evacuation or refilling), the appliance must be 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.
-  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 |  AUER Rue de la République 80210 Feuquières en Vimeu | HRC⁷⁰ - 32 tri /3 | Appliance identity |
| intuis reference of the appliance | | Réf : 151460 | Certification agency |
| Appliance type | | Pompe à chaleur | |
| Serial number of the appliance | | Ser.n° : 151460-232300000 | |
| Appliance electric data | 400V tri ~ 50Hz I_{max} : 23A - P_{max} : - kW | PED cat. II IPX4 | Protection rating |
| PED's category According to 2014/68/EU |  P_{nom}* : 13,54kW COP* : 4,57 (A7W35) |  P : 0,3MPa (3 bar) | CE marking |
| |  R290 (groupe 1) : 1,400kg PS High : 3,1MPa (31 bar) PS Low : 1,7MPa (17 bar) Ts min : -20°C Ts max : +40°C |  | Notified orgnisme identifying |
| | Made In France Hermétiquement scellé / Hermetically sealed |  | Rating plate reference |
| | <i>*Selon EN14511 / According to EN14511</i> |  270 kg | appliance weight |

Description :

Serial number of the appliance

151460 - 23 20 00000

Reference of
the appliance

Year of
manufacture
2023

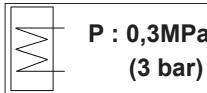
Week of
manufacture

Appliance
number in the
series



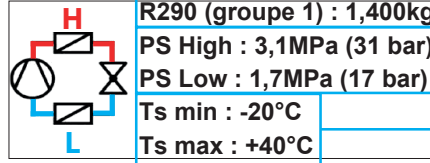
P_{nom}* : 13,54kW
COP* : 4,57 (A7W35)

Nominal performances
According to EN 14511



P : 0,3MPa
(3 bar)

Maximum hydraulic system
pressure



R290 (groupe 1) : 1,400kg
PS High : 3,1MPa (31 bar)
PS Low : 1,7MPa (17 bar)
Ts min : -20°C
Ts max : +40°C

Refrigerant type/quantity

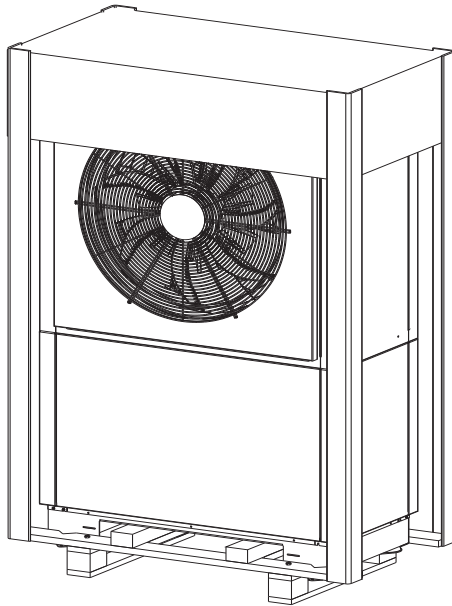
Maximal pressure of the refrigerant
circuit

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.

The Heat Pump is designed to be transported with a pallet jack.

2 - INTRODUCTION

2.1 - Standard configuration

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.

The pilot ensures the supply of water flow from the Heat Pump. It is to be installed between the decoupling tank and the Heat Pump.

The tank ensures the hydraulic decoupling between the the Heat Pump and the heating circuit(s).

The Pilot is delivered pre-configured for the heating of a radiator circuit controlled by a room temperature thermostat from the Heat Pump alone.

In the case of connection to a back-up boiler, it is used to load the decoupling tank directly.

Note :

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

2.2 - Operation

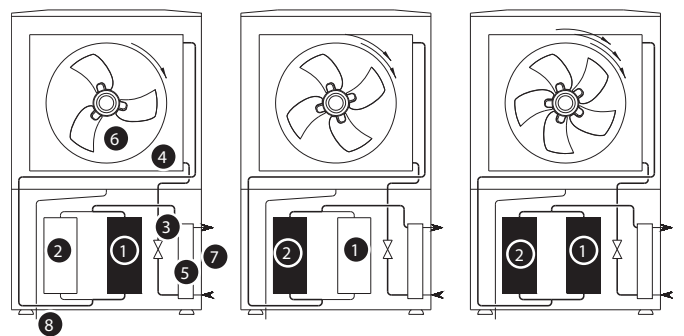
The Heat Pump is a closed and pressurised system in which the refrigerant serves as the medium for transferring energy.

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

The evaporator (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 condenser (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.



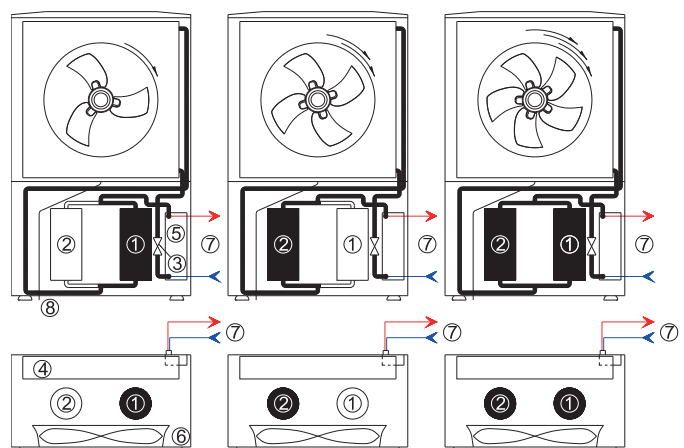
Mid-season
only compressor (1)
is used,
the fan (6) operates at
speed 1.

In cold weather
only compressor (2)
is used,
the fan (6) operates at
speed 2.

In extreme cold
both compressors (1) and (2)
are used at the same time,
the fan (6) operates at
speed 3.

- 1 : Compressor 1
- 2 : Compressor 2
- 3 : Expansion valve
- 4 : Evaporator
- 5 : Condenser

- 6 : Fan
- 7 : Outlet / inlet towards heating installation
- 8 : Condensates drainage



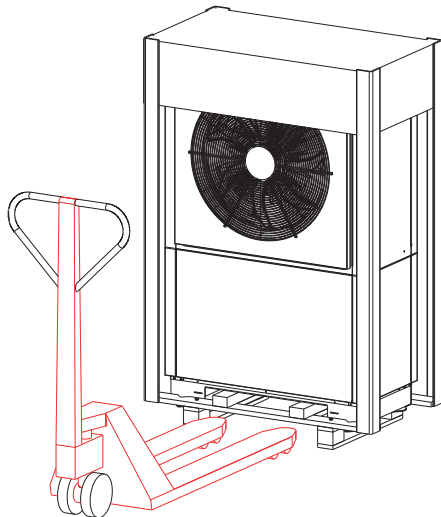
3 - INSTALLATION

3.1 - Installing the Heat Pump

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

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 - General

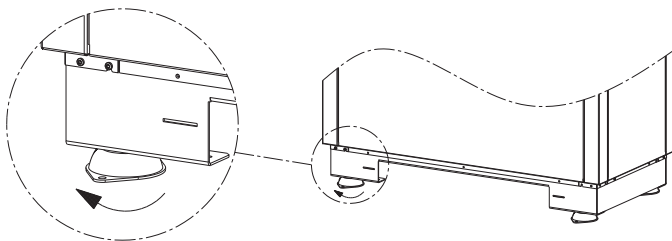


Always make sure the heat exchanger fins are protected when handling the appliance.

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 is designed to be installed OUTSIDE exclusively.

- **Any installation in an ENCLOSED and UNVENTILATED space is PROHIBITED, unless there is ventilation which ensure at least 80% of the nominal flow rate of the Heat Pump.**
- **DO NOT RESTRICT air intake or ventilation exhaust. NO OBJECT should impede the flow of air over the heat exchanger, or the renewal of air. 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.**

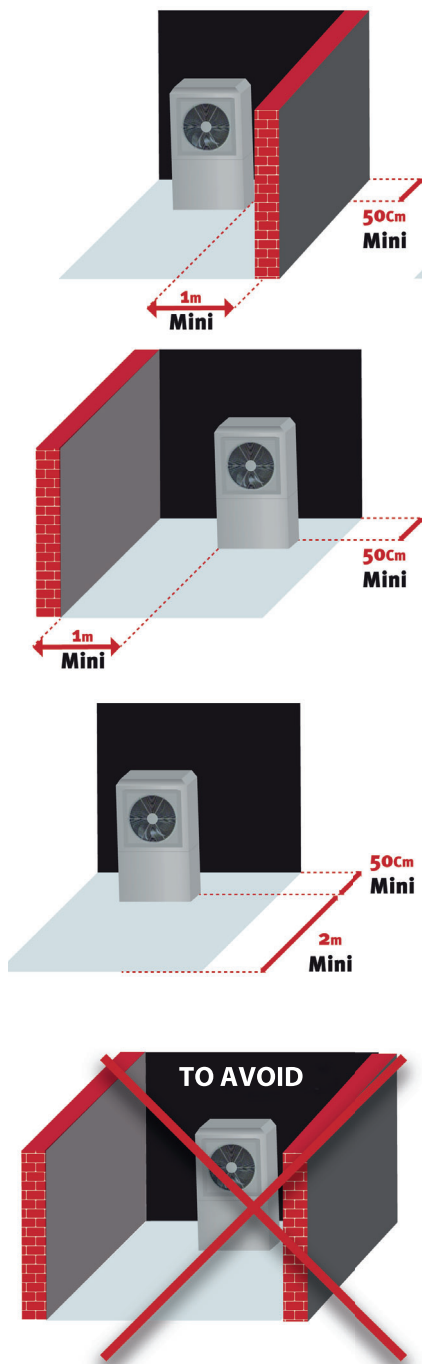
3.1.2 - Placement

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

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

In regards to the fan, the free space from any obstacles must be at least 2m.

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

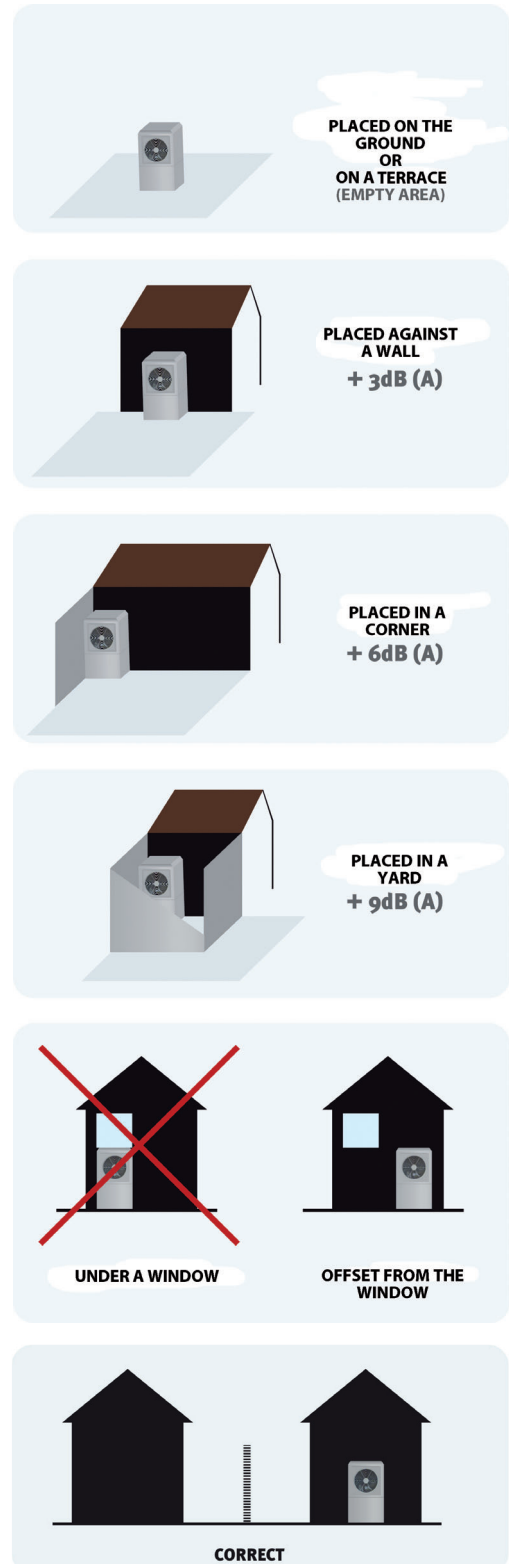


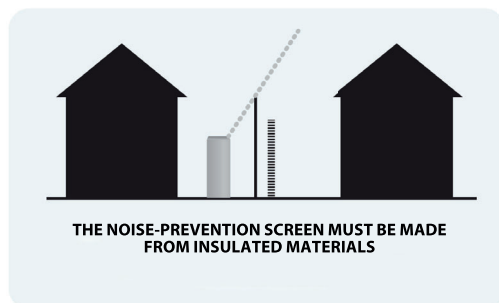
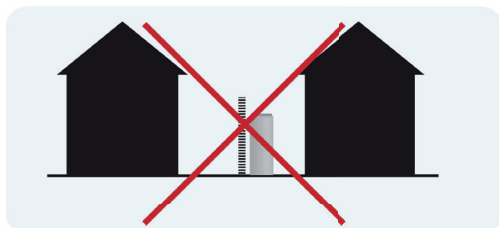
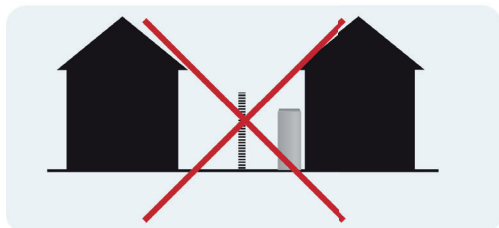
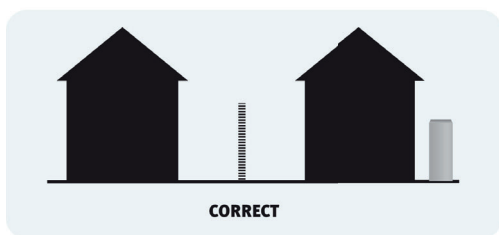
3.1.3 - Noise levels

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

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

The diagrams below show different installation examples for different placements.





3.1.4 - 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:

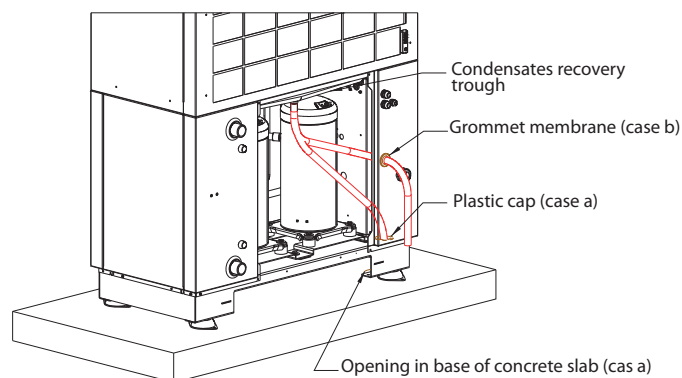
- Remove the back panel of the appliance.
- Position the flexible hose in its chosen place after having drilled a hole in the grommet.

a - **Draining from underneath** the Heat Pump

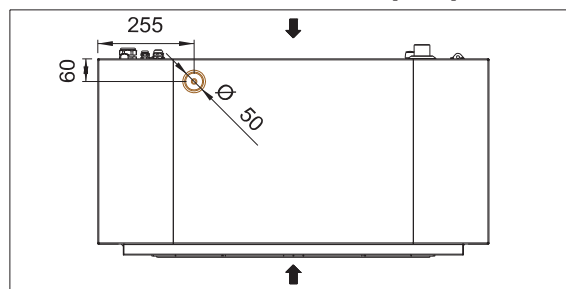
This solution is recommended to minimise the risk of ice at the condensates drainage point.

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.



Back of the heat pump



Front of the heat pump

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

3.2 - Hydraulic installation



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.

3.2.1 - Hydraulic connections on the installation

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

The HRC⁷⁰ 32 Heat Pump is intended for with a large variety of heating installations due to its power level.

The circulator(s) supplying the heating circuit(s) are not delivered with the hydraulic pilot. It is necessary to properly size and select the appropriate circulator(s) for each installation.

The hydraulic pilot ensures the circulation of water in the Heat Pump. It must be installed between the Heat Pump and the decoupling bottle according to the connection diagrams in the hydraulic pilot manual.

3.2.2 - Sizing of the Heat Pump circuit

A sufficient flow rate must be ensured so that the difference in temperature between the outlet and inlet of the Heat Pump is not more than 8°C with a single compressor in operation (avec un seul compresseur en fonctionnement (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 table 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 | 32kW |
| Minimum nominal flow rate | 3750 L/h |
| Maximum pressure | 2.5 bars |

3.2.3 - 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 (set at 3 bars).

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

3.2.4 - Heat Pump water inlet filter (supplied)

A 1"1/4 filter must be installed on the water inlet piping on the Heat Pump:

- Respect the direction of flow on the filter (arrow on the valve)
- Clean the filter at least once per year.



Before making any hydraulic connections to the Heat Pump, it is necessary to desludge and rinse the installation.

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).

3.2.4.1 - 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.

3.2.4.2 - Purging the heating circuit(s)

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.

3.2.4.3 - 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.

3.2.4.4 - Expansion vessel

An expansion vessel needs to be installed onto the heating circuit. See Appendix A4 for information on proper sizing of the expansion vessel.

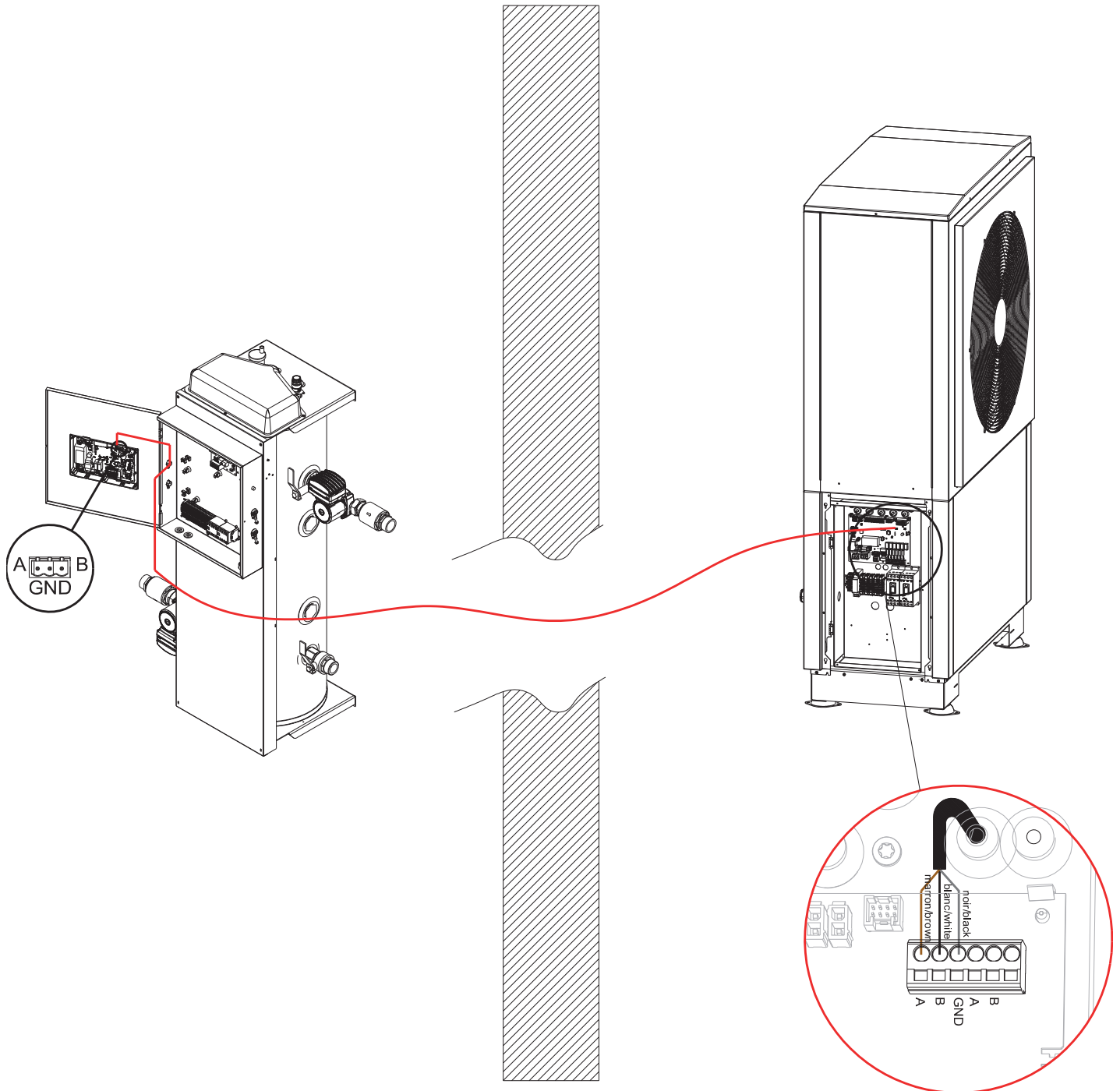
3.2.4.5 - Frost protection and water treatment

See the recommendation in Annexes A3 and A5.

3.3 - Electrical control connections

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 which is available to order (Ref. 753102).



It is **MANDATORY** to connect the shielding of the connection cable on the terminal block «GND».

- Cut the bus link to the right length : **LOOPS ARE FORBIDDEN.**

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.
- 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, choice of power supply cable, or measures used for installation.

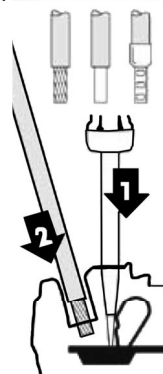
Terminal strips

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 terminal between 18 and 20mm

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 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 60 A 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

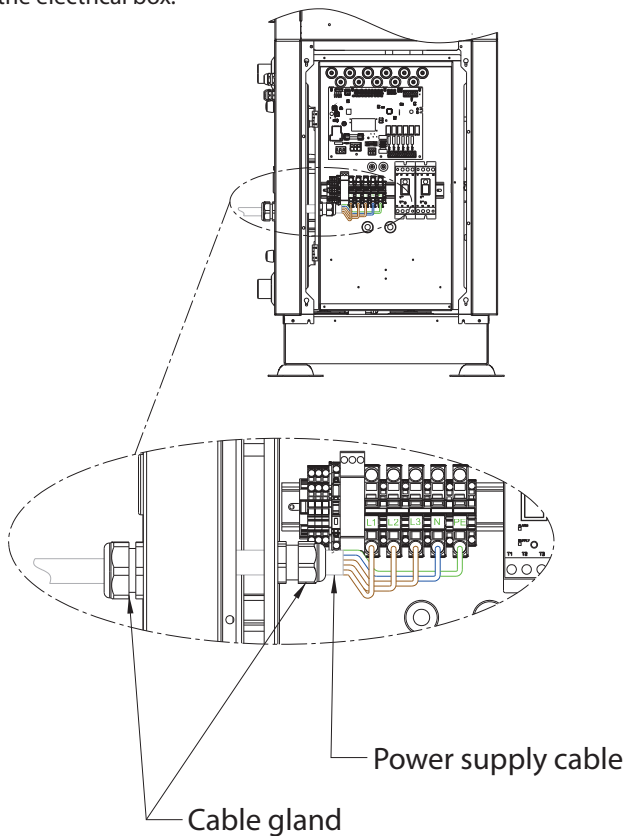
Make sure to strip the cable before placing it into the terminals, and make sure that the copper is in good condition.

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

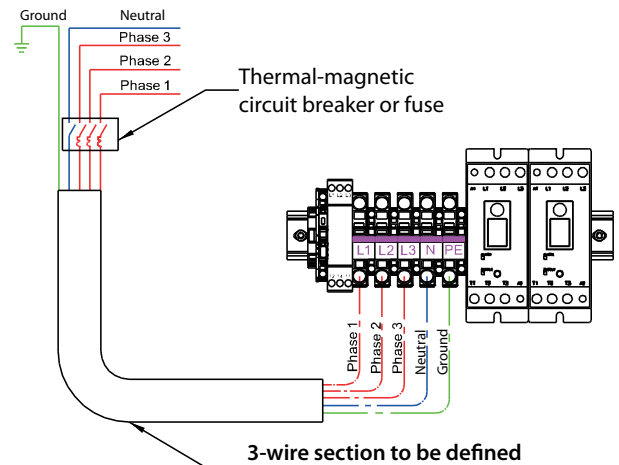
If the power supply cable is damaged, it must be replaced by a qualified professional to avoid any risk of danger.

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.



**3.4.3 - HRC⁷⁰ Heat Pump:
400V three-phase connection**

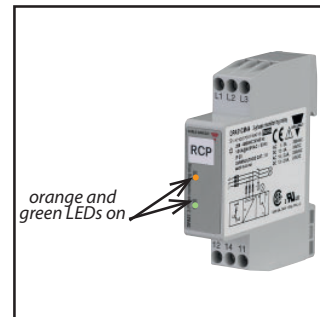


See § Recommendations for connecting the system to the power supply.

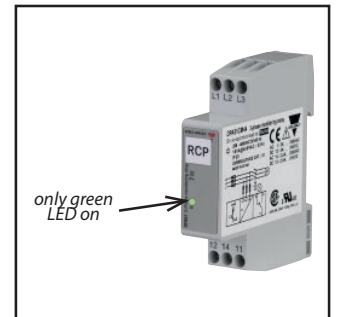
• Three-phase monitor relay for 32kW HRC⁷⁰ Heat Pump.

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 the 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.

| HRC ⁷⁰ Heat Pump model | HRC70 32 three-phase |
|--|-----------------------------|
| Power supply voltage | 400 V three-phase |
| Maximum power consumption | 14.5 kVA |
| Maximum current requirements | 23 A |
| Maximum current at start-up | 54 A |
| Presence of a progressive starter for the compressor | Standard |
| Phi tangent at Heat Pump start-up | 1,66 |
| Heat Pump (Zmax) impedance (ohm) | - |
| Phase impedance (Zmax) (ohm) | 0,269 |
| Neutral impedance (Zmax) (ohm) | 0,176 |
| Heat Pump regulation mode | Fixed speed |
| Number of power stages | 3 |
| Circuit breaker dimensions | 32 A three-phase |
| Power supply by phase (2) | 6 mm ² mini |
| Number of conductors (2) | 4 x 6mm ² + T(*) |

(1) D-curve tetra-polar general circuit breaker.

(2) The figures given here are for informational purposes only. They must be checked and modified if necessary, according to conditions of installation and the current rules and regulations in effect.

If the length of the cable exceeds 15m, or if the network is susceptible to a drop in voltage of more than 10V, use a thicker cable.

(*) The width of the ground cable must be equal to the thickest power supply cable.

3.4.4 - Electrical protection of the compressors

The HRC⁷⁰ Heat Pump is equipped with progressive starters to limit the intensity of the current when the motor starts-up, in compliance with the limits set by the NF C 15 100 standard, which is: 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.

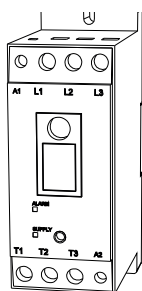
• Progressive starter for the 32kW three-phase HRC⁷⁰ Heat pump.

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 inversed 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 - 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.

4.1 - 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.

4.2 - Maintenance on the hydraulic circuit

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

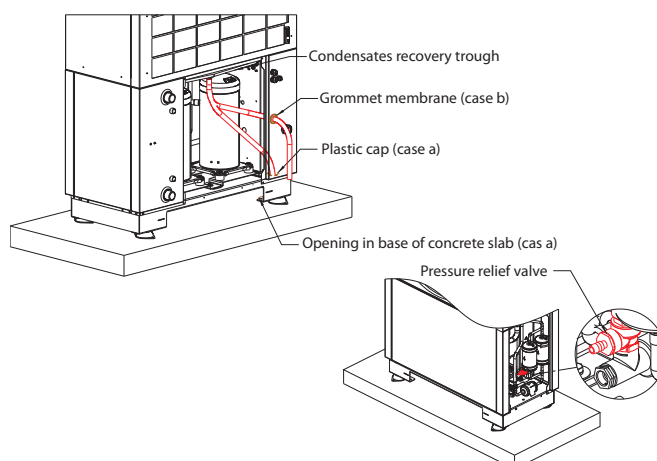
From time to time check that the condensates are draining properly:

- 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.



4.3 - Maintenance on 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.

4.4 - 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.

4.5 - Decommissioning and disposal

In accordance with current laws, no equipment must be disposed of without refrigerant gas, recyclable metallic parts, and the oil contained in the compressors having been recovered beforehand.

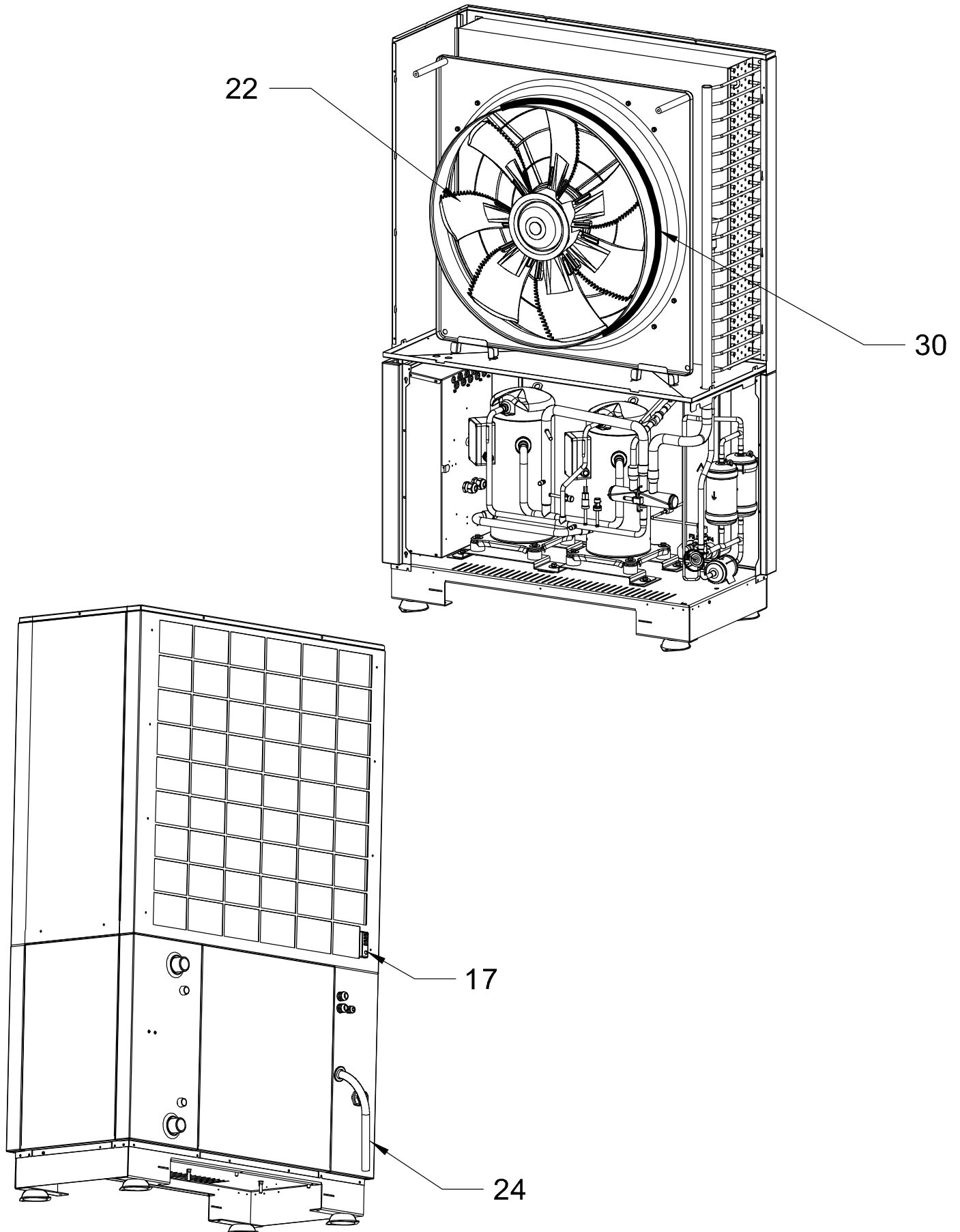
4.6 - Compressor start-up faults

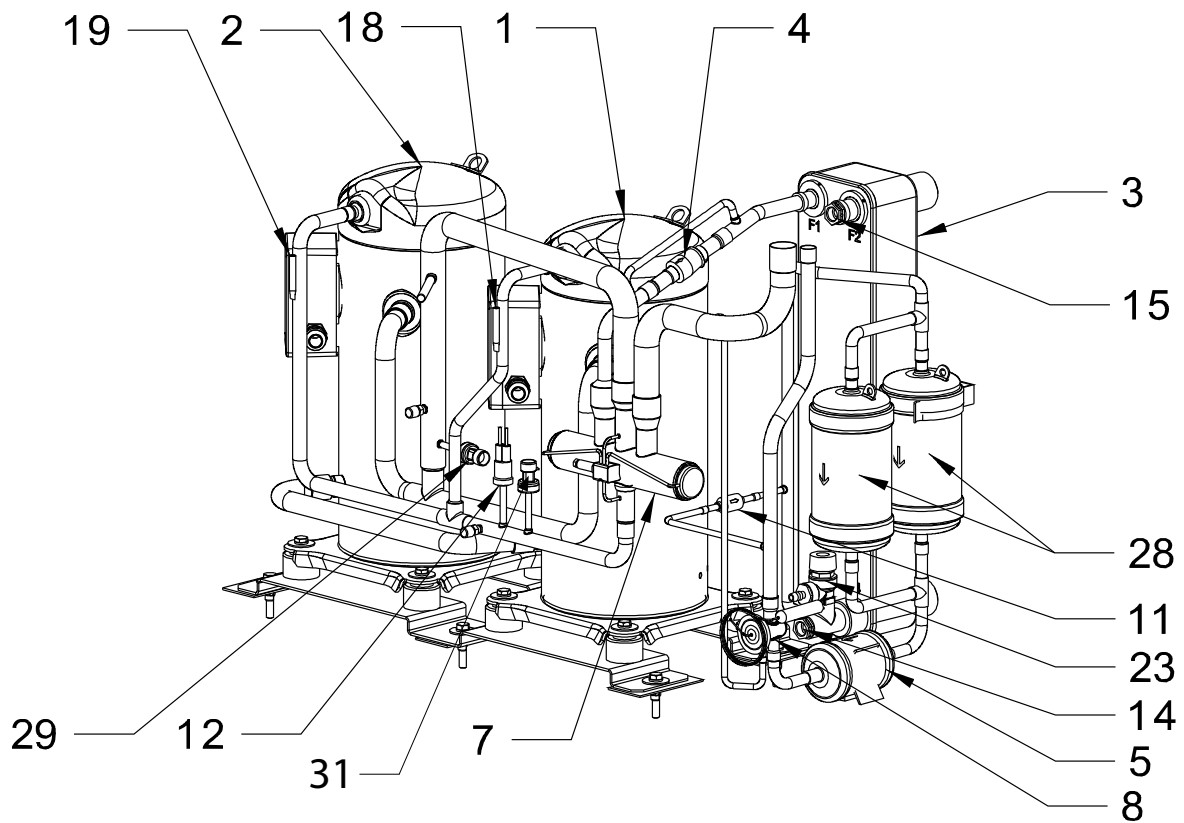
Three-phase starter for the HRC⁷⁰ 32kW three-phase Heat Pump

| Alert signal | Possible causes | Solutions |
|------------------------------|--|---|
| Flashing 2 flashes | • Phases are reversed | • Reverse the two phases on the power supply of the starter |
| Flashing 3 flashes | • Power supply voltage is outside of authorised range of operation | • Check the voltage on the three-phased network. • Check the compliance of the power supply from the general counter to the Heat Pump. • Contact your electricity provider to ensure proper sizing of the electrical network. |
| 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 350 volts. |
| 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-phased network. • Check the compliance of the power supply from the general counter to the Heat Pump. • Contact your electricity provider. |

5 - LIST OF SPARE PARTS

5.1 - HRC⁷⁰ Heat Pump





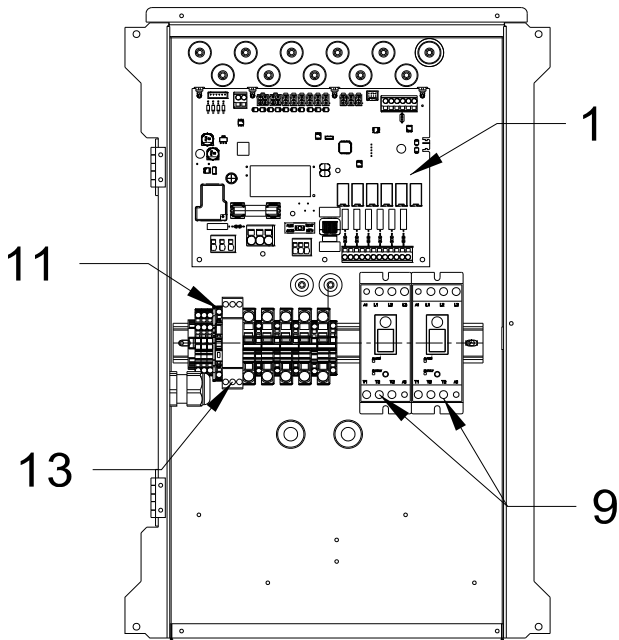
| Rep | Reference | Description |
|-------|-----------|---------------------------------------|
| 1 | B4994714 | Compressor kit CP1 |
| 2 | B4994715 | Compressor kit CP2 |
| 3 | B4994998 | Plated heat exchanger |
| 5 | B1472833 | Dehumidifying filter |
| 7 | B4994738 | 4-way valve kit |
| 8 | B4994739 | Pressure reducer kit HRC |
| 11 | B1239192 | Vapour injection valve |
| 12 | B1239211 | High pressure switch PS 80-450-363 |
| 14 | B1244578 | Temperature sensor lg 2000mm |
| 15 | B1244578 | Temperature sensor lg 2000mm |
| 17 | B1244522 | Exterior air temperature sensor |
| 18 | B1244578 | Temperature sensor lg 2000mm |
| 19 | B1244578 | Temperature sensor lg 2000mm |
| 22-a* | B4994997 | Fan kit |
| 22-b* | B4994718 | Fan kit |
| 23 | B1239128 | Pressure-relief valve set at 2.5 bars |
| 24 | B4948083 | Condensates drainage pipe |
| 28 | B4994999 | Liquid reservoir |
| 29 | B1239225 | Low pressure gauge |
| 30 | B1243964 | Fan heater cable |
| - | B1593717 | Complete pressure gauge cable |
| 31 | B1239268 | High pressure gauge |

* See § «HRC70- 32kW Three-phase-Heat Pump INTERNAL WIRING DIAGRAM»

Nota : Availability of spare parts:

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

5.2 - Electrical boxes



| Rep | Reference | Description |
|-----|-----------|---|
| 1 | B4994719 | Heat pump C9+ Circuit board replacement kit |
| 9 | B1244037 | Three-phase starter |
| 11 | B1243147 | 4A Fuse 5x20 |
| 13 | B1943752 | Three-phase starter controller |

| | | Reference on electrical wiring diagram | |
|---|------|--|--|
| Screw-in electrical connections | RCP | Phase relay controller | |
| | KMC1 | Compressor 1 contactor | |
| | KMC2 | Compressor 2 contactor | |
| | BUS | 2-core sheathed cable | |
| Electrical connections using Faston terminals | K1 | Compressor 1 | |
| | K2 | Compressor 2 | |

6 - 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.

6.1 - Limitations of warranty

6.1.1 - 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.

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

6.1.2.1 - Water from the heating circuit

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.

6.1.2.2 - 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.

6.1.2.3 - Placement

Cases (not limited to) 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.

6.1.2.4 - 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...).

6.1.2.5 - 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.

6.1.2.6 - 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

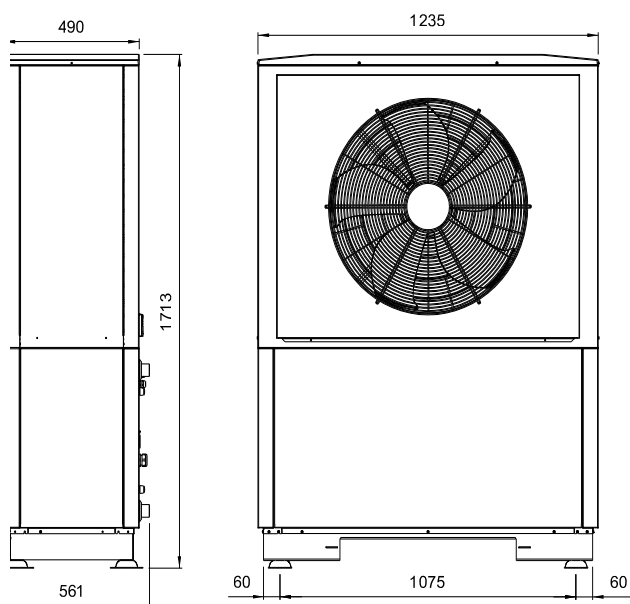
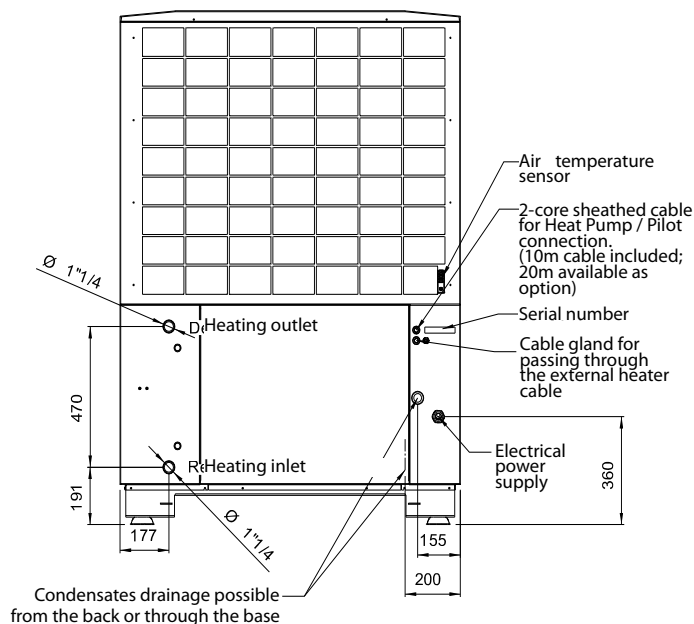
6.1.2.7 - Maintenance

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 characteristics

| HRC⁷⁰ 32 three-phase /3 | |
|---|---|
| Maximum temperature | 70°C |
| R290 refrigerant fluid | 1.400 kg |
| Maximal pressure of the refrigerant circuit | Low pressure : 17 bar High pressure : 31 bar |
| Exterior air temperature range | -20°C / +40°C |
| Electrical power supply | 3~ / 400 V / 50 Hz |
| Maximum current called for | 23 A |
| Maximum start-up current | 54 A |
| Progressive starter | Standard |
| Head protection | 32 A three-phase |
| Minimum width of power supply cables | 5 x 6mm ² * mini |
| Material | steel |
| Dimensions H x L x P (mm) | 1235 x 1713 x 561 |
| Weight when empty | 270 kg |
| Nominal water flow rate | 3750 l/h |
| Hydraulic connection | 33 / 42 male |
| Maximum hydraulic pressure | 2.5 bar |
| Ø of condensates drainage | 20/25 mm |
| Air flow rate | 5.000 to 9.000 m ³ /h |
| Adjustable silent blocks | Standard |
| Sound levels to 1m Power stage 1 / 2 / 3 | 56 / 61 / 67 dB(A) |

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

A2.2 - Performances

| HRC ⁷⁰ 32kW three-phase | Outdoor air temp | Water temperature | | | |
|------------------------------------|------------------|-------------------|-------|-------|----------------------|
| | | 30/35 | 40/45 | 47/55 | 55/65 |
| MAX heating capacity* | 20 °C | 36,00 | 35,50 | 34,50 | 33,50 |
| Heating capacity nominal** | | 16,02 | 15,40 | 14,65 | 13,80 |
| Nominal COP | | 5,13 | 4,38 | 3,62 | 2,89 |
| MAX heating capacity* | 15 °C | 34,00 | 33,50 | 32,50 | 31,00 |
| Heating capacity nominal** | | 15,20 | 14,61 | 13,90 | 13,10 |
| Nominal COP | | 5,02 | 4,29 | 3,48 | 2,71 |
| MAX heating capacity* | 12 °C | 32,50 | 32,00 | 31,00 | 29,50 |
| Heating capacity nominal** | | 14,61 | 14,19 | 13,20 | 11,67 |
| Nominal COP | | 4,93 | 4,16 | 3,33 | 2,53 |
| MAX heating capacity* | 7 °C | 30,00 | 29,00 | 27,75 | 26,00 |
| Heating capacity nominal** | | 13,54 | 12,73 | 11,98 | 11,32 |
| Nominal COP | | 4,57 | 3,67 | 2,98 | 2,45 |
| MAX heating capacity* | 2 °C | 27,00 | 26,00 | 25,00 | 24,00 |
| Heating capacity nominal** | | 14,68 | 14,06 | 13,94 | 13,58 |
| Nominal COP | | 3,50 | 2,82 | 2,43 | 2,03 |
| MAX heating capacity* | -7 °C | 23,00 | 22,00 | 21,25 | 20,50 |
| Heating capacity nominal** | | 19,10 | 19,15 | 17,76 | 17,50 |
| Nominal COP | | 2,79 | 2,42 | 1,99 | 1,73 |
| MAX heating capacity* | -10 °C | 21,50 | 20,75 | 19,50 | 18,25 |
| Heating capacity nominal** | | 18,49 | 18,26 | 17,36 | 16,61 |
| Nominal COP | | 2,41 | 2,22 | 1,86 | 1,64 |
| MAX heating capacity* | -15 °C | 18,50 | 18,00 | 17,00 | 16,00 |
| Heating capacity nominal** | | 16,28 | 16,20 | 15,64 | 14,88 |
| Nominal COP | | 2,19 | 2,01 | 1,75 | 1,65 |
| MAX heating capacity* | -20 °C | 16,50 | 16,00 | 15,00 | 14,50 ⁽¹⁾ |
| Heating capacity nominal** | | 14,85 | 14,56 | 13,95 | 13,63 ⁽¹⁾ |
| Nominal COP | | 1,98 | 1,77 | 1,49 | 1,42 ⁽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 on the device certifies its compliance 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.
- Ecodesign Directive applicable to energy-related products: 2009/125 / EC.
- Limitation of Hazardous Substances (ROHS): 2011/65 / EU.

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).

A5 - 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.

A5.1 - Preparation of 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.

A5.2 - 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.**

A5.3 - 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.

A5.4 - 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.



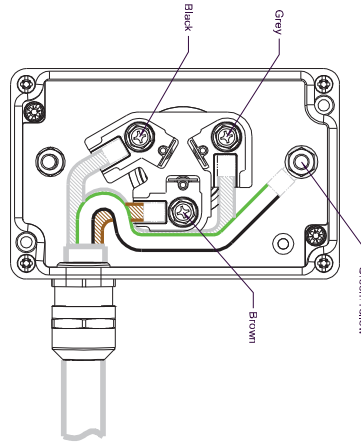
• Regularly check the pH level and % of glycol in the installation.

• 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.

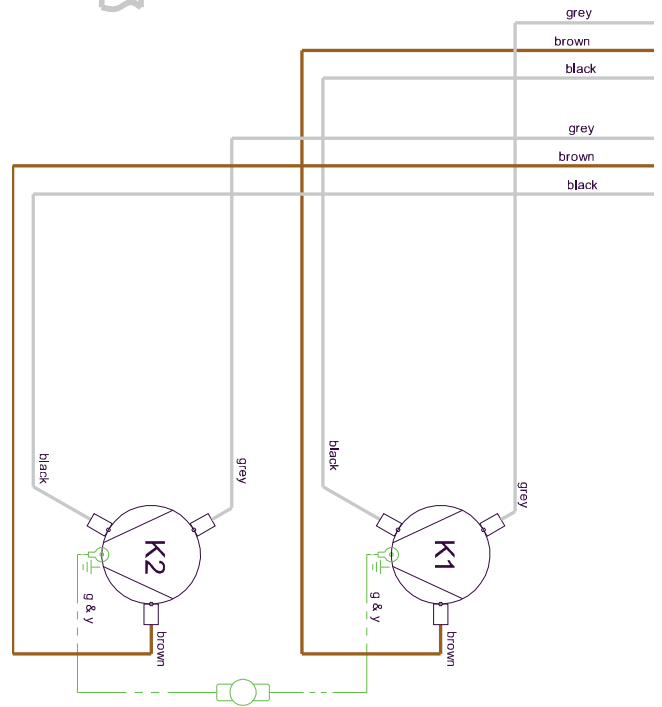
• When the pH is acidic (<7) replace all of the glycol after having already drained and rinsed the installation.

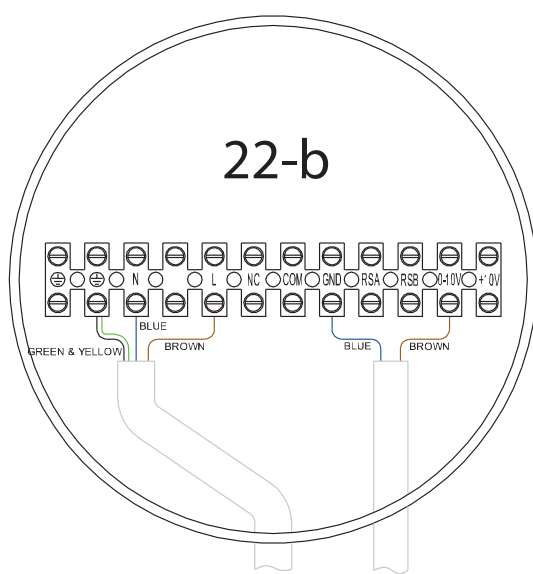
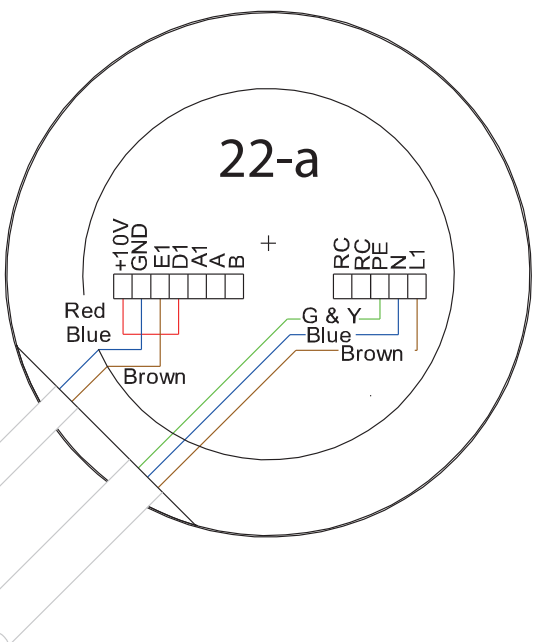
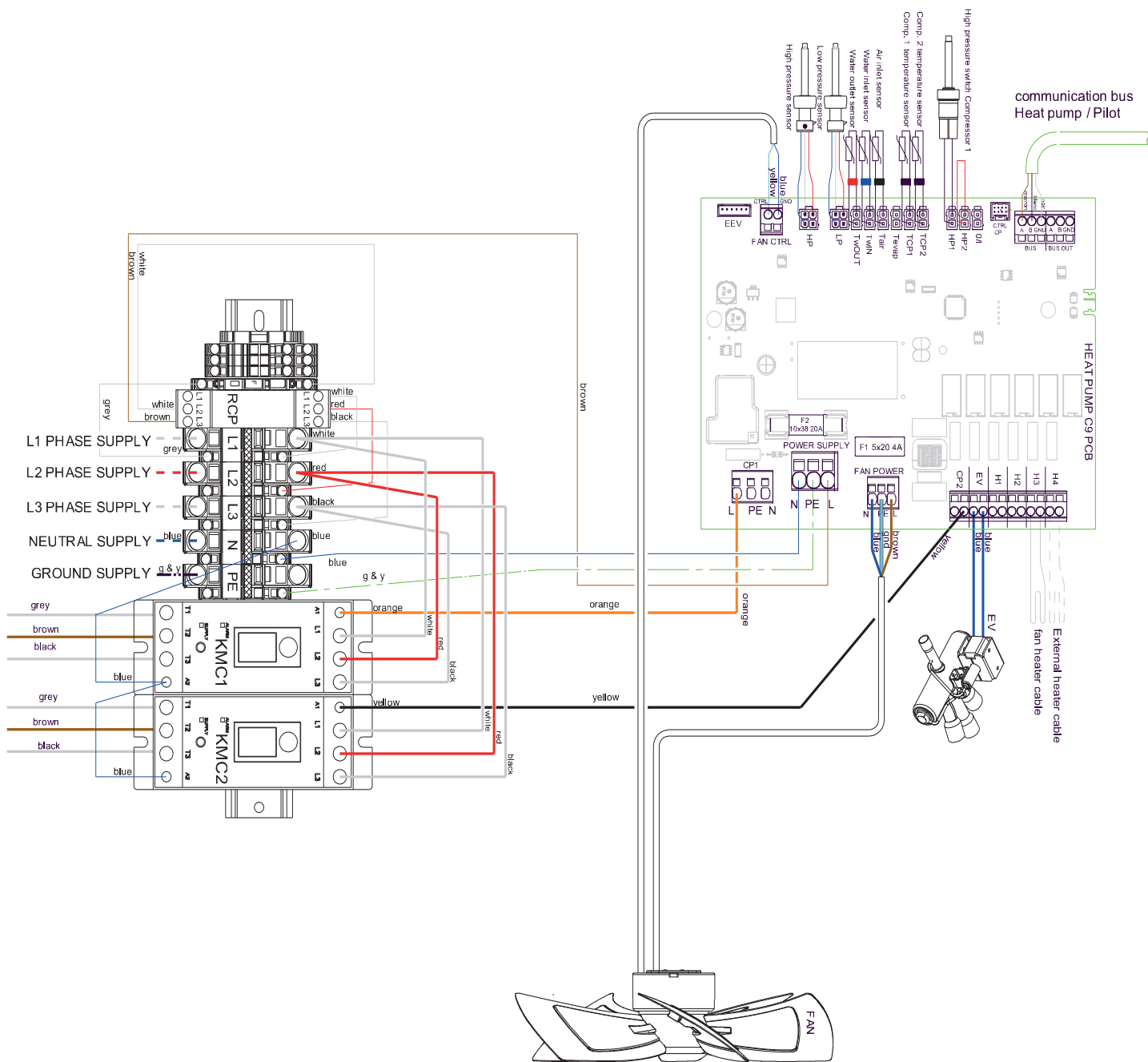
A6 - HRC⁷⁰- 32kW Three-phase-Heat Pump INTERNAL WIRING DIAGRAM

Copeland three phase compressor connection



- TsPAC : Water outlet temperature sensor
- TePAC : Water inlet temperature sensor
- Tdégiv : De-icing temperature sensor
- Tair : Air intake temperature sensor
- Tcomp1 : Compressor 1 temperature sensor
- Tcomp 2 : Compressor 2 temperature sensor
- HP1 : Compressor 1 high pressure switch
- HP2 : Compressor 2 high pressure switch
- BP : Low pressure switch
- CP1 : Compressor 1 start-up control
- CP2 : Compressor 2 start-up control
- VEM : De-icing solenoid valve cycle inversion control
- CH1 : Compressor 1 RK1 heater cable
- CH2 : Compressor 2 RK2 heater cable
- CC : External heater cable
- F : Fuse 5x20 4A
- 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
- RK1 : Compressor 1 crank case heater
- RK2 : Compressor 2 crank case heater
- EV : De-icing solenoid valve
- HG : Heater cable
- 0-V : Fan speed control





A7 - Product information sheet

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 32kW /3 tri Z1 | | | |
| 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 | 24 | 25 | |
| Puissance de chauffage nominale / <i>Nominal heat output (*2)</i> | Prated | kW | 26 | 24 | |
| Puissance de chauffage nominale / <i>Nominal heat output (*3)</i> | Prated | kW | 16 | 16 | |
| 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 | 18,2 | 17,3 | |
| Tj = +2°C | Pdh | kW | 13,9 | 13,7 | |
| Tj = +7°C | Pdh | kW | 13,3 | 13,2 | |
| Tj = +12°C | Pdh | kW | 15,1 | 15,3 | |
| Tj = température bivalente / <i>Tj = Bivalence temperature</i> | Pdh | kW | 18,5 | 19,7 | |
| Tj = température limite fonctionnement / <i>Tj = Operating limit temperature</i> | Pdh | kW | 15,0 | 12,4 | |
| Tj = -15°C | Pdh | kW | 15,5 | 14,1 | |
| Température bivalente / <i>Bivalence temperature</i> | Tbiv | °C | -5 | | |
| 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 | % | 151 | 121 | |
| Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*2)</i> | ηs | % | 122 | 95 | |
| Efficacité énergétique saisonnière / <i>Seasonal energy efficiency (*3)</i> | ηs | % | 187 | 166 | |
| 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 | - | 2,84 | 2,04 | |
| Tj = +2°C | COPd | - | 3,68 | 2,95 | |
| Tj = +7°C | COPd | - | 5,19 | 4,41 | |
| Tj = +12°C | COPd | - | 6,14 | 5,70 | |
| Tj = température bivalente / <i>Tj = Bivalence temperature</i> | COPd | - | 2,86 | 2,16 | |
| Tj = température limite fonctionnement / <i>Tj = Operating limit value temperature</i> | COPd | - | 2,01 | 1,41 | |
| Tj = -15°C | COPd | - | 2,22 | 1,61 | |
| 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 | 0,003 | | |
| Mode arrêt thermostat / <i>Thermostat-off mode</i> | P _{TO} | kW | 0,008 | | |
| Mode veille / <i>Standby mode</i> | P _{SB} | kW | 0,003 | | |
| Mode résistance de carter / <i>Crankcase heater mode</i> | P _{CK} | kW | 0,013 | | |
| Dispositif de chauffage d'appoint / <i>Supplementary heater</i> | | | | | |
| Puissance thermique nominale d'appoint / <i>Nominal heat output of supplementary heater</i> | P _{sup} | kW | 6,0 | 8,0 | |
| Type d'énergie chauffage d'appoint / <i>Type of energy input of supplementary heater</i> | - | - | Électrique / fossile (<i>Electric / fossil</i>) | | |
| Autres caractéristiques / <i>Other items</i> | | | | | |
| Régulation de la puissance thermique / <i>Heating capacity control</i> | - | - | Etagée | | |
| Consommation annuelle d'énergie / <i>Annual energy consumption (*1)</i> | Q _{HE} | kWh | 12643 | 16214 | |
| Consommation annuelle d'énergie / <i>Annual energy consumption (*2)</i> | Q _{HE} | kWh | 20199 | 24113 | |
| Consommation annuelle d'énergie / <i>Annual energy consumption (*3)</i> | Q _{HE} | kWh | 4473 | 4988 | |
| Puissance sonore intérieure - extérieure / <i>Sound power level - indoor - outdoor</i> | L _{WA} | dB | - / 66 | | |
| Débit d'air nominal à l'extérieur / <i>Rated Air flow outdoor</i> | - | m ³ /h | 5000 | | |
| 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*

A8 - Electricity provider information form

This form is to be 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 checked="" type="checkbox"/> * | |
| Circuit breaker | Setting : 32 A | | |
| Heat Pump (HP) | | | |
| Type de pump | Single-phase <input type="checkbox"/> | Three-phase <input checked="" type="checkbox"/> * | |
| Make, model, and reference number | _____ | | |
| Type of compressor (<u>without back-up heating</u>) | Single-phase <input type="checkbox"/> | Three-phase <input checked="" type="checkbox"/> * | |
| Nominal heating capacity of the Heat Pump without elements for back-up heating (kVA) | | 14.5 (kVA) * | |
| Or | | Or | |
| Heat Pump nominal current without elements for back-up heating (A) | | 23 (A) * | |
| Heat Pump start-up current (A) | | 54 (A) * | |
| Heat Pump impedance (Z_{max}) declared by the manufacturer | _____ (Ω) | | |
| Heat Pump power regulating mode | Fixed speed <input checked="" type="checkbox"/> | Variable speed <input type="checkbox"/> | |
| Is there a start-up support system in place for fixed- speed systems? | Yes <input checked="" 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 :



Industrial and Development site

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**Technical assistance is reserved for professionals*