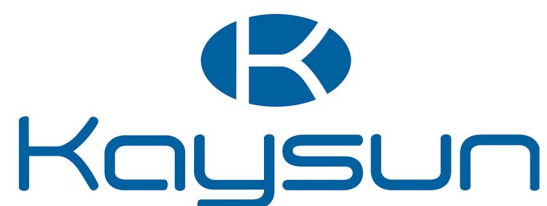


ORIGINAL
MANUAL



INSTALLATION, USER & MAINTENANCE MANUAL

Cross-flow heat recovery

KRE-1500DX1

KRE-2300DX1

KRE-3100DX1

IMPORTANT

**BEFORE PERFORMING ANY OPERATION OF THE MACHINE CAREFULLY READ,
UNDERSTAND AND FOLLOW
ALL INSTRUCTIONS LISTED IN THIS MANUAL**

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1 - SYMBOLS USED

The machine has been designed and constructed according to the current norms and consequently with mechanical and electrical safety devices designed to protect the operator or user from possible physical damage. Residual risks during use or in some intervention procedures on the device are however present. Such risks can be reduced by carefully following manual procedures, using the suggested individual protection devices and respecting the legal and safety norms in force.

The most important information concerning safety and proper use of the machine are accompanied by some symbols to make them highly visible:

	WARNING
	DANGER
	DANGER RISK OF ELECTRIC SHOCK
	ATTENTION ONLY AUTHORISED STAFF
	PROHIBITION



2 - WARNINGS AND GENERAL RULES

	<i>This instruction book is an integral part of the appliance and as a consequence must be kept carefully and must ALWAYS accompany the appliance even if transferred to other owners or users or transferred to another plant. If damaged or lost, request another copy from the Manufacturer.</i>
	<i>Repair and maintenance interventions must be carried out by authorised staff or staff qualified according to that envisioned by this book. Do not modify or tamper with the appliance as dangerous situations can be created and the appliance manufacturer will not be liable for any damage caused.</i>
	<i>After having removed the packaging ensure the integrity and completeness of the content. If this is not the case, contact the Company that sold the appliance.</i>
	<i>The appliances must be installed by enabled companies which, at the end of the job issues a declaration of conformity regarding installation to the owner, i.e. in compliance with the Standards in force and the indications supplied in this book.</i>
	<i>Any contractual or extracontractual liability of the Manufacturer is excluded for injury/damage to persons, animals or objects owing to installation, regulation and maintenance errors or improper use.</i>

We remind you that the use of products that employ electrical energy and water requires that a number of essential safety rules be followed, including:



This appliance must not be used by children and unaided disabled persons.



It is prohibited to touch the appliance when you are barefoot and with parts of the body that are wet or damp.



It is prohibited to perform any maintenance or cleaning operation before having disconnected the appliance from the mains electricity network, by positioning the plant master switch at "off"



It is prohibited to modify the safety or adjustment devices without the manufacturer's authorisation and precise instructions



It is prohibited to pull, detach or twist the electrical cables coming from the unit even if it is disconnected from the electrical mains



It is prohibited to climb onto the unit, sit on it and/or rest any type of object on it.



It is prohibited to spray or jet water directly onto the unit.



It is prohibited to open the doors for accessing the internal parts of the appliance without first having switched off the master switch of the "system".



It is prohibited to disperse, abandon or leave the packing materials within the reach of children, as they are a potential source of danger

IMPORTANT NOTES



The units are designed and built exclusively for:

- internal installation, except to use specific option for outdoor installation;**
- for air treatment in the civil environments, incompatible with toxic, explosive, inflammable and corrosive (chlorinated and saline included) 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.

As our Company is constantly involved in the continuous improvement of its production, aesthetic characteristics and dimensions, technical data, equipment and accessories can be subject to variation. For this reason the manufacturer reserves the right to make any changes without prior notice.

WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE

DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA
 WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE
 NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE
 EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

CATEGORY	Energy recovery unit
CATEGORIA	Unità di recupero calore
KATEGORIE	Wärmerückgewinnungsgerät
CATEGORIE	Unité de récupération chaleur
CATEGORIA	Unité de récupération chaleur

TYPE / TIPO / TYP / TYPE / TIPO KRE-1500DX1 - KRE-2300DX1
KRE-3100DX1

- COMPLIES WITH THE FOLLOWING EC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:
- RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CE, COMPRESSE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
- DEN IN DEN FOLGENDEN EG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
- EST CONFORME AUX DIRECTIVES CE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
- ES CONFORME A LAS SIGUIENTES DIRECTIVAS CE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:

- 2006/42/EC** **Machinery directive**
 Direttiva macchine
 Maschinenrichtlinie
 Directive sur les machines
 Directiva máquinas
- 2014/30/UE** **Electromagnetic compatibility**
 Compatibilità elettromagnetica
 Elektromagnetische Verträglichkeit
 Compatibilité électromagnétique
 Compatibilidad electromagnética
- 2011/65/UE** **RoHs**
- 2009/125/CE** **Ecodesign**
 Progettazione ecocompatibile
 Ecodesign
 Éco-conception
 Ecodiseño

-Responsible to constitute the technical file is the company n°. IT03074850235 and registered at the Chamber of Commerce of Verona Italy
-Responsabile a costituire il fascicolo tecnico è la società n°. IT03074850235 registrata presso la Camera di Commercio di Verona Italia
-Verantwortliche für die technischen Unterlagen zusammenstellen n°. IT03074850235 ist das Unternehmen bei der Handelskammer von Verona Italien registriert
-Responsable pour compiler le dossier technique est la société n°. IT03074850235 enregistrée à la Chambre de Commerce de Verona en Italie
-Encargado de elaborar el expediente técnico es la empresa n°. IT03074850235 registrada en la Cámara de Comercio de Verona Italia

SANT JUST DESVERN, 06/11/2020

NAME / NOME / VORNAME / PRÉNOM / NOMBRE **EDUARDO ROMANO**
 SURNAME / COGNOME / ZUNAME / NOM / APELLIDOS
 COMPANY POSITION / POSIZIONE / BETRIEBSPOSITION / FONCTION / CAI **BUSINESS UNIT MANAGER HVAC & ENERGY**



3 - IDENTIFICATION OF THE UNIT

The units feature a rating plate that describes the following: A -

Mark of the manufacturer;

B - Address of the manufacturer;

C - Unit model;

D - Unit serial number;

E - Voltage, number of phases; frequency of the power supply;

F - Max absorbed current;

G - Unit code;

H - Manufacturing date;

I - IP Grade;

L - "CE" mark;

M - Bar code

(A)		
(B)		
MODELLO MODEL	<input type="text"/>	(C)
MATRICOLA SERIAL NUMBER	<input type="text"/>	(D)
TENSIONE / FASI / FREQUENZA VOLTAGE / PHASES / FREQUENCY	<input type="text"/>	(E)
CORRENTE MASSIMA ASSORBITA MAX INPUT CURRENT	<input type="text"/>	(F)
CODICE CODE	<input type="text"/>	(G)
DATA DI PRODUZIONE MANUFACTURING DATE	<input type="text"/>	(H)
GRADO IP IP GRADE	<input type="text"/>	(I)
(M) 	 	(L)
Made in Italy		

WHEN CONTACTING THE OFFICE FOR ANY INFORMATION ENQUIRIES, PLEASE PROVIDE THE UNIT SERIAL NUMBER.



4.1 GENERAL CHARACTERISTICS

- High efficiency enthalpic heat recovery, static cross flow type , made by membrane with high moisture permeability, good air tightness, excellent tear resistance, and aging resistance. It is structured with flat plates and corrugated plates.
- An average 23 mm-thick layer of polyurethane is installed in the unit to ensure acoustic and heat insulation.
- Full-range controlled direct driven double inlet centrifugal fans with low consumption EC technology motors.
- Supply section for VRF system complete with DX (R410A) coil with copper tubes and aluminium fins, fitted with thermostatic valve, refrigerant filter, sensors on liquid and gas line, temperature sensors upstream and downstream airflow. Sheet metal casing internally insulated by thermoacoustic material, complete with stainless steel drain pan.
- Filtering sections composed by cell filters with polypropylene media, extractable from side removable panels, ISO 16890 ePM₁ 55% efficiency for the fresh air flow, and ePM₁₀ 55% efficiency for the exhaust air flow.
- Built-in PCB to control fan speed and air temperature (possible remote control panel as an option), flexible interfacing to the AHU kit.
- The structure and the paneling (sandwich type, removable) are made from painted metal sheet.
- Bypass section for defrost or free cooling functions.
- Pressure switch for fresh air filters with visual filter change warning light indicator.
- Heat exchanger removable from below.

4.2 OPTIONS

- Electric pre-heater module - **PRE-DX**
- Purifying system integrated - **BIOX-DX**

Note: options are built in the unit, it is necessary to specify them in the order of the energy recovery unit.



4.3 UNIT TECHNICAL DATA

MODEL		1500DX1	2300DX1	3100DX1
Nominal air flow	m ³ /h	1500	2300	3100
Nominal external static pressure	Pa	190	210	190
Maximum external static pressure	Pa	520	425	370
Electrical power supply	V/ph/Hz	230 / 1 / 50-60		
Total full load power input	kW	2.12	2.12	2.35
Total full load amperage	A	9.0	9.0	10.0
WORKING LIMITS		1500DX1	2300DX1	3100DX1
Outdoor temperature - humidity working limits	°C / %	-5 ... +45 °C / 5 ... 95%		
Outdoor temperature - humidity working limits with PRE-DX option	°C / %	-15 ... +45 °C / 5 ... 95%		
Indoor temperature - humidity working limits	°C / %	+10 ... +35 °C / 10 ... 90%		
FANS		1500DX1	2300DX1	3100DX1
Motor typology		EC	EC	EC
Number of speeds (1)		3	3	3
Fan control (1)		Man	Man	Man
Total nominal power input	kW	0.62	1.31	1.50
Total nominal load amperage	A	2.7	5.6	6.4
Static efficiency of fans	%	53.20%	55.90%	59.80%
HEAT EXCHANGER		1500DX1	2300DX1	3100DX1
Winter thermal effic. (3)	%	73.0%	73.2%	71.4%
Winter enthalpy effic. (3)	%	62.5%	62.7%	55.5%
Total heating recovery capacity (3)	kW	9.03	13.88	18.25
Supply air temperature (3)	°C	13.3	13.3	12.9
Summer thermal effic. (4)	%	60.1%	60.2%	57.4%
Summer enthalpy effic. (4)	%	58.3%	58.5%	52.5%
Total cooling recovery capacity (4)	kW	1.81	2.79	3.58
Supply air temperature (4)	°C	28.4	28.4	28.6
Dry thermal efficiency (5)	%	73.1%	73.2%	73.0%
Sound pressure level (LpA) (2)	dB(A)	53	59	58
DX COIL		1500DX1	2300DX1	3100DX1
Heating capacity (6)	kW	8,6 (9,3)	12,2 (13,2)	17,1 (18,5)
Approximate supply air temperature	°C	30,0 (29,5)	29,0 (28,0)	29 (28,2)
Approximate supply air humidity	%	14 (14)	15 (15)	15 (15)
Total cooling capacity (7)	kW	9.90	14.20	19.30
Sensible cooling capacity	kW	6.70	9.90	13.40
Approximate supply air temperature	°C	15.1	15.7	15.6
Approximate supply air humidity	%	91	90	90

(1) Man = Manual by selector switch or control panel

(2) Sound pressure level calculated at 1 m far from service side of casing, with ducted supply, exhaust, return and fresh air, at nominal conditions 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

Features DX coil

Model		1500DX1	2300DX1	3100DX1
Geometry		2522	2522	2522
N° Rows		3	3	3
N° Circuits number (AHU kit)		1	1	1
Ø in (liq)	SAE-FLARE	(3/8") (Ø 9,52 mm)	(3/8") (Ø 9,52 mm)	(3/8") (Ø 9,52 mm)
Ø out (gas)	SAE-FLARE	(5/8") (Ø 15,88 mm)	(5/8") (Ø 15,88 mm)	(5/8") (Ø 15,88 mm)
Volume	[ltr]	1.8	2.2	2.9



4.4 IMOT CONFIGURATION (FIG.1)

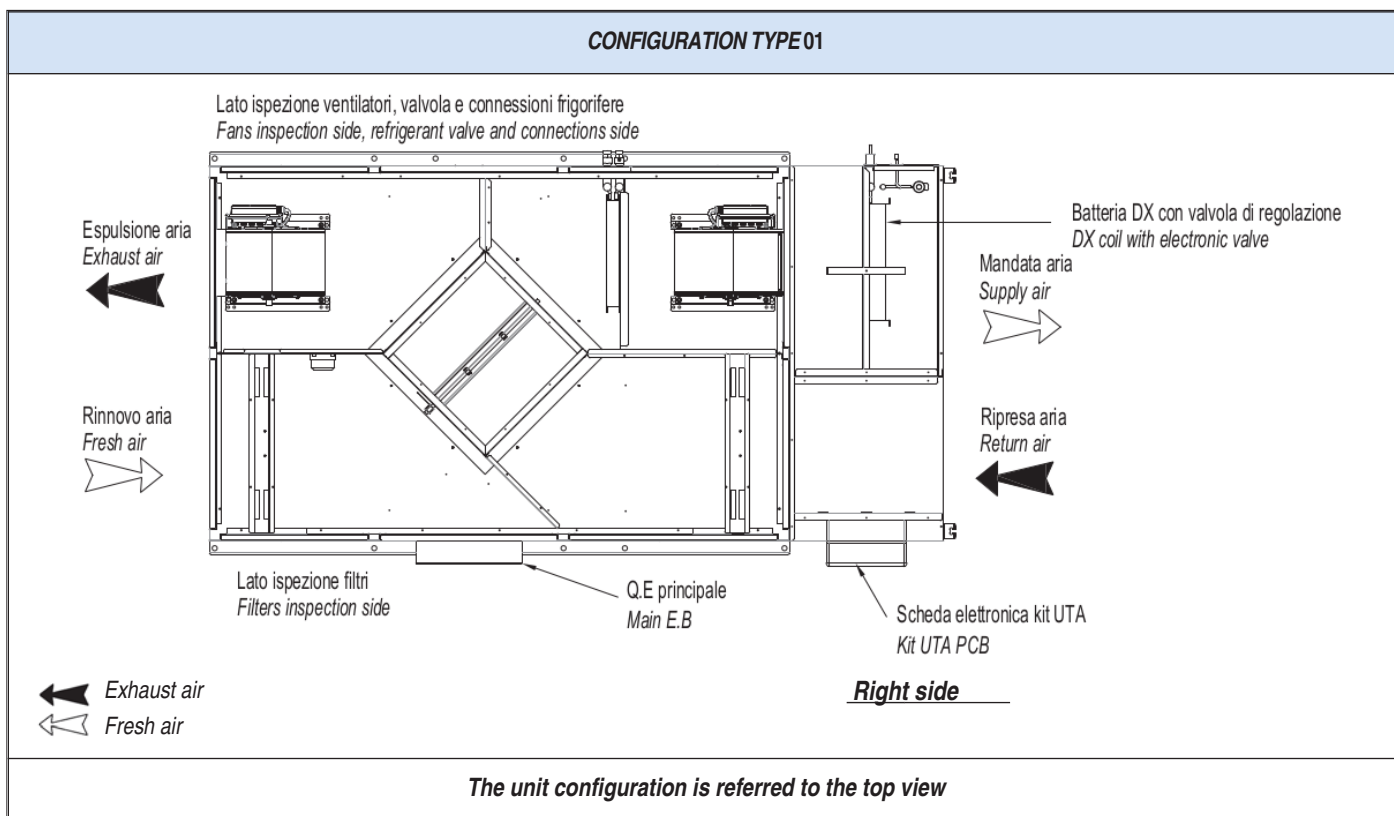


fig. 1



4.5 MAIN LOGIC CONTROL

Bypass device for free cooling / heating (fig. 2)

Units are equipped with special internal section for the bypass function. When the air intake temperature is near the air outlet temperature the heat recovery unit can be partly bypassed reducing the heat exchange. The unit is equipped with electric actuator automatically managed.

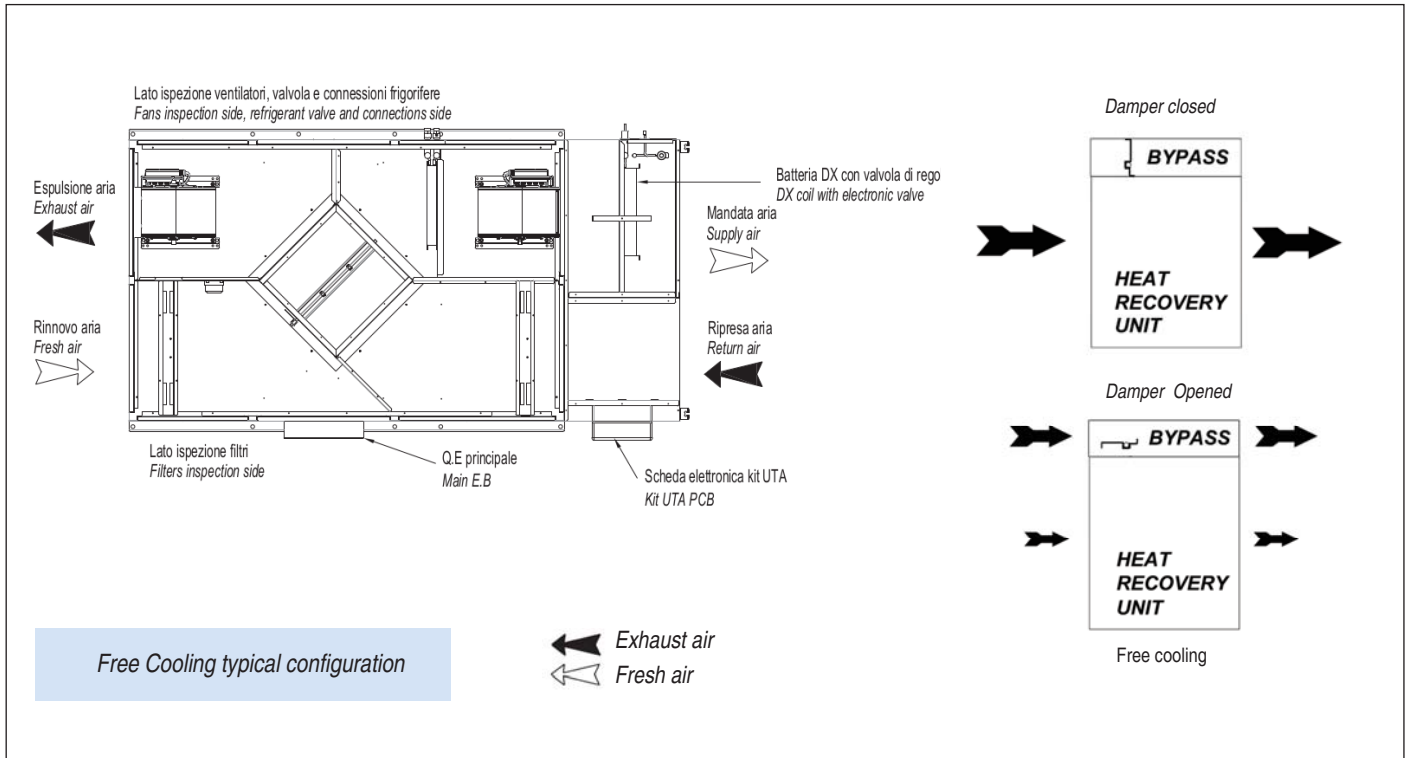


fig. 2

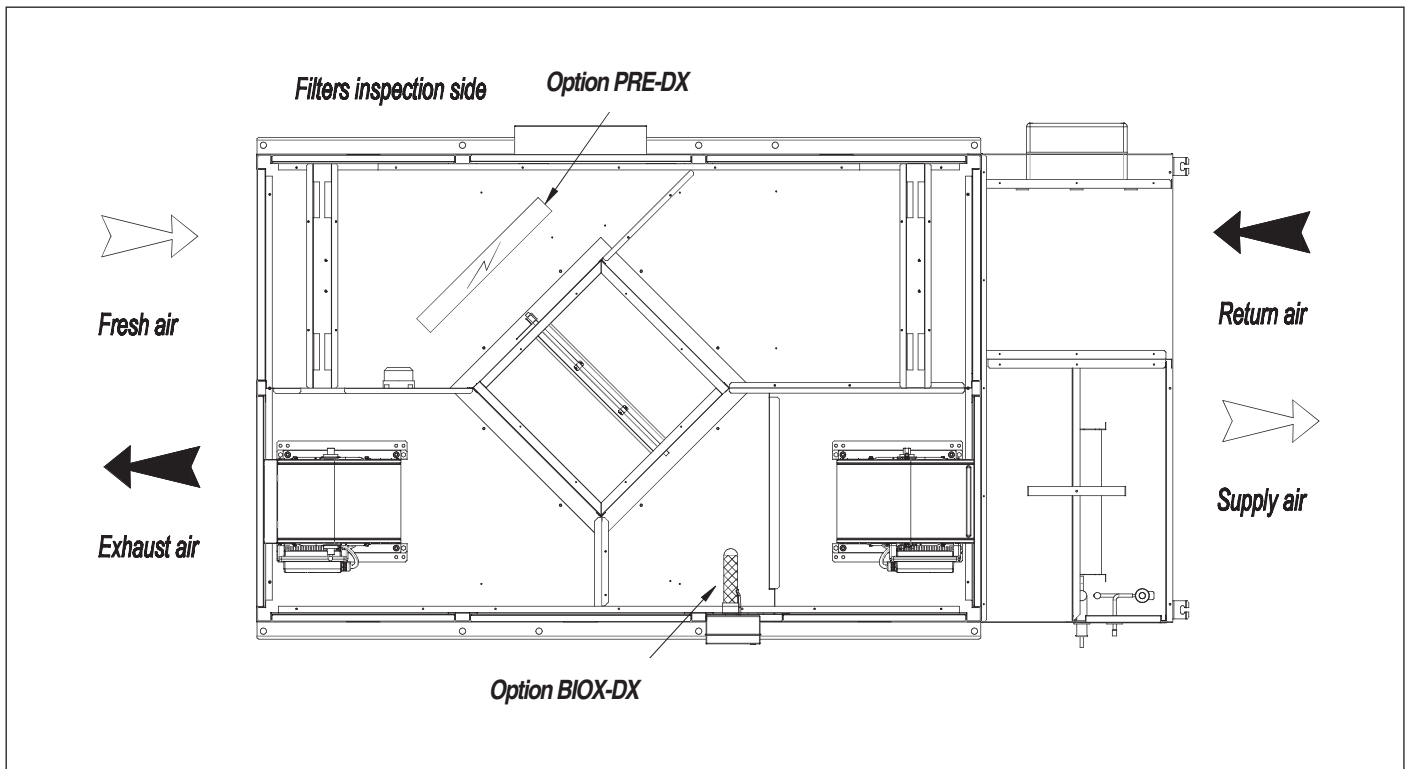


fig. 3

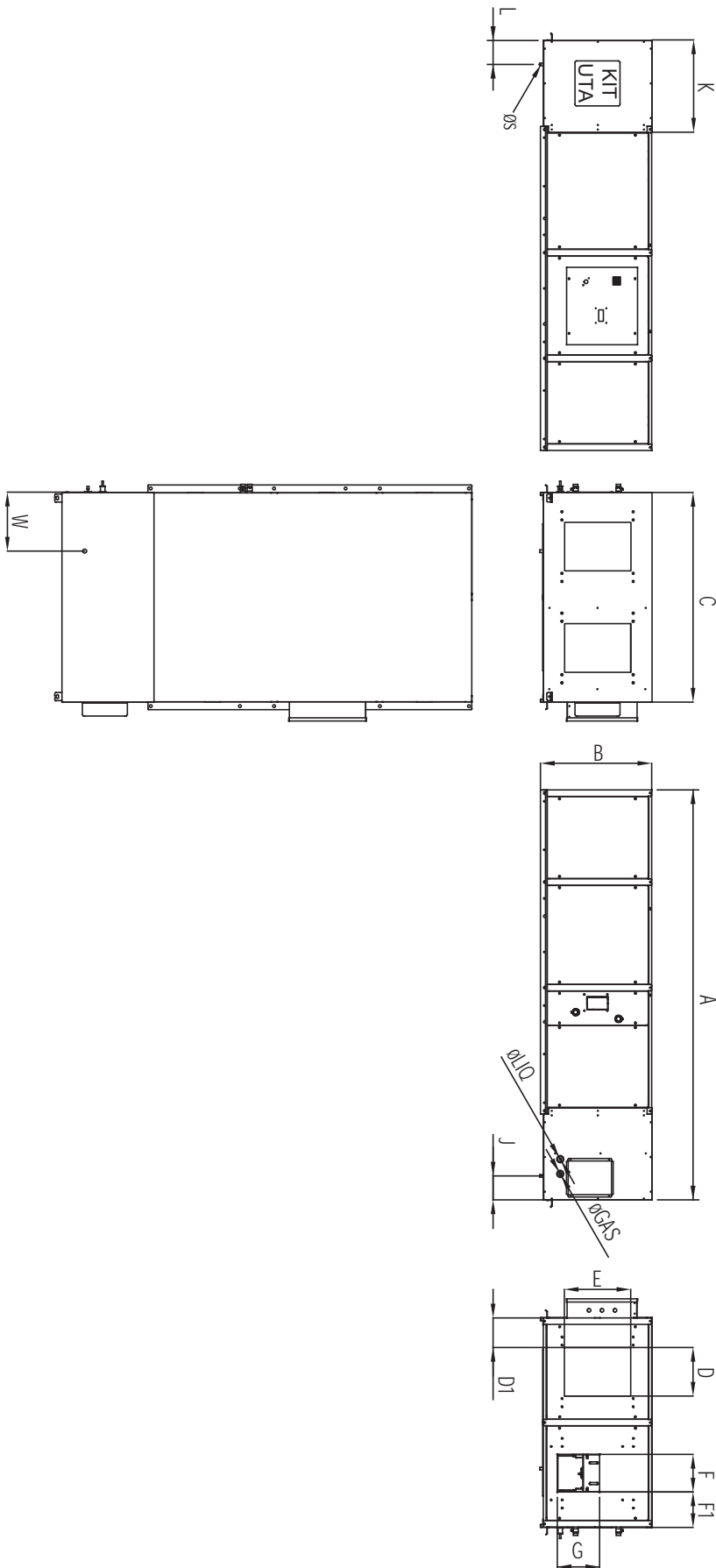


4 - TECHNICAL SPECIFICATIONS

4.6 DIMENSIONS AND WEIGHTS

Dimension														Weight			
Model	A [mm]	B [mm]	C [mm]	D [mm]	D1 [mm]	E [mm]	F [mm]	F1 [mm]	G [mm]	LIQ. (in) Ø mm	GAS (out) Ø mm	L [mm]	S (") Ø inch	K [mm]	J [mm]	W [mm]	[Kg]
1500DX1	2535	670	1290	300	185	410	230	220	260	12	28	150	1/2"	570	160	360	230
2300DX1	2535	670	1290	500	185	410	330	220	290	16	28	150	1/2"	570	160	360	250
3100DX1	2635	670	1400	400	160	510	330	195	285	22	28	150	1/2"	570	160	360	270

(1) Condensate drain



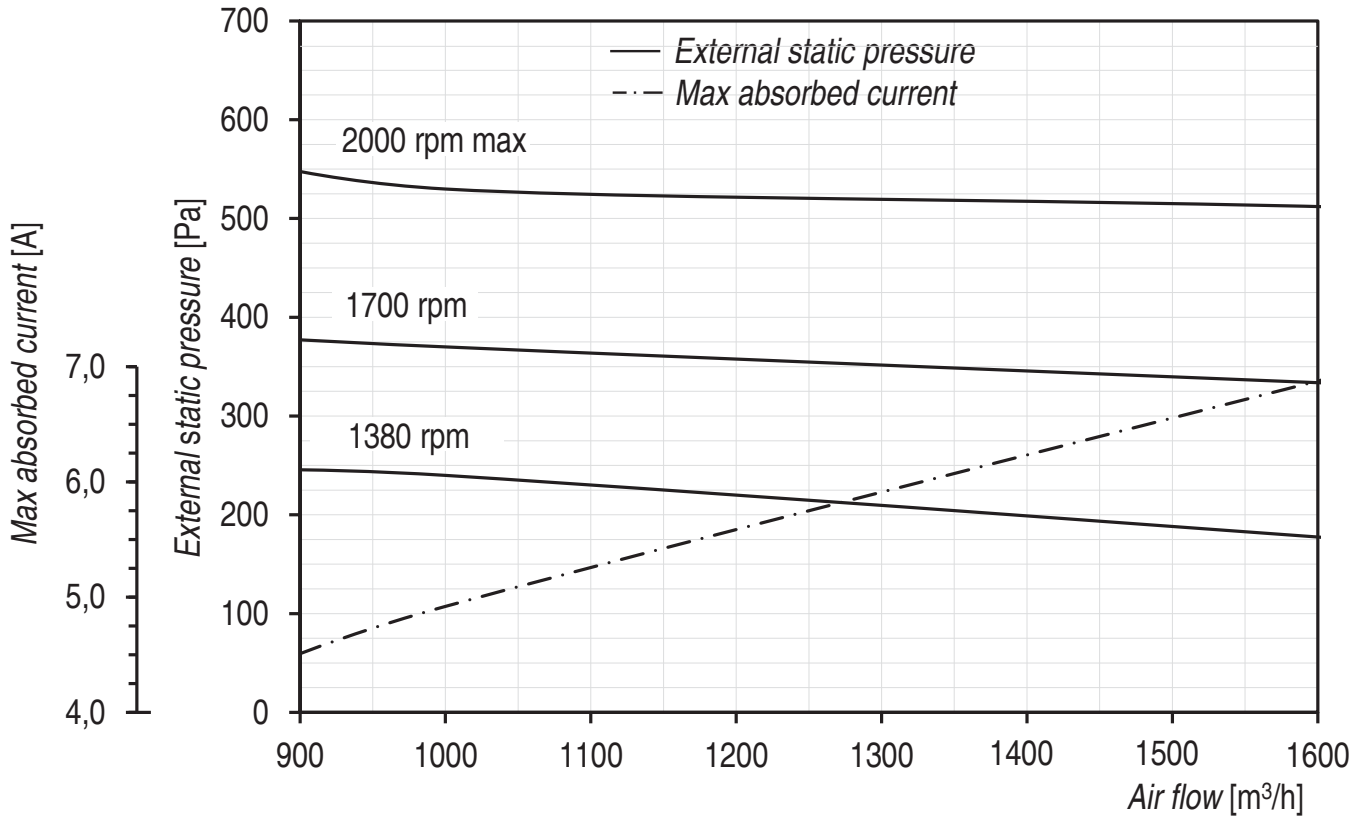
Dimensional drawing referred to orientation

fig. 4

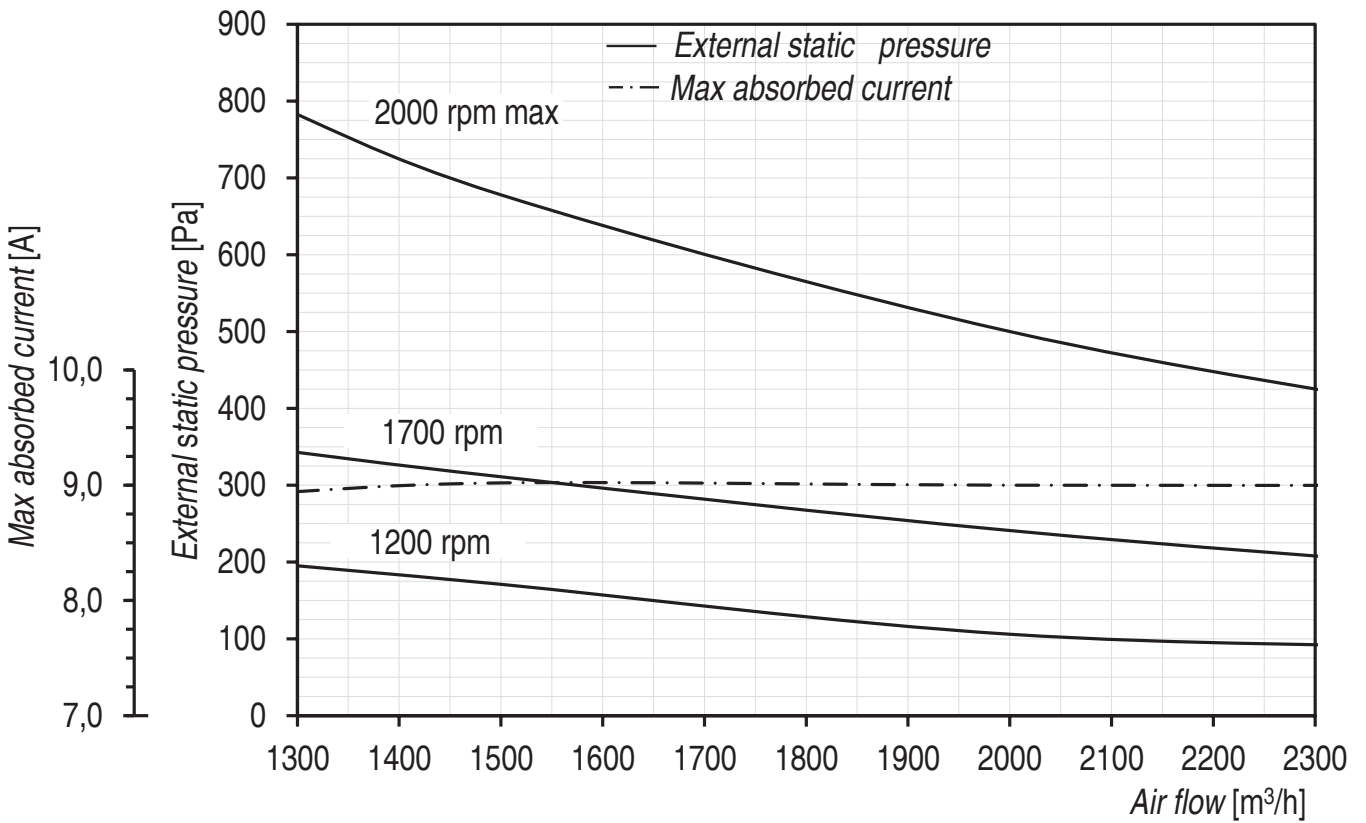


4.7 CHARACTERISTIC CURVES

1500DX1

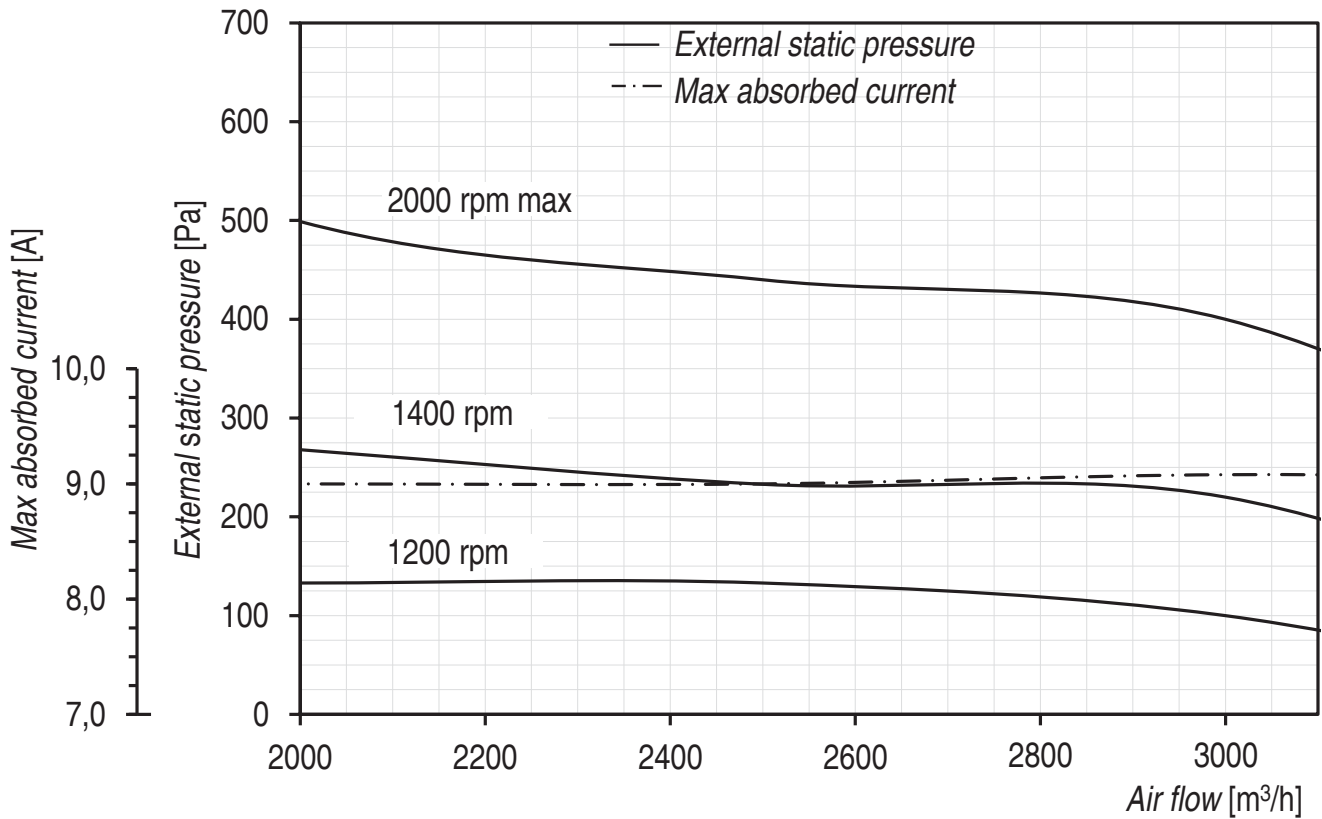


2300DX1





3100DX1



4.8 SOUND POWER LEVELS

1500DX1	Sound power levels L_w at center band frequencies									Total L_w
	Hz	63	125	250	500	1000	2000	4000	8000	
Supply duct	dB(A)	33.8	58.9	68.4	65.8	69.0	67.2	62.0	53.9	74.2
Exhaust duct	dB(A)	33.8	59.9	68.4	65.8	69.0	67.2	62.0	53.9	74.3
Outside the casing	dB(A)	28.8	48.1	56.6	51.5	54.4	52.4	30.7	17.1	60.5

2300DX1	Sound power levels L_w at center band frequencies									Total L_w
	Hz	63	125	250	500	1000	2000	4000	8000	
Supply duct	dB(A)	44.8	66.9	77.4	68.8	70.0	69.2	70.0	58.9	79.8
Exhaust duct	dB(A)	44.8	66.9	77.4	68.8	70.0	69.2	70.0	58.9	79.8
Outside the casing	dB(A)	39.8	55.6	65.6	54.5	55.4	54.4	38.7	22.1	66.9

3100DX1	Sound power levels L_w at center band frequencies									Total L_w
	Hz	63	125	250	500	1000	2000	4000	8000	
Supply duct	dB(A)	35.8	66.9	76.4	67.8	70.0	69.2	67.0	57.9	79.0
Exhaust duct	dB(A)	35.8	66.9	76.4	67.8	70.0	69.2	67.0	57.9	79.0
Outside the casing	dB(A)	30.8	55.6	64.6	53.5	55.4	54.4	35.7	21.1	66.1



4.9 OPTIONS

4.9.1 PRE and post-heating electric coil - PRE-DX

The electric heater contains a filament-type element, which limits pressure drop. Safety thermostats and control relay are included.

The **PRE-DX** pre-heater is installed inside the unit in fresh air stream, after the filter and performs a pre-heating of the outdoor air when the fresh air temperature is less than a settable value (default -5°C). This arrangement ensures the maximum humidity efficiency, avoiding frost on the exhaust air stream.

The technical characteristics are shown in the following table.

ELECTRIC PRE HEATING SECTION	PRE-DX	D1500	D2300	D3100
Nominal capacity	kW	6.0	6.0	12.0
Voltage	V	400	400	400
Phases	n°	3	3	3
Steps	n°	1	1	1
Current	A	8.7	8.7	17.3
Air Delta T input-output	$^{\circ}\text{C}$	12.0	9.0	11.2
Weight	kg	2.5	2.5	5.0

4.9.2 Purifying system - BIOX-DX

The **BIOX-DX** technology is constituted by a special condenser made by a cylinder of quartz and by special metallic net and it is fed by a monophasic alternate tension, low power consumption.

The electric field generated among the particular plate of the condenser, gives place to the "liberation" of little negative ions of oxygen and of positive ions, which easily unite as "cluster" or molecular ions, characterized by elevated oxidizing power.

The constant use of the **BIOX-DX** device guarantees a considerable improvement of the quality of the air in indoor places, like this: chemical composition, bacterial activity, electrostatic balance, absence of fine dusts and unpleasant smells, with positive consequences in rooms for the health and the well-being of people.

Benefits for people:

- reduction of infection risks caused by bacterial proliferation
- improvement of the function and reduction of the diseases of the respiratory system
- reduction of anxiety, stress, sleepiness and intolerance of rooms.

Benefits for rooms:

- elimination of moulds which damage ceilings, walls and corners not much aired
- elimination of smells without the use of chemical products dangerous for health
- drastic reduction of mites
- elimination of electrostatic charge

With the **BIOX-DX** system, the indoor air is constantly healthy and deodorized as required by EEC regulation in force concerning safety and health.

The system is installed inside the unit, before the supply fan (see picture 3). It starts to work when fans are switched on; the maximum power consumption is 40W.



- *The air handling units are packed in cardboard boxes that must remain intact until assembly.*
- *The components that, due to technical, constructional, transport or other requirements are not fitted on the unit, but sent separately either inside the unit or otherwise, are specially protected and duly described on the packing list.*
- *No other material must be stacked on the products: the manufacturer declines all liability in the event of damage deriving from such loads.*

THE FASTENING OF THE LOAD ON THE TRUCK IS THE RESPONSIBILITY OF THE CARRIER, AND MUST BE PERFORMED, USING STRAPS OR ROPES, SO AS TO AVOID DAMAGING THE PACKAGING

6 - UNLOADING



6.1 CHECKS UPON RECEIPT

When receiving the goods, before unloading, all the material delivered must be checked to ascertain the presence of any damage caused during transport. Any damage found must be reported to the carrier, accepting the goods with reservation and specifying the type of damage on the delivery documents.

6.2 HOISTING AND HANDLING

It is strongly recommended :

WHEN HANDLING THE UNITS, USE SUITABLE MEANS ACCORDING THE WEIGHTS INVOLVED.

- *The weight of the units is shown on this manual.*
- *Avoid uncontrolled rotations.*
- *Place the goods down with care, avoiding sudden movements or, worse, dropping the goods.*

6.3 STORAGE

In the event of extended storage before installation, keep the units protected from dust and bad weather and away from sources of vibrations and heat.

THE MANUFACTURER DECLINES ALL LIABILITY FOR DAMAGE DERIVING FROM INCORRECT UNLOADING OR INADEQUATE PROTECTION OF THE UNITS AGAINST THE ELEMENTS.



7.1 DEFINITIONS

CUSTOMER - The customer is the person, the agency or the company who bought or rented the unit

USER / OPERATOR - The operator or user is the physical person who uses the unit for the purpose for which it was designed

SPECIALISTIC STAFF - It is composed by the physical trained persons, able to recognize any danger due to the proper and improper use of the unit and able to avoid or repair it inflammable or toxic gases at a high temperature.

7.2 SAFETY STANDARDS

THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR THE FAILURE TO COMPLY WITH THE SAFETY AND ACCIDENT-PREVENTION STANDARDS DESCRIBED BELOW. IT ALSO DECLINES ALL LIABILITY FOR DAMAGE CAUSED BY IMPROPER USE OF THE UNIT AND/OR MODIFICATIONS PERFORMED WITHOUT AUTHORISATION.

SPECIALISED STAFF MUST PERFORM INSTALLATION.

- Wear suitable and accident-prevention clothing during installation, for example: goggles, gloves etc. as indicated in the current regulation
- During installation operate in complete safety, clean environment and free from obstructions.
- Respect the laws in force, in the country in which the machine is installed, relative to use and disposal of packaging and the products used for cleaning and maintenance of the machine, as well as complying with that recommended by the producer of these products.
- Before starting the unit, check the perfect integrity of the various components of the entire plant.
- Do not touch moving parts or intervene between these.
- Do not perform maintenance and cleaning until the electric line has been connected.
- The maintenance and replacement of damaged or worn parts must only be performed by specialised staff and following the indications given in this manual.
- The spare parts must correspond to the requirements defined by the Manufacturer.
- If the unit must be dismantled, follow the envisioned anti-pollution standards.

N.B. When using the unit, the installer and user must consider and solve all risks connected to the plant. For example, risks deriving from the entry of foreign bodies or risks due to the conveying of dangerous inflammable or toxic gases at a high temperature.



7.3 PRELIMINARY INFORMATION

- Work while meeting the current safety regulations, ensuring sufficient space to move and the cleanliness of jobsite.
- Wear protective clothing and personal protective equipment (glasses, gloves, etc.).
- Move the packed section as close as possible to the place of installation.
- Don't place tools or other jobsite equipment over the packed unit.
- Don't use the unit as a store of yard tools.
- Don't touch moving parts and don't use them as supports.
- Check the full integrity of all unit components.

7.4 INSTALLATION LOCATION

- Make sure that the support surface is able to support the weight of the unit(units) and will not cause vibrations.
- Make sure that the support surface is perfectly horizontal so as to Allow the correct coupling of the various sections.
- Never position the unit in rooms where there are flammable gases or acidic, aggressive or corrosive substances that may irreparably damage the various components.
- Leave a minimum amount of free space around the unit, as shown in the figure, so as to allow for installation, maintenance and the replacement of components, such as coils, filters etc. (fig. 5).
- If the unit is hung from the ceiling all the sections that make up the air handling unit must be connected to the ceiling.

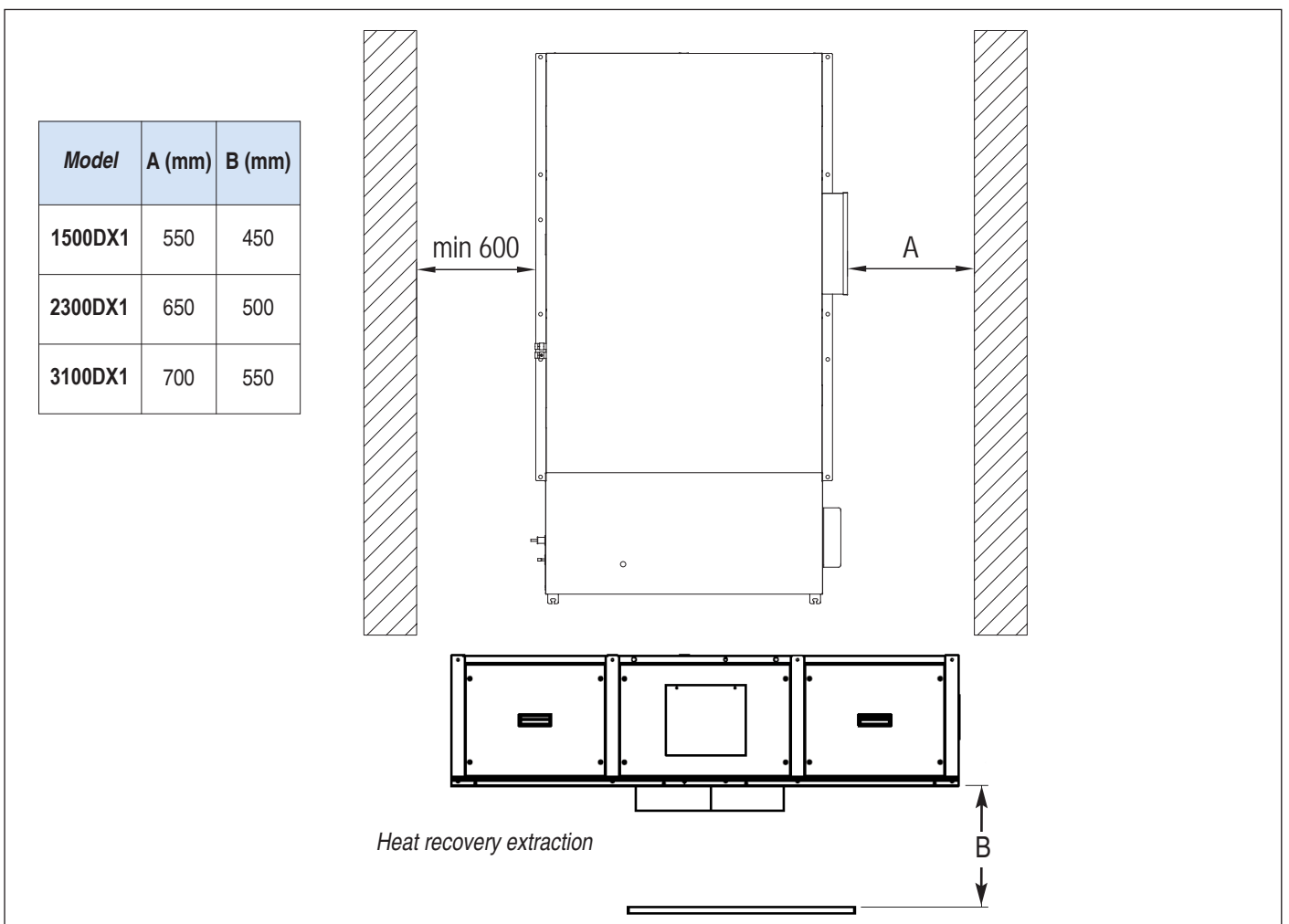


fig. 5



7.5 POSITIONING OF THE MACHINE

Some assembly sequences are illustrated below:

1. Drill the ceiling and fix M8 threaded tie-rods, as indicated in the figure.
2. Position the unit on the tie-rods with the rubber antivibrating supplied (fig. 6).
3. Block the unit by fastening the fixing bolt.

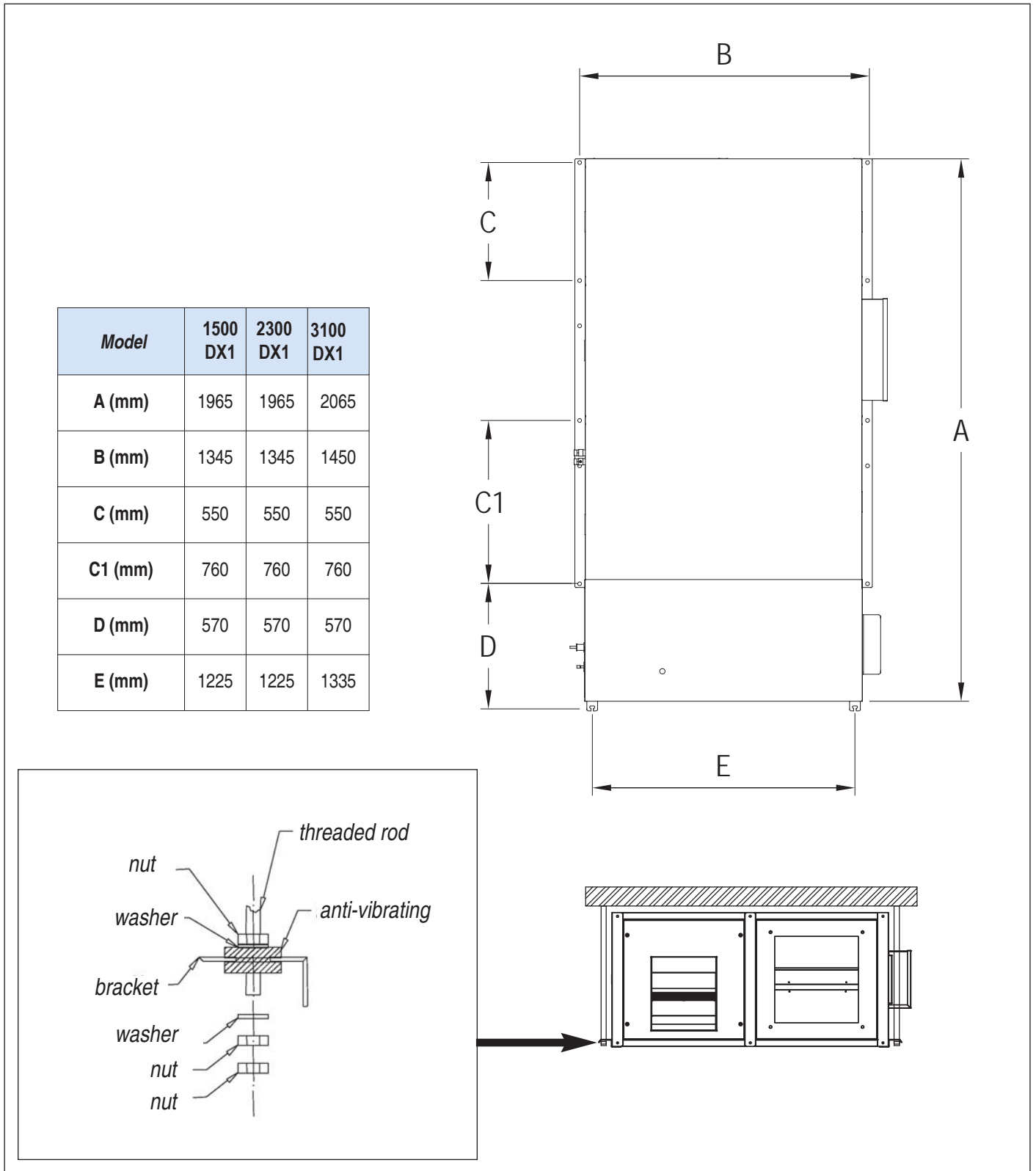


fig. 6



7.6 CONNECTION TO THE DUCTS

IMPORTANT: IT IS PROHIBITED TO START THE UNIT IF THE FAN VENTS ARE NOT DUCTED OR PROTECTED WITH ACCIDENT-PREVENTION MESH ACCORDING TO THE CURRENT REGULATION.

- The ducts must be dimensioned depending on the plant and the aerualic features of the unit fans. An incorrect calculation of the ducting causes a loss of power or the intervention of any devices present on the plant.
- It is recommended to use insulated ducts to prevent the formation of condensate and attenuate the noise level.
- To prevent transmission of any machine vibrations into the environment it is recommended top lace an anti-vibration joint between the fan vents and the ducts. The electrical continuity must however be guaranteed between the duct and the machine via the earth cable.

7.7 HYDRAULIC CONNECTIONS

- The installation and connection operations of the hydraulic pipes are *n*perations that can compromise the good functioning of the plant or worse, cause irreversible damage to the machine.
These operations must only be performed by specialised staff.
- The units are all equipped with condensate drip tray made of galva- nized metal sheet.
- The condensate drip tray has a drain with G 1/2 male.
- The drain system must have a suitable siphon for preventing the un- desired entry of air into the depressurised systems or the undesired exit of air in pressurised systems. **Otherwise the condensate does not drain and it would wet the inside of the unit with unwanted consequences.**This siphon is also useful to prevent the infiltration *n* odours or insects.
- The dimensioning of the siphons in the case of depressurised tray, must be done according to the following (fig. 7) and table.

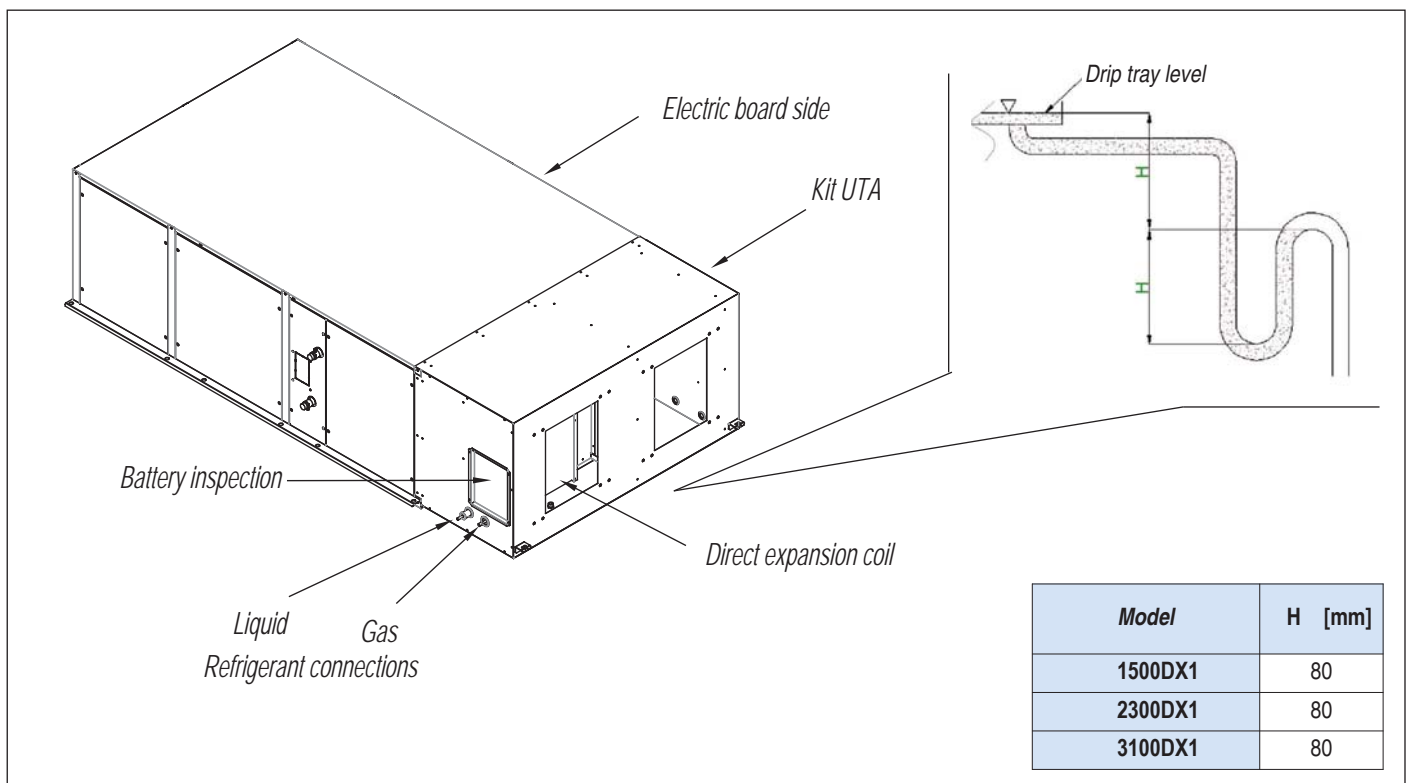


fig. 7



7.8 DX COIL SECTION (FIG. 8)

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

CAUTION: Nitrogen is sealed inside the main unit perform the following airtightness check, verify that a “pfffft” sound occurs, when the nut is unscrewed.

Preparation of pipes:

- 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 *m* file (A fig. 8).
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.
- Apply a sealing cap or water-proof tape to prevent dust or water from entering the tubes before they are used.
- Adjust the shape of the liquid tube using a tube bender at the installation site and connect it to the liquid tubing side valve.
- 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 (B fig.8).
- 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 (C fig. 8). 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 (D fig. 8).
- Repeat operations for the second connecting pipeline.

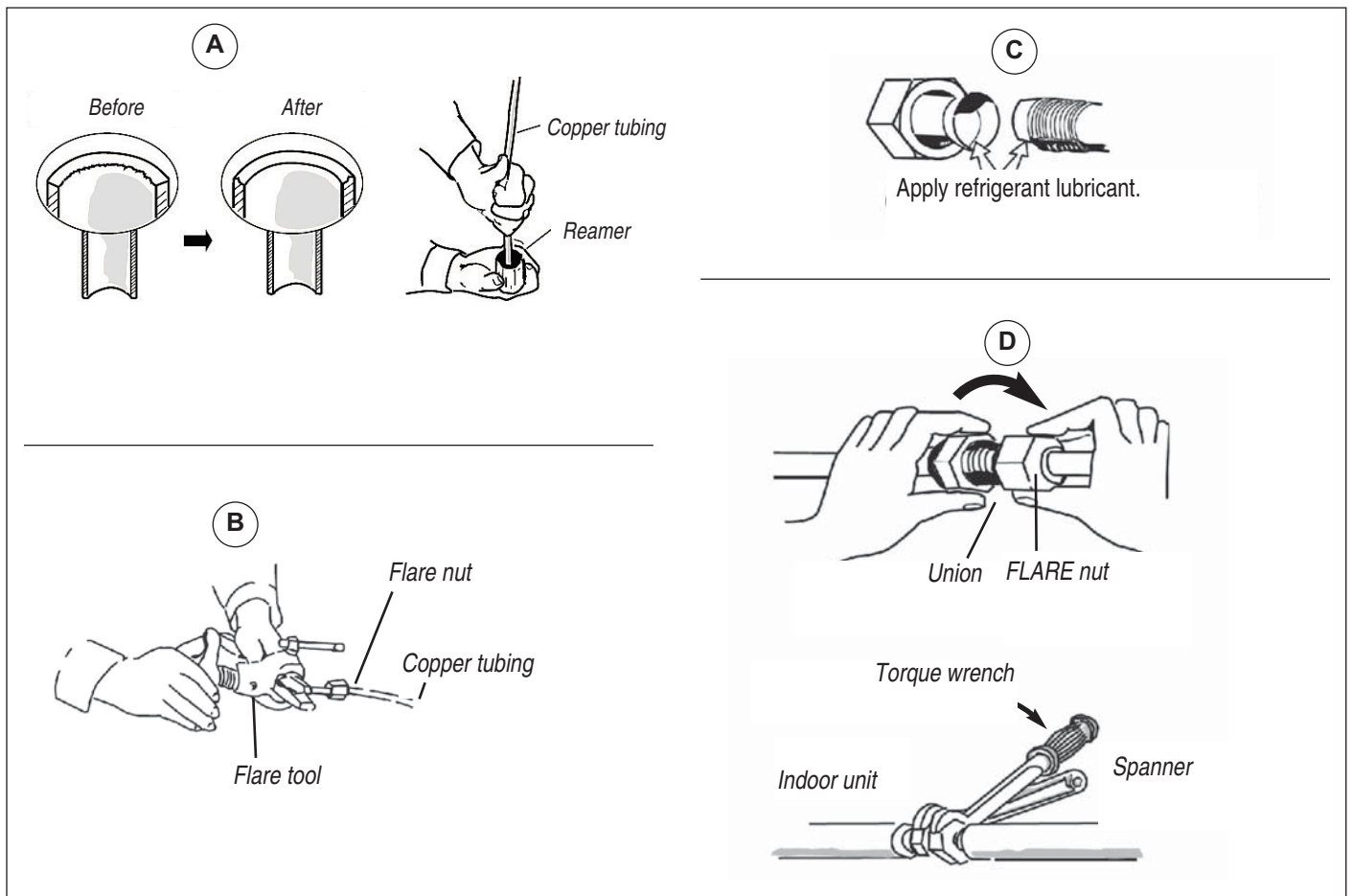


fig. 8

7.8.1 Tightening

Apply the following tightening pairs, depending on the diameter of the pipe. **If the flare connection is tightened with excessive torque it can be damaged and there may be uncontrolled leaks of refrigerant.**

It is advisable to use a chive with an arm length of 200mm.

Be sure to use the rings supplied with the machines, or alternatively fitting suitable for refrigerant fluid R410A: the operating pressure of this fluid is at least 1.6 times the pressure of a conventional fluid.

\varnothing Tube	Tightening torque	Tube thickness
\varnothing 9,52 (3/8")	20 - 25 N*m	0,8 mm
\varnothing 15,88 (5/8")	54 - 75 N*m	0,8 mm



7.8.2 Welding joint cautions

- 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.)
- Use a reducing valve for the nitrogen cylinder.
- 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.
- 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.
- Repeat the previous procedures for the second connection.

7.8.3 Insulating the refrigerant tubing (fig. 9)

Thermal insulation should be applied to all pipes in the unit, including connection points.

For the gas line use insulating agents resistant to at least 120°C or higher temperatures; for all other pipes, a resistance of up to 80°C is sufficient.

The thickness of the insulation must be at least 10mm or higher. Increase the thickness if the thermoigrometric conditions inside the pipe passage exceed 30°C b.s. - 70% u.r. Also isolate flare connections by creating an insulating sleeve of thickness equivalent to that of the pipeline, fixing it with a special tape.

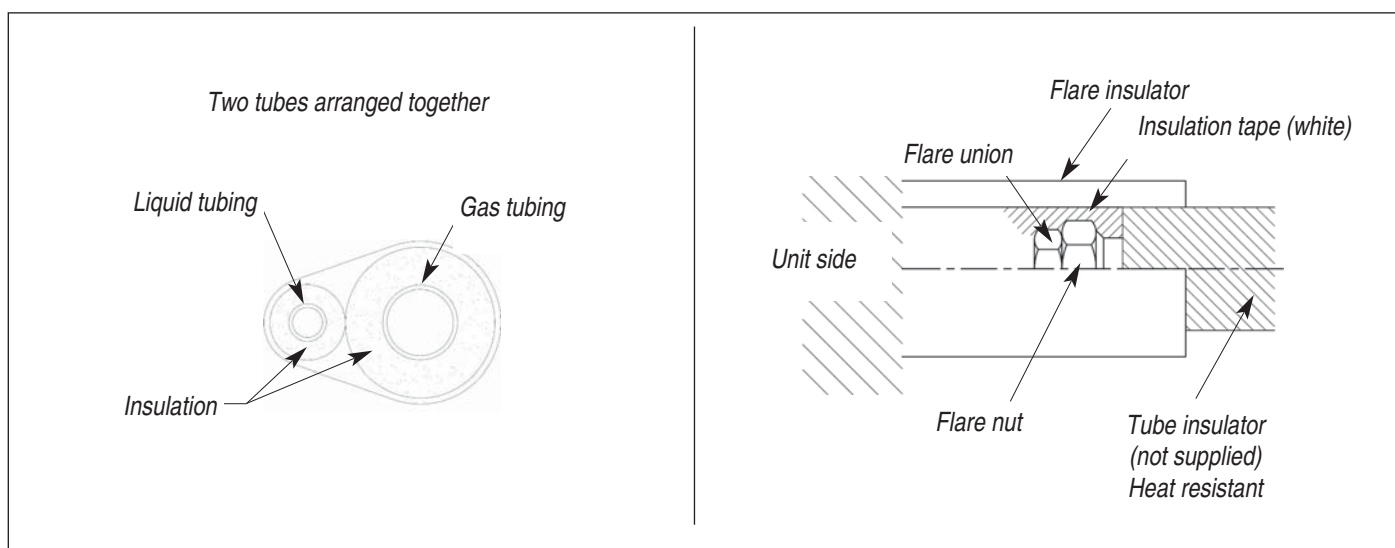


fig. 9



Before starting any operation, make sure that the main power supply line has been isolated.

- *The electric connections to the control board must be made by specialised staff according to the diagrams supplied.*
- *Make sure that the voltage and the frequency stated on the plate correspond with those of the electric connectionline.*
- *The electric connections to the control board must be made by specialised staff according to the diagrams supplied.*
- *Make sure that the voltage and the frequency stated on the plate correspond with those of the electric connection line.*

Make the connection using cables with suitable section for the power used and in compliance with the local regulations. Their dimension must be such to realise a voltage drop in the start-up phase, lower by 3% of the nominal value.

- *The use of adapters, multiple sockets and/or extensions is not allowed to power the heat recovery unit.*
- ***It is the installer's responsibility to assemble the unit as near as possible to the power supply isolator and the necessary to protect the electric parts.***
- *Connect the unit to an efficient earth socket, using the relevant screw inserted in the unit itself.*

8.1 ELECTRONIC CONTROL AND ADJUSTMENT OF THE UNIT



The unit is supplied with a built in PCB for ventilation management, that interfaces flexibly with the AHU kit. The thermoventilation board settings are factory setted, subject to agreements with the manufacturer technical department. They can be changed only with a service display (not supplied with the unit). The ventilation is switched on from the control panel of the AHU kit to the factory set speed.

Specific electrical wiring diagram are suplied with each unit, in function of the the AHU kit model.

The Manufacturer recommends to carefully read the Instruction Manual of the AHU kit.



8.2 WIRING DIAGRAM



**SPECIFIC ELECTRICAL WIRING DIAGRAM ARE SUPPLIED WITH EACH UNIT (fig.11).
THE MANUFACTURER RECOMMENDS TO CAREFULLY READ THE WIRING DIAGRAM.**

8.2.1 Electric box layout - MODULE DX

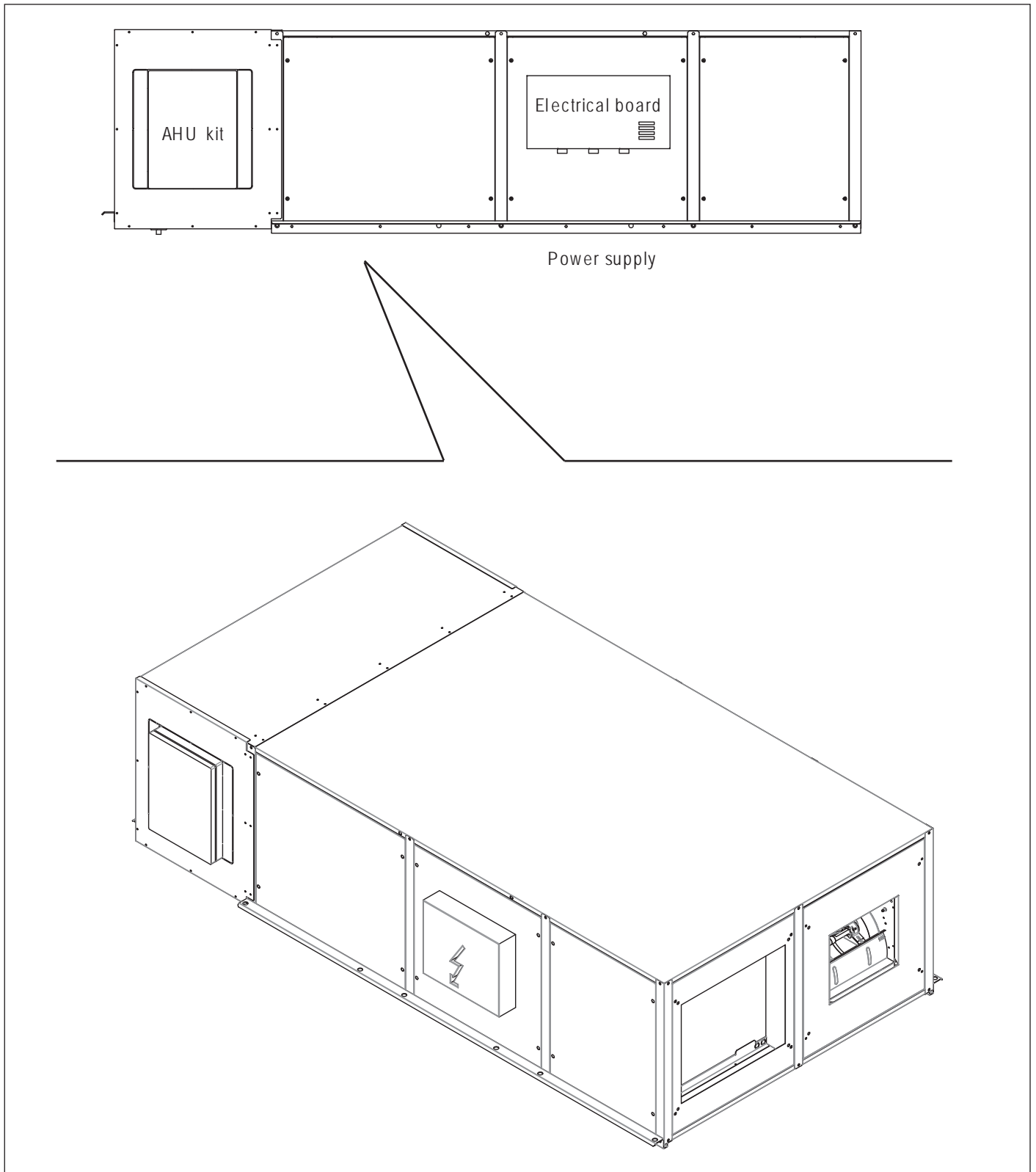


fig. 10



8.2.2 Electric layout

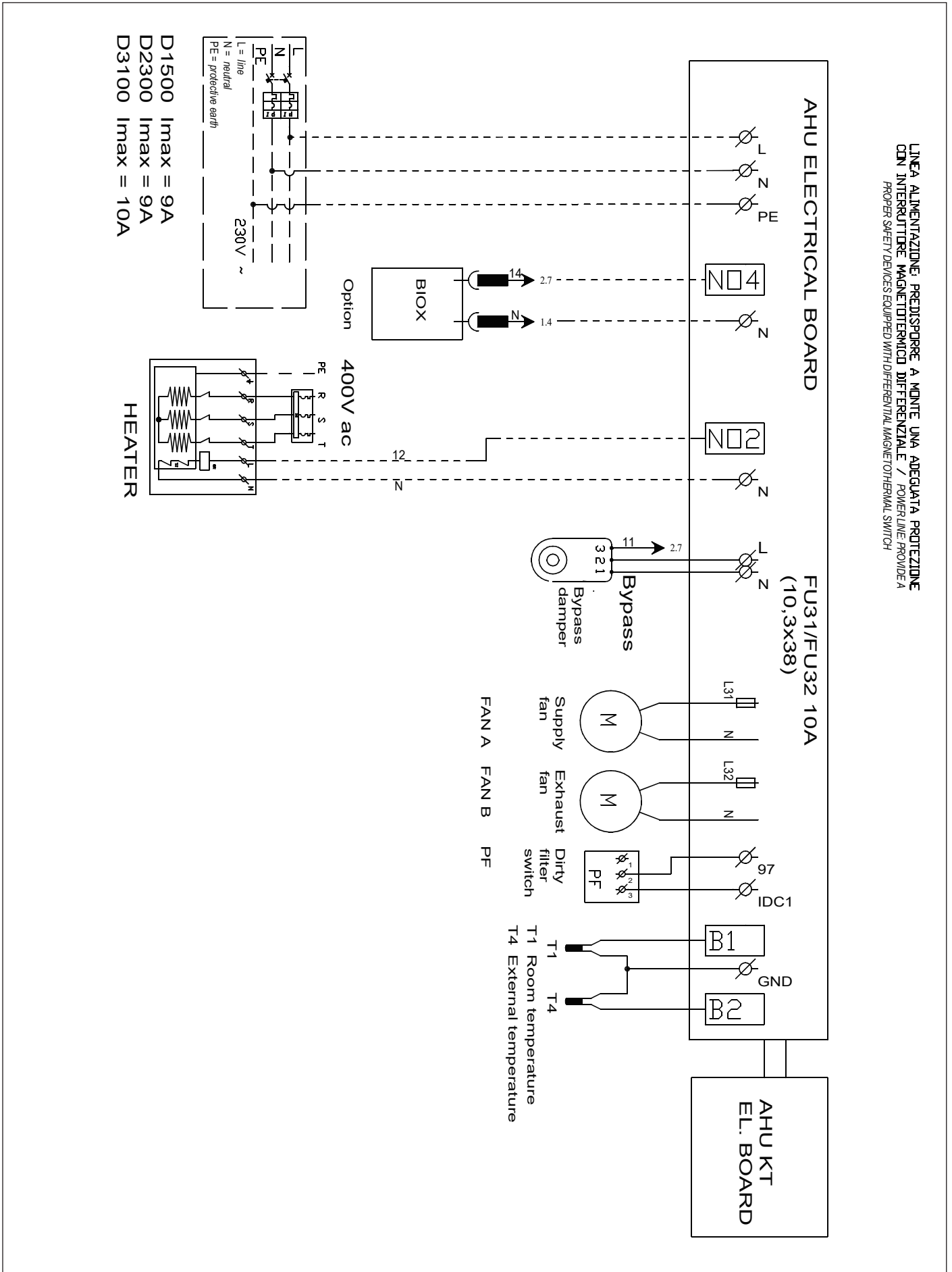


fig. 11



8.2.3 Additional electrical diagram

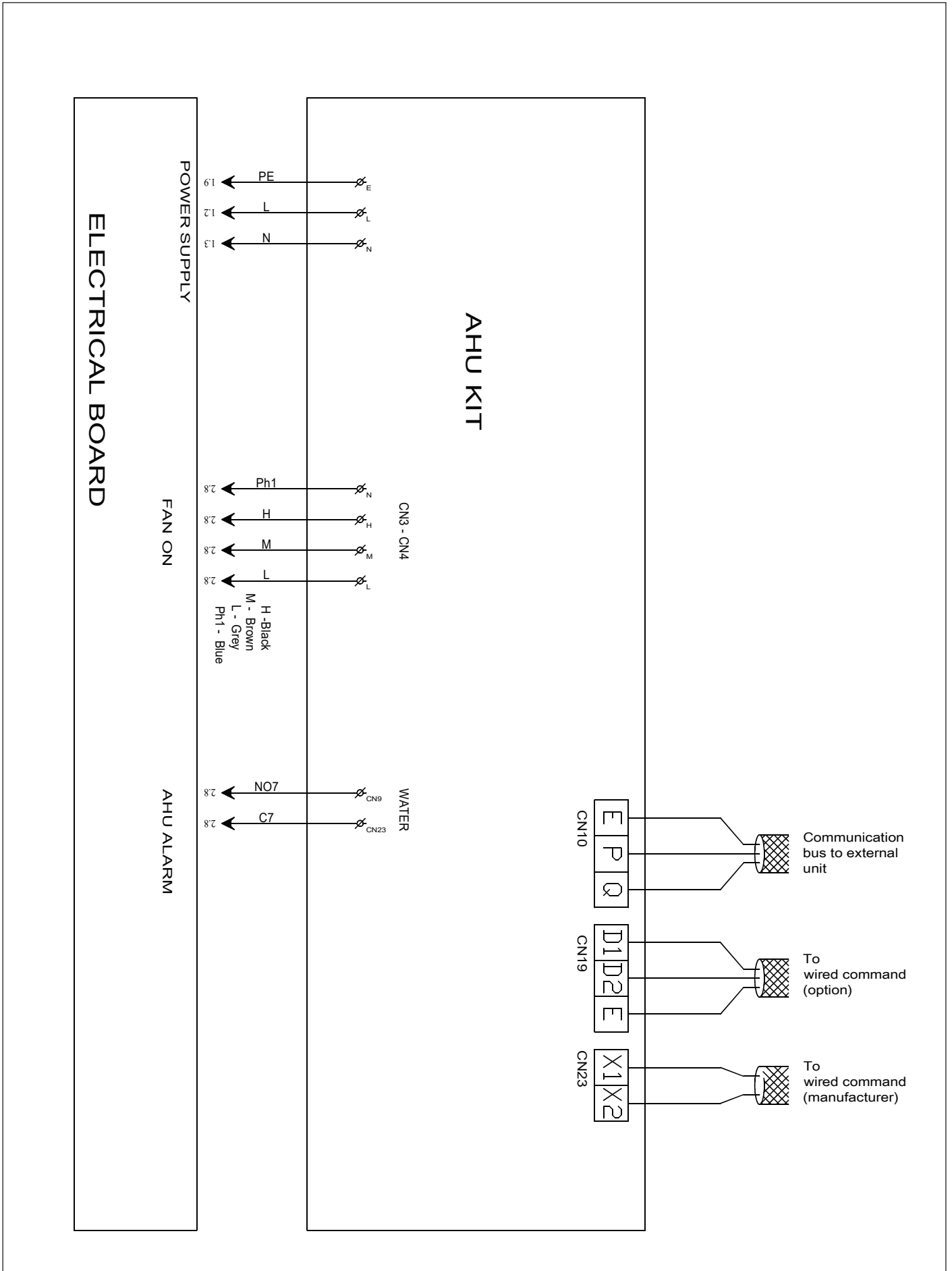


fig. 12



Negli accessori, sono presenti cinque sensori di temperatura (T1, TA, T2A, T2 e T2B) e cinque prolunghe, come illustrato nella Figura 13.

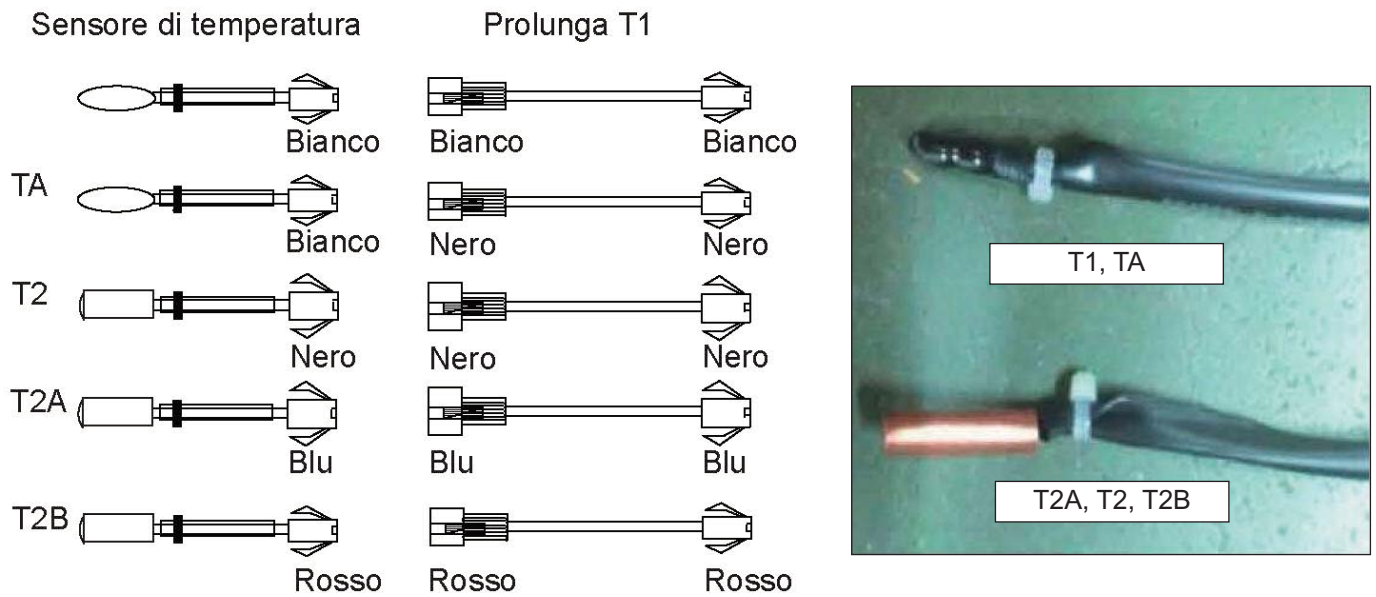


fig. 13

Posizione di montaggio dei sensori di temperatura:

- T1:** è un sensore di temperatura dell'aria in ingresso dell'AHU; deve essere installato all'ingresso dell'aria dell'AHU.
- T2A:** è un sensore di temperatura di ingresso dell'evaporatore; deve essere installato sul tubo di ingresso dell'evaporatore.
- T2:** è un sensore di temperatura intermedio dell'evaporatore dell'AHU; deve essere installato sul tubo intermedio dell'evaporatore.
- T2B:** è un sensore di uscita dell'evaporatore dell'AHU; deve essere installato sul tubo di uscita dell'evaporatore.
- TA:** è un sensore di temperatura dell'aria in uscita e quindi non deve essere installato se non è selezionato il comando da temperatura dell'aria in uscita.

Posizione di montaggio dei sensori di temperatura del tubo T2A, T2 e T2B (Fig 14).

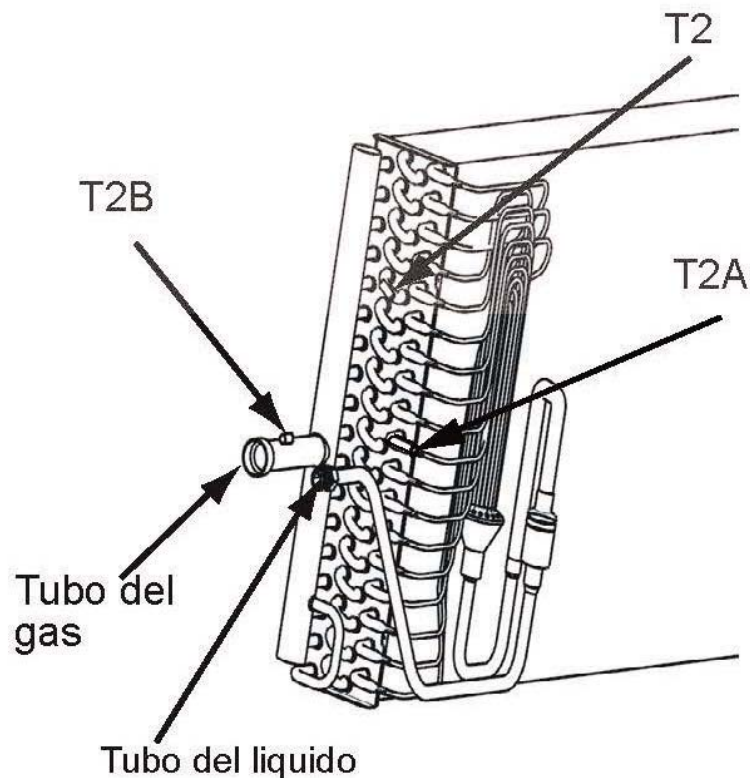


fig. 14



8.3 APPLICATION CONTROL

Refer to the specific manuals "AHU AHU Control box" and "Wired Controller" supplied with the unit; below are explained the main instructions.

Set the PCB code of the indoor unit electric control box by different usage. After setting, be sure to turn off the total power switch and then switch on.

The setting function can not be carried out if not to turn off the total power switch and then switch on (SW4-2, ENC1).

- Function specification:

SW4-2, ENC1 - Cooling capacity setting, set the cooling capacity of this machine (Table 1).

Setting of the UTA **KAHU-200.4** kit (also refer to the Clivet manual of the UTA kit supplied with the kit)

DipSW factory settings:

SW1: 0000 (leaving the differential for thermo-off in cooling by default at 0 ° C)

SW2: 0000

SW3: 0001 (compensation in heating 2 ° C, the only dipSW to actually move)

SW4: 0000

SW9: 000

SW10: 01 (identifies UTA kit size)

Capacity settings:

- KRE-1500DX1

(9.9 kW in cooling) -> 3.6HP -> **SW4-2 = 0, ENC1 = 8**

- KRE-2300DX1

(14.2 kW in cooling) -> 5HP -> **SW4-2 = 0, ENC1 = B**

- KRE-3100DX1

(19,3 kW in cooling) -> **6,5HP -> SW4-2 = 0, ENC1 = D**

Table 5-1 Capacities of SW4-2 and ENC1

SW4-2 ON	ENC1	Capacity (hp)	Capacity (KW)	
1234				
0	0	0,8 hp	2,2	KAHU-90.4
	1	1,0 hp	2,8	
	2	1,2 hp	3,6	
	3	1,7 hp	4,5	
	4	2,0 hp	5,6	
	5	2,5 hp	7,1	
	6	3,0 hp	8,0	KAHU-200.4
	7	3,2 hp	9,0	
	8	3,6 hp	10,0	
	9	4,0 hp	11,2	
	A	4,5 hp	12,0	
	B	5,0 hp	14,0	
	C	6,0 hp	16,0	
	D	6,5 hp	18,0	
1	E	7,0 hp	20,0	KAHU-360.4
	F	8,0 hp	22,4	
	0	10,0 hp	28,0	KAHU-560.4
	1	12,0 hp	33,5	
	2	14,0 hp	40,0	
	3	16,0 hp	45,0	
	4	20,0 hp	56,0	



8.4 SYSTEM ADDRESS AND NETWORK ADDRESS SETTING

- / ' After first powered on, please set the system address by remote controller or wired controller, the address range is 0-63, the indoor snit addresses of the same system can not be repeated.
- 0' Display as the table 2, when there are different ENC1, the address setting will be different (Fig.14).
Each independent control box needs to be set an address, this address is an actual address; when the capacity code ENC1 is selected to be E-F, this indoor unit independent control box will produce virtual address(es) with corresponding quantity based on the set actual address, and if an address has been an actual address or virtual address, then this address can not be the actual address or virtual address of other indoor unit in the same system; For example, if there are two independent control boxes in the same system, one of the capacity code is E, the setting actual address is 5, then according to the table 2 this control box will produce virtual address as 6, and then the actual address and the virtual address *of* the other independent control box can not be any one of 5, 6. The actual address and the virtual address should less than or equal to 63.
- 1' The indoor unit quantity detected by outdoor unit will be the sum of the actual address quantity and the virtual address quantity, e.g. when the capacity code of independent control box is E, the setting actual address is 5, then it will produce virtual address 6, and then the indoor unit quantity detected by outdoor unit will be 2.
- 2' The outdoor unit can not use auto addressing for to set the address for the indoor unit without address; only the indoor unit has address then can the outdoor unit to be set auto addressing;
- 3' When the independent control box system connects to the indoor snit centralized controller, the actual address and the virtual address will be displayed on the centralized controller, e.g. when the then the actual address 5 and virtual address 6, will be displayed on the centralized controller, that is to say, it equals to 2 indoor units, and the states of 2 indoor units will be kept in the same;
- 4' The network address is the same as the indoor unit address, no need to setting separately.

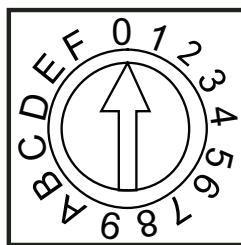


fig. 15

Table 5-2

SW4-2	ENC1	Corresponding Virtual Addresses					Qty of occupied addresses
0	0-D	No virtual address					1
0	E-F	Actual address +1	/	/	/	/	2
0	0-1	Actual address +1	/	/	/	/	2
0	2-4	Actual address +1	Actual address +2	Actual address +3	/	/	4



8.5 MAINBOARD CODE INDICATION LABEL

0 means DIP switch is dialled to “OFF” 1 means DIP switch is dialled to “ON”

1) Definitions of each bit of SW1:

<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-1 is 0: shutdown compensation temperature (cooling) is 0°C (factory default) SW1-1 is 1: shutdown compensation temperature (cooling) is 2°C (outlet air temperature control is invalid)</p>
<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-2 is 0: AHU control box provides three fan speeds (factory default) SW1-2 is 1: only one fan speed</p>
<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-3 and SW1-4 are 00: the number of slave AHU control boxes connected in parallel is 0 (factory default); valid for the master unit</p>
<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-3 and SW1-4 are 01: the number of slave AHU control boxes connected in parallel is 1</p>
<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-3 and SW1-4 are 10: the number of slave AHU control boxes connected in parallel is 2</p>
<p style="text-align: center;">ON 1234 Valid for the master unit only</p>	<p>SW1-3 and SW1-4 are 11: the number of slave AHU control boxes connected in parallel is 3</p>



2) Definitions of each bit of SW2:

<p>ON</p> <p>1234</p>	<p>SW2-1 is 0: automatic addressing (factory default) SW2-1 is 1: clearing AHU control box address</p>
<p>ON</p> <p>1234</p>	<p>SW2-2 is 0: no self-check (factory default) SW2-2 is 1: self-check</p>
<p>ON</p> <p>1234</p>	<p>SW2-3 and SW2-4 are 00: master AHU control box</p>
<p>ON</p> <p>1234</p>	<p>SW2-3 and SW2-4 are 01: slave AHU control box 1</p>
<p>ON</p> <p>1234</p>	<p>SW2-3 and SW2-4 are 10: slave AHU control box 2</p>
<p>ON</p> <p>1234</p>	<p>SW2-3 and SW2-4 are 11: slave AHU control box 3</p>



3) Definitions of each bit of SW3:




	Return Air Temperature Control (SW4-1 is 0)	Outlet Air Temperature Control (SW4-1 is 1)
 ON 1234 Valid for the master unit only	SW3-1 and SW3-2 are 00: anti-cold air temperature value in heating mode is 15°C (factory default)	SW3-1 and SW3-2 are 00: anti-cold air temperature value in heating mode is 14°C
 ON 1234 Valid for the master unit only	SW3-1 and SW3-2 are 01: anti-cold air temperature value in heating mode is 20°C	SW3-1 and SW3-2 are 01: anti-cold air temperature value in heating mode is 12°C
 ON 1234 Valid for the master unit only	SW3-1 and SW3-2 are 10: anti-cold air temperature value in heating mode is 24°C	SW3-1 and SW3-2 are 10: anti-cold air temperature value in heating mode is 16°C
 ON 1234 Valid for the master unit only	SW3-1 and SW3-2 are 11: anti-cold air temperature value in heating mode is 26°C	SW3-1 and SW3-2 are 11: anti-cold air temperature value in heating mode is 18°C
 ON 1234 Valid for the master unit only	SW3-3 and SW3-4 are 00: temperature compensation in heating mode is 6°C (factory default)	SW3-3 and SW3-4 are 00: Outlet air temperature control is invalid
 ON 1234 Valid for the master unit only	SW3-3 and SW3-4 are 01: temperature compensation in heating mode is 2°C	SW3-3 and SW3-4 are 01: Outlet air temperature control is invalid
 ON 1234 Valid for the master unit only	SW3-3 and SW3-4 are 10: temperature compensation in heating mode is 4°C	SW3-3 and SW3-4 are 10: Outlet air temperature control is invalid
 ON 1234 Valid for the master unit only	SW3-3 and SW3-4 are 11: temperature compensation in heating mode is 0°C(Follow Me function)	SW3-3 and SW3-4 are 11: No temperature compensation for outlet air temperature control by default

4) Definitions of each bit of SW4:





 ON 1234 Valid for the master unit only	SW4-1 is 0: return air temperature control (factory default) SW4-1 is 1: outlet air temperature control	 ON 1234 Valid for the master unit only	SW4-2 indicates high bit (ON indicates + 16)
 ON 1234 Valid for the master unit only	SW4-3 and SW4-4 are 00: factory controller mode (factory default)	 ON 1234 Valid for the master unit only	SW4-3 and SW4-4 are 01: capacity output mode of a third party controller
 ON 1234 Valid for the master unit only	SW4-3 and SW4-4 are 10: set temperature control mode of a third party controller	 ON 1234 Valid for the master unit only	SW4-3 and SW4-4 are 11: set temperature control mode of a third party controller (reserved)





5) Definitions of each bit of SW9:

 Valid for the master unit only	SW9-1 is 0: 2-digit digital display panel (factory default) SW9-2 is 1: 3-digit digital display panel
 Valid for the master unit only	SW9-2 is 0: One or more AHU control boxes are connected in parallel to one AHU; one coil is connected to multiple control boxes; (shielding faults from the slave unit's temperature sensors T1, T2, T2A, TA and T2B) (factory default) SW9-2 is 1: Multiple AHU control boxes are connected in parallel. In the event of multiple coils, one coil is connected to one control box; (shielding faults from the slave unit's temperature sensor T1,TA)
 Valid for the master unit only	SW9-3 is 0: no swing control (factory default) SW9-3 is 1: swing control

6) Definitions of each bit of SW10:

 12	00: KAHU-90.4 model
 12	01: KAHU-200.4 model
 12	10: KAHU-360.4 model
 12	11: KAHU-560.4 model

7) Definitions of J1:

 J1	Without jumper; no short circuit indicates a power failure memory function (factory default)
 J1	With jumper, short circuit indicates no power failure memory function



8.6 ERROR CODES AND QUERY

Priority	Definition	Displayed content
1	Rcfrigerant leak error	A1
2	Emergency shut down	A0
3	No address is set	FE (only displayed on the display board)
4	IDU address code repeated→ F7+repeated address, displayed alternately every 1s	F7+repeated address
5	Mode conflict error	E0
6	Communication error between IDU and ODU	E1
7	T1 sensor error	E2
8	T2 sensor error	E3
9	T2B sensor error	E4
10	T2A sensor error	E5
11	IDU fan error	E6 (reserved)
12	EEPROM error	E7
13	TA sensor error	E8 (the error is not reported when return air temperature control is applied)
14	Communication error with the wired controler, or no address is setted	E9 (only for wired controler)
15	Error of electronic expansion valve coils	Eb (restore after power on again)
17	ODU error	Ed
18	Water level alarm error	EE
19	Low temperature alarm	H2
20	High temperature alarm	H3
21	The number of detected AHU control boxes and the number of dialing units are inconsistent, or Master-slave communication is not available	H6
22	Capacity DIP switch of the AHU control box is inconsistent with model	H8 (restore after power on again)
23	(ENC2,ENC3,ENC4)incorrect DIP switch for 0-10V fan signal.The DIP switch value ensures ENC2< ENC3< ENC4.	H9 (restore after power on again)
24	Pressure sensor error	P1 (reserved)
25	MS error mode	F8
26	MS self-check error	U4 (restore after power on again)
27	Slave unit error	Hb



8.7 WIRED REMOTE CONTROLLER OUTLOOK (FIG. 16)

WIRED REMOTE CONTROLLER OUTLOOK

KCT-03 SRPS (A)

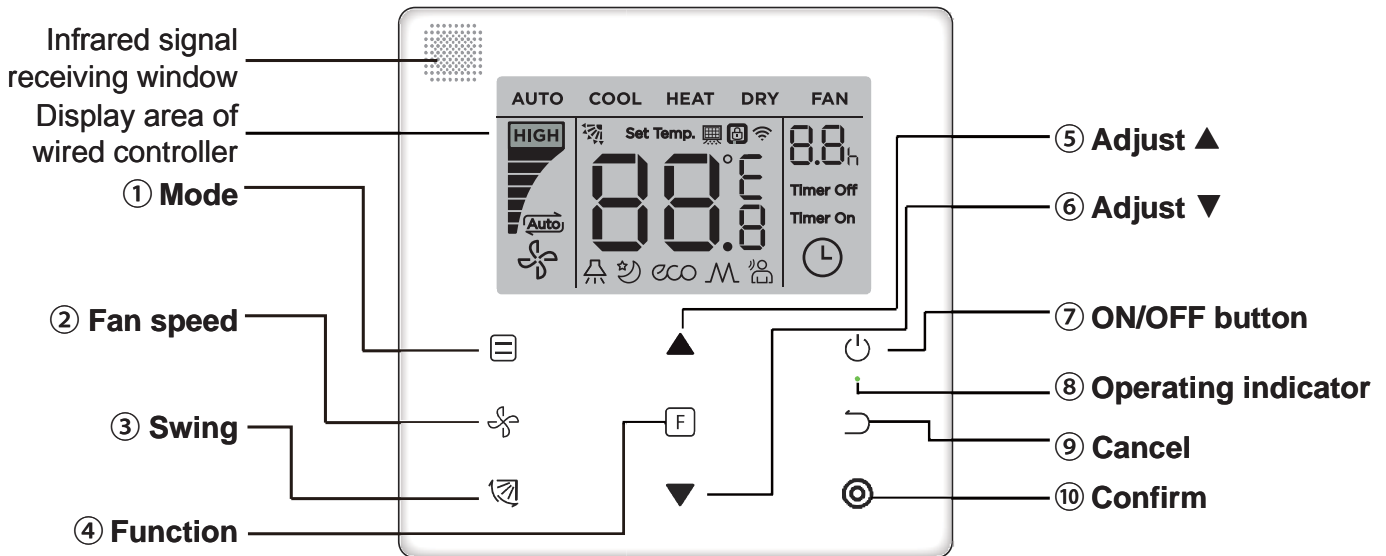


fig. 16a

Button	Functions
1. Mo	To set the operating mode: Auto → Cool → Heat → Dry → Fan
2. Fan spe	To set the fan speed.
3. Swi	To set the swing function.
4. Function	To switch to functions that can be set in the current mode.
5. ▲ Adjust upwards	To adjust temperature setting and timing (for timer) upwards.
6. ▼ Adjust downwar	To adjust temperature setting and timing (for timer) downwards.
7. ON/OFF	To turn on/off the unit
8. Operating indicator	To indicate the ON/OFF state of the indoor unit.
9. Canc	To turn off the timer/IDU LED display/silent/ECO/auxiliary heater function ¹ ; to cancel the timer.
10. Confirm	To turn on the timer/IDU LED display/silent/ECO/auxiliary heater function ¹ ; to confirm the timer.



3. Icons in the Display

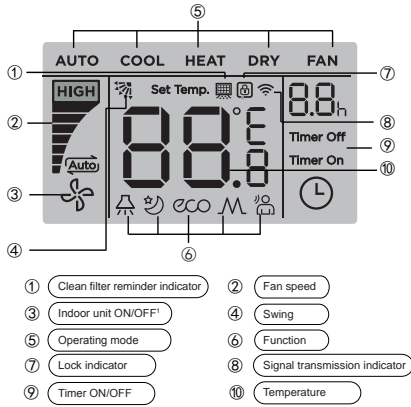


Figure 5.1

Note1: When the indoor unit is on, the icon " " spins; when the indoor unit is off, the icon " " does not spin.

4. Operation Guide

4-1 ON/OFF Setting

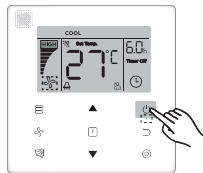


Figure 6.1

- 1) Press (ON/OFF) button, and the Operating Indicator " " on the wired controller will light up, while the ON/OFF icon " " of the indoor unit on the display will spin to indicate that the indoor unit has started running. (see Figure 6.1)
- 2) Press (ON/OFF) button again, and the Operating Indicator " " on the wired controller will turn off, and the display icon " " will stop spinning as the indoor unit stops running.

4-2 Mode Setting

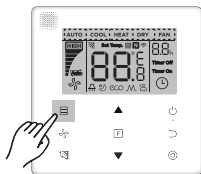


Figure 6.2

Press (Mode) button. Each time press this button, the operating mode will change in turn as shown in Figure 6.3.

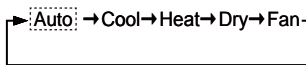


Figure 6.3

In the "Auto", "Cool", "Dry", or "Heat" mode, press ▲ and ▼ buttons to adjust to the setting temperature. (see Figure 6.4)

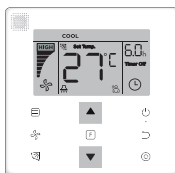


Figure 6.4

- Note:**
- The "Auto" mode is not available for all air conditioner models.
 - Temperature setting is not available in the "Fan" mode.
 - "Dry" mode and "Auto" mode is not available for FAPU .

4-3 Fan Speed Setting

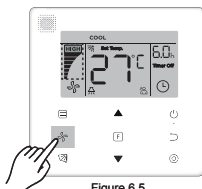


Figure 6.5

In the "Cool", "Heat" or "Fan" mode, press (Fan speed) button to set the operating fan speed (see Figure 6.5).

If the wired controller is configured with seven fan speeds, press (Fan speed) button to set the fan speed in turn as shown in Figure 6.6.

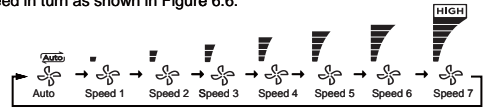


Figure 6.6

If the wired controller is configured with three fan speeds, press (Fan speed) button to set the fan speed in turn as shown in Figure 6.7.

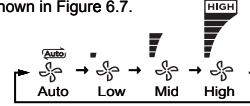


Figure 6.7

- Note:**
- In the "Auto" and "Dry" modes, the fan speed is set to "Auto", and will not change even press (Fan speed) button.
 - The default fan speed is 7 fan speeds, please refer to "Field Setting" to adjust the default fan speed.

4-4 Swing Setting

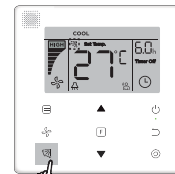


Figure 6.8

16

NOTE: For other functions and details, see the installation and use manual of the KCT-03 SRPS (A) wired controller supplied.



8.8 BIOX-DX SYSTEM

BIOX-DX power supply is by a 3-pole connector; to open the box, this special connector must be removed in advance and this switches off automatically and safely the system.

In these cases, the purifying system is ON only if unit is ON (fans running).

WARNING

Always refer to the specific wiring diagrams in the documentation accompanying the machine.



WARNING

DASHED LINES SHOW THE CONNECTIONS TO BE CARRIED OUT BY THE INSTALLER. ALL THE LINES MUST BE PROTECTED AT THE ORIGIN BY THE INSTALLER.



IT IS STRICTLY PROHIBITED TO INSERT THE 3-POLE CONNECTOR IF THE BOX COVER IS REMOVED

GENERAL NOTE: it is recommended that you always and carefully examine the technical documentation and the instructions that concern the accessories, with the purpose of assuring their safe and effective use.

9 - CONTROLS BEFORE START-UP



Check the following before starting the unit:

- Anchorage of the unit to the ceiling or the wall.
- Connection of the aeraulic ducts.
- Connection and continuity of the earth cable.
- Tightness of all electric clamps.



10.1 WARNINGS

BEFORE UNDERTAKING ANY MAINTENANCE OPERATION, MAKE SURE THAT THE MACHINE IS NOT AND CANNOT BE CASUALLY OR ACCIDENTALLY BE POWERED ELECTRICALLY. IT IS THEREFORE NECESSARY TO REMOVE THE ELECTRIC POWER SUPPLY EVERY TIME MAINTENANCE IS PERFORMED.

- The customer must carry out maintenance on the heat recovery unit.
- Only authorised, previously trained and qualified staff can perform the maintenance operations.
- If the unit must be disassembled, protect the hands using work gloves.

10.2 MONTHLY CHECKS

10.2.1 Check the range filtering section (fig. 17)

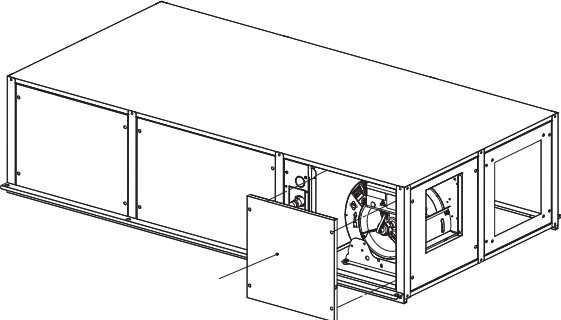
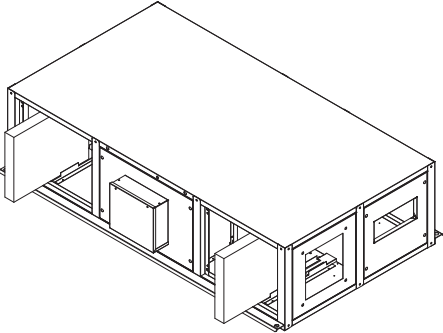
<p>Open the proper side panel (removing the screws as shown in the example on the figure). If necessary, help himself with suction cups with a large surface and with handle, so as not to damage the panel paint; avoid to use metal tools.</p>	
<p>Remove the filter as shown on the figure. After cleaning repeat the operations in inverse order. For the cleaning use a vacuum cleaner or wash with a common detergent in lukewarm water, leaving to dry out completely. Remember always to reassemble the filters before starting up the unit</p>	

fig. 17



10.3 HALF-YEARLY CONTROLS

Periodical check on BIOX-DX purifying system

It is periodically necessary to check the condenser cleaning. The frequency of the verification must be at least six months, but always carried out when there is a decrease in the efficiency of the equipment. To carry out the verification and cleaning operations scrupulously follow the following instructions.

- Switch off the equipment by taking out the plug from the electrical socket.
- Remove the 4 fixation screws of the cover of the box (fig. 18).
- Remove the cover perpendicular to the plane of the box until the quartz capacitors are out of the box.
- Place all on a flatbed.
- Gently unscrew the capacitor (C fig. 19).
- Remove the external net (R fig. 19) of the tube: if the operation results to be difficult, rotate slightly the net around the quartz capacitor.
- Clean the capacitor glass with a wet cloth.



WARNING

Do not use cleansing agents, soaps or similar detergents

- Clean the net under a jet of hot water and then dry it accurately with a dry cloth.
- Check if the glass is damaged; in this case, replace it.
- As soon as you notice a whitish layer on the metallic grid inside the tube, it means that the tube has to be replaced. Capacitor tube usually happens every 18-24 months.
- Put again the metallic net on the tube by overlapping it to the internal grid.



WARNING: keep absolutely a minimum distance of 6-7 mm from the basis of the tube.

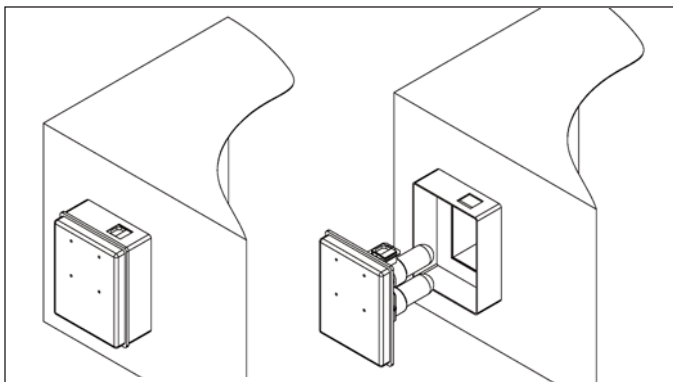


fig. 18

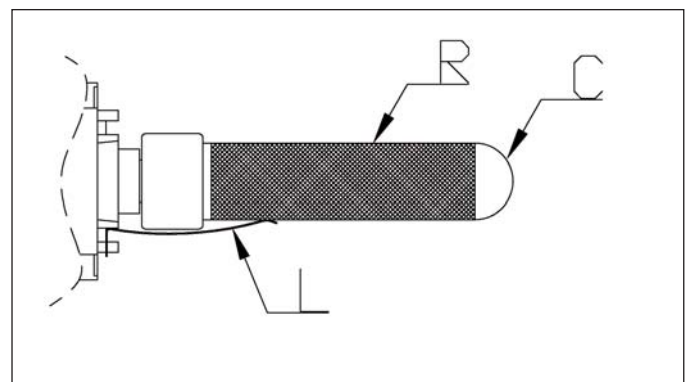


fig. 19

- Control that the small flap (L fig. 19) touches the metallic net and presses on the quartz glass of the capacitor (C fig. 19).
- Clean externally the equipment.
- Screw gently the quartz capacitor on its site.
- Insert again the capacitors in the hole of the box by putting the cover near until it fully adheres to the site of the box.
- Fasten the fixation screws of the cover of the box.
- Reconnect to the electrical socket.
- Verify the working of the equipment. Now a light noise has to be heard.



10.4 YEARLY CHECKS

- Check the heat recovery extracting it after disassembling the bottom panel (see fig. 20). Remove with the vacuum cleaner or compressed air the dust that can be present inside the heat exchanger and verify that there are no foreign object.

WARNING: you must not wash the heat exchangers. If they are excessively dirty or damaged, they have to be replaced.

- Check all electric appliances and particularly the tightness of the electric connections.
- Check the tightness of all bolts, nuts, flanges and water connections that vibrations may have loosened.

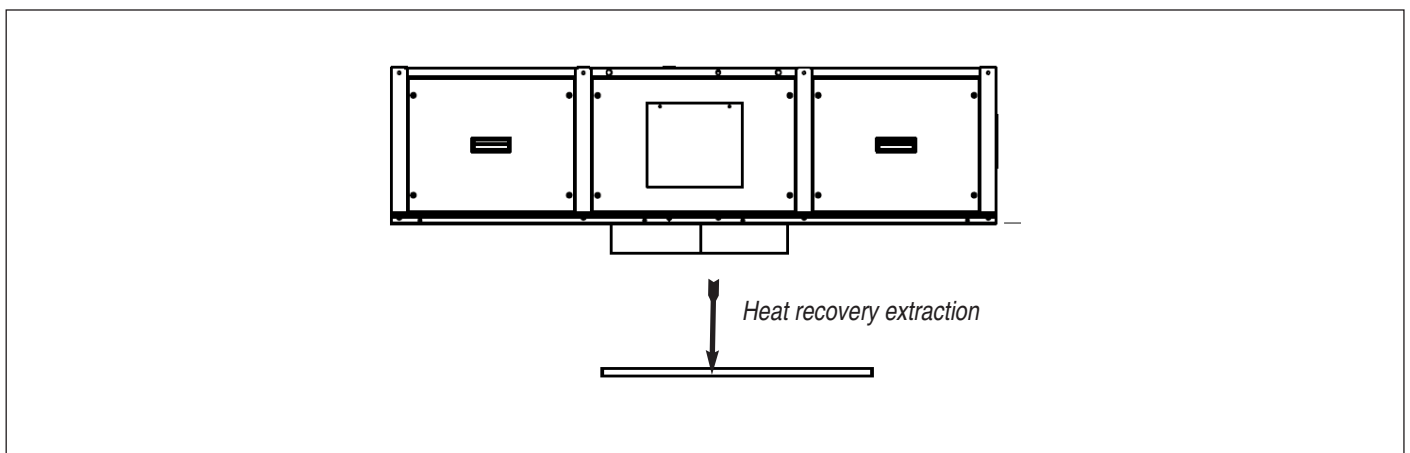


fig. 20



Troubleshooting guide		
Failure	Possible reason	What to do
1) Airflow rate is lower than duty one.	Air filter(s) dirty.	Clean or replace air filter(s).
	Plant air resistance higher than expected.	Check air plant project.
	Adjusting dampers closed.	Open the dampers and balance the plant.
	Fans speed setpoint too low.	Increase fan speed by AHU Kit control panel. Increase fan speed set point of VSD option, if present.
2) Airflow rate is higher than duty one.	Internal component missing (filter ?).	Install the missing component (while unit is off)
	Access panels open.	Close the access panels.
	Plant air resistance lower than expected.	Balance the air plant by dampers. Check plant project. Reduce fan speed setpoint.
3) Heating/cooling capacity is lower than expected	Not enough air flow rate.	(See failure 1).
	Valve control is not right.	Check connection between actuator and controller/ change temperature setpoint by remote control panel.
4) Water condensate not discharged.	Syphon wrong or missing.	Install well-sized syphon.
5) The fans do not work.	The power supply is not inserted.	Check the power supply electric unit and the electric line upstream of the plant itself (by the User). Check and if necessary restore the electrical connections by qualified personnel.
	The thermostat switches are not in the exact functioning position.	Reposition the switches correctly and check their status.
	There are foreign bodies that block the rotors.	Remove the foreign bodies from the impellers, and keep them clean, check that there are no impediments, check their integrity.
	Loosened electric connections.	Check presence of 0-10 V control signal (EC motor).
6) Motor out of absorption.	Static pressure at that requested and therefore excessive flow rate.	It is possible to intervene by increasing the load using dampers and adjusters.
	Rotation speed too fast.	Check plant project. Reduce fan speed setpoint.
7) Noise.	Excessive flow rate.	(See failure 2).
	Wear or cracks in the bearings.	Contact the technical assistance service.
	Presence of foreign material in the auger.	Remove the foreign bodies from the impellers, and keep them clean, check that there are no impediments, check their integrity. Contact the technical assistance service.
8) Strong vibrations.	Rotor unbalanced due to wear or deposits of dust.	Contact the technical assistance service.
	The rotor rubs against the auger due to deformations.	Contact the technical assistance service.
	Obstructions in the ducts.	Open the unit, check and clean the ducts, check their tightness.



If the breakdown cannot be easily solved, disconnect the appliance from the electric power supply and contact the after-sales assistance or the nearest authorised dealer, stating the identification data of the unit stated the relative plate

It's recommended to disconnect BIOX-DX® purifying system from power line and to contact a service specialist in any of the following event:

- water or generic liquid has been spilled on it
- the power supply cable is damaged or deteriorated
- the power supply plug is damaged or deteriorated
- when failure is hold despite all connection instructions were strictly followed.

12 - DISPOSAL



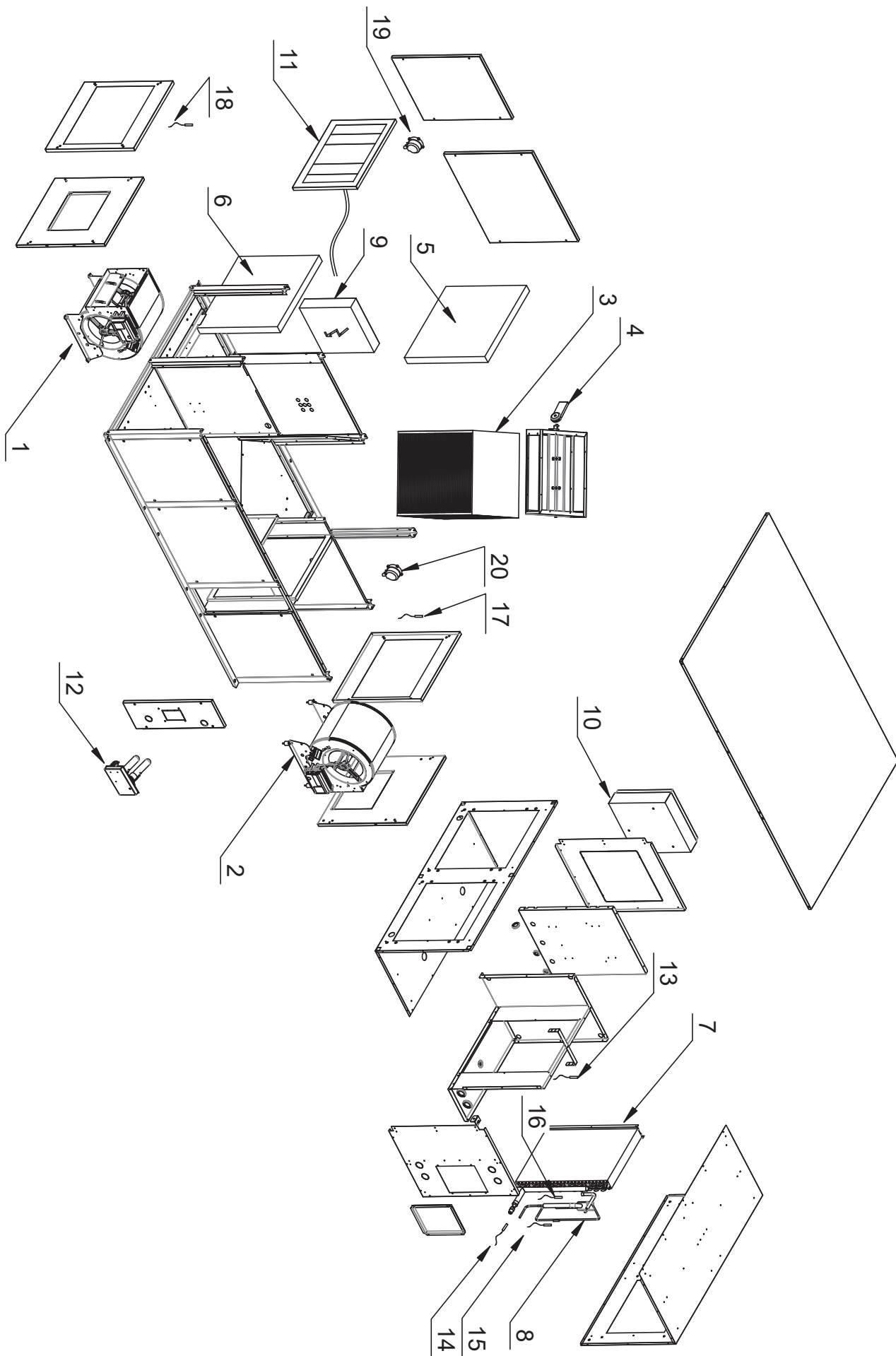
This symbol indicates that this product must not be disposed of as mixed urban waste and that it should be collected separately, according to local laws and regulations.

Contact the local authorities for information on disposal options; alternatively, you can request a free collection from the manufacturer. Separate collection and recycling of the product at the time of disposal helps to conserve natural resources and protect human health and the environment.

The materials making up the heat recovery units are:

- Painted sheet steel
- Galvanised sheet steel
- Aluminium
- Copper
- Polyurethane
- Polyethylene
- Plastic
- Stainless steel
- Quartz glass







Spare parts				
Model	No.	Parts name	Code	Qty
KRE-1500DX1	1	Exhaust EC fan with driver	VTDDM0907ECP0400	1
	2	Supply EC fan with driver	VTDDM0907ECP0400	1
	3	Plate heat exchanger	PR500E5300732000	1
	4	By-pass damper actuator	CT3S0000CM230AT0	1
	5	ePM ₁₀ 55% Return air filter	CF0M505706200250	1
	6	ePM ₁ 55% Fresh air filter	CF0M705706200480	1
	7	DX coil exchanger	BTAEDA0400F04NO0	1
	8	Electronic expansion valve	(AHU-Kit)	1
	9	Main electrical board	QE100CFDX5000M0	1
	10	AHU-kit control board	CT0AHUKZ01B00000	1
	11	Electric pre-heater PRE-DX option	BE4000A0000006	1
	12	Purifying system BIOX-DX option	AC00CFR1BX2C1750	1
	13	DX coil supply air temperature probe	(AHU-Kit)	1
	14	DX coil gas temperature probe	(AHU-Kit)	1
	15	DX coil liquid temperature probe	(AHU-Kit)	1
	16	Refrigerant middle temperature probe	(AHU-Kit)	1
	17	Return air temperature probe	ME400NTC015WP001	1
	18	Fresh air temperature probe	ME400NTC030WP001	1
	19	Fresh air filter pressure switch	CT0000000000PF	1
	20	Supply air flow pressure switch	CT0000000000PF	1
KRE-2300DX1	1	Exhaust EC fan with driver	VTDDM1010ECP0800	1
	2	Supply EC fan with driver	VTDDM1010ECP0800	1
	3	Plate heat exchanger	PR500E5300732000	1
	4	By-pass damper actuator	CT3S0000CM230AT0	1
	5	ePM ₁₀ 55% Return air filter	CF0M505706200250	1
	6	ePM ₁ 55% Fresh air filter	CF0M705706200480	1
	7	DX coil exchanger	BTAEDC0450F05NO0	1
	8	Electronic expansion valve	(AHU-Kit)	1
	9	Main electrical board	QE100CFDX5000M0	1
	10	AHU-kit control board	CT0AHUKZ01B00000	1
	11	Electric pre-heater PRE-DX option	BE4000A0000006	1
	12	Purifying system BIOX-DX option	AC00CFR1BX2C2200	1
	13	DX coil supply air temperature probe	(AHU-Kit)	1
	14	DX coil gas temperature probe	(AHU-Kit)	1
	15	DX coil liquid temperature probe	(AHU-Kit)	1
	16	Refrigerant middle temperature probe	(AHU-Kit)	1
	17	Return air temperature probe	ME400NTC015WP001	1
	18	Fresh air temperature probe	ME400NTC030WP001	1
	19	Fresh air filter pressure switch	CT0000000000PF	1
	20	Supply air flow pressure switch	CT0000000000PF	1
KRE-3100DX1	1	Exhaust EC fan with driver	VTDDM1010ECP0800	1
	2	Supply EC fan with driver	VTDDM1010ECP0800	1
	3	Plate heat exchanger	PR600E5003454000	1
	4	By-pass damper actuator	CT3S0000CM230AT0	1
	5	ePM ₁₀ 55% Return air filter	CF0M505706700250	1
	6	ePM ₁ 55% Fresh air filter	CF0M705706700480	1
	7	DX coil exchanger	BTAEDE0550F06NO0	1
	8	Electronic expansion valve	(AHU-Kit)	1
	9	Main electrical board	QE100CFDX5000M0	1
	10	AHU-kit control board	CT0AHUKZ01B00000	1
	11	Electric pre-heater PRE-DX option	BE4000A0000006	2
	12	Purifying system BIOX-DX option	AC00CFR1BX2C2200	1
	13	DX coil supply air temperature probe	(AHU-Kit)	1
	14	DX coil gas temperature probe	(AHU-Kit)	1
	15	DX coil liquid temperature probe	(AHU-Kit)	1
	16	Refrigerant middle temperature probe	(AHU-Kit)	1
	17	Return air temperature probe	ME400NTC015WP001	1
	18	Fresh air temperature probe	ME400NTC030WP001	1
	19	Fresh air filter pressure switch	CT0000000000PF	1
	20	Supply air flow pressure switch	CT0000000000PF	1



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