

Patented high efficiency heat pump with direct exchange

## refrigerant gas/water

to produce domestic hot water, heating and conditioning for small / medium users

## HUB RADIATOR DHP 3.0+3.0 - 7.8+3.0 - 7.8+7.8 - 7.8+7.8+3.0 7.8+7.8+7.8 - 7.8+7.8+7.8+7.8



## PATENTED HEAT PUMP HUB RADIATOR DHP

## Models: 3.0+3.0 - 7.8+3.0 - 7.8+7.8 - 7.8+7.8+3.0 7.8+7.8+7.8 - 7.8+7.8+7.8+7.8

#### **Technical information**

#### **SECTION A - GENERAL INFORMATION**

It contains all the news related to the description of the air-water heat pumps and their technical characteristics.

SECTION B - TECHNICAL NEWS FOR THE INSTALLER

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

#### SECTION C - USER'S INSTRUCTIONS FOR USE AND MAINTENANCE

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

Important notes for consultation

- 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 the respective competencies, are required to comply with the instructions in this manual. 2 The word ATTENTION is followed by information that, due to its importance, must be scrupulously observed and failure to comply with it may cause damage to the appliance and / or prejudice it safe use. 3 The paragraphs highlighted in bold contain important information, warnings or advice recommends to evaluate carefully.

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

References to laws, regulations or technical rules mentioned in this manual are to be understood as a mere title information and to be considered valid at the time of printing thereof, shown on the last page. Entry into force of new provisions or amendments to those in force will not constitute a reason for any obligation towards third parties.

The 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. Knowledge and observance of

legislative provisions and rules concerning the design of the systems, the installation, the operation and the maintenance are the exclusive responsibility, for the respective competences, of the designer, the installer and User.

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## **1.CARATTERISTICHE PRINCIPALI**

#### 1.1 CLASSIFICATION OF THE APPLIANCES The

fundamental elements that make up the system HUB RADIATOR DHP are:

 Electronic evaporator motorcycles defined as: "Monoblock air heat pump split water ", fed by cooling fluid R410A with 3.0 - 7.8 kW ON - OFF compressor.
 Internal unit defined as accumulator radiator high performance closed circuit that holds completely separated the technical water from the water

sanitary and is realized through 2 accumulations sequential cylindrical section, inside the which all copper exchangers are positioned.

### **1.2 CERTIFICATIONS - CE MARKING**

The patented HUB RADIATOR DHP system is compliant with directives 97/23 / EC and 98/37 / EEC. They also comply with the provisions of the following the directives: 73/23 / CEE, 89/336 / CEE, as amended by Directive 93/68 / EEC. The internal unit of the HUB RADIATOR DHP system

has been designed to be installed only and exclusively inside the buildings or on special purpose external niche thermally insulated and protected by the

atmospheric agents, if not respected this indication invalidates any type of warranty warranty.

1.3 CONSTRUCTION CHARACTERISTICS All cars are equipped with microprocessors for control and adjustments of

operation and safety of the units. The products of the HUB RADIATOR DHP series thanks to the

patented direct exchange capacitors are able to achieve high standards of energy efficiency and SCOP.

Other construction features:

- the covering unit of the outdoor unit is made for all sheet metal models pre-painted with epoxy powder. The room compressor is completely isolated from the air /

refrigerant exchanger compartment; it allows to better protect the electromechanical components;

- the compressor is of the high rotary type efficiency, working with R 410A refrigerant, mounted on elastic anti-vibration mounts, operated from single-phase electric motor for all models;
- the air / refrigerant gas exchanger it is made with copper pipes and aluminium fins blocked by mechanical expansion of the

tubes, with high heat exchange surface;

- the ventilating unit consists of a fan helical driven directly by engine single phase asynchronous with thermal protection

internal. The fan is equipped with a grill accident prevention protection;

- the rapid exchanger DHW, is made in copper directly immersed in technical water of the indoor unit with the FIRST IN - FIRST method

OUT, so as to eliminate the problem of legionella. - the refrigeration circuit and the connections between the

individual components are made of specific copper for refrigeration. They are part of the

refrigeration circuit the rolling member, the reverse cycle valve and the liquid separator; - the electric command and control panel is made of white ABS with a degree of protection IP 56 is directly positioned inside the cover cabinet.

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

- the indoor unit is supplied complete with all the special internal copper exchangers, freon connections, DHW connections, valve air vent jolly, safety valve, automatic filling, pressure gauge, valve diverter to give priority to healthcare, electronic circulator, vessel of expansion, temperature probes.

### **1.4 CONTENT OF THE PACKAGING**

The appliance is shipped on a wooden pallet, with protections in extruded and wrapped polystyrene foam in a layer of plastic fabric with air bubbles. The identification data of the appliance are shown both on the label on the packaging and on the data plate applied to the inside of the cover cabinet. Do not remove the license plate for any reason technical data, since the references contained therein are necessary for any interventions of maintenance.Inside the package there is also an envelope 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 SUPPLIED ACCESSORIES ON DEMAND

The extensive standard equipment and available accessories on request they allow the optimal exploitation of

all the functions of the machines and the plant to which they are enslaved.

1.6 FIELD OF USE

Devices designed and manufactured for the heating and water conditioning in

hydronic and production air conditioning systems A.C.S., must be used solely for this purpose purpose, in relation to their technical specifications e performance.

The quality and dimensions of the materials used they guarantee a good life span and they are suitable for the operation of the appliances both in their own together than in their individual components, under reserve

of an installation carried out according to the rules of the art and in mechanical, chemical and stress conditions corresponding to a suitable use.

#### WARNING! All uses not expressly

indicated in this manual are considered improper and are not allowed; in particular

the use of the devices is not foreseen

in industrial processes and / or installation in environments with a corrosive or explosive atmosphere.

The manufacturer declines all responsibility for damage to persons, animals or things arising failure to comply with the instructions of this letter manual, from modifications or tampering with the product, from installation errors, to adjustment, maintenance and improper use.

# Failure to comply with what is indicated in the present manual also involves the forfeiture of thewarranty conditions.

## **1.7 SAFETY STANDARDS WARNING!**

Installation and maintenance must be carried out exclusively by specially trained gualified personnel. The connection to the power supply must be performed in accordance with current regulations of national plant engineering. During installation operations e maintenance, it is always necessary to operate in the conditions of maximum security, follow the instructions in this manual and at any warning labels applied on product. Respect the installation and operation limits indicated in this manual, do not modify in no case the internal and external electrical wiring refrigeration pipes, do not modify or disable safety and adjustment devices. Before each inspection, maintenance, or whatever else involves access to the internal parts of the appliance, remove the general power supply. In case of need or clarification for the installation and maintenance contact a Technical Assistance Center authorized by A2B ACCORRONI E.G.

Models	Connection electrical box QE to UI	Power supply outdoor unit	Cable C-1-2	Cable Pb3
	Sezione	Sezione	Sezione	Sezione
3.0 + 3.0	4.0 mm <sup>2</sup> x 3	1.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2
3.0 + 7.8	4.0 mm <sup>2</sup> x 3	2.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2
7.8 + 7.8	6.0 mm <sup>2</sup> x 3	2.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2
7.8+7.8+3.0	6.0 mm <sup>2</sup> x 5	2.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2
7.8+7.8+7.8	6.0 mm <sup>2</sup> x 5	2.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2
7.8+7.8+7.8+7.8	6.0 mm <sup>2</sup> x 5	2.50 mm <sup>2</sup> x 3	1,50 mm <sup>2</sup> x 3	0,75 mm <sup>2</sup> x 2

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

#### 2.1 GENERAL

1) The HUB RADIATOR DHP system is designed to work exclusively with the indoor unit positioned within the building to be heated and the boosters on the outside.

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

the units comply with the data reported above this manual.

3) Before installation, check that the wall where you have chosen to place the internal storage be able to support the weight itself accumulation and the water contained in it.
4) In case of replacement of a generator make the system clean and the addition of a special anti-algae additive.
5) When you choose to install the HUB RADIATOR DHP system, to keep considering the electrical absorption of the unit external. Then prepare all the works

necessary to adapt the electrical system (counter, cable section, switches circuit breakers, ect,) to guarantee the 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 the H07RN-F type. 2) Lift 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 external unit: 1) Remove the cover of the outdoor unit. 2) Connect the terminal cables according to the numbers present on the terminal board of the unit, respecting the sections shown in table 1 3) Fix the cables so that they do not come into 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 flaring. Make the folders correctly respecting the following indications:
- A) Cut the pipes and the cable (Fig. 1)
- Use pipes with adequate dimensions for the unit installed (table 2).
   Measure the distance between the indoor and outdoor unit.
- Cut the tubes to a slightly length greater than the measured distance.

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



### Tabella 2 - CONNECTION TUBE

Model	Ø LIQUID	ØGAS
3.0 + 3.0	1/4" x 2	3/8" x 2
3.0 + 7.8	1/4" x 2	3/8" - 5/8"
7.8 + 7.8	1/4" x 2	5/8" x 2
7.8+7.8+3.0	1/4" x 3	3/8 - 5/8" x 2
7.8+7.8+7.8	1/4" x 3	5/8" x 3
7.8+7.8+7.8+7.8	1/4" x 4	5/8" x 4

#### B) Burr removal (Fig. 2)

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



### C) Flaring (Fig. 3)

Remove the nuts fixed on the internal unit and outside, put them on the pipe and carry out the flaring and the removal of burrs, as previously indicated



*D*) Fastening of refrigeration pipes (Fig. 4) Align the tubes by lubricating the outer surface of the tubes pipes at the folder. Tighten sufficiently the nut using two keys 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 table 3.

#### E) Leak test of refrigeration lines

Open the caps of the sectioning valves
 Check that the sectioning valves are closed (Fig. A n ° 2).

3) Remove the cap from the service connection

on the sectioning valve (Fig. A No. 3).

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

stop valve then progressively

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

5 bar increments (Fig. A n ° 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 seal 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 the nitrogen.



Faucet on gas side

Faucet on liquid side

Tabella 5 - Tigit	terning torque
Diameter	Torque Diameter (N / m)
Ø 1/4	18
Ø 3/8	42
Ø 5/8	60

#### Tabella 4 - Refrigerant charge

Tabolla 2 - Tightoning torque

Models	Maximum length addition of additional refrigerant (g / m)	Length piping (m) Max	Dislevel H (m) Max	Quantity add. refrigerant (g/m)
3.0+3.0 - 7.8+3.0 - 7.8+7.8 - 7.8+7.8+3.0	_	45	_	00
7.8+7.8+7.8 - 7.8+7.8+7.8+7.8	5	15	5	20

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

Air and moisture in the refrigeration system can cause side effects as shown below:

- Increased pressure in the system.
- Increased current consumption.
- Decreased refrigerant efficiency.

- Freezing and obstruction of the pipes capillaries.

- Corrosion of the parts of the system of refrigeration.



To avoid the above, the internal assembly and the tubes, places between internal and external group, must be tested for leaks and purged to remove noncondensing elements and humidity from the system.

Check that each tube, (is the gas side tubes that of the liquid) between internal group and external group, has been connected in the correct way and that all wiring necessary for testing have been carried out. Remove the valve cap on the assembly external. Make sure that both are now 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.

When you change places in the unit, carry it out bleeding with the vacuum pump. Make sure the refrigerant inside the conditioner is always in liquid state.

External units are supplied with a charge of R410A refrigerant gas suitable for guaranteeing correct operation

operation up to a maximum distance of 5 meters from the indoor unit.

If you decide to install the 2 units at one distance greater than 5 meters, be sure to add 20 g of refrigerant gas per meter more than piping (Tab. 3).

For example, if there are external and internal units 7 meters of piping add 40 g of R410A gas. In any case, never exceed 15 meters. Do the addition only after making the vacuum in the pipes that connect 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 internal unit. Check that the knob "LO" of the pressure gauge valve is open. Then run the vacuum pump. The time of operation varies depending on the length of the tubes and pump capacity.

When the desired vacuum is reached, close the "LO" knob on the pressure gauge valve e stop the vacuum pump. In conclusion, using a wrench for service valves, rotate the stem of the gas side valve counter clockwise for open it completely.

Loosen the charging hose connected to the socket gas side service to relieve pressure, then remove the tube. Replace the cover nut on the gas valve and service outlet and tighten well with an adjustable wrench.

This procedure is very important to avoid plant leaks Replace the service valve caps either on the gas side than 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 valves of service of the gas and liquid sides are completely open.

#### Tabella 5 - controllo della pressione

Temperatura esterna	°C	≥20	10	0	-10
pressione da raggiungere	Pa 8 (bar)	1000 (0,01)	600 (0,006)	250 (0,0025)	250 (0,002)
Tempo di evacuazione dopo il raggiungimento della pressione	h	1	1	2	3

# H) Valve opening and refrigerant release relative to the external unit

1) Remove the section valve cap

of the coolant, liquid side (Fig. C n ° 1).

2) Open the valve A with the help of a key

hexagonal turning counter clockwise up to his 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 pliers by turning in

counter-clockwise one quarter turn (Fig. C n ° 5). 6) Replace the cap.

7) Disconnect the vacuum gauge and the vacuum pump.

8) Replace the cap on the valve (Fig. C n ° 3).
9) Tighten all the caps with the help of a key torque control with tightening torque 20 a 25 Nm.

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



Rubinetto lato gas

Rubinetto lato liquido

## I) PUMP DOWN

This procedure is performed when the group must be moved or assistance is provided to the refrigerant circuit. Emptying allows you to collect everything the refrigerant in the external unit without yes verify losses.

## L) RECOVERY PROCEDURE

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

- Open the gas valve in half and empty the air from the pressure gauge piping using gas refrigerant.

- Completely close the liquid valve.
- Turn on the machine in cooling mode.

- When the pressure of the pressure gauge moves between 0 and 0.5 kg / cm 2G (between 14.2 and 7.1 P.S.G.I) completely close the gas valve e turn off.

The complete recovery of the refrigerant of the outdoor unit.

## 3. OUTDOOR UNIT INSTALLATION

### 3.1 GENERAL

In choosing the installation position accurately respect the following indications:

- Make sure that the difference between INTERNAL UNITS

and the OUTDOOR UNIT is not greater than 5.0 m.

- The appliance must be installed so that the influences of adjacent structures and / or i effects of particular climatic conditions (snow, wind etc ...), do not compromise the functioning of the product and / or the safety of people e of assets.

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

- Make sure there are no obstacles to the free circulation of air through the heat exchangers: A) do not arrange plants or animals directly close to the stream air;

B) avoid installation in the corners where it is used the depositing of dust, leaves and whatever can reduce the efficiency of the exchangers obstructing the passage of air (Fig 5).



- Avoid installation in tight and small spaces get away because they could be favored acoustic reverberations. Inquire about the any limits on expected noise emissions for the area of the municipal territory in which it is install the appliance. In case of doubt it is it is advisable to consult a acoustic technician, qualified for an evaluation of the impact, to prevent disputes from third party.

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

- Install the external units on a rigid base equipped with special anti-vibration pads to avoid the increase of vibrations and noise, so as not to disturb the neighbours (Fig.6).



- Position the outdoor unit so that the air flow is not hindered in any way. In the case of strong winds, make sure the fan functions correctly, positioning the unit longitudinally, along a wall or using a shield. If the appliance must be suspended on one external wall, the support must respect the Technical specifications. The wall where the unit should be installed, must be brick or material of similar consistency, otherwise it must be reinforced.
Support brackets must be stable, durable and with adequate degree of protection against corrosion.
WARNING! Make sure of bearing capacity of the part on which the shelves are placed 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 with fire hazards.

- Installation in highly atmospheric areas corrosive is not allowed; in condition particular climatic conditions such as near the sea, it is mandatory to provide for a duration of lower life of the product and in any case more frequent and accurate maintenance.

- In external units, from which it is eliminated condensation water, provide a special one drainage and / or channelling of the same, in so as to avoid dangerous situations due for example to ice formation on transit 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 of adequate bearing capacity e equipped with special anti-vibration pads.

### 3.2 DISTANCES OF RESPECT (Fig. 7) Respect

the spaces indicated in figure 8, in such a way to allow correct operation and all installation and maintenance operations.

#### 3.3 ROOF INSTALLATION

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

excessive noise and vibration and being classified as an unsuitable installation at service.

on the ground, free installation + 3 dB (A) in a recessed corner of the facade + 9 dB (A) against the facade + 6 dB (A)



#### 3.4 ACOUSTIC 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.

#### **1)POSITIONING OF THE EXTERNAL UNIT**



In this regard, we advise, if necessary, to do install a kit made of a compressor cover complete with upper headphone, sound-absorbing insulation

on the inside of the compressor compartment and up

all the inside of the top cover (see accessory cod. 75100001)

Very important, then, is the installation of systems that

is combined with the heat pump for this purpose the following aspects must be considered. 1) POSITIONING OF THE EXTERNAL UNIT 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



Anti-vibration mount on shelf anti-vibration kit

Codice 75100018



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

N.B. . it is advisable to place the outdoor unit where possible, always resting 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. 7) ON THE 2017 TECHNOLOGY IN EXIT IN NEXT MARCH WE HAVE REPORTED AS NEW IN THE ACCESSORIES, ABOUT NOISE, THE FOLLOWING DEVICES ACTI TO ALSO AVOID NOISE TRANSMISSION INDUCED BY IN PIPES COPPER THAT CONNECT THE INTERNAL UNIT WITH THE EXTERNAL UNIT. THE ACCESSORIES FOLLOWED BELOW CAN BE ORDERED FROM 02/13/2017



Flexible anti-vibration joint kit with connection folder and tail piece for 7.8 straight booster (complete with 5/8 "joint)



Flexible anti-vibration joint kit with connection folder and tail piece for Booster 3.0 straight (complete with 3/8 "joint) Code 75100017



Kit giunto lessibile antivibrante con cartella di raccordo e bocchettone per Booster 7.8 diritto (completo di giunto da 5/8") Code 75100014



Flexible anti-vibration joint kit with connection folder and tail piece for Booster 3.0 90 ° curved (complete with 3/8 "joint) Code 75100015



Flexible anti-vibration joint kit with connection folder and filler neck for 7.8 curved 90 ° booster (complete with 5/8 "joint) **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 EXTERNAL MOTORWAY UNITS 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. INSTALLATION OF INDOOR UNITS

Always install the accumulator inside the building to heat away from atmospheric agents and inside a room with a controlled temperature. Make sure the wall on which it will be installed the indoor unit is able to support the entire weight in system operation. The main components are listed below make up the internal unit.

#### Main components

- 1 Expansion tanks of 6 liters each
- 2 Electrical panel
- 3 WILO YONOS PARA RS 25/6 circulator
- 4 Electric resistance 1500 W
- 5 Pressure gauges with 1/4 "connection
- 6 Safety valve with 3 bar setting



- 7 Diverter valve with 3/4 "connections
- 8 1/4 "safety relief
- 9 3/8 "air venting jolly valve
- 10 R410A connection (liquid side
- 11 R410A connection (gas side)
- 12 3/4 "system delivery
- 13 3/4 "system return
- 14 DHW delivery 1/2 "
- 15 1/2 "water mains cold water inlet
- 16 Health priority valve
- 17 Digital electronic control units
- 18 Mobile cover
- 19 Activation of electric heater
- 20 Summer / winter switch
- 21 Summer / winter diverter valve
- 22 Weekly programmer clock daily
- 23 Filler cock
- 24 Technical water inertial storage





#### 4.1 ASSEMBLY PROCEDURE

A) Place the indoor wall unit on the wall where you want to install.

Make sure it is perfectly level with a spirit level horizontal and that the support surface is regular. B) Once the position of the fasteners is marked, make appropriate holes for the insertion of wall plugs to choose based on the weight of the unit

internal in operation and the structural type of the wall.

Wall mounting points

E) Once the indoor unit is fixed to the wall proceed with the connection of the sanitary circuit 1/2"



Water mains entrance DHW delivery

F) Proceed with the connection of the delivery and of the heating system return using 3/4 "fittings



WARNING! the circulator mounted on board machine is able to supply the water flow nominal with the prevalence indicated in the table of technical data. Check that your losses load do not exceed the prevalence useful available.

In any case, it is recommended to comply with the requirements

below:

- the diameter of the pipe of the sampling line from the

network should never be less than that machine attack;

- adequately fix the pipes, whose weight it must not weigh on the appliance;

- properly insulate the pipes to prevent heat losses.

G) Connect the valves of safety at the threaded connection 1/2 "female of the safety valve.



thermally isolate the remaining space that will remain between the pipe and the wall.

L) Once all the connections have been made, request

the indoor unit with the appropriate cover cabinet that

you must first lean from the top down and then made to rotate towards the wall until resting. Screw the n. 4 screws prepared in the side holes. M) Before filling the system make sure that all the pipes are well connected and there is none are leaks, proceed with opening the tap filling, bleed all the air present

Fan

in the plant and put under pressure.

H)Make the electrical connections between the panel power supply and the main power supply and between the panel electric and the terminal block located on the right side of the outdoor unit following the instructions given in table 1



possession

the

(Presidential Decree 27 January 2012, n. 43)

of

**F-GAS** 

certification

#### **4.2 DIMENSIONS OF INTERNAL AND EXTERNAL UNITS**

#### EXTERNAL UNITS HUB RADIATOR DHP



#### Technical data Booster HUB RADIATOR DHP

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	
I	mm	435	620	
Refrigerant quantity	Kg	1,1	2,0	
Refrigerant gas connections		3/8"	5/8"	
Coolant fluid connections		1/4"	1/4"	
Rated air flow rate	m³/h	1650	3280	
Power supply		230V/1/50Hz		
Sound level	dB(A)	52	60	
Weight	Kg	33	55	

#### INDOOR UNIT HUB RADIATOR DHP



Models	Booster	Quantità	
HUB RADIATOR DHP 3.0 + 3.0	3.0	2	
HUB RADIATOR DHP 7.8 + 3.0	7.8 + 3.0	1+1	
HUB RADIATOR DHP 7.8 + 7.8	7.8	2	
HUB RADIATOR DHP 7.8 + 7.8 + 3.0	7.8 + 3.0	2 + 1	
HUB RADIATOR DHP 7.8 + 7.8 + 7.8	7.8	3	
HUB RADIATOR DHP 7.8 + 7.8 + 7.8 + 7.8	7.8	4	

#### 4.3 PERFORMANCE CHARACTERISTICS EXTERNAL UNITS HUB RADIATOR DHPTHERMAL POWER **DELIVERED BOOSTER**

Thermal power supplied BOOSTER HUB RADIATOR DHP 3.0												
Thermal power supplied kW												
Ta Heating water delivery temperature ° C												
Model	(°C)	30	35	40	45	50	55					
	-10	1,96	1,93	1,88	1,80	1,67	1,51					
	-9	2,02	1,99	1,94	1,86	1,74	1,58					
	-8	2,08	2,05	2,01	1,93	1,81	1,66					
	-7	2,14	2,11	2,07	1,99	1,88	1,74					
	-6	2,20	2,18	2,13	2,06	1,96	1,81					
	-5	2,27	2,24	2,20	2,13	2,03	1,89					
	-4	2,33	2,31	2,26	2,19	2,10	1,96					
	-3	2,40	2,37	2,33	2,26	2,17	2,04					
	-2	2,47	2,44	2,39	2,33	2,24	2,11					
	-1	2,54	2,51	2,46	2,40	2,31	2,18					
	0	2,61	2,58	2,53	2,47	2,38	2,26					
	1	2,69	2,65	2,60	2,54	2,45	2,33					
	2	2,76	2,72	2,67	2,61	2,52	2,40					
3.0	3	2,84	2,80	2,74	2,68	2,59	2,47					
	4	2,92	2,87	2,82	2,75	2,66	2,55					
	5	3,01	2,95	2,89	2,82	2,73	2,62					
	6	3,09	3,03	2,97	2,90	2,81	2,69					
	7	3,18	3,11	3,05	2,97	2,88	2,77					
	8	3,27	3,20	3,12	3,05	2,95	2,84					
	9	3,36	3,28	3,20	3,12	3,03	2,91					
	10	3,45	3,37	3,29	3,20	3,10	2,98					
	11	3,55	3,46	3,37	3,28	3,18	3,06					
	12	3,64	3,55	3,45	3,36	3,25	3,13					
	13	3,75	3,64	3,54	3,44	3,33	3,20					
	14	3,85	3,74	3,63	3,52	3,41	3,28					
	15	3,95	3,83	3,72	3,60	3,48	3,35					

BOOSTER ABSORBED ELECTRIC POWER BOOSTER HUB RADIATOR DHP 3.0											
BOOSTER HUB RADIATOR DHP 3.0 BOOSTER ABSORBED ELECTRIC POWER kW Heating water delivery temperature °C											
	Та		Heati	ng water de	elivery tem	perature °	с				
Model	(°C)	30	35	40	45	50	55				
	-10	0,66	0,75	0,84	0,94	1,05	1,19				
	-9	0,66	0,75	0,84	0,94	1,06	1,19				
	-8	0,66	0,75	0,84	0,94	1,06	1,19				
	-7	0,66	0,75	0,84	0,94	1,06	1,19				
	-6	0,66	0,75	0,84	0,94	1,06	1,19				
	-5	0,66	0,75	0,84	0,94	1,06	1,20				
	-4	0,66	0,74	0,84	0,94	1,06	1,20				
	-3	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				
	-1	0,66	0,74	0,84	0,94	1,06	1,20				
	0	0,66	0,74	0,84	0,94	1,06	1,20				
	1	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				
HR 3.0	3	0,66	0,74	0,84	0,94	1,06	1,20				
	4	0,66	0,74	0,83	0,94	1,06	1,20				
	5	0,65	0,74	0,83	0,94	1,06	1,20				
	6	0,65	0,74	0,83	0,94	1,06	1,20				
	7	0,65	0,74	0,83	0,94	1,06	1,20				
	8	0,65	0,74	0,83	0,94	1,06	1,20				
	9	0,65	0,73	0,83	0,94	1,06	1,20				
	10	0,65	0,73	0,83	0,94	1,06	1,20				
	11	0,65	0,73	0,83	0,94	1,06	1,20				
	12	0,65	0,73	0,82	0,93	1,06	1,20				
	13	0,64	0,73	0,82	0,93	1,06	1,20				
	14	0,64	0,73	0,82	0,93	1,06	1,20				
	15	0,64	0,72	0,82	0,93	1,05	1,20				

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		Thermal	power su RADIAT	pplied BO OR DHP 7	OSTER H	UB			POTENZA EL	ETTRICA	ASSORBI RADIATO	TA COMPI OR DHP 7.8	RESSORI I B	BOOSTER	R
			The	ermal powe	er supplied	kW				E	OOSTER	ABSORBE	ED ELECTI		ER kW
	Ta Heating water delivery temperature°C							Та	Heating water delivery temperature °C						
Model	(°C)	30	35	40	45	50	55	Model	( °C )	30	35	40	45	50	55
	-10	5,12	5,05	4,91	4,69	4,36	3,93		-10	1,78	2,00	2,25	2,52	2,83	3,1
	-9	5,27	5,20	5,07	4,86	4,55	4,13		-9	1,78	2,00	2,25	2,53	2,84	3,19
	-8	5,43	5,36	5,23	5,03	4,73	4,33		-8	1,78	2,00	2,25	2,53	2,84	3,20
	-7	5,58	5,52	5,40	5,20	4,92	4,53		-7	1,78	2,00	2,25	2,53	2,85	3,20
	-6	5,75	5,68	5,56	5,37	5,10	4,73		-6	1,78	2,00	2,25	2,53	2,85	3,2
	-5	5,91	5,85	5,73	5,55	5,28	4,92		-5	1,78	2,00	2,25	2,53	2,85	3,2
	-4	6,09	6,02	5,90	5,72	5,47	5,12		-4	1,78	2,00	2,25	2,53	2,85	3,22
	-3	6,26	6,19	6,07	5,90	5,65	5,31		-3	1,78	2,00	2,25	2,53	2,86	3,22
	-2	6,44	6,36	6,25	6,08	5,83	5,50		-2	1,77	2,00	2,25	2,54	2,86	3,22
	-1	6,63	6,54	6,43	6,26	6,02	5,70		-1	1,77	2,00	2,25	2,54	2,86	3,23
	0	6,82	6,73	6,61	6,44	6,20	5,89		0	1,77	2,00	2,25	2,54	2,86	3,23
	1	7,01	6,91	6,79	6,62	6,39	6,08		1	1,77	1,99	2,25	2,53	2,86	3,23
	2	7,21	7,10	6,97	6,80	6,57	6,27		2	1,77	1,99	2,25	2,53	2,86	3,23
нк 7.8	3	7,42	7,30	7,16	6,99	6,76	6,46	HR 7.8	3	1,76	1,99	2,24	2,53	2,86	3,23
	4	7,63	7,50	7,35	7,17	6,94	6,65		4	1,76	1,99	2,24	2,53	2,86	3,23
	5	7,84	7,70	7,55	7,36	7,13	6,84		5	1,76	1,98	2,24	2,53	2,86	3,23
	6	8,06	7,91	7,75	7,56	7,32	7,03		6	1,76	1,98	2,24	2,53	2,86	3,23
	7	8,29	8,12	7,95	7,75	7,51	7,22		7	1,75	1,98	2,23	2,52	2,86	3,23
	8	8,52	8,34	8,15	7,95	7,70	7,41		8	1,75	1,98	2,23	2,52	2,85	3,23
	9	8,76	8,56	8,36	8,15	7,90	7,60		9	1,75	1,97	2,23	2,52	2,85	3,23
	10	9,00	8,79	8,57	8,35	8,09	7,79		10	1,74	1,97	2,22	2,52	2,85	3,23
	11	9,25	9,02	8,79	8,55	8,29	7,98		11	1,74	1,96	2,22	2,51	2,85	3,23
	12	9,51	9,26	9,01	8,76	8,49	8,17		12	1,73	1,96	2,22	2,51	2,84	3,2
	13	9,77	9,50	9,24	8,97	8,69	8,36		13	1,73	1,95	2,21	2,50	2,84	3,22
	14	10,04	9,75	9,47	9,19	8,89	8,56		14	1,73	1,95	2,21	2,50	2,83	3,22
	15	10,32	10,00	9,70	9,40	9,09	8,75		15	1,72	1,95	2,20	2,49	2,83	3,2

#### **4.4 TECHNICAL DATA HUB RADIATOR DHP**

DESCRIPTION	U.M.	3.0+3.0	3.0+7.8	7.8+7.8	7.8+7.8+3.0	7.8+7.8+7.8	7.8+7.8+7.8+7.8
Thermal power (1)	kW	6,22	11,23	16,24	19,35	24,36	32,48
Power consumption (1)	kW	1,49	2,71	3,92	4,66	5,88	7,84
C.O.P. (1)	W/W	4,17	4,14	4,14	4,15	4,14	4,14
Thermal power (2)	kW	5,94	10,72	15,50	18,47	23,25	31,00
Power consumption (2)	kW	1,81	3,34	4,84	5,74	7,26	9,68
C.O.P. <sup>(2)</sup>	W/W	3,28	3,21	3,20	3,22	3,20	3,20
S.C.O.P. <sup>(3)</sup>	W/W	3,78	3,72	3,71	3,70	3,71	3,71
Seasonal heating efficiency(ηs)	%	153,1	150,6	150,3	149,8	150,3	150,3
Cooling capacity (4)	kW	2,94	7,54	7,54	15,08	15,08	22,62
Power consumption (4)	kW	0,72	1,94	1,94	3,88	3,88	5,82
E.E.R. <sup>(4)</sup>	W/W	4,08	3,89	3,89	3,89	3,89	3,89
Cooling capacity (5)	kW	2,63	6,98	6,98	13,96	13,96	20,94
Power consumption (5)	kW	0,89	2,27	2,27	4,54	4,54	6,81
E.E.R. <sup>(5)</sup>	W/W	2,95			3,07		I
S.E.E.R. <sup>(5)</sup>	W/W	3,84			4,02		
Energy class in heating (6)			1		A+ / A++		
Defrosting method			Inversio	one di ciclo	con condensa	atori ad imme	rsione
Type of refrigerant					R410A		
External temperature operating limits	°C				-15 / +45		
Technical water temperature min / max	°C		+4 / +55				
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 charging	m				15		
Max height difference between outdoor and indoor unit	m				5		
Water content technical accumulations	I				75 + 75		
Max electronic inverter circulator flow rate	m³/h				4,5		
Max inverter electronic circulator head	m				7,5		
Electronic absorption of the inverter electronic circulator	W				4 - 75		
Volume of expansion vessels	I				6 + 6		
Preload expansion vessels	bar	1					
Safety valve calibration	bar				3		
Back up electrical resistance	W	1500					
Power supply		230V/1/50Hz 400V/3+N/50Hz			V/3+N/50Hz		
Hydraulic connections for cold water inlet and DHW outlet					1/2" M		
System hydraulic flow and return connections					3/4" M		
Heat loss internal unit accumulation	kWh/24h				1,86		
Internal weight of transport / operating unit	kg	163	3 / 298		172 / 307		181 / 316

(1) Heating: outdoor air temperature 7 ° C b.s. - 6 ° C wb.; water inlet / outlet temperature 30/35 ° C (2) Heating: outdoor air temperature 7 ° C b.s. - 6 ° C wb .; water inlet / outlet temperature 40/45 ° C

(3) Heating: average weather conditions; T.biv = -7 ° C; water inlet / outlet temperature 30/35 ° C

(4) Cooling: outdoor air temperature 35 ° C; water inlet / outlet temperature 23/18 ° C
 (5) Cooling: outdoor air temperature 35 ° C; water inlet / outlet temperature 12/7 ° C

(6) Water 35 ° C / 55 ° C

#### Tabella prelievi ACS HUB RADIATOR DHP

DESCRIPTION	U.M.	3.0+3.0	3.0+7.8	7.8+7.8	7.8+7.8+3.0	7.8+7.8+7.8	7.8+7.8+7.8+7.8
Amount of water available in a single withdrawal (1)	1	68	72	(2)	(2)	(3)	(4)
Recovery time (1)	min	26	18	-	-	-	-
Seasonal DHW production efficiency (ηs)	% 124,2						
DHW production energy class					A+		

(1) Storage temperature 55 ° C, Temp. DHW 40 ° C, Water inlet temp. 10 ° C, Outdoor temperature 7 ° C db. - 6 ° C wb.

(2) Continuous DHW supply with max. Flow rate 7 I / min, water inlet temp. 10 ° C, external temperature 7 ° C db. - 6 ° C wb.

(3) Continuous DHW supply with max. Flow rate 12 I / min, water inlet temp. 10 ° C, external temperature 7 ° C db. - 6 ° C wb.
 (4) Continuous DHW supply with max. Flow rate 16 I / min, water inlet temp. 10 ° C, external temperature 7 ° C db. - 6 ° C wb.

## 5. HYDRAULIC AND FUNCTIONAL DIAGRAMS HUB RADIATOR DHP

#### 5.1 HYDRAULIC SCHEME HUB RADIATOR DHP 7.8 + 7.8 + 7.8 WITH LOW RADIANT SYSTEM



#### 5.2 HYDRAULIC SCHEME HUB RADIATOR DHP 7.8 + 7.8 + 7.8 + 7.8



#### 6. ELECTRICAL DIAGRAMS HUB RADIATOR DHP

## 6.1 ELECTRICAL DIAGRAMS HUB RADIATOR DHP 3.0 + 3.0 LEGEND



M1 - M2 booster set Pb1 technical water probe Pb3 probe Booster Pb4 electric resistance probe TA room thermostat R electrical resistance Dixell digital controller CD RR resistance relay RP pump relay R DHW diverter relay DHW R E / I relay devistric summer / winter ON OFF remote on / off C compressor 1 reversing valve 2 fan TM thermostat minimum IR resistance switch IE/Ieast/inv. Switch VD1 DHW / thermal diverter valve VD2 diverter valve summer / winter P system pump RB1 relay Booster 1 RB2 relay Booster 2 Or programmer clock R1 relay priority health



Summer / winter operation Coin green button pressed and LED on, the system is in mode winter, with red button pressed and led off the system is in summer mode. Operation with activated support resistance To use the resistance to integration just activate "IR" pressing the green button with the lightning symbol. In this way the control unit will decide when resistance help is needed that will work in support of the heat pump. In this mode the LED will be on.



#### 6.3 ELECTRICAL DIAGRAMS HUB RADIATOR DHP 7.8 + 7.8



R1 relay priority health

#### 6.4 ELECTRICAL DIAGRAMS HUB RADIATOR DHP 7.8 + 7.8 + 3.0



IR resistance switch

IE/Ieast/inv. Switch

VD1 DHW / thermal diverter valve VD2 diverter valve summer / winter

P system pump

RB1 relay Booster 1

2 fan

RB2 relay Booster 2

Or programmer clock

R1 relay priority health

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Operation with activated support resistance

heat pump. In this mode the LED will be on.

To use the resistance to integration just activate "IR"

pressing the green button with the lightning symbol.

In this way the control unit will decide when resistance help is needed that will work in support of the

the system is in summer mode.







2

N.B. Before making the electrical connections, make sure you have dimensioned them correctly the section of the power cables based on the actual distance from the meter - Always provide a special magnetothermal protection

#### 6.5 SCHEMA ELETTRICO HUB RADIATOR DHP 7.8 + 7.8 + 7.8



Coin green button pressed and LED on, the system is in mode winter, with red button pressed and led off the system is in summer mode. Operation with activated support resistance To use the resistance to integration just activate "IR" pressing the green button with the lightning symbol. In this way the control unit will decide when resistance help is needed that will work in support of the heat pump. In this mode the LED will be on.

2 fan

P system pump RB1 relay Booster 1

RB2 relay Booster 2 Or programmer clock

R1 relay priority health

VD1 DHW / thermal diverter valve

VD2 diverter valve summer / winter





N.B. Before making the electrical connections, make sure you have dimensioned them correctly the section of the power cables based on the actual distance from the meter - Always provide a special magnetothermal protection

#### 6.5 SCHEMA ELETTRICO HUB RADIATOR DHP 7.8 + 7.8 + 7.8 + 7.8



- I E / I east / inv. Switch
- VD1 DHW / thermal diverter valve VD2 diverter valve summer / winter
- P system pump
- RB1 relay Booster 1
- RB2 relay Booster 2
- Or programmer clock
- R1 relay priority health

In this way the control unit will decide when resistance help is needed that will work in support of the

winter, with red button pressed and led off

Operation with activated support resistance

heat pump. In this mode the LED will be on.

To use the resistance to integration just activate "IR"

pressing the green button with the lightning symbol.

the system is in summer mode.





N.B. Before making the electrical connections, make sure you have dimensioned them correctly the section of the power cables based on the actual distance from the meter - Always provide a special magnetothermal protection

## 7. CIRCULATOR HUB RADIATOR DHP



the electronic circulator supplied as standard HUB RADIATOR DHP can feed:

- the heating and air conditioning system On the floor;

- heating and fan coil system conditioning.

In some cases HUB RADIATOR DHP can be connected simultaneously to two or more types of plants.

The power supply to the circulator has already been carried out by our technicians during assembly and allows the circulator to operate while it is running

rediscovering both when the room thermostat requires heat, both when the minimum thermostat falls below 45 ° C.

In the case of radiant floor heating systems the circulator will be controlled by the environmental thermostat

and the water delivery temperature comes regulated by a three-way mixing point valve fixed and the value can be modified to adapt it to the design value of the plant. This valve must be purchased separately as an accessory. While for conditioning the circulator is controlled exclusively by the room thermostat .. On the delivery pipe a

safety thermostat that blocks operation of the pump, if the flow temperature, for some reason, it exceeds the threshold value, so to avoid overheating of the floor e excessive dilatation of the same.

The characteristics of the circulator are given in pag. 17, where the useful prevalence is reported to the plant according to the water flow rate and the heating power of the heating system.

A water flow is normally considered such as to obtain a delta in nominal conditions temperature between flow and return of 10 ° C.

### 8. DIVERTER VALVE HUB RADIATOR DHP



All products in the HUB RADIATOR DHP series are equipped with electrically connected diverter valve with minimum thermostat

This system allows to put momentarily in stand-by the system for favor the production of domestic hot water.

#### 9. WINTER SUMMER DIVERTER VALVE



All products in the HUB RADIATOR DHP series are equipped with summer / winter diverter valve connected

electrically with the appropriate switch that must each season change must be selected.

Summer / winter operation

With the green key pressed and the led on, the system is in winter mode, with red button pressed and led off the system is in summer mode.



#### 10. ELECTRIC RESISTANCE HUB RADIATOR DHP



All products in the HUB RADIATOR DHP series are equipped with a 1500W single-phase electric heater. This resistance can be used as a supplement of the same.

The type of operation can be selected using the button on the control plate of the external cover cabinet.

A) Operation of heat pump only

The key must be in position "0" with the LED off, in this way the electric resistance will not enter never in operation

B) Operation with activated resistance support

To use the resistance to integration is enough press the green button with the lightning symbol. In this way the control unit will decide when it is necessary the help of the resistance that will work in heat pump support. In this mode the led will be on.



#### 11. WARNINGS

11.1 QUALIFICATION OF THE INSTALLER WARNING! It is required by current legislation on the subject (law 5 March 1990 n. 46 and relative Implementation regulation) that the installation is carried out by a qualified company in a position to ensure, as well as the correct realization of the plant, even the necessary checks first of commissioning.

#### **11.2 PRELIMINARY INFORMATION**

Before starting the installation it is necessary make sure the steps have been completed planning and obtaining authorizations possibly necessary (for example: local authorities -Municipality, etc.), in addition to the appropriate technical checks (eg: acoustic impact assessment). It is recommended for the purpose of relying on a qualified heating technician who guarantees the correct performance of the aforementioned phases, whether optional or mandatory.

### 11.3 TRANSPORT AND HANDLING

The appliance is shipped on a wooden pallet, with cardboard and plastic material protections. The appliance can be moved aside of personnel adequately equipped and with equipment suitable for the weight of the product, such as forklift or trans pallet, taking care of distribute the weight on the supports, which is unbalanced towards the compressor (water connections side). Any lifting using belts or ropes it can be carried out by constraining the two-tube ropes sturdy metal inserted in the existing crosspieces under the base of the machine. Secure the ropes at the anchor points to the pipes by means of suitable fasteners or safety pins; protect with cardboard or other suitable material the contact points between the ropes and the device. Upon delivery, check that during transport has not been damaged visible on the packaging and / or on the appliance. In case notice of damage, report immediately formal complaint to the shipper. Do not install appliances damaged in transport. It is forbidden to disperse the parts in the environment

It is forbidden to disperse the parts in the environment packaging, or leave them within the reach of children as a potential source of danger.

## 11.4 USE OF INSTRUCTIONS

This manual is an integral part of the product and must be delivered to the owner of the appliance so that it is kept carefully for any future use or for consultation. WARNING! When installing or work on the device, observe all the instructions in this manual and the other applicable to the product, according to the national safety standards. The modifications of the connections of any kind and / or failure to comply of these instructions cause immediate damage forfeiture of guarantee and liability of the producer.

#### 11.5 GENERAL SYSTEM CHECKS WARNING!

Before filling the system make sure that the pipes do not contain foreign material, such as sand, slag, flakes of rust and whatever else, can damage the exchanger. It is a good rule carry out the washing of the system, by-passing the unit, before filling the same. Load the system, taking care of it to check the opening of the interception valves and closing the system drain cock. WARNING! - Connect the indoor unit first and

then the external unit, fixing firmly piping.

- Make sure the drain is not loose.

- Ensure that the auxiliary lines are been isolated.

- Make sure the drain flows out correctly. Fix the drain to the others pipes.

- Do not let the power cables come into contact with the pipes.

- Install in the valve system motorized area to prevent water contained in the accumulation does not circulate freely when it is not necessary, ie when there is no consent from thermoregulation.

### 12. START-UP

Before proceeding with commissioning of the appliance you must make sure that: - safety conditions and all requirements reported in this manual have been

respected;

- the attachment to the supporting surface is stable and

the zones of respect are free from any obstacle or material that prevents easy access to the device;

- the hydraulic and electrical connections, with particular attention to grounding,

have been executed correctly;

- interception, loading and unloading devices and vent of the system are in the correct position operating conditions and are been adequately controlled.

- The first start-up must be

obligatorily carried out by one of ours Authorized Service Center WARNING! Starting the appliance, in

conditions of non-compliance with the provisions of this manual and / or the standards in force in safety and plant engineering matter, involves forfeiture of warranty conditions. 12.2 START-UP

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

Hold for at least 2/3 seconds, at

release the LED with the sun indication will start to flash (compressor count).

After a few minutes the LED will become solid, and the machine will start operating, heating the water indoor unit technique up to the temperature of SET POINT. At this point the machine enters a regime and will carry out all the ignition cycles e switching off automatically and independently. After starting the appliance, check the correct one operation of the plant, in particular attention to the following:

- the water pump must not

emit abnormal noise, because

this situation indicates that the air is not

been properly purged or that water flow is not sufficient (possible obstructions, blockages or disbursements adjustment of the devices on the system);

- the voltage measured in the terminals of power supply between the three phases and the neutral must be in the 210-240 Volt range. The same principle applies to the single-phase versions Lower values indicate a fall of power line voltage too high, with consequent possible damage to the compressor, which may also occur even for higher voltages than those above indicated;

- the measured temperature difference between input and

output of the appliance must be between 3  $^\circ$  C and 8  $^\circ$  C; values less than 3

° C indicate an excessive water flow,

while the flow rate will be too low with values greater than 8  $^\circ$  C;

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

#### **13. REPAIR - REPLACEMENT COMPONENTS**

For the intervention on the components listed below and / or a replacement is required for their replacement technical competence, for which 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 compliance with the relevant regulations in force. Before of any intervention on the appliance, remove the power supply by acting on the switch general. For any emptying operations

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

#### **13.1 REFRIGERANT CIRCUIT**

For whatever reason it was necessary repair of the refrigerant circuit, with consequent contamination, as in the case of burning of the electric windings of the compressor or failure of the

circuit with complete emptying, it is always necessary

do the following:

- circuit cleaning;
- drying and high vacuum;

- test of tightness and restoration of the charge.

#### **13.2 DRYING AND VACUUM OF THE PLANT**

Drying and high vacuum are necessary for evacuate air, moisture, and any gases that could be in solution with the compressor oil.

If there is liquid water in the system,

it is necessary to slightly heat the parts in which one is filed, in order to favour the evaporation.

The capacity of the high vacuum pump must be adequate to the system in which one must operate; is recommends using a pump with a flow rate of at least 90 liters / minute.

The degree of vacuum must be verified with a special one vacuum gauge for medium vacuum, if possible electronic, with micron resolution of the scale.

- Carrying out a heavy vacuum:

- connect the pump to the system using pipes, swivel 1/4 SAE female connections,

at the pressure ports shown on

inlet and outlet connections in

compressor;

- connect a vacuum gauge

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

## **13.3 CLEANING OF THE CIRCUIT**

**WARNING!** In the case of engine burning, with perforation of the windings, it is necessary thoroughly clean the refrigeration circuit to avoid subsequent burns or breakdowns.

The purpose of cleaning is to eliminate all carbon or other solid state deposits e, according to the method used, they must be eliminated vall the contaminants that have been introduced for the circuit cleaning or by effect of the operations carried out.

WARNING! Do not inhale refrigerant vapours coming from burned compressors, as it can be in the presence of toxic products. Avoid altogether contact with the skin of residual compressor oil burned, as it is generally acidic.

#### **13.4 REFRIGERANT CHARGE**

WARNING! For no reason the refrigerant gas in the liquid state it must be charged on the suction side

on the compressor as this condition involves damage to the compressor.

The operations to be performed are the following: - connect the cylinder (or charging cylinder) to the SAE 1/4 pipe system and connections swivel female at the pressure point in the liquid side of the air / refrigerant gas heat exchangers;

- insert refrigerant in the liquid state:

a) until the required charge is reached;

b) until the balance is achieved

pressures between cylinder and refrigerant circuit;

- start the appliance and, if necessary, insert the remaining refrigerant until

achievement of the prescribed values.

The charge tuning operation goes

made using the suction socket of the

compressor, inserting the refrigerant to the state liquid gradually;

- check the refrigerant charge.

WARNING! Make sure the tools used are in good condition and suitably ta

## **13.5 VERIFICATION OF OVERHEATING**

- start the appliance;

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

the low pressure gauge for the measurement of the pressure;

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

- measure the temperature value on the pipe large (steam phase), near the

pressure connection using a special one contact probe;

- read the temperature value in the pressure gauge, in correspondence of the detected pressure value. The temperature read by the thermometer must be greater than the temperature read on the 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.

#### 14. CLOCK INSTRUCTIONS WEEKLY PROGRAMMER

### 14.1 DESCRIPTION

The programmer is equipped inside with a rechargeable lithium battery that allows you to save time and schedule for about 5 years, even without mains power supply. During the normal operation, the display shows the day of the week and the current time, in addition to the status of

operation in which the presence of the symbol of a light bulb indicates that the appliance is switched on.

### **14.2 OPERATING INSTRUCTIONS**

The functions of the keys, with reference to fig. 9, are the following:

1) Time setting:

Press the clock symbol at the same time as symbol D +, to adjust the day of the week. To set the time, press the clock button simultaneously with H +.

To set the minute, press clock simultaneously with M +.

2) Gear / programming switch: Press the "MANUAL" button to switch between the position "ON" "AUTO" and "OFF".

3) Key "P" for selecting the programs of Power on / off.

4) "H +" button for progress and time selection.

5) "M +" button for advancement and selection of minutes.

6) Key "D +" of progress and selection of days Weekly.

**7)** Tasto **O**Key to change the time and day of week and to return to the current time when you are in "PROGRAMMING" mode.

### <u>14.3 SETTING THE DAY AND THE CURRENT</u> <u>TIME</u>

To allow the correct operation of the programmer must set day and time currents acting as follows:

a) to set the correct day, press
simultaneously the clock symbol and the symbol D +
b) to set the correct time press
simultaneously the clock symbol and the symbol H +
c) to set the correct minute press
simultaneously the clock symbol and the

symbol M +

14.4.1 To facilitate the programming, in the case we want to adopt working hours identical for several days of the week, they are available some combinations of days for the repetition of the set program, according to the following diagram:

the same program for the days from Monday to Saturday

the same program for all days of week

14.4.2 To proceed to

programming of the intervals of operation of the radiator act as follows:

a) pressing the P key, the display shows 1 on;b) by pressing the D + key you can select the day of

activation;

c) to set the activation time press the button H +;

d)

- is) to set the minute of activation press the M + button;
- by pressing the P button on the display again 1 off appears;
- f) by pressing the D + key you can select the day of

deactivation;

g) to set the deactivation time, press the H + key

h) to set the minute of deactivation press the M + key

### 14.4 PROGRAMMING

16 programs are available, including 16 on/off

#### **14.5 MANUAL OPERATION**

Through simple commands it is possible, without change the schedule, start the appliance when the program itself provides instead the off state or vice versa, proceeding as follows: By pressing the manual key you can switch off, auto, and on setting (manual operation).



It is possible to set up to 16 start/shutdowns daily by repeating the settings from point "a" up to point "h".

If you do not operate on the keys within 10 seconds the display returns to the main screen. Fig. 9

- a different program for each day

of the week (the day to be programmed appears highlighted on the display mo-tu-we-thecc.)

- the same program for the days from Monday to Friday

- the same weekend program in the Saturday and Sunday days

### 15.DIGITAL CONTROL UNIT



#### 15.1 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 CF43 (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.

#### **15.2 DISPLAY ICONS**

Lit when the display shows a temperature or a pressure	°C -°F BAR-PSI
On when the lower display displays the current time, the hours of load operation, etc.	⊕
Flashing on when alarm	$\Lambda$
On if active an automatic editing 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



#### Interfaccia utente

On during menu access functions	MENU
Lit if the resistances are on (antifreeze heaters, boiler)	-***
Lit flashing during the interval count between defrosts; the icon is on steady during the phase of defrosting	***
Lit flashing if the input digital flow switch is active (both with pump ON That with pump OFF)	Flow!
Lit if at least one of the 2 pumps water (evaporator pump or pump condenser) is on	5
Lit if the fans are on	y.
On if the relative compressor is on switched on; is flashing if the compressor it is in ignition timing	<b>D</b> D
On if the open collector output is active On if the machine is on e represents the operating status Heat or Cool depending on	↓ **
the logic set in parameter CF31 The HP icon and the LP icon are lit. flashing in case of alarm High or Low pressure active.	LP HP

## 15.3 KEY FUNCTION

15.3 <u>KEY FUNCTION</u>		Pressure and release:
FUNCION	KEY	the display of the probe values configured (temperatures / pressures) in the upper display and the label
Pressure and release in main view: allows viewing of the chiller set point (SetC label)		corresponding in the lower display.
or heat pump (SetH label).		in programming: allows scrolling of folders
Pressure and release 2 times in main view: if the energy saving function, dynamic set point or for machines		parameters (ST, CF, etc); allows it scrolling through the list of parameters. When changing the parameter decreases its value.
set is on and the display displays the actual working set.		Pressure and release: allows you to turn on the machine (in chiller or heat pump)
Pressure for 3 seconds and release in main view: allows set point modification chiller / heat pump.	SET	or select the std-by mode.
Pressure and release in programming: allows access to the change of the selected parameter; It allows		allows you to turn on the machine (in chiller or heat pump) or select the std-by mode.
parameter modification phase.		Pressure and release: allows access to the function menu. Pressure 3 seconds and release: allows you to adjust the clock
Press and release in the AlrM menu: allows alarm reset (if resettable) from the AlrM menu		in the models in which it is intended. Pressure and release in programming: lets go out from parameter modification.
		15.4 KEY FUNCTION
Pressure and release: from main view allows the display of the probe values configured (temperatures / pressures) in the upper display and the corresponding one label in the lower display.		Simultaneous pressure of the keys for 3 seconds: allows access to programming of the parameters
Pressure and release in programming: allows scrolling of folders parameters (ST, CF, etc); allows it scrolling through the list of parameters. In the parameter modification phase increases its value.		Simultaneous pressure of the keys: 1. allows exit from parameter programming. 2. contemporary pressure prolonged keys allows entry into manual defrost.
		20

 $\bigtriangledown$ 

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+

SET

SET

+

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).

#### **15.5 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 from modify; pressing the set button allows you 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. 15.6 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 ▲ e ▼ 4 Save the new set point by pressing the key SET or wait for the time out time to exit from the program.



Terminal

#### 115.7 MAIN ALARMS

Cod. P1	<b>Meaning</b> Probe alarm PB1	<b>Cause</b> 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	<b>Manual</b> 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



#### MAINTENANCE

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

#### **16.1 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.

#### 16.2 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.

## 17. 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.

#### **17.1 USE OF INSTRUCTIONS**

Read 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.

#### **17.2 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

#### **DICHIARAZIONE DI CONFORMITA'**

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 Mini XL, Hub Radiator DHP, Hub Radiator Full, Hub Radiator AP, SuperHub Radiator, SuperHub Radiator Top, 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.

#### DECLARES

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, Sept 2018

CE

A2B Accorroni E.G. srl

The legal representative

#### Altamura Lorenza

Altamate Lotensw

## 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 \*.

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

# NOTE


# NOTE


A2B Accorroni E.G. S.r.l. reserve the right to make changes without prior notice TECHNICAL MANUAL



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