REV_05/06/2022

ACCORRONI
Climate Technology

High efficiency patented integrated hybrid system
in direct exchange heat pump
coolant / water with back-up boiler
to produce domestic hot water, heating
o air conditioning for small and medium users

HUB RADIATOR PACK CF

FIRST START-UP MANDATORY FOR WARRANTY ACTIVATION

INSTALLATION MANUAL

HUB RADIATOR PACK CF

Factory made hybrid system
HUB RADIATOR PACK CF

Informazioni tecniche

Technical information

SECTION A - GENERAL INFORMATION
Contains all the information relating to the description of air-water heat pumps and their technical characteristics.

SECTION B - TECHNICAL NEWS FOR THE INSTALLER
It collects all the information and requirements that the installer must observe for the optimal implementation of the system.

SECTION C - USER INSTRUCTIONS FOR USE AND MAINTENANCE
This is the section reserved for the user and contains all the information necessary for proper operation and for periodic checks.

Important notes for consultation

1 For the purposes of a correct and safe use of the appliance, the installer, the user and the maintenance technician, for their respective skills, are required to observe the indications in this manual.

2 The word **ATTENTION** is followed by information which, due to their importance, must be scrupulously observed and whose failure to comply can cause damage to the appliance and / or jeopardize its safety of use.

3 Paragraphs highlighted in **bold** contain important information, warnings or advice that you should carefully consider.

4 The technical data, aesthetic characteristics, components and accessories shown in this manual are not binding.
The A2B Accorroni E.G. S.r.l. reserves the right to make any changes deemed necessary for the improvement of your product.

- References to laws, regulations or technical rules mentioned in this manual are intended for information purposes only and are to be considered valid on the date of printing of the same, shown on the last page. The entry into force of new provisions or changes to those in force will not constitute a reason for any obligation of the A2B Accorroni E.G. S.r.l. towards third parties.
- The A2B Accorroni E.G. S.r.l. is responsible for the compliance of its product with the laws, directives and construction standards in force at time of marketing. Knowledge and compliance with the laws and regulations relating to design of the systems, installation, operation and maintenance are the sole responsibility, for the respective competences, of the designer, of the installer and user.

INDEX

1.MAIN FEATURES

1.1 CLASSIFICATION OF EQUIPMENT

The fundamental elements that make up the HUB RADIATOR PACK CF system are:

1) **Electronically controlled external** moto-evaporator defined as: “Split air-water heat pump”, fed by R410A refrigerant fluid with ON - OFF compressor model Booster HR 7.8 (HUB RADIATOR PACK CF 7.8) or HR 3.0 (HUB RADIATOR PACK CF 3.0).

2) **Indoor unit** consisting of a modulating condensing boiler from 2.9 to 24.9 kW which works as a support to the heat pump and a 48-liter closed vessel accumulator of technical water inside which all the copper exchangers are positioned both for the production of DHW and for the heat exchange with the external motor-evaporator.

1.2 CERTIFICATIONS - CE MARKING

The patented HUB RADIATOR PACK CF system complies with directives 97/23 / EC and 98/37 / EEC.
They also comply with the provisions of the following directives: 73/23 / EEC, 89/336 / EEC, as amended by directive 93/68 / EEC.
The indoor unit of the HUB RADIATOR PACK CF hybrid system has been designed to be installed only and exclusively inside buildings or on a special external niche that is thermally insulated and protected from atmospheric agents.If this indication is not respected, any type of warranty is void.

1.3 CONSTRUCTION FEATURES

All the machines are equipped with a microprocessor for controlling and adjusting the operation and safety of the units.
Thanks to the patented direct exchange condensers, the products of the HUB RADIATOR PACK CF series are able to reach high standards of energy efficiency and SCOP.Altre caratteristiche costruttive:

- the cabinet covering the **outdoor unit i**s made for everyone the models in sheet metal pre-painted with epoxy powder. The compressor compartment is completely isolated from the compartment refrigerant air exchanger; this allows you to protect the better the electromechanical components;

- **the compressor** is of the high efficiency rotary type, working with R 410A refrigerant, mounted on supports anti-vibration rubber bands, driven by a single-phase electric motor for all models;

- **the air / refrigerant gas exchanger**
  it is made with copper pipes and blocked aluminum fins by mechanical expansion of the pipes, with high heat exchange surface;

- **the fan unit** it consists of a helical fan driven directly by single-phase asynchronous motor with internal thermal protection. The fan is equipped with safety protection grid;

- **the quick heat exchanger DHW** is made of copper directly immersed in the technical water of the indoor unit with the FIRST IN - FIRST OUT method, so as to eliminate the problem of legionella within the accumulation.

- **the refrigeration circuit** and the links between individuals components are made of copper tube specific for refrigeration. The body of lamination, the reverse cycle valve the separator of liquid;

- **the electrical command** and control panel is directly positioned inside the cover cabinet.

- **the microprocessor control** system with keyboard is located on the control plate accessible directly on the front of the cover cabinet, and can be remotely via the appropriate command and control panel remote, available as an accessory, to be installed a wall or recessed.

- **the indoor unit** is supplied complete with all the appropriate internal copper exchangers, R410A refrigerant gas connections, DHW connections, air vent jolly valve, safety valve, filling tap, pressure gauge, electronic circulator, 9-liter expansion tank, temperature probes, I unload.

1.4 CONTENT OF THE PACKAGING

The device is shipped on wooden pallets, with extruded expanded polystyrene protections and wrapped in a layer of plastic fabric with air bubbles.
The identification data of the device are shown both on the label on the packaging and on the technical data plate applied inside the cover cabinet. Do not remove the technical data plate for any reason, as the references it contains are necessary for any maintenance interventions.

Inside the packaging there is also an envelope containing this manual and the warranty certificate, which must be delivered to the owner of the device so that he can keep them carefully for any future use or for consultation.

1.5 STANDARD EQUIPMENT AND ACCESSORIES SUPPLIED ON REQUEST

The wide range of standard equipment and accessories available on request allow optimal exploitation of all the functions of the machines and system to which they are served.

1.6 FIELD OF USE

The appliances designed and manufactured for heating water in hydronic air conditioning systems and to produce DHW must be used only for this purpose, in relation to their technical specifications and performance.
The quality and dimensions of the materials used guarantee a good life span and are suitable for the operation of the devices both as a whole and in their individual components, subject to an installation carried out in a workmanlike manner and under conditions of mechanical stress. chemical and thermal corresponding to a suitable use.

ATTENTION! All uses not expressly indicated in this manual are considered improper and are not permitted; in particular, the use of the equipment in industrial processes and / or installation in environments with a corrosive or explosive atmosphere is not envisaged.
The manufacturer declines any liability for damage to persons, animals or property resulting from non-compliance with the instructions in this manual, from modifications or tampering with the product, from installation, adjustment, maintenance errors and from improper use.

Failure to comply with what is indicated in this manual also results in forfeiture of the warranty conditions.

1.7 SAFETY RULES

ATTENTION! Installation and maintenance must be carried out exclusively by specialized and specially authorized personnel.

The connection to the power supply must be performed in accordance with current national plant standards.

During installation and maintenance operations, it is always necessary to operate in conditions of maximum safety, follow the instructions given in this manual and any warning labels applied to the product.

Respect the installation and operating limits indicated in this manual, never modify the internal electrical wiring and refrigeration pipes, do not modify or disable the safety and regulation devices.

Before any inspection, maintenance, or anything else involving access to the internal parts of the appliance, disconnect the general power supply.

In case of need or clarification for installation and maintenance, contact a Technical Assistance Center authorized by **A2B ACCORRONI E.G.**

Table 1 - HUB RADIATOR PACK CF cable specifications

Models	Connection cable QE power supply indoor unit	Connection cable QE power supply indoor unit	Cable C-1-2	Cable Pb3	Switch thermal magneto
	Section	Section	Section	Section	Section
3.0	2.5 mm² x 3	2.5 mm² x 3	1,50 mm² x 3	0,75 mm² x 4	16 A curv. D
7.8	4.0 mm² x 3	4.0 mm² x 3	4.0 mm² x 3	0,75 mm² x 4	20 A curv. D

2. CONNECTIONS U.E. / U.I.

2.1 GENERAL PROVISIONS

1) The HUB RADIATOR MINI system is designed to work exclusively with the indoor unit positioned inside of the building to be heated and the booster outside.

2) During the installation phase it must be carefully checked that the distance and the difference in height between the 2 units comply with data reported in this manual (Table 4).

3) Before installation, check that the wall is where you are chosen to position the internal accumulation to be able to withstand the weight of the accumulation itself and of the water contained in it.

4) In case of replacement of an existing generator carry out the cleaning the system and adding a special anti-algae additive.

5) When you choose to install the system HUB RADIATOR MINI, there is to be taken into consideration the electrical absorption of the outdoor unit. Then arrange all the necessary works to adapt the electrical system (meter, cable section, switches circuit breakers, etc.) to ensure correct operation and a constant voltage between 220V and 240V in correspondence with the power cables of the outdoor unit. With voltage below 220V it is mandatory to install one voltage stabilizer able to guarantee, the voltages allowed above, otherwise all types will be void warranty.

2.2 ELECTRICAL CONNECTIONS U.E.

Connect the cable to the electrical panel:

1) The connection cable of the indoor and outdoor unit must be of type H07RN-F.
2) Lift the electrical box panel and remove the screws, then remove the cover.
3) Connect the cables according to the markings. Connect the cable to the outdoor unit:
4) Remove the cover of the outdoor unit.
5) Connect the terminal cables according to the numbers on the unit terminal block, respecting the sections shown in table 1
6) Secure the cables so that they do not come into contact with parts electric or metal.

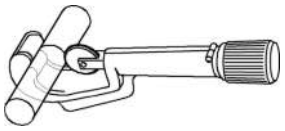
2.3 INSTALLING THE PIPES FOR THE REFRIGERANT R410A

The main cause of refrigerant gas leaks is due to a defect in the flare. Carry out the folders correctly, respecting the following indications:

A) Cut the pipes and the cable (Fig. 1)

- Use pipes with suitable measures for the installed unit (Table 2).
- Measure the distance between the indoor and outdoor unit.
- Cut the pipes to a length slightly greater than distance measured.
- Cut the 1.5 m electric cable. longer than the length of the tube

Taglio tubazioni Fig. 1



B) Removal of the burr (Fig. 2)

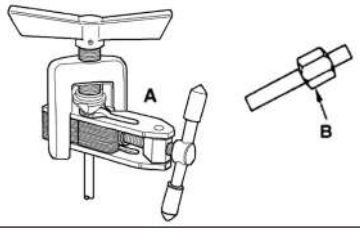
- Completely remove all burrs from the section cross section of the tube.
- The processing must be performed with the end of the tube down so that burrs do not fall into the tube.

Burr removal Fig. 2

C) Flaring (Fig. 3)

Remove the nuts fixed on the indoor and outdoor unit, insert them on the pipe and perform the flaring and removal of the burrs, as previously indicated.

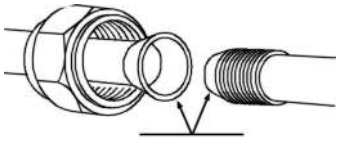
Folding Fig. 3



D) Fixing the refrigeration pipes (Fig. 4)

Align the pipes by lubricating the external surface of the pipes in correspondence with the flare. Sufficiently tighten the nut using two wrenches.

Fixing Fig. 4



Precautions

Excessive torque can break the nut or crack the folder. to avoid such dynamics, use a suitable torque wrench respecting the tightening torque shown in table 3.

Table 2 - Diameter of R410A refrigerant connections

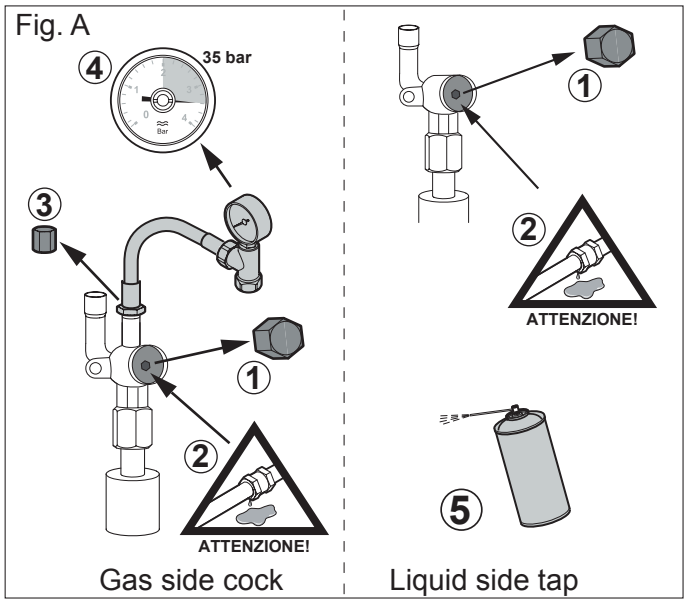
Model	Ø LIQUID	Ø GAS
3.0	1/4”	3/8”
7.8	1/4”	5/8”

Table 3 - Tightening torque

Diameter	Tightening torque (N/m)
Ø 3/8	42
Ø 5/8	65
Ø 1/4	18

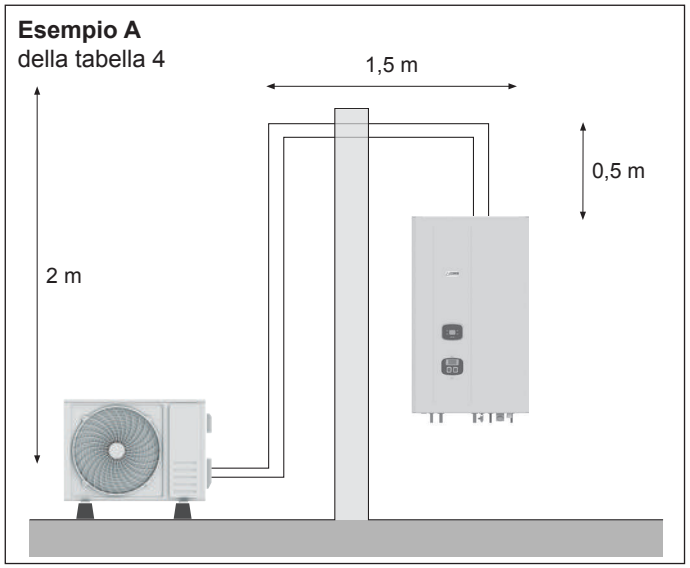
E) Checking the tightness of the refrigeration lines (Fig. 5)

1) Open the caps of the sectioning valves (Fig. A n. 1).
2) Check that the section valves are closed (Fig. A n. 2).
3) Remove the plug from the service connection on the valve sectioning (Fig. A n. 3).
4) Connect the pressure gauge and the nitrogen bottle to the valve stop then gradually increase the pressure in the pipes of the refrigerant connection and in the internal module at 35 bar, in 5 bar increments (Fig. A n. 4).
5) Check the tightness of the fittings with a detector spray escapes. If there are leaks, repeat the operations in the order indicated and check the seal again (Fig. A n. 5).
6) Leave the circuit under nitrogen pressure for at least 24 hours e check that at the end of this time the pressure initial does not go down.
7) Release the pressure and nitrogen.



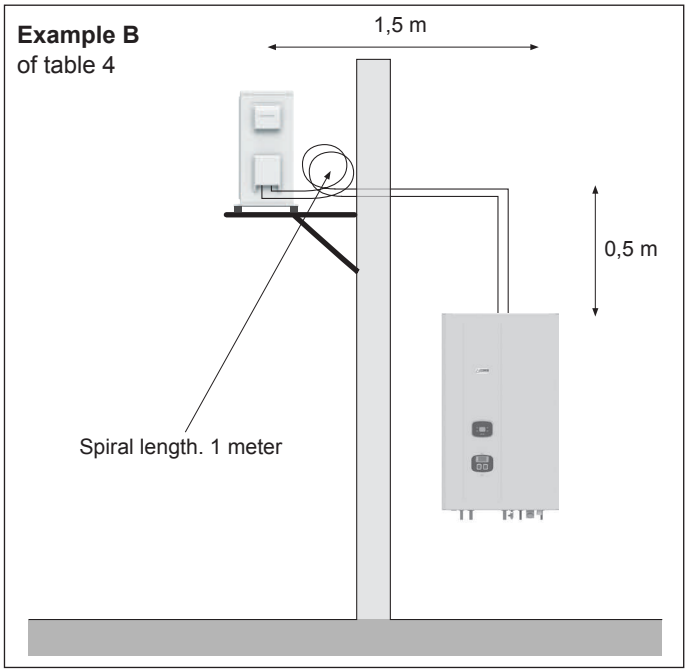
2.4 INSTALLAZIONE ENTRO I 5 METRI

Esempio di installazione senza ricarica aggiuntiva di gas refrigerante R410a, distanza 4 metri.



(Example B) INSTALLATION WITH MINIMUM PERMISSIBLE LENGTH

If the distance between the Indoor Unit and Outdoor Unit is less than 3 meters (as in this case where the length of the pipes does not exceed 2 meters), the pipes must be cut at 3 meters and roll up the final part in correspondence with the outdoor unit.



(Example C - D - E)
(C) MAXIMUM PIPE LENGTH (refrigerant gas**)**
(D) MAXIMUM DIFFERENCE IN HEIGHT (between U.E and U.I.)
(E) ADDITIONAL REFRIGERANT AMOUNT (over 5 m)

In this configuration, the effective length of the pipes is 6 m horizontally and 4 m vertically, in total 10 m.
We will then add 100 grams of R410a refrigerant gas or 5 m x 20 g / m = 100 grams.

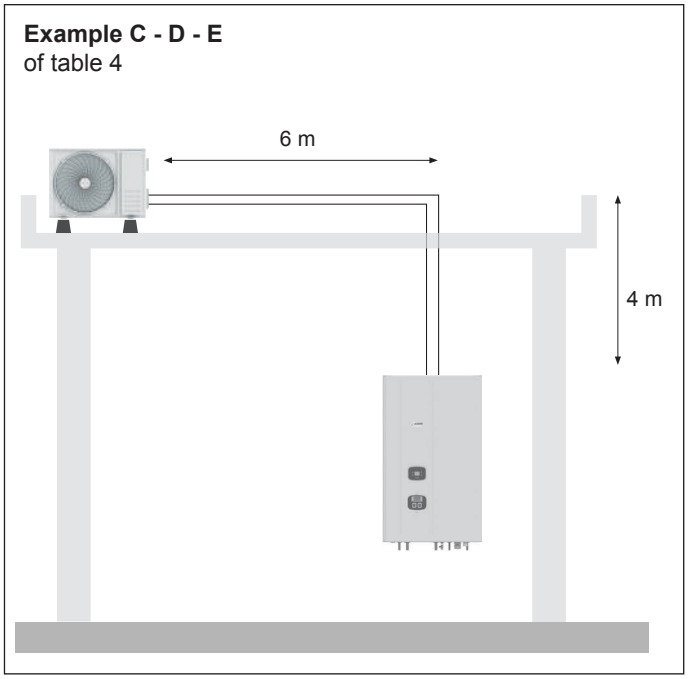
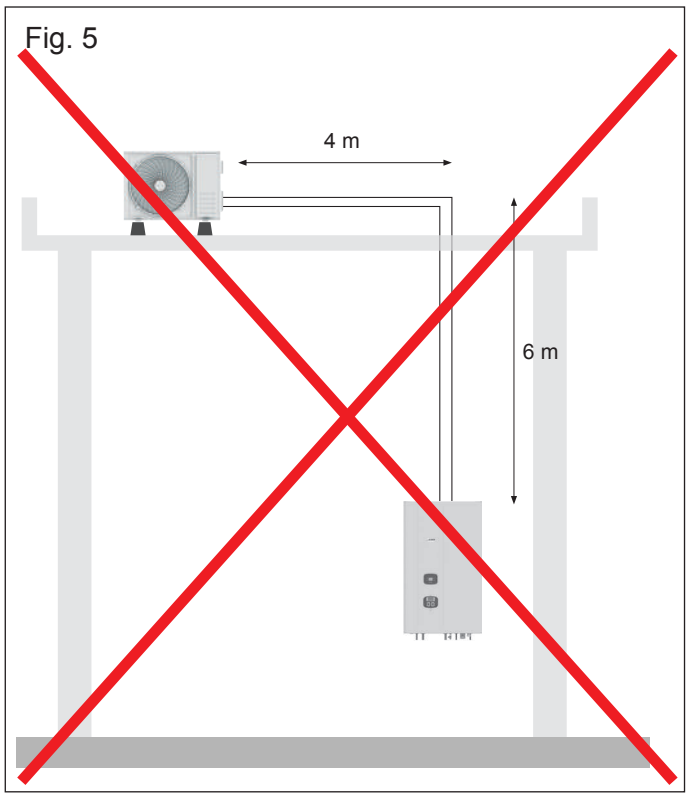


Table 4 - Admissible distances U.I. - E.U.

Models		HR 3.0	HR 7.8
A	Maximum length allowed without adding refrigerant	5*m	5*m
B	Minimum allowed length of refrigerant gas	3*m	3*m
C	Maximum length of refrigerant gas piping	15*m	15*m
D	Maximum admissible height difference between U.E and U.I.	5*m	5*m
E	Additional refrigerant quantity over 5 meters	20*g/m	20*g/m

*Failure to comply with this application **will result in the non-ignition by the authorized assistance***

ATTENTION!
In fig. 5 shows an example of an inadmissible application, with a distance of 10 meters but with a difference in height of> 5 meters.



3. OUTDOOR UNIT INSTALLATION

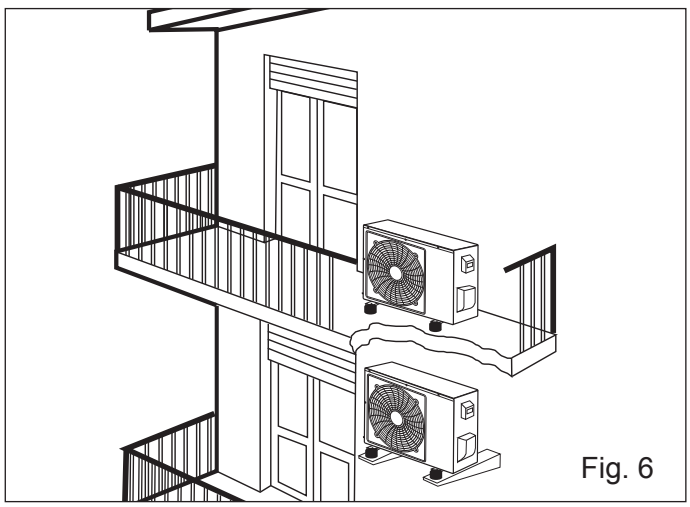
3.1 GENERAL INDICATIONS

When choosing the installation position, carefully observe the following indications:

- Make sure that the difference in height between the INDOOR UNIT and the UNIT OUTSIDE is not greater than 5.0 m.
- The appliance must be installed so that the influences of adjacent structures and / or the effects of climatic conditions details (snow, wind etc ...), do not compromise the operation of the product and / or the safety of people and property.
- Make sure that the space in the back of the unit is greater than 30 cm. The front must have more than 60 cm. of space.
- Make sure there are no obstacles to free movement of the air through the heat exchangers:

A) do not place plants or animals directly next to the flow of the air;

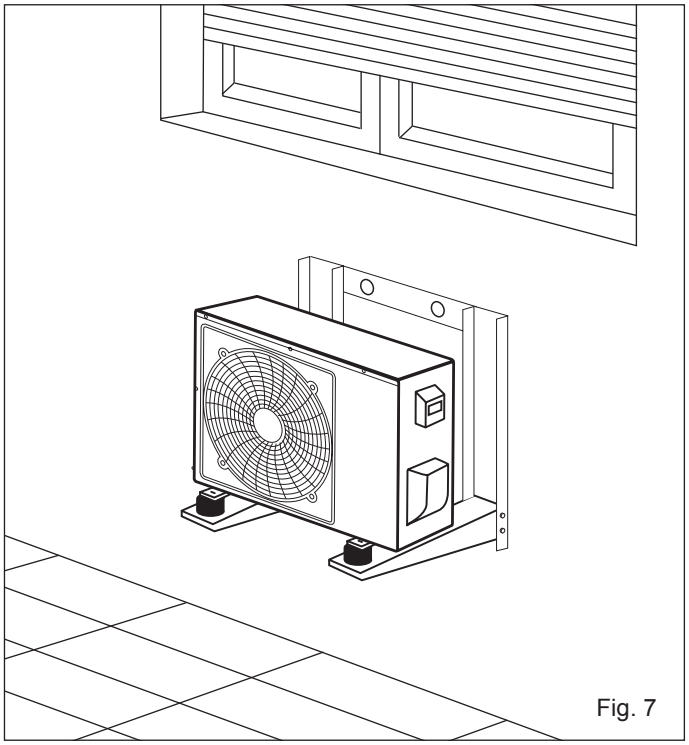
B) avoid installation in corners where it usually settles of dust, leaves and anything else that can reduce efficiency of the exchangers obstructing the passage of air (Fig 6).



- Avoid installation in bottlenecks and small shafts as acoustic reverberations could be favored..

Inquire about any limits in noise emissions provided for the area of the municipal territory in which it is installed the appliance. In case of doubts it is advisable to consult previously an acoustic technician, qualified for one impact assessment, in order to prevent disputes from third party.

- Prevent the air expelled from the fans from penetrating through adjacent doors and / or windows, causing situations disturbing people.
- Install the outdoor unit on a rigid base equipped with appropriate anti-vibration bearings to avoid the increase of vibrations e noise, so as not to disturb neighbors (Fig. 7).



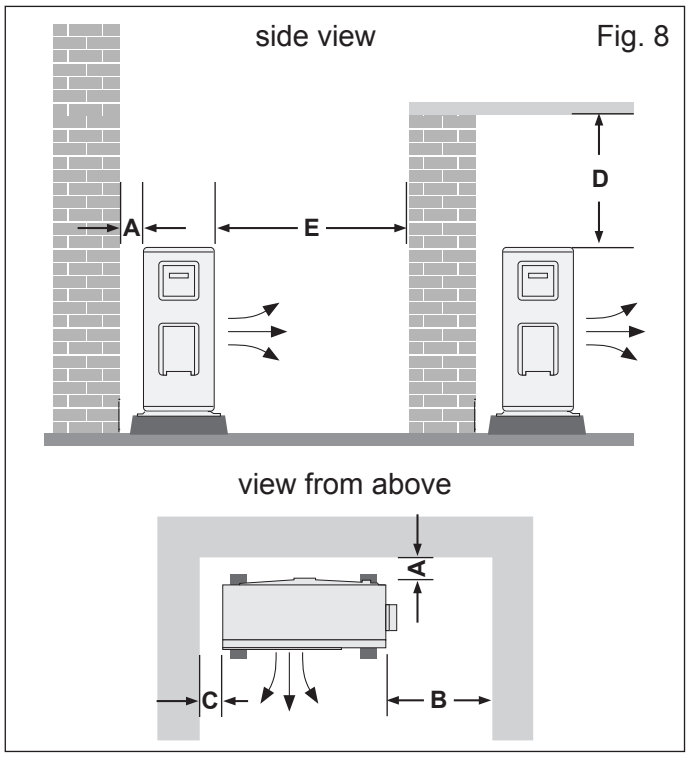
- Position the air outlet so that the flow is not hindered in any way. In case of strong wind, make sure that the fan is working properly by positioning the unit longitudinally, along a wall or using a shield.
- If the appliance is to be suspended from an external wall, the substrate must comply with the technical specifications. The wall where the unit must be installed, it must be brick or material of similar consistency, otherwise it must be Reinforced. The support brackets must be stable, resistant and with an adequate degree of protection against corrosion.

ATTENTION! Make sure of the load-bearing capacity of the part on which the shelves are placed and of the anchoring system to the wall itself, according to the weight of the appliance to be installed.

- Do not install the appliance near heat sources and / or fire risk areas.
- Installation in areas with a highly corrosive atmosphere not is allowed; in particular climatic conditions such as in proximity of the sea, it is mandatory to provide a duration of shorter life of the product and in any case a more frequent one ed careful maintenance.
- In the outdoor unit, from which the water of condensation, provide a suitable drainage and / or channeling of the same, in order to avoid situations of danger due for example to the formation of ice on transit areas.
- The outdoor unit is designed to be installed outdoors and it does not need a special base, however it must be positioned safely on a support surface horizontal with adequate load bearing capacity and equipped with suitable anti-vibration rubber pads.

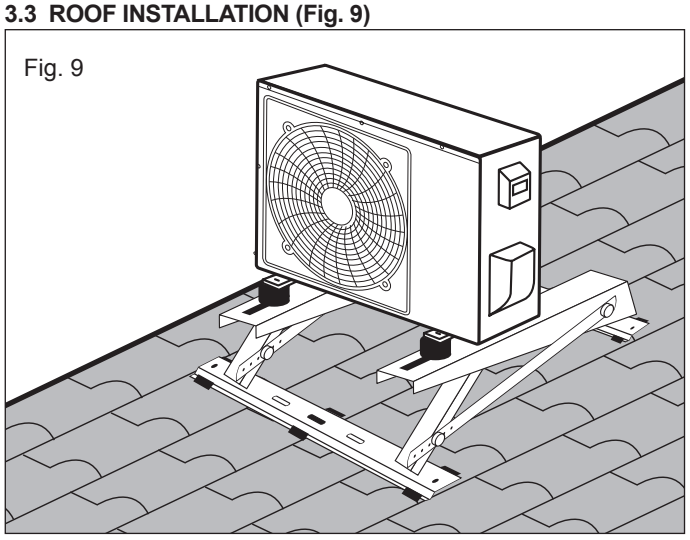
3.2 CLEARANCE DISTANCES OUTDOOR UNIT (Fig. 8)

Respect the minimum spaces, so as to allow correct operation and all installation and maintenance operations.



LEGEND:
(**A = 15 cm) (B = 50 cm) (C = 15 cm)**
(D = 60 cm) (E = 100 cm)

3.3 ROOF INSTALLATION (Fig. 9)



- If the outdoor unit is installed on a roof, be sure to level the unit. Make sure the roof structure is appropriate for mounting of the unit.

- For mounting on a sloping roof it is recommended to use the appropriate shelf shown below (see Chap. 4.9 ACCESSORIES HUB RADIATOR PACK CF)

ANCHORING BRACKET FOR INCLINED ROOF FOR EXTERNAL BOOSTERS MOD. HR 3.0 - 7.8 - 9.0 RUBBER ANTI-VIBRATION SYSTEMS INCLUDED

- If the outdoor unit is installed on the roof or external walls,cthis could cause excessive noise and vibration and be classified as an unsuitable installation for the service..

3.4 ELIMINATION OF AIR WITH THE VACUUM PUMP (Fig 10)

The air and humidity in the refrigeration system can cause undesirable effects as indicated below:

- Increased pressure in the system.
- Increase in absorbed current.
- Decrease in the efficiency of the refrigerant.
- Freezing and obstruction of the capillary pipes.
- Corrosion of parts of the refrigeration system.

In order to avoid the above, the indoor assembly and pipes, placed between the indoor and outdoor assemblies, must be tested for leaks and purged to remove non-condensing elements and moisture from the system. Check that each pipe (both the gas and liquid side pipes) between the internal and external groups has been connected correctly and that all the wiring required for testing has been carried out.

- Remove the valve cap on the outdoor assembly.
- Make sure that at this point both the gas valves and the liquid remain closed.
- Check the length of the hose and the relative amount of refrigerant, for correct charging, check the superheat value.

When changing the location of the unit, bleed with the vacuum pump.

Make sure that the refrigerant inside the air conditioner is always in a liquid state.

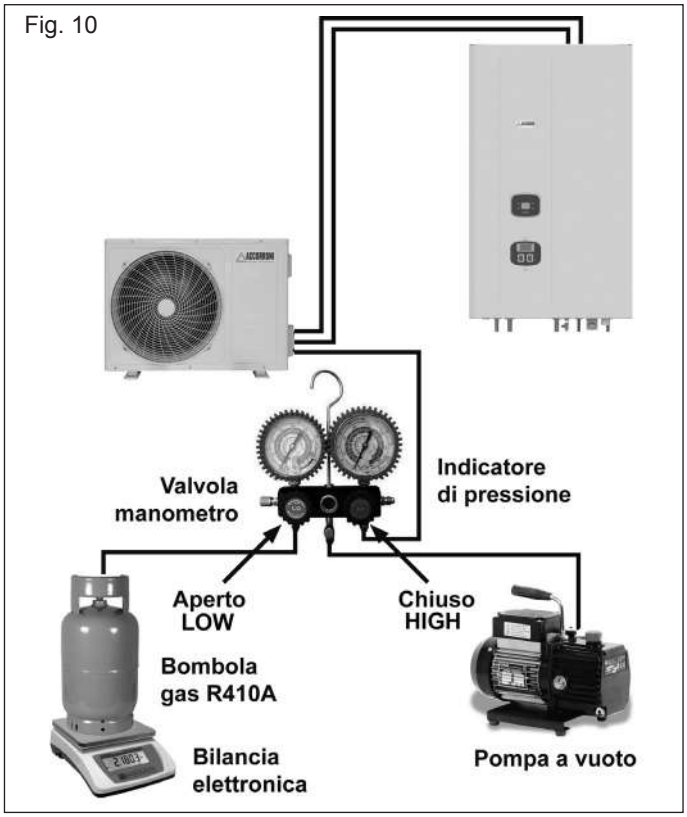
The outdoor unit is supplied with a charge of R410A refrigerant gas suitable for ensuring proper operation up to a maximum distance of 5 meters from the indoor unit.

If you decide to install the 2 units at a distance greater than 5 meters, be sure to add 20 g of refrigerant gas for each additional meter of piping (table 4).

For example, if there are 7 meters of piping between the outdoor and indoor units, add 40 g of R410A gas.

In any case, never exceed 15 meters.

Add only after vacuuming the pipes connecting the 2 units, after which you can proceed with opening the gas taps, mounted on the machine.



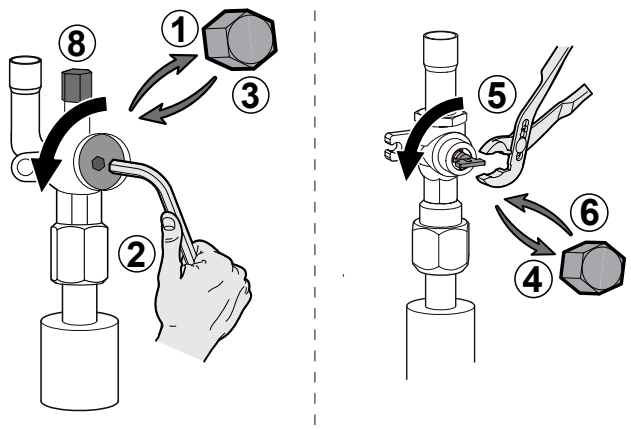
3.5 EVACUATION

Connect the end of the charging hose to the vacuum pump to evacuate the air from the pipes of the indoor unit. Check that the “LOW” knob of the pressure gauge valve is open.
Then run the vacuum pump.
The running time varies depending on the length of the pipes andthe capacity of the pump.
When the desired vacuum is reached, close the “LOW” knob of the pressure gauge valve and stop the vacuum pump.
Finally, using a service valve wrench, turn the gas side valve stem counterclockwise to fully open.
Loosen the charging hose connected to the gas side service port to relieve the pressure, then remove the hose.
Replace the gas valve and service plug cover nut and tighten securely with an adjustable wrench.
This procedure is very important to avoid system leaks.
Replace the service valve caps on both the gas and liquid side and tighten well. This completes the air purge procedure with the vacuum pump, make sure that all pipes are connected correctly and that the service valves on the gas and liquid sides are completely open.

3.6 APERTURA DELLE VALVOLE E RILASCIO DEL REFRIGERANTE RELATIVAMENTE ALL’UNITÀ ESTERNA

1) Rimuovere il tappo della valvola di sezionamento del liquido refrigerante, lato liquido (Fig. B n° 1).
2) Aprire la valvola A con l’ausilio di una chiave esagonale girando in senso antiorario fino al suo arresto (Fig. B n° 2).
3) Riposizionare il tappo.
4) Rimuovere il tappo dalla valvola di sezionamento del gas refrigerante (Fig. B n° 4).
5) Aprire la valvola con una pinza ruotando in senso antiorario di un quarto di giro (Fig. B n° 5).
6) Riposizionare il tappo.
7) Scollegare il vacuometro e la pompa del vuoto.
8) Riposizionare il tappo sulla valvola (Fig. B n° 3).
9) Serrare tutti i tappi con l’ausilio di una chiave dinamometrica con coppia di serraggio da 20 a 25 N/m. Vedi tabella 3.
10) Verificare la tenuta dei raccordi mediante un rilevatore di fughe.

Fig. B



Gas side cock **Liquid side tap**

3.7 PUMP DOWN

This procedure is carried out when the unit needs to be moved or assistance is carried out on the refrigerant circuit.
Emptying allows all the refrigerant to be collected in the outdoor unit without leaks.

3.8 RECOVERY PROCEDURE

- Connect a low pressure gauge with a hose to the gas valve service socket.
- Half open the gas valve and empty the air from the pipeline pressure gauge using refrigerant gas.
- Close the liquid valve completely.
- Turn on the machine in cooling mode.
- When the pressure of the manometer goes between 0 and 0.5 kg / cm 2G (between 14.2 and 7.1 P.S.G.I) close the valve completely gas and quickly turn off the indoor unit.

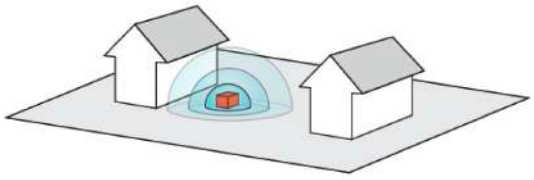
Complete recovery of the refrigerant from the outdoor unit was thus carried out.

ATTENTION! Be sure to perform the emptying procedure with the unit in COLD MODE.

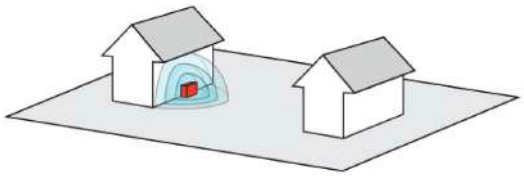
3.9 ACOUSTIC REQUIREMENTS (Fig. 11)

During the installation phase of a HUB RADIATOR MINI heat pump, it is necessary to evaluate very carefully where the outdoor unit is positioned, in order to avoid induced noise that goes beyond the tolerance threshold.

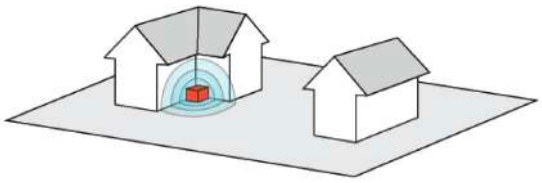
Fig. 11 POSITIONING OF THE OUTDOOR UNIT



on the ground, free installation + 3 dB (A)



against the facade + 6 dB (A)



in a corner of the recessed facade + 9 dB (A)

The external evaporating motor unit during work generates external noise emissions and requires appropriate measures to reduce the incidence of noise produced by the compressor and / or fan.
Very important then is the system execution that is combined with the heat pump in this regard it is recommended to use the following accessories listed below (see Chapter 4.9 ACCESSORIES HUB RADIATOR PACK CF)

ANTI-VIBRATION FLOOR BASE IN VULCANIZED RUBBER (HEIGHT FROM THE GROUND MM 95) WITH LEVEL AND SCREWS FOR BOOSTER HR 3.0 - 7.8 - 9.0

ANTI-VIBRATION KIT FOR INSTALLATION ON SHELVES

4. INDOOR UNIT INSTALLATION

Always install the accumulation inside the building to be heated away from atmospheric agents and inside a temperature-controlled room.
Make sure that the wall on which the indoor unit will be installed is able to support the entire operating weight of the system.
Below are the main components that make up the indoor unit.

Main Components (Fig 10)

1 Support condensing boiler
2 Electronic command and control panel
3 WILO YONOS PICO 25 / 1-8 circulator
4 PdC digital electronic control unit
5 Natural gas inlet
6 Digital electronic boiler control unit
7 Boiler flue gas discharge
8 60-liter technical inertial storage tank
9 Support bracket
10 System return 3/4”
11 1/2 ‘’ cold water inlet
12 DHW flow 1/2”
13 3/4 “system delivery
14 Filling tap
15 Jolly air vent valve
16 Boiler ON - OFF switch
17 SUMMER / WINTER switch
18 Gas connection R410A 3/8”
19 Gas fitting R410A 5/8”

4.1 CHOICE OF THE INSTALLATION SITE OF THE HYBRID SYSTEM

When determining the place to install the indoor unit of the HUB RADIATOR PACK CF hybrid system, take into account the following:
- the indications contained in paragraph 4.5 (System of air intake / flue gas discharge);
- check that the wall structure is suitable for supporting the weight of the indoor unit in operation, avoiding fixing on not very consistent partitions;
- avoid placing the indoor unit above a appliance that, during use, may affect somehow the proper functioning of the same (kitchens which give rise to the formation of greasy vapors, washing machines, shower rooms or bathtubs, etc.).

For correct positioning of the HUB RADIATOR PACK CF it is necessary to follow the instructions given in Fig. 10 A and 10 B to prepare the connection pipes to the heating system, to the domestic water, to the gas network and to the suction pipes. air / flue gas exhaust when making the hydraulic system and before installing the indoor unit HUB RADIATOR PACK CF.

Fig. 10

Fig. 10 A

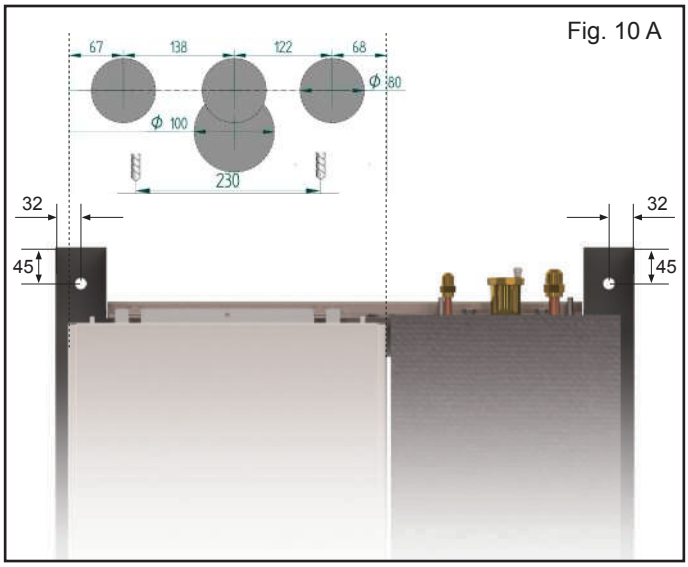
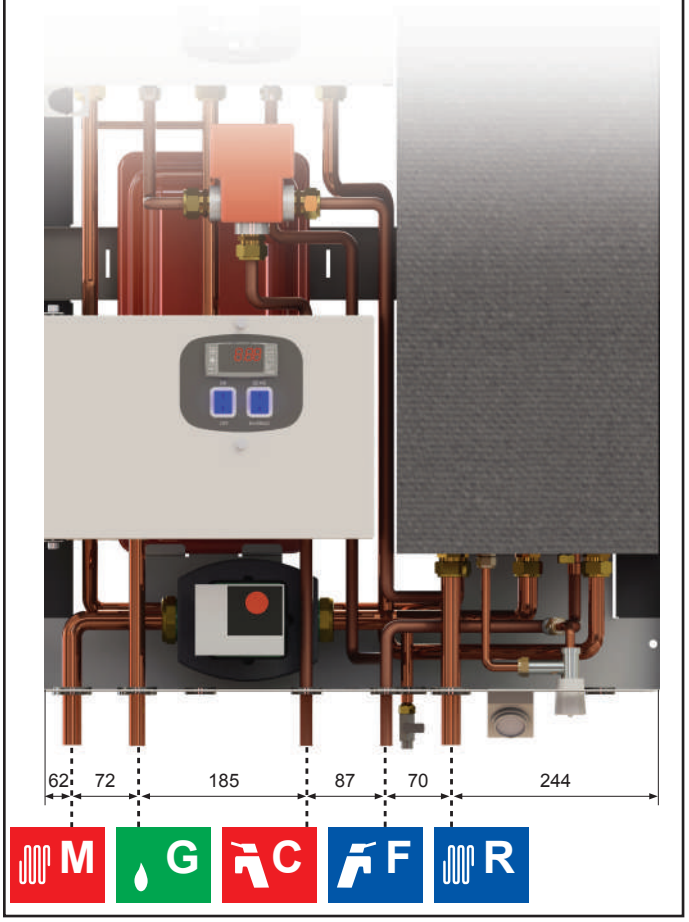
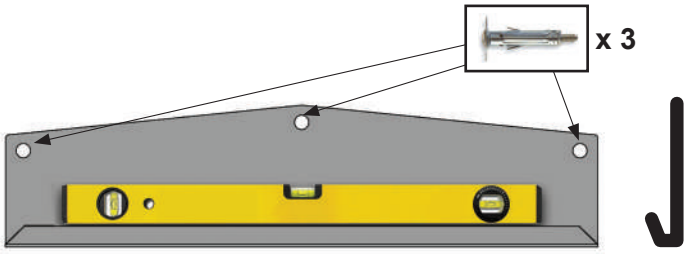


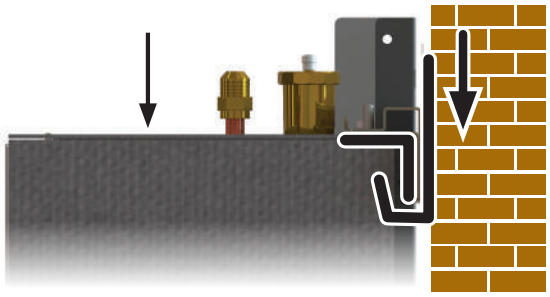
Fig. 10 B



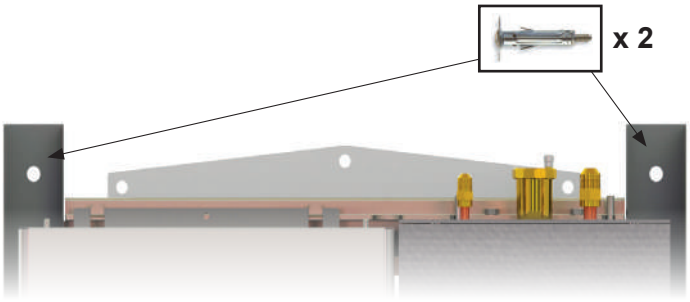
4.3 ASSEMBLY PROCEDUREA)
Place the wall fixing bracket on the wall where you want to install the indoor unit.
Using a level, make sure that the bracket is perfectly horizontal and that the support surface is regular.
Use the bracket as a template and mark the position of the holes to be made.



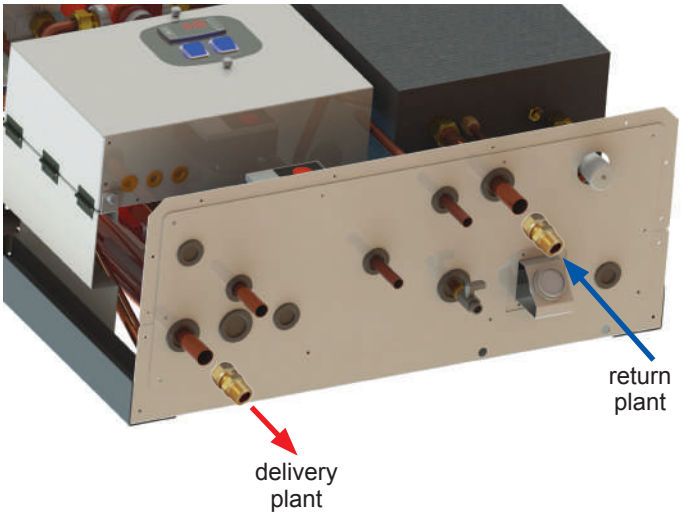
B) Once the position of the fixings has been marked, make appropriate holes for inserting the wall plugs to be chosen based on the weight of the indoor unit in operation and based on the structural type of the wall.
C) Insert the fixing bracket again and tighten with the wall screws, chosen on the basis of the indications given in point B.
D) Hook the indoor unit without cover cabinet to the bracket just fixed to the wall by positioning the "L" bracket already fixed to the structure of the indoor unit *(see figure below).*



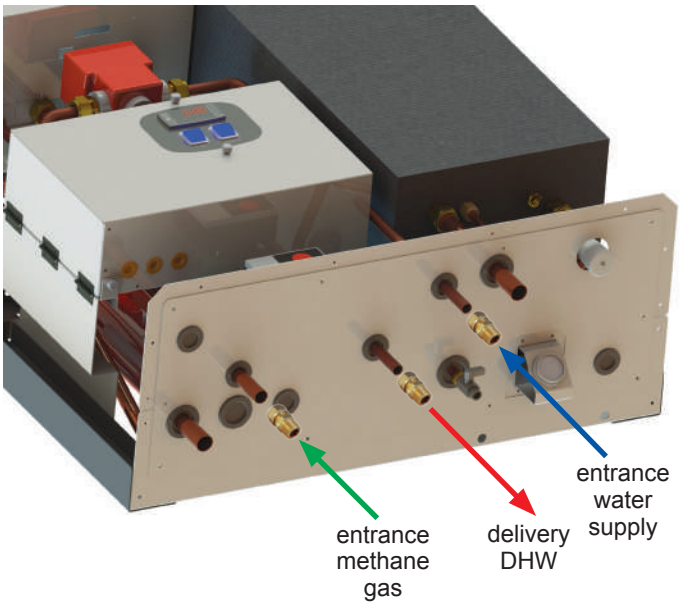
E) Firmly lock the indoor unit to the rear wall with 2 wall plugs to be applied to the 2 holes in the vertical uprights(*see figure below).*



F) Once the indoor unit has been positioned, proceed with the connection to the heating system using the pipes indicated below to which you will have to apply 2 3/4 "tightening fittings contained within the transparent package.



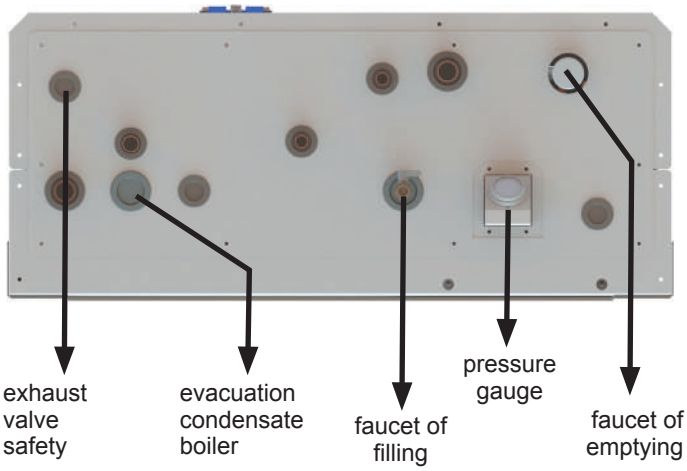
G) Proceed with connecting the flow and return of the heating system using the 3/4" fittings



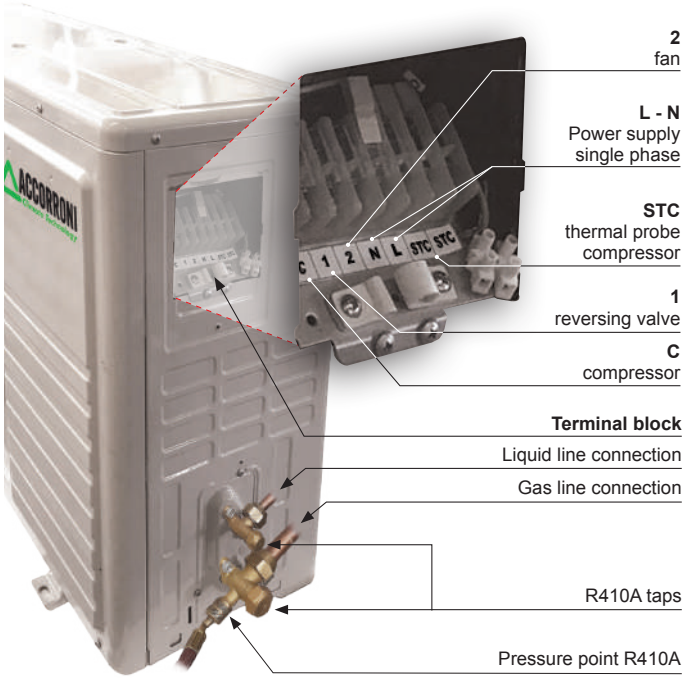
ATTENTION! the circulator mounted on the machine is able to provide the nominal water flow rate with the head indicated in the technical data table. Check that the pressure drops are not higher than the available available head.

However, it is recommended to comply with the following requirements:
- the diameter of the pipe of the withdrawal line from the network must not
  never be less than that of the attachment of the machine;
- adequately fix the pipes, the weight of which must not burden the device;
- properly insulate the pipes to get them
  heat dispersion.

H) Connect a special safety drain at the 1/2 "female threaded connection of the safety valve.



I) Make the electrical connections between the electrical panel and the main power supply and between the electrical panel and the terminal block located on the right side of the outdoor unit following the instructions in table 1.
Arrange a dedicated power line that starts directly from the meter to bring the main power supply to the electrical panel located inside the cover of the indoor unit.
This line must be equipped with a special magneto-thermal protection placed upstream and must be of such a section as to avoid a voltage drop higher than 2.5 V.



External booster **Indoor unit**

ATTENTION! all electrical connections must be carried out by qualified personnel and the electrical system must comply with all applicable regulations

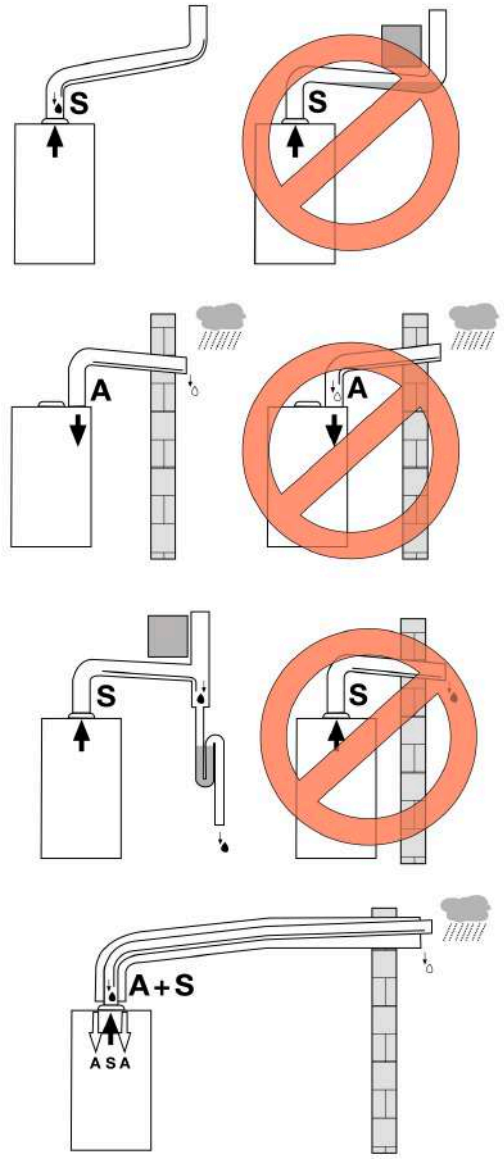
L) Proceed with the refrigerator connections following all the instructions given in section 2.3 of this manual. When shaping the pipes, avoid any type of crushing and make sure that each portion of the pipe is perfectly thermally insulated from start to finish.

ATTENTION! compliant with all current regulations.
All refrigeration connections must be carried out by qualified personnel in possession of the F-GAS certification (DPR January 27, 2012, n.43)

M) Once all the connections have been made, request the indoor unit with the special cover cabinet which must first be placed from top to bottom on the wall fixing bracket and then rotated towards the wall until it is hooked onto the special retractable pins. , placed on the lower fixing plate.

4.4 AIR INTAKE / SMOKE EXHAUST SYSTEM
A modulating high efficiency condensing boiler is located in the indoor unit of the HUB RADIATOR PACK CF hybrid system.
As regards the discharge of fumes into the atmosphere and the air intake / fumes exhaust systems, comply with the laws and regulations in force, which are understood to be fully transcribed here.
Safety devices are installed on the boiler to control the evacuation of combustion products.

In the event of a malfunction of the air intake / flue gas exhaust system, the devices put the boiler in safety and the code E14 flashes on the LCD display.
Tampering with and / or exclusion of these safety devices is strictly prohibited.
In the event of repeated shutdowns of the boiler, it is necessary to have the air intake / flue gas exhaust ducts checked, which could be obstructed or inadequate for the disposal of fumes into the atmosphere.
For the air intake / flue gas discharge, the specific ducts and systems for original condensing boilers must be used, resistant to the attack of condensate acids.
The exhaust pipes must be installed with a slope towards the boiler such as to guarantee the reflux of the condensate towards the combustion chamber which is built to collect and discharge the condensate.
If this is not possible, it is necessary to install systems capable of collecting and conveying the condensate to the condensate drainage system in the condensate stagnation points.
It is necessary to avoid condensation stagnation points in the combustion products evacuation system, with the exception of the liquid head of any siphon connected to the combustion products evacuation system.
The manufacturer declines all responsibility for damage caused as a result of installation, use or transformation errors
of the appliance or for failure to comply with the instructions provided by the manufacturer or the installation standards in force concerning.



LEGEND: A Air intake - **S** Fumes exhaust - Condensation - Rain

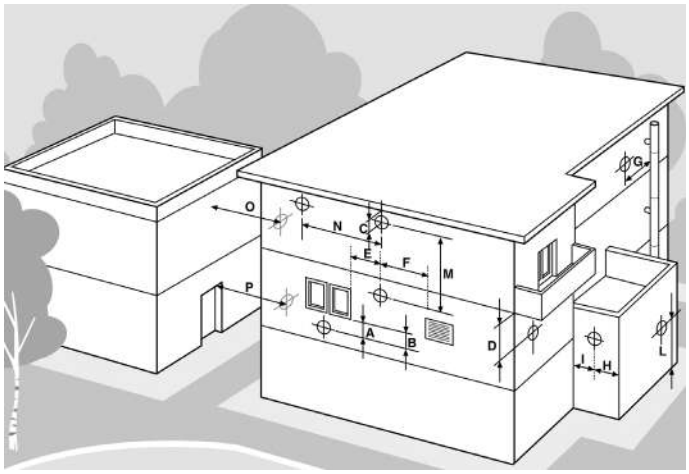
Per il posizionamento a parete dei terminali di scarico della caldaia, nei casi prescritti dal DPR n.551 del 29/12/99, attenersi alle distanze di cui alla tabella e alla figura che seguono.

POSITIONING OF THE TERMINALS FOR "FORCED DRAFT" APPLIANCES (extracted from the UNI 7129 standard)

Terminal location	Distances minimum in mm	Appliances with heat output over 16 kW e up to 35 kW
Under window	A	600
Under ventilation opening	B	600
Under the eaves	C	300
Under balcony (1)	D	300
From an adjacent window	E	400
From an adjacent ventilation opening	F	600
From vertical or horizontal pipes or drains (2)	G	300
From a corner of the building	H	300
From a recess of the building	I	300
From the ground or other walking surface	L	2200
Between two vertical terminals	M	1500
Between two terminals horizontally	N	1000
From a front facing surface without openings or terminals within a radius of 3 meters from the	O	2000
flue outlet Same, but with openings or terminals within a radius of 3 meters from the smoke outlet	P	3000

Note:
(1) The terminals under a practicable balcony must be placed in such a position that the total path of the fumes, from the point of exit of the same from the terminal to their outlet from the external perimeter of the balcony, including the height of any protective balustrade, is not less than 2000 mm.

(2) When placing the terminals, distances of not less than 500 mm must be adopted from materials sensitive to the action of combustion products (for example, plastic gutters and downspouts, wooden extrusions, etc.) unless adequate shielding measures with regard to said materials.



4.6 CONFIGURATION OF THE AIR INTAKE / SMOKE EXHAUST DUCTS TYPE B23

Boiler designed to be connected to a flue or to a device for discharging the products of combustion outside the room in which it is installed.
The air is drawn in the installation room and the combustion products are discharged outside the room itself.
The boiler must not be equipped with a windproof draft breaking device, while it must be equipped with a fan upstream of the combustion chamber / heat exchanger.

Type C13
Boiler designed to be connected to horizontal exhaust and intake terminals directed to the outside by means of coaxial or split-type ducts.
The distance between the air inlet duct and the smoke outlet duct must be at least 250 mm and both terminals must still be positioned within a square of 500 mm on each side.
The boiler must be equipped with a fan upstream of the combustion chamber / heat exchanger.

Type C33
Boiler designed to be connected to vertical exhaust and intake terminals directed to the outside by means of coaxial ducts or by means of split-type ducts.
The distance between the air inlet duct and the smoke outlet duct must be at least 250 mm and both terminals must still be positioned within a square of 500 mm on each side.
The boiler must be equipped with a fan upstream of the combustion chamber / heat exchanger.

Type C43
Boiler designed to be connected to a collective flue system comprising two ducts, one for the intake of combustion air and the other for the evacuation of combustion products, coaxial or through split ducts.
The flue must comply with current regulations.
The boiler must be equipped with a fan upstream of the combustion chamber / heat exchanger.

Type C53
Boiler with combustion air intake ducts and separate combustion products evacuation.
These ducts can discharge into different pressure zones.
The positioning of the two terminals on opposite walls is not allowed.
The boiler must be equipped with a fan upstream of the combustion chamber / heat exchanger.

Type C63
Boiler with combustion air intake ducts and combustion products evacuation, which can be made using pipes sold and certified separately.
The system created must not have a pressure drop, with the boiler at nominal power, higher than the residual head of the fan.

Type C83
Boiler designed to be connected to a terminal for the collection of combustion air and to an individual or collective chimney for the discharge of fumes.
The flue must comply with current regulations.
The boiler must be equipped with a fan upstream of the combustion chamber / heat exchanger.

4.6.1 AIR INTAKE / SMOKE EXHAUST BY COAXIAL DUCTS WITH DIAMETER 100/60 MM

Tipo C13
These values refer to air intake / flue gas exhaust pipes made using rigid and smooth pipes originals, supplied by the manufacturer.

The maximum permissible length of 100/60 mm horizontal coaxial pipes is 7 meters including the first bend.
For each straight pipe added with a length of 1 meter, the maximum length allowed must be decreased by 1 meter.
For each 90 ° bend added, the maximum length allowed must be decreased by 1.5 meter. For each 45 ° bend added, the maximum length allowed must be decreased by 1 meter. The wall terminal decreases the maximum permissible length by 1.5 meters. The air intake part must have a downward slope of 1% in the exit direction, to avoid the entry of rainwater.

Type C33
The minimum permissible length of vertical coaxial pipes is 1 meter. The maximum permissible length of vertical coaxial pipes 100/60 mm is 7 meters. For each straight pipe added with a length of 1 meter, the maximum length allowed must be decreased by 1 meter.
For each 90° bend added, the maximum length allowed must be decreased by 1.5 meter.
For each 45° bend added, the maximum length allowed must be decreased by 1 meter.
The roof drain decreases the maximum permissible length by 1.5 meters

4.6.2 CHIMNEY SWEEP FUNCTION
The boiler has a chimney sweep function which must be used for measuring the combustion efficiency on site and for enter the subsequent combustion regulation phase.
To activate the chimney sweep function it is necessary to keep the keys pressed for the cycle time "MODE + RESET".
If the keys are released before the end of the cycle time, the boiler continues to operate normally.
If there is a sanitary request, the chimney sweep function is performed on the sanitary, otherwise in heating.
Once you have entered the chimney sweep function, the letters "**Lo**" appear in the display, alternating with the temperature value of the heating water (eg. 45), indicating that the "chimney sweep function" has been activated at minimum power.
The display shows the symbol "🔥" if the burner is on. The boiler carries out the ignition sequence and then goes on to operate at minimum power ("**Lo**").Press and hold the button for 3 seconds " ⊕ "to switch to the "chimney sweep function" at maximum power ("**Hi**").
By keeping the button pressed for 3 seconds " ⊖ " you go back to the "chimney sweep function" at minimum power ("**Lo**").
To exit the chimney sweep function, keep the key pressed for 3 seconds " RESET " and return to normal operation.
The duration of the chimney sweep function is 15 minutes.

4.6.3 CONNECTION TO THE GAS NETWORK
The gas supply pipe must have a section equal to or greater than that used in the boiler.
The section of the pipeline depends on its length, the type of route and the gas flow rate. It must therefore be dimensioned.
Observe the installation regulations in force which are understood to be fully transcribed here.

4.6.4 TSP PARAMETERS THAT CAN BE SET FROM INTERFACE AND REMOTE CONTROL

Parametro	Valori impostabili	Valori di default	Note
P46 Selezione velocità modulante della pompa	0 - 1	1	0 = non modulata 1 = automatica 60% ÷ 100%
P47 Selezione ΔT per modulazione pompa (°C)	10 ÷ 40	20	
P48 Selezione funzionamento pompa	0 - 1	0	0 = intermittente 1 = continuo
P49 Abilita OEM	0 ÷ 99	0	49 = consente la lettura / scrittura dei seguenti parametri
P50			Non usato
P51			Non usato
P52 Selezione riempimento automatico acqua	0 - 1	0	0 = non presente 1 = presente NON MODIFICARE QUESTO VALORE
P53			Non usato
P54 Selezione flusso ACS minimo per attivazione richiesta	10 ÷ 40 (lx10)/min	15 (1,5l/min)	
P55 Selezione tempo postventilazione ACS	1 ÷ 30 sec x 10	3	
P56 Selezione tempo postcircolazione ACS	0 ÷ 100 sec	30	
P57 Selezione aumento dei giri del ventilatore	0 ÷ 10%	0	**NON MODIFICARE**
P58			Non usato
P59			Non usato
P60 Offset aggiuntivo alla temperatura di spegnimento dopo accensione bruciatore	0 ÷ 20	0	**NON MODIFICARE**
P61 Selezione allarme temperatura scarico fumi	20 ÷ 150	105	
P62			Non usato
P63			Non usato
P64			Non usato
P65 Selezione durata Antilegionella	5 ÷ 30 min	15 min	Solo per bollitore con termostato
P66			Non usato
P67			Non usato
P68			**NON MODIFICARE -** Non usato
P69			**NON MODIFICARE -** Non usato
P80 Selezione ΔT riscaldamento per rilevazione blocco circolazione	0 ÷ 20	5	0 = disabilitato
P81 Temperatura massima riscaldamento	0 ÷ 150	90	0 = disabilitato
P82 Selezione ΔT mandata/ritorno massimo accettabile	0 ÷ 50	30	0 = disabilitato - **NON MODIFICARE**
P83 Selezione mesi mancanti alla manutenzione	0 ÷ 255	0	0 = disabilitato
P98 Reset TSP ai valori di fabbrica	0 - 1	0	
P99 Reset OEM ai valori di fabbrica	0 - 1	0	

Parametro	Valori impostabili	Valori di default	Note
P01 Selezione tipo di caldaia	0 ÷ 8	0	0 = istantanea 1 = con termostato bollitore 2 = con sonda di temperatura bollitore 3 = solo riscaldamento
P02 Selezione tipo di gas	0 - 1	0	0 = gas naturale 1 = GPL
P03 Selezione tipo di controllo ACS	0 - 1	1	0 = flussostato 1 = flussimetro
P04 Coefficiente di regolazione con sonda esterna	0 ÷ 90	30	
P05 Anti Fast Cycles time	0 ÷ 10 min	3	
P06		1	**NON MODIFICARE**
P07 Ignition Heating ramp [value 1=10s]	0 ÷ 80	12	
P08 Selezione potenza massima riscaldamento (PREMIX)	P10...100	70%	
P09 Selezione potenza massima ACS	P10…100	80%	
P10 Selezione potenza minima	0…P09	0%	
P11 Selezione valore minimo del setpoint riscaldamento	20...P12	25°C	
P12 Selezione valore massimo del setpoint riscaldamento	P11…80	80°C	
P13 Selezione valore massimo del setpoint ACS	35 ÷ 67	60°C	
P14 Selezione tipo di calibrazione	0 ÷ 20	0	0 = manu 5 = auto
P15 Selezione potenza caldaia	0 ÷ 4	4	0 = 24 kW 1 = 28 kW 2 = 32 kW 3 = 16 kW 4 = 20 kW
P16			Non usato
P17			Non usato
P18			Non usato
P19 Termostato (0) / Sonda fumi (1)	0 - 1	1	**NON MODIFICARE**
P20 Selezione valore minimo del setpoint ACS	35 ÷ 50	35	
P21 Selezione zone a bassa temperatura	0 - 1	0	0 = alta temperatura 1 = bassa temperatura
P22			Non usato
P23 Selezione tempo di attivazione della pompa (min): zona fredda	0 ÷ 10	0	
P24 Protezione bambini	0 ÷ 1	0	1 = protezione attiva
P25			Non usato
P26 Selezione ritardo colpo d'ariete (sec)	0 ÷ 3	0	
P27 Selezione temperatura preriscaldo OFF (°C)	30 ÷ 75	45	
P30			Non usato
P31 Selezione velocità di accensione ventilatore (P31 x 25) rpm	80 ÷ 160	140	
P32 Selezione velocità massima ventilatore (P32 x 25) + 2000) rpm	P33...255	170	
P33 Selezione velocità minima ventilatore (P33 x 25)	30 ÷ 60	36	
P36			Non usato
P37 Configurazione AUX sonda	3 ÷ 3	3	**NON MODIFICARE**
P38 Selezione temperatura antigelo	0…+10	5	
P39 Selezione tempo postcircolazione riscaldamento	0 ÷ 99 sec x 10	120	
P40 Selezione tempo ritardo accensione riscaldamento	0 ÷ 60 sec x 5	0	
P41 Selezione modulazione sanitaria con flussimetro	0 ÷ 1	1	0 = non attiva 1 = attiva
P42 Selezione abilita / disabilita funzione preriscaldo ACS	0 ÷ 1	0	0 = disabilitata 1 = abilitata
P43 Selezione tempo ritardo attivazione ACS con configurazione solare	0 ÷ 30 sec	0	
P44 Selezione tipo sensore pressione	0 - 1	1	0 = pressostato 1 = trasduttore
P45 Selezione funzione Antilegionella (solo bollitore)	54, 55 ÷ 80	54	54 = disabilitata 55 ÷ 80 = set temperatura mandata

4.7 ADAPTATION TO THE USE OF OTHER GASES AND ADJUSTMENT OF THE BURNER

The boilers are produced for the type of gas specifically requested when ordering, which is shown on the packaging plate and on the boiler technical data plate.
Any subsequent transformations must be carried out strictly by qualified personnel, who will use the accessories appropriately prepared by the manufacturer and will carry out the modification operations and adjustments necessary for a good set-up.

4.7.1. TRANSFORMATIONS FROM METHANE TO LPG

Change parameter P02 from 0 to 1.
Affix the label indicating the LPG regulation on the boiler.
Check and if necessary modify parameters P08, P09, P31, P32 and P33 in accordance with the indications in the Table of parameters.

ACCESS PARAMETERS
Simultaneously pressing the keys for the cycle time " RESET " And
"" You enter the parameter programming mode.
The message "tS" appears on the display for 1 sec, then the P number of TSP for 1 sec and then the value for 3 sec.
The first modifiable parameter corresponds to P01.
By pressing the keys " + " o " - " select the desired parameter.
By pressing the key for the cycle time " ↱ " the modification function of the selected parameter is enabled. The previously set value appears on the display.
By pressing the keys " + " or " - " the value of the selected parameter is changed.
By pressing the key for the cycle time " ↱ "the new setting is stored. Simultaneously pressing the keys for the cycle time" RESET " and " ≡ " you exit the parameter programming mode.
Proceed with the adjustment of the combustion (CO2).

4.7.2. TRANSFORMATIONS FROM LPG TO METHANE

Change parameter P02 from 1 to 0.
Affix the label indicating the CNG adjustment on the boiler.
Check and if necessary modify parameters P08, P09, P31, P32 and P33 in accordance with what is indicated in Table 24.

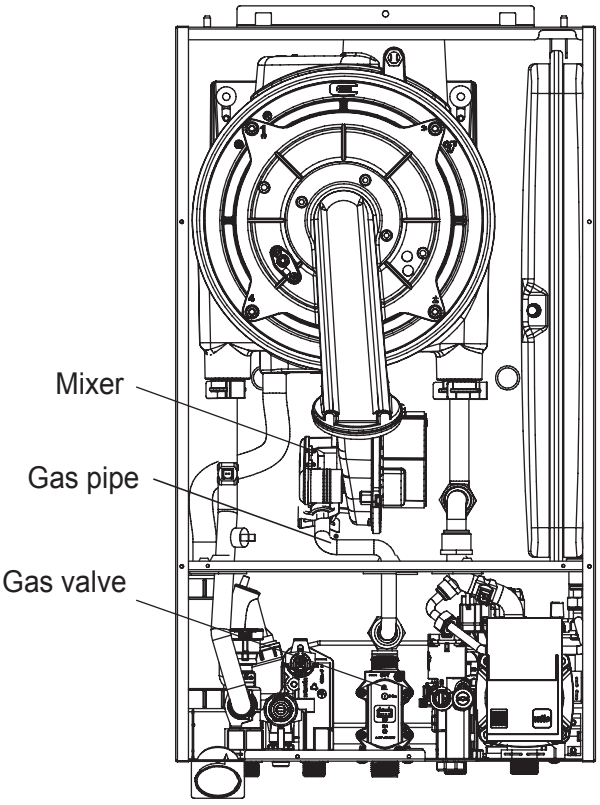
ACCESS PARAMETERS
Simultaneously pressing the keys for the cycle time" RESET " and" ≡ " you enter the parameter programming mode.
The message "tS" appears on the display for 1 sec, then the P number of TSP for 1 sec and then the value for 3 sec.
The first modifiable parameter corresponds to P01.
By pressing the " + " or " - " key select the desired parameter.
By pressing the key for the cycle time " ↱ " the modification function of the selected parameter is enabled.
The previously set value appears on the display.
By pressing the keys " + " or " - " the value of the selected parameter is changed.
By pressing the key for the cycle time " ↱ " the new setting is stored.
Simultaneously pressing the keys for the cycle time" RESET"
and " ↱ " you exit the parameter programming mode.
Proceed with the adjustment of the combustion (CO2).

4.7.3. CHECK AND ADJUSTMENT OF THE GAS VALVE

PREMISE

The boiler, by means of the "BEST" function, automatically adapts the combustion according to the installation conditions, therefore the following procedure must be carried out following the chimney sweep function if the gas calibration values do not correspond to those on the plate or if the electronic board, the electrode, the fan or the gas valve have been replaced.
The boiler must be ready for operation, purged of air and with the heating function enabled.
The procedure can start in two different modes depending on the value of parameter "P14":

AUTO ("P14" = 5): the boiler performs 10 ignition attempts at gradually increasing powers;
MANU ("P14" = 0): the boiler performs 5 ignition attempts at the ignition power indicated in parameter "P31".
Once the burner has been successfully ignited, the boiler autonomously performs a cycle at minimum power "P0", ignition "P1" and at maximum power "P2" to obtain good flame stability, then goes into mode CO2 modification to allow manual calibration.
The setting of the type of mode (AUTO or MANU) is entered in the activation code for parameter "P14" in the TSP Parameters menu.
TSP parameters that can be set from the interface and from the Remote Control.
The AUTO mode is the recommended one and which allows the greatest freedom to modify the CO2.

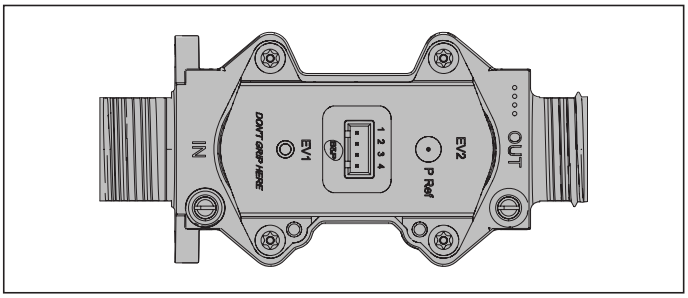


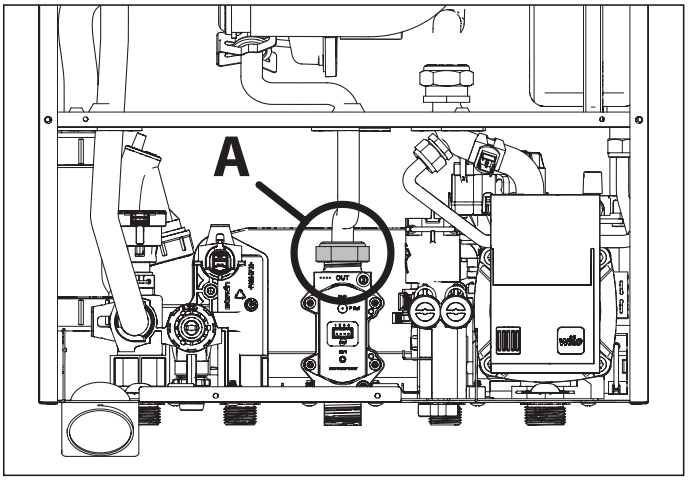
OPERATIONS TO BE PERFORMED

Enter the chimney sweep function and check that the CO2 value is within the limits of Table 11 both at maximum (Hi) and minimum (Lo) power (if the system temperature rises excessively, it is possible to open the DHW cocks to dispose of the heat; it is not possible to start the procedure with the DHW open).
If not, proceed as described below.
Press the keys simultaneously for the cycle time " MODE " and " RESET ". Release then immediately (within 2 seconds) press one turn the button " ≡ ".
The card confirms the activation of the function and shows on the display "**Au-to**" or "**Ma-nu**" depending on the defined setting mode.
The board will internally generate a request for operation in "calibration" mode and will start the power-up sequence.
If the function is active "**Au-to**", the flashing of the "**radiator**" symbol is also activated.
Once ignition has been completed, the boiler will perform a parameter storage cycle at maximum power, then at ignition power and, finally, at minimum power.
During this phase, the LCD display cyclically shows the cycle time and the flow temperature.
At this point, the flue gas analyzer probe can be inserted into the exhaust duct.

AUTO ADJUSTMENT
The message “P0” appears on the display and the board is ready to adjust the O_2 value at minimum power.
With this condition:
“ ” it is used to switch between the Power / O2 menu (for the cycle time).
“ ” o “ ” they are used to increase / decrease the O2 value or change the power of the system (if the flame symbol flashes).
Press the key for the cycle time “ ” to activate the O_2 menu.
By pressing the keys “ ” or “ ” it will be possible to modify the current value of RFlame set and vary the O_2.
Press the button “ ” (for the cycle time) to confirm the setting at “P0” and “ ” (for the cycle time) to pass to the second level to be adjusted “P1”.
Proceed with the CO2 calibration following the steps taken to adjust the minimum.
Press the button “ ” to confirm and “ ” to pass to the adjustment of the maximum “P2”.
Adjust the value as per the table. Confirm with the key “ ”.
Press the button “ MODE ” (without waiting for the cycle time) to end the procedure and store the adjustments made.

MANU. ADJUSTMENT
The message “P0” and the board appear on the display. ready to adjust the CO2 value at minimum power.
With this condition: “ ” it is used to switch between the Power / CO2 menu (for the cycle time).
“ ” or “ ” they are used to increase / decrease the CO2 value or change the power of the system (if the flame symbol flashes).
Press the key for the cycle time “ ” to activate the CO2 menu.
By pressing the keys “ ” or “ ” it will be possible to modify the current RFlame set value and correct the CO2.
Press the button “ ” (for the cycle time) to confirm the setting at “P0” and “ ” (for the cycle time) to pass to the second level to be adjusted “P1”.
Proceed with the CO2 calibration following the steps taken to adjust the minimum.
Press the button “ ” to confirm and “ ” to pass to the adjustment of the maximum “P2”.
Adjust the value as per the table and confirm with the key “ ”.
Press the button “ MODE ” (without waiting for the cycle time) to end the procedure and store the adjustments made.
It is possible to exit the adjustment function at any time by pressing the key for the cycle time “ MODE ”.
Finally, set P08 to 70% and P09 to 80%.





VALUES OF CO_2 IN FUMES		
Fuel	CO_2 value min/max (%)	Acceptable range (%)
20 kW Methane	9,3 / 9,8	±0,1 %
20 kW LPG	10,4 / 10,7	±0,1 %

DIAMETER DIAPHRAGMS	
	Methane / LPG mm)
20 kW	5,6

4.7.4 BOILER TESTING
Each boiler is accompanied by a certificate of inspection. The completion of the inspection certificate by an Authorized Service Center allows you to enjoy the benefits offered by the insurance formula provided by the manufacturer as specified in the inspection certificate itself.

4.7.5. PRELIMINARY CHECKS
Before testing the boiler, it is advisable to check:
- the smoke evacuation duct and the terminal part are installed in accordance with the instructions: with the boiler on no leakage of products of the combustion from no gasket;
- the boiler power supply voltage is 230 V - 50 Hz;
- the system is properly filled with water (pressure al manometer 1-1.3 bar);
- any shut-off cocks on the pipes of the plant are open;
- the mains gas corresponds to the boiler calibration one: otherwise, proceed with the conversion of the boiler to the use of available gas: this operation it must be performed by qualified technical personnel;
- the fuel supply cock is open;
- there are no combustible gas leaks;
- the main electrical switch upstream of the boiler is inserted;
- the 3 bar safety valve is not blocked;
- there are no water leaks;
- the condensate drain siphon, mounted in the boiler, drain the condensate properly and is not blocked.

If the boiler is not installed in accordance with the laws and regulations in force, notify the system manager and do not test the boiler.

4.7.6. MAINTENANCE
Maintenance (and repair) operations must necessarily be carried out by qualified personnel.

The manufacturer advises its customers to contact the network of its Authorized Service Centers for maintenance and repair operations, which are trained to perform the above operations in the best possible way.
Proper maintenance of the boiler allows it to work in the best conditions, respecting the environment and in complete safety for people, animals and things.
Maintenance operations must be performed at least once a year.

Before proceeding with any maintenance operation that involves the replacement of components and / or internal cleaning of the boiler disconnect the appliance from the power supply.

Maintenance operations include checking and cleaning operations as specified below:

Control operations:
- general check of the integrity of the boiler;
- check the tightness of the gas circuit of the boiler and of the gas supply network to the boiler;
- control of the boiler supply pressure;
- control of boiler ignition;
- control of the boiler combustion parameters by means of smoke analysis;
- checking the integrity, the good state of conservation e the tightness of the flue gas exhaust pipes;
- check the functioning of the combustion fan;
- check the integrity of the boiler safety devices in general;
- control of the absence of water leaks and the absence of oxidation of the boiler fittings;
- check the efficiency of the safety valve

of the plant;
- check the charge of the expansion tank;
- control of the correct evacuation of condensate by the side of the condensate drain siphon mounted in the boiler.

Cleaning operations:
- general internal cleaning of the boiler;
- cleaning the gas nozzles;
- cleaning of the air intake and evacuation circuit fumes;
- cleaning the heat exchanger;
- cleaning the siphon and condensate drain pipes.

In case of intervention on the boiler for the first time, check:
- the declaration of conformity of the plant;
- the system booklet;
- the suitability of the room for installation;
- the smoke evacuation channels, diameters and length of the same;
- correct installation of the boiler according to the instructions contained in this booklet.

If the device is unable to function properly and in the absence of danger for people, animals and things, notify the system managere compilare una dichiarazione in tale senso.

4.7.7. COMBUSTION ANALYSIS
The control of the boiler combustion parameters for the evaluation of efficiency and polluting emissions must be carried out in accordance with the laws and standards in force.

4.7.8. DEACTIVATION, DISASSEMBLY AND DISPOSAL
If you decide to permanently deactivate the boiler, have the deactivation, disassembly and disposal operations carried out by qualified personnel only.
The user does not. authorized to carry out these operations personally.
The deactivation, disassembly and disposal operations must be carried out with the boiler cold, after having disconnected it from the gas and electricity mains.
The materials of which the boiler is made are all recyclable.
Once disassembled, the boiler must be disposed of in compliance with the legislation in force in the country of installation.

Technical drawbacks table

STATO DELLA CALDAIA	INCONVENIENTE
E 02	La pressione dell'acqua nell'impianto di riscaldamento è insufficiente
E 03	Pressione impianto troppo vicina al limite massimo.
E 04	Guasto sonda sanitario
E 05	Guasto sonda mandata
E 14	Guasto sonda fumi
E 13	Intervento sonda fumi
E 15	Guasto ventilatore (feedback / alimentazione)
E 06 + reset	Mancata accensione
E 07 + reset	È intervenuto il termostato di sicurezza
E 08 + reset	Errore fiamma
E 09	Nessuna circolazione dell'acqua nel sistema
E 16	Guasto sonda ritorno
E 20	Sovratemperatura impianto
E 21	Delta T CH/Ret > TSP82 (1)
E 11	Modulatore della valvola a gas è scollegato
E 12	Guasto sonda bollitore
E 19	Errore flussometro sanitario
E 28 + reset	Tentativi di sblocco da interfaccia caldaia esauriti
E 37	Tensione di alimentazione troppo bassa
E 40	Frequenza di rete errata
E 41 + reset	Perdita di fiamma per più di 6 volte consecutive
E 42	Anomalia tasti
E 43	Errore di comunicazione OT
E 44 + reset	Tempo di apertura SGV senza errore di fiamma
E 62	Richiesta calibrazione combustione
E 96	Ostruzione scarico fumi
E 72 + reset	Il ΔT fra mandata e ritorno non rientra nelle condizioni limite
E 88 + reset	Guasto del circuito di gestione SGV
E 80 + reset	Problema di apertura SGV
E 81 + reset	Spegnimento per problemi di combustione all'accensione (2)
E 87 + reset	Problema sul circuito SGV
E 91 + reset	Perdita di fiamma per più di 6 volte consecutive (con correzione max accensione su ON)
E 98 + reset	Errore SW / errore scheda
E 99 + reset	

(1) Questo controllo si attiva dopo 120 sec dall'attivazione della pompa e solo durante la richiesta di CH (senza acqua calda sanitaria).
(2) L'anomalia 81 può essere causata da un'ostruzione del condotto di scarico fumi. In questo caso è opportuno contattare il centro di assistenza prima di sbloccare la caldaia.

5.TECHNICAL SPECIFICATIONS INDOOR UNIT / OUTDOOR UNIT HUB RADIATOR PACK CF 3.0 - 7.8

5.1 PERFORMANCE CHARACTERISTICS OF OUTDOOR UNITS BOOSTER HUB RADIATOR PACK CF 3.0

BOOSTER HR 3.0 - THERMAL POWER DELIVERED
Thermal power output kW
Heating water delivery temperature °C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	1,96	1,93	1,88	1,80	1,67	1,51
- 7	2,14	2,11	2,07	1,99	1,88	1,74
- 2	2,47	2,44	2,39	2,33	2,24	2,11
2	2,76	2,71	2,67	2,61	2,52	2,40
7	3,18	3,11	3,05	2,97	2,88	2,77
12	3,64	3,59	3,45	3,36	3,25	3,13

BOOSTER HR 3.0
ABSORBED ELECTRIC POWER kW
Heating water delivery temperature °C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	0,66	0,75	0,84	0,94	1,05	1,19
- 7	0,66	0,75	0,84	0,94	1,06	1,19
- 2	0,66	0,74	0,84	0,94	1,06	1,20
2	0,66	0,74	0,84	0,94	1,06	1,20
7	0,65	0,74	0,83	0,94	1,06	1,20
12	0,65	0,73	0,82	0,93	1,06	1,20

BOOSTER HR 3.0
C.O.P. THERMAL POWER / ABSORBED POWER
Heating water delivery temperature °C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	2,96	2,59	2,25	1,91	1,59	1,27
- 7	3,23	2,81	2,47	2,11	1,78	1,46
- 2	3,74	3,28	2,86	2,47	2,10	1,76
2	4,20	3,67	3,20	2,76	2,37	2,00
7	4,87	4,20	3,66	3,16	2,71	2,30
12	5,64	4,86	4,19	3,60	3,07	2,61

BOOSTER HR 7.8 - THERMAL POWER DELIVERED
Thermal power output kW
Heating water delivery temperature ° C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	5,12	5,05	4,91	4,69	4,36	3,93
- 7	5,58	5,52	5,40	5,20	4,92	4,53
- 2	6,44	6,36	6,25	6,08	5,83	5,50
2	7,21	7,10	6,97	6,80	6,57	6,27
7	8,29	8,12	7,95	7,75	7,51	7,22
12	9,51	9,26	9,01	8,76	8,49	8,17

BOOSTER HR 7.8
ABSORBED ELECTRIC POWER kW
Heating water delivery temperature °C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	1,78	2,00	2,25	2,52	2,83	3,19
- 7	1,78	2,00	2,25	2,53	2,84	3,20
- 2	1,77	2,00	2,25	2,54	2,86	3,23
2	1,77	1,99	2,25	2,53	2,86	3,23
7	1,75	1,98	2,23	2,52	2,86	3,23
12	1,73	1,95	2,22	2,51	2,84	3,22

BOOSTER HR 7.8
C.O.P. THERMAL POWER / ABSORBED POWER
Heating water delivery temperature °C

Ta (°C)	**30**	**35**	**40**	**45**	**50**	**55**
- 10	2,87	2,52	2,18	1,91	1,54	1,23
- 7	3,14	2,76	2,40	2,05	1,73	1,41
-2	3,63	3,18	2,78	2,47	2,04	1,71
2	4,08	3,62	3,10	2,68	2,30	1,94
7	4,73	4,14	3,56	3,07	2,63	2,23
12	5,48	4,74	4,07	3,49	2,98	2,53

5.2 Table of technical data for domestic hot water withdrawal HUB RADIATOR PACK CF

DESCRIPTION	U.M.	**3.0/20**	**3.0/24**	**3.0/32**	**7.8/20**	**7.8/24**	**7.8/32**
DHW production with ΔT 25 °C	l/min	15,0	15,5	20,4	16,0	16,6	21,8
DHW production with ΔT 30 °C	l/min	12,0	12,6	15,1	13,3	13,8	16,4
DHW production with ΔT 35 °C	l/min	11,0	11,3	14,2	11,4	12,0	15,8
DHW production with ΔT 40 °C	l/min	9,6	9,9	12,6	10,0	10,8	13,8
DHW production with ΔT 45 °C	l/min	8,6	8,8	11,2	8,9	9,5	12,1

5.3 HUB RADIATOR PACK CF boiler technical data table

DESCRIPTION	U.M.	**20**	**24**	**32**
Appliance category			II2H3P	
Minimum heat output boiler in natural gas heating G20	kW	2,8	2,8	3,4
Maximum heat output of the boiler in natural gas heating G20	kW	20,0	24,0	32,0
Minimum boiler heat output in LPG gas heating	kW	2,8	2,8	3,4
Maximum heat output of the boiler in LPG gas heating	kW	20,0	24,0	32,0
Minimum boiler heat output in heating (80-60 ° C) methane gas G20	kW	2,5	2,5	3,3
Maximum boiler heat output in heating (80-60 ° C) methane gas G20	kW	19,2	23,0	30,8
Minimum boiler heat output in heating (80-60 ° C) LPG gas	kW	2,5	2,5	3,3
Maximum boiler heat output in heating (80-60 ° C) LPG gas	kW	19,2	23,0	30,8
Minimum boiler heat output in heating (50-30 ° C) methane gas G20	kW	2,9	2,9	3,5
Maximum boiler heat output in heating (50-30 ° C) methane gas G20	kW	20,7	24,9	33,5
Minimum boiler heat output in heating (50-30 ° C) LPG gas	kW	2,9	2,9	3,5
Maximum boiler heat output in heating (50-30 ° C) LPG gas	kW	20,7	24,9	33,5
Boiler feed pressure fed with natural gas G20	mbar		20	
LPG gas fired boiler supply pressure	mbar		30/37	
Diaphragm diameter of boiler fed with natural gas G20	mm	5,6	5,6	6,3
LPG gas fired boiler diaphragm diameter	mm	5,6	5,6	6,3
Minimum CO2 emission from natural gas boiler G20	%	9,3	9,3	8,4
Maximum CO2 emission from natural gas boiler G20	%	9,8	9,8	10,6
Minimum CO2 emission from LPG gas fired boiler	%	10,4	10,4	10,5
Maximum CO2 emission from LPG gas fired boiler	%	10,7	10,7	10,6
Minimum heating circuit pressure	bar		0,5	
Maximum pressure of the heating circuit	bar		3	
Useful boiler thermal efficiency at maximum power (60/80 ° C)	%	95,8	95,9	96,3
Useful boiler thermal efficiency at maximum power (30/50 ° C)	%	103,4	103,7	104,5
Useful boiler thermal efficiency at minimum power (60/80 ° C)	%	90,0	90,0	95,7
Useful boiler thermal efficiency at minimum power (30/50 ° C)	%	102,1	102,1	103,5
Useful boiler thermal efficiency at 30% of the load	%		107,1	
NOx emission class		6	6	5
NOx emission	mg/kWh	23	23	55
Smoke temperature	°C	70,0	70,0	74,5
Max operating temperature in heating	°C		85,0	
Methane gas consumption at maximum heating flow rate (1)	m^3/h	2,08	2,54	3,37
LPG consumption at maximum heating flow rate (1)	m^3/h	0,64	0,75	0,97
Seasonal energy efficiency of the space heating boiler	%		92,0	
Useful boiler efficiency at nominal heat output in high temperature regime (2)	%	86,3	86,4	86,7
Useful boiler efficiency at 30% of nominal heat output at low temperature regime (3)	%		96,4	
Heat loss in boiler stand-by	kW	0,069	0,069	0,071
Annual boiler energy consumption	GJ	38,7	42,2	62,7
Seasonal boiler energy efficiency class			A	
Technical water inertial storage volume	l		62	
Expansion vessel volume	l		7	
System delivery / return connections			3/4”	
Hot water and cold sanitary water connections			1/2”	
G20 / LPG natural gas inlet connection			3/4”	
Diameter of the boiler condensate drain hose	mm		22	
Coaxial smoke evacuation duct diameter	mm		60/100	
Diameter of double ropes evacuation ducts	mm		80	
Maximum system circulator flow rate	m^3/h		3,3	
Maximum system circulator head	m		6,2	
Maximum absorbed electrical power	W	118	118	147
Power supply			230V/1/50Hz	

(1) Value referred to the external temperature of 15 ° C and 1013 mbar
(2) High temperature mode with 60 ° C return and 80 ° C flow
(3) Low temperature mode 30 ° C (return temperature at the boiler inlet)

5.4 Table of technical data for domestic hot water withdrawal HUB RADIATOR PACK CF

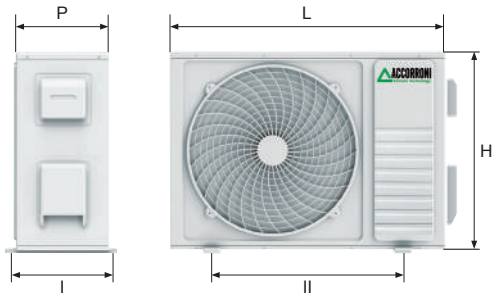
DESCRIPTION	U.M.	3.0/20	3.0/24	3.0/32	7.8/20	7.8/24	7.8/32
DHW production with ΔT 25 ° C (winter / summer)	l/min	15,0 / 14,0	15,5 / 15,4	20,4 / 19,0	16,0 / 14,0	16,0 / 15,4	21,8 / 19,0
DHW production with ΔT 30 ° C (winter / summer)	l/min	12,0 / 11,0	12,6 / 12,0	15,1 / 14,0	13,3 / 11,0	13,3 / 12,0	16,4 / 14,0
DHW production with ΔT 35 ° C (winter / summer)	l/min	11,0 / 10,0	11,3 / 11,0	14,2 / 13,6	11,4 / 10,0	11,4 / 11,0	15,8 / 13,6
DHW production with ΔT 40 ° C (winter / summer)	l/min	9,6 / 9,0	9,9 / 9,6	12,6 / 11,9	10,0 / 9,0	10,0 / 9,6	13,8 / 11,9
DHW production with ΔT 45 ° C (winter / summer)	l/min	8,6 / 8,0	8,8 / 8,6	11,2 / 10,5	8,9 / 8,0	8,9 / 8,6	12,1 / 10,5

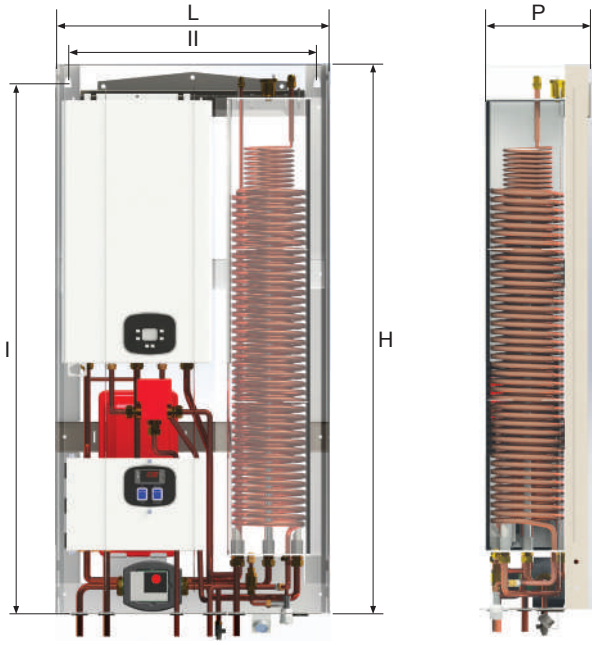
5.5 Outdoor unit technical data table Booster HUB RADIATOR PACK CF

DESCRIPTION	U.M.	HR 3.0	HR 7.8
Thermal power (1)	kW	3,11	8,12
Absorbed power (1)	kW	0,74	1,96
C.O.P. (1)	W/W	4,20	4,14
Thermal power (2)	kW	2,97	7,75
Absorbed power (2)	kW	0,94	2,52
C.O.P. (2)	W/W	3,16	3,07
Thermal power (3)	kW	2,58	6,73
Absorbed power (3)	kW	0,74	2,00
C.O.P. (3)	W/W	3,48	3,37
Thermal power (4)	kW	2,47	6,44
Absorbed power (4)	kW	0,94	2,54
C.O.P. (4)	W/W	2,67	2,53
Thermal power (5)	kW	2,11	5,52
Absorbed power (5)	kW	0,75	2,00
C.O.P. (5)	W/W	2,81	2,76
Thermal power (6)	kW	1,99	5,20
Absorbed power (6)	kW	0,94	2,53
C.O.P. (6)	W/W	2,11	2,05
S.C.O.P. (7)	W/W	3,78	3,71
Seasonal heating efficiency (ηs)	%	153,1	150,3
Cooling capacity (8)	kW	2,94	7,24
Absorbed power (8)	kW	0,72	1,89
E.E.R. (8)	W/W	4,08	3,82
Cooling capacity (9)	kW	2,63	5,84
Absorbed power (9)	kW	0,89	2,20
E.E.R. (9)	W/W	2,95	2,65
S.E.E.R. (9)	W/W	3,67	3,32
Energy efficiency (10)		A / A++	
Type of refrigerant		R410A	
Technical water temperature min / max	°C	+ 30 / + 58	
Amount of refrigerant (pre-inserted)	Kg	1,1	1,5
Min distance between outdoor and indoor unit	m	3	
Max distance between outdoor and indoor unit without recharging	m	5	
Max distance between outdoor and indoor unit with recharge	m	15	
Max difference in height between outdoor and indoor unit	m	5	
Refrigerant gas line connection		3/8”	5/8”
Coolant line connection		1/4”	1/4”
Sound power (11)	dB(A)	65,1	68,4
Sound pressure at one meter (12)	dB(A)	51,2	54,7
External temperature operating limits	°C	-15 / +45	
Power supply		230V/1/50Hz	

(1) Heating: external air temperature 7 °C d.b. - 6 °C b.u.; inlet / outlet water temperature 30/35 °C
(2) Heating: external air temperature 7 °C d.b. - 6 °C b.u.; inlet / outlet water temperature 40/45 °C
(3) Heating: external air temperature 0 °C d.b.; inlet / outlet water temperature 30/35 °C
(4) Heating: external air temperature 0 °C d.b.; inlet / outlet water temperature 40/45 °C
(5) Heating: external air temperature -7 °C d.b.; inlet / outlet water temperature 30/35 °C
(6) Heating: outside air temperature -7 °C d.b ; inlet / outlet water temperature 40/45 °C
(7) Heating: average climatic conditions; inlet / outlet water temperature 30/35 °C
(8) Cooling: external air temperature 35 °C d.b.; inlet / outlet water temperature 23/18 °C
(9) Cooling: external air temperature 35 °C d.b.; inlet / outlet water temperature 12/7 °C
(10) Water 35 °C / 55 °C (11) Value measured at one meter from the sound source in free field
(11) Measurements carried out according to UNI EN 14511 in heating mode and boundary conditions (1)
(12) Value calculated according to ISO 3744: 2010

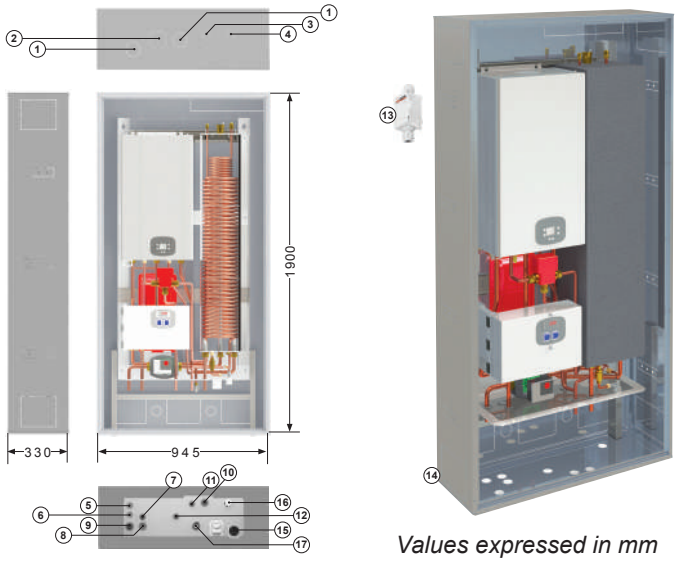
5.6 Dimensions of outdoor unit and indoor unit HUB RADIATOR PACK CF wall-hung





Model	L	H	P	I	II	Weight
	mm	mm	mm	mm	mm	kg
U.E. Booster HR 3.0	700	552	256	275	435	33
U.E. Booster HR 7.8	830	585	300	330	515	43
U.I. HR PACK CF 20	720	1450	300	1410	656	130
U.I. HR PACK CF 24	720	1450	300	1410	656	130
U.I. HR PACK CF 32	720	1450	300	1410	656	130

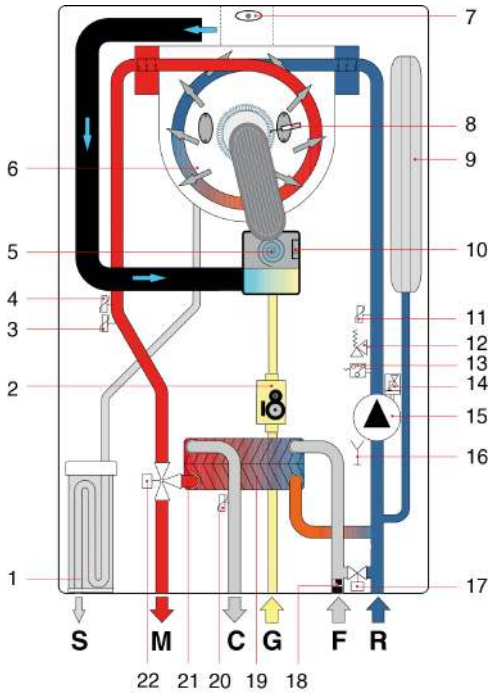
5.7 Internal unit dimensions HUB RADIATOR PACK CF recessed



Values expressed in mm

1 Combustion air inlet for exhaust split boiler Ø 80 mm
2 Coaxial boiler outlet Ø 60/100 mm
3 External booster liquid line connection
4 External booster gas line connection
5 Power supply line input
6 Boiler condensate drain
7 Boiler methane gas line inlet
8 External probe electrical cable entry
9 System delivery
10 System return
11 Domestic hot water delivery
12 Water mains inlet
13 Outside air temperature probe
14 Template for recessed installation
15 Boiler safety valve drain
16 System filling cock
17 System drain cock

5.8 BOILER HYDRAULIC DIAGRAM HUB RADIATOR PACK CF



1. Condensate drain trap
2. Modulating gas valve
3. Safety thermostat
4. Flow temperature sensor
5. Modulating fan
6. Primary condensing exchanger
7. Flue gas temperature probe
8. Ignition and detection electrode
9. Expansion vessel
10. Fan control sensor
11. Return temperature sensor
12. 3 bar safety valve
13. Pressure transducer
14. Deaerator
15. Circulator
16. Drain cock
17. Filling cock
18. Flowmeter with cold water filter
19. Secondary plate exchanger
20. Domestic hot water temperature sensor
21. Automatic by-pass integrated on plate heat exchanger
22. Motorized 3-way valve

S Condensate drain
G Gas inlet
M Heating system flow
C Domestic hot water outlet
F Cold water inlet
R Heating system return

5.9. ACCESSORIES HUB RADIATOR PACK CF

RECESSED TEMPLATE HUB RADIATOR PACK CF
COMPLETE OF SATIN WALL CLOSING PANEL
IN GALVANIZED SHEET

COVER BOX HUB RADIATOR PACK CF COMPULSORY FOR THE INSTALLATION OF THE INDOOR UNIT OUTSIDE THE BUILDING

INSTALLATION TEMPLATE HUB RADIATOR PACK CF
HANGING FOR THE PREPARATION
OF ALL PIPES ON SITE

MIXING VALVE FOR RADIANT SYSTEMS FOR MOD. WITH FIXED AND MOTORIZED ADJUSTMENT

ANCHORING SHELF
FOR EXTERNAL BOOSTER
RUBBER ANTI-VIBRATION SYSTEMS INCLUDED

ANCHORING BRACKET FOR INCLINED ROOF
FOR EXTERNAL BOOSTERS MOD. HR 3.0 - 7.8
RUBBER ANTI-VIBRATION SYSTEMS INCLUDED

ANTI-VIBRATION FLOOR BASE IN VULCANIZED RUBBER (HEIGHT FROM THE GROUND MM 95) WITH LEVEL AND SCREWS FOR BOOSTER HR 3.0 - 7.8

ANTI-VIBRATION KIT FOR INSTALLATION ON SHELVES

COMPLETE STAINLESS STEEL SPRING ANTIVIBRATION KIT OF BOLTS - WASHERS - NUTS

1/2" DHW MIXING VALVE KIT

AUXILIARY BASIN FOR INSTALLATION UNDER SHELF
EQUIPPED WITH 90 W HEATING CABLE

CONDENSATE ANTIFREEZE HEATING CABLE WITH THERMAL SENSOR, FACTORY FITTED

FLOOR SUPPORT COMPLETE WITH AUXILIARY BASIN
EQUIPPED WITH 90 W HEATING CABLE

FLEXIBLE ANTI-VIBRATION JOINT KIT WITH FOLDER
OF FITTING AND STRAIGHT UNION

FLEXIBLE ANTI-VIBRATION JOINT KIT WITH FOLDER
OF CONNECTION AND 90° CURVED UNION

FLEXIBLE ANTI-VIBRATION JOINT KIT WITH FOLDER OF FITTING AND STRAIGHT UNION

COAXIAL VERTICAL START Ø 60/100 WITH FUMES SUCTION

COAXIAL SMOKE EXHAUST KIT Ø 60/100

COAXIAL ROOF TERMINAL Ø 60/100

COAXIAL EXTENSION Ø 60/100 M / F = 1000 mm

COAXIAL 90 ° BEND Ø 60/100 M / F

45 ° COAXIAL BEND Ø 60/100 M / F

SLIPPER SPLITTER KIT FROM Ø 60/100 TO Ø 80/80

SLIPPER SPLITTER KIT FROM Ø 60/100 TO Ø 80/80

EXTENSION Ø 80 M / F = 1000 mm

EXTENSION Ø 80 M / F = 1000 mm

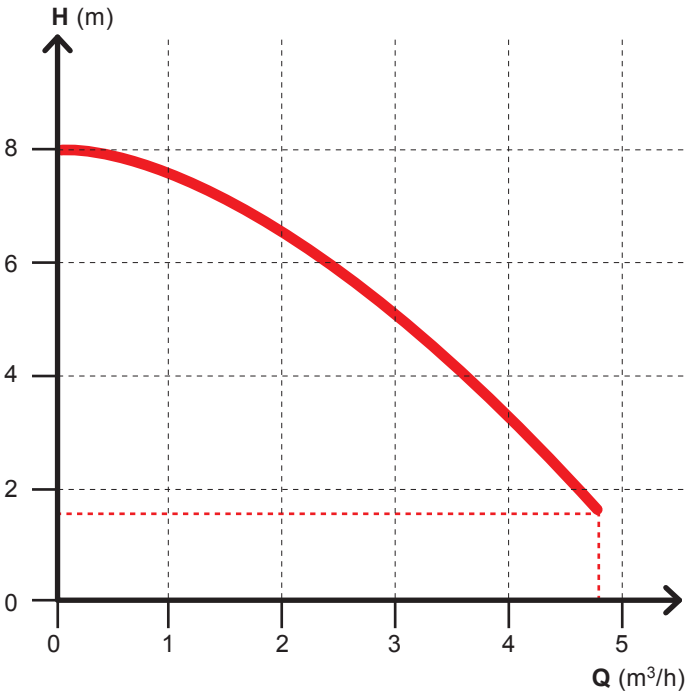
CURVA 45° COASSIALE Ø 80 M/F

6. HUB RADIATOR PACK CF CIRCULATOR

The electronic circulator is supplied as standard and can supply a single hydraulic circuit or alternatively a boiler room manifold to which additional circulators will then be applied.
The power supply of the circulator has already been carried out by our technicians during the assembly phase and allows the circulator to work both when the room thermostat requires heat.
In the case of a radiant floor system, it is necessary to purchase the system mixing valve accessory which will be installed in the factory together with the circulator.
The mixing valve is available in 2 versions:

- Fixed point mechanical version with manual adjustment
- Motorized version with managed external climatic probe automatic

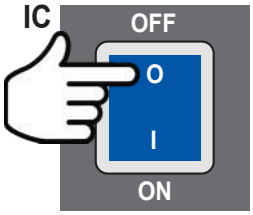
A safety thermostat must be installed on the delivery pipe that blocks the operation of the pump, if the delivery temperature, for some reason, exceeds the threshold value, in order to avoid overheating of the floor and its excessive expansion.
The technical characteristics of the circulator are shown in the graph below and must be verified from time to time by a qualified heating engineer to assess that the circulator is suitable for powering the reference system.

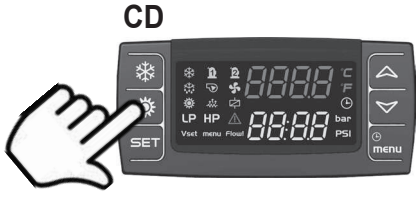


7 OPERATING MODES HUB RADIATOR PACK CF

7.1 ONLY OPERATION OF THE HEAT PUMP

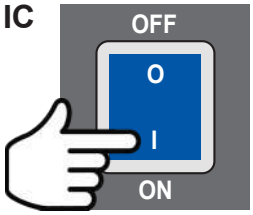
The **IC** button (boiler switch) must be set to OFF, while the CD digital controller must be set ☼ "to heating ON" mode (the display will show the green "SUN" symbol and the storage temperature). In this way the system will work with only the renewable energy of the heat pump.
In any case, the boiler will remain in operation during the summer phase to guarantee the instantaneous production of domestic hot water.

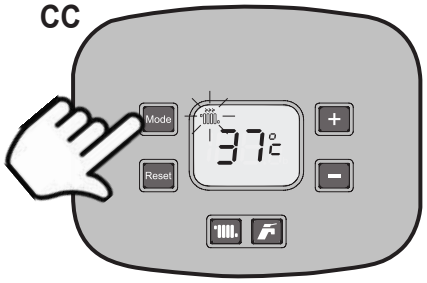


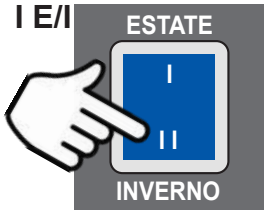


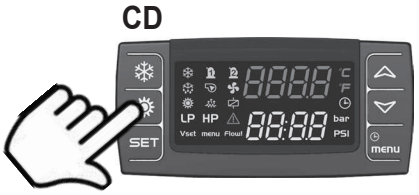
7.2 HYBRID OPERATION, HEAT PUMP WITH BOILER INTEGRATED WINTER PERIOD

The **IC** key (boiler switch) must be set to ON, the I E / I key (summer / winter switch) must be set to WINTER while the CD digital controller must be set ☼ "to heating mode ON" (the display will show the green "SUN" symbol and the storage temperature).
The digital controller of the CC boiler must be set in WINTER mode.
In this way the system will operate in hybrid mode with the boiler active in support of the external Booster in HP upon call from the external probe Pb2.



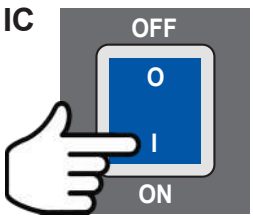


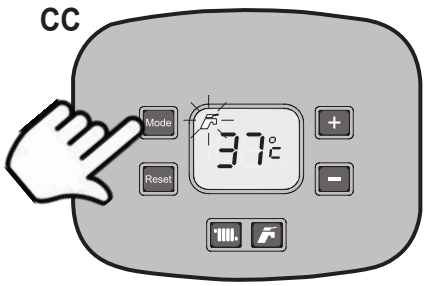


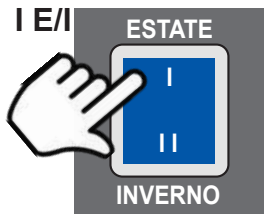


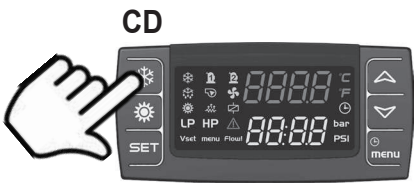
7.3 HYBRID OPERATION, HEAT PUMP WITH SUMMER INTEGRATION BOILER

IThe IC key (boiler switch) must be set to ON, the I E / I key (summer / winter switch) must be set to SUMMER while the CD digital controller must be set ❄ "to cooling ON mode" (the display will show the green "SNOWFLAKE" symbol and the storage temperature).
The digital controller of the DC boiler must be set in DHW mode.
In this way the system will operate in hybrid mode with the boiler active for the production of DHW and the external Booster in HP active to produce chilled water up to 4 ° C to power the hydronic terminals.









8 DIGITAL CONTROL UNIT

8.1 DISPLAY

Information available on the display:

- Primary display (red color): display configurable by parameter CF36 (PB1, PB2, PB4, Set-point (parameter value)*, Real set point*, Hysteresis, Status machine**);

- Secondary display (yellow color) display configurable by parameter CF43 (PB1, PB2, PB3, PB4, Set-point (from parameter) *, Real set-point* Hysteresis, RTC, Machine status**);

  *the display shows the chiller set when the unit is on in chiller mode, the HP set when the unit is switched on in HP mode, OFF with unit in stand by;

  ** the display shows OnC when the unit is switched on chiller, OnH when the unit is switched on in HP OFF mode with unit in stand by. unit in stand by.

8.2 DISPLAY ICONS

Lit when the display shows a temperature or a pressure	°C -°F BAR-PSI
Lit when the lower display displays the current time, the hours of operation of loads, etc.	
On flashing in the presence of alarm	
On if it is active an automatic change function of the Set-point (Dynamic Set-point, function for machines without accumulation, Energy Saving); if the function is enabled but not active the icon is off	Vset
Lit during access to the functions menu	menu
On if the resistances are on (antifreeze heaters, boiler)	
On flashing during the interval count between defrosts; the icon is steady on during the phase defrost	
Flashing on if the entrance digital flow switch is active (both with pump ON and with pump OFF)	Flow!
Flashing on if the entrance digital flow switch is active (both with pump ON and with pump OFF)	
On if the fans are on	
On if the relative compressor is switched on; is flashing if the compressor is in ignition timing	1 2
On if the exit open collector is active	
On if the machine is on e represents the operating status Heat or Cool according to logic set in parameter CF31	
The HP icon and the LP icon are on flashing in the event of a High alarm o Low pressure active.	LP HP

8.3 KEY FUNCTION

FUNCTION	KEY
Press and release in main view: allows viewing of the set point chiller (SetC label) o heat pump (SetH label).	
Press and release 2 times in main view: if the energy saving function, dynamic set point or for machines without accumulation is enabled, the icon Vset is turned on and the display displays the actual working set.	
Press for 3 seconds and release in main view: allows modification of the set point chiller / PdC.	SET
Pressure and release in programming: allows you to access the edit of the selected parameter; allows confirmation of the set value in parameter modification phase.	
Press and release in the AlrM menu: allows the reset of the alarm (if resettable) from the ALrM menu.	
Press and release: from main view allows the display of the probe values configured (temperatures / pressures) in the upper display and the corresponding label in the lower display.	

Press and release in programming: allows you to scroll through folders parameters (ST, CF, etc); allows it scrolling the list of parameters. Parameter being edited increases its value.	
Press and release: from main view allows the display of the probe values configured (temperatures / pressures) in the upper display and the label corresponding in the lower display.	
Pressure and release in programming: allows you to scroll through folders parameters (ST, CF, etc); allows it scrolling the list of parameters. In phase of modification of the parameter decreases its value.	
Press and release: allows you to turn on the machine (in chiller or heat pump) or select the std-by mode	
Press and release: allows you to turn on the machine (in chiller or heat pump) or select the std-by mode.	
Press and release: allows you to access the functions menu. Press 3 seconds and release: allows you to adjust the clock in the models in which it is provided. Press and release in programming: allows you to exit from the parameter modification.	
Pressione contemporanea dei tasti per 3 secondi: Simultaneous pressing of the keys for 3 seconds:	
Pressione contemporanea dei tasti: 1. consente l'uscita dalla programmazione parametri. 2. la pressione contemporanea prolungata dei tasti consente l'ingresso in sbrinamento manuale.	

As regards the use of the remote terminal (indications on the display and meaning of the keys) refer to the previous paragraphs. In the air / air units, if the remote terminal equipped with an NTC probe (VICXS610) is used, by configuring
par. CF35 = 2 the display will show the ambient air temperature; this probe will be used by the controller for thermoregulation. In the event of a fault in the remote controller / terminal or an error in the wiring, the lack of communication between the instrument and the remote terminal will be signaled on the display with the error message "noL" (no link).

8.4 ACCESS TO PARAMETERS

1 Press the SET and down arrow keys for a few seconds;

2 The icons flash and the upper display displays "ALL" (generic group of parameters)

3 Scroll through the parameter groups with the keys and select the group containing the parameters to be modified; pressing the button set allows you to access the list of parameters contained in the group. The lower display shows the parameter label and the upper display shows the value.

8.5 VIEW AND MODIFY THE SET POINT

Pressing and releasing the SET key allows the set point to be displayed.
Pressing the SET key for a long time allows its modification:

1 Press the SET button for at least 3 seconds;

2 The set point will be displayed flashing;

3 To modify the value, use the keys and

4 Save the new set point by pressing the SET or button wait for the time out time to exit the program.

User interface

Remote terminal

8.6 MAIN ALARMS

Cod.	Meaning	It causes	Action	Reset
P1	Probe alarm PB1	Probe faulty our resistive value out of range	Activate output open collector / relè alarm Activate buzzer Flashing icon generic alarm Code on display	**Automatic** if the value is within the expected range
P2	Probe alarm PB2	Probe faulty our resistive value out of range	Activate output open collector / relè alarm Activate buzzer Flashing icon generic alarm Code on display	**Automatic** if the value is within the expected range
P3	Probe alarm PB3	Probe faulty our resistive value out of range	Activate output open collector / relè alarm Activate buzzer Flashing icon generic alarm Code on display	**Automatic** if the value is within the expected range
P4	Probe alarm PB4	Probe faulty our resistive value out of range	Activate output open collector / relè alarm Activate buzzer Flashing icon generic alarm Code on display	**Automatic** if the value is within the expected range
A12	Defrost error alarm	End defrost for maximum time	Code on display reporting only	**Automatic** with subsequent correct defrost cycle
A09	Compressor thermal alarm	Condensation start temperature of 110 °C	Activate output open collector / relè alarm defrost icon flashing Generic alarm Code on display	**Automatic** with subsequent correct defrost cycle
ALOC	Low or high voltage alarm or higher than 256V	Power supply voltage below 220V activates Buzzer	Activate output open collector / relè alarm defrost icon flashing Generic alarm Code on display	**Automatic** it becomes manual after AL20 interventions now **Manual** Deactivation: digital input not active for continuous time >AL22
E01	Refrigerant circuit high pressure alarm	Refrigerant circuit pressure higher than 42 bar	Activate output open collector / flashing generic alarm icon	**Manual**
E02	Refrigerant circuit high pressure alarm	Refrigerant circuit pressure below 2,7 bar	Activate output open collector / flashing generic alarm icon	**Manual**

8.7 TABLE OF TROUBLESHOOTING CAUSES

Alarm Code	Broken down	Meaning	It causes	Remedy
P1	Probe alarm PB1	Probe technical water	1) Probe interrupted 2) Probe shorted 3) Control unit faulty	1) Technical water probe replacement 2) Control unit replacement
P2	Probe alarm PB2	Probe external 3)	1) Probe interrupted 2) Probe shorted Probe connection Q.E. interrupted	1) External probe replacement 2) Replacement of the external probe connection cable 3) Control unit replacement
temperature				
P3	Probe alarm PB3	Probe external temperature	1) Probe interrupted 2) Probe shorted 3) Probe connection Q.E. interrupted	1) External probe replacement 2) Replacement of the external probe connection cable 3) Control unit replacement
A09	Compressor thermal alarm	High temperature thermostat contact open	1) Faulty thermostat 2) Exhaust booster 3) Q.E. thermostat connection	1) Thermostat replacement 2) External Booster Charging 3) Replacement of the Q.E. thermostat connection cable
A12	Defrost error alarm	End defrost or maximum time	1) Lack of refrigerant gas 2) Extreme outdoor conditions 3) Condensate drain blocked 4) PB3 probe out of range	1) External Booster Charging 2) Change of parameters DF03 and DF04 3) Make sure that the condensate drains off regularly 4) Probe replacement PB3
ALOC	Low or high voltage alarm	Power supply voltage out of safety range	1) Power supply below 220V 2) Power supply above 253 V	Contact the electricity supplier to have the exact voltage values restored
E01	High pressure refrigerant gas alarm	Refrigerant gas pressure higher than 42 bar	Technical water storage	Fill the accumulation with technical water
E02	Low refrigerant gas circuit alarm	Gas pressure below 2.7 bar	1) Faulty evaporator fan 2) Exhaust booster 3) Presence of evaporator ice	1) Replace the evaporator fan 2) Charge refrigerant gas in the Booster 3) Check defrost parameters

9. PARAMETER TABLES

9.1 SUBMENU SELECTION

LABEL	MEANING
ALL	View all parameters
ST	It displays only the thermoregulation parameters
CF	It displays only the configuration parameters
SD	It displays only the dynamic set point parameters
ES	It displays only the energy saving parameters
CO	It displays only the compressor parameters
FA	It displays only the ventilation parameters
Ar	It displays only the frost resistance parameters
DF	It displays only the defrost parameters
AL	It displays only the alarm parameters

9.2 CONFIGURATION PARAMETERS

Parametri Termoregolazione					
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
ST01	Set point estate	ST05	ST06	°C/°F	dec/int
ST02	Differenziale estate	0.0 0	25.0 45	°C °F	Dec int
ST03	Set point inverno	ST07	ST08	°C/°F	dec/int
ST04	Differenziale inverno	0.0 0	25.0 45	°C °F	Dec int
ST05	Set minimo estate	-50.0 -58	ST01	°C °F	Dec int
ST06	Set massimo estate	ST01	110 230	°C °F	Dec int
ST07	Set minimo inverno	-50.0 -58	ST03	°C °F	Dec int
ST08	Set massimo inverno	ST03	110 230	°C °F	Dec int
ST09	Banda di regolazione	0.0 0	25.0 45	°C °F	Dec int
Funzione senza accumulo					
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
ST10	Funzione unità chiller senza accumulo 0= disabilitata 1= abilitata	0	1		
ST11	Set point minima temperatura acqua in uscita unità senza accumulo in funzionamento chiller	-50.0 -58	110 230	°C °F	Dec int
ST12	Set point massima temperatura acqua in uscita unità senza accumulo in funzionamento p.d.c.	-50.0 -58	110 230	°C °F	Dec int
ST13	Delta set point in funzionamento chiller / p.d.c.	0.0 0	25.0 45	°C °F	Dec int
ST14	Delta differenziale in funzionamento chiller / p.d.c.	0.0 0	25.0 45	°C °F	Dec int
ST15	Tempo funzionamento compressore superato il quale viene decrementato il delta set point e il delta differenziale in funzionamento chiller / p.d.c.	0	250	Sec	10 sec
ST16	Costante per il calcolo del valore set point e differenziale in funzionamento chiller / p.d.c.	0	250		
ST17	Tempo di ritardo modifica del set point di lavoro	1	250	Sec	10 sec
Funzione Chiller geotermico					
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
ST18	Set point ambiente in chiller	ST20	ST21	°C/°F	dec/int
ST19	Differenziale ambiente in chiller	0.0 0	25.0 45	°C °F	Dec int
ST20	Set minimo ambiente in chiller	-50.0 -58	ST18	°C °F	Dec int
ST21	Set massimo ambiente in chiller	ST18	110 230	°C °F	Dec int
ST22	Set point ambiente in p.d.c.	ST24	ST25	°C/°F	dec/int
ST23	Differenziale ambiente in p.d.c.	0.0 0	25.0 45	°C °F	Dec int
ST24	Set minimo ambiente in p.d.c.	-50.0 -58	ST22	°C °F	Dec int
ST25	Set massimo ambiente in p.d.c.	ST22	110 230	°C °F	Dec int
Pr2	Password	0	999		

Parametri Configurazione					
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
CF01	Tipo di unità: 0= Chiller aria / aria 1= Chiller aria / acqua 2= Chiller acqua / acqua 3= Chiller acqua / acqua con con inversione ciclo lato acqua	0	3		
CF02	Motocondensante 0= No 1= Si	0	1		
CF03	Sonda di regolazione 0= Regola sulla sonda PB1 1= Regola sulla sonda PB2 2= Regola sulla sonda PB2 e abilita il funzionamento con set utente sulla sonda PB1	0	2		
CF04	Configurazione PB1 0= Sonda assente 1= Temperatura NTC ingresso evaporatore 2= Ingresso digitale richiesta termoregolatore 3= Ingresso digitale richiesta freddo	0	3		
CF05	Configurazione PB2 0= Sonda assente 1= Temperatura NTC uscita evaporatore 2= Ingresso digitale allarme antigelo 3= Ingresso digitale richiesta caldo 4= Temperatura aria esterna	0	4		
CF06	Configurazione PB3 0= Sonda assente 1= Temperatura NTC controllo condensazione 2= Ingresso 4..20ma per controllo condensazione 3= Ingresso 4..20ma per set point dinamico 4= Sonda di temperatura NTC per termoregolazione e allarme antigelo in unità acqua/acqua con inversione lato acqua (unità con p.d.c.) 5= Sonda NTC alta temperatura acqua ingresso impianto 6= ingresso 0..5V per controllo condensazione	0	6		
CF07	Configurazione PB4 0= sonda assente 1= Temp. NTC controllo Condensazione 2= Ingresso digitale multifunzione 3= Temperatura aria esterna 4= Temperatura NTC allarme antigelo (unità acqua/acqua) 5= Temperatura NTC sbrinamento combinato 6= Sonda di temperatura NTC per termoregolazione e allarme antigelo in unità acqua/acqua con inversione lato acqua (unità con p.d.c.) 7= Sonda NTC alta temperatura acqua ingresso impianto	0	7		
CF08	Configurazione ID1 0= Termica compressore 1 1= Termica ventilatore di condensazione 2= Flussostato evaporatore 3= On/off remoto 4= chiller / pompa di calore remoto 5= Termica compressore 2 6= Richiesta 2 compressore / gradino 7= Fine sbrinamento 8= Energy saving 9= Allarme antigelo 10= Termica compressori 1 e 2 11= Allarme generico segnalazione / blocco 12 = Allarme termica pompa acqua evaporatore / termica ventilatore di mandata 13= Allarme termica pompa acqua condensatore 14= Flussostato condensatore 15= Disabilitato	0	15		

CF09	Configurazione ID2 0= Termica compressore 1 1= Termica ventilatore di condensazione 2= Flussostato evaporatore 3= On/off remoto 4= chiller / pompa di calore remoto 5= Termica compressore 2 6= Richiesta 2 compressore / gradino 7= Fine sbrinamento 8= Energy saving 9= Allarme antigelo 10= Termica compressori 1 e 2 11= Allarme generico segnalazione / blocco 12 = Allarme termica pompa acqua evaporatore / termica ventilatore di mandata 13= Allarme termica pompa acqua condensatore 14= Flussostato condensatore 15= Disabilitato	0	15		
CF10	Configurazione ID5 0= Termica compressore 1 1= Termica ventilatore di condensazione 2= Flussostato evaporatore 3= On/off remoto 4= chiller / pompa di calore remoto 5= Termica compressore 2 6= Richiesta 2 compressore / gradino 7= Fine sbrinamento 8= Energy saving 9= Allarme antigelo 10= Termica compressori 1 e 2 11= Allarme generico segnalazione / blocco 12 = Allarme termica pompa acqua evaporatore / termica ventilatore di mandata 13= Allarme termica pompa acqua condensatore 14= Flussostato condensatore 15= Disabilitato	0	15		
CF11	Configurazione PB4 se selezionato come ingresso digitale 0= Termica compressore 1 1= Termica ventilatore di condensazione 2= Flussostato 3= On/off remoto 4= chiller / pompa di calore remoto 5= Termica compressore 2 6= Richiesta 2 compressore / gradino 7= Fine sbrinamento 8= Energy saving 9= Allarme antigelo 10= Termica compressori 1 e 2 11= Allarme generico segnalazione / blocco 12 = allarme termica pompa acqua evaporatore / termica ventilatore di mandata 13= allarme termica pompa acqua condensatore 14= flussostato condensatore 15= disabilitato	0	15		
CF12	Polarità ID1 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF13	Polarità ID2 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF14	Polarità ID3 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF15	Polarità ID4 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF16	Polarità ID5 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF17	Polarità PB1 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF18	Polarità PB2 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF19	Polarità PB4 0= Attivo contatto chiuso 1= Attivo contatto aperto	0	1		
CF20	Configurazione RL4 0 = relè allarme 1 = parzializzazione compressore n° 1 2 = compressore n° 2 3 = ON/OFF ventilazione 4 = valvola di inversione 5 = resistenza antigelo / appoggio n°1 6 = solenoide lato acqua 7 = solenoide lato acqua solo in pompa di calore 8= resistenza antigelo / appoggio n° 2 9 = pompa acqua evaporatore / ventilatore di mandata (macchine aria / aria) 10= pompa acqua condensatore	0	10		
CF21	Configurazione RL5 0 = relè allarme 1 = parzializzazione compressore n° 1 2 = compressore n° 2 3 = ON/OFF ventilazione 4 = valvola di inversione 5 = resistenza antigelo / appoggio n°1 6 = solenoide lato acqua 7 = solenoide lato acqua solo in pompa di calore 8= resistenza antigelo / appoggio n° 2 9 = pompa acqua evaporatore / ventilatore di mandata (macchine aria / aria) 10= pompa acqua condensatore	0	10		
CF22	Valore di pressione a 4mA / 0,5V	0.0 0	50.0 725	Bar Psi	Dec int
CF23	Valore di pressione a 20mA / 5V	0.0 0	50.0 725	Bar Psi	Dec int
CF24	Offset PB1	-12.0 -21	12.0 21	°C °F	Dec int
CF25	Offset PB2	-12.0 -21	12.0 21	°C °F	Dec int
CF26	Offset PB3	-12.0 -21 -12.0 -174	12.0 21 12.0 174	°C °F Bar Psi	Dec int dec int
CF27	Offset PB4	-12.0 -21	12.0 21	°C °F	Dec int
CF28	Selezione chiller / pompa di calore 0= chiller e pompa con selezione da tastiera 1= chiller e pompa con selezione da ingresso digitale 2= chiller e pompa con selezione da sonda 3= solo chiller 4= solo pompa di calore	0	4		
CF29	Set Change Over Automatico	-50.0 -58	110 230	°C °F	Dec int
CF30	Differenziale selezione modo funzionamento	0.1 0	25.0 45	°C °F	Dec int
CF31	Logica di funzionamento 0= chiller / pdc 1= chiller / pdc	0	1		
CF32	Selezione °C o °F 0= °C / °BAR 1= °F / °psi	0	1		
CF33	Selezione frequenza rete 0= 50 Hz 1= 60 Hz 2 = l'uscita PWM può pilotare un relè allarme esterno	0	2		
CF34	Indirizzo seriale	1	247		
CF35	Terminale remoto 0= non utilizzato 1= modello senza sonda a bordo 2= modello con sonda NTC a bordo	0	2		
CF36	Default visualizzazione display superiore 0 = PB1 1 = PB2 2 = Niente 3 = PB4 4 = Setpoint reale unità 5 = Stato unità 6 = Niente 7 = Niente 8 = Differenziale di lavoro 9= Setpoint unità (valore fisso del parametro)	0	9		
CF37	Release firmware				
CF38	Mappa parametri EEprom				
CF39	Configurazione RL2 0 = relè allarme 1 = parzializzazione compressore n° 1 2 = compressore n° 2 3 = ON/OFF ventilazione 4 = valvola di inversione 5 = resistenza antigelo / appoggio n°1 6 = solenoide lato acqua 7 = solenoide lato acqua solo in pompa di calore 8= resistenza antigelo / appoggio n° 2 9 = pompa acqua evaporatore / ventilatore di mandata (macchine aria / aria) 10= pompa acqua condensatore	0	10		
CF40	Configurazione RL3 0 = relè allarme 1 = parzializzazione compressore n° 1 2 = compressore n° 2 3 = ON/OFF ventilazione 4 = valvola di inversione 5 = resistenza antigelo / appoggio n°1 6 = solenoide lato acqua 7 = solenoide lato acqua solo in pompa di calore 8= resistenza antigelo / appoggio n° 2 9 = pompa acqua evaporatore / ventilatore di mandata (macchine aria / aria) 10= pompa acqua condensatore	0	10		
CF41	Configurazione uscita open collector 0 = relè allarme 1 = parzializzazione compressore n° 1 2 = compressore n° 2 3 = ON/OFF ventilazione 4 = valvola di inversione 5 = resistenza antigelo / appoggio n°1 6 = solenoide lato acqua 7 = solenoide lato acqua solo in pompa di calore 8= resistenza antigelo / appoggio n° 2 9 = pompa acqua evaporatore / ventilatore di mandata (macchine aria / aria) 10= pompa acqua condensatore	0	10		
CF42	Tempo di inversione valvola su fermo compressore	0	250	Sec	
CF43	Default visualizzazione display inferiore 0 = PB1 1 = PB2 2 = PB3 3 = PB4 4 = Setpoint reale unità 5 = Stato unità 6 = Orologio 7 = Niente 8 = Differenziale di lavoro 9= Setpoint unità (valore fisso del parametro)	0	9		

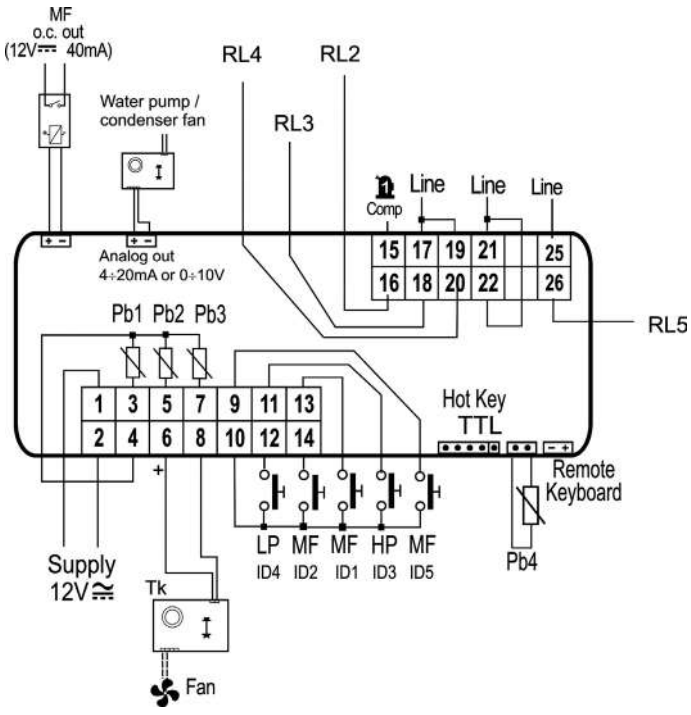
CF44	Default visualizzazione display superiore terminale remoto 0 = PB1 1 = PB2 2 = Niente 3 = PB4 4 = Setpoint reale unità 5 = Stato unità 6 = Niente 7 = Niente 8 = Differenziale di lavoro 9= Setpoint unità (valore fisso del parametro)	0	9		
CF45	Default visualizzazione display inferiore terminale remoto 0 = PB1 1 = PB2 2 = PB3 3 = PB4 4 = Setpoint reale unità 5 = Stato unità 6 = Orologio 7 = Niente 8 = Differenziale di lavoro 9= Setpoint unità (valore fisso del parametro)	0	9		
CF46	Visualizzazione in STD-BY 0 = visualizza le grandezze della visualizzazione normale (impostate con parametri CF36 e CF43) 1 = visualizza la label "OFF" 2 = visualizza la label "StbY"	0	2		
CF47	Visualizzazione in STD-BY terminali remoti 0 = visualizza le grandezze della visualizzazione normale (impostate con parametri CF36 e CF43) 1 = visualizza la label "OFF" 2 = visualizza la label "StbY"	0	2		
CF48	Configurazione uscita analogica 4..20mA / 0..10V 0 = uscita 4..20mA 1 = uscita 0..10V	0	1		
Pr2	Password	0	999		
	Set Point Dinamico				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
Sd01	Set point dinamico 0= Non abilitato 1= Abilitato	0	1		
Sd02	Offset max setpoint d. estate	-30.0 -54	30.0 54	°C °F	Dec int
Sd03	Offsett max setpoint d. inverno	-30.0 -54	30.0 54	°C °F	Dec int
Sd04	Set temp. Aria esterna setpoint d. estate	-50.0 -58	110 230	°C °F	Dec int
Sd05	Set temp. Aria esterna setpoint d. inverno	-50.0 -58	110 230	°C °F	Dec int
Sd06	Differenziale temp. Aria esterna setpoint d. estate	-30.0 -54	30.0 54	°C °F	Dec int
Sd07	Differenziale temp. Aria esterna setpoint d. inverno	-30.0 -54	30.0 54	°C °F	Dec int
Pr2	Password	0	999		
	Energy Saving				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
ES01	Inizio (0÷24)	0	23.50	Min	10 min
ES02	Fine (0÷24)	0	23.50	Min	10 min
ES03	Lunedì 0 = Non abilitato 1= Abilitato	0	1		
ES04	Martedì 0 = Non abilitato 1= Abilitato	0	1		
ES05	Mercoledì 0 = Non abilitato 1= Abilitato	0	1		
ES06	Giovedì 0 = Non abilitato 1= Abilitato	0	1		
ES07	Venerdì 0 = Non abilitato 1= Abilitato	0	1		
ES08	Sabato 0 = Non abilitato 1= Abilitato	0	1		
ES09	Domenica 0 = Non abilitato 1= Abilitato	0	1		
ES10	Incremento set energy saving chiller	-30.0 -54	30.0 54	°C °F	Dec int
ES11	Differenziale energy saving chiller	0.1 0	25.0 45	°C °F	Dec int
ES12	Incremento set energy saving p.d.c.	-30.0 -54	30.0 54	°C °F	Dec int
ES13	Differenziale energy saving p.d.c.	0.1 0	25.0 45	°C °F	Dec int
Pr2	Password	0	999		
	Parametri Compressori				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
CO01	Tempo minimo accensione	0	250	Sec	10Sec
CO02	Tempo minimo spegnimento	0	250	Sec	10Sec
CO03	Ritardo accensione tra i due compressori / parzializzazione	1	250	Sec	
CO04	Ritardo spegnimento tra i due compressori / parzializzazione	0	250	Sec	
CO05	Ritardo all' accensione compressori da power ON	0	250	Sec	10Sec
CO06	Ritardo ON compressore dalla partenza pompa / ventilatore di mandata	1	250	Sec	
CO07	Ritardo OFF pompa / ventilatore di mandata dallo spegnimento compressore	0	250	Sec	
CO08	Rotazione compressori 0= Abilitata 1= Sequenza fissa	0	1		
CO09	Tempo di ritardo disattivazione valvola lato acqua da OFF compressore	0	250	Sec	
CO10	Polarità valvola di parzializzazione 0=. Parzializzazione. ON 1=. Parzializzazione. OFF	0	1		
CO11	Modo operativo pompa / ventilatore di mandata 0= Assente 1= Funzionamento continuo in uscita ON/OFF 2= Funzionamento su chiamata del compressore 3= Funzionamento continuo in uscita 4÷20mA 4= Funzionamento su chiamata del compressore 4÷20mA	0	4		
CO12	Compressore 1 0 = Abilitato 1 = OFF	0	1		
CO13	Compressore 2 / parzializzazione. 0 = Abilitato 1= OFF	0	1		
CO14	SET Contaore compressore 1	0	999	Hr	10 Hr
CO15	SET Contaore compressore 2	0	999	Hr	10 Hr
CO16	SET Contaore pompa acqua / ventilatore di mandata (unità aria/aria)	0	999	Hr	10 Hr
	Unloading evaporatore				
CO17	Set point attivazione unloading evaporatore	-50.0 -58	110 230	°C °F	Dec int
CO18	Differenziale attivazione unloading evaporatore	0.1 0	25.0 45	°C °F	Dec int
CO19	Ritardo attivazione unloading evaporatore	0	250	Sec	10 Sec
CO20	Tempo massimo di permanenza in funzionamento unloading comp da alta temp. ingresso evaporatore	0	250	Sec	10 Sec
	Unloading condensatore				
CO21	Set point unloading compressore pressione in funzionamento chiller	0.0 0	50.0 725	Bar Psi	Dec int
CO22	Differenziale unloading compressore pressione in funzionamento chiller	0.0 0	12.0 174	Bar Psi	Dec int
CO23	Set point unloading compressore pressione in funzionamento pompa di calore	0.0 0	50.0 725	Bar Psi	Dec int
CO24	Differenziale unloading compressore pressione in funzionamento pompa di calore	0.0 0	12.0 174	Bar Psi	Dec int
CO25	Tempo massimo di unloading condensatore	0	250	Sec	10 Sec
	Pompa acqua condensatore				
CO26	Modo operativo pompa acqua condensatore 0= Assente 1= Funzionamento continuo 2= Funzionamento su chiamata del compressore	0	2		
CO27	Ritardo OFF pompa acqua condensatore dallo spegnimento compressore	0	250	Sec	
CO28	SET Conta ore pompa acqua condensatore	0	999	Hr	10 Hr
	Funzione compressore in tandem				
CO29	Tempo massimo di funzionamento continuativo compressore	0	250	Min	
CO30	Tempo di ritardo avviamento compressore dalla richiesta valvola solenoide lato acqua.	0	250	sec	10 Sec
	Pompa acqua evaporatore modulante				
CO31	Tempo di spunto pompa impianto alla massima velocità da richiesta termoregolazione	0	250	sec	
CO32	Minima velocità % in funzionamento con compressore attivo (Chiller)	30	100	%	
CO33	Minima velocità % in funzionamento con compressore attivo (Pompa di calore)	30	100	%	
CO34	Velocità % pompa impianto con compressore Spento	30	100	%	
CO35	Set point controllo velocità pompa in funzione della temperatura acqua uscita (PB2) in modalità chiller	-50.0 -58	110 230	°C °F	Dec int
CO36	Banda di controllo temperatura acqua mandata in chiller	0.0 0	25.0 45	°C °F	Dec int
CO37	Tempo ritardo spegnimento comp. da termoregolazione con pompa acqua < 100 % in funzionamento chiller	0	250	sec	
CO38	Set point controllo velocità pompa in funzione della temperatura acqua mandata (PB2) in modalità Pompa di calore	-50.0 -58	110 230	°C °F	Dec int
CO39	Banda di controllo temperatura acqua mandata in pdc	0.0 0	25.0 45	°C °F	Dec int
CO40	Tempo ritardo spegnimento comp. da termoregolazione con pompa acqua < 100 % in funzionamento p.d.c.	0	250	sec	
Pr2	Password	0	999		
	Parametri Ventilazione				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
FA01	Uscita ventilatori 0= Assente 1= Presente	0	1		
FA02	Regolazioni ventole 0= Accese con compressore acceso 1= Regolazione ON / OFF 2= Regolatore proporzionale di velocità	0	2		
FA03	Modo funzionamento ventole 0= Dipendenti dal compressore 1= Indipendenti dal compressore	0	1		
FA04	Tempo di spunto ventole max velocità dopo ON	0	250	Sec	
FA05	Sfasamento ventole	0	20	Micro Sec	250• s
FA06	Non adoperato				
FA07	Preventilazione in cooling prima di ON compressore	0	250	Sec	
FA08	Minima velocità ventole in estate	30	100	%	

FA09	Massima velocità ventole in estate	30	100	%	
FA10	Set temperatura / pressione minima velocità ventole in estate	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
FA11	Set temperatura / pressione massima velocità ventole in estate	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
FA12	Banda proporzionale ventilatori in estate	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA13	Differenziale CUT-OFF estate	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA14	Over ride CUT-OFF estate	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA15	Tempo ritardo CUT-OFF	0	250	Sec	
FA16	Velocità night function estate	30	100	%	
FA17	Minima velocità ventole in inverno	30	100	%	
FA18	Massima velocità ventole in inverno	30	100	%	
FA19	Set temperatura / pressione minima velocità ventole in inverno	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
FA20	Set temperatura / pressione massima velocità ventole in inverno	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
FA21	Banda proporzionale ventole in inverno	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA22	Differenziale CUT-OFF inverno	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA23	Over ride CUT-OFF inverno	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
FA24	Velocità night function inverno	30	100	%	
	Funzione Hot Start				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
FA25	Set point hot start	-50.0 -58	110 230	°C °F	Dec int
FA26	Differenziale hot start	0.1 0	25.0 45	°C °F	Dec int
Pr2	Password	0	999		
	Parametri Resistenze Antigelo / Appoggio				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
Ar01	Set point minimo antigelo	-50.0 -58	Ar03	°C °F	Dec int
Ar02	Setpoint massimo antigelo	Ar03	110 230	°C °F	Dec int
Ar03	Set allarme antigelo in chiller	Ar01	Ar02	°C /°F	Dec/int
Ar04	Differenziale allarme antigelo in chiller	0 0	25.0 45	°C °F	Dec int
Ar05	Ritardo allarme antigelo	0	250	Sec	
Ar06	Numero max interventi ora antigelo	0	16		
Ar07	Ritardo allarme antigelo alla partenza in p.d.c.	0	250	Sec	
Ar08	Set point resistenze antigelo in chiller	-50.0 -58	110 230	°C °F	Dec int
Ar09	Set point resistenze antigelo in p.d.c	-50.0 -58	110 230	°C °F	Dec int
Ar10	Set point resistenze antigelo esterne (unità acqua/acqua)	-50.0 -58	110 230	°C °F	Dec int
Ar11	Differenziale resistenze antigelo in chiller	0.1 0	25.0 45	°C °F	Dec int
Ar12	Differenziale resistenze antigelo in p.d.c.	0.1 0	25.0 45	°C °F	Dec int
Ar13	Attivazione resistenze antigelo 0= Attivazione con termoregolatore 1= Attivazione con termoregolatore e in sbrinamento	0	1		
Ar14	Regolazione resistenze antigelo in chiller 0= OFF in chiller 1= ON in chiller	0	1		
Ar15	Regolazione resistenze antigelo in p.d.c 0= OFF in p.d.c. 1= ON in p.d.c.	0	1		
Ar16	Termoregolazione resistenze antigelo in chiller 0= Regola su PB1 1= Regola su PB2 2= Regola su PB3 3= Regola su PB4	0	3		
Ar17	Termoregolazione resistenze antigelo in p.d.c. 0= Regola su PB1 1= Regola su PB2 2= Regola su PB3 3= Regola su PB4	0	3		
	Funzionamento pompa acqua evaporatore				
Ar18	Regolazione pompa acqua evaporatore / resistenze antigelo in OFF-stand-by 0= Disattivata 1= Attivata 2= Regolazione pompa acqua / resistenze antigelo su sonda PB4 configurata come sonda ambiente 3 = Regolazione pompa acqua / resistenze antigelo su sonda PB4 configurata come sonda ambiente con set separati	0	3		
Ar19	Attivazione pompa acqua / resistenze antigelo in caso di guasto sonda 0= Spente con guasto sonda 1= Accese con guasto sonda	0	1		
	Funzione Boiler				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
Ar20	Funzione boiler 0= Controllo in integrazione 1= Controllo in riscaldamento	0	1		
Ar21	Set point aria esterna attivazione resistenze boiler	-50.0 -58	110 230	°C °F	Dec int
Ar22	Differenziale resistenze boiler	0.1 0	25.0 45	°C °F	Dec int
Ar23	Tempo ritardo attivazione funzione boiler	0	250	Min	
Ar24	Tempo ritardo attivazione resistenza n° 2 boiler	0	250	Min	
Ar25	Set point aria esterna disattivazione compressori	-50.0 -58	110 230	°C °F	Dec Int
Ar26	Differenziale aria esterna attivazione compressori	0.1 0	25.0 45	°C °F	Dec int
	Allarme antigelo in pompa di calore				
Ar27	Set allarme antigelo in funzionamento p.d.c.	Ar01	Ar02	°C /°F	Dec/int
Ar28	Differenziale allarme antigelo in p.d.c.	0 0	25.0 45	°C °F	Dec int
	Funzionamento pompa acqua evaporatore / condensatore su sonda ambiente				
Ar29	Set attivazione pompa acqua evaporatore / condensatore su sonda ambiente	-50.0 -58	110 230	°C °F	Dec int
Ar30	Differenziale attivazione pompa acqua evaporatore / condensatore su sonda ambiente	0.1 0	25.0 45	°C °F	Dec int
	Funzionamento pompa acqua condensatore				
Ar31	Regolazione pompa acqua condensatore/ resistenze antigelo in OFF-stand-by 0= Disattivata 1= Attivata 2= Regolazione pompa acqua / resistenze antigelo su sonda PB4 configurata come sonda ambiente 3 = Regolazione pompa acqua / resistenze antigelo su sonda PB4 configurata come sonda ambiente con set separati.	0	3		
Ar32	Attivazione pompa acqua condensatore in caso di guasto sonda 0= Spente con guasto sonda 1= Accese con guasto sonda	0	1		
Pr2	Password	0	999		
	Parametri Sbrinamento				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
dF01	Esecuzione sbrinamento 0= No 1= Si	0	1		
dF02	Modalità di sbrinamento 0= Temperatura / pressione 1= Tempo 2= Contatto esterno	0	2		
dF03	Temperatura pressione inizio sbrinamento	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
dF04	Temperatura pressione fine sbrinamento	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
dF05	Tempo minimo di attesa prima di uno sbrinamento forzato	0	250	Sec	
dF06	Durata minima sbrinamento	0	250	Sec	
dF07	Durata massima sbrinamento	0	250	min	
dF08	Tempo di attesa in OFF compressore prima dello sbrinamento	0	250	Sec	
dF09	Tempo di attesa in OFF compressore dopo lo sbrinamento	0	250	Sec	
dF10	Tempo di attesa minimo tra 2 sbrinamenti successivi	1	99	MIN	
dF11	Set temperatura inizio ciclo sbrinamento combinato dopo conteggio par. DF10	-50.0 -58	110 230	°C °F	Dec int
dF12	Set temperatura fine ciclo di sbrinamento combinato	-50.0 -58	110 230	°C °F	Dec int
dF13	Forzatura in ON secondo compressore in sbrinamento 0= Disabilitata 1= Abilitata	0	1		
dF14	Abilitazione ON ventilazione durante lo sbrinamento / gocciolamento 0= Disabilitata 1= Abilitata solo sbrinamento 2= Abilitata sbrinamento, gocciolamento (dF09)	0	2		
dF15	Set pressione / temperatura forzatura regolazione ventilazione di condensazione in sbrinamento	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
dF16	Allarme di minima in sbrinamento 0= Non abilitato 1= Abilitato	0	1		
dF17	Ritardo allarme di minima all'inversione della valvola 4 vie	0	250	Sec	

dF18	Valvola 4 vie di inversione ciclo 0= ON in cooling 1= ON in heating	0	1		
dF19	Set temperatura / pressione forzatura ciclo di sbrinamento	-50.0 -58 0.0 0	110 230 50.0 725	°C °F bar psi	Dec int Dec int
dF20	Differenziale forzatura ciclo di sbrinamento	0.0 0 0.0 0	25.0 45 50.0 725	°C °F Bar psi	Dec Int Dec Int
dF21	Blocco ventilatori in sbrinamento	0	1		
Pr2	Password	0	999		
	Parametri Allarmi				
Parametro	**Descrizione**	**min**	**max**	**udm**	**Risoluzione**
AL01	Ritardo pressostato bassa pressione	0	250	Sec	
AL02	Numero massimo interventi ora bassa pressione	0	16		
AL03	Allarme bassa pressione con compressore spento 0= Non attivo a compressore spento 1= Attivo a compressore spento	0	1		
AL04	Ritardo allarme flussostato / termica vent. di mandata (unità aria/aria) da attivazione pompa / ventilatore	0	250	Sec	
AL05	Tempo massimo permanenza allarme flussostato prima di trasformarsi in manuale e bloccare, se in moto, la pompa dell'acqua	0	250	Sec	
AL06	Durata ingresso flussostato / termica vent. di mandata attivo	0	250	Sec	
AL07	Durata ingresso flussostato / termica vent. di mandata non attivo	0	250	Sec	
AL08	Ritardo allarme termica compressore 1-2 alla partenza	0	250	Sec	
AL09	Numero massimo interventi ora termica compressori 1-2	0	16		
AL10	Numero massimo di interventi ora allarme alta temperatura / pressione di condensazione	0	16		
AL11	Set point allarme alta temperatura / pressione di condensazione	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
AL12	Differenziale alta temperatura / pressione	0 0 0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
AL13	Ritardo allarme bassa pressione ingresso analogico	0	250	Sec	
AL14	Set point allarme bassa pressione ingresso analogico	-50.0 -58 0.0 0	110 230 50.0 725	°C °F Bar Psi	Dec int Dec int
AL15	Differenziale bassa temperatura / pressione	0 0 0 0	25.0 45 50.0 725	°C °F Bar Psi	Dec int Dec int
AL16	Numero massimo interventi ora allarme bassa pressione ingresso analogico	0	16		
AL17	Abilita uscita buzzer e relè allarme in OFF o stand-by 0= Uscita buzzer e relè allarme abilitata 1= Uscita buzzer e relè allarme non abilitata	0	1		
AL18	Polarità relè allarme/uscita open collector 0= Uscita senza tensione in condizioni normali, con tensione in presenza di allarme 1= Uscita con tensione in condizioni normali, senza tensione in presenza di allarme	0	1		
AL19	Sonda per allarme antigelo: 0= Legato ai parametri Ar16 in chiller - Ar17 in p.d.c. 1= Su sonda Pb1 2= Su sonda Pb2 3= Su sonda Pb3 4= Su sonda Pb4	0	4		
AL20	Numero massimo di interventi ora allarme generico blocco unità	0	16		
AL21	Tempo di ritardo allarme generico blocco unità con ingresso digitale attivo	0	250	Sec	
AL22	Tempo di ritardo allarme generico blocco unità con ingresso digitale non attivo	0	250	10 sec	10 sec
AL23	Funzionamento allarme generico 0 = solo segnalazione non dipende da AL20 (relè allarme e buzzer attivati) sempre riarmo automatico 1= l'allarme blocca l'unità il reset dell'allarme dipende dal valore del parametro AL20	0	1		
AL24	Set point allarme alta temperatura acqua ingresso impianto	-50.0 -58	110 230	°C °F	Dec int
AL25	Differenziale allarme alta temperatura acqua in ingresso	0.1 0	25.0 45	°C °F	Dec int
AL26	Ritardo allarme alta temperatura acqua in ingresso	0	250	10 sec	10 sec
AL27	Numero massimo di interventi ora allarme alta temperatura acqua ingresso impianto	0	16		
AL28	Ritardo allarme flussostato lato caldo da attivazione / spegnimento pompa acqua	0	250	Sec	
AL29	Tempo massimo permanenza allarme flussostato lato caldo prima di trasformarsi in manuale e bloccare, se in moto, la pompa dell'acqua	0	250	Sec	
AL30	Durata ingresso flussostato lato caldo attivo (pompa non funzionante)	0	250	Sec	
AL31	Durata ingresso flussostato lato caldo non attivo (pompa funzionante)	0	250	Sec	
AL32	Funzionamento flussostato lato caldo 0= disabilitato 1= abilitato solo chiller 2= abilitato solo p.d.c. 3= abilitato chiller e p.d.c.	0	3		
Pr2	Password	0	999		

9.3 ELECTRICAL DIAGRAM OF DIGITAL CONTROL UNIT

MF ID1, MF ID2, MF ID5 = multifunction digital inputs
HP ID3 = high pressure digital input
LP ID4 = low pressure digital input
MF RL2, MF RL3, MF RL4, MF RL5 = multifunction relay
Trigger signal out TK = output for connection to external module for controlling the condensation fan (phase cut)
Pb1, Pb2, Pb3, Pb4 = NTC analog inputs
digital inputs **Pb3** = ratiomentric pressure translator 0.5 Vcc
MF o.c. out = configurable open collector output for connection to external relay



10. WARNINGS

10.1 QUALIFICATION OF THE INSTALLER

ATTENTION! It is required by current legislation that the installation is carried out by an authorized company able to ensure, in addition to the correct construction of the system, also the necessary checks before commissioning.

10.2 PRELIMINARY INFORMATION

Before starting the installation, it is necessary to make sure that the planning phases and obtaining any necessary authorizations have been completed (for example: local authorities - Municipality, etc.), in addition to the appropriate technical checks (for example: evaluation of acoustic impact).
It is recommended in order to rely on a qualified heating engineer who guarantees the correct execution of the aforementioned phases, whether they are optional or mandatory.

10.3 TRANSPORT AND HANDLING

The device is shipped on wooden pallets, with cardboard and plastic protections. The appliance can be handled by suitably equipped personnel and with equipment suitable for the weight of the product, such as a forklift or transpallet, taking care to distribute the weight on the supports, which is unbalanced towards the compressor (water connections side).
Any lifting by means of belts or ropes can be carried out by binding the ropes to two sturdy metal pipes inserted in the crossbars under the base of the machine.
Ensure that the ropes are blocked at the points of anchorage to the pipes by means of suitable fasteners or safety pins; protect the contact points between the ropes and the appliance using cardboard or other suitable material.
Upon delivery, check that no visible damage has occurred on the packaging and / or on the appliance during transport. If damage is found, immediately file a formal complaint with the shipper. Do not install equipment damaged during transport. It is forbidden to dispose of the packaging parts in the environment, or leave them within the reach of children as they are a potential source of danger.

10.4 USE OF THE INSTRUCTIONS

This manual is an integral part of the product and must be given to the owner of the appliance, so that he can keep it carefully for any future use or for consultation.

ATTENTION! When installing or working on the appliance, observe all the instructions contained in this manual and anything else applicable to the product, according to national safety standards. Changes to connections of any kind and / or failure to comply with these instructions will result in the immediate forfeiture of the manufacturer's warranty and liability.

9.5 GENERAL SYSTEM CHECKS

ATTENTION! Before filling the system, make sure that the pipes do not contain foreign material, such as sand, slag, rust flakes and so on, which could damage the exchanger. It is good practice to wash the system, by-passing the unit, before filling it.
Load the system, taking care to check the opening of the shut-off valves and the closure of the system drain cock

ATTENTION!

- **Connect the indoor unit first and then the outdoor unit, firmly fixing the pipes.**
- **Make sure that the drain is not loose.**
- **Make sure that the auxiliary lines have been isolated.**
- **Make sure that the drain drains properly. Attach the drain to the other pipes.**
- **Do not allow the power cables to come into contact with pipes.**
- **Install check valves in the system to avoid that the water contained in the accumulation does not circulate freely when it is not necessary, or when there is no consent from thermoregulation.**

11. START-UP

11.1 Initial start-up checks

Before proceeding with the commissioning of the device, make sure that:

- the safety conditions and all the provisions set out in this manual has been complied with;
- the fixing to the support surface is stable and the areas of respect are free from any obstacle or material that impede easy accessibility to the device;
- the hydraulic and electrical connections, with particular attention to grounding, have been carried out correctly;
- interception, loading, unloading and venting devices of the plant are in the correct operating conditions and have been properly checked.

ATTENTION! The start-up of the appliance, in conditions of non-compliance with the requirements of this manual and / or the regulations in force on safety and plant engineering, will result in the forfeiture of the warranty conditions.

11.2 START-UP

The start-up of the device and the selection of the operating mode can be performed by acting directly on the microprocessor keyboard with the "SUN" button.
Press and hold for at least 2/3 seconds, when released, the LED indicating the sun will begin to flash (compressor count).
After a few minutes the LED will become steady, and the machine will start operating, heating the technical water of the indoor unit up to the SET-POINT temperature. At this point the machine enters full capacity and will carry out all the on and off cycles automatically and autonomously.
After starting the device, check the correct functioning of the system, paying particular attention to the following:

- the water pump must not emit abnormal noise, as this situation indicates that the air was not properly drained or that the water flow rate is not sufficient (possible obstructions, clogging or delivery adjustment of the devices on the system);
- the voltage measured in the power supply terminals must be included in the 210-240 Volt range for models with single-phase power supply. Lower values indicate one voltage drop in the power line too high, with consequent possible damage to the compressor, which can also occur also for voltages greater than those indicated above;
- the temperature difference measured between the inlet and outlet of the device it must be between 3 ° C and 8 ° C; values less than 3 °C indicate an excessive flow of water, vice versa the flow it will be too low with values greater than 8 ° C;
- if the above conditions are not fulfilled, switch off the machine and made corrective actions to allow the regular operation of the system.

12. REPAIR - COMPONENTS REPLACEMENT

Specific technical expertise is required to work on the components listed below and / or to replace them, so it is recommended that you always contact an authorized Technical Assistance Center.
For safety and quality purposes it is recommended to use original components and spare parts for replacements.
Always operate in conditions of maximum safety, in compliance with current regulations on the subject.
Before any intervention on the appliance, disconnect the power supply by acting on the main switch and then on the disconnector on the machine.
For any operations of emptying and charging of refrigerant gas, it is recommended to use specific equipment for the recovery of the refrigerant, in order to protect the environment.

12.1 REFRIGERANT CIRCUIT

For any reason it is necessary to repair the refrigerant circuit, with consequent contamination, as in the case of burning of the electrical windings of the compressor or failure of the circuit with complete emptying, the following must always be carried out:

- replacement of filter drier;
- circuit cleaning;
- drying and high vacuum;
- leak test and charge recovery.

12.2 DRYING AND VACUUM OF THE SYSTEM

Drying and high vacuum are necessary to evacuate the air, humidity, and all gases that may be in solution with the compressor oil.
If there is water in the liquid phase in the system, it is necessary to slightly heat the parts in which it is deposited, in order to favor evaporation.
The capacity of the high vacuum pump must be adequate for the system in which it is to be operated; the use of a pump with a flow rate of at least 90 liters / minute is recommended.
The degree of vacuum must be checked with a suitable vacuum gauge for medium vacuum, possibly electronic, with resolution in microns of the scale.

- Carrying out a high vacuum:
- connect the pump to the system by means of pipes, connections from 1/4 SAE female swivel, to the pressure points shown on the suction and delivery connections in the compressor;
- connect a vacuum gauge
- vacuum up to a value of at least 350, 500 microns for a minimum time of at least 30 minutes.

12.3 CLEANING THE CIRCUIT

ATTENTION! If the motor burns, with perforation of the windings, it is necessary to carefully clean the refrigerant circuit to avoid subsequent burns or breakdowns.

Cleaning operations have the purpose of eliminating all carbon or other solid state deposits and, according to the method used, all contaminants that have been introduced for cleaning the circuit or as a result of the operations performed must be eliminated.

ATTENTION! Do not inhale refrigerant vapors from burnt compressors, as toxic products may be present. Completely avoid contact with the skin of the residual oil from the burnt compressor, as it is generally acidic.

12.4 REFRIGERANT CHARGE

ATTENTION! Under no circumstances should the refrigerant gas in the liquid state be loaded on the compressor on the suction side as this condition causes damage to the compressor.

The operations to be carried out are as follows:

- connect the cylinder (or the charging cylinder) to the system by means of pipes and 1/4 SAE female swiveling connections to the pressure point on the liquid side of the air / gas exchangers refrigerant;
- insert refrigerant in the liquid state:

a) until the necessary office is reached;
b) until the balance of pressures between cylinder and refrigerant circuit;

- start the appliance and, if necessary, insert the refrigerant remaining until the prescribed values are reached. The charge setup operation must be done using the suction socket of the compressor, by inserting the liquid refrigerant gradually;
- check the refrigerant charge.

ATTENTION! Make sure that the instruments used are in good condition and properly calibrated.

12.5 Verification of overheating

- start the appliance;
- insert into the pressure point, positioned in the large tube near the compressor, the low pressure gauge for the pressure measurement;
- wait for the values to stabilize for about 20 minutes;
- measure the temperature value on the large tube (phase steam), near the pressure point using a special contact probe;
- read the temperature value in the pressure gauge, in correspondence with the detected pressure value.

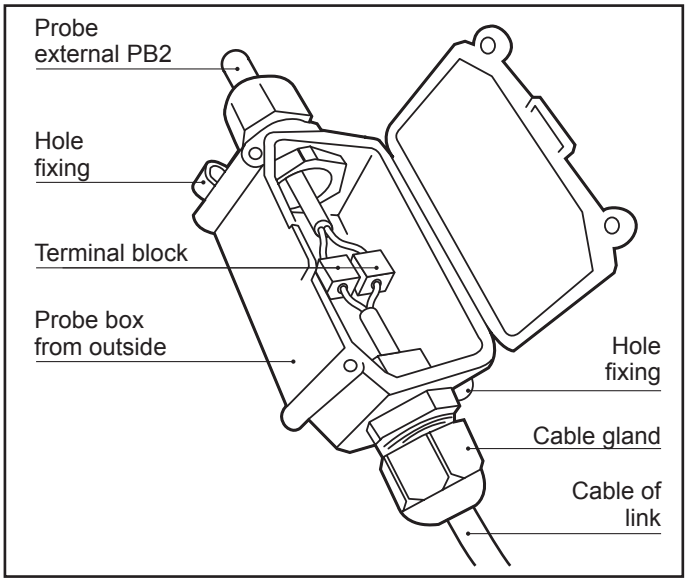
The temperature read on the thermometer must be greater than the temperature read on the pressure gauge by a value between 3 °C and 8 ° C for operation in cooling mode, between 1 ° C and 5 °C for operation in heating mode.

13. EXTERNAL PROBE KIT

The external probe kit allows to detect the external temperature and, when connected to the remote control panel, activates the climate control program.

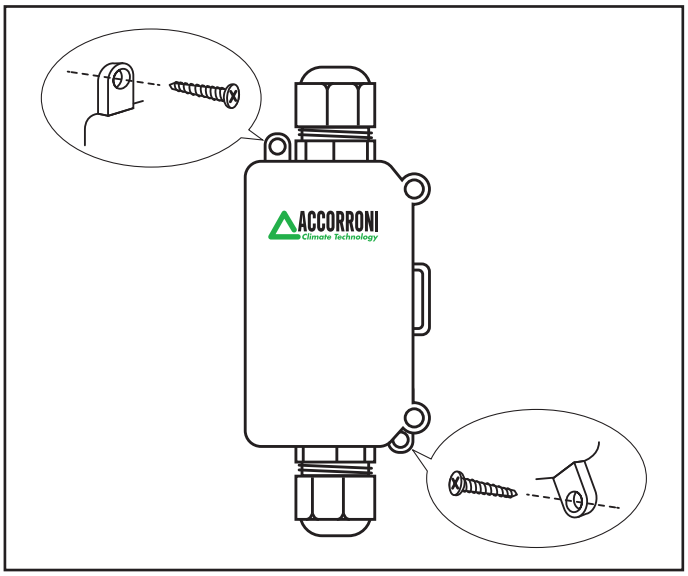
Before carrying out any operation, disconnect the power supply to the boiler by setting the main switch of the system and the main switch of the appliance to "off".

Correct positioning of the external probe is essential for the proper functioning of the climate control.
The probe must be installed outside the building to be heated, at about 2/3 of the height of the NORTH or NORTH-WEST facade and away from flues, doors, windows and sunny areas.



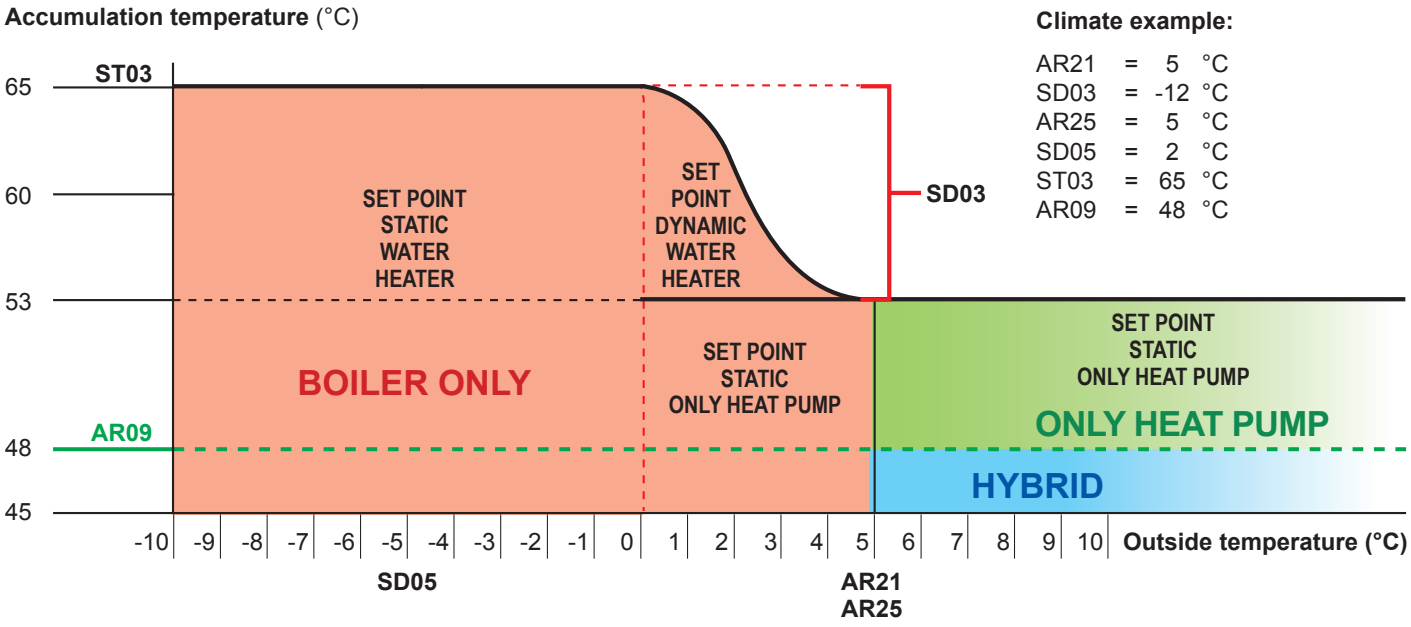
13.1 FIXING THE EXTERNAL SENSOR TO THE WALL

- Mark the 2 fixing points in the holes positioned at the top a left and bottom right of the box
- Remove the box and drill the dowels ad 5 x 25 expansion
- Fix the box to the wall using two plugs
- Open the lid of the box by removing the 2 screws fixing supplied
- Unscrew the nut of the cable gland, insert a two-pole cable (with section from 0.5 to 1 mm 2, not supplied) for the connection of the probe to the remote control panel
- Connect the two wires of the cable to the terminal board without need to identify the polarities
- Tighten the nut of the cable gland fully and close the protection box cover and tighten with screws supplied.



14. HYBRID SYSTEM CLIMATE MANAGEMENT (WINTER PHASE)

14.1 EXAMPLE OF OPERATION WITH EXTERNAL CLIMATE PROBE HYBRID SYSTEM HUB RADIATOR PACK CF



14.2 PROCEDURE FOR SETTING THE OPERATING PARAMETERS

To modify the parameters that determine the hybrid operating mode upon call of the external probe Pb2, follow the instructions below:

- Set the outside temperature above which yes wishes to use only the renewable energy of the Booster external to HP both for DHW production and for heating production, acting on the parameter AR21 / 25. Above this temperature it will however remain activates the “integration boiler” mode upon call from the technical water probe Pb1 to guarantee a temperature lower limit of technical water below which there is no can go down. For example if you set the parameter AR21 / 25 at 3 °C, the parameter AR09 at 48 °C and the parameter AR12 at 2 ° C if we were in a climatic condition favorable with 15 °C outside temperature but in the face of a large drawing of DHW the temperature of the storage drops below 48 °C (AR09) then the boiler will it will activate automatically and then switch off at the temperature of 50 °C (AR09 + AR12).
- Set the outside temperature below which yo wishes to completely deactivate the Booster external to the HP and use only the boiler for the production of DHW which for the production of heating going to act on parameter AR25 (outside air temperature below of which the Booster is deactivated) and on parameter AR21 (outside air temperature below which it is activated the boiler).
- Simultaneously with the activation of the “solo boiler ”, it is possible to set a sliding temperature of the technical water set - point in order to obtain a flow system temperatures that increases in a manner proportional to the decrease in air temperature external. To proceed with this function, set the value of parameters ST08 and ST03 at the temperature of end of climatic curve (e.g. 65 °C as shown in the graph above shown), further set parameters SD03(negative differential that determines the initial value of the climatic curve with respect to the final value, eg. 12 °C as per graph above), SD07 (temperature differential external dynamic set-point, eg. 5 °C as shown in the graph above) and SD05 (set external air temperature for the determination of the end of the temperature increase technical water storage (e.g. - 5 °C as shown in the graph above reported.

To ensure that the above settings determine the correct operation of the hybrid system, make sure that the boiler switch “IC” is in the ON position and that the boiler diverter is in the “INTEGRATION” position as indicated in paragraph 8.2. Also check that the digital command and control unit of the external Booster is active in heating mode and that the external probe Pb2 has been connected correctly as indicated in chapter 12. The last check to be made concerns the boiler control unit physically positioned above the heat pump control unit, which must also be in HEATING mode with a set-point temperature greater than or equal to parameter ST03.

14.3 CLIMATIC MANAGEMENT PROCEDURE

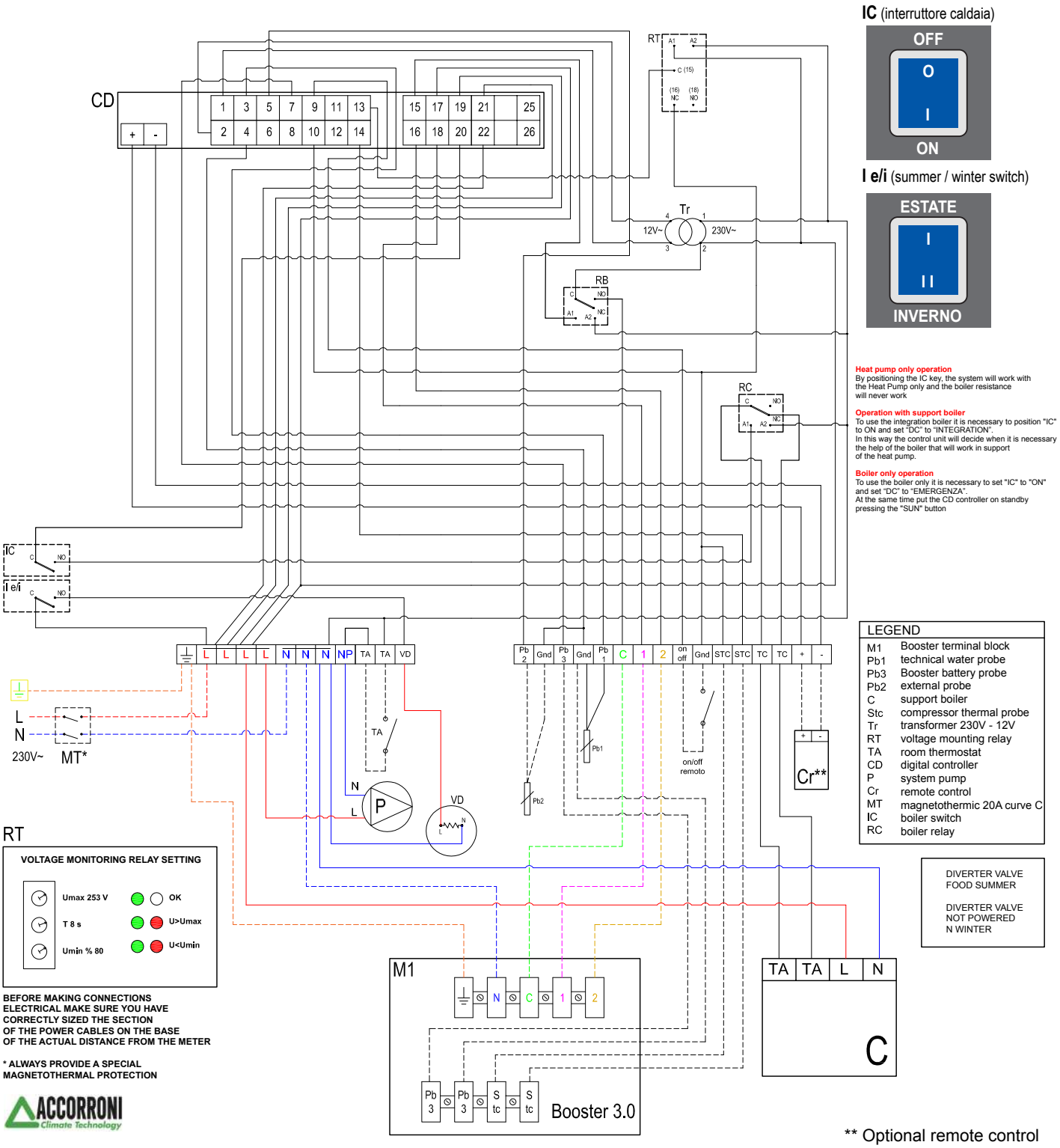
PARAMETERS	SET POINT FUNCTION	VALUE
CF05	SET-POINT - Configuration PB2	4 °C External temperature
ST08	SET-POINT max in PdC	65,0 °C max
ST03	SET-POINT winter (compressor off at outdoor temp. 50 °C)	65,0 °C max
	CLIMATIC SET POINT FUNCTION	
SD03	Dynamic SET-POINT max increase in heat pump maximum variation	-10,0 °C
SD05	Set External air temp. Dynamic SET-POINT in HP	-5,0 °C
SD07	Dynamic SET-POINT external air temperature differential in heat pump	5,0 °C
	BOILER FUNCTION (BOILER)	
AR03	Frost alarm set	4,0 °C - 5,0 °C
AR20	Boiler function (heating control)	0 °C
AR21	SET-POINT external air boiler activation (boiler)	3,0 °C
AR22	Boiler differential (boiler)	0,2 °C
AR23	Boiler activation delay time (boiler)	1 (minuti)
AR25	SET-POINT external air compressor deactivation	0,0 °C
AR26	Compressor activation external air differential	0,5 °C
	PARAMETERS FUNCTIONS ALARMS	
AL19	Probe for anti-freeze alarm signal	2,0 °C

14.4 INTEGRATION MANAGEMENT PROCEDURE

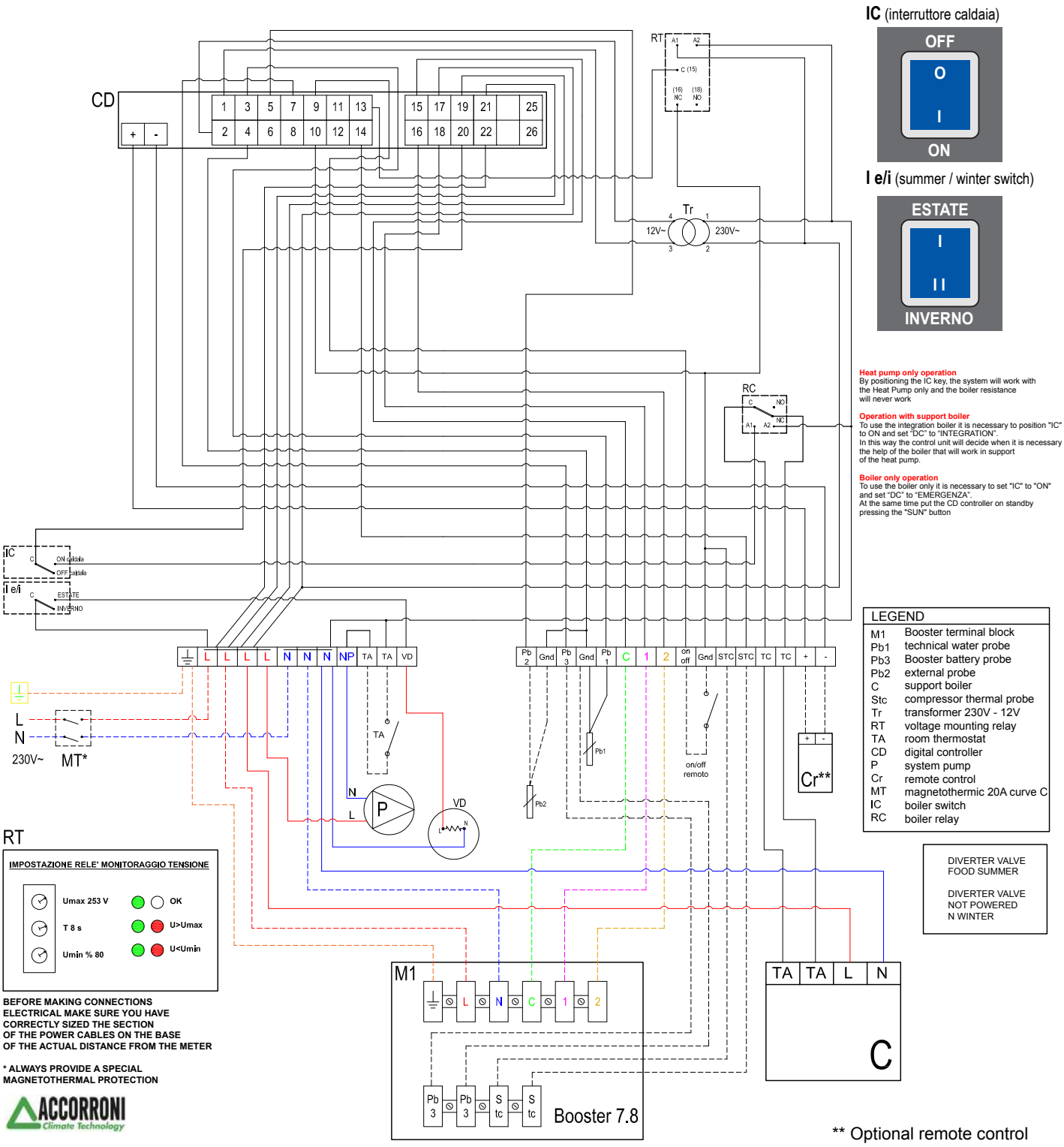
PARAMETRI	BOILER FUNCTION (BOILER)	VALUE
AR09	SET-POINT - Antifreeze resistances in heat pump	48,0 °C
AR012	Heat pump antifreeze heater differential	2,0 °C
AR15	Adjustment of antifreeze resistances in the heat pump	1 (on)
A16	Thermoregulation of antifreeze heaters in chiller (boiler integration)	0 (regola si PB1)
A17	Thermoregulation of antifreeze resistances in the heat pump (boiler integration)	0 (regola si PB1)

15. ELECTRICAL CONNECTION DIAGRAMS

15.1 WIRING DIAGRAM HUB RADIATOR PACK CF 3.0

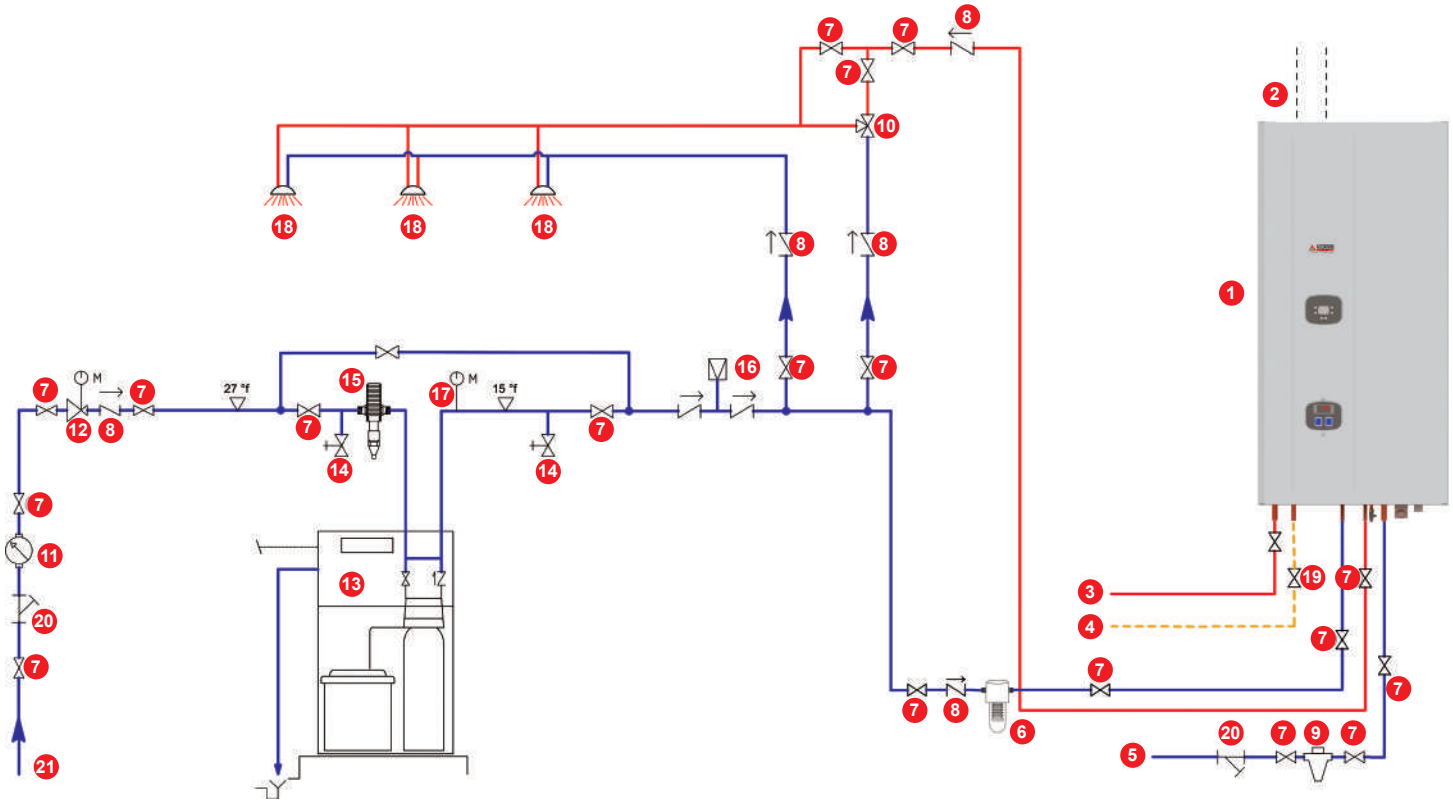


15.2 WIRING DIAGRAM HUB RADIATOR PACK CF 7.8



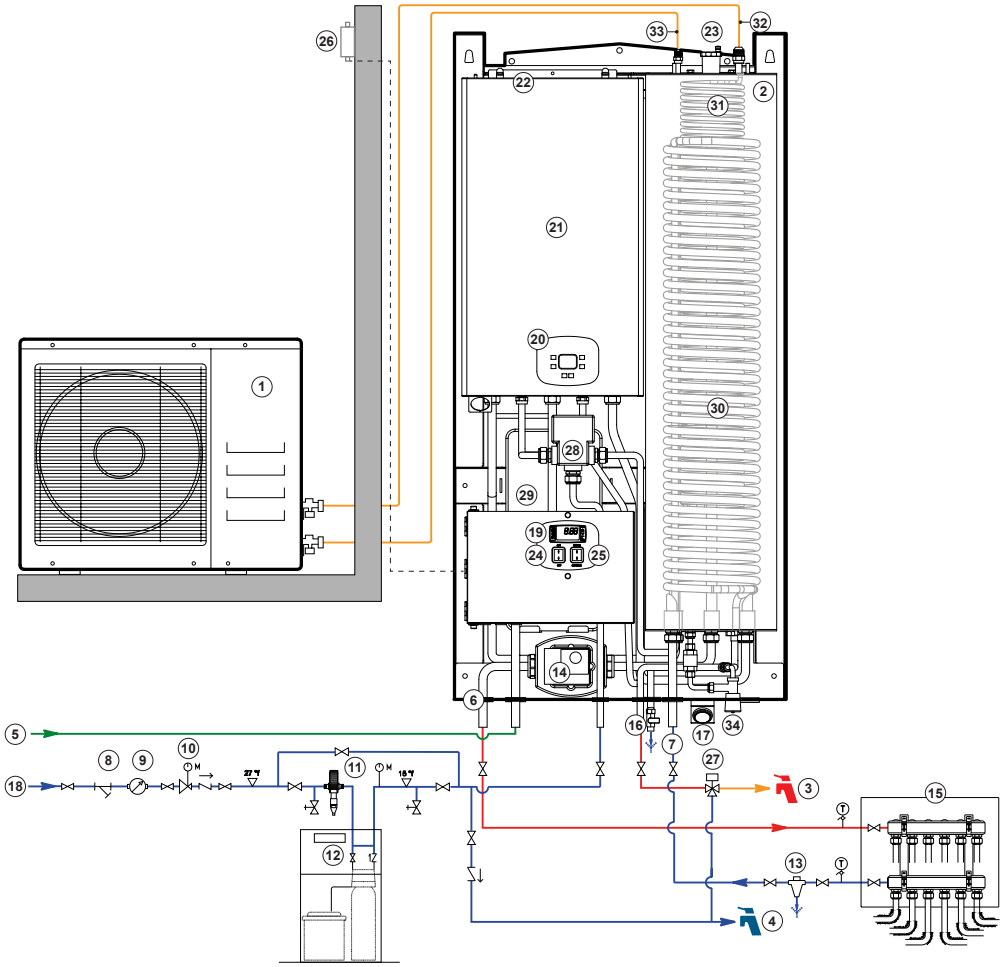
16. HYDRAULIC DIAGRAM

16.1 EXAMPLE OF HEATING AND DHW PRODUCTION SYSTEM WITH HUB RADIATOR PACK CF PATENTED SYSTEM



1 Support boiler
2 Coaxial exhaust 60/100
3 Natural gas inlet
4 System delivery
5 System return
6 Polyphosphate dispenser
7 Ball valve
8 Non-return valve
9 Magnetic dirt separator
10 DHW mixing valve
11 Water meter
12 Pressure reducer
13 Softener
14 Sampling tap
15 Sand trap filter
16 Water network disconnector
17 Pressure gauge
18 DHW utilities
19 Natural gas cock
20 Y filter
21 General water mains inlet

16.2 Application example HUB RADIATOR PACK CF 3.0 / 20



1 Booster HR 3.0 hot / cold
2 Technical storage unit 75 liters
3 Domestic hot water delivery
4 Domestic cold water delivery
5 Gas inlet G20 - G25 - G31
6 System technical water delivery
7 System technical water return
8 “Y” filter
9 Water meter counter
10 Pressure reducer
11 Sand trap filter
12 Softener
13 Magnetic dirt separator
14 Inverter electronic circulator
15 System manifold
16 System emptying cock
17 Pressure gauge
18 Water mains inlet
19 Digital electronic control unit
20 Digital electronic boiler control unit
21 20 kW condensing boiler
22 Coaxial fume exhaust
23 Jolly air vent valve
24 Boiler ON-OFF switch
25 Summer / Winter switch
26 External temperature probe
27 DHW mixing valve
28 DHW diverter valve
29 Additional expansion vessel 6 liters
30 DHW exchanger
31 Booster condenser exchanger
32 Refrigeration line R410A 1/4 “(liquid)
33 Refrigeration line R410A 3/8 “(gas)
34 System make-up cock

17. MAINTENANCE

ATTENTION! Before any inspection, maintenance, or anything else involving access to the internal parts of the appliance, disconnect the general power supply.

17.1 Cleaning the exchangers

The cleaning of the finned air / refrigerant gas exchanger must be performed at least twice a year, at the beginning of the operating season and whenever it is necessary for particular installation conditions. Keeping the exchanger clean involves constant performance over time, with a reduction in management costs.

To carry out the cleaning operations, use a vacuum cleaner or a brush with soft spatulas, avoiding damaging the fins of the exchanger. If possible, use a light jet of compressed air to pass carefully through the spaces of the fins.

17.2 Annual inspection

To keep the system efficient, it is advisable to have the following checks carried out by an Authorized Technical Assistance Center:

- control of refrigerant charge and operating parameters;
- check supply voltage and electrical absorption;
- functionality of the control and safety devices;
- cleaning the water filter and exchangers;
- control of the hydraulic system, of the presence of air in the piping and possible filling integration;
- checking and tightening the electrical connections and hydraulic;
- verification of the casing, with particular attention to triggers of corrosion. For appliances installed nearby of the sea requires periodic inspection from carried out at least once a year.

18. GENERAL

The CE marking of products involves constant production control, with the aim of guaranteeing the conformity of the equipment with the safety and performance characteristics of the tested samples.

The manufacturer carries out checks on the entire production and in particular the final test, in which the project parameters are checked with electrical and functional tests, in compliance with the standards of the company quality assurance system.

The assistance and maintenance services can be carried out by an authorized Technical Assistance Center. To find out the name of the nearest Center, call A2B Accorroni E.G. directly. S.r.l. or consult the site
www.accorroni.it.

18.1 Use of instructions

Carefully read this section of the user manual, in addition to the previous “Section A” where you can find general information on the appliance and its technical characteristics.

Failure to comply with what is indicated in this manual will result in the forfeiture of the warranty conditions. This manual is an integral part of the product and must be carefully kept for any future use or consultation.

18.2 Misuse - recommendations

The appliances are designed and manufactured for heating water in winter air conditioning and DHW production systems and must be used only for this purpose, in relation to their technical specifications and performance.

All uses not expressly indicated in this manual are considered improper and are not permitted; in particular, the use of the equipment in industrial processes and / or installation in environments with a corrosive or explosive atmosphere is not envisaged.

16. Checks for the HUB RADIATOR PACK CF first start-up request

ACCORRONI Climate Technology

Installer_____ Designer_____

Plant location

Street_____ N°_____

City_____ CAP_____ Province_____

Installed System Mode_____ U.I. serial number_____

Installation date_____ EU freshmen_____

Plant type

Radiators ☐ Summer cooling ☐ Fan-Coil ☐

DHW production ☐ Radiant panels ☐ Heating ☐

Outdoor unit and indoor unit checklist	**YES**	**NO**	**VALUE**
The outdoor unit is located outside the building			
The outdoor unit is perfectly level on both axes			
Presence of anti-vibration mounts between the outdoor unit and the ground or shelf			
Check the safety distances indicated in the manual			
Distance between indoor and outdoor unit (max 15m) attached **A**			
Difference in height between indoor and outdoor unit (max 5 m) attached **A**			
The pipes of the refrigeration lines (1/4 “- 3/8”) for HR 3.0 or (1/4 “- 5/8”) for HR 7.8			
Folder tightness control			
Check for any crushing of copper pipes			
Control of the insulation of the refrigeration lines			
The refrigeration lines were pressed with nitrogen at 40 bar for at least 12 h			
The refrigeration system was put under vacuum			
Condensate drain connection with suitable slope			
The distances shown in the attachment have been respected **B**			

Electrical wiring check list			
Adequate magnetothermic switch dedicated to the indoor unit			
Distance between electrical contactor and indoor unit			
Cable section Appropriate electric power supply			
Connecting the room thermostat			
The correct tightening of the electrical connections has been carried out			
Electric power cable section between internal and external			
Communication cable of the indoor and outdoor unit (3x1.0 mm²) (contacts C, 1.2)			
Signal cable between indoor and outdoor (4x0.75mm² for PB3 and STC)			
A suitable grounding has been performed			

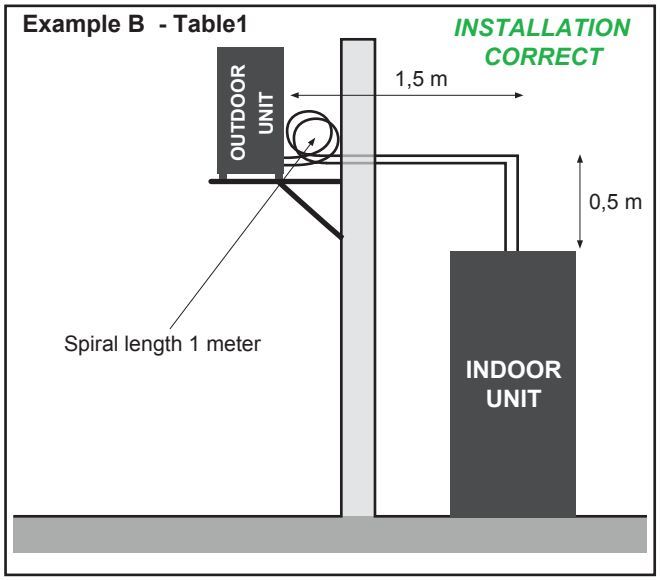
Indoor unit checklist	YES	NO	VALUE
All safety conditions have been respected			
The unit is fixed to the support surface			
The correct sizing of the expansion vessel has been checked *(indicate the volume)*			
Unit installed locally protected from atmospheric agents			
There is a shut-off valve in the thermal circuit			
The hydraulic circuit has been washed or cleaned *(only in case of replacement of the old generator)*			
The hydraulic circuit has been charged and bled			
There is a magnetic dirt separator at the system return			
Insulated system delivery and return pipes			
Realization of the connection between the safety valve and the water drain			
Air vent valves have been installed at the highest points of the system			
There is a hydraulic circuit breaker			
There is a softener			
There is a pressure reducer			

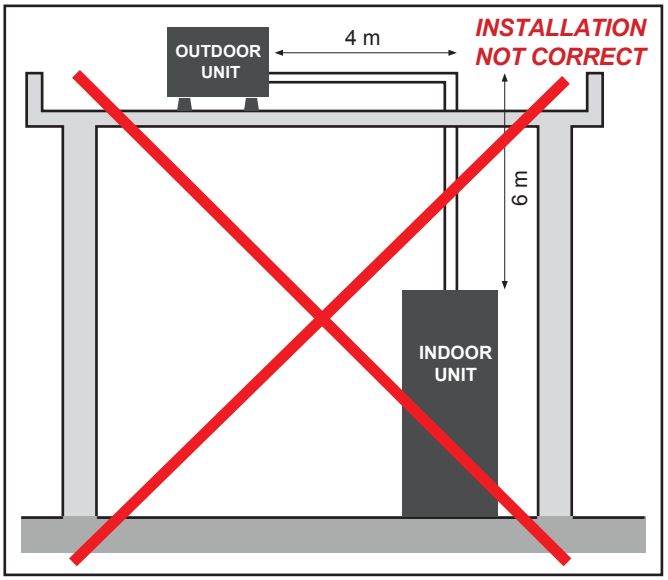
Note:

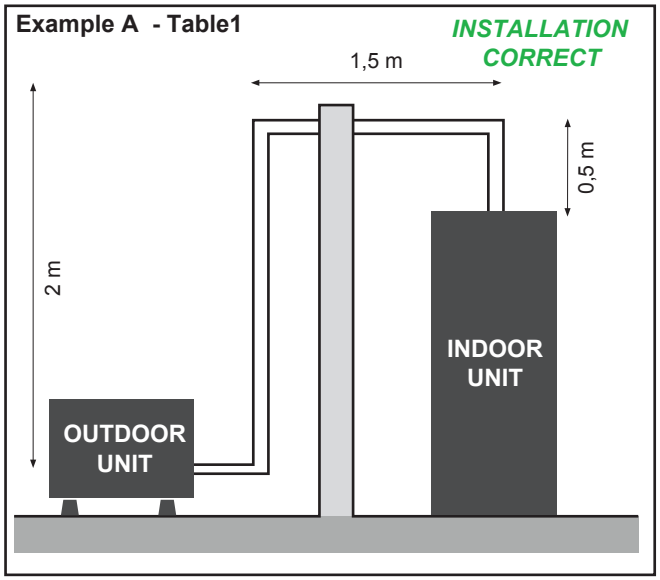
Beware of the failure to carry out the first start-up for reasons not dependent on the unit will involve a second visit which will be directly charged to you by the Assistance Center Local technique.

Signature of the installer _____ Date _____

Attached A







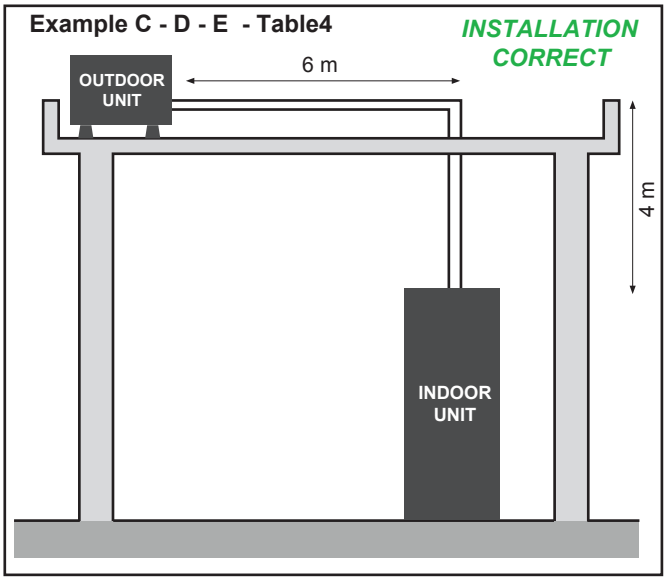
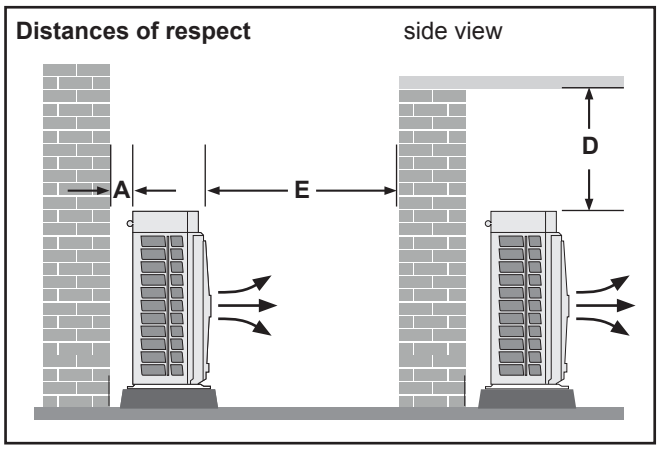


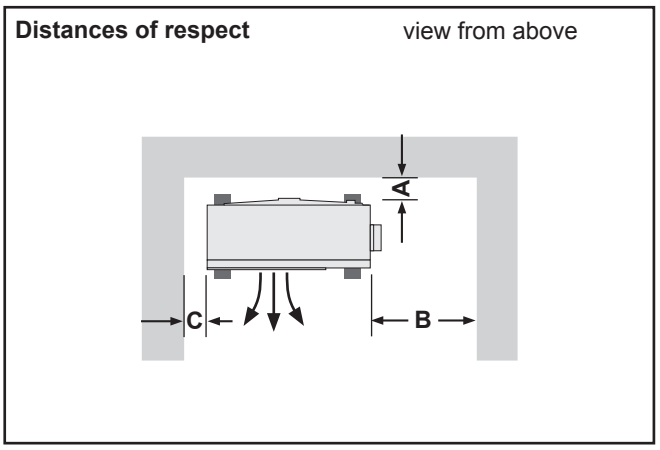
Table 1 - Permissible distances INDOOR UNIT - OUTDOOR UNIT

Models		HR 3.0	HR 7.8	HR 9.0 INVERTER
A	Maximum length allowed without adding refrigerant	5*m	5*m	5*m
B	Minimum allowed length of refrigerant gas	3*m	3*m	3*m
C	Maximum length of refrigerant gas piping	15*m	15*m	15*m
D	Maximum admissible height difference between O.U and I.U.	5*m	5*m	5*m
E	Additional refrigerant quantity over 5 meters	20*g/m	20*g/m	20*g/m

Failure to comply with this application will result in the ***non-ignition by the authorized assistance***

Attached B





LEGEND: ***(A = 15 cm) - (B = 50 cm) - (C = 15 cm) - (D = 60 cm) - (E = 100 cm)***

A2B ACCORRONI E.G. s.r.l.

FIRST START-UP BOARD PATENTED SYSTEM HUB RADIATOR PACK CF (attachment 1)

MR. \ COMPANY _____

TECHNICAL ASSISTANCE CENTER DATA

CITY _____ STREET _____

PHONE _____ E-MAIL _____

SYSTEM DATA

CITY _____ STREET _____

INSTALLATION DATE _____ TEST DATE _____

TYPE:

☐ **HUB RADIATOR PACK CF 3.0** ☐ **HUB RADIATOR PACK CF 7.8**

BOOSTER EXTERNAL UNIT:

MODEL	**SERIAL NUMBER**	**PIPES DIAMETER**	**MODEL**	**SERIAL NUMBER**

POSITIONED BOOSTER

☐ **TO THE GROUND** ☐ **WALL** ☐ **A WINDOW** ☐ **ON BRACKETS** ☐ **ANTI-VIBRATION**

☐ **SHELVES** ☐ **ROOF** ☐ **OTHER** ☐ **ON BASES** ☐ **SUSPENSION** ☐ **RAILING**

NSTALLATION WITH SCAFFOLDING ☐ YES ☐NO METERS _____ NECESSARY FOR ORDINARY MAINTENANCE ☐ YES ☐ NO

NECESSARY FOR EXTRAORDINARY MAINTENANCE ☐ YES ☐ NO

ADD GAS ☐ YES ☐ NO QUANTITY _____

DIFFERENCE IN HEIGHT BETWEEN BOOSTER AND ACCUMULATION

INDOOR UNIT HIGHER THAN THE OUTDOOR UNIT ☐ SIPHON ☐ YES ☐ NO DOVE _____ ALTITUDE METERS _____

OUTDOOR UNIT HIGHER THAN THE INDOOR UNIT ☐ SIPHON ☐ YES ☐ NO DOVE _____ ALTITUDE METERS _____

WELDINGS (BY THE INSTALLER)

WELDINGS ON: ☐ INTERNAL MACHINE ☐ EXTERNAL MACHINE ☐ REFRIGERATOR LINE

SPECIFY WHERE THE WELDINGS WERE NEEDED _____

TESTS CARRIED OUT

SYSTEM VACUUM	☐ YES	☐ NO	EARTHING APARTMENT PLANT PRESENT		
CHECK FOR LEAKS	☐ YES	☐ NO	PRESSURE WITH NITROGEN	☐ YES	☐ NO
SINGLE UNIT TESTS	☐ YES	☐ NO	ACCUMULATION FILLING CHECK	☐ YES	☐ NO
CORRECT WIRING	☐ YES	☐ NO	CHECK REINFORCEMENT GROUP	☐ YES	☐ NO

MAINS VOLTAGE MEASUREMENT VOLT VALUE **_____

****ATTENTION! below 215 V do not turn on the machine**

MEASURE THE TEMPERATURE WITH ALL THE BOOSTERS IN OPERATION AND ANY PHOTOVOLTAIC SYSTEM OFF

OPERATION IN BOOSTER HEAT PUMP 1

EVAPORATION TEMPERATURE O.U. °C (Pb3) ..... _____

TECHNICAL WATER TEMPERATURE °C (Pb1) ..... _____

CONDENSATION START TEMPERTATURE °C* ..... _____

CONDENSATION START PRESSURE (Bar) ..... _____

COMPRESSOR ABSORBED CURRENT (A) ..... _____

NB

Wait for the technical water temperature reaches at least 50 °C before taking measurements

INSTALLER	TECHNICAL ASSISTANCE	CUSTOMER
SIGNATURE	SIGNATURE	SIGNATURE
_____	_____	_____

ACCORRONI Climate Technology

FIRST IGNITION REPORT ACCORRONI BOILERS
WITH POWER LESS THAN 35 kW

Date 1st ignition

BOILER MODEL | **SERIAL NUMBER**

BUYER DATA: name and surname or company name .....
.....city .....address.....
phone.....

INSTALLER DATA: name and surname or company name.....
.....city .....address.....
phone.....

Technical documentation supplied	**YES**	**NO**
Use and installation and maintenance manuals	☐	☐
Visual inspection of the installation room	☐	■
Suitability of the installation room		
Adequate size ventilation openings	☐	■
Gas duct examination	☐	■
Control of the absence of gas leaks		
Electrical system examination	☐	■
Suitability of electrical system		
Proper grounding of the system	☐	■
Balancing manifold	☐	☐

Expansion system	**SI**	**NO**
Verification of the correct charge of the expansion vessels	☐	■
Open vessel system (min 0.8 bar)	☐	■
Aqueduct water hardness (° F)		
Presence of antifreeze liquids	■	☐
Plastic piping with oxygen barrier (only allowed with plate heat exchanger)	☐	☐
Examination of the smoke and condensate evacuation duct Check the correct size of the duct	☐	■
Correct evacuation of condensate	☐	■
Plant water leaks	■	☐

IT IS FORBIDDEN TO TURN ON THE BOILER IN CASES WHERE THE BLACK BOX NEEDS TO BE CROSSED

PLANT ☐ new ☐ existing ☐ to complete ☐ radiant panels ☐ radiators ☐ fancoil

GAS : methane supply pressure mbar .... LPG supply pressure (min 370 mbar) .....

ARIA COMBURENTE : dal locale ☐ esterna ☐ ϕ mm ..... n° curve ..... lunghezza m .....

SMOKE EXHAUST: material ..... ϕ mm ..... n ° curves ..... length m .....

COMBUSTION ANALYSIS: smoke temperature ° C ☐ % CO2 ☐ ppm CO ☐ ppm Nox ☐

ANOMALIES FOUND: In case of installations that do not comply with current legal regulations DO NOT START the heat generator, indicate in this space the non-conformities found and make sure that this document is countersigned by the installer and / or owner

.....
.....

IINFORMATION REGARDING THE PROCESSING OF PERSONAL DATA: Pursuant to art. 10 L. 675/96, as data controller, communicates the following information to the buyers of its products: 1) The buyer's personal data are recorded, rearranged, stored and managed by Accorroni through any appropriate manual and computer processing operation. for purposes functional to the fulfillment of the obligations deriving from the contract for the supply of goods / services by Accorroni and the fulfillment of the services due under the product warranty. The aforementioned provision of data is essential for the execution of the warranty services to the buyer and to comply with the law. any refusal to provide the aforementioned data may be a reason for delays in identifying the owner of the right of guarantee or impediment in the execution of the services under guarantee. With reference to the aforementioned processing, the consent of the interested party is not required pursuant to art. 12, lett. b), Law 675/96. 2) The same data is processed for the purpose of commercial and advertising initiatives relating to the products indicated in the object in point 1 of the Accorroni warranty conditions with the prior consent of the interested party to be expressed at the bottom of the "First start-up report". 3) The data subject may exercise the rights referred to in Article 13 of Law 675/96 by contacting Accorroni directly, via d'Ancona 37 - 60027 Osimo (AN) and in particular the right to request: a) the confirmation of the existence of personal data concerning him, even if not yet registered, and the communication in intelligible form of the same data and of their origin b) the cancellation, transformation into anonymous form or blocking of data processed in violation of the law c) the updating, rectification or integration of data, to object in whole or in part, for legitimate reasons, to the processing of personal data concerning him, even if pertinent to the purpose of the collection. To object in whole or in part to the use of their data for advertising and promotional purposes.

DATE .....

BUYER'S SIGNATURE .....

signature of the buyer	**Stamp and signature of the CAT Accorroni**
.....	.....

Copy Accorroni

ACCORRONI Climate Technology	**Reclami Cliente**	Modulo 87

Ragione sociale / nome e cognome		
Indirizzo	**Città**	
Nr. telefono	**e-mail**	**C.a.p.**
Persona contattata		

Settore aziendale (barrare la casella di riferimento)

Prevendita		Amministrazione		Qualità		Trasportatore	
Commerciale		Tecnico		Postvendita		Agenzia	
Logistica		CED		Ricambi		CAT	

Descrizione prodotto reclamato	**Codice prodotto reclamato *SCRIVERE MATRICOLA PRODOTTO O NUMERO FATTURA**	**Data di ricezione reclamo**

***PER PROBLEMI DI POSTVENDITA ALLEGARE 3 FOTO OBBLIGATORIE RELATIVE AL PROBLEMA OPPURE VIDEO ED INVIARE A: centralino@accorroni.it**

Motivo del reclamo/problema Descrizione

Condizioni generali di garanzia A2B ACCORRONI E.G.

DISPOSIZIONI GENERALI
Premessa:

Per "Prodotto" da qui in avanti e per l'intero documento, si intende e si deve fare esclusivo riferimento al prodotto a marchio **A2B ACCORRONI E.G.**.
Per "Acquirente" da qui in avanti e per l'intero di documento, si intende e si deve far riferimento alla persona fisica o giuridica che ha acquistato il Prodotto, indipendentemente se il venditore sia **A2B ACCORRONI E.G.** o altro soggetto commercializzante i Prodotti a marchio **A2B ACCORRONI E.G.**.

- La presente garanzia relativa ai Prodotti a marchio **A2B ACCORRONI E.G.** è soggetta alla normativa comunitaria vigente 99/44/CE, alla legislazione nazionale DL 24/02 e DL 206/2005 applicabili ai beni di consumo;
- La presente garanzia è fornita esclusivamente per i Prodotti in oggetto installati in Italia, RSM e Città del Vaticano;
- La presente garanzia viene rilasciata sui Prodotti in oggetto e ha validità di ventiquattro (24) mesi decorrenti dalla data di acquisto del Prodotto (data documento fiscale rilasciato all'atto dell'acquisto) a cui si riferisce qualora l'acquirente lo acquisti per fini estranei alla propria attività imprenditoriale, commerciale e professionale ("Il Consumatore"). Al contrario la presente garanzia avrà dodici (12) mesi di durata dalla data di acquisto del Prodotto (data documento fiscale rilasciato all'atto dell'acquisto) qualora il Prodotto al quale si riferisce sia acquistato per fini inerenti alla propria attività imprenditoriale, commerciale e professionale. I termini di garanzia di cui sopra sono validi a condizione che i Prodotti siano messi in funzione entro i **3** mesi dalla data di uscita dagli stabilimenti di **A2B ACCORRONI E.G.**;
- Per i Prodotti per i quali è previsto l'obbligatorietà della prima accensione, pena la decadenza della garanzia, questa decorrerà dall'avviamento degli stessi Prodotti da dimostrarsi mediante idonea documentazione e purché ciò avvenga entro 6 mesi dall'uscita del magazzino di **A2B ACCORRONI E.G.** del medesimo Prodotto. I Prodotti per i quali è prevista la prima accensione obbligatoria sono quelli appartenenti alla categoria **Energie Rinnovabili, Climatizzazione** nel catalogo commerciale o nel listino;
- l'Acquirente del Prodotto deve rivolgersi al rivenditore, ossia al soggetto con il quale ha finalizzato il contratto di acquisto del Prodotto, per qualsiasi richiesta inerente la garanzia sullo stesso.

1)EFFICACIA E OPERATIVITÀ

- La presente garanzia è operativa ed efficace alla condizione che siano osservate le istruzioni e le avvertenze per la corretta installazione, la conduzione, l'uso e la manutenzione che accompagnano il Prodotto e nel rispetto delle leggi in vigore. Con riferimento a ciò, il Prodotto deve essere installato a regola d'arte e da personale qualificato nel rispetto di leggi e regolamenti in vigore (UNI-EN, UNICIG, VV.FF, CEI….*). Inoltre deve essere montato solamente su impianti realizzati da personale munito di PEF/F-Gas (Patentino Europeo Frigoristi) come da DPR 43/2012. Si precisa che comunque l'installatore resta il solo responsabile dell'installazione.
- La presente garanzia è fornita esclusivamente tramite i centri assistenza (CAT) da **A2B ACCORRONI E.G.**.
- L'Acquirente del Prodotto deve conservare ed esibire il documento fiscale rilasciato all'atto dell'acquisto per poter usufruire della garanzia con le durate sopra descritte e relative uscite senza addebito da parte dei Cat. In caso contrario verrà preso come termine di decorrenza la data del Ddt di uscita del Prodotto dagli stabilimenti di **A2B ACCORRONI E.G.**.
- La garanzia e gli interventi che si svolgeranno all'interno dei periodi descritti sopra in conformità alle normative precedentemente citate, incluso il primo avviamento per i Prodotti che lo richiedono, riguarderanno esclusivamente il Prodotto in sé, non si estenderanno all'impianto e non potranno essere assimilati in alcun modo a collaudi e/o verifiche dello stesso che sono riservati per legge a installatori e manutentori abilitati e comunque a carico e sotto la responsabilità dell'Acquirente del Prodotto e degli stessi. Nessun intervento, dall'avviamento all'intervento in garanzia e fuori garanzia, solleva il proprietario dell'impianto dal rispetto e dalle verifiche necessarie secondo normative o si sostituisce allo stesso. Quest'ultimo inoltre, a proprie spese, è responsabile nel garantire ai Cat le condizioni di operatività in sicurezza per ogni intervento come da D. Lgs 81/08, nonché il rispetto della manutenzione ordinaria da effettuarsi come da manuale allegato al Prodotto.

2) ESCLUSIONI

Dalla presente garanzia vengono esclusi i Prodotti o i casi riguardanti gli stessi che presentano anche solo una delle seguenti caratteristiche:

- mancanza di gas refrigerante e quindi necessità di ricarica;
- i Prodotti con matricola o etichetta dell'unità e/o della documentazione accompagnatoria illeggibili, mancanti o alterate;
- i Prodotti che non abbiano rispettato anche solo in parte le istruzioni di installazione, conduzione, uso e manutenzioni contenute nel manuale accompagnatorio del Prodotto;
- i Prodotti installati senza la presenza di una protezione elettrica adeguata e del collegamento con massa a terra;
- i Prodotti installati da personale non qualificato secondo quanto richiesto dalle normative vigenti, sprovvisti di Pef e abilitazioni, collegati a impianti elettrici /idraulici/ del gas sprovvisti della documentazione necessaria per legge (conformità, certificazione degli impianti, libretto…*);
- i Prodotti che riportano un incremento di danni derivati dall'ulteriore utilizzo degli stessi da parte dell'acquirente una volta manifestato il malfunzionamento e/o nel tentativo di porre rimedio a quanto rilevato inizialmente;
- gli interventi da effettuarsi con autoscale, ponteggi, trabattelli, sistemi di elevazione o di sollevamento e/o di trasposto; i costi per interventi che richiedano misure di sicurezza non presenti già nella configurazione installativa*. Questi costi rimangono a carico dell'Acquirente: si ricorda che i centri assistenza (CAT) sono autorizzati ad intervenire solo nei casi in cui i Prodotti siano installati ad altezza non superiore ai 2 mt da un piano lavorativo stabile sul quale si possa operare a norma del D. Lgs 81/08. In tutti gli altri casi sarà cura e responsabilità dell'Acquirente/Consumatore disporre le attrezzature necessarie e sostenere i costi per la messa in sicurezza dei tecnici durante l'intervento;
- le eventuali avarie di trasporto (graffi, ammaccature e simili*);
- i danni da usura, degrado, mancato utilizzo, errata installazione, rotture accidentali, sbalzi di tensione elettrica*;
- le anomalie o il difettoso funzionamento dell'alimentazione elettrica, idraulica, del gas, dei camini o delle canne fumarie (qualora richieste dal Prodotto)*;
- i danni e le avarie causate da trascuratezza, negligenza, manomissione, mancata regolare manutenzione (pulizia filtri aria, pulizia batterie evaporanti, pulizia batterie condensanti, pulizia fori di scarico condensa, serraggio dei morsetti elettrici, disassemblaggio, incapacità d'uso, riparazione effettuate da personale non autorizzato *, e tutto quanto previsto dal manuale di uso del Prodotto;
- i Prodotti che presentano occlusioni delle tubazioni, interne ed esterne anche sottotraccia, del circuito frigorifero dovute alla mancanza di pulizia e/o al mancato corretto svolgimento dell'operazione di vuoto all'impianto;
- le guarnizioni in gomma e componenti in gomma, materiali di consumo quali olio, filtri, refrigeranti, le parti in plastica, mobili o asportabili*;
- la rottura o il malfunzionamento del telecomando.
- i Prodotti dove si rileva l'utilizzo di ricambi non originali e/o non adeguati;
- i Prodotti sui quali è stato eseguito il primo avviamento (ove richiesto)o la manutenzione da personale diverso dai Cat **A2B ACCORRONI E.G.**;
- i Prodotti non avviati entro **3** mesi dal Ddt di uscita dagli stabilimenti di **A2B ACCORRONI E.G.**. In questo caso è a carico dell'acquirente dimostrare che quanto rilevato rientra in garanzia;
- i danni causati dalla mancata adozione degli ordinari accorgimenti per mantenere il Prodotto in buono stato: non evitando surriscaldamento, corrosioni, incrostazioni, rotture provocate da corrente vagante, condense, aggressività o acidità dell'acqua, trattamenti disincrostanti impropri, mancanza di acqua, depositi di fanghi o di calcare, mancanza di alimentazione elettrica o di gas*;
- i danni provocati dal posizionamento del Prodotto in ambienti umidi, polverosi o comunque non idonei alla sua corretta operatività;
- i danni provocati da uno stoccaggio del Prodotto in ambienti inidonei alla sua corretta conservazione prima dell'installazione;
- i danni provocati dall'inefficienza/inadeguatezza di strutture o impianti (elettrico, idraulico*) collegati al Prodotto;
- i danni provocati dall'errato dimensionamento del Prodotto in base al suo uso;
- i danni provocati da atti dolosi, di forza maggiore (eventi atmosferici, incendio, fulmini, interferenze elettriche, ossidazione, ruggine, terremoti, furto)* e/o casi fortuiti;
- i danni derivati dal mancato contenimento dell'inquinamento atmosferico ed acustico fatti salvi i limiti normativi in essere;
- Tutto quanto elencato in questo punto determina che l'intervento è completamente a carico dell'Acquirente/Consumatore che dovrà corrispondere al centro assistenza (CAT) intervenuto i costi per l'uscita a domicilio, di verifica e di trasporto, il materiale utilizzato, la manodopera*, sia che la fornitura sia avvenuta direttamente tramite **A2B ACCORRONI E.G.** o tramite altro soggetto che commercializza il Prodotto;

* Questi elenchi di situazioni sono a titolo esemplificativo ma non esaustivo

3) TIPOLOGIE, MODALITÀ E TEMPISTICHE DI INTERVENTO

- Al fine di segnalare il presunto difetto di conformità del Prodotto, quale condizione necessaria per l'attivazione della garanzia, l'Acquirente/ Consumatore del Prodotto, tramite il rivenditore, ossia il soggetto con il quale ha finalizzato il contratto di acquisto del Prodotto, dovrà contattare l'ufficio post-vendita di **A2B ACCORRONI E.G.**
- Al momento della segnalazione dovranno essere forniti i dati identificativi ed i contatti dell'Utente finale, oltre al codice identificativo del Prodotto in questione (modello e n° matricola). Tali indicazioni saranno necessarie per consentire ad **A2B ACCORRONI E.G.** di accertare la data di uscita del medesimo Prodotto dai propri magazzini, in mancanza del codice identificativo, la garanzia non potrà trovare applicazione.
- Ricevuta la segnalazione **A2B ACCORRONI E.G.** provvederà ad informare i propri centri assistenza autorizzati (CAT) competenti per area territoriale e per tipologia di Prodotto. Il CAT fisserà con l'utente finale un appuntamento per effettuare un sopralluogo sul Prodotto in questione mediante un proprio incaricato.
- Qualora durante tale sopralluogo il centro assistenza (CAT) dovesse riscontrare un difetto di conformità del Prodotto lo stesso centro assistenza (CAT) si attiverà per effettuare la necessaria riparazione. **A2B ACCORRONI E.G.** di riserva di decidere l'eventuale sostituzione del Prodotto o di parte dello stesso nel caso in cui, a suo insindacabile giudizio, la riparazione non sia economicamente conveniente. Riparazione o sostituzione non comporteranno costi aggiuntivi per l'Utente finale o per il rivenditore da cui lo stesso Utente finale abbia acquistato il medesimo Prodotto. Il tal caso anche le spese del predetto sopralluogo non saranno addebitate.
- L'Acquirente/Consumatore deve segnalare il malfunzionamento e/o difettosità nel periodo vigente di garanzia e comunque entro e non oltre i due mesi dalla scoperta del difetto o dell'avaria.
- gli interventi effettuati dai centri assistenza (CAT), durante il normale orario lavorativo, eventuali ritiri e verifiche del Prodotto, riparazioni e sostituzioni, avverranno in un congruo termine temporale compatibili con le esigenze organizzative e produttive di **A2B ACCORRONI E.G.**.
- eventuali interventi, riparazioni o sostituzioni del Prodotto non daranno comunque luogo a prolungamenti o a rinnovi della garanzia né alla modifica della sua scadenza originale. Le parti sostituite in garanzia rimarranno di proprietà di **A2B ACCORRONI E.G.**.
- nella sostituzione di parte del Prodotto o del Prodotto completo potranno essere impiegati parti o Prodotti identici o con pari caratteristiche.

Le procedure di assistenza precedentemente descritte potranno subire variazioni e/o aggiornamenti da parte di **A2B ACCORRONI E.G.** Si precisa che tutto quanto sopradescritto non si estende mai all'obbligo di risarcimento danni e rimborsi spese o costi di qualsiasi natura subiti da persone o cose, e che nessuno, tranne che **A2B ACCORRONI E.G.**, è autorizzato a modificare i termini sopra né a rilasciarne altri sia verbali che scritti. Per qualsiasi controversia il foro competente è il Tribunale di **Ancona**.

DICHIARAZIONE DI CONFORMITÀ DECLARATION OF CONFORMITY

Fornitore Supplier: A2B Accorroni E.G. srl

Indirizzo Address: 60027 Osimo (AN) – Via D'Ancona,37 Tel. 071/723991

Apparecchi Appliances: Hub Radiator Mini, Hub Radiator Plus, Hub Radiator Plus Solar, Hub Radiator AP, Super Hub Radiator, Hub Radiator Black

Con riferimento agli apparecchi in oggetto nelle versioni di serie per la pompa di calore con serbatoio ad accumulo integrato, la A2B Accorroni E.G. srl;
With reference to the appliances in question in the standard versions for the heat pump with integrated storage tank, the A2B Accorroni E.G. srl;

DICHIARAche i prodotti di cui sopra - DECLARES that the above products

MEETS THE REQUIREMENTS OF DIRECTIVE 2006/42/CE
SONO CONFORMI AI REQUISITI DELLA DIRETTIVA 2006/42/CE

1. The unit is in CAT. I, so it's free from the application of Directive 2014/68/UE (Reference to Art. I, paragraph 2, point f)
L'attrezzatura a pressione rientra nella CAT. I. L'unità è quindi esente dall'applicazione della normativa PED 2014/68/UE (Riferimento Art. I, paragrafo 2 punto f).
2. Harmonized standards applied to designing and manufacture : UNI EN 378 - 1, UNI EN378 - 2, UNI EN 12735 - 1
Norme armonizzate applicate alla progettazione ed alla costruzione : UNI EN 378 - 1, UNI EN378 - 2, UNI EN 12735 - 1
3. Others European Directives and harmonized standards applied to the equipment: 2014/35/UE, 2014/30/UE, 2011/65/UE, 2012/19/UE, CEI EN 60335 - 2 - 40, CEI EN 55014 - 1, CEI EN 55014 - 2, CEI EN 61000 - 3 - 2, CEI EN 61000 - 3 - 3, CEI EN 62233
Eventuali altre Direttive Europee e norme armonizzate applicate all'attrezzatura: 2014/35/UE, 2014/30/UE, 2011/65/UE, 2012/19/UE, CEI EN 60335 - 2 - 40, CEI EN 55014 - 1, CEI EN 55014 - 2, CEI EN 61000 - 3 - 2, CEI EN 61000 - 3 - 3, CEI EN 62233

e conformi alla direttiva CE sui prodotti da costruzione e rispettano i requisiti della seguente direttiva:
and comply with the EC Construction Products Directive and meet the requirements of the following directive:

- 89/106 / EEC Construction Products Directive, Appendix III - 2 - ii - 3 In accordance with
- En12897 Storage water heater (reference for the type of construction only partially applicable)

- 89/106/CEE Direttiva sui prodotti da costruzione, appendice III – 2 – ii – 3 In conformità a
- En12897 Scaldacqua ad accumulo (riferimento per il tipo di costruzione applicabile solo in parte)

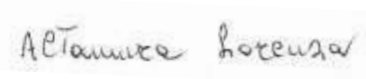
Osimo, Maggio 2021

CE

A2B Accorroni E.G. srl

Il legale Rappresentante

The legal representative



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