

# Panasonic

heating and cooling systems

## ERV+DX

**MANUALE DI INSTALLAZIONE USO E MANUTENZIONE**  
***INSTALLATION, USE AND MAINTENANCE MANUAL***

**UNITÀ DI RECUPERO CALORE  
CON BATTERIA A ESPANSIONE DIRETTA**  
***ENERGY RECOVERY VENTILATION  
UNIT WITH DX COIL***



## INDEX

<b>DECLARATION OF CONFORMITY .....</b>	page 22
<b>GENERAL WARNINGS .....</b>	page 23
<b>SYMBOLS USED .....</b>	page 24
<b>IDENTIFICATION OF THE UNIT .....</b>	page 24
 <b>SECTION 1 - GENERAL CHARACTERISTICS .....</b>	page 25
1.1 Presentation of the manual.....	page 25
1.2 General characteristics .....	page 25
1.3 ERV+DX series technical data .....	page 25
1.4 Dimensions and weights.....	page 26
1.5 Characteristic curves .....	page 27
1.6 Sound power levels .....	page 28
 <b>SECTION 2 - TRANSPORT .....</b>	page 29
2.1 Packing.....	page 29
2.2 Handling and transport .....	page 29
2.3 Control upon reception .....	page 29
2.4 Storage .....	page 29
 <b>SEZIONE 3 - INSTALLATION AND START UP .....</b>	page 29
3.1 Definitions .....	page 29
3.2 Safety Standards .....	page 29
3.3 Preliminary operations .....	page 30
3.4 Choice of the installation place.....	page 30
3.5 Positioning of the machine .....	page 31
3.6 Drain tray connection.....	page 31
3.7 Connection to the ducts.....	page 31
3.8 Connecting the Refrigerant Tubing.....	page 32
 <b>SECTION 4 - ELECTRICAL CONNECTIONS.....</b>	page 34
4.1 Installation and servicing of remote controllers .....	page 34
4.1.1 Installation of CZ-RTC2 remote controller .....	page 34
4.1.2 CZ-RTC2 user interface.....	page 34
4.1.3 Installation of CZ-RTC3 / CZ-RTC5 remote controller .....	page 34
4.1.4 CZ-RTC3 / CZ-RTC5 user interface .....	page 34
4.2 Wiring diagram .....	page 35
 <b>SECTION 5 - START UP CONTROLS .....</b>	page 35
 <b>SECTION 6 - ORDINARY MAINTENANCE .....</b>	page 36
6.1 Warning.....	page 36
6.2 Monthly checks .....	page 36
6.2.1 Checking and cleaning of heat exchangers and filters.....	page 36
6.3 Yearly checks .....	page 37
6.3.1 Bioxygen purifying system check .....	page 37
 <b>SECTION 7 - BREAKDOWN DIAGNOSTIC .....</b>	page 38
 <b>SECTION 8 - DISPOSAL.....</b>	page 38
 <b>SECTION 9 - SPARE PARTS.....</b>	page 39

NOTES: SIC reserves the right to modify data, pictures and all that is related to this printed matter without any notice.

## DECLARATION OF CONFORMITY

SIC s.r.l. Società Unipersonale

Company

Viale dell'Industria, 25

37044

VR

Address

Zip

Province

Cologna Veneta

Italy

City

State

### DECLARES UNDER ITS OWN RESPONSIBILITY THAT THE MACHINERY

Heat Recovery Unit

ERV+DX

Description

Series

ERV+DX PAW – 500 ZDX3N; ERV+DX PAW – 800 ZDX3N; ERV+DX PAW – 01 KZDX3N

Models

Double flow mechanical ventilation with static, cross flow enthalpic heat exchanger and direct expansion coil

Function

Heat Recovery Unit ERV+DX Series

Commercial name

### ARE IN COMPLIANCE WITH THE FOLLOWING DIRECTIVES

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery;

Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the approximation of the laws of the Member States relating to electromagnetic compatibility;

Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits;

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of hazardous substances in electrical and electronic equipment (RoHS 2);

Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE);

Commission Regulation (EU) 1253/2014 implementing Directive 2009/125/EC regarding the specific eco-design of the ventilation units;

### AND AUTHORIZES

Andrea Mantovani

Name

Viale dell'Industria, 25

37044

VR

Address

Zip

Province

Cologna Veneta

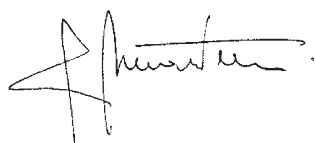
Italy

City

State

### TO COMPILE THE TECHNICAL FILE

In case of improper use or unauthorized modification of the machinery equipment, this document will lose its validity. It is forbidden to put the unit that is object of this declaration in service before the machine or the plant in which the machine will operate is in compliance with the dispositions of Machinery Directive 2006/42/EEC and following modifications.

Cologna Veneta, 09<sup>th</sup> January 2018
**THE GENERAL MANAGER**

**ANDREA MANTOVANI**

MODELLO / MODEL















MATRICOLA / SERIAL NUMBER

DATA COLLAUDO / TESTING DATE






**SIC srl Società Unipersonale**

Viale dell'Industria, 25 – 37044 Cologna Veneta VR Italy – Tel. +39 0442 412741 Fax +39 0442 418400 – www.sicsistemi.com - info@sicsistemi.com

## GENERAL WARNINGS

	This manual is an integral part of the apparatus and then it must be preserved with care and it ALWAYS must accompany the machine, even in the case of cession to another owner or user or in the case of a transfer on another system. In the case of its damage or losing, ask another copy to the distributor Company.
	The repairs or the maintenance must be carried out by expert and qualified staff as it is expected in this handbook. Don't modify or tamper with the machine because it can create dangerous situations and the distributor Company does not answer to possible damages.
	Check the perfect integrity of all ERV+DX components. Check that in the packing all the accessories for the installation and the relevant documentation, are included. In the case of not conformity turn to seller company.
	The installation of the machine must be carried out by qualified Company according to the law March, 5th 1990 n° 46 which, at the end of the work, must give to the owner, the declaration of conformity of installation workmanlike, that is in compliance with the regulations in force and with the indications of this handbook.
	The distributor Company does not answer to possible damages to people, animals or things, due to wrong installation, regulations and maintenance or due to illegitimate use.
Remember that in the use of products that use electrical energy and water, some fundamental rules of security must be observed. In particular:	
	Children and handicapped people without assistance must not use the machine.
	Don't touch the machine if you are barefoot and if you are wet.
	Do not proceed with cleaning or maintenance operations, before switching off the electric power supply.
	Do not modify security or adjustment devices without permission and indications of the Manufacturer Company.
	Do not pull, remove, twist electrical cables coming out from machine, even if these is disconnected from power supply network.
	Do not walk up, sit down and/or place any objects on the machine.
	Do not spurt water directly on the machine.
	Do not open access doors of the machine, without positioning general switch of the system on "off" .
	Do not scatter, leave close by children packing material because it could be dangerous.

## SYMBOLS USED

	WARNING
	DANGER
	DANGER OF ELECTRICAL SHOCK
	QUALIFIED STAFF ONLY
	PROHIBITION

## IDENTIFICATION OF THE UNIT



**SISTEMI INTEGRATI CONDIZIONAMENTO**

**Viale dell'Industria, 25 - COLOGNA VENETA (VR)**

Modello Model	<input style="width: 90%;" type="text"/>	<b>(C)</b>
Matricola Serial Number	<input style="width: 90%;" type="text"/>	<b>(D)</b>
Tensione/Fasi/Frequenza Voltage/Phase/Frequency	<input style="width: 90%;" type="text"/>	<b>(E)</b>
Corrente Max Assorbita Max input current	<input style="width: 90%;" type="text"/>	<b>(F)</b>
Codice Code	<input style="width: 90%;" type="text"/>	<b>(G)</b>
Data di produzione Manufacturing date	<input style="width: 90%;" type="text"/>	<b>(H)</b>

**(L)**



**(I) CE**



Made in PRC

<b>A</b>	<i>Manufacturer's mark</i>
<b>B</b>	<i>Manufacturer's address</i>
<b>C</b>	<i>Model</i>
<b>D</b>	<i>Serial number</i>
<b>E</b>	<i>Voltage; number of phases; frequency</i>
<b>F</b>	<i>Maximum absorbed current [A]</i>
<b>G</b>	<i>Code</i>
<b>H</b>	<i>Manufacturing date</i>
<b>I</b>	<i>CE mark</i>
<b>L</b>	<i>Barcode</i>



## IMPORTANT NOTES

**THE HEAT RECOVERY UNITS OF ERV+DX SERIES ARE ONLY SUITABLE FOR INTERNAL INSTALLATION**

*The heat recovery unit is a machine designed and built exclusively to change air in the civil environments, incompatible with toxic and inflammable gases. Therefore it cannot be used in those environments where the air is mixed and/or altered by other gaseous composites and/or solid particles.*

***The use of the same for different purposes from those envisioned, not conform to that described in this manual, will make any direct and/or indirect liability of the Manufacturer automatically become null and void.***

## SECTION 1 - GENERAL CHARACTERISTICS

### 1.1 Presentation of the manual

This manual describes the rules for the transportation, the installation, the use and the maintenance of the heat recovery. The user will find everything that is normally useful to know for a correct and safe installation of the ERV+DX unit.

The non-observance of what is described in this handbook and an inadequate installation of the ERV+DX unit may cause the cancellation of the guarantee that the Manufacturer/Distributor Company grants on the same one. The Manufacturer/distributor Company, moreover, does not answer to possible direct and/or indirect damages due to wrong installation carried out by inexperienced and/or non-authorized staff. At the moment of the purchase, check that the machine is integral and complete. Claims will have to be produced within 8 days from the reception of the goods.

### 1.2 General characteristics

- Galvanized steel self-supporting panels, internally and externally insulated
- Counterflow air-to-air heat recovery device, made of plane sheets of special paper with special sealing to keep airflows separate and only permeable to water vapor. **Total heat exchange** with temperature efficiency up to 76% and enthalpy efficiency up to 67%, also at high level during summer season
- ISO 16890 Coarse 50% + ePM2.5 95% (F9 EN779) efficiency class filters on fresh air, Coarse 50% (G3 EN779) filter on return air intake. All filters are made with synthetic cleanable media.
- Removable side panel to access filters and heat recovery in the event of scheduled maintenance
- Motorised heat recovery by-pass device automatically controlled by unit control to use fresh air free-cooling when convenient
- Low consumption**, high efficiency & low noise direct driven fans with **EC motors**
- Supply section complete with DX coil** (R410A) fitted with solenoid control valve, freon filter, contact temperature sensors on liquid and gas line, NTC sensors upstream and downstream airflow
- Option Purifying system Bioxigen®**, switched on at fans running, able to do an efficient antibacterial treatment, ensuring a perfect healthiness of supplied air
- Built-in electric box equipped with PCB to control internal fan speed and to interconnect outdoor/indoor units
- Duct connection by circular plastic collars

### 1.3 ERV+DX series technical data

MODELLO / MODEL	ERV+DX	PAW-500ZDX3N	PAW-800ZDX3N	PAW-1000ZDX3N
Portata aria nominale / <i>Nominal air flow</i>	m <sup>3</sup> /h	500	800	1000
Pressione statica utile nominale / <i>Nominal external static pressure</i>	Pa	90	120	115
Alimentazione elettrica / <i>Electrical power supply</i>	V/ph/Hz	230 / 1 / 50 - 60		
Corrente assorbita massima totale / <i>Total full load amperage</i>	A	0.6	1.4	2.1
LIMITI FUNZIONALI / <i>WORKING LIMITS</i>				
Condizioni di esercizio limite / <i>Limit working temperature</i>	°C / %	- 15 ...+ 40°C / 10 ... 95 %		
VENTILATORI / <i>FANS</i>				
Tipologia motore / <i>Motor typology</i>		EC	EC	EC
N° velocità / <i>Number of speeds</i>		3	3	3
Controllo ventilazione / <i>Fan control</i> (1)		Man	Man	Man
Potenza specifica interna di ventilazione - SFP int / <i>Internal specific fan power of ventilation components - SFP int</i> (5)	W/(m <sup>3</sup> /s)	547	865	881
Potenza assorbita nominale totale / <i>Total nominal power input</i>	kW	0.15	0.32	0.39
Livello di pressione sonora / <i>Sound pressure level</i> (2)	dB(A)	39	42	43
RECUPERATORE DI CALORE / <i>HEAT EXCHANGER</i>				
Efficienza termica invernale / <i>Winter thermal effic.</i> (3)	%	76.0%	76.0%	76.0%
Efficienza entalpica invernale / <i>Winter enthalpy effic.</i> (3)	%	67.0%	65.0%	62.0%
Efficienza termica estiva / <i>Summer thermal effic.</i> (4)	%	76.0%	76.0%	76.0%
Efficienza entalpica estiva / <i>Summer enthalpy effic.</i> (4)	%	63.0%	63.0%	60.0%
Efficienza termica a secco / <i>Dry thermal efficiency</i> (5)	%	76.0%	76.0%	76.0%
BATTERIA ESPANSIONE DIRETTA / <i>DX COIL</i>	ERV+DX	PAW-500ZDX3N	PAW-800ZDX3N	PAW-1000ZDX3N
Potenza termica / <i>Heating capacity</i> (6)	kW	2,5 (2,7)	4,4 (4,8)	5,2 (6,7)
Temperatura aria mandata / <i>Supply air temperature</i>	°C	28,0 (27,3)	29,6 (29)	28,5 (27,8)
Umidità aria mandata / <i>Supply air humidity</i>	%	16 (15)	14 (13)	15 (14)
Potenza frigorifera totale / <i>Total cooling capacity</i> (7)	kW	3.0	5.1	5.8
Potenza frigorifera sensibile / <i>Sensible cooling capacity</i>	kW	2.1	3.5	4.1
Temperatura aria mandata / <i>Supply air temperature</i>	°C	15.9	15.5	16.2
Umidità aria mandata / <i>Supply air humidity</i>	%	90	90	89



(1) Multiple = Multispeed > 3

Man = Manual by selector switch or control panel; 0-10V = By potentiometer or control panel; VSD = Modulation by air quality or air humidity sensor

(2) Sound pressure level calculated at 1 m far from: ducted supply-exhaust air/ducted return-fresh air intake/service side, at nominal conditions.

(3) Outside air at -5° 80% RH; room air at 20°C 50% RH

(4) Outside air at 32° 50% RH; room air at 26°C 50% RH

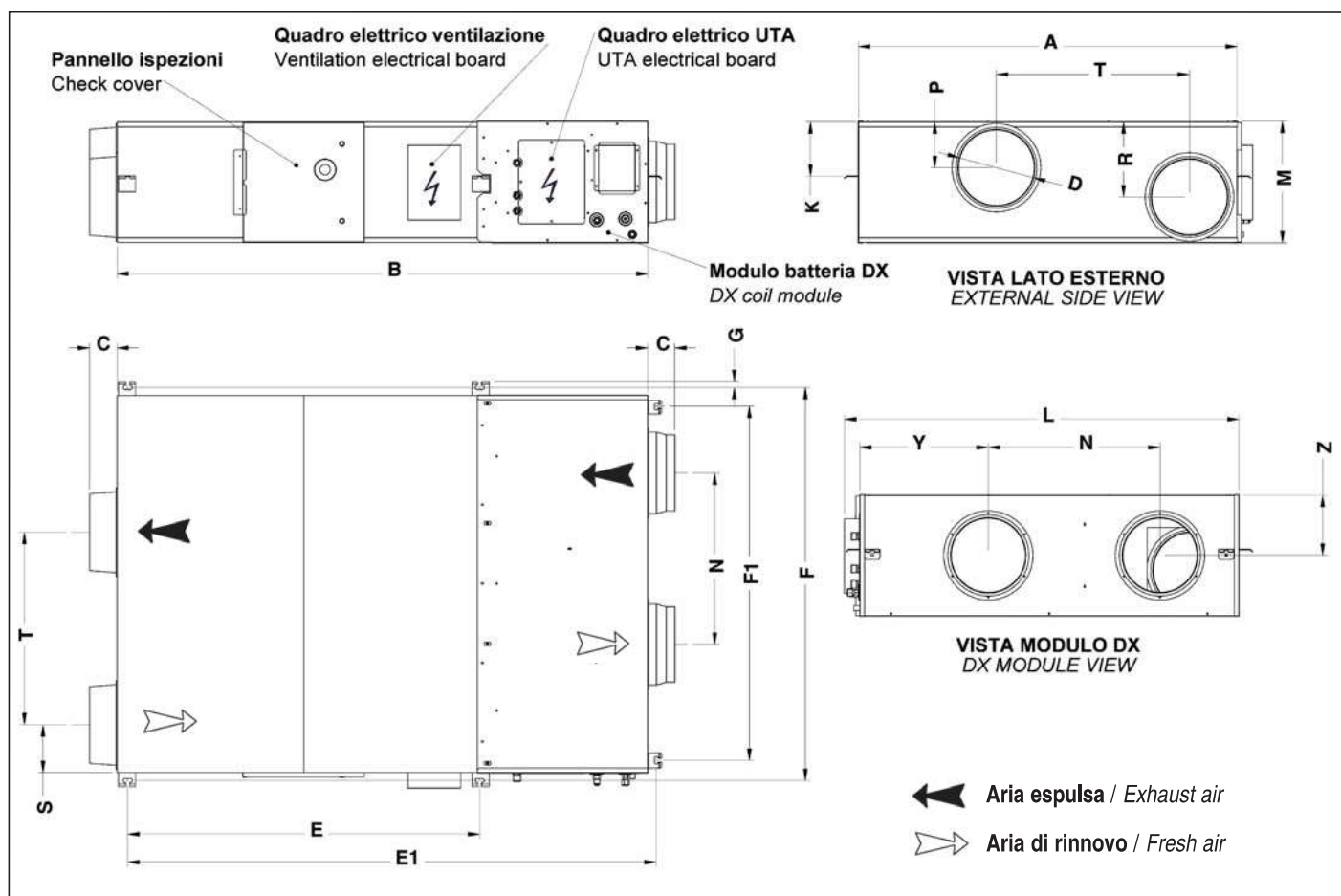
(5) Refer to EU 1253/2014 regulation: at nominal pressure; air conditions refer to EN 308 standard

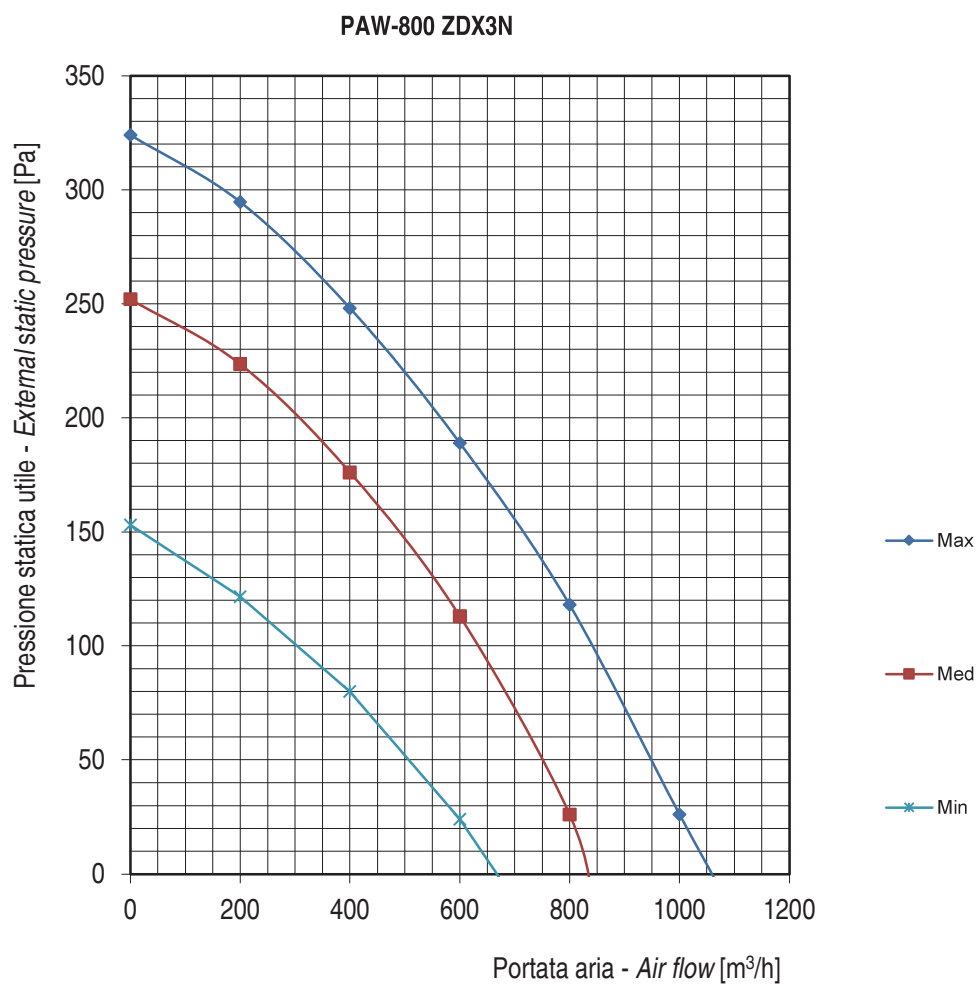
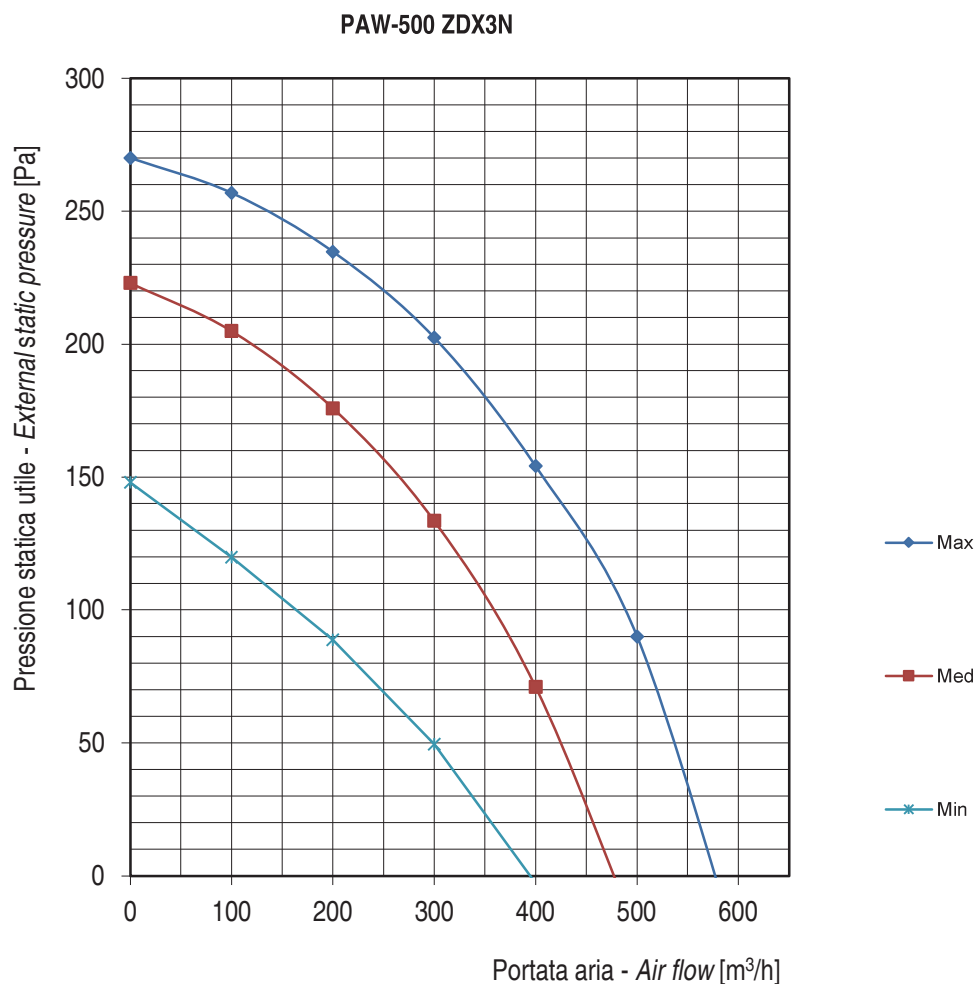
(6) Air inlet condition: 13°C DB, RH 40% (11°C DB, RH 45%); condensing temp. 40°C

(7) Air inlet condition: 28,5°C DB, RH 50%; evaporating temp. 7°C

## 1.4 Dimensions and weights

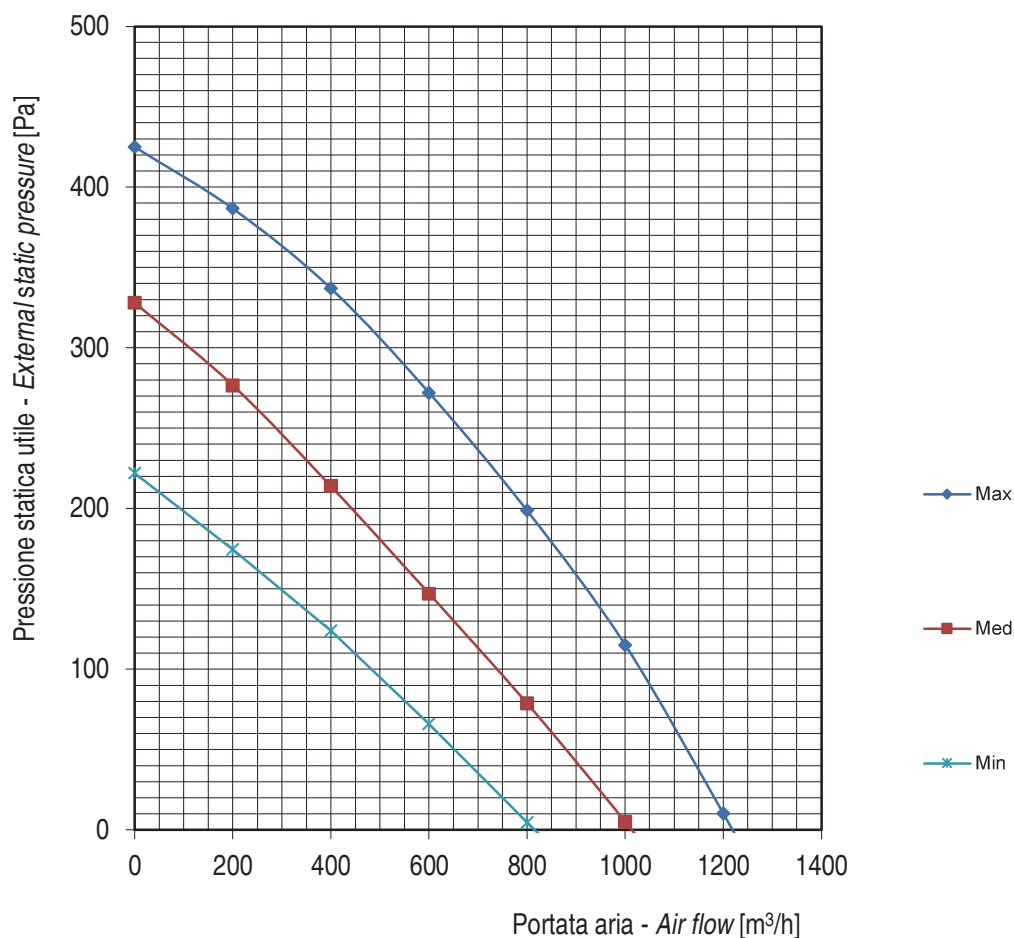
Modello Model	Dimensione / Dimension [mm]																			Peso netto / lordo Weight net / gross [Kg]	Dimensioni imballo Packing dimensions [mm]	Sovrapposibilità imballaggi Packaging overlap
	A	B	C	D	E	E1	F	F1	G	L	T	K	M	N	P	R	S	Y	Z			
PAW-500 ZDX3N	904	1450	107	200	825	1445	960	830	19	955	500	135	270	350	135	135	202	350	135	90 - 98	1750x1120x420	6
PAW-800 ZDX3N	1134	1745	85	250	1115	1735	1190	1060	19	1200	678	170	388	500	170	170	228	415	195	100 - 110	2010x1380x540	5
PAW-01K ZDX3N	1216	1750	85	250	1130	1750	1273	1140	19	1290	621	171	388	550	146	241	151	415	195	105 - 120	2080x1460x540	5







## PAW-1000 ZDX3N



## 1.6 Sound power levels

PAW-500 ZDX3N	Potenza sonora Lw per frequenza di centro banda Sound power levels Lw at center band frequencies									Lw globale Total Lw
	Hz	63	125	250	500	1000	2000	4000	8000	
Canale di mandata / Supply duct	dB(A)	32.8	37.9	54.9	55.5	54.2	52.2	44.0	33.9	60.5
Canale di espulsione / Exhaust duct	dB(A)	32.8	46.9	54.2	55.6	55.0	52.2	44.0	33.9	60.7
Esterno involucro / Outside the casing	dB(A)	27.8	33.1	42.8	41.3	40.0	37.4	12.7	9.0	47.0

Rumorosità al punto di lavoro nominale / Noise at nominal working point

PAW-800 ZDX3N	Potenza sonora Lw per frequenza di centro banda Sound power levels Lw at center band frequencies									Lw globale Total Lw
	Hz	63	125	250	500	1000	2000	4000	8000	
Canale di mandata / Supply duct	dB(A)	45.8	52.4	59.4	58.8	58.0	58.2	52.0	46.9	65.2
Canale di espulsione / Exhaust duct	dB(A)	44.8	51.9	56.4	57.0	56.0	56.7	51.0	46.9	63.4
Esterno involucro / Outside the casing	dB(A)	40.3	40.9	44.2	43.5	42.1	42.5	19.5	18.0	50.2

Rumorosità al punto di lavoro nominale / Noise at nominal working point

PAW-1000 ZDX3N	Potenza sonora Lw per frequenza di centro banda Sound power levels Lw at center band frequencies									Lw globale Total Lw
	Hz	63	125	250	500	1000	2000	4000	8000	
Canale di mandata / Supply duct	dB(A)	46.4	52.9	60.1	59.3	59.0	59.0	52.5	47.9	66.0
Canale di espulsione / Exhaust duct	dB(A)	45.8	52.5	57.0	58.1	56.6	57.2	52.0	47.9	64.1
Esterno involucro / Outside the casing	dB(A)	41.1	41.4	44.8	44.3	43.0	43.2	20.3	17.9	51.0

Rumorosità al punto di lavoro nominale / Noise at nominal working point



### 2.1 Packing

- The regenerators and their accessories are inserted in cardboard boxes that will have to remain integral until the moment of the assembly.
- The components that, due to technical requirements, are not assembled, are supplied packed in a suitable covering and fixed to the inside or outside of the unit.

### 2.2 Handling and transport

- For the handling, in function of the weight, use adequate means in conformity to the directive 89/391/EEC and successive modifications.
- The weight of every single machine is shown on the attached technical data sheet.
- Avoid rotations without control.
- Take utmost care during loading operations: all the machines must be loaded and stored in the truck interposing opportune spacers to safeguard all protruding parts like water couplings, handles, hinges.

### 2.3 Control upon reception

Upon reception of the goods, please carry out a control of all the parts, verifying that the transport has not caused damages. All damages must be communicated to the carrier, putting a reserve clause on the delivery note and specifying the type of damage.

### 2.4 Storage

In case of long term storage, keep the machines protected from dust and from all sources of vibrations and heat.

**The manufacturer company declines every responsibility for damages due to uncorrect unloading or not sufficient protection against atmospheric agents.**

## SEZIONE 3 - INSTALLATION AND START UP



### 3.1 Definitions

**CUSTOMER** - The customer is the person, the agency or the company, that has acquired or rented the unit and that uses it for the conceived purpose.

**USER / OPERATOR** - The operator or user is the physical person who has been authorised from the customer to operate with the machine

**SPECIALISTIC STAFF** - Intended are all those physical persons who have achieved a specific training, are therefore in a position to recognize the dangers deriving from the use of this machine and are able to avoid them.

### 3.2 Safety Standards



The Manufacturer/Distributor Company declines whichever responsibility for the non observance of the emergency and prevention norms described below.

It declines furthermore responsibility for damages caused by an improper use of the unit and/or by modifications carried out without authorization.

- The installation must be carried out by expert and qualified staff.
- During installation operations, use suitable accident-prevention clothing, as an example: glasses, gloves, etc as indicated by the 686/89/EEC and successive norms.
- During installation, operate in absolute safety, in clean surrounding and free from impediments.
- Respect the laws in force in the Country in which the unit is installed, concerning the use and the disposal of the packings and the products used for cleaning and maintaining the machine and follow the manufacturer instructions of such products.
- Before putting the unit in function, check the perfect integrity and safety of all components and of the entire system.
- Avoid at all cost to touch the parts in motion or to interfere with the same ones.
- Do not proceed with cleaning or maintenance operations, before switching off the electric power supply.
- The maintenance and the substitution of damaged or worn out parts of the unit must be carried out by qualified staff only and following the indications contained in this handbook.

- Spare parts must correspond to the requirements defined by the Manufacturer Company.
- In case of dismantling of the unit, follow the relevant antipollution norms.

N.B. When using the unit, the installer and the user must take into account and place remedy to all the other types of risk connected with the sistem. As an axample risks deriving from entry of foreign bodies, or risks deriving from the conveying of dangerous gases that are inflammable or toxic at high temperature.

### 3.3 Preliminary operations

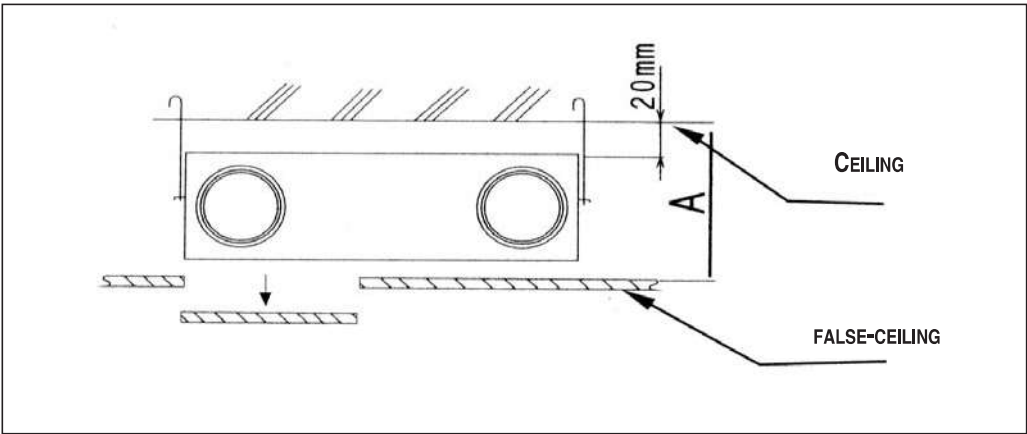


- Check the perfect integrity of all components.
- Check that in the packing all the accessories for the installation and the relevant documentation, are included.
- Transport the packed section as close as possible to the installation place.
- Do not put tools or weights over the packed unit.

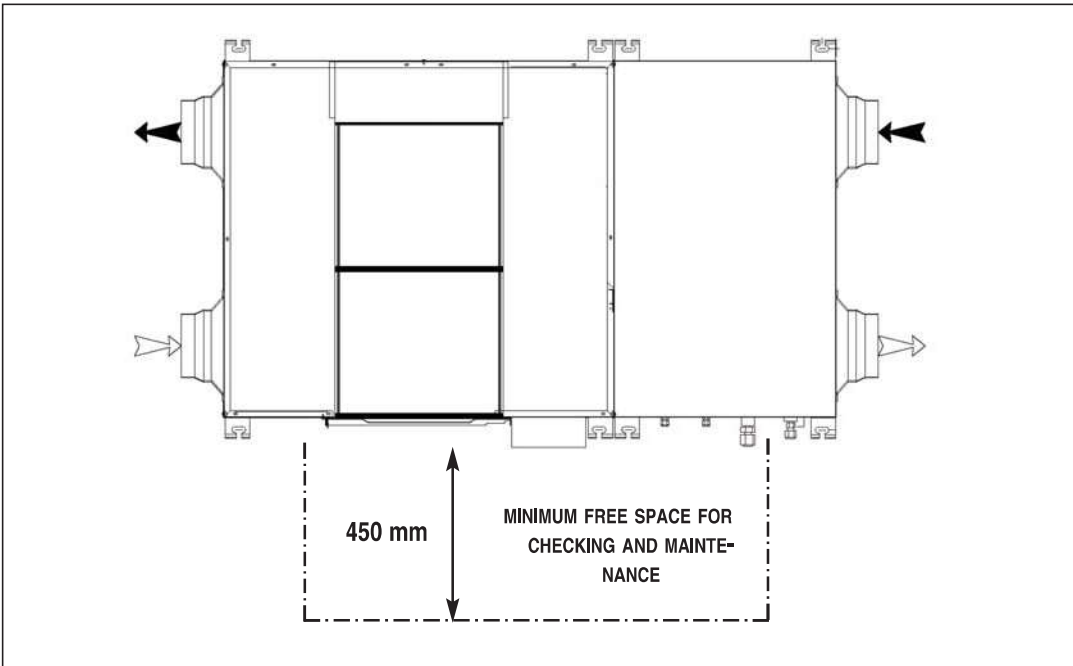
### 3.4 Choice of the installation place



- Place the unit on a solid structure that shall not causes vibrations and that is solid enough to support the weight of the machine.
- Do not place the unit in rooms where inflammable gases, acids or aggressive and corrosive substances may be present. These could damage the different components in an irreparable way.
- Foresee a minimum free space as shown on the following figures, to make possible the carrying of scheduled and not scheduled maintenance; in order to do maintenance to Bioxigen system, allow accessibility from lower side around supply section with DX coil.



Model ERV+DX	PAW-500ZDX2	PAW-800ZDX2	PAW-01KZDX2
A (mm)	450	450	450

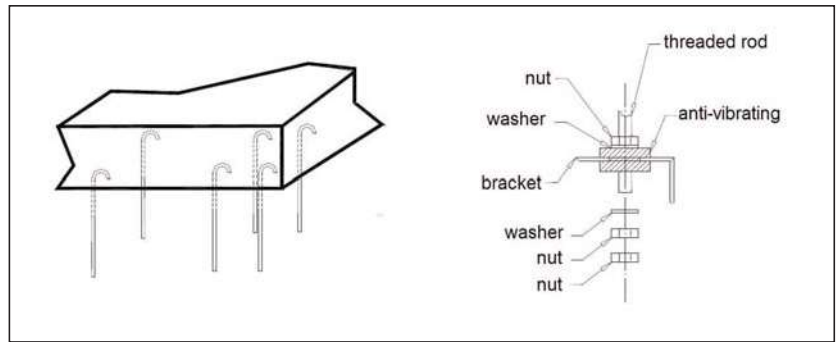


### 3.5 Positioning of the machine



In the continuation are illustrated some sequences of the assembly:

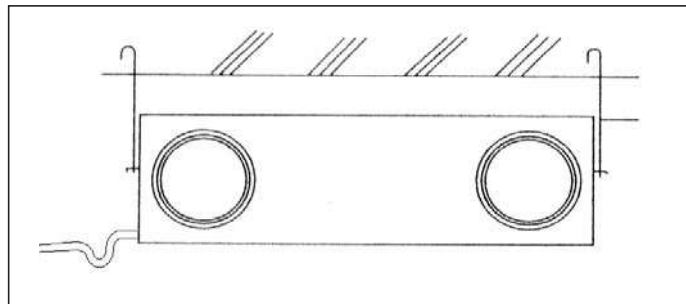
1. Carry out the drilling on the ceiling and fix six M8 threaded rods as shown in the figure.
2. Position the unit on the six threaded rods (eight brackets available).
3. Block the unit by locking the bolts.



### 3.6 Drain tray connection



Close to supply air duct connection, a drain tray outlet (1/4" hose pipe) shall be connected for discharge of condensed water during cooling mode. It is strongly suggested to install a water trap close to the unit in order to avoid odors coming inside and to get a slope on discharge pipeline.

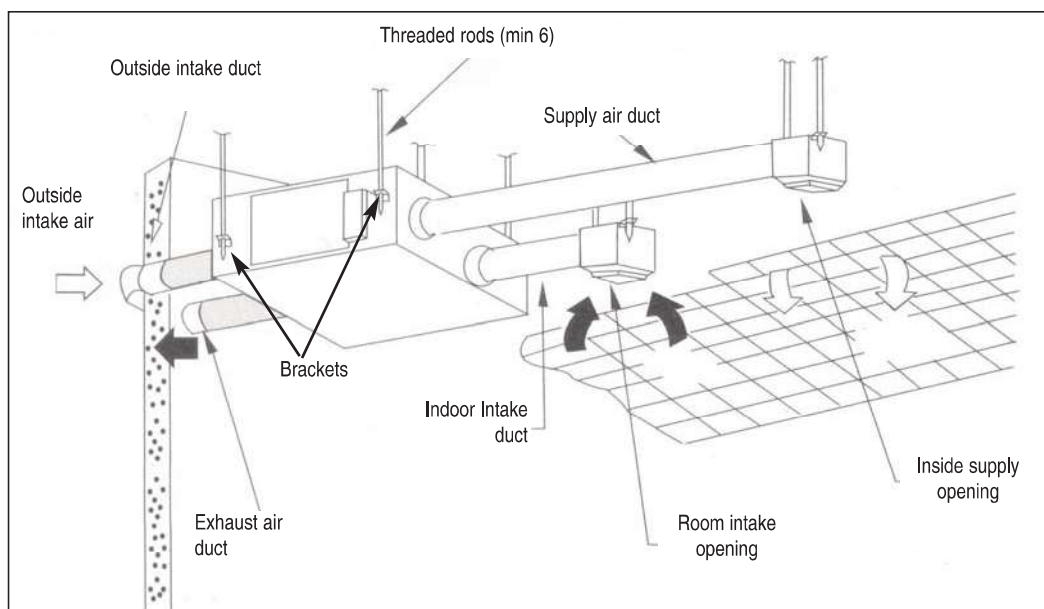


### 3.7 Connection to the ducts



**IMPORTANT: IT IS PROHIBITED TO START UP THE UNIT, IF THE FANS OUTLETS ARE NOT CANALIZED OR PROTECT WITH AN ACCIDENT-PREVENTION NET AS PER UNI 9219 AND SUCCESSIVE NORMS.**

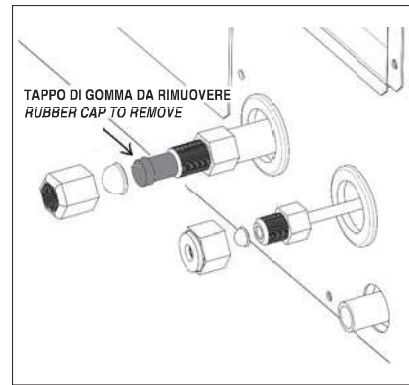
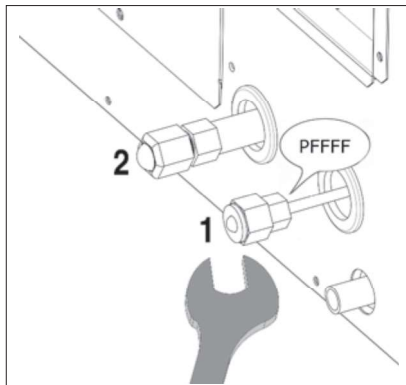
- The ducts must be dimensioned in function of the system and of the air flow characteristics of the unit ventilators. A wrong calculation of the ducts may cause loss of power or the possible activation of devices fitted on the unit.
- Severe bending, several bending and diameter reductions of the ducts should be avoided to minimize the pressure loss.
- In order to prevent the formation of condense and to reduce the noise level it is advised to use insulated ducts.
- If rigid ducts are used, to avoid the transmission of possible vibrations of the machine in the atmosphere, it is advised to interpose an anti-vibrating joint between the air outlets and yhe ducts. The electrical continuity between duct and machine must however be guaranteed through a earth cable.
- The distance between indoor inlet port and indoor intake port should be as far as possible
- In order to prevent the penetrations of rains, the ducts connecting the unit with the outside should be protected by grilles. Moreover the ducts should be a little tilted



### 3.8 Connecting the Refrigerant Tubing



The unit is supplied with plugged direct expansion coil: to ensure its tightness during storage and transport, inside it is loaded nitrogen gas at a higher pressure than atmospheric.

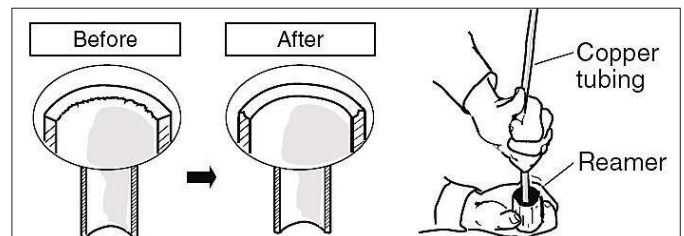


1) First loosen the FLARE 1/4 "union (1) and carry out the leak test, checking that a clear noise is heard due to the outflow of pressurized nitrogen coming out of the pipe.

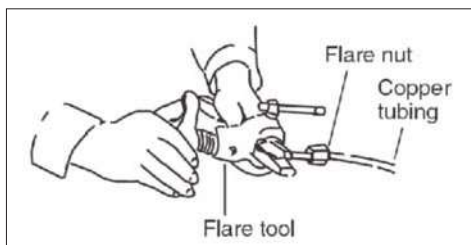
2) Loosen the 1/2 "FLARE pipe union (2) and remove the rubber cap

3) Prepare the pipes to be connected following the procedure:

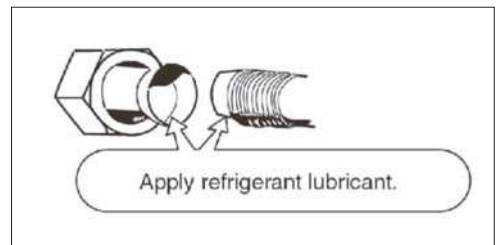
- Cut the copper tube to the required length with a tube cutter. It is recommended to cut approx. 30 – 50 cm longer than the tubing length you estimate.



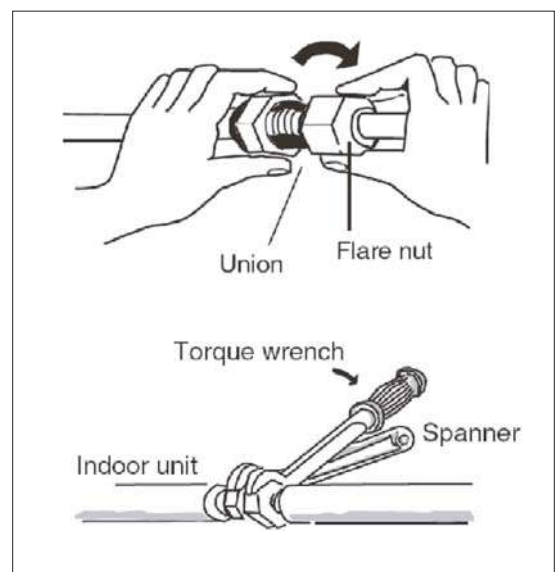
- Remove burrs at each end of the copper tubing with a tube reamer or file. This process is important and should be done carefully to make a good flare. Be sure to keep any contaminants (moisture, dirt, metal filings, etc.) from entering the tubing.
- Remove the flare nut from the unit and be sure to mount it on the copper tube.



- Make a flare at the end of the copper tube with a flare tool. A good flare should have the following characteristics:
  - inside surface is glossy and smooth
  - edge is smooth
  - tapered sides are of uniform length



- Apply a sealing cap or water-proof tape to prevent dust or water from entering the tubes before they are used.
- Be sure to apply refrigerant lubricant (ether oil) to the inside of the flare nut before making piping connections. This is effective for reducing gas leaks.
- For proper connection, align the union tube and flare tube straight with each other, then screw on the flare nut lightly at first to obtain a smooth match.
- Adjust the shape of the liquid tube using a tube bender at the installation site and connect it to the liquid tubing side valve using a flare.







### CAUTIONS DURING BRAZING

Replace air inside the tube with nitrogen gas to prevent copper oxide film from forming during the brazing process. (Oxygen, carbon dioxide and Freon are not acceptable.)

- Do not allow the tubing to get too hot during brazing. The nitrogen gas inside the tubing may overheat, causing refrigerant system valves to become damaged. Therefore allow the tubing to cool when brazing.
- Use a reducing valve for the nitrogen cylinder.
- Do not use agents intended to prevent the formation of oxide film. These agents adversely affect the refrigerant and refrigerant oil, and may cause damage or malfunctions.

### TIGHTENING

In the table below are shown the pipes diameter for each unit

Unit	PAW 500	PAW 800	PAW 1000
Gas Pipe	ø 12,7 mm		
Liquid Pipe	ø 6,35 mm		

For the flare nuts at tubing connections, be sure to use the flare nuts that were supplied with the unit, or else flare nuts for R410A. The refrigerant tubing that is used must be of the correct wall thickness as shown in the table below.

ø Tube	Tightening torque	Tube thickness
ø 6,35 (1/4")	14 - 18 N*m	0,8 mm
ø 12,7 (1/2")	49 - 55 N*m	0,8 mm

Because the pressure is approximately 1.6 times higher than conventional refrigerant pressure, the use of ordinary flare nuts or thin-walled tubes may result in tube rupture, injury, or asphyxiation caused by refrigerant leakage.

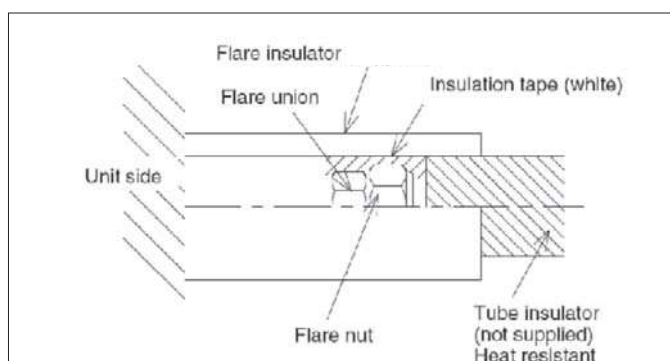
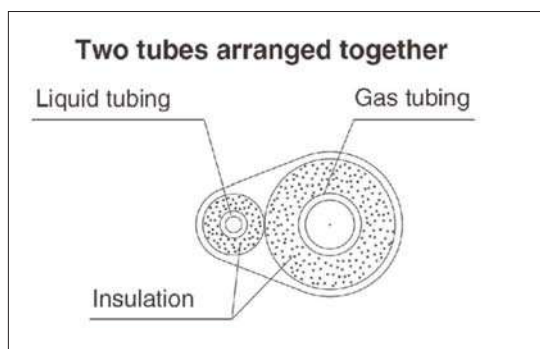
- In order to prevent damage to the flare caused by overtightening of the flare nuts, use the table above as a guide when tightening.
- When tightening the flare nut on the liquid tube, use an adjustable wrench with a nominal handle length of 200 mm.

### INSULATING THE REFRIGERANT TUBING

Thermal insulation must be applied to all units tubing, including distribution joint (field supply). For gas tubing, the insulation material must be heat resistant to 120°C or above. For other tubing, it must be heat resistant to 80°C or above.

Insulation material thickness must be 10 mm or greater.

If the conditions inside the ceiling exceed DB 30°C and RH 70%, increase the thickness of the gas tubing insulation material by 1 step.





Before beginning whichever operation make sure that the voltage supply is cut off.



- The electrical connections to the control cabinets must be carried out by specialized staff, following the supplied wiring diagrams.
- Make sure that the voltage and the frequency specified on the nameplate correspond to those of the power supply line.
- For the main supply of the regenerator is not allowed to use adapters, multiple sockets and/or cable extensions.

Carry out the connection with cables of a section which is adapted to the engaged power and in the respect of the local norms. Their dimension must however allow to realize a voltage drop of less than 3% during the starting phase.

- The installer must foresee the installation of the cut-off switch and of everything that is necessary for the protection of the electrical components, as close as possible to the unit.
- Connect the unit to an effective earth, using the appropriate screw fitted on the unit.

#### 4.1 Installation and servicing of remote controllers



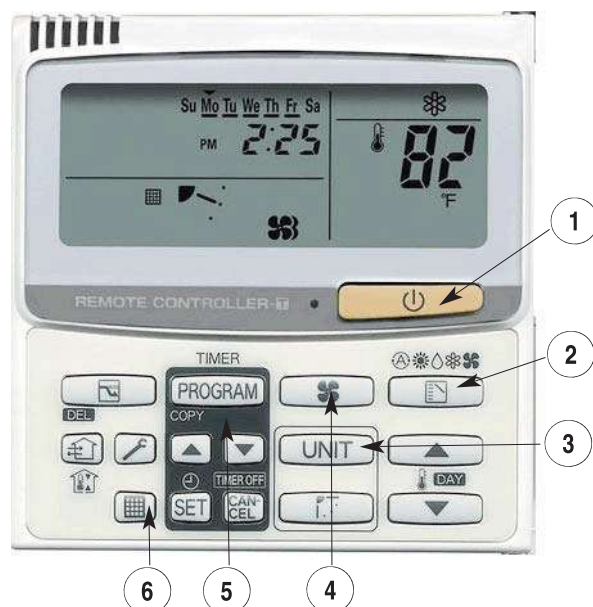
##### 4.1.1 Installation of CZ-RTC2 remote controller

- The remote control panel is suitable for wall mounting
- To mount:
  - unlock the rear cover (locked by plastic tooth) and fix it to the wall using the prearranged holes
  - lock the main body to the rear cover fixed on the wall
- Connect the two wires to R1-R2 terminals inside the electrical box in the supply section with DX coil

##### 4.1.2 CZ-RTC2 user interface

- 1) Switch on/stand-by button
- 2) Mode selection button
- 3) Fan speed selection button
- 4) Unit selection button (in case of multi-machine)
- 5) Clock program buttons
- 6) Filter check reset button

Instructions for use and setting are explained in the specific manual supplied together the remote controller.



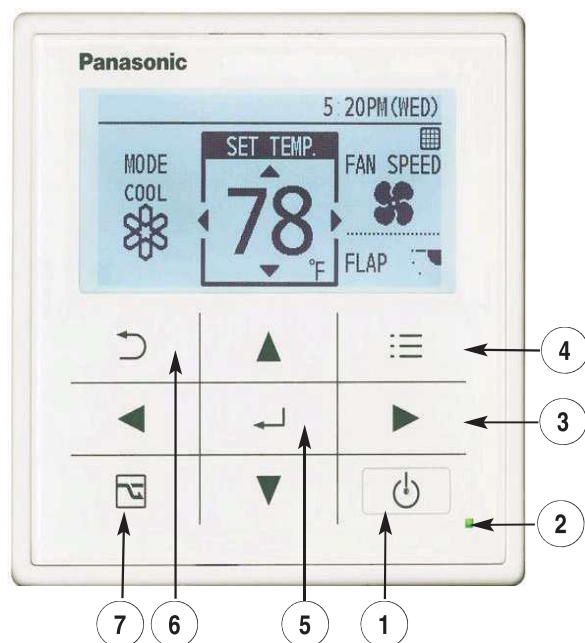
##### 4.1.3 Installation of CZ-RTC3 / CZ-RTC5 remote controller

- The remote control panel is suitable for wall mounting (exposed or embedded type)
- Unlock the rear cover (locked by plastic tooth) and fix it to the wall using the prearranged holes
- Pass the cables through specific holes and connect the two wires to R1-R2 terminals inside the electrical box in the supply section with DX coil
- Lock the main body to the rear cover fixed on the wall

##### 4.1.4 CZ-RTC3 / CZ-RTC5 user interface

- 1) Switch on/stand-by button
- 2) Operation indicator: illuminates during operation, blinks during alarm
- 3) Cross key buttons: selects an item
- 4) Menu button: displays the menu screen
- 5) Enter button: fixes the selected content
- 6) Return button: returns to the previous screen
- 7) Energy saving button: switches Energy saving / Normal operation

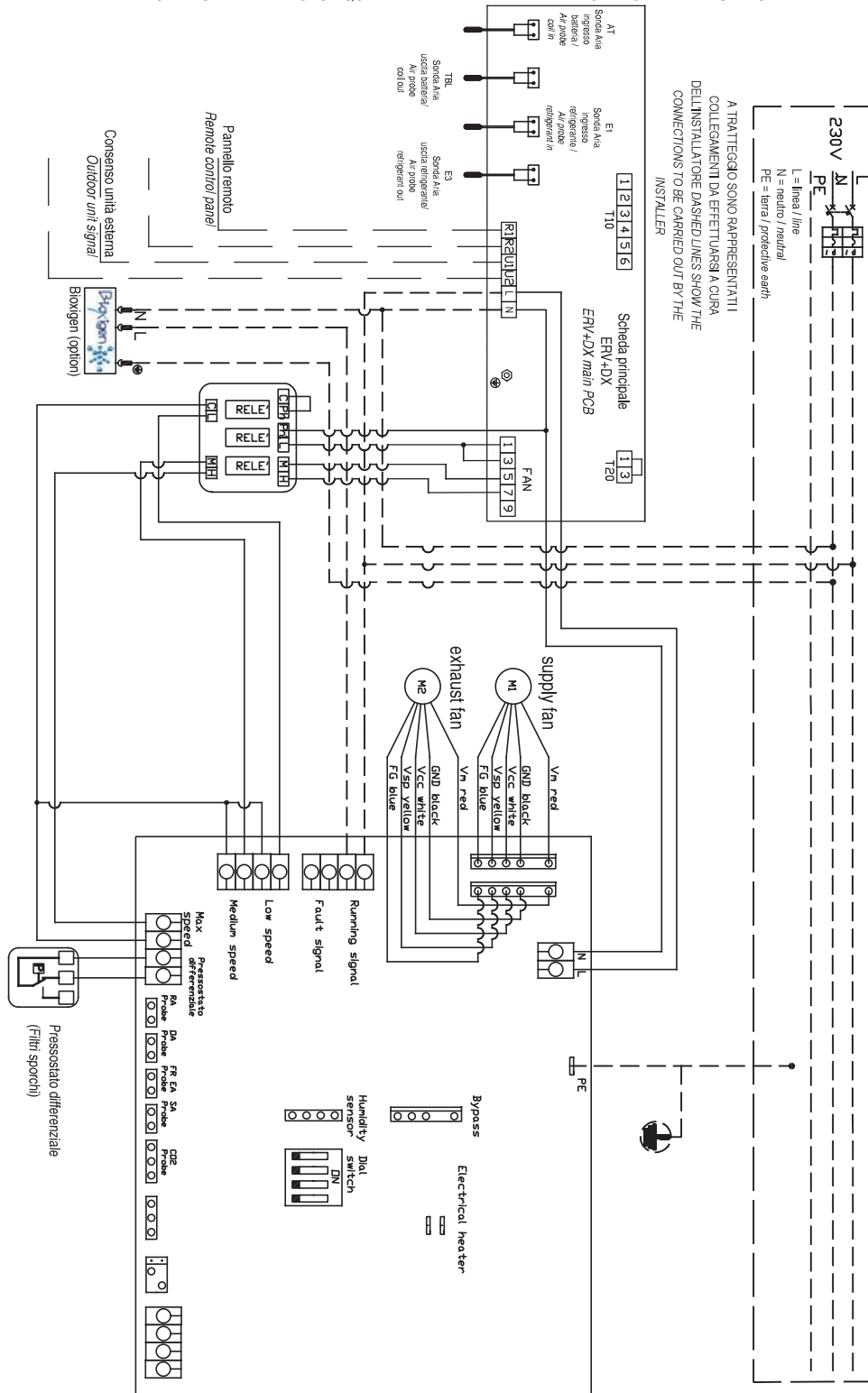
Instructions for use and setting are explained in the specific manual supplied together the remote controller.







LINEA ALIMENTAZIONE: PREDISPORRE A MONTE UNA ADEGUATA PROTEZIONE  
CON INTERRUTTORE MAGNETOTERMICO DIFFERENZIALE / POWER LINE: PROVIDE A  
PROPER SAFETY DEVICES EQUIPPED WITH DIFFERENTIAL MAGNETOTHERMAL SWITCH



## SECTION 5 - START UP CONTROLS

Before starting the unit check the following:

- Anchorage of the unit to the ceiling.
- Connection of the air ducts.
- Connection of the earth cable.
- Fixing of all the electric terminals.





## 6.1 Warning

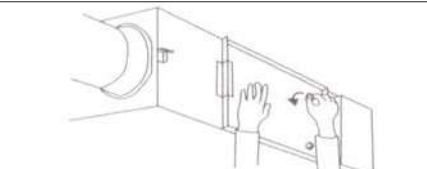
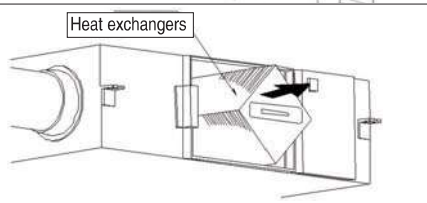
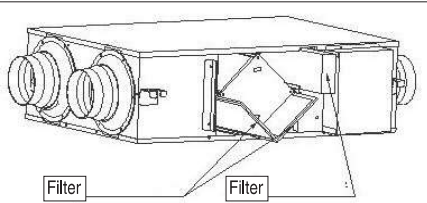
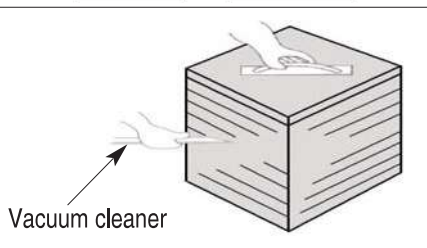
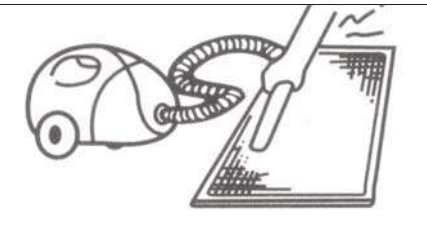

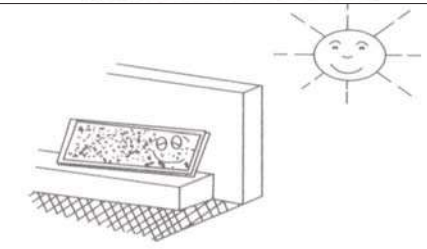
**BEFORE UNDERTAKING WHICHEVER MAINTENANCE OPERATION MAKE SURE THAT THE MACHINE IS SWITCH OFF AND THAT IT CAN NOT BE ACCIDENTALLY CONNECTED TO THE POWER. IT IS THEREFORE NECESSARY TO CUT OFF THE ELECTRIC SUPPLY DURING ALL MAINTENANCE OPERATIONS.**

- It is a duty of the user to carry out all the maintenance operations on the regenerator.
- Only assigned and previously trained and qualified personnel can carry out maintenance operations.
- If the unit must be disassembled, protect hands with gloves.

## 6.2 Monthly checks



## 6.2.1 Checking and cleaning of heat exchangers and filters

Release the 2 screws of the inspection panel with the proper handle.	
Take the hexagonal heat exchangers out through the proper handles	
Remove the 2 filter by making them scroll on the slides	
<b>CLEANING OF THE HEAT EXCHANGERS</b> Remove with the vacuum cleaner the dust that can be present inside the heat exchangers and verify that there are no foreign objects.  <b>ATTENTION: you must not wash the heat exchangers. If they are excessively dirty or damaged, they have to be replaced.</b>	
<b>WASHING OF THE FILTERS</b>  Remove the dust on the filters using a vacuum cleaner.   If the filters are excessively dirty, you can wash them with water and a neutral detergent at a temperature lower than 60°.	    
Make the filters dry completely before installing them again in the unit. Do not use fire to dry the filters. <b>Do not use fire to dry the filters.</b>	
After cleaning, repeat the operation sequence in reverse order. <b>Always remember to install filters and heat recovery exchanger before starting the unit.</b>	

## 6.3 Yearly checks

- Verification of the whole electrical installation and in particular the tightening of the cable connections.
- Verification of the tightening of all bolts, nuts, flanges and water connections that could be loose because of vibrations.



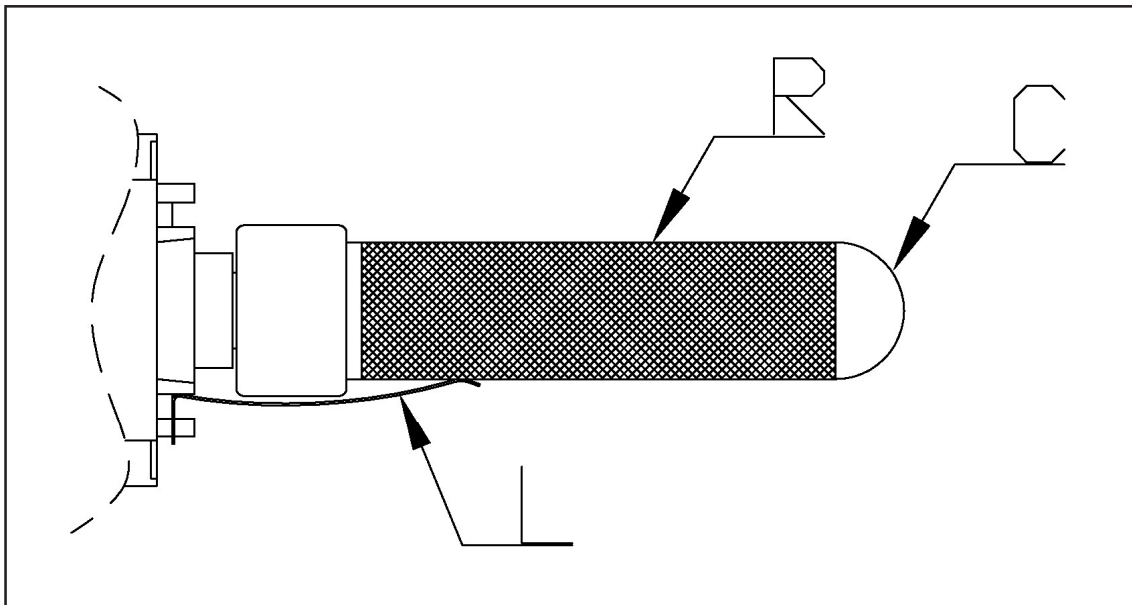
### 6.3.1 Bioxigen purifying system check



Once a year at least or when a drop in purifying efficiency is felt cleaning of capacitor shall be done.

In order to service Bioxigen system, following instructions shall be carried out :

- Switch off the whole unit (main power supply off)
- Unscrew the 4 fixing screws of Bioxigen system, operating from the lower side of the unit close to supply air duct connection
- Drop off the module (accomodating its fall) until the quartz capacitor is fully out of the unit
- Unlock the electric connector
- After laying the module on a flat surface, unscrew carefully the quartz capacitor (C)
- Remove the external net (R); if it should be difficult, rotate it lightly around the capacitor
- Clean the capacitor with a wet cloth.
- Wash the net with a jet of hot water and dry thoroughly with a dry cloth
- If the pipe is damaged, it shall be replaced with a new one
- As soon as a whitish layer is over the metal grille inside the pipe, capacitor shall be replaced. Usual time for replacement is 18-24 months
- Fit the net on the pipe and over the internal grille.
- Check that tab (L) is in contact with the metal net and push it against the glass of the capacitor (C)
- Clean the equipment all around outside
- Screw softly the capacitor in its seat
- Insert the module across the lower hole and lock the electric connector
- Screw the fixing screws
- Check if the system is working. Now a light noise might be audible.





SYMPTOMS	POSSIBLE CAUSE
<b>Fans not running</b>	No power supply. The switches of the thermostat are not in the right position of working. There are foreign bodies that block the rotors. Electrical connections are released.
<b>Poor cooling / heating performance</b>	Too low airflow. Insufficient refrigerant fill (check refrigerant circuit). Compressor off (check outdoor condenser unit).
<b>Excessive air flow</b>	Pressure drop of the system are overvalued.
<b>Insufficient air flow</b>	Pressure drop of the system are underestimated. Cloggings in the air ducts. Rotation speed too low: verify on the terminal board of the motor that the connection is correct and that the voltage correspond to that of the nameplate. The rotor turn backwards.
<b>Noise</b>	Excessive air flow. Wear or crack in the pads. Unbalanced fan. Foreign bodies in the case.
<b>Strong vibrations</b>	Unbalanced impeller because of wear or of dust deposit. Sliding of the impeller on the case due to deformations. Cloggings in the air ducts

When the failure cannot be easily solved, you have to disconnect the equipment from electrical power and contact the distributor company or an authorized technical assistance centre, having care of quoting the identification data of the unit that you can find on the correspondent label.

## SECTION 8 - DISPOSAL



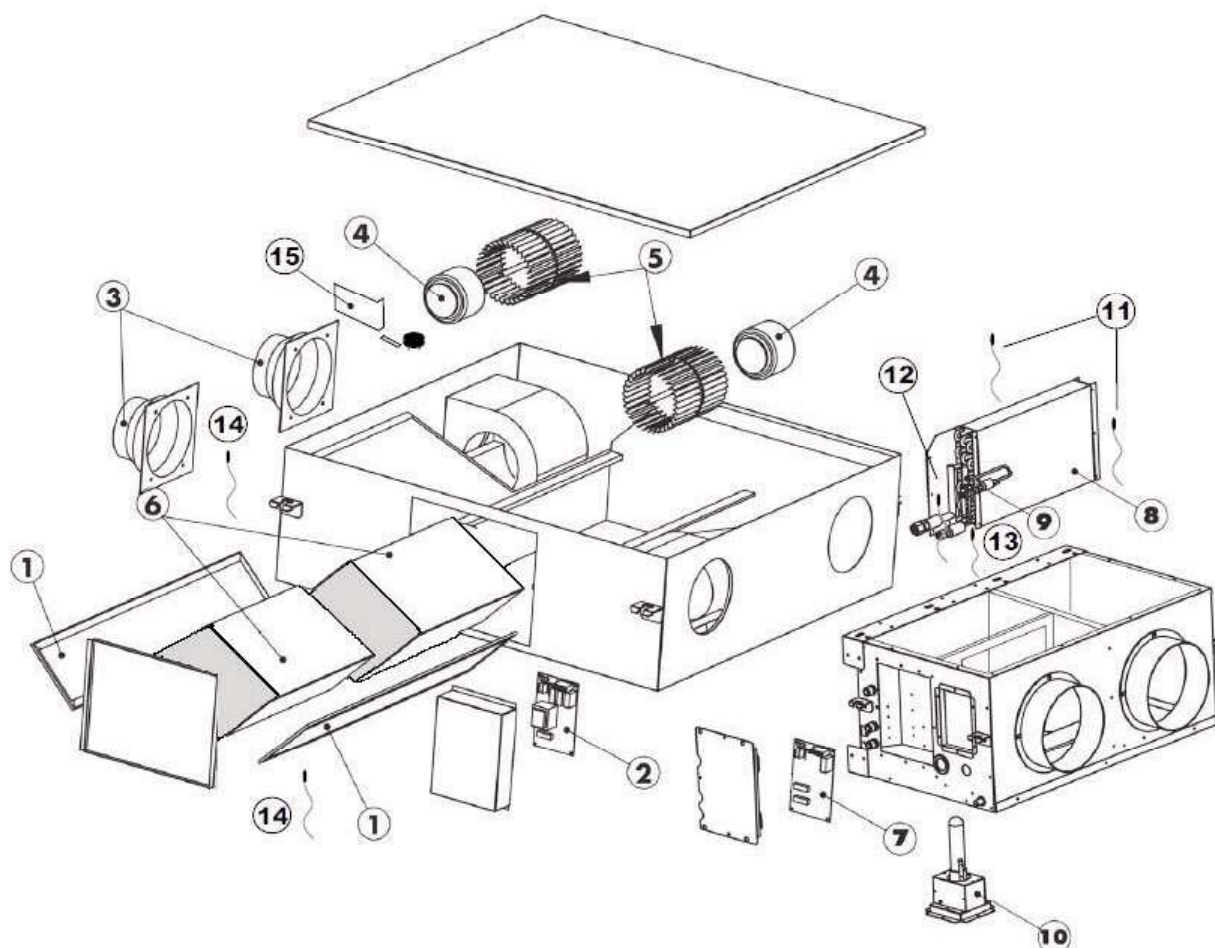
*This symbol indicates that this product must not be disposed of with household waste. Dispose of the unit properly according to local laws and regulations.*

*When the unit reaches the end of its useful life, contact the authorities for information on disposal and recycling possibilities; alternatively, it will be possible to request the free collection of the used equipment from the manufacturer. Separate collection and recycling of the product at the time of disposal will help and conserve natural resources and ensure that the unit is recycled in a manner that protects human health and the environment.*

AEE registry code: IT16070000009428

The materials that compose this heat recovery units are:

- Galvanized plate
- Alluminium
- Inox
- Quartz glass
- EPS (expanded polystyrene)
- Polyethylene
- ABS plastic (acrylonitrile butadiene styrene)
- NBR (nitrile butadiene rubber NBR)



Model	KEY and SPARE PART LIST & CODES							
	1		2	3	4	5	6	7
	AIR - FILTER		FAN PCB	COLLAR	FAN MOTOR	FAN IMPELLER	HEAT RECOVERY	MAIN PCB
	G3 Filter	PM 2.5 filter						
PAW-500 ZDX3N	CF0P30MICH050050	CF0M90MICH050480	CT00000MICEH0250	MV00BOC0MICH0500	MTE00000MICH0500	VT000GIRMICH0500	PR000E000MICH050	QE1CV62331675890
PAW-800 ZDX3N	CF0P30MICH080050	CF0M90MICH080480		MV00BOC0MICH0800	MTE00000MICH0800	VT000GIRMICH0650	PR000E000MICH080	
PAW-01KZDX3N	CF0P30MICH100050	CF0M90MICH100480			MTE00000MICH1000	VT000GIRMICH0100	PR000E000MICH100	
Model	KEY and SPARE PART LIST & CODES							
	8	9	10	11	12	13	14	15
	DX COIL	EXPANSION VALVE with ACTUATOR	BIOXIGEN SYSTEM	AIR TEMP. PROBES DX MODULE (TA - TBL)	TEMP. PROBE REFRIGERANT OUT (E3)	TEMP. PROBE REFRIGERANT IN (E1)	FRESH AIR and RETURN TEMP. PROBES	BY-PASS FLAP with ACTUATOR
PAW-500 ZDX3N	BTAECV0400J02NO0	FRSV02S50DNC1000	CD0037C185000000	ME4CV62332100250 ME4CV62332099990	ME4CV62332100010	ME4CV62332100180	ME4NTCMICROE0000	MV00BYP0MICH0000
PAW-800 ZDX3N	BTAECY0550J03RO0	FRSV02S80DNC1000						
PAW-01KZDX3N								

**PRODOTTO E PROGETTATO PER**  
***MANUFACTURED AND DESIGNED FOR***

**Panasonic**  
heatingandcoolingsystems

**da / by**



Viale dell'Industria, 25  
37044 Cologna Veneta (Verona) Italy  
tel. +39 0442 412741 - fax +39 0442 418400  
E-mail: [info@sicsistemi.com](mailto:info@sicsistemi.com) - [www.sicsistemi.com](http://www.sicsistemi.com)