HEAT RECOVERY UNITS WITH HIGH EFFICIENCY AREX+

CE 19

USER AND INSTALLER MANUAL

READ THIS MANUAL CAREFULLY BEFORE OPERATING THE UNIT

SUMMARY

1 FOREWORD

The user and maintenance manual should be used as follows:
- each operator and personnel involved in the use and maintenance of the unit must read this manual in full and with the utmost care and respect what is stated;
- the employer must ensure that the operator meets the requirements for the operation of the unit and has carefully read the manual; the employer must also inform the operator thoroughly of the accident risks and in particular of the risks arising from noise, personal protective equipment and General Accident rules laid down by international laws or standards and of the country of destination of the unit;
- the manual must always be available to the user, the managers, the persons in charge of the transport, installation, use, maintenance, repair and final dismantling;
- the manual, kept in areas protected from moisture and heat, is an integral part of the unit for its entire duration, and must be delivered to each subsequent user or owner of the unit;

Pay close attention to the following symbols. Their function is to highlight particular information such as:

In relation to serious dangerous situations that may occur with the use of the unit to ensure the safety of persons.

In reference to dangerous situations that may occur with the use of the unit to avoid damage to things and the unit itself.

With reference to additions or suggestions for the correct use of the unit.

The manufacturer shall have the right to modify the production and its manuals, without the obligation to update previous versions, except in special cases.
This manual reflects the state of the art at the time of sale of the unit and cannot be considered inadequate only because it has subsequently updated on the basis of new technologies.

1.1 LIABILITY

The unit is guaranteed according to the contractual agreements entered into at the sale.

The manufacturer is deemed exempt from all liability and obligation, and the form of warranty provided by the sales contract for any accident to persons or things that may occur due to:

- failure to comply with the instructions in this manual with regard to the operation, use, maintenance and events in any case unrelated to the normal and correct use of the unit
- modifications made to the unit and safety devices without prior written authorization from the manufacturer;
- repair attempts carried out on their own or by unauthorised technicians;
- no regular and constant maintenance or use of non-original spare parts.

In any case, if the user attributed the accident to a defect of the unit, he must prove that the damage occurred was a main and direct consequence of such "defect".

1.2 SERVICE STANDARDS

The service standards described in this manual are an integral part of the delivery of the unit.

These rules are also intended for the operator already specifically instructed to operate this type of unit and contain all the information necessary and essential for the safety of operation and optimal use of the unit.

Carefully read and scrupulously adhere to the following tips:

- **the first start-up must be carried out exclusively by qualified personnel authorised by the manufacturer;**
- at the time of installation or when action is required on the unit, it is necessary to adhere strictly to the rules contained in this manual, observe the indications on board the unit and in any case apply all appropriate precautions;
- possible accidents to persons and things can be avoided by following these technical instructions compiled with reference to the Machinery Directive 2006/42 / EC and subsequent additions. In any case always comply with national safety standards;
- do not remove or deteriorate protections, labels and writings, especially those required by law and, if no longer legible, replace them.

The Machinery Directive 2006/42 / EC gives the following definitions:

HAZARDOUS AREA: *any area within and / or in the vicinity of a machine where the presence of an exposed person constitutes a risk to the safety and health of the machine.*

EXPOSED PERSON: *any person who is wholly or partly in a hazardous area.*

OPERATOR: *the person (s) responsible for installing, operating, adjusting, servicing, cleaning, repairing and transporting the machine.*

All operators must comply with international and country of destination accident regulations in order to avoid possible accidents.

The European community has adopted directives on the safety and health of workers, including directives 89/391/EEC, 89/686/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 86/188/EEC, 92/58/EEC and 92/57/EEC which each employer is obliged to comply with and to enforce.

The units have been designed and built according to the current state of the art and the current rules of the technique. The laws, provisions, prescriptions, ordinances, directives in force for such machines have been observed.
The materials used and the equipment parts, as well as the production processes, quality assurance and Control meet the highest demands of safety and reliability.
By using them for the purposes specified in this user manual, by handling them with due diligence and by performing accurate maintenance and revisions to the art, continuous performance and functionality and durability of the units can be maintained.

1.3 OPERATIONS AND MAINTENANCE

The user manual cannot replace an adequate technical expertise. For some particularly demanding maintenance operations, this manual is a reminder of the main activities to be performed by operators with specific training acquired.

Read the following tips carefully:

- Constant and accurate preventive maintenance always guarantees the high operating safety of the unit. Never postpone necessary repairs and have them carried out only and exclusively by specialized personnel, using only original spare parts;
- Operators ' workplaces must be kept clean, tidy and free of objects that may restrict free movement.
- Operators must avoid clumsy operations, in uncomfortable positions that can compromise their balance.
- The workplace must be adequately illuminated for the intended operations. Insufficient or excessive lighting may involve risks.
- Any intervention on the unit must be carried out by qualified personnel;
- before carrying out any operation or maintenance on the unit, make sure that you have removed the power supply;
- Make sure that the safety devices are working properly and there is no doubt about their operation; otherwise do not start the unit under any circumstances;
- Use only tools prescribed by the manufacturer of the unit. In order to avoid personal injury, do not use worn or damaged, low-quality or improvised tools;

- after cleaning the unit, the operator must check that there are no worn or damaged parts or not securely fixed, otherwise ask the maintenance technician for help;

- the use of flammable fluids in cleaning operations is prohibited.

For cleaning the unit do not use diesel, petroleum or solvents as the former leave an oily patina that promotes the adhesion of dust, while the solvents (even if weak) damage the paint and thus promote the formation of rust. Do not use water or steam jets on sensors, connectors or any electrical part.

- periodic cleaning of filters reduces energy consumption and keeps the ventilation system efficient.

1.4 INTENDED USE

The Arex + series units, with high performance, are designed to ventilate small residential or commercial environments, as well as to save energy by recovering the heat contained in the exhaust air.
The machines are a component of the system and are not able to operate independently: they need ducts for air intake and distribution.

AREX + recuperators are built for ceiling or ceiling installation.
Their use is recommended within the operating limits specified in this manual.

Place the unit in environments where there is no danger of explosion, corrosion, fire and where there are no vibrations and electromagnetic fields. Do not operate differently than indicated and do not neglect operations necessary for safety.

1.5 GENERAL SAFETY RULES

WEAR PROTECTIVE CLOTHING

Each operator must use personal protective equipment such as gloves, head protection helmet, safety glasses, safety shoes, noise protection headphones.

FIRE EXTINGUISHER AND FIRST AID

Place a first aid box and a fire extinguisher near the unit.

WARNINGS FOR CHECKS AND MAINTENANCE

Apply a sign with the words: "under maintenance" on all sides of the unit.
Carefully check the unit according to the list of operations in this manual.

SAFETY PLATES

General alarm electrical voltage moving organs burns cutting wounds

2 PRODUCT DESCRIPTION

2.1 DESCRIPTION

The Arex + series high efficiency heat recuperators have been designed to ventilate small residential or commercial environments, where you want to expel the exhauset air, without wasting the heat contained in it.
The installation of IDEAL CLIMA heat recovery units with very high efficiency, allows to easily achieve energy consumption appropriate to Class A, with proportional increase in the value of the property.
The units of the AREX+ series equip centrifugal motors with backwards blades with electronic switching, which guarantee high performance with extremely low consumption and noise.
The entire range includes counter-current heat exchangers, made of synthetic materials, which guarantee efficiencies of more than 90%. All the materials used, electrical and aeraulic, are of absolute quality and guarantee maximum efficiency and reliability, with minimum noise. Abundant layers of sound-absorbing material are used, inside, to make its operation particularly quiet.

2.2 MODEL

The Arex + series with **automatic free cooling** consists of:

- n ° 1 **horizontal** model from 110 mc / h to 100 Pa, for apartments of about 80 square meters.
- n ° 1 **horizontal** model from 160 mc / h to 100 Pa, for apartments of about 120 square meters.
- n ° 1 **horizontal** model from 250 mc / h to 100 Pa, for apartments of about 190 square meters

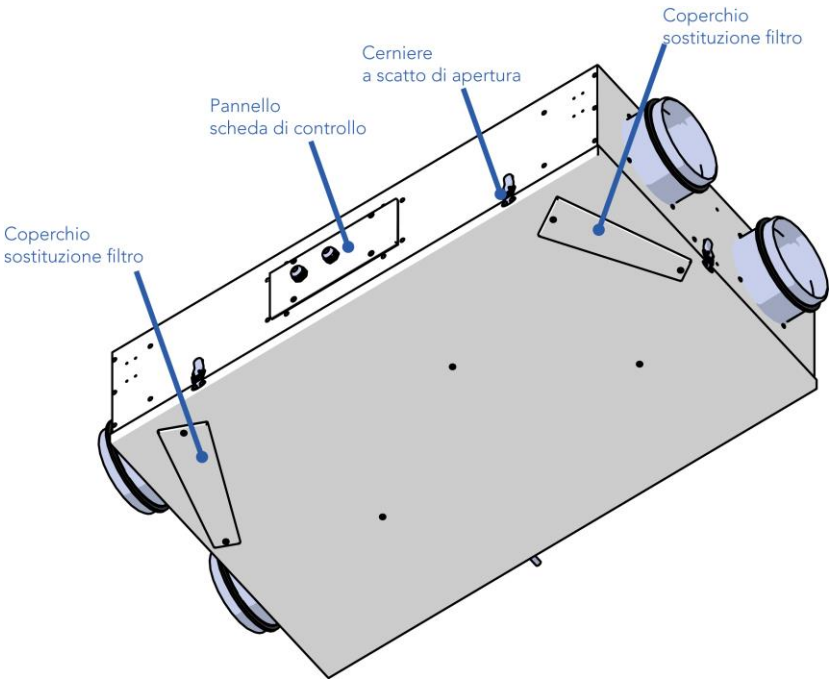
2.3 STRUCTURE AND OPERATION

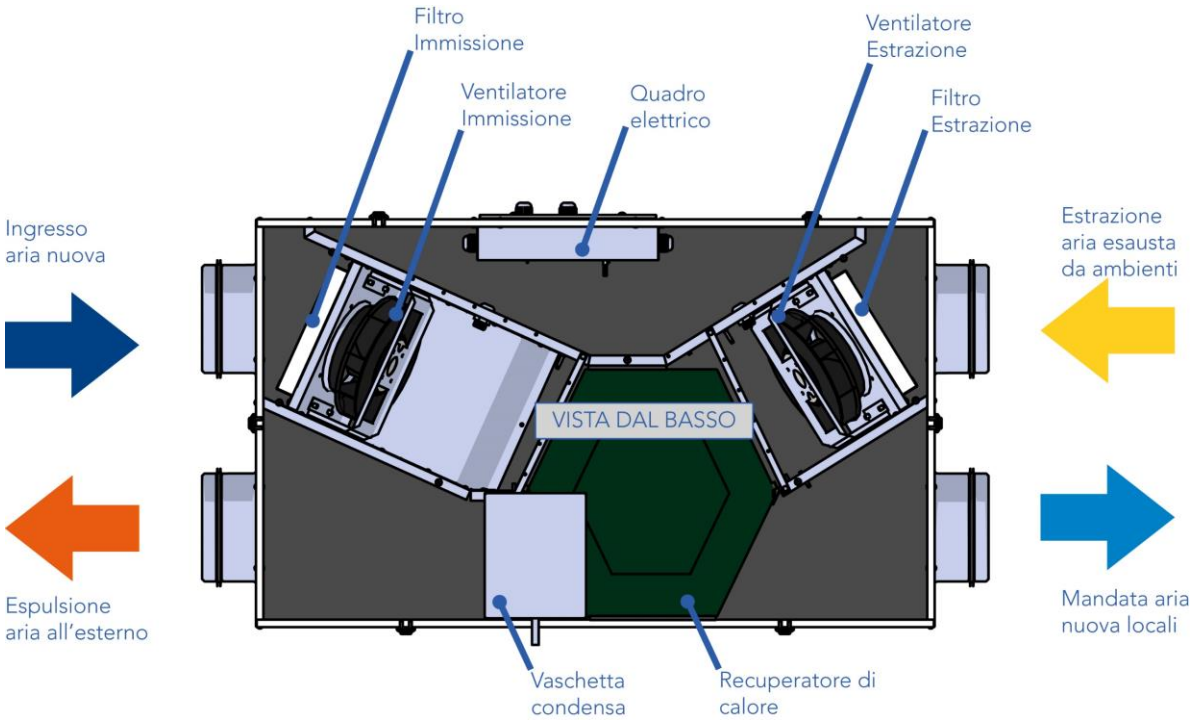
STRUCTURE

The structure of the machines is made of steel sheet, painted white. The panels are lined inside with closed-cell polyurethane material that excellently absorbs noise. The material used is Class 1, according to UL 94 standard and is free from CFCs. Screws and fixing systems, when not in stainless steel, are carbon steel surface treated with Anticorrosive. Comfortable openings, allow easy cleaning and maintenance.

OPERATION

The new air coming from the outside is filtered and conveyed to the exchanger in counterflow and, always under the push of the intake fan is fed into the supply duct.
At the same time the exhaust air, extracted from the service rooms, is filtered and sent to the exchanger in counterflow where it gives all its heat to the fresh air, before being sent by the fan to the ejection channels outdoor.
The air flows, which cross counterflow the exchanger, are separated from the exchange surfaces, which prevent contamination between fresh air and exhausted air. The condensate that forms inside the exchanger is collected in a pan and conveyed to the drain.





FREE-COOLING

The **"free cooling "** device allows you to enter fresh air without it being heated by the heat exchanger. This is useful when the outside air is at a lower temperature than the ambient air during the summer months. The management of the free-cooling is automatic and activated by the temperatures of the air flows.

ALARM FILTERS

It is expected to report dirty filters.

The scheduled cleaning of the filters is an essential condition for maintaining the efficiency and performance of the machine

- The indicator light (supplied), remotable, is installed next to the reset button, in the electrical panel or in a built-in box.
- The alarm turns on after a preset time (about 4000 hours of operation).
- After cleaning the filters, the indicator light turns off after the reset button has been pressed for at least 10 seconds.

ANTIFREEZE THERMOSTAT

A device is fitted as standard which reduces or interrupts the cold air inlet from the outside when temperatures are such that the heat exchanger may freeze.

2.4 OPERATIONAL LIMITS

Each unit is designed for operation in a closed environment at ambient temperatures from 0°c to +50°C with relative humidity not exceeding 90%. A safety thermostat reduces the inflow of fresh air, when the temperature is such that there is risk of ice formation in the exchanger.

3 AERAULIC CIRCUIT

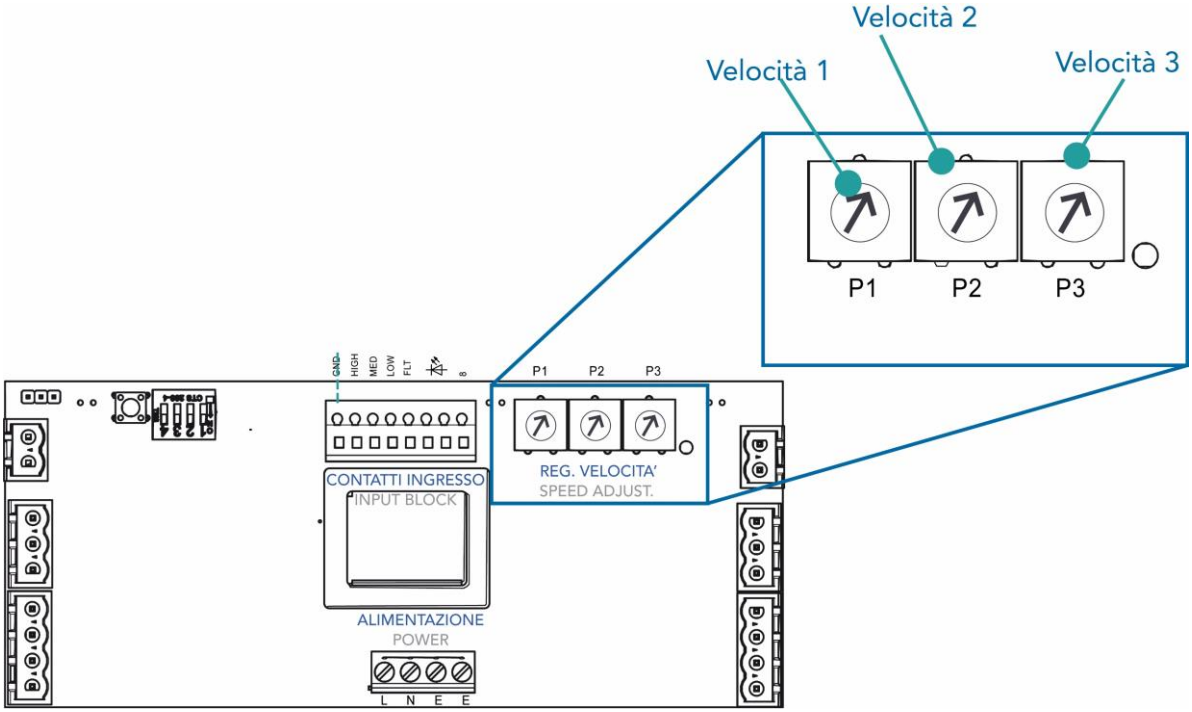
The external air intake and exhaust ducrs must be insulated to avoid condensation on them in the cold months. The connection of the nozzles to the distribution ducts must be flexible, so as not to transmit vibration to the whole system. For the connection diagram see the chapter "DUCTS".

4 ELECTRICAL CIRCUITS

4.1 ELECTRICAL EQUIPMENT

The electrical instrumentation is in accordance with the regulations En Low Voltage and electromagnetic compatibility. The fans are centrifugal type with backward blades and motors with low consumption technology, characterized by maximum energy savings and minimum noise emission.

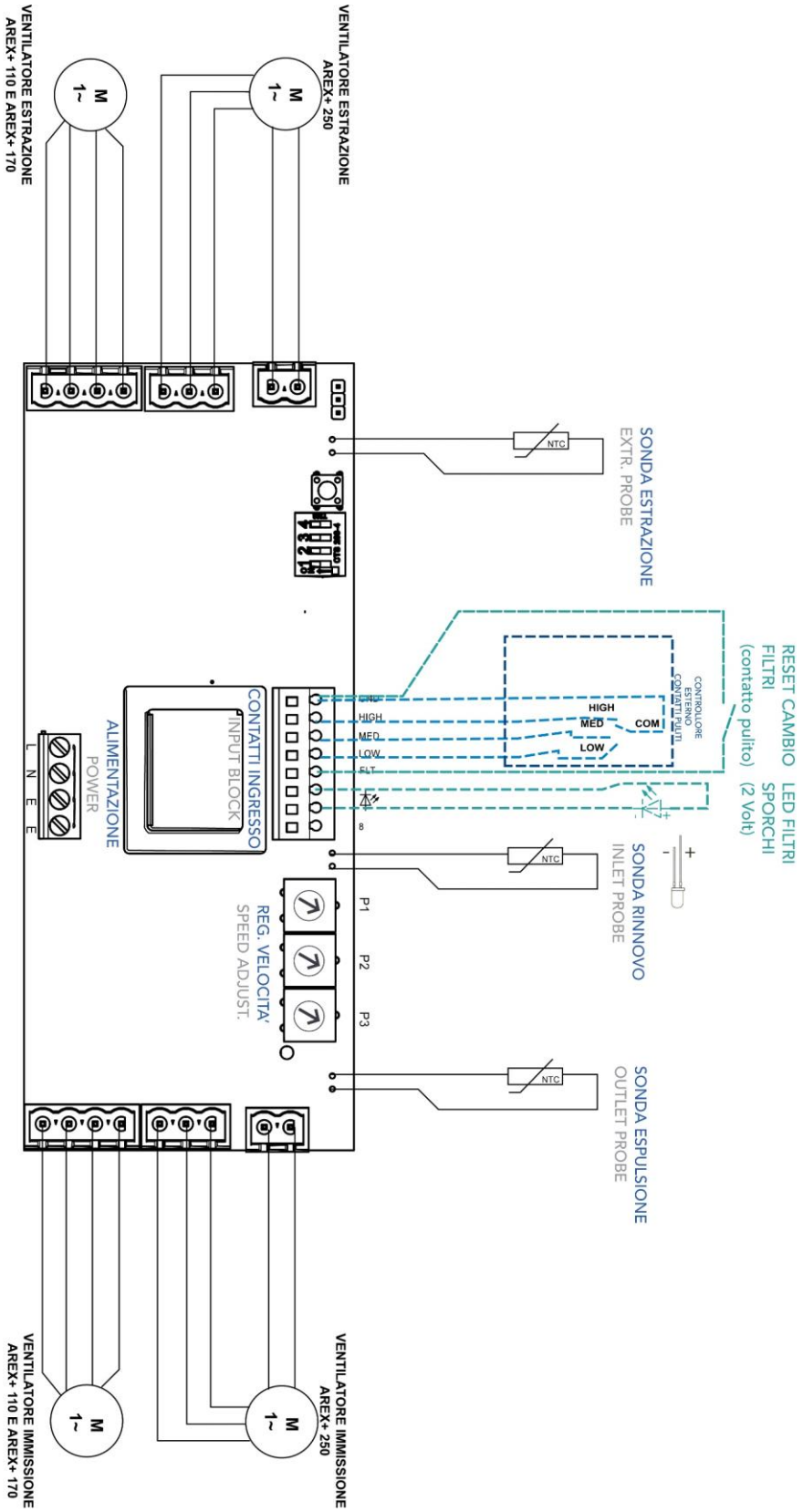
The electronic board, which manages the machine, also contains potentiometers for a possible calibration of the flow rates and terminals for connecting the remote controls.



4.2 WIRING DIAGRAMS

Ground connection is mandatory. The installer must connect the ground cable. AREX + is powered to 230V 50Hz single phase.

ELECTRICAL WIRING

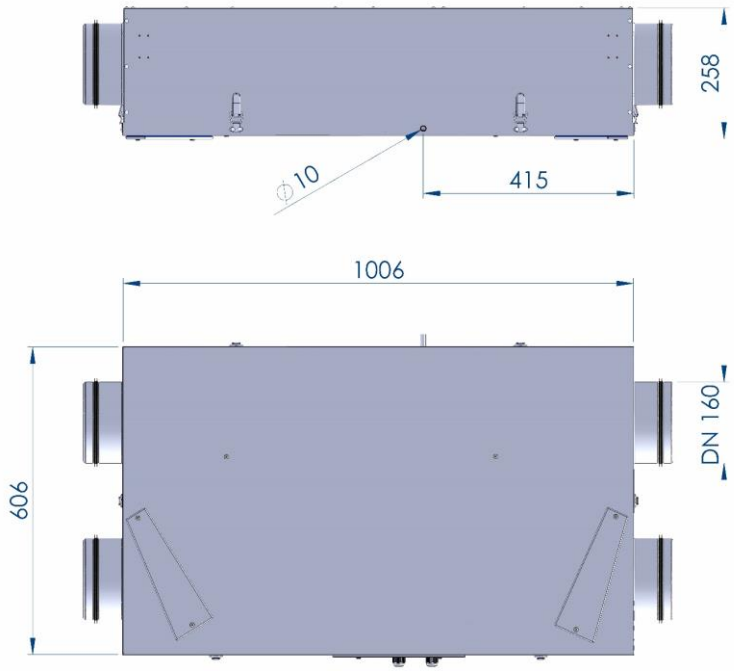


5 TECHNICAL DATA

5.1 TECHNICAL DATA

Description		AREX+ 110 horizontal	AREX+ 160 horizontal	AREX+ 250 horizontal
Code	**Cod.**	**VRHS11**	**VRHS16**	**VRHS26**
Rated air flow	mc / h	110	160	250
Nominal head	Pa	100	100	100
Power consumption	W	60	140	125
Heat exchange efficiency	%	> 90	> 90	> 90
Sound power	dB (A)	52	51	53
Power supply	V	230V/1 + N/50		
Maximum current	To	0.8	1.5	1.54
fan type		AC	AC	EC
Filter		F7	F7	F7
Net weight	Kg	25	27	29
Maximum sound pressure at 1.5 m	dB (A)	41	39	42

5.2 DIMENSIONS



Dimensions in mm. Valid for all Arex+ Series models

The CE marking certifies compliance with the standards: Machinery Directive (2006/42 / EEC); Low Voltage Directive(2014/30/EU); Electromagnetic Compatibility (2014/35/EU; RoHS (2011/65/ EU; ErP Regulation 2016 and 2018 (1253/14/EU e1254/14 / EU; EN12100 of 2010; EN60204-1 of 2016

6 AFTER SALE

6.1 TROUBLESHOOTING

Below are the most common causes that can cause the unit to block or malfunction. The categories are sorted according to easily identifiable symptoms.

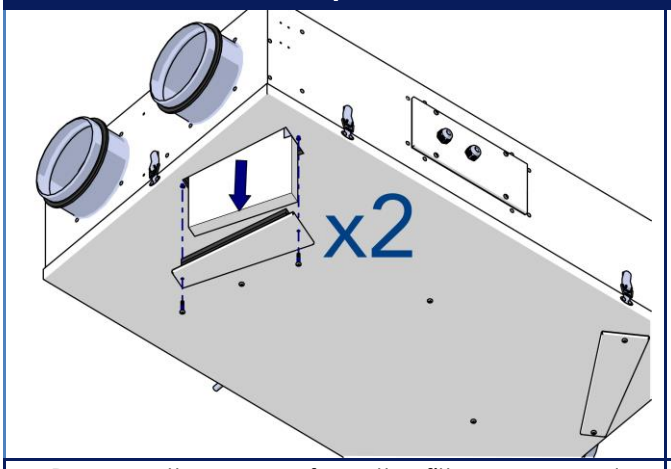
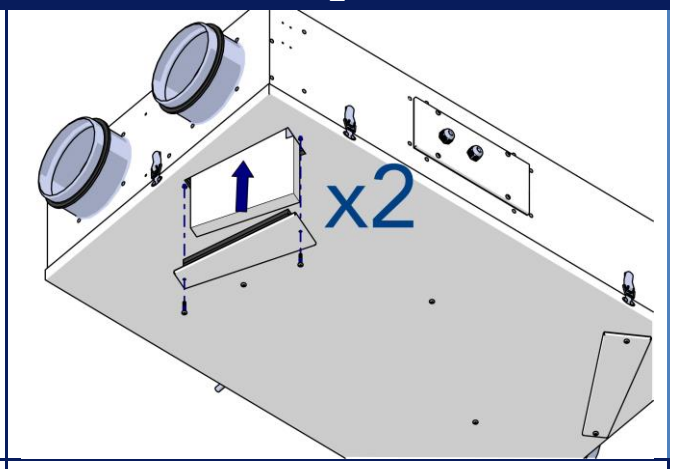
No	ANOMALY	ANALYSIS OF POSSIBLE CAUSES	CORRECTIVE ACTIONS
1	The unit does not start	- The unit is not connected to the mains. - The unit is off	- Check the presence of voltage at the terminals- - move the switch to any speed - eliminate the cause of alarm and start again.
2	Supply air too cold.	- Accumulation of ice in the heat exchanger. - Clogged exhaust filter.	- Check for ice in the heat exchanger. If present, stop the machine and let the ice melt. - Clean and replace the drain filter.
3	Trigger the auto switch	A short circuit caused an overcurrent.	-Turn off the unit and contact a service center.
4	Reduced air flow	- Fan speed too low - Clogging filters - Clogged air treatment system	- control speed - check filters - check the air paths
5	Vibration and noise	- The fan is dirty - The screws of the housing or outer cap are loose	- Clean the fan - Tighten unit and outer cap screws
6	Condensate leakage	- the drainage line is clogged, damaged. - the recuperator is not on the right slope. - construction site residues clog the collection pan	- clean the drainage line. - tilt the recuperator 2 ° towards the drain. - clean pan

6.2 ROUTINE MAINTENANCE

Disconnect the unit from the mains, open the machine and do the following:

CLEANING FILTERS (2 TIMES A YEAR):

A special indicator light indicates the need for cleaning the filters. Dirty filters increase the resistance to air passage and compromise the correct distribution in the premises.
In residential or residential-like environments, filters should be cleaned at least twice a year with a vacuum cleaner.
To remove the filters open the doors and remove the filters as shown.

1	2
	
Remove the screws from the filter cover and remove it by gently pulling towards itself. Remove the filter by pulling down. Clean the filter, if occluded, replace it with a new filter. Repeat this step also for the other filter.	Push the filter into the filter guides until it is fully inserted. Replace the filter cover and screw the screws. Repeat this step also for the other filter.

After cleaning, press the reset button for 10 seconds to turn off the "dirty filters" light.

ACCESS TO FANS AND EXCHANGE CORE

To access the fans and the exchange core, follow the instructions in Section 6.3 - opening the door

CLEANING HEAT EXCHANGER (ONCE A YEAR):

Even regular maintenance of the filters does not prevent the accumulation of dirt in the heat recovery core, so it is necessary to clean the exchanger thoroughly regularly.
Remove the core from the unit and wash it with a warm detergent, let it dry and put it back on, dry, inside the recuperator.

FAN CLEANING (ONCE A YEAR):

Clean the fans with a soft cloth or brush. Do not use water, aggressive solvents or sharp objects that could damage the fan.

CHECK CONDENSATE DISCHARGE (ONCE A YEAR):

The condensate discharge line may become clogged with dust particles dragged by the condensate.

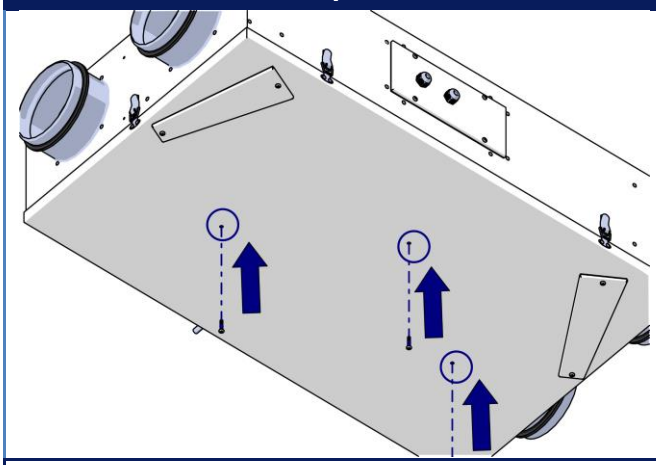
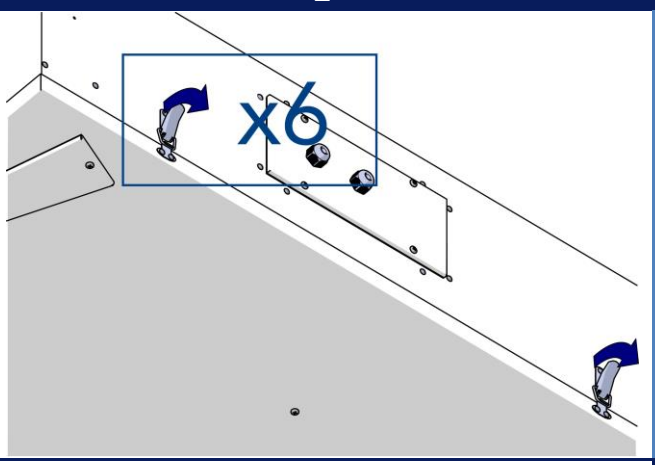
FRESH AIR INTAKE DUCT CONTROL (ONCE A YEAR):

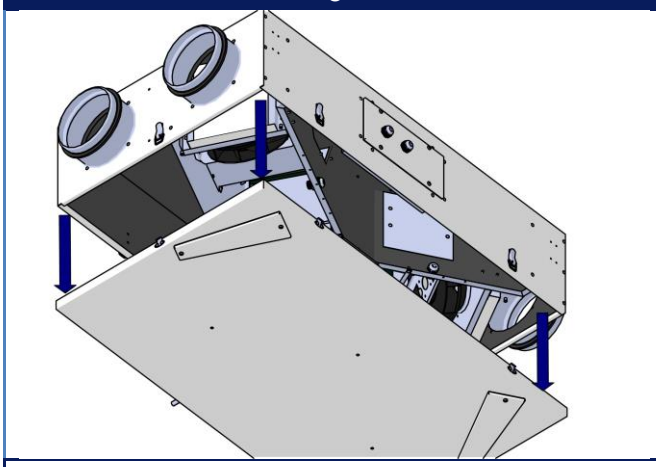
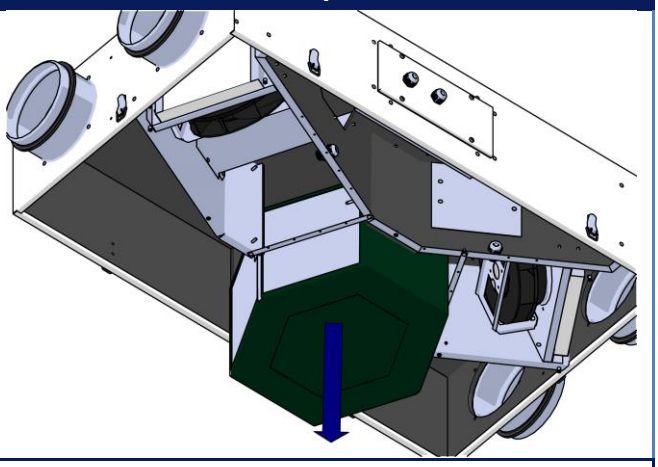
The air intake grille from the outside can be clogged with leaves, pollen or insects. This can impair machine performance and air circulation. Check the grill and clean it if necessary.

INSPECTION OF AIR DUCTS (EVERY 5 YEARS)

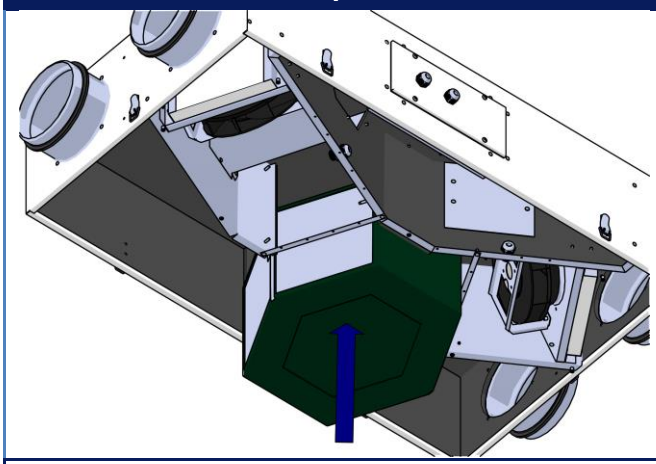
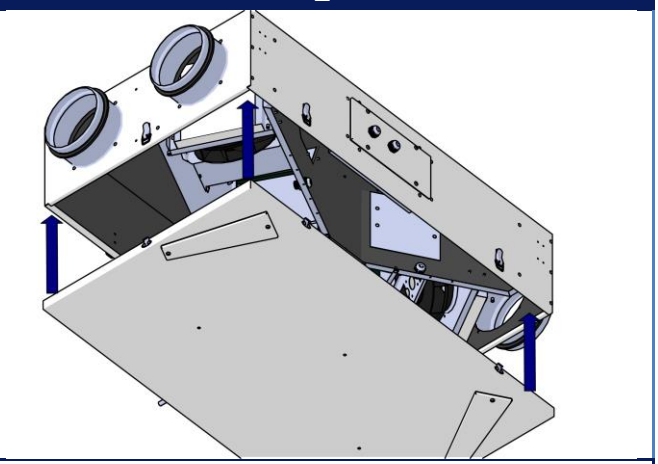
Control and cleaning of the air network.

6.3 DOOR OPENING

1	2
	
Unscrew the three screws on the Hatch of the unit.	Open the 6 snap-on hinges on all sides of the unit

3	4
	
Pull the door towards yourself Take care that internal parts do not fall off.	Remove the recovery core by pulling it down and vacuuming it

Close the unit by following the following steps:

1	2
	
Push the recovery core into the appropriate seat, making sure that it is tucked all the way.	Lay the door, taking care that it protrudes on all sides the body of the machine.

7 DECOMMISSIONING OF THE UNIT

When the unit reaches the end of its intended life and needs to be removed and replaced, the structure and the various components, if unusable, must be demolished and broken down according to their type of product.

8 INSTALLATION

8.1 PRESS

INSPECTION

Upon receipt of the unit, check its integrity: the machine has left the factory in perfect condition; any damage must be immediately challenged to the conveyor and noted on the delivery sheet before counter-signing.

LIFTING AND TRANSPORT

During unloading and positioning of the unit, care must be taken to avoid abrupt or violent manoeuvres. Internal transport should be carried out carefully and gently, avoiding the use of machine components as points of application of force.

In all lifting operations make sure that you have firmly anchored the unit, in order to avoid overturning or accidental falls.

UNPACKING

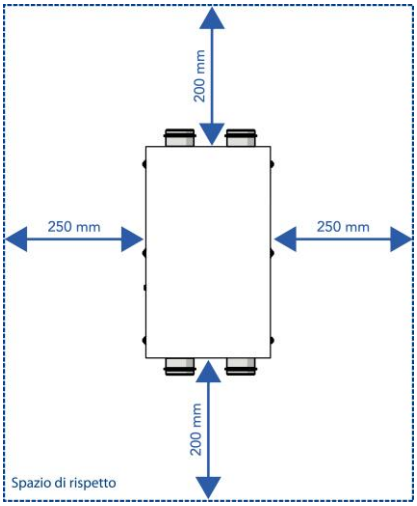
The packaging of the unit must be removed carefully without causing damage to the machine; the materials constituting the packaging are diverse in nature, wood, cardboard, nylon, polystyrene, etc., it Is a good rule to keep them separately and deliver them to the disposal or possible recycling, the companies responsible for the purpose, and to reduce so the impact on the environment.

8.2 POSITIONING

All AREX + models are designed for indoor installation.
Do not install the unit outdoors and prevent it from being exposed to weather conditions such as rain, hail, moisture and frost.

It is necessary that the machine is accessible for periodic maintenance (Filter Change, Exchange package cleaning, etc.) and that it is entirely removable for any extraordinary maintenance. For this purpose, hatches or hatches must be provided to access machines installed in suspended ceilings or vaults.

8.1 SPACES OF RESPECT

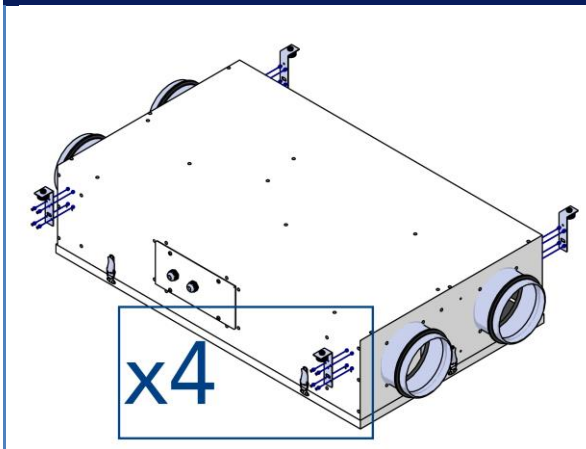
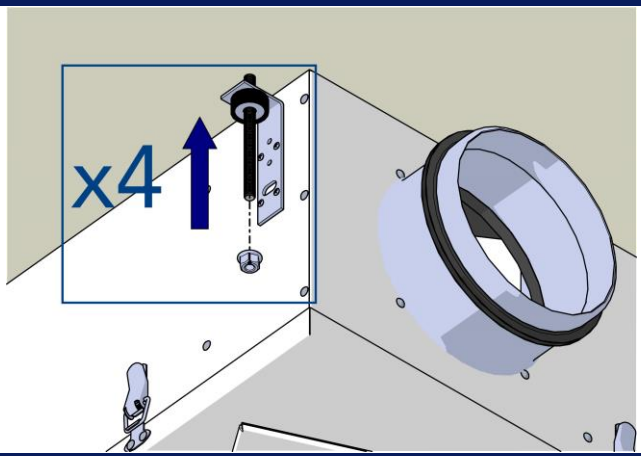


As shown in the figure, leave free spaces for access during maintenance. In the presence of a suspended ceiling, install mobile panels that allow you to open the recuperator downwards and remove the entire unit in the event of a breakdown.
The units are fixed to the ceiling with dowels, threaded rods, or chains (not supplied). To minimize the transmission of vibration to the structure, anti-vibration kits with elastic dowels are available.

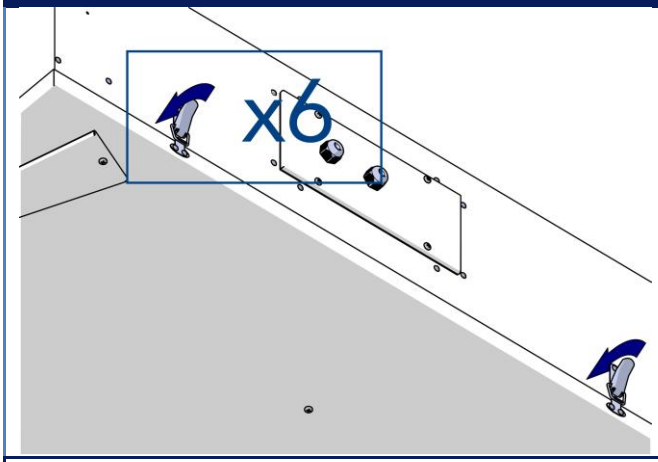
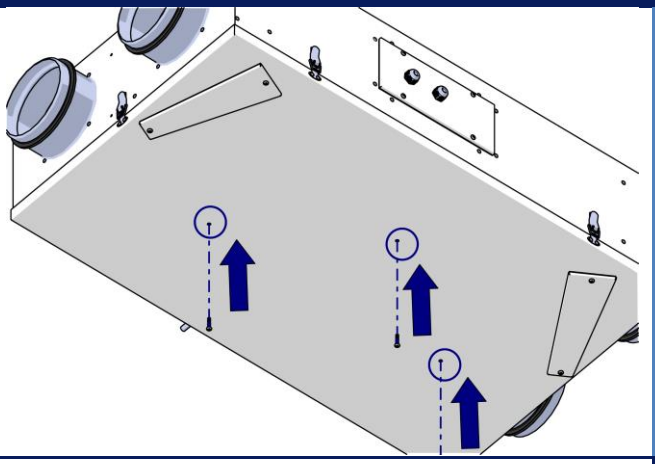
8.2 PREPARATION

Remove the recuperator from the packaging box, remove the accessories contained within the recuperator itself (No. 1 alarm light filters and anti-vibration bracket kits).
The bag of accessories can be reached by a mouthpiece, without opening the hatch.

8.3 CEILING INSTALLATION

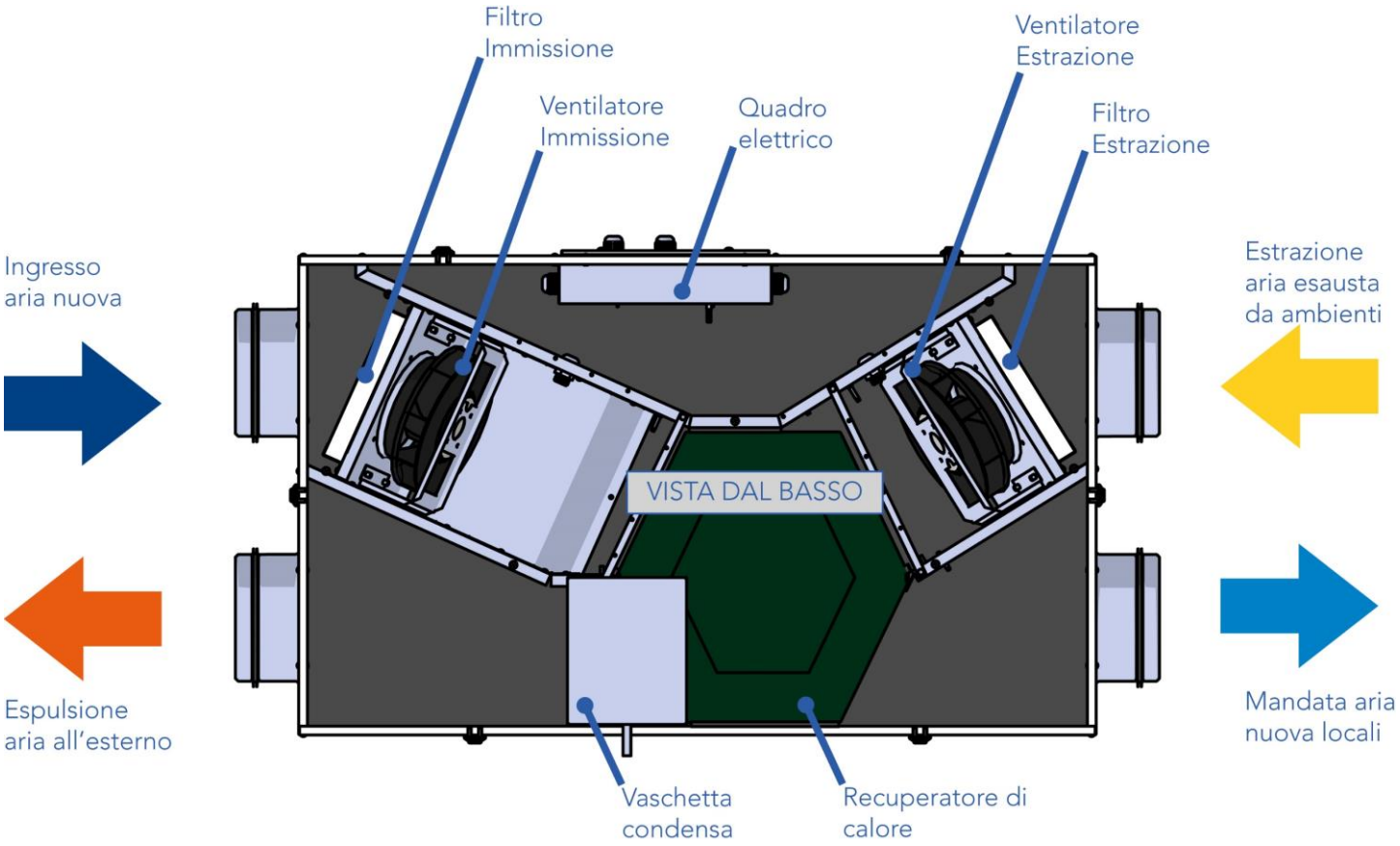
1	2
	
Apply the relays on the sides of the unit with self-tapping screws, in the false holes.	Fix an M8 diameter threaded rod (not supplied) to the ceiling by means of expansion dowels and fix with self-locking M8 nut or with nut and lock nut. Repeat for all 4 mounting brackets.

Check with a bubble level that the unit is perfectly flat, to avoid stagnation of condensation in the tank that could damage the unit.

3	4
	
Hang up the 6 hinges placed on all sides of the recuperator, so that the door fits perfectly on the recuperator, without leaving air passages.	Re-screw the three screws on the bottom

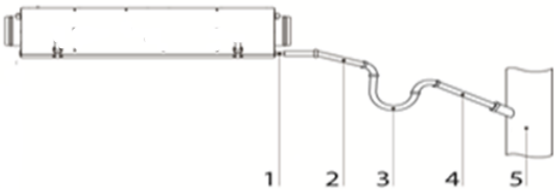
8.4 DUCTING

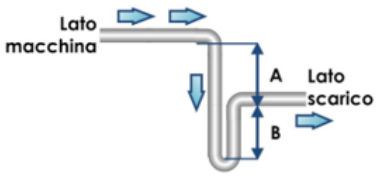
The inlet and outlet air nozzles from the recuperators have sealing gasket on the outer diameter. Before connecting the ducts, make sure that any cellophane protectors have been removed. The connections of supply and extract from the premises, as well as expulsion and renewal to the outside, are shown in the following figures. In order not to transmit vibration to the entire system, at least the first section must be made with flexible pipes.
Ideal Clima's TREO distribution system is perfectly suited to the use of AREX+ recuperators.



8.5 SIPHON - CONDENSATE DRAIN

Connect the drain pipe 1), to the siphon 3) (Not supplied) and these to the wastewater collection system5) with metal, plastic or rubber pipes 2) and 4). The slope of the pipe must be at least 3°. Ensure that water flows freely into the wastewater collection system. The drainage system must be thermally insulated or pre-heated if it passes through areas with a temperature below 0°C



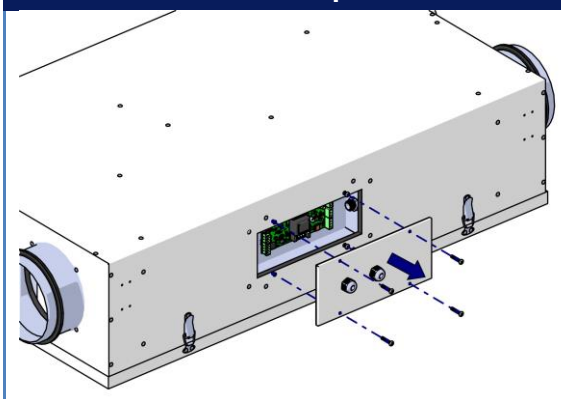
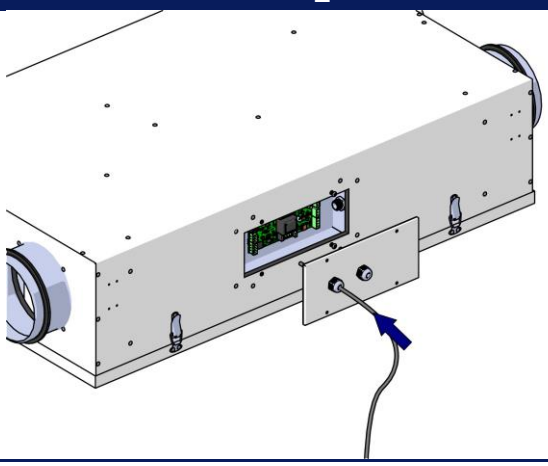


To avoid backflow of bad smell, install a siphon of height at least equal to the working prevalence of fans.
At normal operating range A = B = 60 mm

8.6 ELECTRICAL CONNECTION

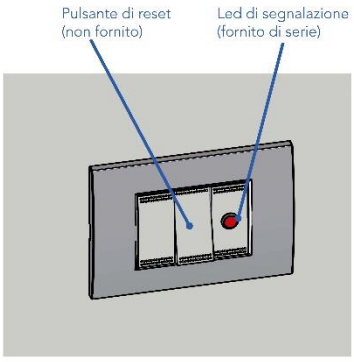
The electrical connection, 230V + t; 50Hz, shall be carried out according to the electrical diagram in chapter 4.2 - WIRING DIAGRAMS of this manual.
The most appropriate upstream switch of the line is the MGT-C10. The power line shall have the same or greater characteristics as the fror-3g1, 5 cable.
The electrical panel is enclosed in the electrical box. with the cable stopper placed on the lid, the cables necessary for the connections indicated below are put in position.
All speed control inputs and reset filters allow only dry contacts, otherwise interpose a relay.

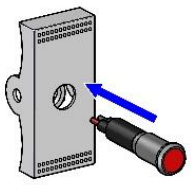
AREX +WIRING

1	2
	
Unscrew the four screws to remove the panel of the electrical panel to access the board.	Thread the connecting cables through the cable press mounted on the panel of the electrical panel. It is recommended to use one cable press for the power line and the second for the controls and signals of the unit.

SIGNAL LINE CLOGGED FILTERS:

The clogged filter Warning Light (2 V led supplied as standard) shall be installed in a standard electrical box and connected to the electrical panel according to the connection diagram.





LINE RESET ALARM FILTERS

The reset button is a standard electrical button (not supplied), to be connected according to wiring diagram.

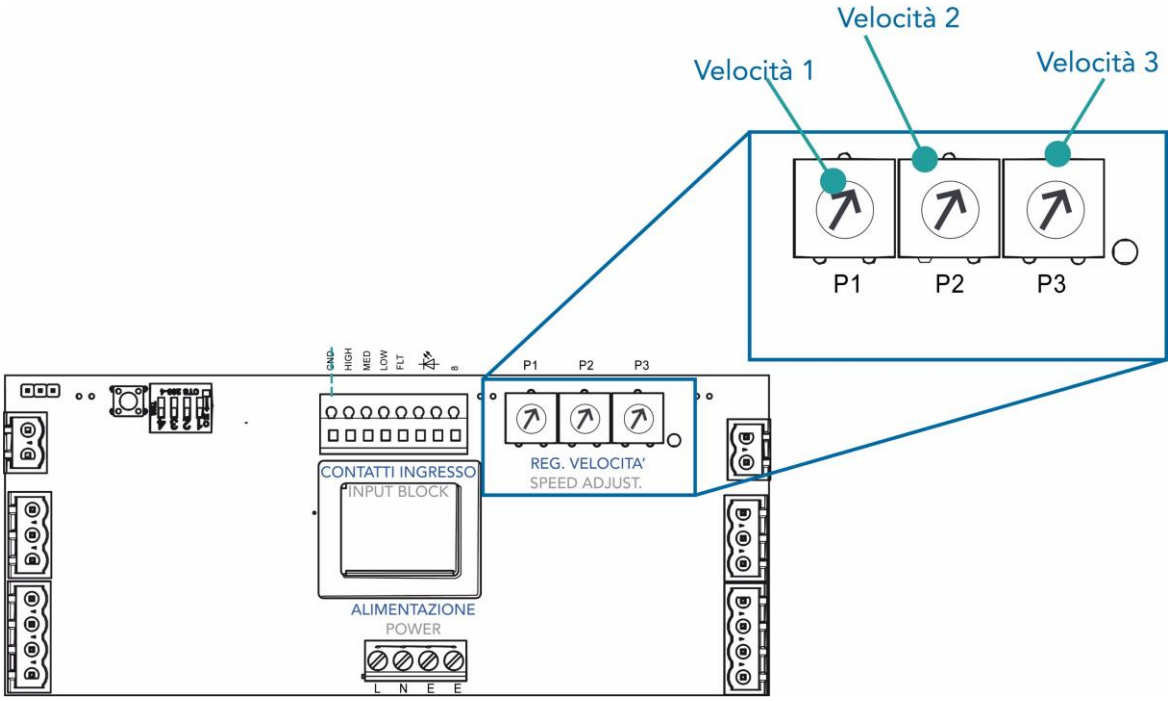
8.7 CALIBRATION OF FAN FLOW RATES

Fan speeds are calibrated at the factory as follows, which statistically corresponds to the most common applications:

- Minimum speed: 40% of the maximum power of the fans.
- Average speed: 60% of the maximum power of the fans.
- High speed: 80% of the maximum power of the fans.

The flow rate shown in the Flow / Prevalence charts on the data sheets corresponds to 50%, 72% and 100% of the maximum power, respectively. To adjust the factory calibration values to the actual needs of the system, act on the potentiometers placed on the control board, one per Speed.

Each potentiometer changes the speed of both fans in the unit



8.8 START-UP AND TESTING

Before starting the machine check that all the closing panels are in their position and well tightened with their own screws.

Check that all connections (hydraulic, electrical and ducting) are installed correctly and that all indications on labels and user manual are observed.

Starting and testing of the units should preferably be carried out in conjunction with the testing and starting of the entire ventilation system, which also extends to the ventilation network, radiant panels and dehumidification, if they are present.
The test must be carried out by qualified personnel and adequately trained also for subsequent maintenance.

9 WARRANTY CONDITIONS

The warranty of this product is governed by the general conditions of sale Ideal Clima (version 3.0) of which the part relating to the warranty:

Ideal Clima guarantees its products for defects or manufacturing defects, with the express exclusion of any defect or fact inherent in the installation, conduct and maintenance of the product. - 15.2 target audience- Ideal Clima supplies products only to professional companies. By giving the order, the client declares that the products are intended for use in the context of his professional, commercial or entrepreneurial activity. It is therefore excluded the application of Norm 1999/44 / EC and D. Leg nr. 24 of 2 February 2002. The warranty is limited to the products provided by Ideal Clima and only to the customer. Ideal Clima reserves the right to apply their own conditions to guarantee, directly or indirectly through the subjects to be identified, the end user only upon specific request and authorization of the Client, who remains entitled to the fulfillment of any obligations with the end user in accordance with the regulations in force. - 15.3 performance under warranty-the intervention under warranty implies, in Ideal Clima's opinion, the repair or replacement of the defective product. In case of repair, the client undertakes to have its final customer perform those repairs that Ideal Clima considers essential, allowing access to the plant. In case of replacement, Ideal Clima undertakes to replace its defective products with other products with equal or superior characteristics, excluding any expense of restoration of the property (labor, travel, transport, works etc.). In any case, production defects must be recognized by Ideal Clima technicians. The components replaced under warranty remain the property of Ideal Clima, to which they must be returned free of charge. - 15.4 validity and duration-the warranty starts from the date of purchase of the product and has a duration of two years. The date of purchase is evidenced by the invoice and the DDT. In case of dispute about the date of delivery, the batch/date of production/serial number shown on the product will be authentic. The customer shall forfeit the warranty if he does not report the defect within 8 days of the discovery and before the expiry of the maximum term of the warranty. The duration of the warranty is not changed by warranty interventions - 15.5 limitations and exclusions - the warranty does not cover defects attributable to transport, handling of the product, poor storage (eg. non-dry environments, direct sun exposure etc.), installation and/or maintenance not carried out by qualified personnel and enabled, according to the manufacturer's instructions and the regulations in force, usage not in accordance with product characteristics, use of water, gas and electricity which is not suitable to the product, use or maintenance, improper product, normal wear and tear -15.6 Right call: Ideal Clima reserves the right to ask for a contribution for the intervention of the technical assistance centre authorized, starting from the seventh month of the warranty period. This contribution will be quantified in advance and will have to be paid directly to the CAT. This contribution will also be due if the product is defective.

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