

Patented high efficiency system in direct exchange heat pump for the integration of existing thermal power plants HUB RADIATOR POWER UNIT





POWER UNIT heat pump Models H94 C - H94 CF - H184 C - H184 CF H250 CF - H184 / 2 CF

Technical information

SECTION A - GENERAL INFORMATION

It contains all the information relating to the description of the air-water heat pumps and their characteristics techniques.

SECTION B - TECHNICAL INFORMATION FOR THE INSTALLER

It gathers all the indications and prescriptions that the installer technician must observe for optimal realization plant.

SECTION C - USER INSTRUCTIONS AND MAINTENANCE FOR THE USER

This is the section reserved for the user and contains all the information necessary for correct operation and for periodic checks.

Important notes for consultation

1 For the purpose of correct and safe use of the appliance, the installer, the user and the maintenance technician, for their respective competences are required to comply with what is indicated in this manual.

2 The word ATTENTION is followed by information which, due to their importance, must be scrupulously observed and failure to comply can cause damage to the appliance and / or damage it safe use.

3 The paragraphs highlighted in bold type contain important information, warnings or advice that may arise recommends to evaluate carefully.

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

- References to laws, regulations or technical rules mentioned in this manual are to be understood purely information and to be considered valid on the date of printing of the same, shown on the last page. The entry into the effect of new provisions or changes to those in force will not constitute a reason for any obligation of the A2B Accorroni E.G. Srl towards third parties.

- A2B Accorroni E.G. Srl is responsible for the compliance of its product with laws, directives and standards of construction, in force at the time of marketing. The knowledge and observance of

legislative provisions and rules relating to plant design, installation, operation and

for maintenance are the sole responsibility, for the respective skills, of the designer, installer and user.



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1.MAIN FEATURES

1.1 CLASSIFICATION OF THE APPLIANCES

The fundamental elements that make up the system POWER UNIT are:

1) Electronically controlled external evaporator defined as: "Monobloc air heat pump split water ", fed by refrigerant fluid R410A with 3.0 and 7.8 kW ON - OFF compressor.

2) Indoor unit defined as accumulator radiator closed circuit created by an accumulation inside of which the copper exchanger is positioned.

1.2 CERTIFICATIONS - CE MARKING

The patented POWER UNIT system complies with directives 97/23 / CE and 98/37 / CEE. They also comply with the provisions of the following the directives: 73/23 / EEC, 89/336 / EEC, as modified by directive 93/68 / EEC. The internal unit of the POWER UNIT system is was designed to be installed only and only inside the buildings or on a special external niche thermally insulated and protected from atmospheric agents, if not respected this indication lapses any type of guarantee.

1.3 CONSTRUCTION CHARACTERISTICS

All machines are equipped with microprocessors for the control and adjustments of unit operation and safety.

The POWER UNIT series products thanks to the patented direct exchange capacitors are able to achieve high standards of energy efficiency and SCOP.

Other construction features:

- the compressor is a high rotary type efficiency, functioning with coolant R 410A, mounted on anti-vibration elastic supports, operated single-phase electric motor for all models;

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

the fan unit consists of a fan helical driven directly by motor single-phase asynchronous with thermal protection internal. The fan is equipped with a grill

accident prevention protection;

- the cooling circuit and the connections between the individual components are made of specific copper for refrigeration. They are part of the refrigeration circuit the rolling mill, the reverse cycle valve and liquid separator;

- the electrical command and control panel is made of white ABS with degree of protection IP 56 is directly positioned inside the cover cabinet.

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

- the indoor unit is supplied complete with all the special internal copper exchangers,

refrigerant gas connections, A.C.S connections, valve air vent jolly, safety valve automatic filling, pressure gauge, valve diverter to give priority to the health, electronic circulator, vessel of expansion, temperature probes.

1.4 CONTENT OF THE PACKAGING

The device is shipped on wooden pallets, with protections in extruded and wrapped expanded polystyrene

in a layer of plastic fabric with air bubbles. The identification data of the appliance are shown both on the packaging label and on the data plate technicians applied inside the cover cabinet. Do not remove the data plate for any reason technical, since the references it contains are necessary for any maintenance.

There is also an envelope inside the packaging containing this manual and the certificate of guarantee, which must be delivered to owner of the appliance to keep them carefully for any future use or for consultation.

1.5 STANDARD EQUIPMENT AND ACCESSORIES PROVIDED ON DEMAND

The wide range of standard equipment and accessories available

on request they allow the optimal exploitation of all the functions of the machines and plant to which are enslaved.

1.6 FIELD OF USE

Appliances designed and manufactured for heating water in systems of hydronic air conditioning, must be used only for this purpose, in relation to them technical specifications and performance.



The quality and size of the materials used they guarantee a good life span and are suitable the functioning of the appliances both in their together that in their individual components, under reserve of an installation made in a workmanlike manner and in mechanical, chemical and stress conditions thermals corresponding to a suitable use. WARNING! All uses expressly indicated in this manual are not considered improper and are not allowed; in particular the use of the appliances is not foreseen in industrial processes and / or installation in environments with corrosive or explosive atmosphere. We decline all responsibility of the producer for damage to people, animals or things deriving from it from non-compliance with the instructions of this manual, by modifications or tampering with the product, from installation, adjustment errors, maintenance and improper use. Failure to comply with what is indicated in this letter manual also entails the forfeiture of warranty conditions.

1.7 SAFETY RULES

WARNING! Installation and maintenance must be carried out exclusively by specialized and specially staff qualified.

The connection to the power supply must be carried out in accordance with the current standards of national plant engineering.

During installation operations e maintenance, it is always necessary to operate in the maximum safety conditions, comply with instructions given in this manual and at any warning labels applied on the product.

Respect the installation and operating limits indicated in this manual, do not modify in no case the internal electrical wiring and the refrigerant pipes, do not modify or disable safety and regulation devices.

Before each check operation, maintenance, or whatever else entails access the internal parts of the appliance, remove the general power supply.

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

Table 1 - POWER UNIT Cables Specifications

Models	Connection cable Switch power supply QE indoor	Connection cable Switch power supply QE outdoor	Cable C-1-2	Cable Pb3	Magnetothermic Section
	Sezione	Sezione	Sezione	Sezione	Tipo
3.0	4.0 mm ² x 3	4.0 mm ² x 3	1.50 mm ² x 3	0,75 mm ² x 2	20 A curv. D
7.8	4.0 mm ² x 3	4.0 mm ² x 3	1,50 mm ² x 3	0,75 mm ² x 2	20 A curv.



2. EU CONNECTIONS / U.I.

2.1 GENERAL PROVISIONS

1) The POWER UNIT system is designed to work exclusively with the indoor unit positioned inside the building to be heated and the Boosters outside.

2) During the installation phase it must be checked carefully that the distance and the height difference between

the units comply with the data shown on this manual.

3) Before installation, check that the wall where it was chosen to place the internal storage is able to bear the weight itself

of the accumulation and the water contained in it.

4) In case of replacement of a generator existing to clean the system

and adding a special anti-algae additive.

5) The moment you choose to install the

POWER UNIT system, there is something to keep considering the electrical absorption of the unit external. Then prepare all the works necessary to adapt the electrical system (meter, cable section, switches magnetothermic, etc.,) to ensure correct operation.

2.2 ELECTRICAL CONNECTIONS

Connect the cable to the electrical panel: 1) The connection cable of the indoor unit and external must be of type H07RN-F. 2) Raise the panel of the electrical panel e remove the screws, then remove the cover. 3) Connect the cables according to the markings. Connect the cable to the outdoor unit: 1) Remove the cover of the outdoor unit. 2) Connect the terminal cables according to numbers on the unit terminal block, respecting the sections shown in table 1

3) Secure the cables so that they do not come in contact with electrical or metal parts.

2.3 INSTALLATION OF THE PIPES FOR THE REFRIGERANT R410A

The main cause of refrigerant gas leaks is due to a defect in the labeling. Make the folders correctly respecting the following indications:

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

- Use pipes with measures suitable for the unit installed (table 2).

- Measure the distance between the indoor and outdoor units.

- Cut the pipes to a length slightly

greater than the measured distance.

- Cut the 1.5 m electric cable. longer than tube length.



Table 2 - Piping installation

Models	Ø LIQUID	ØGAS
7.8	1/4"	5/8"

B) Removal of the burr (Fig. 2)

- Completely remove all burrs from the cross section of the pipe.

- Processing must be carried out with the end of the tube down so that the burrs do not fall into the tube.





C) Signing (Fig. 3)

Remove the nuts fixed on the indoor unit and external, insert them on the tube and carry out the labeling and the removal of burrs, as previously indicated.



D) Fastening the refrigerant pipes (Fig. 4) Align the pipes lubricating the external surface of the pipes in the folder. Tighten sufficiently the nut using two wrenches like



- 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 the table

Tabella 3 - PIPE CONNECTIONS

E) Leak test of the refrigeration lines

1) Open the caps of the sectioning valves (Fig. A No. 1).

2) Check that the isolation values are closed (Fig. A n $^{\circ}$ 2).

3) Remove the cap from the service connection

on the sectioning valve (Fig. A n ° 3).

4) Connect the pressure gauge and the nitrogen cylinder to the

stop valve then progressively

increase the pressure in the connecting pipes of the refrigerant and in the internal module at 35 bar, with

increments of 5 bar (Fig. A No. 4).

5) Check the tightness of the fittings with a spray leak detector. If there are leaks,

repeat the operations in the order indicated e check the tightness again (Fig. A n ° 5).

6) Leave the circuit under nitrogen pressure for at least 24 hours and check that at the end of this time frame the initial pressure does not goes down.

7) Release the pressure and nitrogen.



Gas side tap

Liquid side tap

Diameter	Tightening Torque Diameter min - max (N / m)				
Ø 1/4	14 - 18				
Ø 3/8	33 - 42				
Ø 5/8	63 - 77				

Tabella 4 - Refrigerant charge

Models	Maximum length	Length max	Height difference (m) Max	Max refrigerant addition of additional refrigerant (g / m)
3.0	5	15	5	20
7.8	5	15	5	20



F) ELIMINATION OF THE AIR WITH THE PUMP VACUUM (Fig 8)

The air and humidity in the cooling system can cause side effects as indicated below:

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



To avoid the above, the internal assembly and the pipes, placed between internal and external group, they must be tested for leaks and purged to remove non-condensing elements and humidity from the system. Check that each pipe, (is the side gas pipes that of the liquid) between internal and external group, has been connected correctly and that all wiring required for testing has been carried out. Remove the valve cap on the assembly external. Make sure both at this point gas and liquid valves remain closed. Check the length of the tube and its quantity of the refrigerant, for a correct charge, check the overheating value. The values in the table are indicative. When changing the place of the unit, make it bleeding with the vacuum pump. Make sure the refrigerant inside the air conditioner is always in liquid state. Outdoor units are supplied with a charge of R410A refrigerant gas suitable to ensure correct operation up to a maximum distance of 5 meters from the indoor unit. If you decide to install the 2 units one by one distance greater than 5 meters, be sure to add 20 g of refrigerant gas for each additional meter of piping (Tab. 3). For example if there are between outdoor and indoor units 7 meters of piping add 40 g of R410A gas. In any case, never exceed 15 meters. Add only after making the vacuum in the pipes connecting the 2 units, such as illustrated in chapter 3.4, after which you can proceed with the opening of the gas taps, mounted on board machine.

G) 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 knob "LO" of the pressure gauge valve is open.

Then run the vacuum pump. The time of operation varies according to length pipes and pump capacity. When the desired vacuum is reached, close the knob "LO" of the pressure gauge valve e stop the vacuum pump. In conclusion, using a wrench for service valves, turn the stem the gas side valve counterclockwise to open it completely.

Loosen the charging hose connected to the socket on the gas side to release the pressure, then remove the tube. Refit the cover nut of the gas valve and service outlet and tighten well with an adjustable wrench. This procedure is very important to avoid system losses Refit the service valve caps both on the gas side and on the liquid side and tighten well.

This completes the air purge procedure with the vacuum pump, make sure all the pipes are connected correctly and that the service of the gas and liquid sides are completely open.



Table 5 - Pressure control

External temperature	°C	≥20	10	0	-10
Pressure to be achieved	Pa 8 (bar)	1000 (0,01)	600 (0,006)	250 (0,0025)	250 (0,002)
Evacuation time after achievement of pressure	h	1	1	2	3

H) Opening the valves and releasing the refrigerant in relation to the external unit

1) Remove the sectioning valve cap

of the coolant liquid side (Fig. C n $^{\circ}$ 1).

2) Open valve A with the help of a key

hexagonal turning counterclockwise until its stop (Fig. C n ° 2).

3) Replace the cap.

4) Remove the cap from the sectioning valve

of the refrigerant gas (Fig. C n ° 4).

5) Open the valve with a plier by turning in

counterclockwise a quarter turn (Fig. C n ° 5).

6) Replace the cap.

7) Disconnect the vacuum gauge and the vacuum pump.

8) Put the cap back on the valve (Fig. C n ° 3

9) Tighten all the caps with the help of a wrench torque with tightening torque from 20 to 25 Nm.

10) Check the tightness of the fittings using a leak detector.



Gas side tap

Liquid side tap

I) PUMP DOWN

This procedure is carried out when the group must be moved or assistance is carried out to the refrigerant circuit. Emptying allows you to collect everything the refrigerant in the external group without it leakage occurs.

L) RECOVERY PROCEDURE

- Connect a low pressure gauge with a pipe to the service socket of the gas valve.

- Open the gas valve halfway and empty the air from the pressure gauge pipe using gas refrigerant.

- Close the liquid valve completely.
- Switch on the machine in cooling mode.

- When the pressure of the pressure gauge goes between

0 and 0.5 kg / cm 2G (between 14.2 and 7.1 P.S.G.I)

completely close the gas valve e quickly turn off the air conditioner.

The complete recovery of the outdoor unit refrigerant.

3. OUTDOOR UNIT INSTALLATION

3.1 GENERAL INDICATIONS

When choosing the installation location carefully respect the following indications:

- Make sure the difference in level between INDOOR UNIT

and the OUTDOOR UNIT is not greater than 5.0 m. - The appliance must be installed properly

that the influences of the adjacent structures and / or effects of particular climatic conditions (snow, wind etc ...), do not compromise operation of the product and / or personal safety e of goods.

- Make sure the space in the back of the unit is greater than 30 cm, the part front must have at least 150 cm of completely free space.

- Make sure there are no obstacles to the free air circulation through the heat exchangers: A) do not place plants or animals directly behind the flow air;

B) avoid installation in the corners where it is usual the deposition of dust, leaves and anything else can reduce the efficiency of the exchangers blocking the passage of air (Fig 5).





- Avoid installation in bottlenecks and small ones as they could be favored acoustic reverberations. Inquire about the any limits in noise emissions expected for the area of the municipal territory in which you are install the appliance. If in doubt it is it is advisable to consult a acoustic technician, qualified for an evaluation

of the impact, in order to prevent disputes from part of a third party.

- Avoid that the air expelled by the fans can penetrate through adjacent doors and / or windows, causing disturbance to people.

- Install outdoor units on a rigid base equipped with special anti-vibrating pads to avoid the increase in vibrations and noise, so as not to disturb the neighbors (Fig. 6).



- Position the outdoor unit so that the air flow is not obstructed in any way.

In case of strong wind, make sure the fan functions correctly, positioning the unit longitudinally, along a wall or using a shield.

- If the appliance is to be suspended from one external wall, the support must respect the

Technical specifications. The wall where the unit must be installed, must be brick or material of similar consistency, otherwise it must be reinforced. The support brackets must be stable, resistant and with adequate degree of protection against corrosion.

WARNING! Make sure of the bearing capacity of the part on which the shelves are located and of the anchoring system to the wall itself, in function of the weight of the appliance to be installed.

- Do not install the appliance near sources of heat and / or areas at risk of fire.

- Installation in areas with a highly atmospheric atmosphere corrosive is not allowed; in condition particular climatic conditions such as near the sea, a duration of lower product life and in any case a longer life frequent and accurate maintenance.

- In external units, from which it is eliminated the condensed water, provide a special drainage and / or channeling of the same, in so as to avoid dangerous situations due for example to the formation of ice on passage areas.

- The outdoor unit is designed to be installed outdoors and does not require a base

special, however it must be positioned

safely on a support surface horizontal with adequate bearing capacity e equipped with special anti-vibration supports DHP.

3.2 RESPECT DISTANCES (Fig. 7)

Respect the spaces indicated in figure 8, in such a way to allow proper operation and all

installation and maintenance operations.

3.3 INSTALLATION ON THE ROOF

If the outdoor unit is installed on a roof, be sure to level the unit. Make sure the roof structure is appropriate for mounting the unit.
Consult the local codes regarding the roof mounting.

- If the outdoor unit is installed on the roof or on the external walls, this could result excessive noise and vibration and being classified as an installation not suitable for service.

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3.2 SOUND REQUIREMENTS

During the installation phase of a HUB heat pump RADIATOR is to be evaluated very carefully where the external unit is positioned in order to avoid induced noise that goes beyond the tolerability threshold. The external evaporating motor unit during work phase generates external sound emissions and requires appropriate measures to reduce the incidence of noise produced by the compressor and / or fan. Very important, then, is the plant engineering which is combined with the heat pump to such In this regard the following aspects must be considered:



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



against the facade + 6 dB (A)



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

Positioning has an important influence on sound emission, not to mention cases in which the outdoor unit is positioned in a loggia or in a porch, in these cases we have 14 dB (A) extra that add up to the normal machine emission.

2) CHOICE OF ANTI-VIBRATION SUPPORTS TO MAKE OBLIGATORY ON THE ARMS OF SUPPORTING THE OUTDOOR UNIT, OR ON THE FLOOR IF STORED TO THE GROUND WITH ANTI-VIBRATION FLOOR BASE

Code 75100021



Anti-vibration mount on shelf anti-vibration kit

Code 75100018



Anti-vibration support on the floor anti-vibration floor base

NOTE Its advisable to place the outdoor unit where possible, always on the ground

3) IN THE POSITION OF INSTALLATION ON A SHELF, AVOID FIXING ON EXTERNAL WALLS OF THE NIGHT AREA AND AVOID FIXING THE SHELF IN PROXIMITY OF BEAMS OR PILLARS THAT MAY GENERATE ALSO VIBRATIONS INSIDE THE BUILDING. YOU MUST ALWAYS APPLY RUBBER BANDS (THICKNESS 3 mm) HOW ANTI-VIBRATION BETWEEN THE SHELF AND THE WALL OF THE EXTERNAL WALL. THE SUPPORT BRACKETS MUST ALWAYS BE INSTALLED IN PERFECT LEVELING DISTANCE FROM THE BOTTOM WALL OF ABOUT 15 cm.

4) APPLICATION OF DAMPING MASSES ON REFRIGERANT GAS PIPES THAT THEY MAY GENERATE VIBRATIONS BY SENDING THE SYSTEM TO RESONANCE. IN RELATION TO THE REFRIGERANT GAS PIPE, MAKE SURE THAT THE CHARGE DI GAS IS ALWAYS CORRECT AS SHOWN ON TARGA DATA. THE EXTERNAL UNIT TOO MUCH OF GAS GENERATES AN INCREASE OF ABSORPTION ELECTRIC AND AN INCREASE OF NOISE INDUCED INDIVIDUAL COMPRESSOR.

5) IT IS NECESSARY TO REMEMBER THAT THE PERCEPTION OF THE NOISE DEPENDS VERY MUCH NOISE LEVEL PRESENT IN THE AREA. FROM SPECIFIC STUDIES MADE BETWEEN THE DAY AND THE NIGHT PERIOD LA PERCEPTION OF THE SAME NOISE INCREASES BY 10 dB (A) WHEN THE OUTDOOR UNIT WORK IN NIGHT HOURS. IT IS RECOMMENDED FOR THIS PURPOSE TO INSTALL A CLOCK KIT THAT ALLOWS YOU TO AVOID THE OPERATION OF THE EXTERNAL UNIT AT FULL NIGHT (SEE CODE 35639900 ACCORRONI TECHNOLOGY).

6) THE PERCEPTION OF THE NOISE IS SUBJECTIVE AND VARIES ACCORDING TO THE THRESHOLD OF INDIVIDUAL TOLERABILITY AND BASED ON THE DISTANCE BETWEEN THE ISSUE SOURCE AND THE RECEIVER.



Flexible anti-vibration joint kit with connection folder and pipe union for 7.8 curved 90 ° booster (complete with 5/8 "joint) Codice 75100016



Flexible anti-vibration joint kit with connection folder and pipe union for 3.0 curved 90 ° booster (complete with 3/8 "joint) **Codice 75100017**



Flexible anti-vibration joint kit with connection folder and tail piece for Booster 3.0 90 ° curved (complete with 3/8 "joint) Codice 75100014



Flexible anti-vibration joint kit with connection folder and tail piece for Booster 3.0 straight (complete with 3/8 "joint) **Code 75100015**



Anti-vibration floor base in vulcanized rubber for Booster 3.0 and Booster 7.8 **Code 75100018**

NB: IT IS NOT POSSIBLE TO INSTALL THE OUTDOOR UNITS OF THE HEAT PUMP IN ENVIRONMENT CLOSED OR SEMI-USE, OR IN CORRESPONDENCE WITH LIVED ENVIRONMENTS FROM THE NEIGHBORS.

IT IS NOT POSSIBLE TO INSTALL THE MOTOR VEHICLE UNITS EXTERNAL IN SMALL AND SPACIOUS SPACES WHICH MAY GENERATE RECIRCULATION OF AIR AL AXIAL FAN OF THE EVAPORATOR WITH SERIOUS MALFUNCTIONS AL THERMODYNAMIC CYCLE BEYOND ANOMALOUS OBJECTS THAT CAN AMPLIFY THE NOISE DURING THE OPERATION PHASE.

4. INDOOR UNIT INSTALLATION

Always install the storage inside the building to heat away from atmospheric agents and inside a temperature-controlled room. Make sure the wall on which it will be installed

the indoor unit is able to support the entire weight in system operation.

Following are the main components that make up the indoor unit.

Main components

- 1 Electrical panel 1P 56
- 2 Boiler flow 1 "
- 5 Air vent valve
- 6 Connection R 410A 5/8
- 7 Connection R 410A 1/4 "
- 8 Collar with wall fixing pin
- 9 Digital electronic control unit
- 10 System return 1 "
- 11 Drain cock



4.1 ASSEMBLY PROCEDURE

A) Position the collars on the indoor units (Fig. 8) checking that the structural typology of the wall is suitable for carrying the weight of the indoor unit in exercise.

B) Proceed with the delivery connection e the return of the heating system using i1 "fittings

C) Make the electrical connections between the switchboard electrical and main power supply and between the switchboard electrical and the terminal block located on the right side of the outdoor unit following the instructions in table 1. Warning! The circulator is not standard, therefore you must use one that exceeds useful head available.



4.2 Dimensioni unità interne POWER UNIT



Models	A mm	B mm	С	Peso Kg
H94 C	192	940	1"	16
H94 CF	262	940	1"	22
H184 C	192	1840	1"	32
H184 CF	262	1840	1"	44
H250 CF	262	2500	2"	60
H184/2 CF	262	1840	2"	92

4.3 Booster POWER UNIT outdoor unit dimensions



Models	U.M.	HR 3.0	HR 7.8
L	mm	700	902
Н	mm	552	650
P	mm	256	307
I	mm	275	350
ll	mm	435	620
Refrigerant quantity	Kg	1,1	2,0
Refrigerant gas connections		3/8"	5/8"
Coolant connection		1/4"	1/4"
Nominal air flow	m³/h	1650	3280
Power supply		230V/*	1/50Hz
Sound level	dB(A)	52	60
Weight	Kg	33	55

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4.4 Booster technical data table POWER UNIT

DESCRIPTION	U.M.	3.0 Solo Caldo	7.8 Solo Caldo	3.0 Caldo/Freddo	7.8 Caldo/Freddo	
Thermal power (1)	kW	3,11	8,12	3,11	8,12	
Power consumption (1)	kW	0,75	1,96	0,75	1,96	
C.O.P. ⁽¹⁾	W/W	4,17	4,14	4,17	4,14	
Thermal power (2)	kW	2,97	7,75	2,97	7,75	
Power consumption (2)	kW	0,91	2,42	0,91	2,42	
C.O.P. ⁽²⁾	W/W	3,28	3,20	3,28	3,20	
S.C.O.P. ⁽³⁾	W/W	3,78	3,71	3,78	3,71	
Seasonal efficiency (ηs) ⁽³⁾	%	153,1	150,3	153,1	150,3	
Cooling capacity ⁽⁴⁾	kW	-	-	2,94	7,54	
Power consumption ⁽⁴⁾	kW	-	-	0,72	1,94	
E.E.R. ⁽⁴⁾	W/W	-	-	4,08	3,89	
Cooling capacity ⁽⁵⁾	kW	-	-	2,63	6,98	
Power consumption ⁽⁵⁾	kW	-	-	0,89	2,27	
E.E.R. ⁽⁵⁾	W/W	-	-	2,95	3,07	
S.E.E.R. ⁽⁵⁾	W/W	-	-	3,84	4,02	
Energy class ⁽⁶⁾			A	+ / A++		
Defrosting method		Inve	ersione di ciclo con o	condensatori ad imme	rsione	
Type of coolant			F	410A		
Operating limits	°C		-15	5 / +45		
Min./max. Technical water temperature	°C		+4	/ +55		
Min distance between U.I and U.E	m	3				
Max distance between U.I and U.E without recharge	m	5				
Max distance between U.I and U.E with recharge	m	15				
Max difference in height between outdoor and indoor unit	m	5				
Power supply			230	//1/50Hz		

(1) Heating: outdoor air temperature 7 ° C db. - 6 ° C wb .; inlet / outlet water temperature 30/35 ° C (2) Heating: outdoor air temperature 7 ° C db - 6 ° C wb .; inlet / outlet water temperature 40/45 ° C (3) Heating: average climatic conditions; T.biv = -7 ° C; inlet / outlet water temperature 30/35 ° C

(4) Cooling: outside air temperature 35 ° C; inlet / outlet water temperature 23/18 ° C

(5) Cooling: outside air temperature 35 ° C; inlet / outlet water temperature 12/7 ° C

(6) Water 35 ° C / 55 ° C



5. ELECTRICAL DIAGRAMS POWER UNIT

5.1 POWER UNIT wiring diagram





HUB RADIATOR POWER UNIT HUB composed of indoor unit model H94 C, 6. HYDRAULIC AND OPERATING DIAGRAMS POWER UNIT



- 2 3
- Gas boiler

6 fancoil FIJI



HUB RADIATOR POWER UNIT

Esempio di applicazione HUB RADIATOR POWER UNIT su impianto di riscaldamento esistente



Esempio di applicazione POWER UNIT su impianto di riscaldamento e produzione ACS esistente



HUB RADIATOR POWER UNIT

Esempio di applicazione POWER UNIT in cascata per integrazione centrale termica caldo/freddo Cascade system HUB RADIATOR POWER UNIT consisting of 3 internal units model H150 CF and 3 external units Booster HR 7.8 hot / cold which is used for the summer and winter integration of a centralized hot / cold Booster HR 7.8 hot/cold Internal unit POWER UNIT H150 CF 2 condominium system. 3 Safety valve Drain cock System expansion vessel Condenser Booster 5 6 7 Jolly air vent valve Tap for water make-up 8 9 Magnetic dirt separator 7 $(\mathbf{1})$ 10 R410A 1/4" refrigerant line (liquid) 11 R410A 5/8" refrigerant line (gas) (10) (11) 6 (6) $(\mathbf{6})$ 2 2 $(\mathbf{1})$ (10) (11) TO THE EXISTING CENTRALIZED GENERATOR 9 CENTRALIZED SYSTEM RETURN 1 10-(11) (5) (3) 4 ۲A мΦ (8)

Dimensions external unit Booster POWER UNIT



Dimensions internal unit POWER UNIT



Modelli	Lmm	P mm	H mm	Connessioni	Peso Kg
H94 C	230	230	970	1"	20
H150 CF	300	300	1800	1"	26
H184 C	230	230	2140	1"	40
H184 CF	300	300	2140	1"	54
H250 C	230	230	2600	2"	54
H250 CF	300	300	2600	2"	72

* Value measured one meter from the sound source in a free field



7. WARNINGS

7.1 QUALIFICATION OF THE INSTALLER

WARNING! It is foreseen by current legislation on the matter (Law no. 46 of 5 March 1990 and relative Implementing Regulation) that the installation is carried out by a qualified authorized company to ensure, as well as the correct implementation of the system, also the necessary checks before of commissioning. 7.2 PRELIMINARY INFORMATION

Before starting the installation it is necessary make sure that the planning stages have been completed and obtaining authorizations if necessary necessary (e.g. local authorities -Municipality, etc.), in addition the appropriate technical checks (e.g. evaluation acoustic impact).

It is recommended for the purpose of relying on a qualified heating technician who guarantees the correct carrying out the aforementioned phases, be they optional or mandatory. 7.3 TRANSPORT AND HANDLING The appliance is shipped on wooden pallets,

with cardboard and plastic protections. The device can be moved by hand suitably equipped staff and with equipment suitable for the weight of the product Which forklift or pallet truck, taking care of distribute the weight on the supports, which is unbalanced towards the compressor (water connections side).

Any lifting by belts or ropes can be carried out by binding the two-pipe ropes robust metal inserted in the crossbars below the base of the machine.

Secure the ropes in the anchorage points to the pipes by means of suitable fasteners or safety pins; protect by cardboard or other suitable material the points of contact between the ropes and the appliance.

Upon delivery, check that during the transport, no damage has occurred visible on the packaging and / or on the

appliance. If damage is found, expose immediately formal

complaint to the forwarder.

Do not install damaged appliances in transport. It is forbidden to disperse the parts of the packaging into the environment,

or leave them within the reach of children as, potential source of danger.

7.4 USE OF THE INSTRUCTIONS

This manual is an integral part of the product and must be delivered to the owner of the appliance, so that it can be kept carefully for any future use or for consultation. WARNING! When installing

or take action on the appliance to observe all the instructions in this manual and anything else applicable to the product, according to national safety standards. Changes to links of all kinds and / or failure to comply with these instructions cause the immediate expiry of the guarantee

and producer responsibility.

7.5 GENERAL CHECKS OF THE SYSTEM WARNING! Before filling the system

you must make sure that the pipes do not contain foreign material, such as sand, slag, rust flakes and anything else, can damage the heat exchanger.

It is good practice to wash the system, by-passing the unit, before carrying out the filling the same.

Carry out the loading of the system, taking care to check the opening of the shut-off valves and closing the system drain cock. WARNING!

- Connect the indoor unit first and subsequently the external unit, fixing the pipes firmly.

- Avoid that the power cables come in contact with the pipes.

8. STARTING

8.1 FIRST START-UP CHECKS

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

- the safety conditions and all the regulations reported in this manual have been respected;

- the fixing to the support surface is stable and areas of respect are free from any obstacle or material that prevents easy accessibility appliance;

- the hydraulic and electrical connections, in particular

attention to grounding, have been carried out correctly;

- interception, loading, unloading devices and the system breather are in the correct ones operating conditions and have been adequately control yourself.

WARNING! Starting the appliance, in non-compliance conditions

of this manual and / or the standards in force in safety and plant engineering matters the forfeiture of the warranty conditions.

8.2 COMMISSIONING

Starting the appliance and selecting the mode of operation can be performed by acting directly in the microprocessor keyboard with the "SUN" button.

Hold for at least 2/3 seconds, on release on LED with sun indication will start to flash (compressor count).



After a few minutes the LED will become steady, and the machine will start, heating the water indoor unit temperature up to SET POINT.

At this point the machine starts up and will perform all the on and off cycles in automatic and autonomous way. After starting the appliance check the correct plant operation, in particular attention to the following:

- the voltage measured in the power terminals it must be within the range 210-240 Volt with single phase power supply. Lower values indicate a voltage drop in the line too high electrical current, with possible consequences damage to the compressor, which can also occur for voltages greater than those indicated above:

- if the above conditions do not apply made, turn off the machine and make the corrective actions to allow the regular operation of the system.

9. REPAIR - COMPONENT REPLACEMENT

For the intervention on the components listed below and / or a replacement is required for their replacement technical expertise, so it is recommended to always contact a Technical Assistance Center authorized. For safety and quality purposes it is recommended to use for replacements

original components and spare parts. Always operate in conditions of maximum safety, in accordance with current regulations.

Before any intervention on the appliance, remove the power supply by acting on the switch general and then on the disconnector on board machine.

For any emptying operations e

charged with refrigerant gas, use is recommended of specific equipment for the recovery of the refrigerant, for the purpose of protecting the environment.

9.1 REFRIGERANT CIRCUIT

For whatever reason the

repair of the cooling circuit, with consequent contamination, as in the case of burning electric windings of the compressor or failure of the circuit with complete emptying, it is always necessary do the following:

- replacement of filter drier

- circuit cleaning;
- drying and high vacuum;
- leak test and charge recovery.

9.2 DRYING AND EMPTYING THE SYSTEM

Drying and high vacuum are necessary for evacuate the air, humidity, and all the gases that could

being in solution with the compressor oil. If there is liquid water in the system,

you need to slightly heat the parts where you are filed, in order to facilitate its evaporation.

The capacity of the high vacuum pump must be suitable for the system in which it is to operate; Yes recommends the use of a pump with a flow rate at least 90 liters / minute.

The degree of vacuum must be verified with a special one

medium vacuum vacuum gauge, if possible electronic, with micron resolution of the scale.

- carrying out the high vacuum:

- connect the pump to the system by means of pipes,
 1/4 SAE female swivel connections, at
 pressure test points on the connections in

suction and delivery in the compressor;

- connect a vacuum gauge

- carry out the vacuum up to a value of at least 350, 500 microns for a minimum time of at least 30 minutes.

9.3 CIRCUIT CLEANING

WARNING! If the engine burns out, with perforation of the windings, it is necessary carefully clean the refrigerant circuit to avoid subsequent burns or faults.

Cleaning operations are intended to remove all carbon or other deposits solid state and, according to the method used, must all contaminants that have been eliminated introduced for circuit cleaning or for effect of the operations carried out.

WARNING! Do not inhale the vapors of refrigerants coming from burned compressors, as yes may be in the presence of toxic products. To avoid completely contact with the skin of the residual oil of the compressor burned out, as it is generally acid.

9.4 REFRIGERANT CHARGE

WARNING! For no reason the refrigerant gas in the liquid state it must be charged on suction on the compressor as this condition entails damage to the compressor.



The operations to be carried out are the following:

- connect the cylinder (or the charging cylinder) to the system using 1/4 SAE pipes and connections female swivel to the pressure inlet liquid side of the air / refrigerant gas exchangers;

- insert liquid refrigerant:

a) until the required charge is reached;

b) until the balance of

pressures between cylinder and cooling circuit; - start the appliance and, if necessary, insert the refrigerant remaining until the prescribed values.

The charge tuning operation goes made using the intake of the compressor, putting the refrigerant in the state liquid gradually;

- check the refrigerant charge.

WARNING! Make sure the tools used are in good condition e

properly calibrated.

9.5 VERIFICATION OF OVERHEATING E sub cooling

- start the appliance;

- insert into the pressure point, positioned in the large tube near the compressor.

the low pressure gauge for measuring the pressure;

- wait for the values to stabilize for about 20 minutes;

- measure the temperature value on the large tube

(steam phase), near the outlet

pressure using a special probe a contact;

- read the temperature value in the pressure gauge, in

correspondence of the pressure value detected. The temperature read by the thermometer must be higher than the temperature read by the

pressure gauge of a

value between 3 ° C and 8 ° C for operation in cooling mode, between 1 ° C and 5 ° C for operation in heating mode.



10. DIGITAL CONTROL UNIT



10.1 DISPLAY

Information available on the display:

 Primary display (red color): display configurable from parameter CF36 (PB1, PB2, PB4, Set-point (parameter value) *, Set-point real *, Hysteresis, Machine status **);

* Secondary display (yellow color) display configurable from parameter CF4 (PB1, PB2, PB3, PB4, Set-point (by parameter) *, Real set-point * Hysteresis, RTC, Machine

status **); * the display shows the chiller set when the unit is switched on in chiller mode, the heat

pump set when the unit is turned on in heat pump mode, OFF with unit in stand by; ** the display shows OnC when the unit is turned on in chiller mode, OnH when the unit is switched on in heat pump OFF mode with unit in stand by.

10.2 ICON DISPLAY





10.3 USER INTERFACE



10.4 KEY FUNCTION

FUNCTION		Pressure and release
Pressure and release in main view: allows viewing of the chiller set point (SetC label) or heat pump (SetH label).		in programming: allows scrolling of folders parameters (ST, CF, etc); allows it scrolling through the list of parameters.
Pressure and release 2 times in main view: if the energy saving function, dynamic set point or for machines without accumulation the icon is enabled set is on and the display displays the actual working set. Pressure for 3 seconds and release in main view: allows modification of the poin set chiller / heat pump.	SET	Pressure and release: allows you to turn on the machine (in chiller or heat pump) or select the std-by mode.
Pressure and release in programming: allows access to the change of the selected parameter; It allows confirmation of the set value in the parameter modification phase		Pressure and release: allows you to turn on the machine (in chiller or heat pump) or select the std-by mode.
Press and release in the AlrM menu:		Pressure and release: allows access to the function menu. Pressure 3 seconds and release: allows you to adjust the clock in the models in which it is intended. Pressure and release in programming: lets go out from parameter modification
allows alarm reset (if resettable) from the AlrM menu.		13.4 KEY FUNCTION
Pressure and release:		Simultaneous pressure of the keys for 3 seconds: allows access to programming
from main view allows the display of the probe values configured (temperatures / pressure in the upper display and the		of the parameters.
corresponding one label in the lower display.		 Simultaneous pressure of the keys: 1. allows exit from parameter programming. 2. contemporary pressure prolonged keys allows entry into manual defrost

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SET

SET

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Regarding the use of the remote terminal (indications on the display and meaning of the keys) do reference to the preceding paragraphs In air / air units, in case of terminal use remote equipped with NTC probe (VICXS610), configuring par. CF35 = 2 the display will show the room air temperature; this probe will be used from the controller for temperature control. In case of controller / remote terminal failure or error in the wiring, the lack of communication between the instrument and the remote terminal will be signaled to display with the error message "noL" (no link).

10.5 ACCESS TO PARAMETERS

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

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

3 Scroll through the parameter groups with the and keys select the group containing the parameters to access the list of parameters contained in the group. The lower display shows the label of the parameter and the upper display shows the value.

10.6 DISPLAY AND MODIFY THE SET POINT

Pressing and releasing the SET key allows the display of the set point.

The prolonged pressing of the SET key allows the its modification

- 1 Press the SET button for at least 3 seconds;
- 2 The set point will be displayed flashing;
- 3 To change the value, use the and keys A e
- 4 Save the new set point by pressing the key SET or wait for the time out time to exit from the program.



Remote terminal

10.7 MAIN ALARMS

Cod. P1	Meaning Probe alarm PB1	Cause Faulty probe or resistive value Activate	Action Open automatic output PB1 out of range collector	Reset alarm relay If the resistive value falls within the Activate expected buzzer range Flashing icon generic alarm
P2	Probe alarm PB2	Faulty probe or resistive value Activate	Open automatic output PB2 out of range collector	Automatic alarm relay If the resistive value is within the range Activate expected buzzer range Flashing icon generic alarm
P3	Probe alarm PB3	Faulty probe or resistive value	Enable automatic open output PB3 or current out of range collector	Automatic alarm relay If the resistive value is within the range Activate expected buzzer range Flashing icon generic alarm
Ρ4	Probe alarm PB4	Probe alarm Faulty probe or resistive value	Enable automatic open output PB4 outside collector range	Automatic alarm relay If the resistive value is within the range Activate expected buzzer range Flashing icon generic alarm
A12	Error alarm Defrost	end by time Code on display Automatic	Signal display code	Automatic maximum defrost signalling With a subsequent cycle of correct defrost
A09	High temperature Refrigerant gas temperature	temperature recorded by the STC probe signal With probe that detects a compressor greater than / equal to 110 ° C	Signal display code + machine block temperature	Manual machine block with probe temperature <110 ° C

ALOC	Generic alarm Activation of digital input	Activate open output Automatic machine block for continuous time> AL21 collector 1	Activate expected buzzer range Flashing icon generic alarm	Automatic alarm relay It becomes manual after AL20 Manual icon flashing generic alarm Deactivation: digital input display code not active for time continuous> AL22 plus procedure reset point 15.4
BLOC	Generic alarm Activation of digital input	Activate open automatic output only continuous time signalling> AL21 collector / alarm relay The alarm is reset Alarm enabled only if Activate automatic buzzer and does not depend on AL23 = 0	Activate expected buzzer range Flashing icon generic alarm	Automatic AL20 icon flashing generic alarm display code

LABEL	SIGNIFICATION
ALL	ALL PARAMETERS
ST	ONLY THE PARAMETERS OF THERMO REGULATION
CF	ONLY THE PARAMETERS OF CONFIGURATION
SD	ONLY THE PARAMETERS OF DYNAMIC setpoint
ES	ONLY THE PARAMETERS OF energy saving
CO	ONLY THE PARAMETERS OF COMPRESSORS
FA	FAN PARAMETERS
Ar	PARAMETERS OF ANTIFROST RESISTANCE
DF	PARAMETERS OF DEFROST
AL	PARAMETERS OF ALARM

15.9 DIGITAL CONTROL UNIT ELECTRICAL DIAGRAM

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 condensation fan control (phase cut)

Pb1, Pb2, Pb3, Pb4 = NTC analogue inputs

digital inputs Pb3 = ratiometric pressure transducer 0.5 Vdc

MF o.c. out = configurable open collector output for external relay connection



11 MAINTENANCE

WARNING! Before each operation control, maintenance, or whatever involves access to internal parts the appliance, turn off the power general electricity.

11.1 CLEANING THE EXCHANGERS

Cleaning the finned air exchanger / refrigerant gas must be carried out at least twice a year, at the start of the season functioning and whenever it is made necessary for installation conditions details. Keep the exchanger clean involves a constant return over time, with reduced management costs.

To perform cleaning operations, use a vacuum cleaner or a spatula brush soft, avoiding damage to the fins of the exchanger. If possible use a light jet of compressed air to pass with attention in the spaces of the fins.

11.2 ANNUAL CHECK

To keep the system efficient, we recommend to carry out the following checks by a Center Authorized Technical Assistance:

- refrigerant charge control and parameters of operation;

- check voltage supply, electrical absorption;
- functionality of the control devices and of safety;
- cleaning the water filter and the exchangers;

- control of the hydraulic system, of the presence of air in the pipes and possible filling integration;

- check and tighten connections electric and hydraulic;

- verification of the envelope, with particular watch out for corrosion triggers.

For appliances installed near the sea a periodic check is necessary to be carried out at least once a year.

12. GENERAL

The CE marking of the products involves the constant control of production, with the aim to guarantee the conformity of the appliances to the safety and performance characteristics of verified samples. The manufacturer provides checks on the whole production and especially testing final, in which the project parameters are checked with electrical and functional tests, in compliance to the standards of the quality assurance system company. Assistance and maintenance services can be performed by a Technical Assistance Center authorized.

12.1 USE OF INSTRUCTIONS

Rad this section carefully of the user manual, in addition to the previous "Section A" in which they can be found general information on the appliance and on the its technical characteristics. Failure to comply with what is stated in this manual involves the forfeiture of the conditions of guarantee. This manual constitutes integral part of the product and must be carefully stored for any use future or for consultation.

12.2 IMPROPER USES - RECOMMENDATIONS

The devices are designed and manufactured for water heating in heating systems winter air conditioning and DHW production and should only be used for this purpose, in relation to their technical specifications and performance. All uses not expressly indicated in this manual is considered improper and are not allowed; in particular not the use of the devices is foreseen in industrial processes and / or installation in environments with corrosive atmosphere or explosive

DECLARATION OF CONFORMITY

Supplier :	A2B Accorroni E.G. srl	
Address :	60027 Osimo (AN) – Via D'Ancona,37	
	Tel 071/723991 – Fax 071/7133153	
Appliances :	Hub Radiator Mini,Hub Radiator Power unit ,Hub Radiator Full,Hub Radiator AP,SuperHub Radiator,Hub Radiator Black	

With reference to the devices in question in the standard versions for the heat pump with integrated storage tank, the A2B Accorroni E.G. Ltd.

DECLARE

that the product

- complies with the provisions of the European Directive 2004/108 / EC Compatibility electromagnetic;

- complies with the provisions of the following other Directives: 2006/95 / EC EC Directive on low voltages, 2002/95 / EC EU guidelines for limiting substances

harmful (RoHS) and waste electrical and electronic equipment (WEEE);

- complies with the provisions of the European Directive EN 378 Cooling Systems e heat pumps, safety and environmental protection requirements;

- complies with the provisions of European Directive 94/42 / EEC on the degree of efficiency;

and comply with the EC directive on construction products 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 heaters (reference for the type of construction applicable only partially)

Osimo, September 2017

A2B Accorroni E.G. Ltd.

The legal representative

Altamura Lorenza

Altanuire Lorenaw

General warranty conditions A2B ACCORRONI E.G.

By "Product" from here on out and for the entire document, we mean and we must refer exclusively to the A2B ACCORRONI E.G. . brand product By "Buyer" from now on and for the entire document, we mean and reference must be made to the natural or legal person who has purchased the Product, regardless of whether the seller is A2B ACCORRONI E.G. or other person marketing branded products A2B

• This warranty for A2B branded products ACCORRONI E.G. it is subject to the community legislation in force 99/44 / EC, to the legislation national DL 24/02 and DL 206/2005 applicable to consumer goods;

legislation national DL 24/02 and DL 206/2005 applicable to consumer goods; • This warranty is issued on the Products in question and is valid for twenty-four (24) months starting from the date of purchase) to which it refers if the buyer purchases it for purposes unrelated to his business, commercial and professional ("The Consumer"). On the contrary, the present warranty will have twelve (12) months duration from the date of purchase of the Product (date tax document issued at the time of purchase) if the Product to which refers to is purchased for purposes related to its business, commercial and professional. The warranty terms above are valid a provided that the Products are put into operation within 3 months from the date of leaving the A2B ACCORRONI E.G. facilities; • For the Products for which the first ignition is required, under penalty of forfeiture of the guarantee, this will start from the start-up of the same Products to be demonstrated by appropriate documentation and provided that this take place within 6 months of A2B ACCORRONI E.G. of the same product. Products for which the first ignition is foreseen mandatory are those belonging to the Renewable Energy category, Air conditioning in the commercial catalog or in the price list; • the Purchaser of the Product must contact the retailer, that is the person with the

which has finalized the Product purchase contract, for any request

concerning the guarantee on the same 1) EFFECTIVENESS AND OPERATION

1) EFFECTIVENESS AND OPERATION • This warranty is operational and effective provided they are observed instructions and warnings for correct installation, operation, use and maintenance that accompanies the Product and in compliance with the laws in force. With reference to this, the Product must be installed by skilful technicians and by qualified personnel in compliance with laws and regulations in force (UNI-EN, UNICIG, VV.FF, IEC *). It must also be mounted only on systems manufactured by personnel with PEF / F-Gas (European F-Gas Patent) as per DPR 43/2012. It should be noted, however, that the installer remains solely responsible installation

43/2012. It should be noted, however, that the instance remains sorry responsible installation. • The Product Buyer must keep and show the tax document issued at the time of purchase to be able to take advantage of the warranty with the durations described above, otherwise the date of the delivery note.

The guarantee and the interventions that will take place within the described periods above in accordance with the previously mentioned regulations, including the first one goodwill for the Products that require it, will be covered exclusively the product itself will not extend to require it, will be covered exclusively the product itself will not extend to the plant and cannot be assimilated in any way to tests and / or checks of the same that are reserved by law to installers and authorized maintenance technicians and in any case under load and under the responsibility of the Purchaser of the Product and of the same. No intervention, from start-up to warranty and out of warranty intervention, relieves the owner of the plant from the respect and the necessary verifications according to norms or yes replaces the same. The latter also, at his own expense, is responsible for guarantee safe operating conditions for each intervention as per Legislative Decree 81/08, as well as compliance with routine maintenance by carry out as per the manual attached to the Product. **2) EXCLUSIONS**

Products or cases relating to them are excluded from this warranty which also have only one of the following features: • lack of refrigerant gas and therefore need to be recharged;

Products with registration number or unit and / or documentation label accompanying illegible, missing or altered;
 Products that have not complied with the instructions in part installation, operation, use and maintenance contained in the manual

accompanying product; • the Products installed without the presence of adequate electrical

 Products installed by unqualified personnel as required by the current regulations, connected to electrical systems / plumbers / gas without the documentation required by law (compliance, plant certification, booklet ... *);

(compliance, plant certification, booklet ... '); • Products that report an increase in damage resulting from further use of the same by the purchaser once the malfunction has occurred and / or in an attempt to remedy the initial findings; • interventions to be carried out with ladder, scaffolding, rolling scaffolding, systems of elevation or lifting and / or transport; the costs for interventions that require security measures not already present in the installation configuration *. These costs remain the responsibility of the Ruver, please note that the

the installation configuration *. These costs remain the responsibility of the Buyer: please note that the assistance centers are authorized to intervene only in cases where the Products are installed at a height not exceeding 2 meters from a stable work plan on which one can operate in accordance with Legislative Decree 81/08

In all other cases it will be care and responsibility

of the Buyer / Consumer arrange the necessary equipment and support the costs for securing the technicians during the intervention;
any transport failures (scratches, dents and the like *);
damage due to wear, deterioration, lack of use, incorrect installation, breakage accidental, sudden voltage changes *;

anomalies or faulty operation of the power supply, hydraulic, gas, chimneys or flues (if required by the Product) *;

gas, chimneys of flues (if required by the Product) *; • damage and damage caused by carelessness, negligence, tampering, failure regular maintenance (cleaning of air filters, cleaning of evaporating batteries, cleaning condensing coils, condensate drain hole cleaning, terminal clamping electrical systems, disassembly, inability to use, repairs carried out by personnel unauthorized *, and all the provisions of the Product use manual: manual;

 Products that present internal and external pipe blockages also track, of the cooling circuit due to lack of cleaning and / or to failure to properly carry out the vacuum operation at the plant; • rubber seals and rubber components, such as consumables oil, filters, refrigerants, plastic parts, mobile or removable *; • breakage or malfunction of the remote control.

the Products where the use of non-original and / or inadequate spare parts is detected;

the Products on which the first start-up (if required) or the maintenance by personnel other than qualified person;
Products not started within 3 months of the shipment document for exit from the A2B facilities

exit from the A2B facilities ACCORRONI E.G. .. In this case it is up to the buyer to prove that what was found is covered by the guarantee; • damage caused by failure to adopt the ordinary precautions for keep the Product in good condition: avoiding overheating, corrosion, scale, breakage caused by stray current, condensation, aggressiveness or acidity of water, improper descaling treatments, lack of water, sludge or limestone deposits, lack of electrical power

or gas *; • damage caused by positioning the Product in damp, dusty

damage caused by positioning the Product in damp, dusty environments or in any case unsuitable for its correct operation;
damage caused by storage of the Product in environments unsuitable for it correct storage before installation;
damage caused by the inefficiency / inadequacy of structures or systems (electric, hydraulic *) connected to the Product;
damage caused by incorrect sizing of the Product based on its use;
damage caused by malicious acts, force majeure (weather events, fire, lightning, electrical interference, oxidation, rust, earthquakes, theft) * and / or cases fortuitous;
damage caused by failure to contain air pollution and

and / or Cases fortuitous;
damage caused by failure to contain air pollution and acoustic except for the regulatory limits in place;
Everything listed in this point determines that the intervention is completely at the expense of the Buyer / Consumer who will have to pay the costs for home delivery, verification occurred at the assistance center and transport, the material used, the labor *, whether the supply occurred directly through A2B ACCORRONI E.G. or through another subject who markets the Product;
These lists of situations are by way of example but not exhaustive 3) TYPES, METHODS AND INTERVENTION TIMES
In order to report the alleged lack of conformity of the Product, such as necessary condition for the activation of the guarantee, the Buyer /

Product consumer, through the retailer, that is the person with whom has finalized the Product purchase contract, will have to contact the office post-sale of A2B ACCORRONI E.G.

 At the time of reporting, identification data and records must be provided

End User contacts, in addition to the identification code of the Product in auestion

(model and registration number). These indications will be necessary to allow A2B ACCORRONI E.G. to verify the release date of the same Product from the warehouses, in the absence of the identification code,

Should the service center be found during this inspection a lack of conformity of the Product with the same service center will be activated to carry out the necessary repair. A2B ACCORRONI E.G. reserve

decide whether to replace the Product or part of it in the case in

decide whether to replace the Product of part of it in the case in which, at its sole discretion, is not economically repaired cheap. Repair or replacement will not incur additional costs for the End User or for the reseller from which the End User has purchased the same Product. In this case also the aforementioned expenses inspection will not be charged. • The Buyer / Consumer must report the malfunction and / or defactiveness

defectiveness

any interventions, repairs or replacements of the varianty or modification.
any interventions, repairs or replacements of the Product will not give however, it may result in extensions or renewals of the warranty or modification.

of its original expiry. The parts replaced under warranty will remain of property of A2B ACCORRONI E.G... • in the replacement of part of the Product or of the complete Product will be able to be used parts or Products identical or with the same characteristics

characteristics. The previously described assistance procedures may

be subject to changes and / or updates by A2B

Please note that not everything described above is never extends to the obligation of compensation for damages and reimbursement of expenses or costs any nature suffered by people or things, and that nobody, except that A2B ACCORRONI E.G., is authorized to modify the terms above or release others both verbal and written. For any dispute, the competent court is the Court of Ancona.3



A2B Accorroni E.G. Srl reserves the right to make any changes without notice on the data and photos shown in this TECHNICAL MANUAL



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