



messana

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REV

Vertical dehumidifiers with ultra-high efficiency recovery unit



RER

Horizontal dehumidifiers with ultra-high efficiency recovery unit

**USE MAINTENANCE AND
INSTALLATION MANUAL**

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RER - REV

Dehumidifier with high-efficiency heat recovery



READ THIS MANUAL CAREFULLY BEFORE USING THE UNIT

Dear Customer,

thank you for choosing our product. We are pleased to provide you with this manual to obtain the best use of our product, and for maximum comfort and increased safety.

Please read the recommendations described in the following pages carefully and make the manual available to the personnel who will be responsible for managing and maintaining the unit.

Our company is at your disposal for any questions you may have both during the unit start-up phase or at any other time.

Our Technical Department is at your disposal for any assistance and spare parts you may require, especially during routine or extraordinary maintenance.

Please find our contact details below for a more rapid service:



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FOR THE DIMENSIONAL DRAWINGS, SEE THE DRAWINGS ATTACHMENT

1 FOREWORD

This manual indicates the intended use of the unit and provides instructions on transportation, installation, assembly, adjustment and use. It provides information on maintenance, ordering spare parts, the presence of residual risks and personnel training.

The user manual must be read and used as follows:

- Every unit operator and the staff in charge must carefully read the entire manual and comply with the indications given;
- The employer is obliged to ensure that the operator possesses the skills required to operate the unit and has carefully read the manual; the employer must also provide the operator with details about the risk of accidents, especially those deriving from noise, about the personal protective equipment provided and the general accident prevention regulations, required by international laws or regulations or those applicable in the country of use;
- The manual must always be available to the user, managers and operators in charge of transportation, installation, use, maintenance, repairs and final dismantling;
- Keep the manual away from sources of humidity and heat and treat it as an integral part of the unit for its entire duration, passing on the manual to any other user or subsequent owner of the unit;
- Make sure that any update is included in the text;
- Under no circumstances are any parts of the manual to be removed, torn or rewritten. If the manual is mislaid or partially damaged and, therefore, the contents can no longer be fully read, a new manual should be requested from the manufacturer by communicating the serial number of the machine found on the data plate.

Pay utmost attention to the following symbols. Their purpose is to highlight specific information such as:



Dangerous situations that could arise while using the unit, in order to guarantee personal safety.



Dangerous situations that could arise while using the unit, in order to prevent damaging property and the unit itself.



Additional information or suggestions for the unit to be used correctly.

The manufacturer has the right to update the production and manuals, without being obliged to update previous versions, except for exceptional cases.

This manual reflects the applicable technology at the time the unit is sold and cannot be considered inadequate due to subsequent updates based on new technology.

For any requests for updates of the use and maintenance manual or supplements, which are to be considered an integral part of the manual, please refer to the contact information indicated in this manual.

Contact the manufacturer for further information and to submit any proposals on how to improve the manual.

The manufacturer kindly asks you to communicate the address of the new owner if the unit is passed on to third parties, in order to facilitate the forwarding of any supplements of the manual to the new user.

RESPONSIBILITY

The unit is covered by the warranty in accordance with the contractual agreements established at the time of sale.

The manufacturer is deemed exempt from any liability and obligation, and the warranty required by the sales contract will be voided for any accident or damage to persons or property, which may derive from:



ATTENZIONE WARNING

Failure to comply with the instructions provided in this manual with regard to operation, use, installation, maintenance and events which are however unrelated to normal and correct use of the unit;

- changes made to the unit or to the safety devices without written authorisation from the manufacturer;
- non-authorised attempts at repair;
- negligence in constant maintenance or use of non-original spare parts.

In any case, if the user attributes the accident to a defect in the unit, they must prove that the damage caused was a main and direct consequence of this "defect".

RULES FOR CORRECT OPERATION

Failure to follow the instructions given in this manual with regard to operation, use, maintenance and any events unrelated to the normal and correct use of the unit shall invalidate the warranty immediately.

In all lifting operations make sure that the unit is properly secured to prevent accidental falls or overturning. Do not move or lift the unit by the removable panels.

The unit must be started up for the first time only by qualified personnel authorised by the manufacturer.

All the operators must comply with international accident prevention regulations and those applicable in the country of use in order to prevent potential accidents.

Install the unit in places where there is no risk of explosion, corrosion (near the sea), fire and where there are no vibrations and electromagnetic fields. It is also prohibited to operate in any way other than that stipulated or disregard required safety operations.

It has not been possible to eliminate certain residual risks during the design phase, found in some areas of the unit, or protect them with guards due to specific features of the unit. Each operator must be aware of the residual risks present in the unit in order to prevent any accidents.

Once the unit has been cleaned, the operator must make sure there are no worn or damaged parts or others that are not fastened securely; otherwise, a maintenance technician should be contacted.

Maintenance should be performed by specialised personnel with the unit disconnected from the power supply. Make sure that the unit is disconnected from the power supply.

Should the unit, or a part of it, be decommissioned, the parts liable to cause any hazard must be rendered harmless.

Qualified personnel must dismantle and demolish the unit.

SERVICE RULES

The operating rules described in this manual are an integral part of the unit supply.

These rules are also intended for operators previously trained specifically to operate this type of unit and contain all the necessary and important information for operating safety and optimal use of the unit.

Rushed and incomplete training leads to improvisation, which is the cause of many accidents.

Read carefully and comply strictly with the following recommendations before starting work:



The first start up must be performed exclusively by qualified personnel authorised by the manufacturer;

- When installing or servicing the unit, the rules indicated in this manual must be complied with, together with those on board the unit and, in any case, all necessary precautions must be taken;
- Potential accidents to persons and property can be prevented by following these technical instructions with reference to the Machinery Directive 2006/42/EC and subsequent amendments. In all cases, always comply with the national safety regulations;
- Do not remove or damage the safety devices, labels and notices, especially those imposed by law and replace them if no longer legible.

The machine-directive 2006/42/EC provides the following definitions:

DANGEROUS ZONE: *any zone within and/or close to a machine in which the presence of an exposed person constitutes a risk to the health and safety of that person.*

EXPOSED PERSON: *any person who is completely or partially in a hazardous zone.*

OPERATOR: *the person or persons assigned to installing, operating, regulating, performing maintenance on, cleaning, repairing and transporting the machine.*



All operators must comply with the accident-prevention regulations (international or of the destination country of the unit) in order to avoid possible accidents.

Please note that the European Union has issued certain Directives regarding health and safety of workers, including: Directive 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 every employer is obliged to comply with and enforce.

The units have been designed and built according to the current state-of-the-art and technical rules in force.

Applicable laws, provisions, regulations, decrees and directives for such machinery have been complied with.

The materials used and the parts of equipment, as well as production procedures, quality and control assurance comply with the highest standards of safety and reliability.

Unit performance, continuous operation and durability are maintained by using the above-mentioned materials and parts for the purposes specified in this user manual, handling them with due care and performing thorough maintenance and up-to-standard service.

INTENDED USE

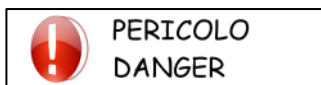
RER units are ductable dehumidifiers with heat recovery unit for horizontal (typical false-ceiling) installation, while REV units are for vertical (typical in wall) installation: both RER and REV are conceived to function combined with radiant systems. RER and REV units can dehumidify, cool, and heat the air and they also allow air renewal with heat recovery: exhaust air is discharged and fresh air is supplied to the internal ambient.

Its use is recommended within the operating limits indicated in this manual.



Place the unit where there are no explosion, corrosion or fire dangers, either in vibrating areas or in the presence of electro-magnetic fields. It is also prohibited to operate in any way other than that stipulated or disregard required safety operations.

RESIDUAL RISK AREAS



In some areas of the unit there are residual risks that could not be eliminated during the design phase or delimited with guards due to the particular functionality of the unit. Every operator must be aware of the residual risks present in this unit and exercise extreme caution to avoid any accidents.

- risk of short circuit and fire caused by short circuit
- risk of explosion due to the presence of pressurised circuits and risk of pollution due to the presence of refrigerant in the circuit
- risk of burns due to the presence of very hot pipes
- risk of shearing

INTERVENTION AND MAINTENANCE

It is important to remember that the user manual can never replace adequate user experience. This manual represents a reminder of the main activities to be performed by operators who have received specific training, for example by attending training courses held by the manufacturer, with reference to particular maintenance operations.

Carefully read the following recommendations:

- A constant and pre-scheduled maintenance can grant the safety working of the unit. If there are some necessary maintenance interventions, do not delay them and make reference only to qualified operators and original spare-parts;
- Plan each intervention carefully;
- Operators' working space should be clean and free, in order to grant the necessary movements without dangers;
- Operators should avoid clumsy operations, in uncomfortable conditions which can compromise their balance.
- Operators must pay attention to the risk of clothing and/or hair being caught or entangled in moving parts. A cap should be worn to keep long hair in place.
- The use of chains, bracelets and rings can also be dangerous.
- Even the use of necklaces, bracelets and rings can be a danger; The working place should be correctly lighted; insufficient or excessive lights can be a danger;
- Wait about 10 minutes after switching the unit off before performing any maintenance in order to prevent burns;

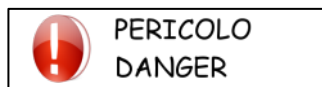


***Do not repair high pressure pipes with welds;
Liquid pressure on the refrigerant circuits and electrical components presence can be dangerous***

during installation and maintenance operations;

- Reduce as much as possible the time of open for the refrigerant circuit: Oil exposition to air causes the absorb of high quantity of humidity and this leads to the creation of weak acids;
- Only qualified personnel may perform work on the unit;
- Before performing any kind of work or maintenance on the unit, make sure it has been disconnected from the power supply;
- Make sure that safety devices work properly and that there are no doubts about their functioning; if not do not start the unit;

- Use only tools prescribed by the unit manufacturer. In order to avoid personal injury, do not use worn or damaged, low quality or improvised tools;



Once the unit has been cleaned, the operator must check that there are no worn or damaged parts or parts that are not firmly secured; where these are found, request the intervention of the

maintenance technician;

- Always keep the area in which the unit is kept clean and tidy. Oil and grease stains, broken tools or broken pieces are harmful to persons as they can cause slips or falls;
- It is prohibited to use flammable fluids to clean the unit.

Do not use diesel, petroleum or solvents to clean the unit as they leave an oily film that encourages dust to settle, while solvents (even if weak) damage the paintwork and encourage the formation of rust. If a jet of water penetrates the electrical equipment, the contacts oxidise and the unit may malfunction. Therefore, do not use jets of water or steam on the sensors, connectors or any electrical part.

Make sure that the pressurised pipes, or other components subject to wear, are intact. Also make sure there are no leaking fluids or hazardous substances.

Should there be a leak, the operator must not restart the unit before having resolved the problem.

GENERAL SAFETY RULES

1.1.1 Wearing protective clothing

Operators should wear personal protective equipment such as gloves, helmet, safety glasses, safety footwear and cap for protection against noise.



1.1.2 Fire extinguisher and first aid

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

Periodically check that the fire extinguishers are loaded and all operators know how to use them.

If a fire breaks out, use the fire extinguisher according to the relative regulations in force and contact the fire brigade. Periodically check that the first aid kit is complete. Make sure the emergency telephone numbers are readily available and nearby.



The owner of the property where the unit is installed is responsible for providing any fire extinguishers and a first aid kit.

1.1.3 Suggestions for advices and maintenance

Place a notice with the wording: "MAINTENANCE IN PROGRESS" on all

Carefully check the unit according to the list of operations specified in this



sides of the unit.
manual.

1.1.4 Safety data plate



Generic danger



Hazard: moving
mechanical parts



Shearing risk



Electric voltage
hazard



Risk of burns

2 PRODUCT DESCRIPTION

RER and **REV** units are conceived for a use in residential and commercial ambiances, with high latent load and for a 24h/day functioning.

They are suitable in combination with cooling radiant systems: underfloor, walls, ceiling.

RER/REV units combine top technical solutions with a pleasant appearance and, if supplied with water at 15°C, can dehumidify the ambient air without modifying its temperature or it could cool the air.

Neutral air is possible thanks to the presence of two exchangers, used to pre-cool the air and post-cool it after dehumidification process.

Cooled air is possible thanks to the presence of a plate exchanger which removes the thermal load from the ambient through the water of the radiant system.

The units are conceived to be ducted with flexible pipes or rigid ducts.

The use of electronic radial fans with brushless motor and inverter integrated, ensure high static pressure and reduced electrical consumptions.

The use of exclusive high-quality refrigerant, hydraulic, gas and electrical components make **RER/REV** dehumidifiers the state-of-art in terms of efficiency, reliability and sound emitted level. High-efficiency heat recovery unit ensure over 90% efficiency.

SERIES

There are 24 available models, classified according to the dehumidification capacity (15, 20, 35...) and to the version (W-A-I):

RER 015 W	RER 015 A	RER 015 I
RER 020 W	RER 020 A	RER 020 I
RER 035 W	RER 035 A	RER 035 I
RER 050 W	RER 050 A	RER 050 I
RER 100 W	RER 100 A	RER 100 I
REV 020 W	REV 020 A	REV 020 I
REV 035 W	REV 035 A	REV 035 I
REV 050 W	REV 050 A	REV 050 I
REV 070 W	REV 070 A	REV 070 I

The **RER/REV _ W** units do not have a compressor and function with chilled water in summer or heated water in winter. Dehumidification, cooling or heating, are performed thanks to a water coil provided with 3-ways valve.

In summer, with cooling/dehumidification request, and in winter, with heating request, the water valve will be open and the supply air will be treated. If there is no water supply, the unit will function in ventilation mode.

The **RER/REV _ A** units have a compressor and 4 heat exchange coils, in particular: water pre-cooling, evaporating, condensing, water post-cooling. These units allow summer dehumidification with neutral air and heating in winter.

In summer unit operate differently depending on water temperature:

- Below 9°C → unit continues to work, but the compressor will be turned off and the air supply will be treated only with water.
- Between 12 and 15°C → air is dehumidified and cooled;
- 15°C → air is dehumidified and neutral (supply air at the same temperature of inlet air)
- Above 15°C → no dehumidification capacity;

In winter, the compressor will always be turned off and the air will be heated through radiant system water.

If water will not be supplied, the unit will continue to function, but it can't perform dehumidification in summer and heating in winter.

The **RER/REV _ I** units have a compressor, a plate exchanger and 3 heat exchange coils, in particular: water pre-cooling, evaporating and condensing. Units RER/REV_I in summer can dehumidify supplying neutral or cooled air, while in winter it heats air.

In summer unit operate differently depending on water temperature:

- Below 9°C → unit continue to work, but the compressor will be turned off and the air supply will be treated only with water.
- Between 12 and 18°C → air will be dehumidified and cooled;
- Greater than 32°C → compressor will be turned off and air will be heated with the water coil.

In winter the compressor will always be turned off and the air will be heated through water. The RER/REV_I unit cannot operate without water and will block in summer. Unblocking has to be done in manual mode, by resetting the alarm which appears on the display. Without water, the compressor will give high pressure or serious alarm. A non-serious alarm will automatically reset, while the serious one can be reset only in manual mode. If 3 non-serious alarms occur in 30 minutes, this will turn to a serious alarm; but, if after 30 minutes there are no more the conditions to activate the non-serious alarm, it will automatically reset.

During the unit stoppage for water lack, the compressor will be turned off, an alarm will appear, the air will not be treated and the unit could function only in recirculation/fresh air mode. In winter, without water, the unit will not stop, but it will lose the capacity of heating.

All **A-I-W** versions can recirculate the ambient air regardless of the season or the presence of the radiant system water.

AIR FLUXES

RER units have 5 connections for air ducts:

1. Supply in ambient (rooms and living)
2. Return from ambient (normally the corridor of RER) for recirculation within the house
3. Exhaust air extraction (from “dirty” ambient such as bathrooms, kitchens, laundry...)
4. Fresh air inlet
5. Exhaust expulsion outside

Air flows vary according to the model:

	RER 015	RER/REV 020	RER/REV 035	RER/REV 050	REV 070	RER 100
Supply in ambient	160 m ³ /h	260 m ³ /h	380 m ³ /h	520 m ³ /h	700 m ³ /h	1000 m ³ /h
Return from ambient	160 m ³ /h	260 m ³ /h	380 m ³ /h	520 m ³ /h	700 m ³ /h	1000 m ³ /h
Exhaust air ejection	80 m ³ /h	130 m ³ /h	190 m ³ /h	260 m ³ /h	350 m ³ /h	500 m ³ /h
Fresh air inlet	80 m ³ /h	130 m ³ /h	190 m ³ /h	260 m ³ /h	350 m ³ /h	500 m ³ /h
Exhaust air expulsion	80 m ³ /h	130 m ³ /h	190 m ³ /h	260 m ³ /h	350 m ³ /h	500 m ³ /h

The units can function in 4 modes, which will be automatically managed according to the values of desired temperature and humidity and according to the level of fresh air set:

1. The temperature and humidity in the room are correct and the renewal is set to zero: the unit is completely stopped
2. The temperature and humidity in the room are not correct and the renewal is set to zero: the unit is treating the air or it is heating or cooling and/or dehumidifying; the unit is in recirculation mode only
3. The temperature and humidity in the room are correct and the renewal is set to a value other than zero: the unit is renewing the air that is the exhaust air is expelled and the renewal air is supplied to the ambient; the unit is in recirculation mode only
4. The temperature and humidity in the room are not correct and the renewal is set to a value other than zero: the unit is treating and renewing the air; the unit is in recirculation + renewal mode

The following pictures show the air flows for each mode of operation and each size of unit.

- When recirculation is active (heating or cooling and/or dehumidification active), the supply in ambient will always be maximum
- The air flows that pass through the recovery system are always the same and they are balanced
- The renewal is adjustable on 5 levels, from 1 to 5. The number indicates the percentage of renewal, for example if set at 2 out 5, it corresponds to 40% of the maximum.



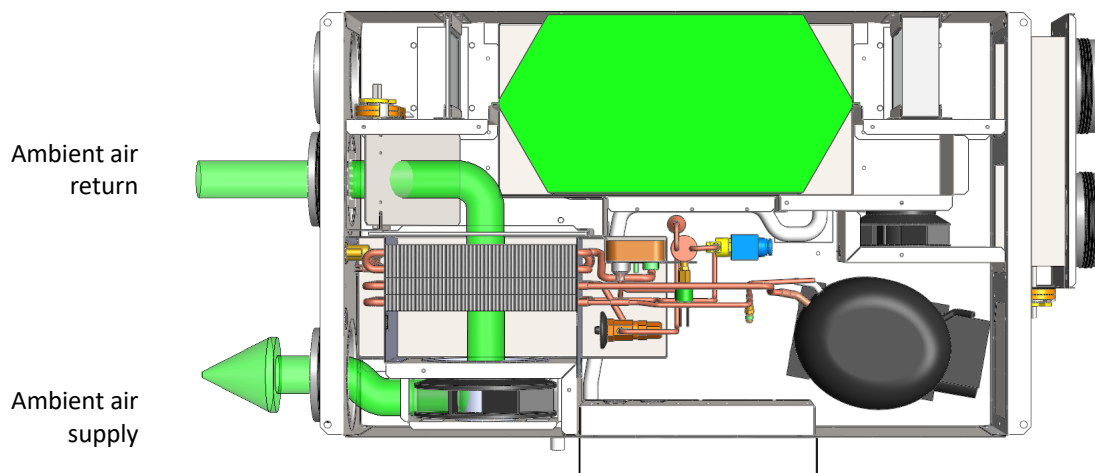
**ATTENZIONE
WARNING**

The images below are for illustrative purposes only; actual internal components may differ.

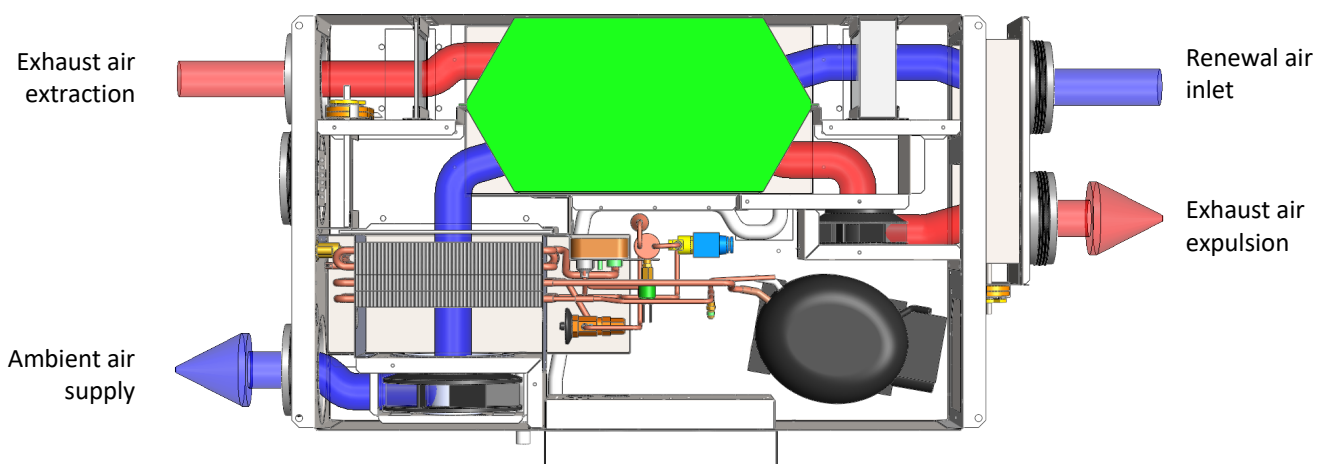
Arrows meaning

Red	Expulsion
Blue	Renewal
Green	Recirculation

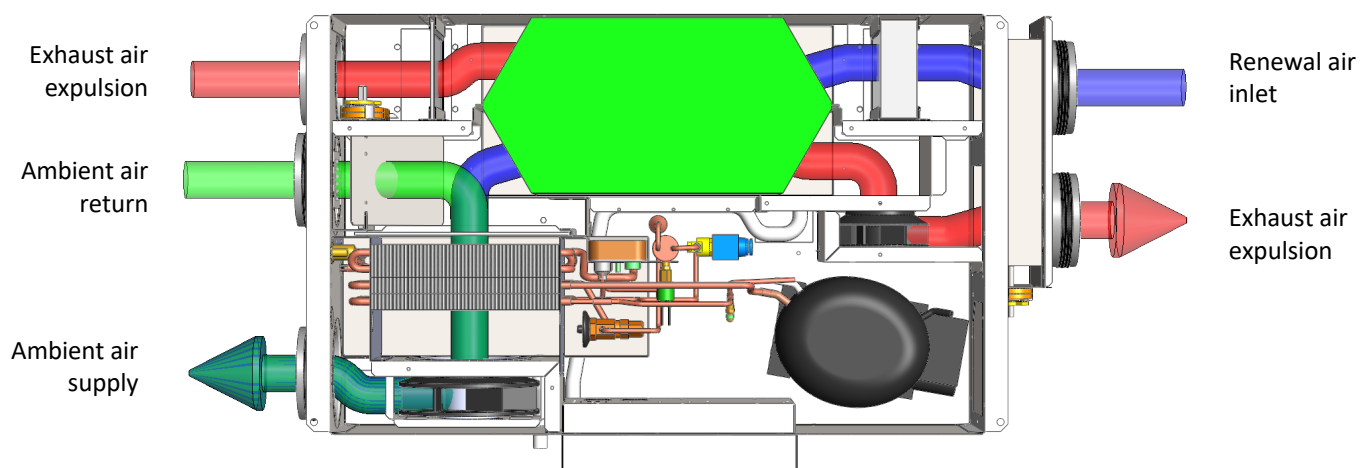
2.1.1 RER 015 – only recirculation mode



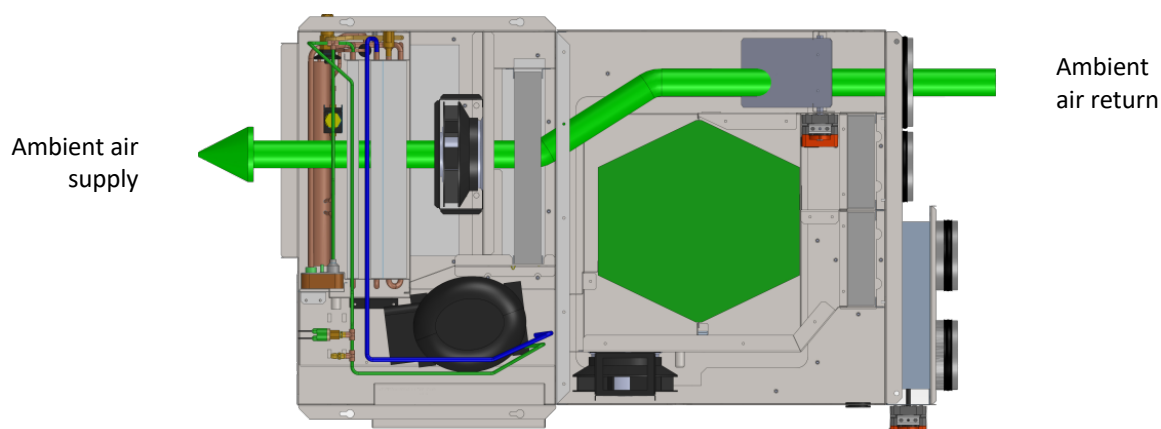
2.1.2 RER 015 – only renewal mode



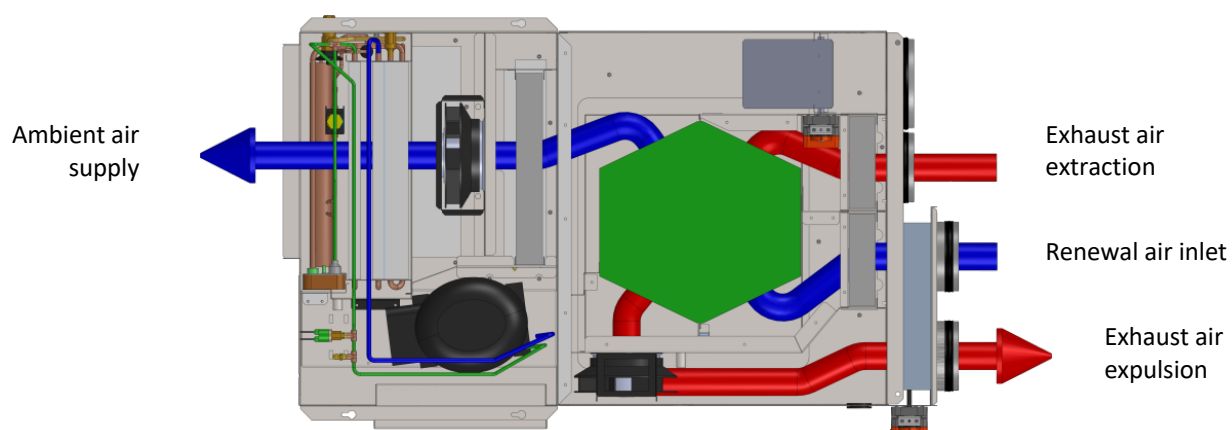
2.1.3 RER 015 – recirculation + renewal



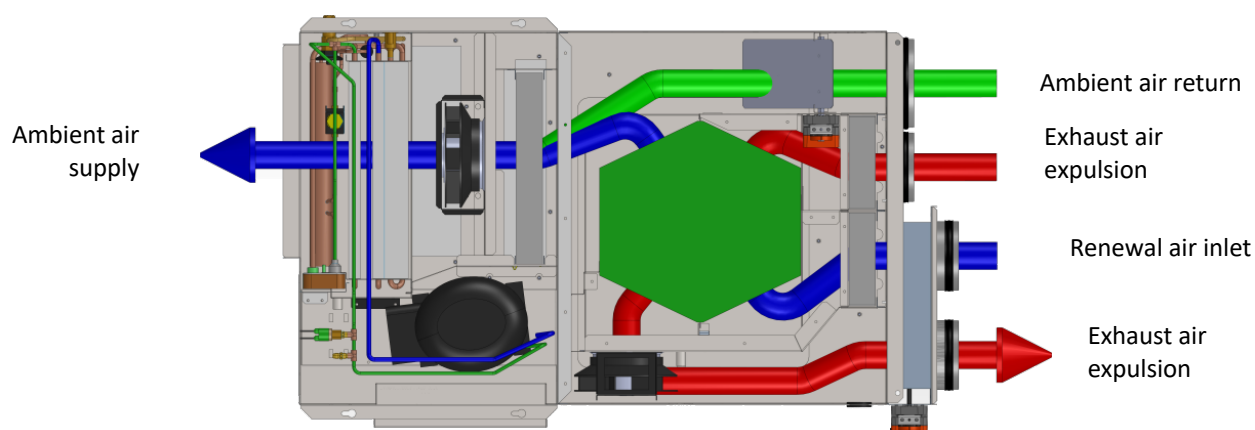
2.1.4 RER 020 and RER 035 – only recirculation mode



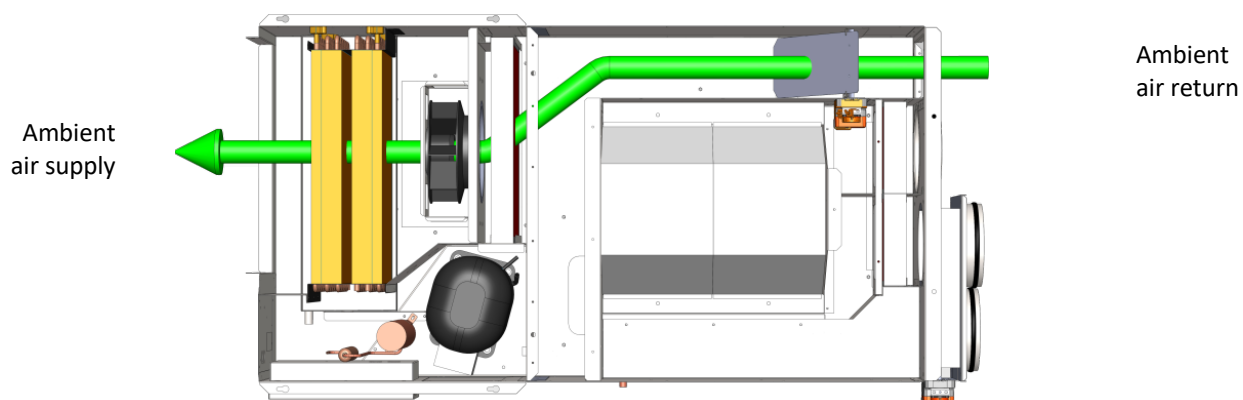
2.1.5 RER 020 and RER 035 – only renewal mode



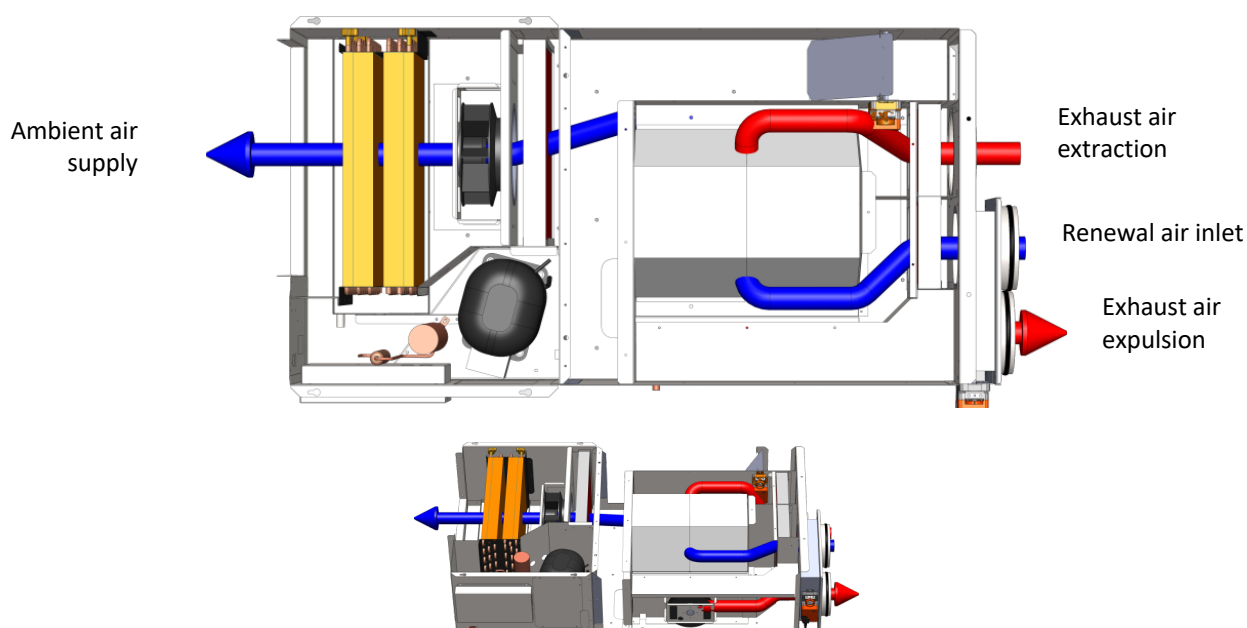
2.1.6 RER 020 and RER 035 – recirculation + renewal



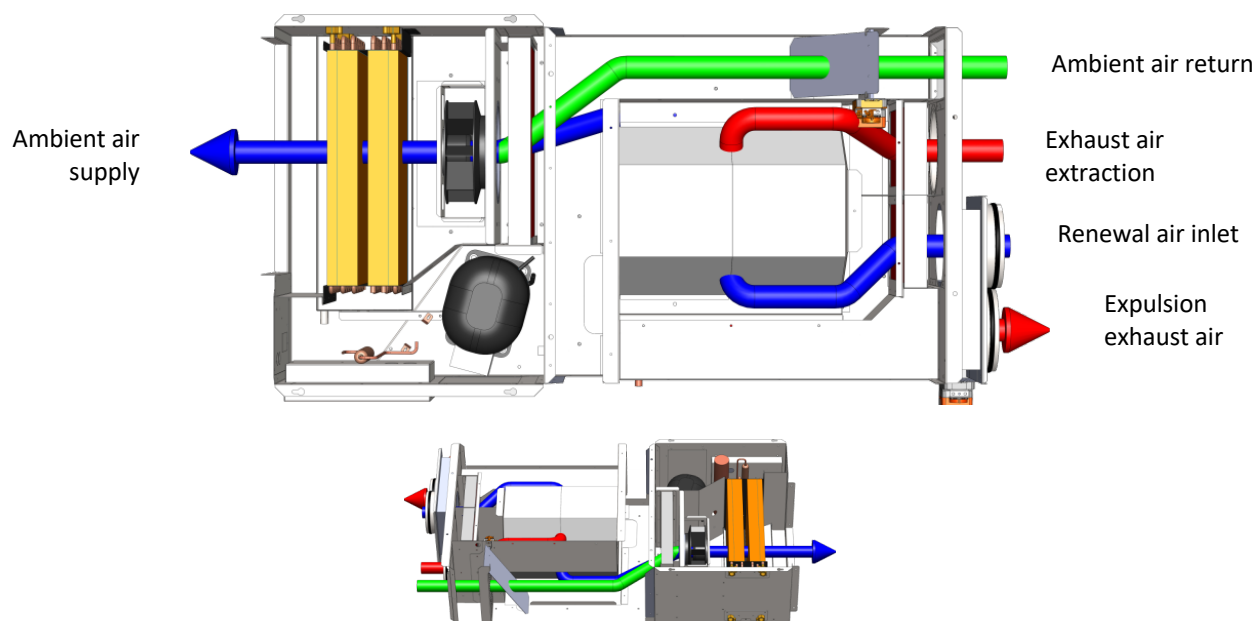
2.1.7 RER 050 – only recirculation mode



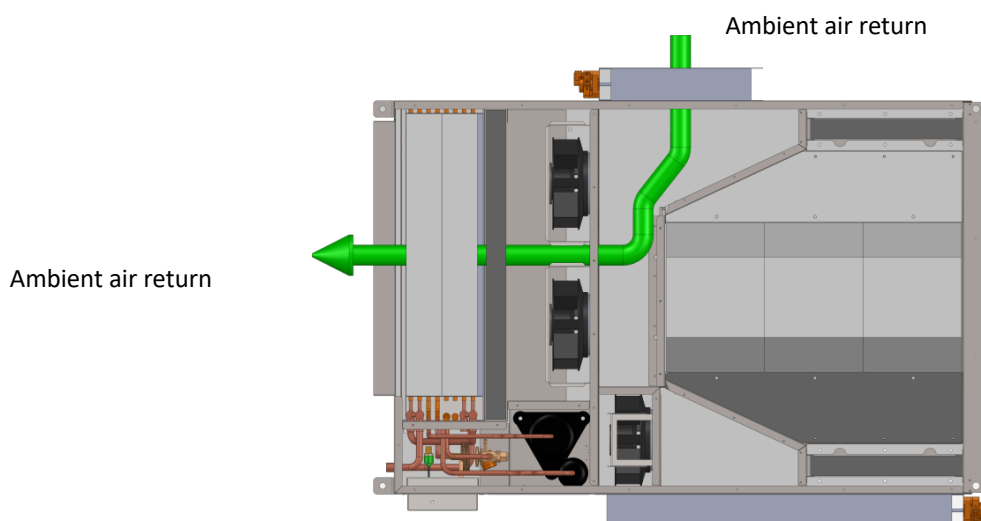
2.1.8 RER 050 – only renewal mode



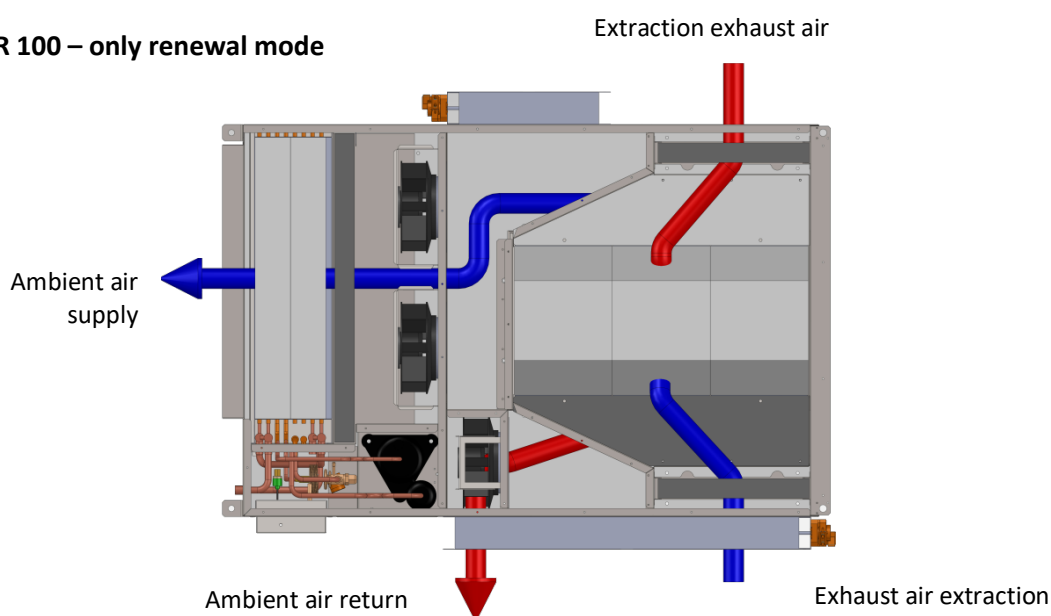
2.1.9 RER 050 – recirculation + renewal



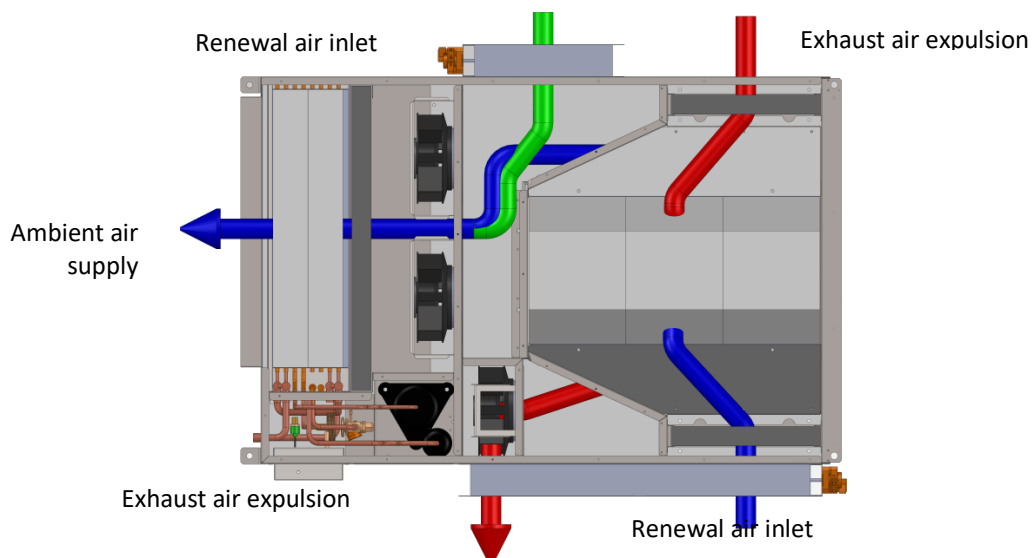
2.1.10 RER 100 – only recirculation mode



2.1.11 RER 100 – only renewal mode

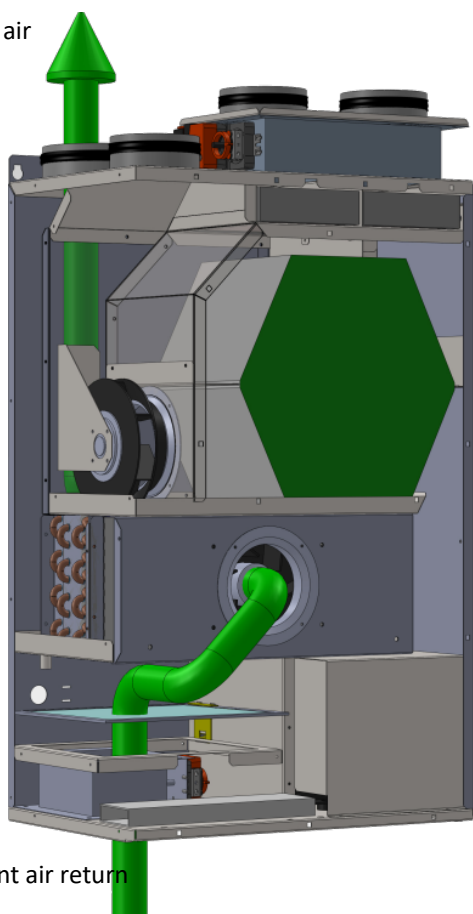


2.1.12 RER 100 – recirculation + renewal



2.1.13 **REV 020 and 035 – recirculation only**

Ambient air supply



Ambient air return

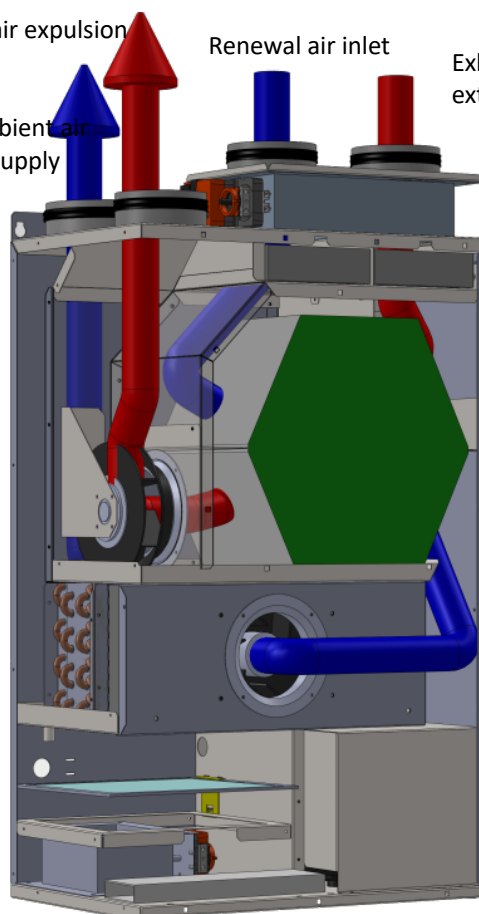
2.1.14 **REV 020 and 035 – renewal only**

Exhaust air expulsion

Renewal air inlet

Exhaust air extraction

Ambient air supply



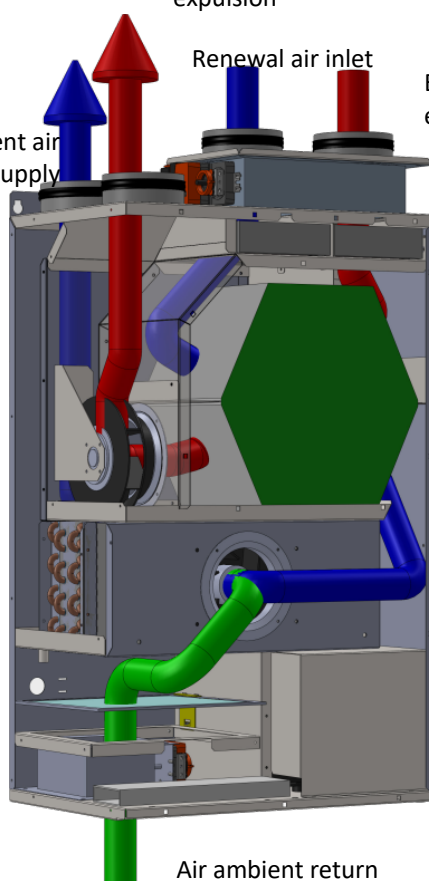
2.1.15 **REV 020 and 035 – recirculation + renewal**

Exhaust air expulsion

Renewal air inlet

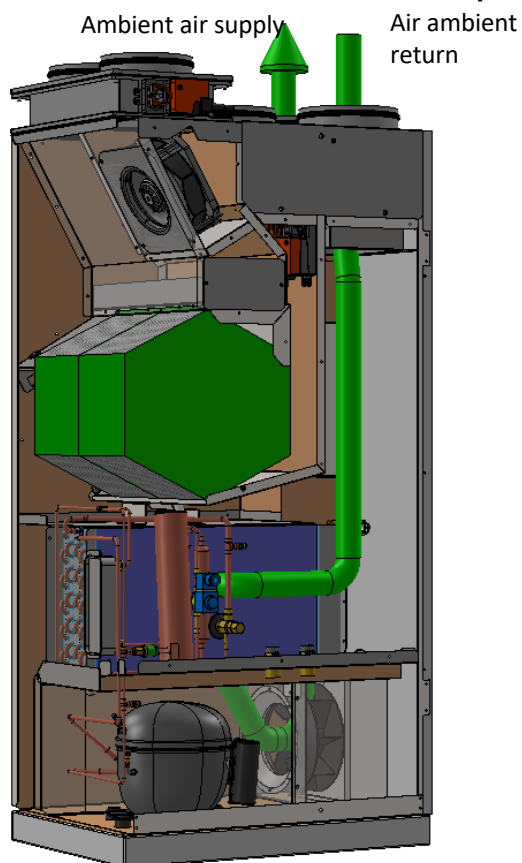
Exhaust air extraction

Ambient air supply

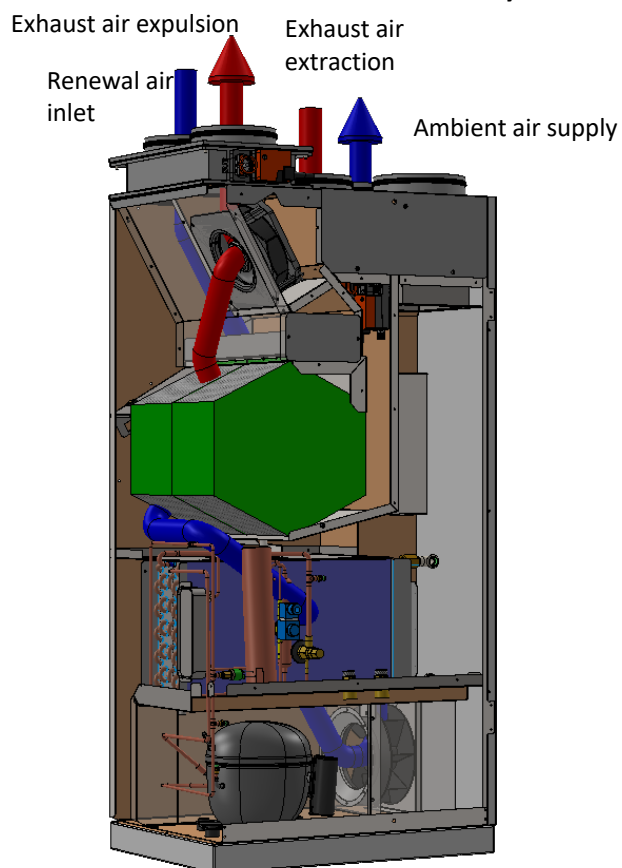


Air ambient return

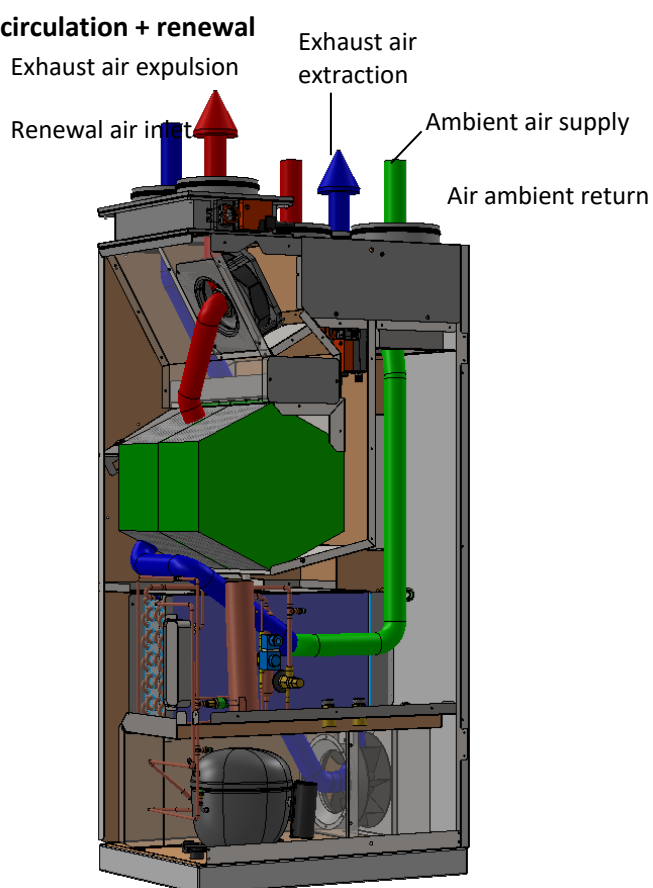
2.1.16 **REV 050 and 070 – recirculation only**



2.1.17 **REV 050 and 070 – renewal only**



2.1.18 **REV 050 and 070 – recirculation + renewal**



REV UNIT POSSIBLE INSTALLATIONS

2.1.19 Visible internal installation (REV 020 and REV 035)



On the left picture, the unit is installed on sight and can be hidden by a dedicated cover; it is fundamental to leave a passage for recirculation air (please refer to the previous chapters for air fluxes).

On the right picture, the unit is installed on sight within a bathroom or a laundry: in this case, there is a back plenum which allows to duct recirculation air (avoiding to spread within the house bath/laundry air).

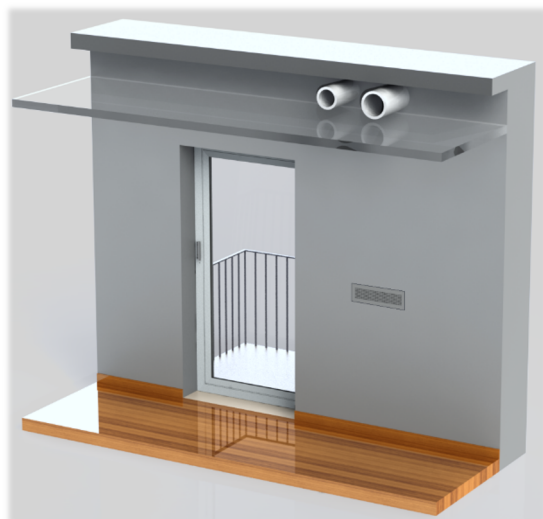
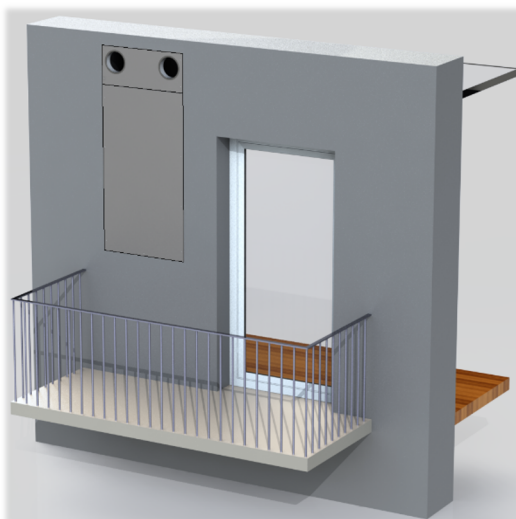
2.1.20 Recessed internal installation (only REV 020)

In this case the unit is installed within a carter, predisposed during the building construction within a wall of appropriate thickness; then, the unit is fixed within the carter, which normally leaves an open space on the lower part for recirculation air, and the necessary space on the upper part, in order to realize the ducts.



2.1.21 Recessed external installation (only REV 020)

In this case, a carter is installed during the building construction within an outdoor wall of appropriate thickness; then, the unit is fixed within the carter, which normally leaves the necessary spaces in order to realize the ducts. A cover panel is supplied with the carter. (Complete with 2 grilles, for fresh air suction and exhaust air expulsion).



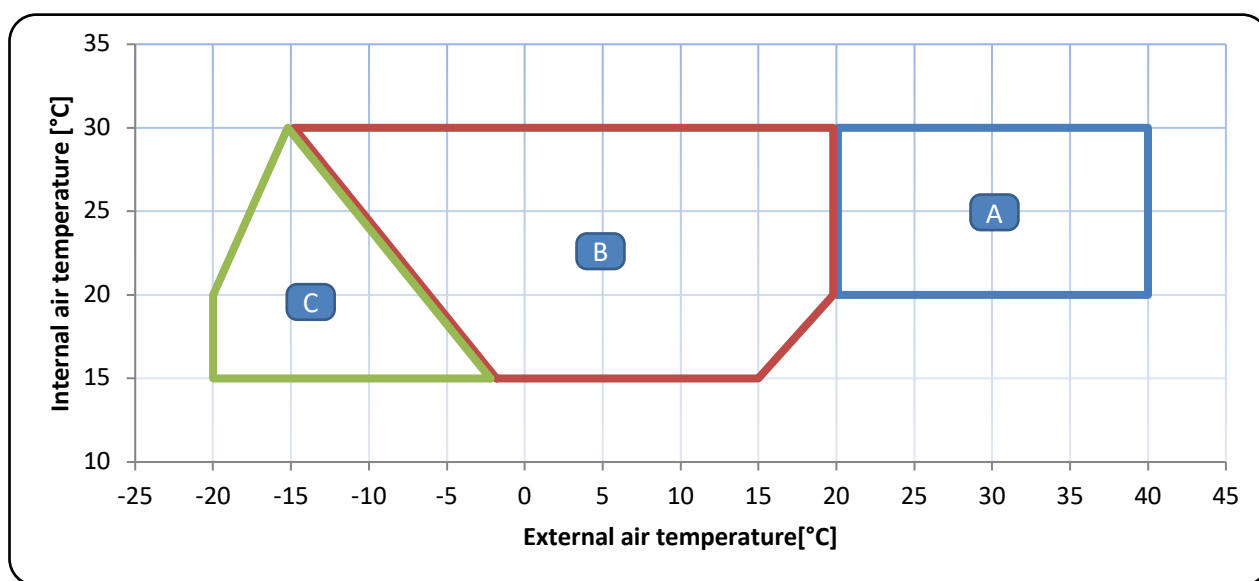
STRUCTURE

The unit is created with an exclusive design that gives the assembly a pleasant appearance as well as ensuring complete inaccessibility, when the machine is closed. This aspect combined with the wide use of sound-absorbing material inside the compartment reduces the sound power level emitted to exceptionally low levels.

Most of the panels can be removed to allow complete access to the unit. For ordinary maintenance, RER units are accessible from below, REV units from the front

All screws and fastening systems are made of non-oxidizable materials and of carbon steels with surface passivation treatment. The layout of the components guarantees easy access and optimal weight distribution on the base of the unit.

OPERATIONAL AND FUNCTIONAL LIMITS



In this diagram we found the operating temperature limits of the unit:

- A SUMMER
- B WINTER
- C Extension of winter operating limits with heat recovery unit automatic defrost [optional].

The functioning humidity limits are 40 – 90 % U.R.



The temperature and humidity conditions at the place of installation shall comply with the limits set out in this paragraph. These operating limits apply to both the air entering the unit and the environment in which the unit is located. Non-compliance with these limits may cause damage to the unit.

OPTIONS AND FUNCTIONS

	RER					REV		
	015	020	035	050	100	020	035	050
<i>Electronic fans with brushless motor and integrated inverter</i>	SERIES					SERIES		
<i>Regulation graphic display with temperature and humidity probes and 2 m of connecting shielded cable</i>	SERIES					SERIES		
<i>5 speeds regulation for fresh air</i>	SERIES					SERIES		
<i>Dirty filter timed signal</i>	SERIES					SERIES		
<i>Detailed anomaly signal</i>	SERIES					SERIES		
<i>Turbo mode</i>	SERIES					SERIES		
<i>Clock card – time scheduling</i>	SERIES					SERIES		
<i>Water anti-frost function</i>	SERIES					SERIES		
<i>Kitchen extractor hood function</i>	SERIES					SERIES		
<i>Automatic defrost of the dehumidifier</i>	SERIES					SERIES		
<i>On/off control for supply air temperature</i>	SERIES					SERIES		
<i>Temperature control function with adjustable supply</i>	OPTIONAL					OPTIONAL		
<i>Kit modulation supply temperature control</i>	OPTIONAL					OPTIONAL		
<i>RS485 Modbus serial card</i>	SERIES					SERIES		
<i>Free cooling</i>	OPTIONAL					OPTIONAL		
<i>Automatic defrost of the heat recovery</i>	OPTIONAL					OPTIONAL		
<i>Connecting shielded cable (display of 5, 10 or 20 m)</i>	OPTIONAL					OPTIONAL		
<i>Temperature and humidity probes mounted on board</i>	OPTIONAL					OPTIONAL		
<i>CO₂ probe</i>	OPTIONAL					OPTIONAL		
<i>Wooden cage</i>	OPTIONAL					OPTIONAL		
<i>Motorised dampers for ambient dew point control</i>	OPTIONAL					OPTIONAL		
<i>High efficiency air filters set</i>	OPTIONAL					OPTIONAL		
<i>Supply plenum</i>	-	OPTIONAL				-	-	-
<i>Recirculation plenum</i>	-		OPTIONAL			OPZIONE		-
<i>Kit for recirculation duct</i>	-	-	-	-	-	OPZIONE		-
<i>Extraction flange</i>	-				OPTIONAL	-	-	-
<i>Flange for canalization</i>	-				OPTIONAL	-	-	-
<i>Silent version with insulation of the compressor vain</i>	OPTIONAL					OPTIONAL		
<i>Second display</i>	OPTIONAL					OPTIONAL		
<i>Display mounted on board</i>	-	-	-	-	-	OPZIONE		

2.1.22 Turbo mode

TURBO mode is particularly useful to eliminate unpleasant odours as quickly as possible. In fact, it activates fresh air exchange at the maximum speed for 10 minutes (the time can be changed from the instaleer menu). To activate TURBO mode, simply press OK on the advanced control display for 3 seconds. After the 10 minutes, the unit will automatically go back to the previous operating conditions.

2.1.23 Water anti-frost function

The unit is equipped with a special probe, placed before the water coils, which checks the air temperature and allows the unit to avoid freezing the water inside the coils if the outside air is particularly cold.

2.1.24 Kitchen extractor hood function

During the period in which this funtion is active, the unit will release more air than it extracts, to compensate for the effect of an extractor hood. The hood function can be activated using the configurable inputs.

2.1.25 Automatic defrost of the dehumidifier

If the unit is equipped with a compressor, the evaporating coil will be defrosted cyclically to allow optimal operation.

2.1.26 On/off control for supply air temperature

The function allows the unit to monitor the air that is introduced into the environment and if it does not respect the limits, which can be modified in the installer menu, the unit circulates water inside the water coil to dilute the air.

2.1.27 Temperature control function with adjustable supply

A supply temperature probe and a 0 – 10 V modulating output are mounted on the unit. When the machine is set in heating mode, so in winter mode, it allows precise adjustment of the supply air temperature.

The request has to be communicated when the order is placed; this option is not compatible with free cooling.

2.1.28 Kit modulation supply temperature control including

A supply temperature probe, a transformer for the valve, a 0 – 10 V modulating output, the water valve and the relative servomotor are mounted on the unit. When the machine is set in heating mode, so in winter mode, it allows precise adjustment of the supply air temperature.

The request has to be communicated when the order is placed; this option is not compatible with free cooling

2.1.29 RS485 Modbus serial card

The connection with bus RS485 is available for remote supervision or domotic management.

More information available on request.

2.1.30 Free cooling

When in summer the external conditions are more comfortable than indoor conditions, the unit automatically activates the external air inlet without heat recovery with expulsion air. The indoor air temperature, further which the free cooling is activated, is the one set as desired temperature. This option includes also the free heating function.

The request has to be communicated when the order is placed; this option is not compatible with supply air temperature control.

2.1.31 Automatic defrost of the heat recovery

A temperature probe placed in exhaust air expulsion together with a software function, allows the installation of the unit even where the outside temperature is really cold, by proceeding with a defrost of the heat recovery each time it is necessary, avoiding the block of the thermal exchange and the introduction in the house of cold air.

The request has to be communicated when the order is placed.

2.1.32 Connecting shielded cable (display of 5, 10 or 20 m)

A double-wires cable, from 5 up to 20 meters, is available for the connection between the unit and the on-wall display.

2.1.33 Temperature and humidity probes mounted on board

A temperature probe and a humidity probe in ambient air intake are mounted on the unit. This allows positioning of the wall display in a technical room and setting of the temperature and humidity reading from the machine and not from the display.

The request has to be communicated when the order is placed.

2.1.34 CO₂ probe

The CO₂ probe is particularly useful for installations in public places such as offices or meeting rooms where the values of carbon dioxide are subject to wide and sudden variations. In this case, the air renewal will always be aligned with the effective needs of the indoor ambient. The probe is supplied separately and must be installed in the environment.

The CO₂ (carbon dioxide) probe detects the quantity of carbon dioxide present in the environment.

The request has to be communicated when the order is placed.

2.1.35 Motorised dampers for ambient dew point control

It consists on a double damper which intercepts the outdoor air and avoids unwanted air passages when the unit is OFF or when the air exchange is not necessary. Moreover, in highly humid summer periods, the dampers allow a better control of the indoor humidity, avoiding the condensation on the floor, due to the introduction of too much humid air from the outside.

The request has to be communicated when the order is placed.

2.1.36 High efficiency air filters set

It consists of a set of more efficient filters than the one present in the unit: this ensure a major cleanness of the air and helps in keeping outdoor the micro-parcels coming from outside.

2.1.37 Supply plenum

A supply plenum allows to duct the supply with flexible pipes: this is available only for RER models.
More information available on request.

2.1.38 Recirculation plenum

For the RER units, a recovery plenum is provided which is used to channel the room air intake for recirculation with spiral hoses. For the REV units a plenum is provided to be installed between the wall and the unit which allows channelling of the intake of ambient air for recirculation upwards; this accessory is essential where the unit is installed in bathrooms and in other rooms where unpleasant odours may form. It is only available for REV units.
More information available on request.

2.1.39 Kit for recirculation duct

It consists of a nozzle to be fixed on the lower part of the unit to duct the ambient air extraction for the recirculation. It is available only for REV units.

2.1.40 Extraction flange

It consists of a frame inserted in the extraction of the dehumidifier which allows easier connection to the duct.

2.1.41 Flange for canalization

It consists of a flange that facilitates the connection of the unit to rigid channels for air distribution.

2.1.42 Silent version with insulation of the compressor vain

There is a sound-absorbent material in all the compressor vain: this allows to reduce the noise produced by the unit when it is working; it is available for all the sizes A (isothermal) and I (with cold integration).
The request has to be communicated when the order is placed.

2.1.43 Second display

An additional display is provided to be connected to the electronic board in order to control the machine from two different points of the house.

2.1.44 Display mounted on board

The display is fixed on the frontal panel of the unit, already connected to the electrical board: with this option, there is no need to install the display on the wall so, no need for connecting cable. It is available only for REV unit.
The request has to be communicated when the order is placed.

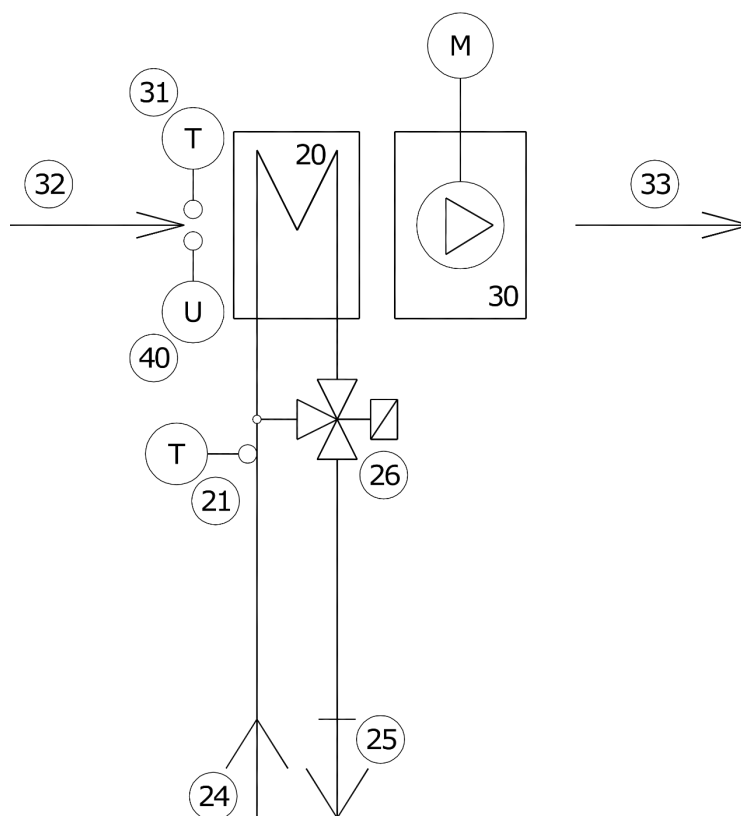
2.1.45 ACF

The display is fixed on the frontal panel of the unit, already connected to the electrical board: with this option, there is no need to install the display on the wall so, no need for connecting cable. It is available only for REV unit.
The request has to be communicated when the order is placed.

3 REFRIGERANT AND HYDRAULIC CIRCUITS

FUNCTIONAL SCHEMES

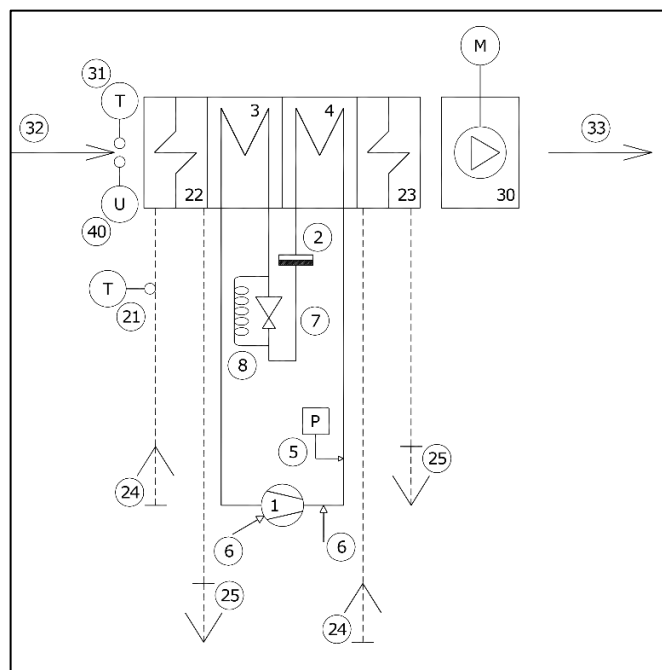
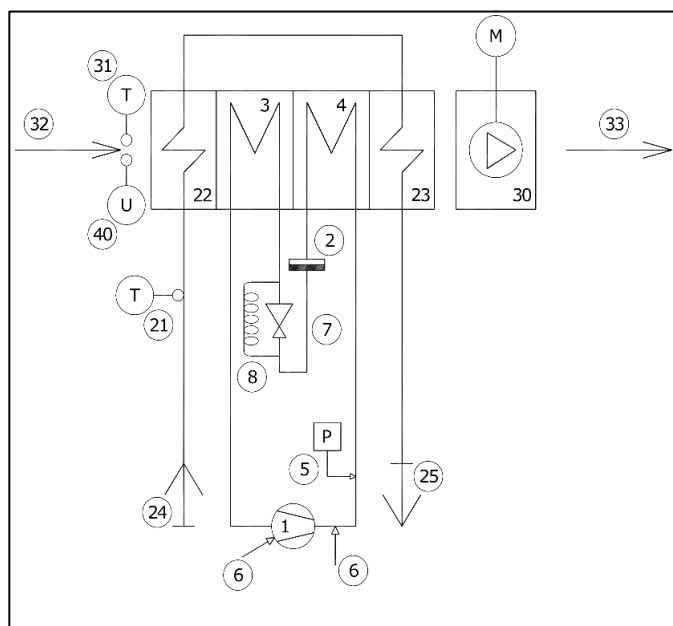
Model W (hydronic)



- 20 Water coil
- 21 Inlet water temperature probe
- 24 Water inlet (from radiant system)
- 25 Water outlet (to radiant system)
- 26 3-way water valve
- 30 Fan
- 31 Temperature probe
- 32 Air inlet
- 33 Air outlet
- 40 Humidity probe

Model 020_035_100_A (isothermal)

Model 050_A (isothermal)

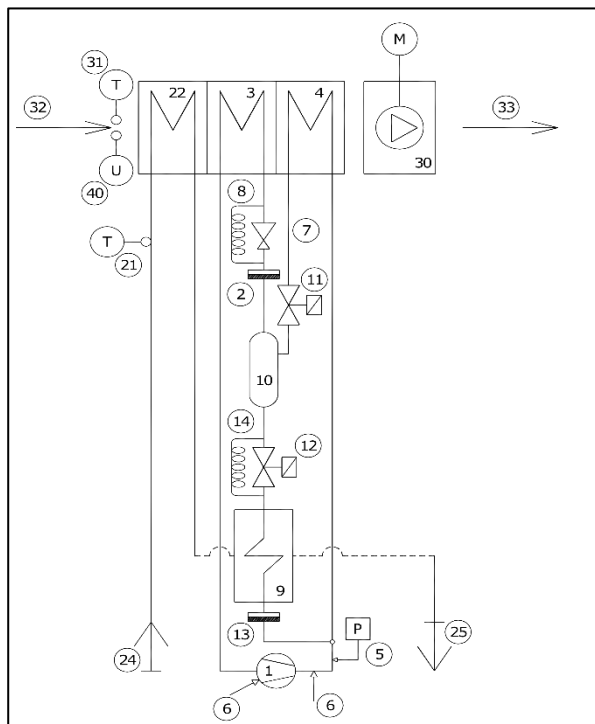


- 1 Compressor
- 2 Filter drier
- 3 Evaporator
- 4 Condenser
- 5 High pressure safety switch
- 6 Service connections
- 7 Throttling device
- 8 Capillary equalization (only models 100)

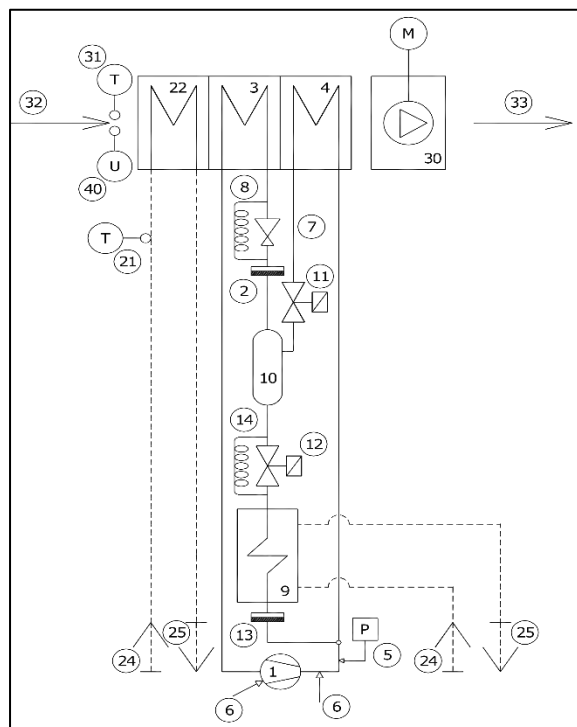
- 21 Inlet water temperature probe
- 22 Pre-cooling coil
- 23 Post-cooling coil
- 24 Water inlet (from radiant system)
- 25 Water outlet (to radiant system)

- 30 Fan
- 31 Temperature probe
- 32 Air inlet
- 33 Air outlet
- 40 Humidity probe

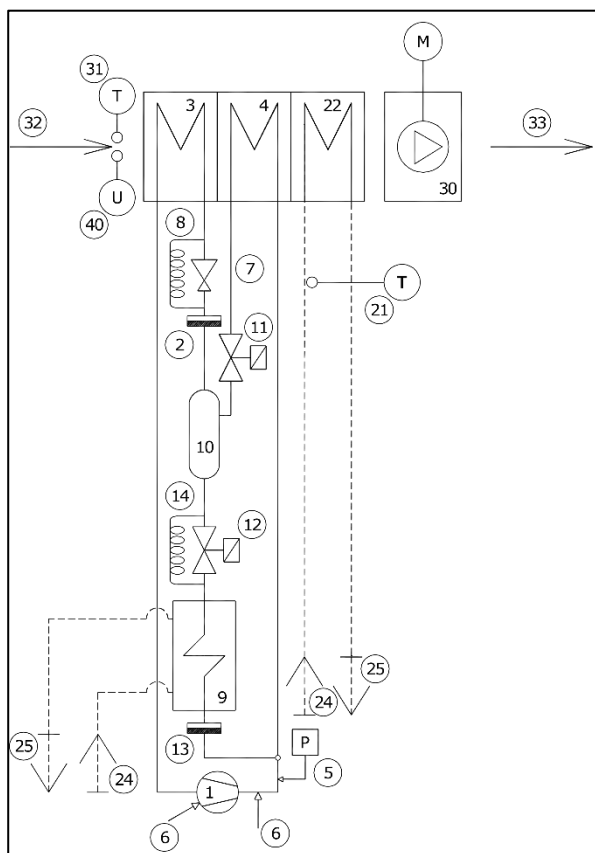
Model 020_035_I (hybrid)



Model 050_I (hybrid)



Model 100_I (hybrid)



- 1 Compressor
- 2 Filter drier
- 3 Evaporator
- 4 Condenser
- 5 High pressure safety switch
- 6 Service connections
- 7 Throttling device
- 8 Capillary equalization (only models 100)
- 9 Plate condenser
- 10 Liquid receiver
- 11 Solenoid valve for ambient temperature control
- 12 Solenoid valve 2 for ambient temperature control (only models 100)
- 13 Mechanical filter (only models 100)
- 14 Capillary equalization ambient temperature control (only models 100)
- 21 Inlet water temperature probe
- 22 Pre-cooling coil
- 24 Water inlet (from radiant system)
- 25 Water outlet (to radiant system)
- 30 Fan
- 31 Temperature probe
- 32 Air inlet
- 33 Air outlet
- 40 Humidity probe

PROJECT CRITERIA

All copper pipes are realized under our specifications, in order to control completely the construction process and improve our quality. Each pipe answers to the requirements imposed by the regulations and is verified with FEM calculation in the more stressed point at 180° and at the maximum pressure allowed by safety devices, considering appropriate safety coefficients. All units have a stainless-steel condensate tray below the coils.

4 ELECTRIC CIRCUITS

ELECTRICAL DEVICES

The electrical panel is created and wired according to the regulations mentioned in the Declaration of Conformity.

You should add a fuse to the domestic electrical implant, in order to protect the unit.

All the remote controls are implemented with low voltage signals, powered by an isolation transformer.



To turn off RER/REV units, use the ON/OFF key on the display. If you turn off the supply, the unit loses the clock control and this affects the correct functioning of time bands program. Moreover, if the power supply is removed, the servomotors for dampers may be in an

incorrect position.

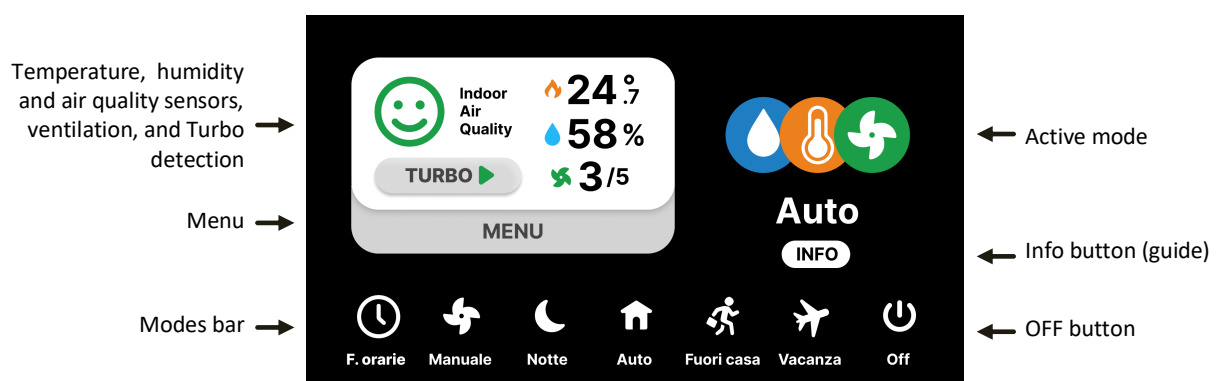
5 DISPLAY TOUCH

The unit can be controlled in four ways, each of which has its own particularities and specific applications:

- with touch display, to control every function of the unit from a fixed point in the house, using the integrated probes (see next chapter);
- through Smart Home applications (currently not available) to control and monitor various functions of the unit, including temperature setpoints, and remote probe readings via “Smart Home” apps.
- with switches, thermostats or control units ;
- with Modbus connection

DISPLAY TOUCH CONTROL

Schermata principale display touch (potrebbe essere diversa da quella in vostro possesso)



5.1.1 Quick guide



This is a concise guide briefly explaining the use of the touch display. For a more in-depth description, please refer to the following chapters and/or press the "info" button on each screen.

The touch display presents real-time information on temperature, humidity, and air quality on the main screen. It also features a menu button that provides access to various settings and functions, including options for changing seasons, adjusting setpoints, viewing the guide, managing Wi-Fi connections, and locking the device. Additionally, the Mode select bar is located at the bottom of the display (with the “Off” button on the right side) and the active mode frame on the right side (with the info button).

- "Auto" and "Night" when home is occupied;
- "Away" and "Holiday", for when you are not present (the former for short and the latter for long periods);
- "Manual" and "Time slots" are designed for direct control or programming of unit functions.

For more information on how they operate, in particular how they handle air treatment and how they can be customized, read the following chapters. The other main special functions that can be activated are 'Turbo', 'Silent Mode', 'Lock', 'Time slots' and the connection with the Smart Home app (more information in the following chapters).

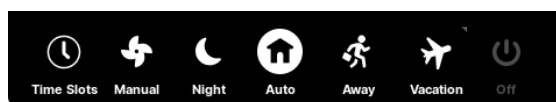
5.1.2 Main screen

In reference to the previous image of the main display screen, we will illustrate each function here:

- Temperature, humidity, ventilation and IAQ (if available): these are the current temperature, humidity, ventilation and IAQ values. Next to each one, there is an icon that, indicates the type of air treatment
- Activating the "Turbo" function sets the air exchange fans to their maximum speed for a duration specified in the general settings menu. To stop the Turbo function, press the button again, which will now display the label "STOP TURBO."
- Menu: this button leads to the main menu screen
- Info: (present on every screen and alternatively represented by the 'i' icon), leads to a concise guide to the very screen on which this button was pressed.
- OFF: This button is used to suspend operation of the unit. Temperature, humidity and IAQ data (if any) are always displayed in real time, but the internal interface is slightly dimmed. To switch the unit back on, simply choose one of the available modes (indicated in green).
- Mode bar and active mode box: the bar contains buttons to select the modes and an illustration of the active mode in the area above right. It is also possible to navigate between modes by swiping left or right in the area.

One of the fundamental aspects to be understood for the correct use of the unit is the selection of the modes: each, due to its own characteristics, is suitable for different home scenarios. In the chapter below, we will take a detailed look at each mode.

5.1.3 Modes



The six "operation modes" are features created for various uses of the RER-REV unit. These modes primarily manage air treatment and air exchange or recirculation based on different scenarios, such as when rooms are occupied during the day, during the night, or when they are unoccupied. To activate a mode, simply select it in the bottom bar of the main screen. You can also customize these modes by accessing the "mode settings" menu. Detailed explanations of each mode will follow in the upcoming paragraphs.

5.1.3.1 "Auto" Mode



In this mode, designed for daily use, the unit ensures an environment where temperature, humidity, and air quality are automatically controlled. The reference values for temperature and humidity are those set in the "Setpoint" menu (accessible from the main screen by pressing the "menu" button and selecting "Setpoint"). Ventilation control is managed automatically based on readings from the IAQ sensor: if poor air quality is detected, the exchange will be set to maximum speed; if good, it will be maintained at lower speeds.

5.1.3.2 "Manual" Mode



This mode is suitable in situations where the user wants to control the ventilation level directly. By pressing the '+' and '-' buttons on the right-hand panel, the desired ventilation level can be set, which will be displayed in the center panel. The control of temperature and humidity is managed automatically on the basis of setpoint values.

5.1.3.3 "Time slot" Mode



In this mode, control of temperature, humidity, ventilation, on/off states can be programmed by the user according to day and time. To change time zone values, please refer to "General settings" chapter. The graph in the active mode frame shows ventilation settings.

5.1.3.4 "Night" Mode



This mode, intended for use during occupants sleeping hours, is based on the 'Auto' mode but includes the following differences: ventilation and temperature can be customized in the Mode Settings menu (5.1.5) to ensure better comfort.

5.1.3.1 “Away” Mode



This mode is designed to be used when the house is unoccupied. It is particularly useful in homes where it is necessary to constantly control the humidity and temperature level, which is managed according to a setpoint deviation, that can be customized in the Modes Settings menu. It also ensures a constant air exchange, which can also be customized.

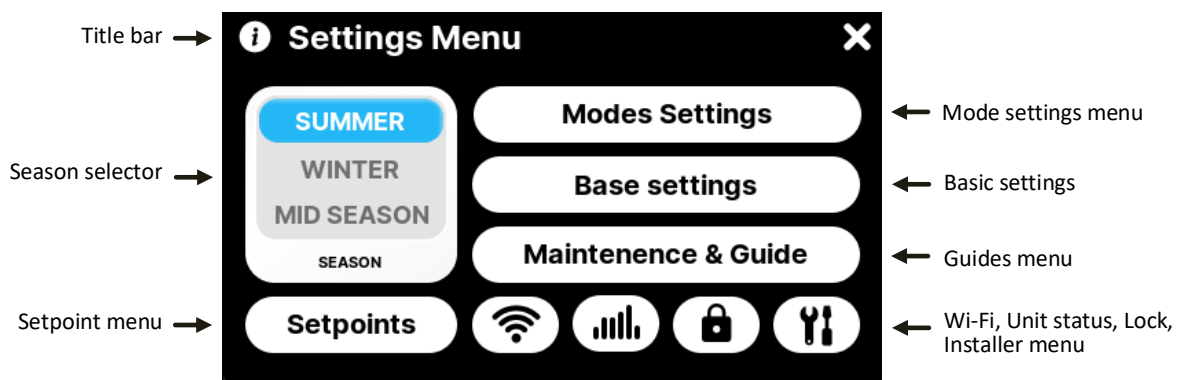
5.1.3.1 “Vacation” Mode



This mode is designed for long periods of time when the house is unoccupied for several days. It guarantees a defined air exchange and humidity control that can be customized in the "Modes settings" menu.

GENERAL SETTINGS MENU

General settings menu screen



In this screen (image above) you can access all available unit settings, controls and functions, grouped and divided into submenus:

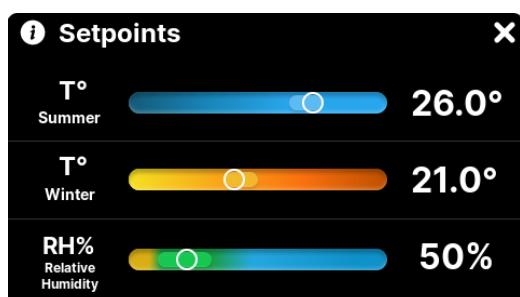
Season selector

Here, you can change the season (summer/winter) or disable it (mid-season) for water temperature control.



ATTENZIONE WARNING Changing the season on the display also doesn't change the season on the heat pump: be careful before changing it and remember to change it on both accordingly.

5.1.4 Temperature and humidity setpoint



Here you can change the reference values for humidity and temperature management (divided according to season).



ATTENZIONE WARNING If the unit is type 'A' and is not equipped with the "Free cooling option" only the setpoint selector 'summer' will appear.

5.1.5 Modes settings

Here, the configurations for each individual mode can be changed and customized according to the available options. The values that can be changed are the following:

Time slot mode

- Edit time slots: allows access to the configuration screen
- Reset time slots: allows resetting the default values of time periods.

Night mode

- T° difference: indicates the temperature deviation from the setpoint (default = $\pm 2^{\circ}$)
 - If the season is set to "summer," the setpoint value will be increased by the differential.
 - If the season is set to "winter," the setpoint value will be decreased by the differential.
- Ventilation speed: indicates the ventilation level (default = 2/5)
- Programming, Programming start, Programming end: If "Programming" is enabled, allows programming of the activation and deactivation times of the mode itself (default = Off, 23:00, 06:00).
- Ionizer: (if present) indicates the active ionizer level, if present (default = 0)

Away

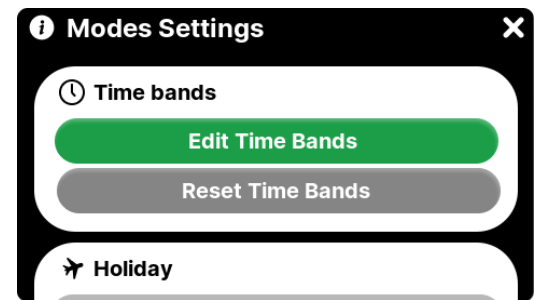
- T° difference: indicates the temperature deviation from the setpoint (default = $\pm 2^{\circ}$)
 - If the season is set to "summer," the setpoint value will be increased by the differential.
 - If the season is set to "winter," the setpoint value will be decreased by the differential.
- Ventilation speed: indicates the ventilation level (default = 2/5)
- Ionizer: (if present) indicates the active ionizer level (default = 0)

Vacation mode

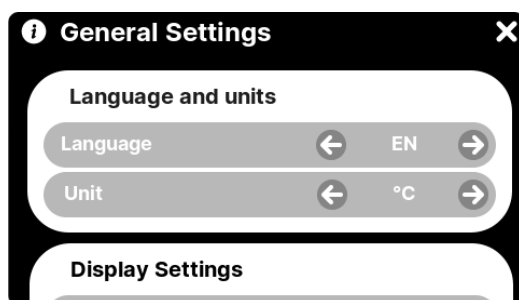
- Fan speed: indicates the ventilation level while using the mode (default = 2/5)

Auto " mode

- Fan speed: indicates the ventilation level while using the mode (default = 2/5)



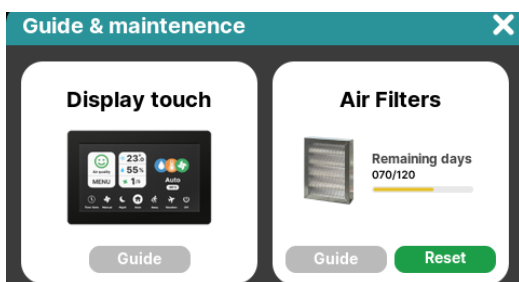
5.1.6 Basic settings



This is the menu containing the list of generic unit settings. It is possible to set:

- Silent mode on/off
- Turbo' duration timer
- System language
- Display brightness
- Display switch-off timer
- Date and time
- Wi-Fi activation/deactivation (when available)

5.1.7 Integrated maintenance and guide

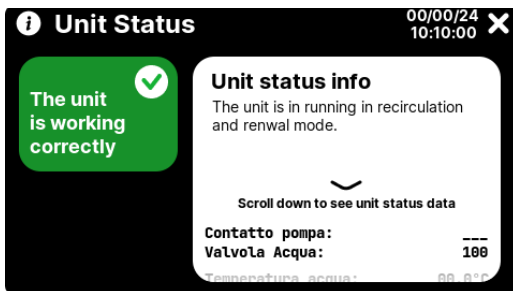


This page contains all the guide pages and the unit maintenance instructions.

5.1.8 Wi-Fi connection

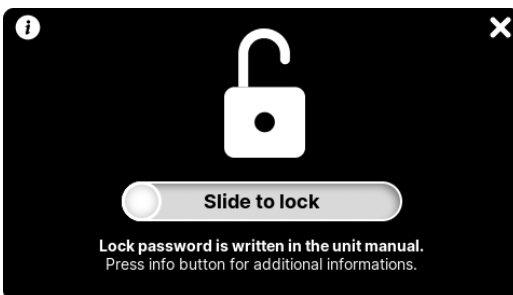
Currently not available.

5.1.9 Unit Status

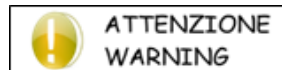


The screen is split into two sections. On the left, there's a simplified summary for all users, offering information on the unit's correct operation. On the right, you'll find advanced status details, giving a comprehensive view of individual components. This section is particularly useful for diagnostics and is recommended for advanced users or specialized personnel.

5.2 Lock

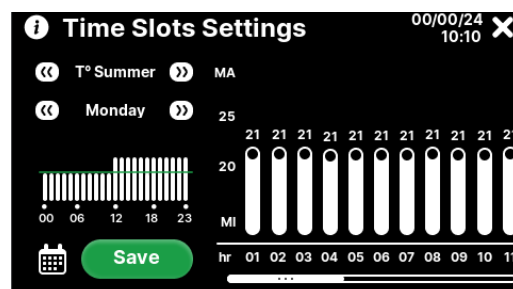


In this screen, you can activate the unit control lock, a function that is particularly useful in situations where you want to restrict the use of the display to prevent unwanted changes by external users. To activate it, simply slide your finger on the slider as far as it will go. Once activated, the moment the screen is touched, a password entry screen for unlocking will appear: any other type of touch and operation will be prevented.



Only by entering the code 0499 will it be possible to unlock the unit and check it again.

5.2.1 Time slot modification settings



In this screen, the following time slots parameters can be programmed according to the time and day of the week:

- Temperature setpoint (winter and/or summer)
- Humidity setpoint
- Ventilation level
- On/Off
- Ionizer level (if present)

On the left-hand side of the screen, from top to bottom, are the following

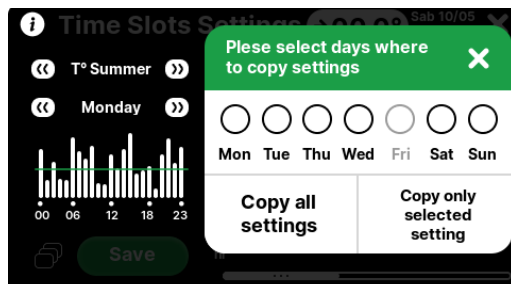
commands:

- Parameter selector: allows you to choose the specific parameter to be programmed (see previous list);
- Day selector: allows you to select the specific day on which to make changes;
- Mini-graph: graph representing, in real time, the values of the previously selected parameter and day;
- Copier button (left) and confirmation button (right):

This button activates the 'copier' functions, which are useful for quickly copying values across different days of the week (details provided later).

This button saves any changes made to the time slots.

In the left part of the screen, you can scroll through the 24 vertical control bars (relating to the values of the parameter selected in the 'Parameter Selector'), corresponding to the hours of the chosen day. To scroll through them all, use the horizontal bar at the bottom right of the screen.



The 'copier' tool copies the settings (all or individual) of a given day to others, thus enabling faster programming than editing each individual parameter-day. By pressing the copier button, a window will appear on the right-hand side in which, depending on the day selected by the selector switch on the left, a tick can be added to the days on which settings are to be copied. With the "copy all settings" and "copy selected setting" buttons, you can decide whether to copy all or the active selected one.

CONTROL VIA EXTERNAL DEVICES



Using the configurable inputs and outputs or preconfigured inputs, it is possible to control the unit with switches, thermostats, switching actuators or control units for, for example: regulate the temperature using an electronic or mechanical hygrostat switching the unit or specific functions on or off from one or more wall switches or control units

For a complete list of usable functionalities (and their installation/configuration) read unit control wiring section of this manual.

MODBUS CONTROL



Using the Modbus connection, control of the unit can be delegated to a system based on the same communication protocol.



The use of the Modbus connection is intended for experienced users only, please consult qualified personnel. After completing its installation procedure, the installer, using Modbus related software and the BMS manual (inside which are the instructions and the list of available controls - to be requested from your supplier separately) can proceed to configure the controls that can be used via Modbus.

CONTROL WITHOUT TOUCH DISPLAY

5.2.2 Control via preconfigured commands



Connect only clean contacts and not live contacts

If wall switches or thermostats are used, the device can be controlled through the following functions:

- *Season switching*
- *Air exchange Activation/deactivation*
- *Dehumidification [humidistat contact] Activation/deactivation*
- *Heating/cooling [thermostat contact] Activation/deactivation*



- *With the last command, cooling will be achieved if the season is set to summer, and heating if the season is set to winter.*
- *We recommend following the specific usage instructions of the respective switch/thermostat, which is responsible for the control.*
- *For installation information, we also recommend reading the related installation chapter*

5.2.3 Control via Modbus

The use of control via Modbus is the same, regardless of whether the unit is equipped with a touch display. We therefore invite you to read the previous chapter.

6 TECHNICAL DATA

TECHNICAL DATA SHEET

		RER 015			RER 020			RER 035		
		W	A	I	W	A	I	W	A	I
Dehumidification capacity	l/24h	18	15	15	29	24,5	24,5	43	36	36
Compressor	type	-	Reciprocating		-	Reciprocating		-	Reciprocating	
Refrigerant circuits	No.	0	1		0	1		0	1	
Refrigerant	type	-	R513A		-	R513A		-	R513A	
Refrigerant load	kg	-	0,15	0,39	-	0,18	0,65	-	0,37	1,5
Global warming potential (GWP)	-	-	631		-	631		-	631	
CO2 equivalent load	t	-	0,09	0,25	-	0,11	0,41	-	0,23	0,95
Efficiency of heat recovery in winter (1)	%	93			92			91		
Efficiency of heat recovery in summer (2)	%	90			88			87		
Total cooling capacity	W	1190	0	800	1920	0	1300	2700	0	2380
Cooling capacity provided by the chiller	W	1190	721	1030	1920	1058	1512	2700	2194	3134
Thermal capacity recovered in winter	W	620			1096			1448		
Thermal capacity recovered in summer	W	210			370			498		
Compressor power	W	-	230		-	212		-	754	
Absorbed power	W	35	230		40	250		50	800	
Maximum absorbed power	W	110	410		170	510		250	1000	
Absorbed current	A	0,4	1,7		0,4	1,9		0,5	5	
Maximum absorbed current	A	1	2,8		1,5	4		2,2	7,2	
Inrush current	A	1	18		1,5	19		2,2	18	
Power supply	V / ph / Hz	230 / 1~+N / 50			230 / 1~+N / 50			230 / 1~+N / 50		
Nominal water coil flow	l/h	250	125		400	200		570	360	
Water pressure drops	kPa	12	14	16	50	25	24	50	22	22
Supply air fans	No.	1			1			1		
Exhaust air fans	No.	1			1			1		
Nominal air flow	m³/h	160			260			380		
Renewal air flow	m³/h	0 – 80			0 – 130			0 – 190		
Available static pressure	Pa	210			170			190		
Sound pressure level (3)	dB(A)	36	37		38	39		40	42	
Stock temperature limit	°C	-10 / +43			-10 / +43			-10 / +43		
Stock humidity limit	%	90			90			90		
Dimensions (base x depth x height)	mm	960 x 610 x 250			1125 x 730 x 250			1125 x 730 x 300		
Unladen weight	kg	40	50		50	60		60	70	



ATTENZIONE WARNING

Units in version "I", to function, need to be always supplied with water: otherwise they cannot work and they will block. Operation without water causes damage to the machine and will invalidate the warranty

Units in version "A" can function also without water. In this case the air coming out from the unit will be warmer than the air entering the unit while the dehumidification capacity will be significantly reduced. Units in version "W" without water do not block, but they cannot dehumidify, neither heating or cooling. Dehumidification, cooling capacity and absorbed power are declared at the nominal point of +26°C, 65% RH, with water inlet at +15°C (+10°C only for RER/REV in version W).

1. Winter efficiency is declared with ambient air conditions: +20°C, 50% RH and outdoor air conditions -5°C, 80% RH.
2. Summer efficiency is declared with ambient air conditions: +26°C, 65% RH and outdoor air conditions: +35°C, 50% RH.
3. Sound pressure level measured in free field, 2 m from the unit, with a correction factor Q=2, according to the regulation ISO 9614, ducted unit with static pressure 50 Pa.

In different conditions the values will vary: the further from the nominal point, the larger will be the variations.

		RER 050			RER 100		
		W	A	I	W	A	I
Dehumidification capacity	l/24h	58	48	48	120	100	100
Compressor	type	-	Reciprocating		-	Rotary	
Refrigerant circuits	No.	0	1		0	1	
Refrigerant	type	-	R513A		-	R410A	
Refrigerant load	kg	-	0,45	1,65	-	0,95	1,85
Global warming potential (GWP)	-	-	631		-	2088	
CO2 equivalent load	t	-	0,28	1,04	-	1,98	3,86
Efficiency of heat recovery in winter (1)	%	93			91		
Efficiency of heat recovery in summer (2)	%	89			86		
Total cooling capacity	W	3650	0	3230	7700	0	6800
Cooling capacity provided by the chiller	W	3650	2800	4000	7700	5713	8161
Thermal capacity recovered in winter	W	1974			3852		
Thermal capacity recovered in summer	W	670			1290		
Compressor power	W	-	770		-	1361	
Absorbed power	W	60	800		160	1500	
Maximum absorbed power	W	250	1100		510	2000	
Absorbed current	A	0,54	5,5		1,5	7,8	
Maximum absorbed current	A	2,2	7,7		4,2	11	
Inrush current	A	2,2	28		4,2	41	
Power supply	V / ph / Hz	230 / 1~+N / 50			230 / 1~+N / 50		
Nominal water coil flow	l/h	790	500		1800	1000	
Water pressure drops	kPa	40	30	29	50	32	25
Supply air fans	No.	1			2		
Exhaust air fans	No.	1			1		
Nominal air flow	m³/h	520			1000		
Renewal air flow	m³/h	0 - 260			0 - 500		
Available static pressure	Pa	170			160		
Sound pressure level (3)	dB(A)	43	44		44	47	
Stock temperature limit	°C	-10 / +43			-10 / +43		
Stock humidity limit	%	90			90		
Dimensions (base x depth x height)	mm	1545 x 810 x 375			1490 x 965 x 450		
Unladen weight	kg	70	80		130	140	



ATTENZIONE WARNING

Units in version "I", to function, need to be always supplied with water: otherwise they cannot work and they will block. Operation without water causes damage to the machine and will invalidate the warranty.

Units in version "A" can function also without water. In this case the air coming out from the unit will be warmer than the air entering the unit while the dehumidification capacity will be significantly reduced.

Units in version "W" without water do not block, but they cannot dehumidify, neither heating or cooling.

Dehumidification, cooling capacity and absorbed power are declared at the nominal point of +26°C, 65% RH, with water inlet at +15°C (+10°C only for RER/REV in version W).

1. Winter efficiency is declared with ambient air conditions: +20°C, 50% RH and outdoor air conditions: -5°C, 80% RH.
2. Summer efficiency is declared with ambient air conditions: +26°C, 65% RH and outdoor air conditions: +35°C, 50% RH.
3. Sound pressure level measured in free field, 2 m from the unit, with a correction factor Q=2, according to the regulation ISO 9614, ducted unit with static pressure 50 Pa.

In different conditions the values will vary: the further from the nominal point, the larger will be the variations.

		REV 020			REV 035		
		W	A	I	W	A	I
Dehumidification capacity	l/24h	29	24,5	24,5	43	36	36
Compressor	type	-	Reciprocating		-	Reciprocating	
Refrigerant circuits	No.	0	1		0	1	
Refrigerant	type	-	R513A		-	R513A	
Refrigerant load	kg	-	0,18	0,65	-	0,37	1,5
Global warming potential (GWP)	-	-	631		-	631	
CO2 equivalent load	t	-	0,11	0,41	-	0,23	0,95
Efficiency of heat recovery in winter (1)	%	92			91		
Efficiency of heat recovery in summer (2)	%	88			87		
Total cooling capacity	W	1920	0	1300	2700	0	2380
Cooling capacity provided by the chiller	W	1920	1058	1512	2700	2194	3134
Thermal capacity recovered in winter	W	1096			1448		
Thermal capacity recovered in summer	W	370			498		
Compressor power	W	-	212		-	754	
Absorbed power	W	40	250		50	800	
Maximum absorbed power	W	170	510		250	1000	
Absorbed current	A	0,4	1,9		0,5	5	
Maximum absorbed current	A	1,5	4		2,2	7,2	
Inrush current	A	1,5	19		2,2	18	
Power supply	V / ph / Hz	230 / 1~+N / 50			230 / 1~+N / 50		
Nominal water coil flow	l/h	400	200		570	360	
Water pressure drops	kPa	50	25	24	50	22	22
Supply air fans	No.	1			1		
Exhaust air fans	No.	1			1		
Nominal air flow	m³/h	260			380		
Renewal air flow	m³/h	0 – 130			0 – 190		
Available static pressure	Pa	170			170		
Sound pressure level (3)	dB(A)	38	39		39	41	
Stock temperature limit	°C	-10/ +43			-10 / +43		
Stock humidity limit	%	90			90		
Dimensions (base x depth x height)	mm	600 x 380 x 980			650 x 430 x 1050		
Unladen weight	kg	50	60		55	65	



ATTENZIONE WARNING

Units in version "I", to function, need to be always supplied with water: otherwise they cannot work and they will block. Operation without water causes damage to the machine and will invalidate the warranty.

Units in version "A" can function also without water. In this case the air coming out from the unit will be warmer than the air entering the unit while the dehumidification capacity will be significantly reduced.

Units in version "W" without water do not block, but they cannot dehumidify, neither heating or cooling.

Dehumidification, cooling capacity and absorbed power are declared at the nominal point of +26°C, 65% RH, with water inlet at +15°C (+10°C only for RER/REV in version W).

1. Winter efficiency is declared with ambient air conditions: +20°C, 50% RH and outdoor air conditions -5°C, 80% RH.
2. Summer efficiency is declared with ambient air conditions: +26°C, 65% RH and outdoor air conditions: +35°C, 50% RH.
3. Sound pressure level measured in free field, 2 m from the unit, with a correction factor Q=2, according to the regulation ISO 9614, ducted unit with static pressure 50 Pa.

In different conditions the values will vary: the further from the nominal point, the larger will be the variations.

		REV 050			REV 070		
		W	A	I	W	A	I
Dehumidification capacity	l/24h	58	48	48	71	68	68
Compressor	tipo	-	Reciprocating		-	Rotary	
Refrigerant circuits	nr	0	1		0	1	
Refrigerant	tipo	-	R513A		-	R410A	
Refrigerant load	kg	-	0,45	1,65	-	0,55	1,80
Global warming potential (GWP)	-	-	631		-	2088	
CO2 equivalent load	t	-	0.28	1,04		1,15	3,76
Efficiency of heat recovery in winter (1)	%	93			91		
Efficiency of heat recovery in summer (2)	%	89			86		
Total cooling capacity	W	3650	0	3230	4290	0	4620
Cooling capacity provided by the chiller	W	3650	2800	4000	4290	3960	5578
Thermal capacity recovered in winter	W	1974			2696		
Thermal capacity recovered in summer	W	670			903		
Compressor power	W	-	770		-	958	
Absorbed power	W	60	800		115	1073	
Maximum absorbed power	W	250	1100		255	1914	
Absorbed current	A	0,54	5,5		1,02	5,5	
Maximum absorbed current	A	2,2	7,7		2,2	8,9	
Inrush current	A	2,2	28		2,2	26	
Power supply	V / ph / Hz	230 / 1~+N / 50			230 / 1~+N / 50		
Nominal water coil flow	l/h	790	500		1500	600	
Water pressure drops	kPa	40	30	29	50	35	34
Supply air fans	nr	1			1		
Exhaust air fans	nr	1			1		
Nominal air flow	m³/h	520			700		
Renewal air flow	m³/h	0 – 260			0-350		
Available static pressure	Pa	170			100		
Sound pressure level (3)	dB(A)	43	44		45	46	
Stock temperature limit	°C	-10 / +43			-10 / +43		
Stock humidity limit	%	90			90		
Dimensions (base x depth x height)	mm	700 x 515 x 1600			700 x 515 x 1600		
Unladen weight	kg	75	90		77	92	



ATTENZIONE WARNING

Units in version "I", to function, need to be always supplied with water: otherwise they cannot work and they will block. Operation without water causes damage to the machine and will invalidate the warranty.

Units in version "A" can function also without water. In this case the air coming out from the unit will be warmer than the air entering the unit while the dehumidification capacity will be significantly reduced.

Units in version "W" without water do not block, but they cannot dehumidify, neither heating or cooling.

Dehumidification, cooling capacity and absorbed power are declared at the nominal point of +26°C, 65% RH, with water inlet at +15°C (+10°C only for RER/REV in version W).

1. Winter efficiency is declared with ambient air conditions: +20°C, 50% RH and outdoor air conditions -5°C, 80% RH.
2. Summer efficiency is declared with ambient air conditions: +26°C, 65% RH and outdoor air conditions: +35°C, 50% RH.
3. Sound pressure level measured in free field, 2 m from the unit, with a correction factor Q=2, according to the regulation ISO 9614, ducted unit with static pressure 50 Pa.

In different conditions the values will vary: the further from the nominal point, the larger will be the variations.

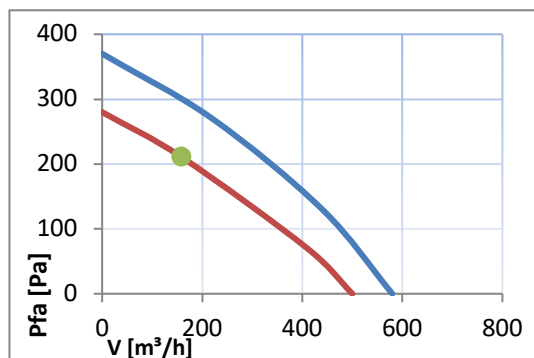
AIR FLOWS AND PRESSURE

All our RER units install electronic radial fans with inverter integrated and brushless motor.

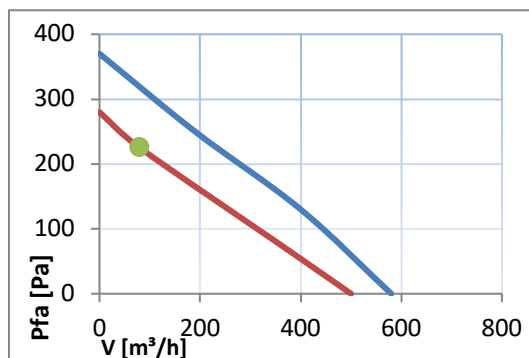
It is set at a standard speed. Please refer to the installation paragraph to calibrate the unit.

The air flow is on the x-axis, the useful static pressure is on the y-axis and it is declared with free outlet.

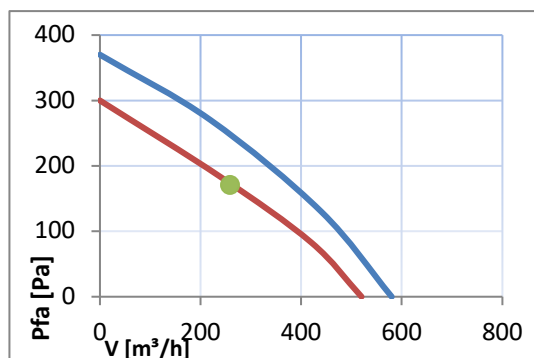
SUPPLY SIZE 015



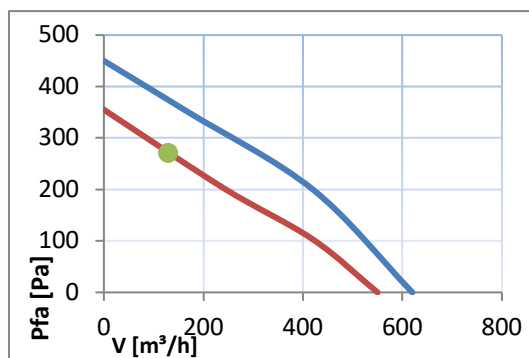
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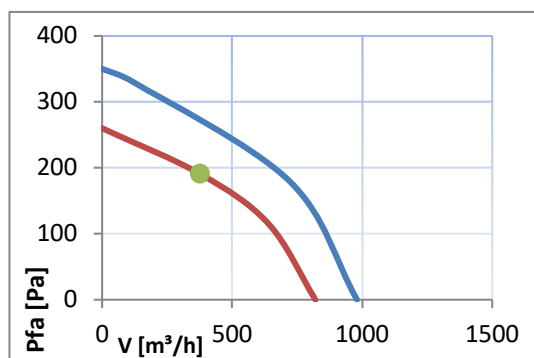
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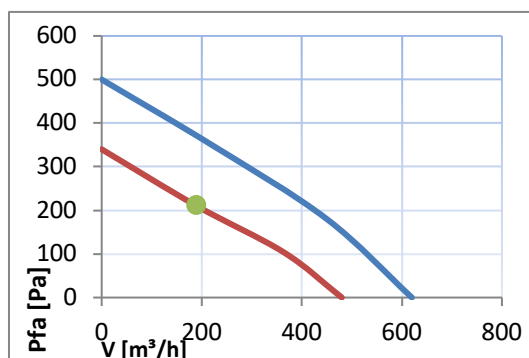
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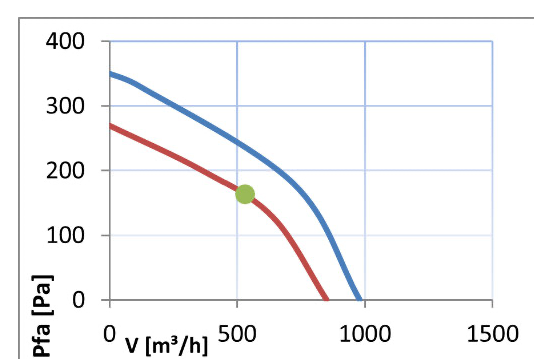
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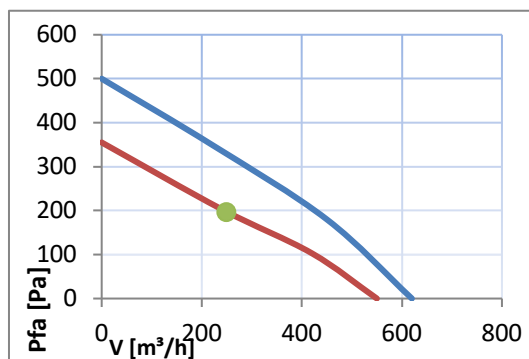
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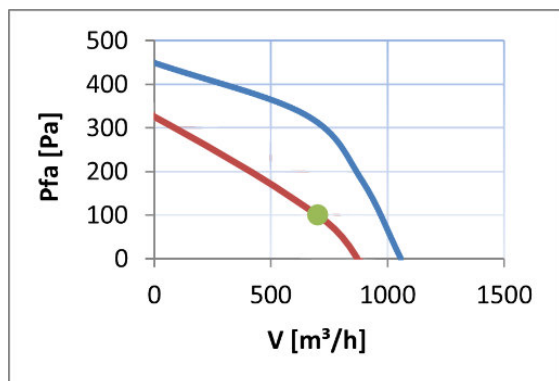
SUPPLY SIZE 050



EXTRACTION SIZE 050

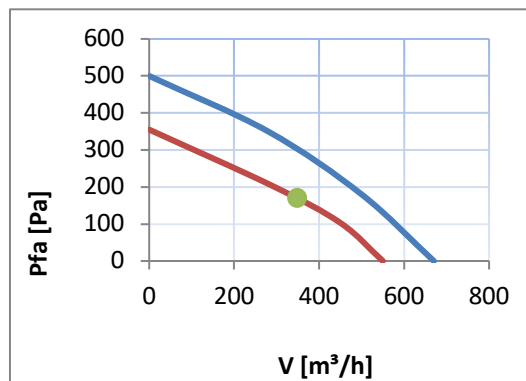


SUPPLY SIZE 070



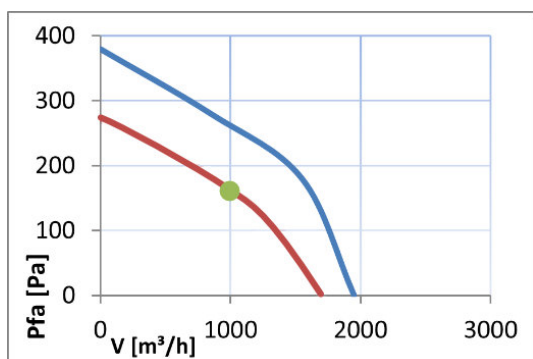
Low curve = Maximum acceptable noise limit

EXTRACTION SIZE 070



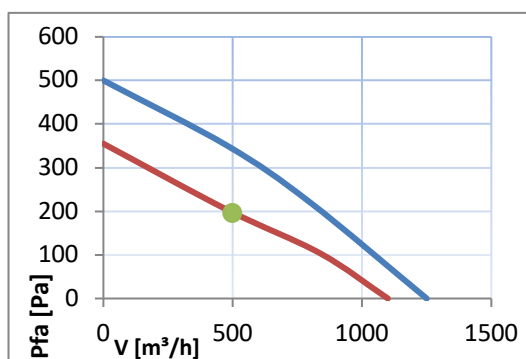
High curve = Maximum limit

SUPPLY SIZE 100



Low curve = Maximum acceptable noise limit

EXTRACTION SIZE 100

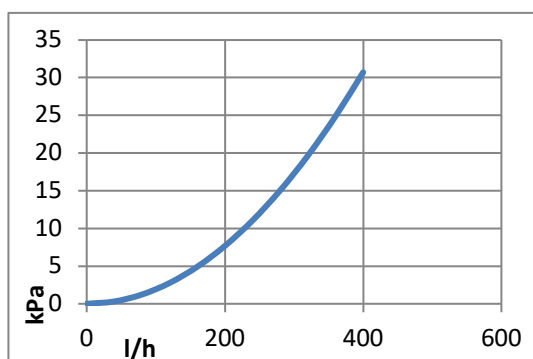


High curve = Maximum limit

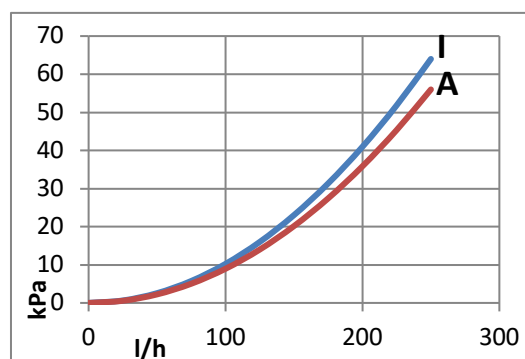
HYDRAULIC CIRCUIT LOAD LOSSES

On the x-axis there is the water flow, on the y-axis there are the hydraulic circuit water pressure drop.

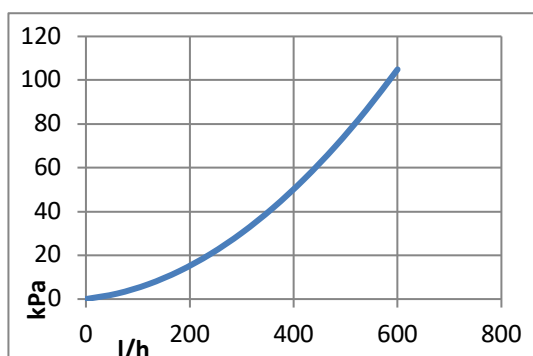
SIZE 015 W



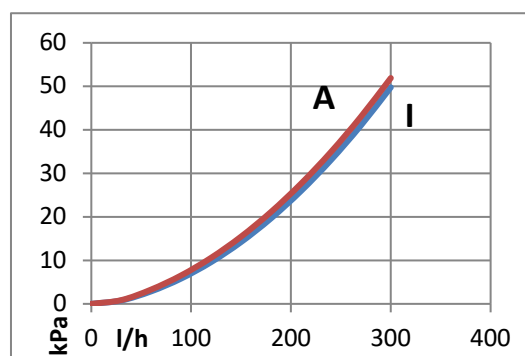
SIZE 015 A and I



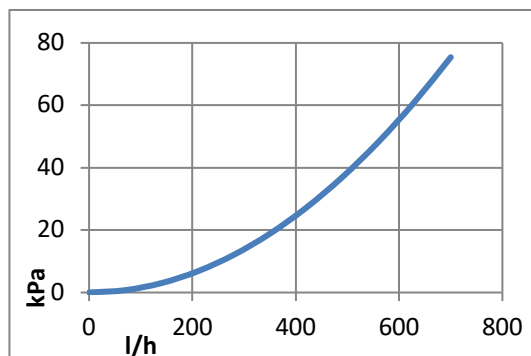
SIZE 020 W



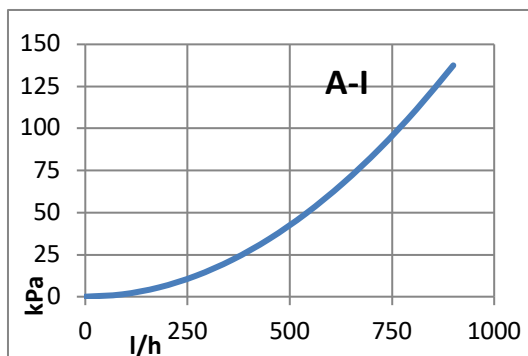
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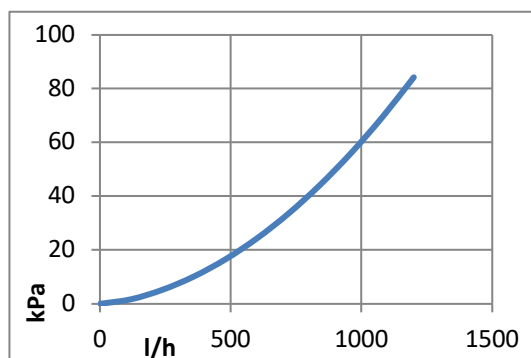
SIZE 035 W



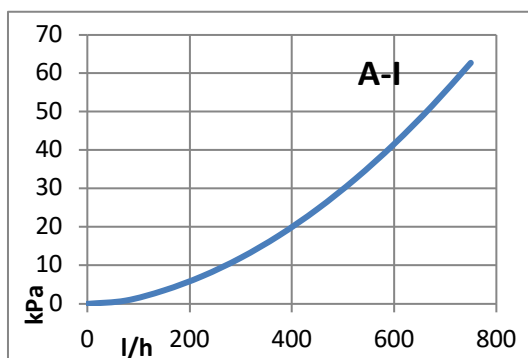
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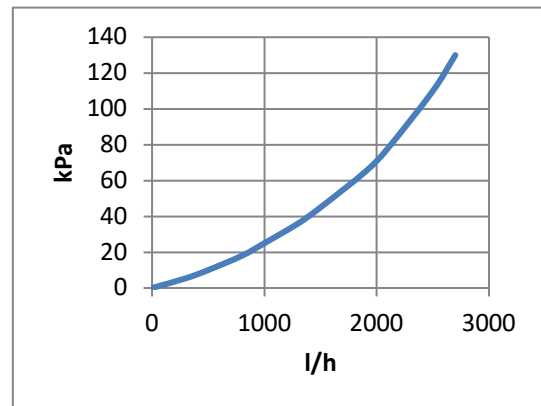
SIZE 050 W



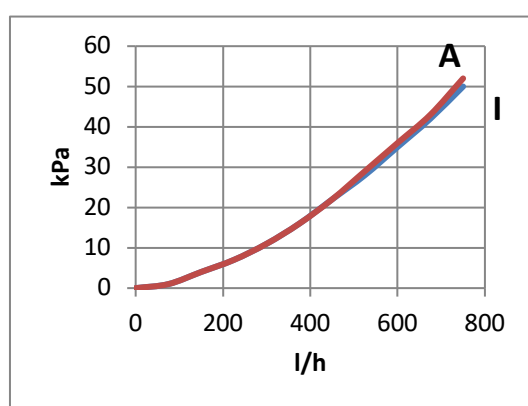
SIZE 050 A and I



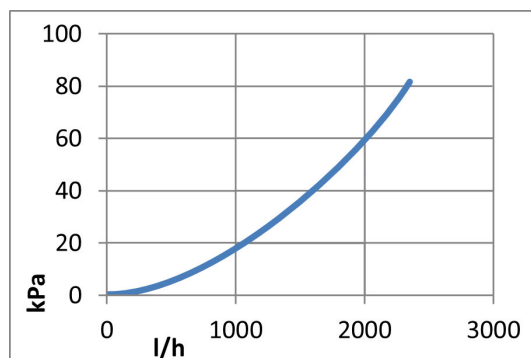
TAGLIA 070 W



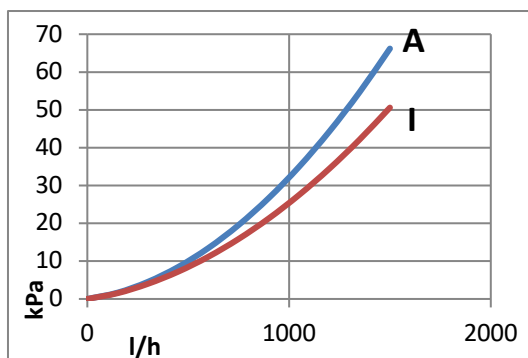
TAGLIA 070 A e I



SIZE 100 W



SIZE 100 A and I



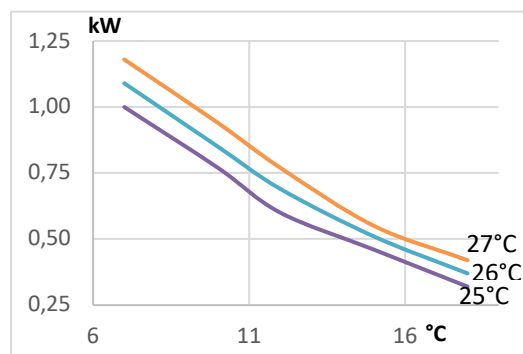
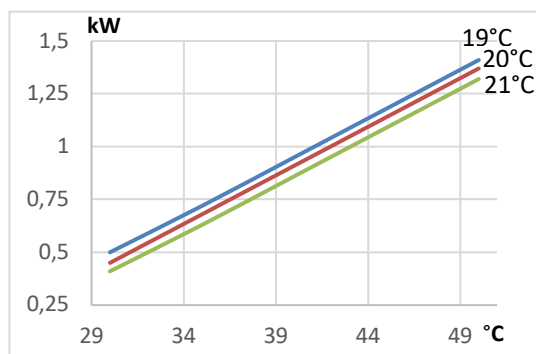
TYPE W UNIT COOLING CAPACITY

On the x-axis is the temperature of the incoming water (°C), on the y-axis is the cooling capacity (kW). The three different lines represent the different recirculation air temperatures.

Winter

SIZE 015 W

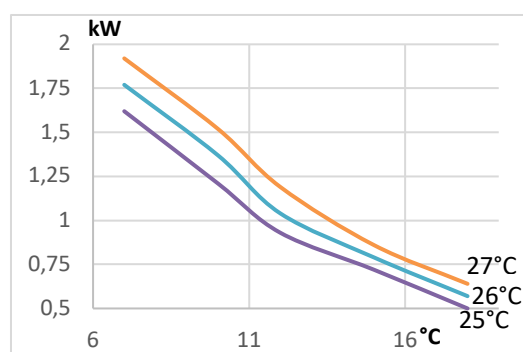
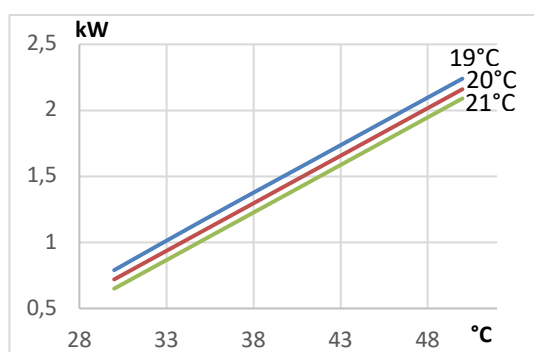
Summer



Winter

SIZE 020 W

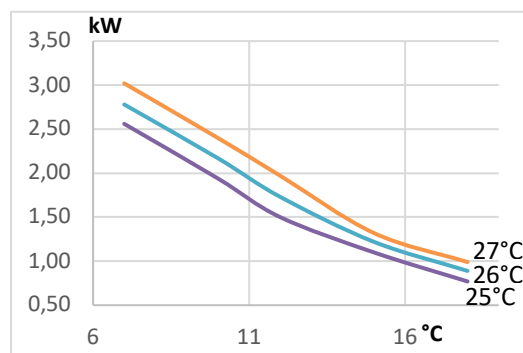
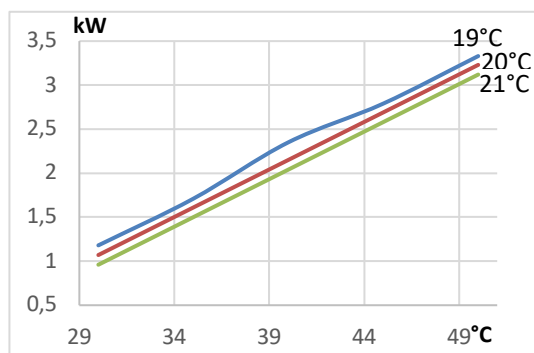
Summer



Winter

SIZE 035 W

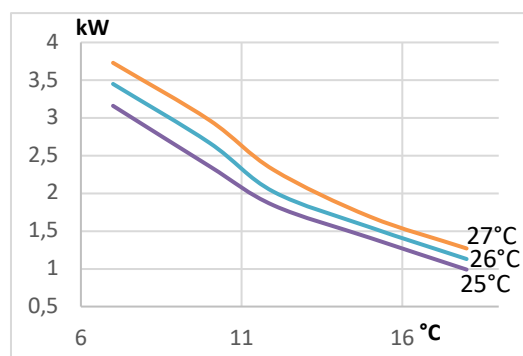
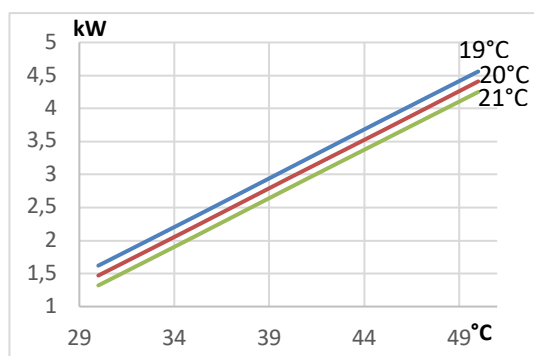
Summer



Winter

SIZE 050 W

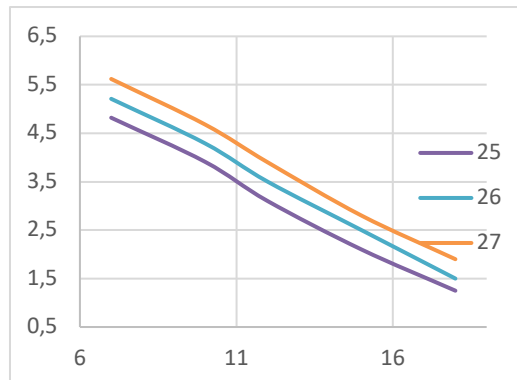
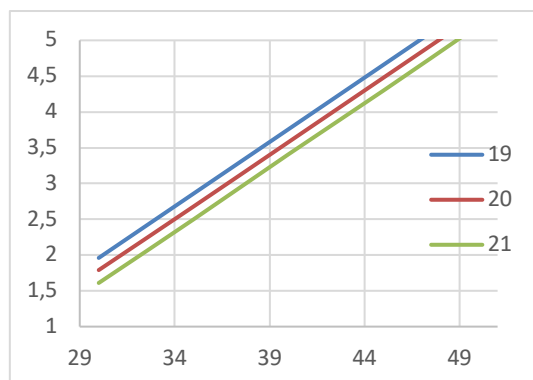
Summer



Winter

SIZE 070 W

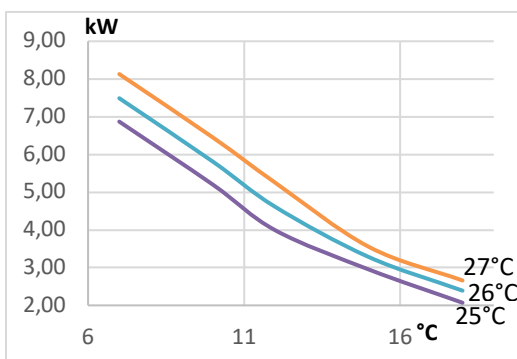
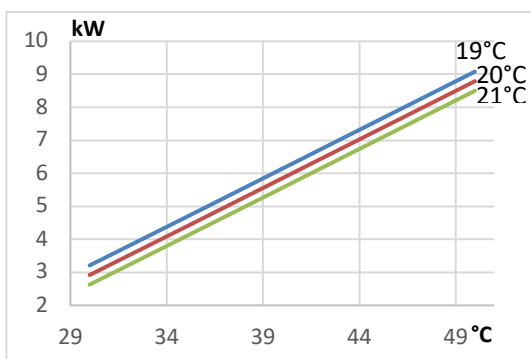
Summer



Winter

SIZE 100 W

Summer



7 MAINTENANCE AND PROBLEM SOLVING

FAULTS AND ANOMALIES

List of the most common reasons that may cause the unit block or malfunction.



Pay the utmost attention in the execution of the suggested operations for resolution of the various problems: excessive lack of attention can cause serious injuries. It is recommended to contact the manufacturer or a qualified technician after having identified the failure.

NR	FAULT	ANALYSIS OF POSSIBLE CAUSES	CORRECTIVE ACTIONS
1	The unit does not start	No electrical power supply to the unit	Check its presence on the power supply terminals
		The display is in OFF	Press ON/OFF to turn it on
		Fire alarm (if configured)	Press ON/OFF to reset the alarm and restart the unit
		There are alarms present	Check the presence of alarms on the terminal, eliminate the causes and restart the unit.
2	The display cannot start	There is no power supply to the unit	Make reference to anomaly 1
		Wrong wiring in the connection between display and power board	Check the status of the connection cable, check that the connection A-A and B-B is respected, do not pass the connection cable together with power cables
3	The compressor does not start	The unit has just been turned on and the compressor starts a bit later	Wait a few minutes

NR	FAULT	ANALYSIS OF POSSIBLE CAUSES	CORRECTIVE ACTIONS
		Intervention of the internal thermo-protector	Unplug the unit, wait for the compressor to cool down and check to see if it restarts by reconnecting the power supply. Identify the cause of the intervention and eliminate it
		High-pressure protection on the refrigerant circuit	Make reference to anomaly 5
4	The fan is noisy	An excessively high flow rate has been set	Check the air flow and decrease it if necessary
		The ducts are too small	Check the air duct layout and correct it
5	High pressure alarm <i>From the first signal to the third, the reset is automatic, if it occurs four times in less than twelve hours, the reset is manual</i>	High pressure anomaly for insufficient air flow	Check that the air flows are correct Check the cleanliness of heat exchange coils, filters and heat recovery unit
		Presence of high pressure anomaly due to insufficient water flow [version I only (hybrid)]	Check the pressure drop, the correct functioning of the hydraulic circuit and the correct water flow
		Water temp probe anomaly (errors can be caused by short circuit or by interruption of the probe)	Check the status of the water temperature probe. If the problem is not solved, replace the probe
6	Ambient temperature probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe. If the problem is not solved, replace the probe
7	Ambient humidity probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe. If the problem is not solved, replace the probe
8	Water temperature probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe If the problem is not solved, replace the probe
9	Water coil anti-freeze temperature probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe If the problem is not solved, replace the probe
10	Heat recovery defrost temperature probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe If the problem is not solved, replace the probe
11	Alarm of the ambient CO ₂ probe	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe If the problem is not solved, replace the probe
12	Supply temperature probe alarm	Probe abnormality (errors can be caused by short circuit or by interruption of the probe)	Check the status of the probe If the problem is not solved, replace the probe
13	Water low-temperature anomaly	Water probe reads a low temperature	Increase the temperature of the water supplied to the unit
14	Water high temperature anomaly	Water probe reads a high temperature	Decrease the temperature of the water supplied to the unit
15	Freezing-risk of the water coil anomaly	The water temperature probe reads a temperature lower than 6°C: risk of water coil freezing (and damage)	Check the status of the recovery
			Check the correct functioning of extraction fan
16	Clean filters signal on the main page	Filters has to be cleaned or replaced	Refer to the paragraph "Cleaning/replacing air filters"



**When there are alarms connected with the water probe, turn off the unit and call a qualified technician for the repair. Serious risk of damaging the unit.
If you do not turn off the unit, the warranty automatically expires.**

MAINTENANCE TABLE

Units will operate correctly only if the maintenance operation suggested in the table are executed following the period indicated.

Operation	Period
Air filters	- Visual check and cleaning every 6 months (or more frequently in case of dirty ambiances) - Replacement at least every 12 months
Heat recovery unit	- Visual inspection and cleaning every 12 months - Replacement when necessary or at least every 4 years
Check correct condensate discharge downstream the unit	Every 6 months
Check air vents and grilles cleaning, indoor and outdoor	Every 6 months
Visual and acoustic check (check sound emitted by the unit and its integrity)	Every 6 months
Visual check of refrigerant and hydraulic circuit (oil, refrigerant and/or water leakage)	Every 12 months
Visual check of electrical panel, clamps and wiring	Every 12 months
Status, fixing and balance of the fans	Every 4 years
Condensate tray cleaning	Every 4 years
Thermal exchange coil cleaning	Every 4 years

ORDINARY MAINTENANCE OPERATIONS REGISTER

Write in the following table the maintenance operation executed.

Operation	Year _____		Year _____		Year _____	
	1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester
Air filters						
Heat recovery unit						
Check correct condensate discharge downstream the unit						
Check air vents and grilles cleaning, indoor and outdoor						
Visual and acoustic check (check sound emitted by the unit and its integrity)						
Visual check of refrigerant and hydraulic circuit (oil, refrigerant and/or water leakage)						
Visual check of electrical panel, clamps and wiring						
Status, fixing and balance of the fans						
Condensate tray cleaning						
Thermal exchange coil cleaning						

EXTRAORDINARY MAINTENANCE OPERATIONS REGISTER

Write in the following the extraordinary maintenance operations executed.

ORDINARY MAINTENANCE

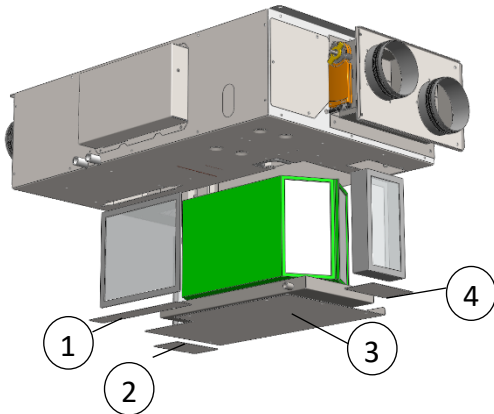
7.1.1 Exploded view to identify the panels you need to open

For the ordinary maintenance, it is sufficient to open the lower panels for RER units or front panels for REV units. Unscrew the screws and provide for maintenance operations.



**ATTENZIONE
WARNING**

By removing access panels, filters may fall down. Therefore, pay maximum attention during the opening phase to prevent the air filters from falling to the ground.

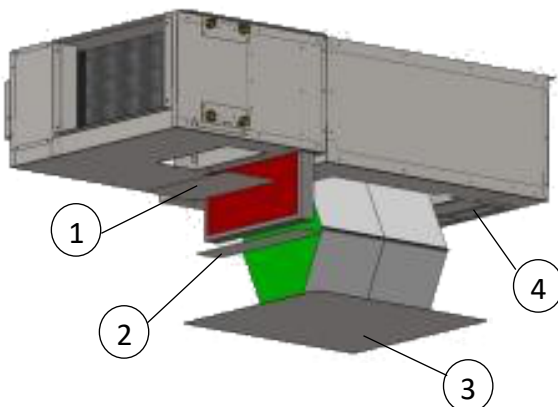
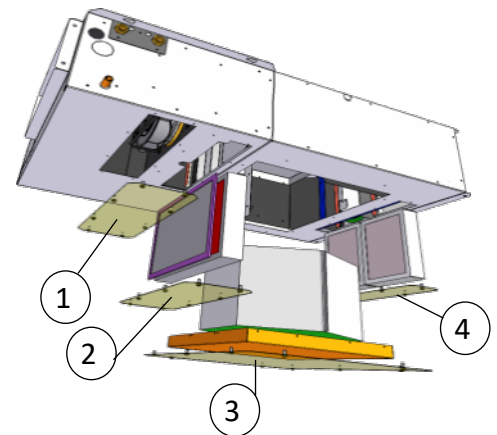


RER 015

1. Unscrew the panel and extract the exhaust air filter for maintenance
2. Unscrew the panel and extract the supply air filter for maintenance
3. Unscrew the panel, remove the condensate tray (attention it could contain water) and extract the heat recovery unit for maintenance
4. Unscrew the panel and extract the external air filter for maintenance

RER 020 and RER 035

1. Unscrew the panel for fan maintenance
2. Unscrew the panel and extract the supply air filter for maintenance
3. Unscrew the panel, remove the condensate tray (attention it could contain water) and extract the heat recovery unit for maintenance
4. Unscrew the panel and extract the external air and exhaust air filters for maintenance

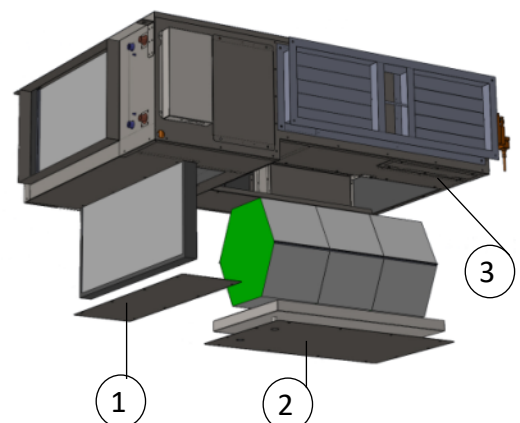


RER 050

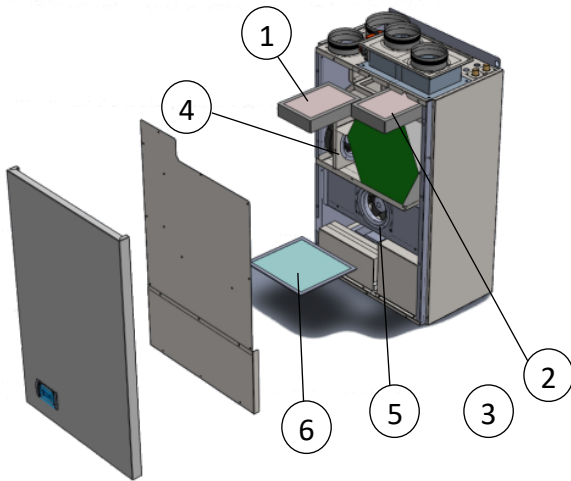
1. Unscrew the panel for fan maintenance
2. Unscrew the panel and extract the supply air filter for maintenance
3. Unscrew the panel, remove the condensate tray (attention it could contain water) and extract the heat recovery unit for maintenance
4. Unscrew the panel and extract the exhaust air filters for maintenance

RER 100

1. Unscrew the panel for fan maintenance and to extract the supply air filter for maintenance
2. Unscrew the panel, remove the condensate tray (attention it could contain water) and extract the heat recovery unit for maintenance
3. Unscrew the panel and extract external air and exhaust air filters for maintenance

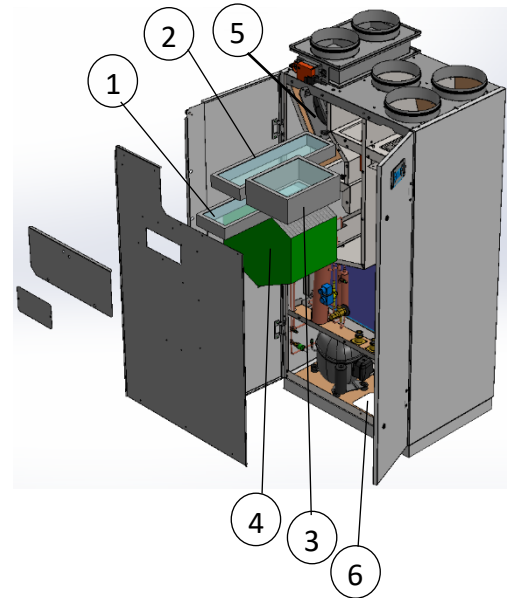


REV 020 and REV 035



Remove the blank front panel and unscrew the various internal panels for maintenance:

1. External air filter
2. Exhaust air filter
3. Condensate tray and heat recovery unit
4. Expulsion fan
5. Supply fan
6. Air supply filter



REV 050 and REV 070

Open the front panels as shown in the right, then unscrew the screws and handwheels to remove the various internal panels for maintenance:

1. External and exhaust air filter
2. Extraction air filter
3. Recirculation air filter
4. Condensate tray and heat recovery unit
5. Expulsion fan
6. Supply fan

7.1.2 Cleaning the recovery unit

To clean the recuperator gently rinse it with clean running water on all sides. For best results, immerse the recuperator in a container filled with water and, in alternating smooth movements, rinse the plates thoroughly in order to remove dust dirt or other impurities. Finally, allow the product to dry in a well-ventilated room for 48 hours. Before reinstalling the product in the unit, make sure that there is no moisture inside it. RER units: open the specific panel, unscrew the first handwheel and leave the tray for the drain hose hanging, unscrew the second handwheel and lower the recovery unit. REV units: open the front panels, remove the block plate positioned above the heat recovery unit, lift the heat exchanger and remove it. Clean with a vacuum cleaner, paying attention not to do damage and mount it again. Do not use liquids to clean it.

7.1.3 Cleaning/replacing air filters

Open the panels containing the filters/dedicated panels, remove the filters and use a vacuum cleaner; if necessary, use your hands to remove impurities which may stop the correct air flux, paying attention not to damage them. Any damaged, punctured or otherwise damaged filter must always be replaced.



**ATTENZIONE
WARNING**

Clogging of the air filters depends on use of the machine and on the installation area. Please, check periodically the cleaning status. An incorrect cleaning or the removal of the air filters from the unit, leads to serious risks about its correct functioning and integrity. If the cleaning/replacement of the filters is not respected, the warranty expires.

To remove the signal "clean the air filters" from the main screen, press the EXIT button.

EXTRAORDINARY MAINTENANCE



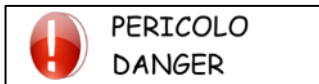
**ATTENZIONE
WARNING**

**The extraordinary maintenance has to be done only by qualified staff.
DO NOT IMPROVISE, WOUND OR DEATH DANGER**

7.1.4 Cleaning heat exchange coil

Remove any accumulations of dust or deposits by washing the pack with compressed air in the opposite direction according to air flux; or, as an alternative, wash it with water and non-corrosive products.

7.1.5 Electric circuit check



The check should be performed when there is no voltage.

Check that all the clamps are correctly fixed; if not, tighten the screws or the connectors. Check that all the contactors or power relays, if present, are functioning and not blocked or oxidized; if not, it is compulsory to replace them/their substitution is compulsory

8 DISMANTLING OF THE UNIT

When the unit has to be dismantled, please follow the below indications:

- The refrigerant has to be recovered by qualified staff and sent to dedicated collection centres;
- The compressor oil has to be recovered and sent to the dedicated collection centres;
- If the structure and the various components cannot be used, they should be demolished and divided into material types. This is particularly important for copper and aluminium of which there are significant quantities in the machine.

This will facilitate the work carried out in the waste collection, disposal and recycling facilities and minimise the environmental impact of such processes..



Should the unit, or a part of it, be decommissioned, the parts liable to cause any hazard must be rendered harmless.

Whenever a part is replaced and the used part must be disposed of separately, always refer to the relative laws in force.

Please note it is mandatory to register the loading and unloading of special and toxic-harmful waste.

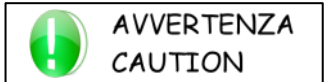
Special and toxic-harmful waste must be collected by authorised companies.

Special and toxic-harmful waste must be disposed of in compliance with the applicable laws in the user's country.

Dismantle the unit according to the requirements imposed by law in force in the user's country.

Before demolishing the unit, ask the relative Authority to perform an inspection and issue a report.

Lastly, scrap the unit in compliance with the applicable laws in the user's country.



Dismantling and demolition must be entrusted to qualified personnel.

AMBIENT PROTECTION

The law [reg. EC 2037/00] that regulates the use of stratospheric ozone-depleting substances and greenhouse gases, bans the disposal of refrigerant gases in the environment and requires holders to collect them and return them to the dealer at the end of their useful life or take them to a suitable waste collection facility.

The refrigerant R513A and R410A are not harmful to the ozone layer, but they are included among the substances responsible for the greenhouse effect and thus fall within the scope of the aforesaid regulations.



Particular attention is therefore recommended during maintenance operations in order to reduce refrigerant leaks as far as possible.

MANAGEMENT OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

This product is covered by Directive 2012/19/EU on the management of waste electrical and electronic equipment (WEEE).

The appliance must not be disposed of with household waste because it is made of different materials that can be recycled at appropriate facilities. Contact your local authority to find out where the nearest ecological platform is, so that the product can be disposed of and recycled.

Also remember that, if you purchase an equivalent appliance, the dealer is required to collect the old product for free.

The product is not potentially harmful to human health and to the environment, as it does not contain harmful substances as per Directive 2011/65/EU (RoHS), but if it is abandoned in the environment, it has a negative impact on the ecosystem.

Read the instructions carefully before using the appliance for the first time. It is recommended not to use the product for any purpose other than that for which it was intended, as there is a risk of electric shock if it is used improperly.



The crossed-out bin symbol on the sticker attached to the appliance indicates that this product complies with the legislation on waste electrical and electronic equipment.

Abandoning the equipment in the environment or disposing of it illegally are punishable by law.

9 INSTALLATION

PREAMBLE

9.1.1 Inspection

On receiving the unit, check for any damage: the machine left the factory in perfect conditions; immediately report any signs of damage to the carrier and note them on the "Delivery Slip" before signing it.

The manufacturer or its agent must be promptly notified of the extent of the damage.

The Customer should write a paper listing all the eventual relevant damages.

9.1.2 Lifting and transport

While the unit is being unloaded and positioned, utmost care must be taken to avoid abrupt or rough manoeuvres. Be very careful when transporting it inside. Do not use the unit components for lifting purposes.



During all lifting operations, check if the unit has been properly anchored, in order to avoid falls or overturns. Do not move or lift the unit by the removable panels. It is forbidden to tilt the unit by 30° and/or flip the unit.

9.1.3 Unpacking

The unit should be unpacked by paying attention, in order to avoid any possible damage to the unit itself; the packaging can be of different material, such as wood, paper, carton, nylon, etc. please preserve separately the different materials for the dismantling/recycling, in order to reduce the environmental impact.

9.1.4 Unit identification

Each unit has an identification label which you can find on its frame, where there is all the necessary information for the installation, maintenance and traceability of the unit.

Take note of the model, serial number, the definitive refrigerant load and the reference drawings of the unit found in the table on the side, so that it can easily be retrieved if the data plate gets worn.

Modello - Model	
Matricola - Serial number	
Data di produzione - Date of production	
Categoria PED/ CE 2014/68/UE Category	
Procedura di valutazione conformità - Conformity module	
TSe ambiente esterno (max/min) – Tse external ambient (max/min) [°C]	
TSi ambiente interno (max/min) – Tsi internal ambient (max/min) [°C]	
Max temp. di stoccaggio - Max storage temperature [°C]	
Max temp. funzionamento - Max ambient working temperature [°C]	
Min.temp.ambiente di funzionamento-Min ambient working temp. [°C]	
Refrigerante - Refrigerant [Ashrae 15/1992]	
Carica refrigerante - Refrigerant charge [kg]	
Tonnellate equivalenti CO2 – Equivalents tons CO2	
Peso a vuoto - Empty weight [kg]	
Alimentazione - Power supply	
Potenza assorbita Nominale - Nominal power input [kW]	
Corrente nominale - Nominal absorbed current [A]	
Corrente massima - Full load ampere FLA [A]	
Corrente di spunto - Starting Current LRA [A]	
Schema elettrico - Wiring diagram	

POSITIONING



It is fundamental to ensure complete access to the unit for ordinary/extraordinary maintenance and calibration operations.

Pay attention to the following aspects when choosing the best place to install the unit and the relative connections:

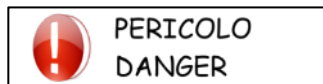
- Dimensions and origin of hydraulic pipes (if present);

- Place of the power supply;
- Accessibility for use, maintenance and repair operations;
- Solidity of the anchoring plane;

Avoid fixing the machine to high heights to avoid high temperature blocks.



The installation of rubber anti-vibration damper feet is recommended for each anchorage point in order to avoid noise and vibration transmission.



*It is forbidden to tilt the unit more than 30° and/or flip the unit, even temporarily.
Danger of compressor rupture.
Failure to comply with these requirements shall result in decadence of the warranty.*



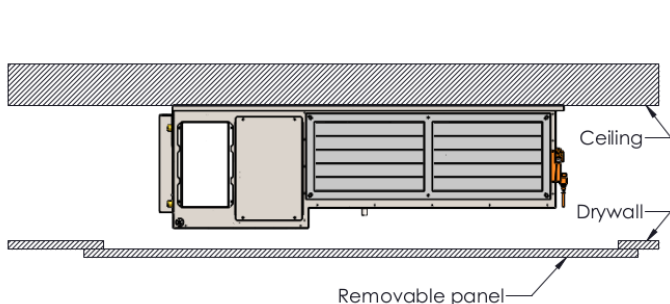
The conditions of the place of installation shall comply with the limits set out in paragraph “operational and functional limits”.

9.1.5 RER units (horizontal)

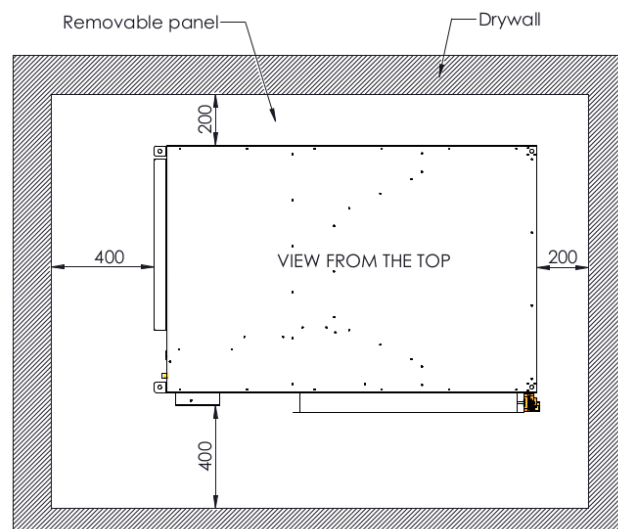


All RER models are designed and built for indoor installation.
Do not install the unit outdoor and make sure it is not exposed to atmospheric agents such as rain, hail, moisture, and frost.

Per installazioni a controsoffitto predisporre sempre un pannello removibile come immagine a seguire



The removable panel should have the necessary dimensions to grant the access on all the sides of the unit and should be larger on the electrical panel side and on the supply air side, for the installation of optional accessories.



For the correct dimensions of the panel, please consider also the accessories fixed on the unit (i.e. plenums) and also the necessary calibration (refer to the next paragraphs).

The unit in the picture is RER 100, the indicated dimensions are the minimum suggested.

9.1.6 Models REV 020 – REV 035 (vertical)



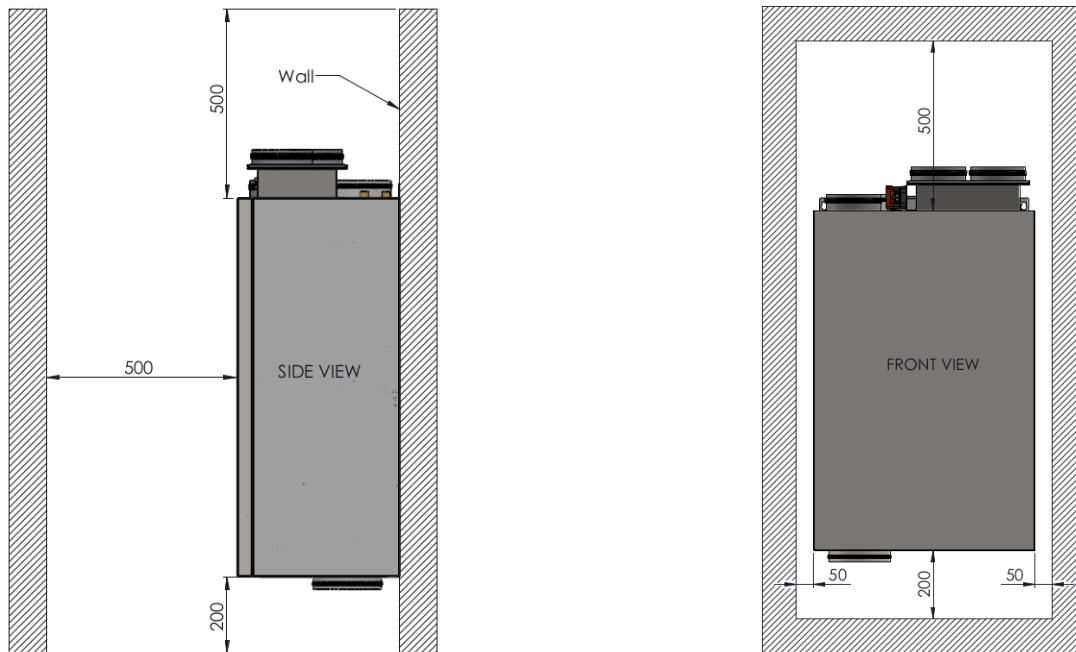
**ATTENZIONE
WARNING**

All REV models are designed for indoor installation, or outdoors with dedicated insulation and protection panels.

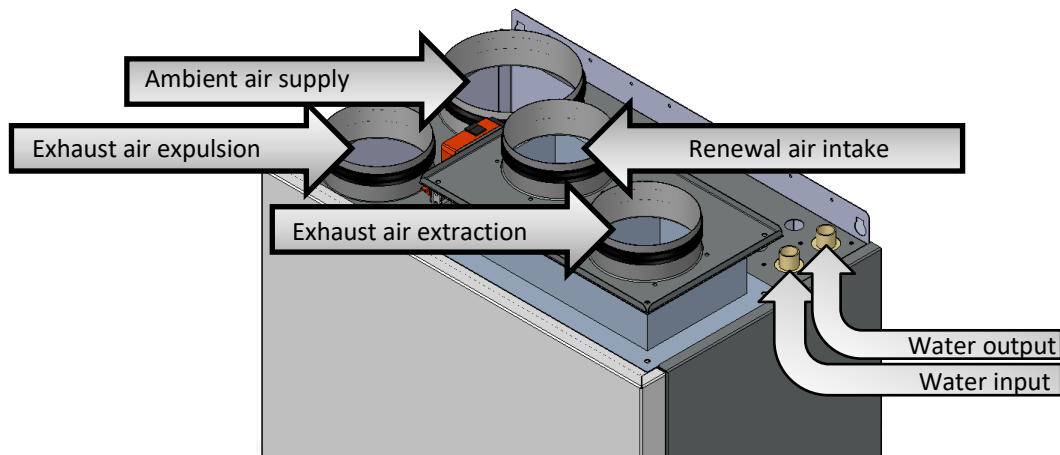
Do not install the unit outside and make sure that it is not subjected to weather agents, such as rain, hailstorm, humidity and frost.

AT SIGHT INSTALLATION

For on-wall on sight installations, respect the distances indicated in the following pictures:



UPPER SIDE CONNECTIONS



BUILT-IN INSTALLATION

For a built-in installation, both indoor or outdoor, it is necessary to consider the predisposition for a built-in-wall formwork during the building phase.

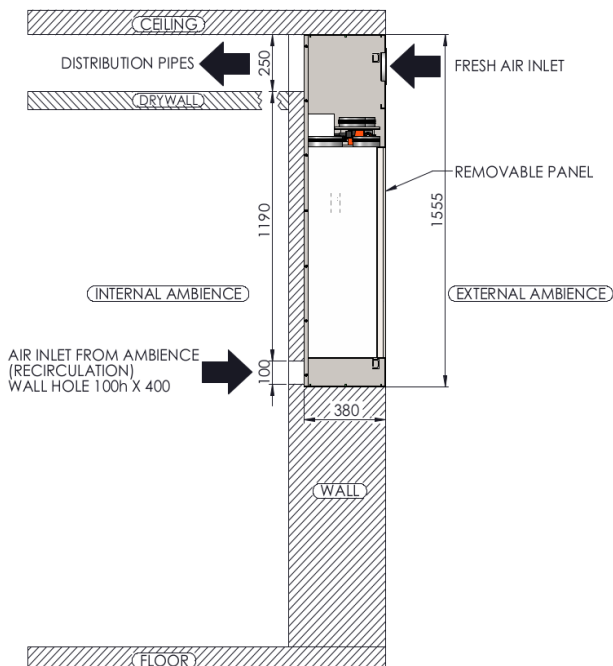
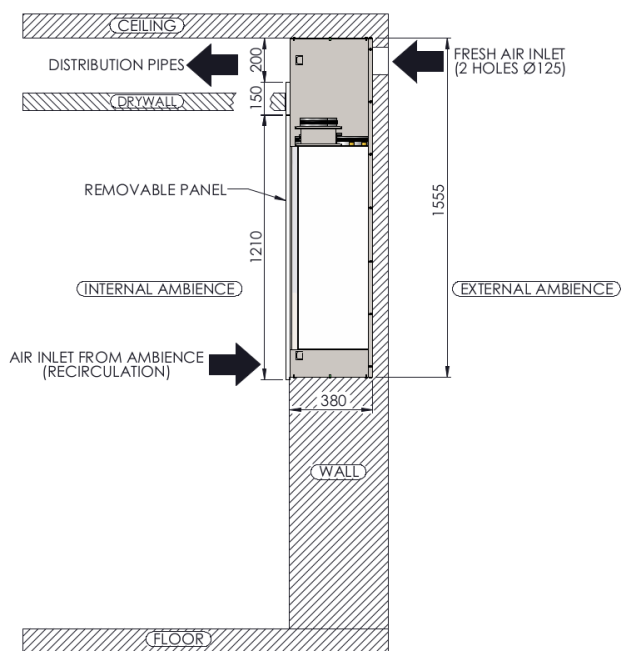
To fix the unit:

- bend with a screwdriver the two support fins located within the formwork, as shown on the picture
- insert the unit within the formwork and hang it to the two support fins



INTERNAL

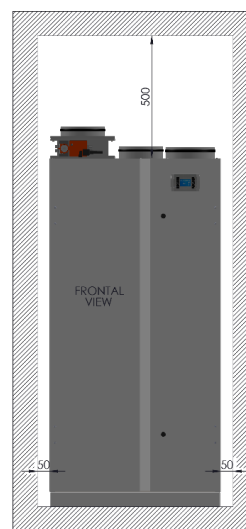
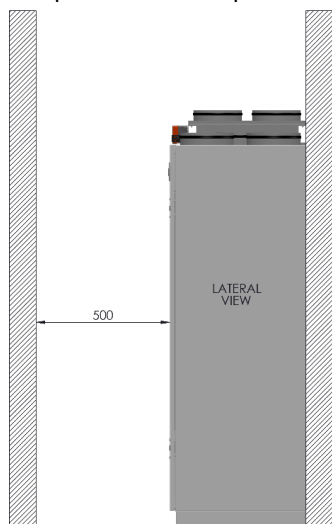
EXTERNAL



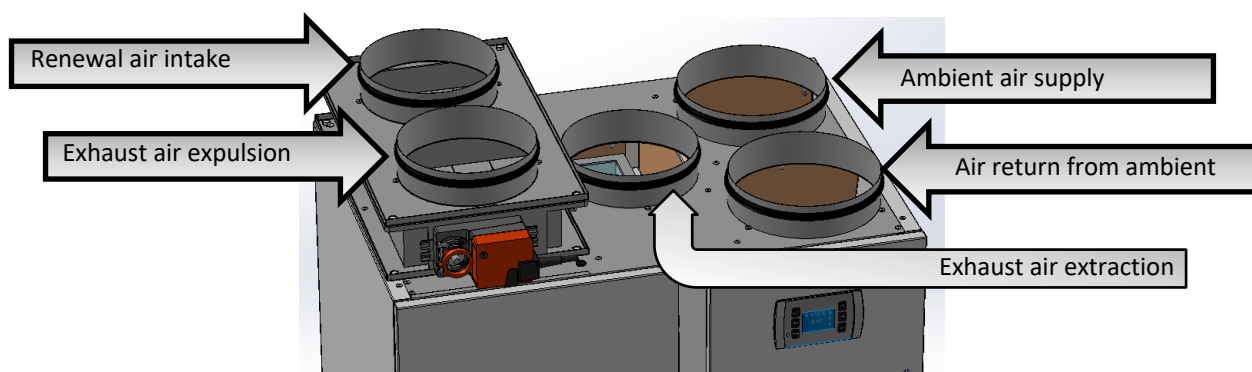
9.1.7 Model REV 050 (vertical)

AT SIGHT INSTALLATION

Per installazioni a parete a vista rispettare sempre gli spazi di rispetto indicati nelle immagini a seguire.



UPPER SIDE CONNECTIONS



DUCTING

All the units are provided with flanges or gaskets for ducts.

The air suction for recirculation, in some installation is not connected with ducts: in this case there are very low load losses and air fluxes are, normally, unbalanced. To avoid this problem, there is a grille within the unit.

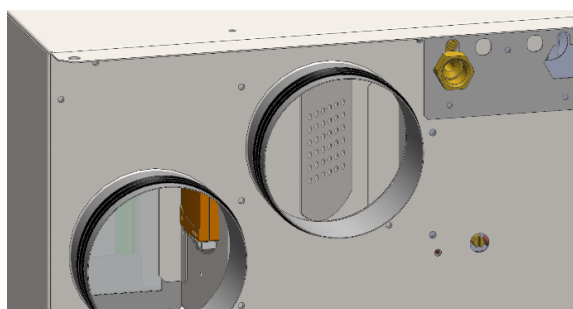
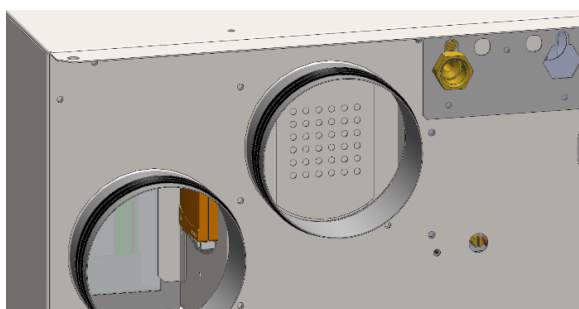


**AVVERTENZA
CAUTION**

The grille is fundamental when the suction for recirculation is not ducted; when the suction for recirculation is ducted, we suggest removing the grille, so the unit noise is limited.

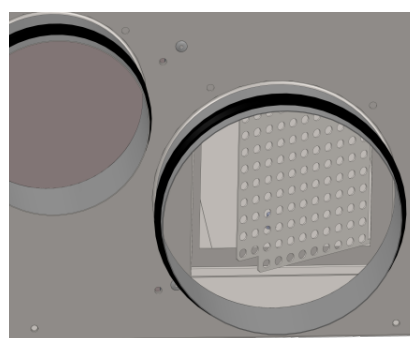
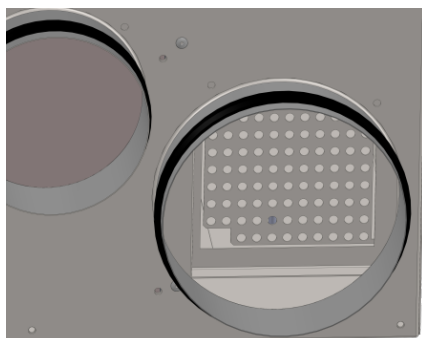
RER 015

Place on the nozzles' side, on the left there is the gasket for the recirculation; bend the grille until you remove it completely; do not touch if there is a panel behind the grille: it is a damper which moves independently/ an automatic damper.



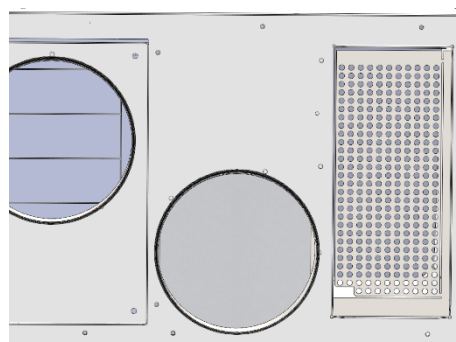
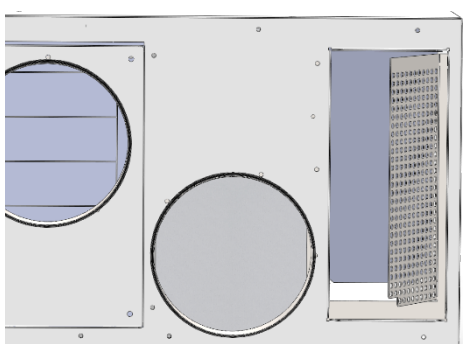
RER 020 and RER 035

Place on the nozzles side, on the right there is the recirculation gasket; bend the grille towards the outside and towards the external, as shown on the pictures above; do not touch if there is a panel behind the grille: it is an automatic damper.



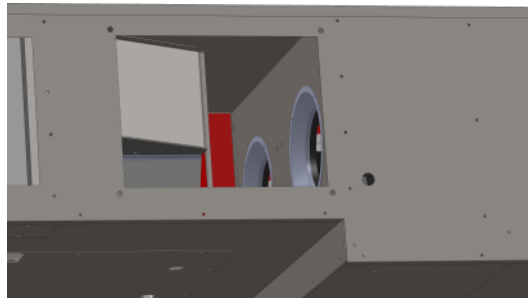
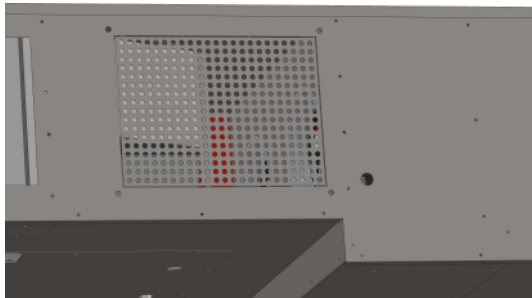
RER 050

Place on the nozzles side, on the right there is the recirculation hole; bend the grille towards the external and towards the right as shown on the pictures above; do not touch if there is a panel behind the grille: it is an automatic damper.



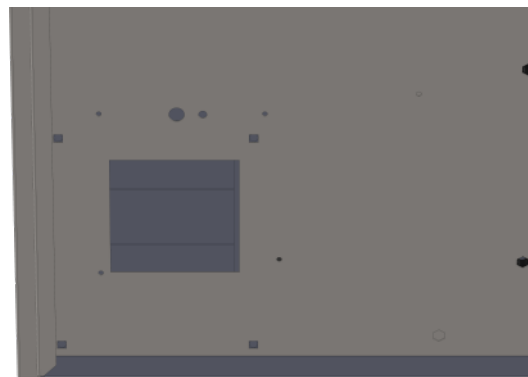
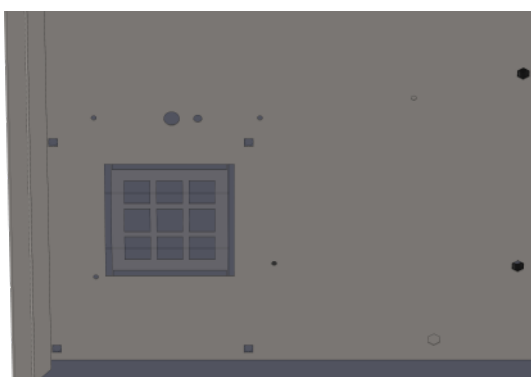
RER 100

Place on the opposite side of the electrical panel, remove the recirculation damper, break the connection points with a cutter and mount again the damper.

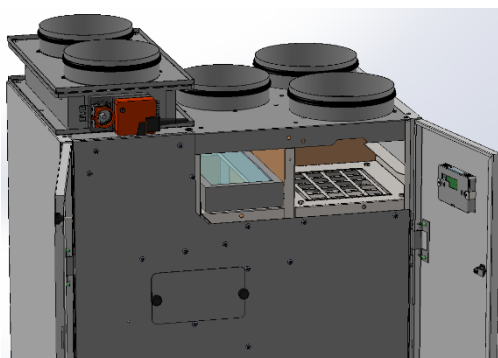


REV 020 and REV 035

Place under the unit, if there is the gasket unscrew it for the moment, with a cutter remove the connection points of the grille and mount again the gasket.



REV 050



Open the front doors of the unit, unscrew the top right panel; you can remove the grid installed in the recirculation stream.

HYDRAULIC CONNECTIONS

9.1.8 Water circuit connection

It is mandatory to follow the requirements below, when implementing the hydraulic circuit, to comply with the following requirements and in any case, comply with national or local regulations.



**ATTENZIONE
WARNING**

Do not twine on the connections of the unit. With a key, block the connection and with another one, fix the adaptor.

Use flexible joints to join the pipes in order to dampen vibrations and to compensate for thermal expansion. In case the machine has 4 water connections, it is necessary to connect the two inputs in parallel with a T and the two outputs in parallel with a T.



The following components should be installed on the piping:

- Zone valve or dedicated pump commanded from the pump contact in the clamping box to allow the water flow on the unit; if the pump absorbs a current greater than 1 A, introduce a power relay
- Temperature and pressure indicators for routine maintenance and inspections of the unit. Pressure control allows to assess the correct functioning of the expansion tank and to detect water leakage in advance
- Interception valves to close the hydraulic circuit in case of maintenance interventions
- Mechanical filter (inlet pipe) with 1 mm mesh, to protect the exchanger from the impurities present in the pipes. This requirement is, above all, necessary for commissioning
- Air vent valves, to be placed on the highest areas of the hydraulic circuit, in order to allow the air purge
- Discharge cock and drain tank, where needed, in order to empty the system for maintenance

Dimensions and position of the hydraulic connections are indicated in the dimensional drawings.



**AVVERTENZA
CAUTION**

It is fundamental that the water inlet is realized in correspondence with the connection indicated with the label "Water inlet". Otherwise the countercurrent circuitry would not be respected with the risk of malfunction, blockage or breakage of the unit.



**ATTENZIONE
WARNING**

The hydraulic circuit must be designed in such a way as to guarantee the constancy of the nominal water flow (+/- 15%) in all operating conditions.

9.1.1 Water connections for RER units

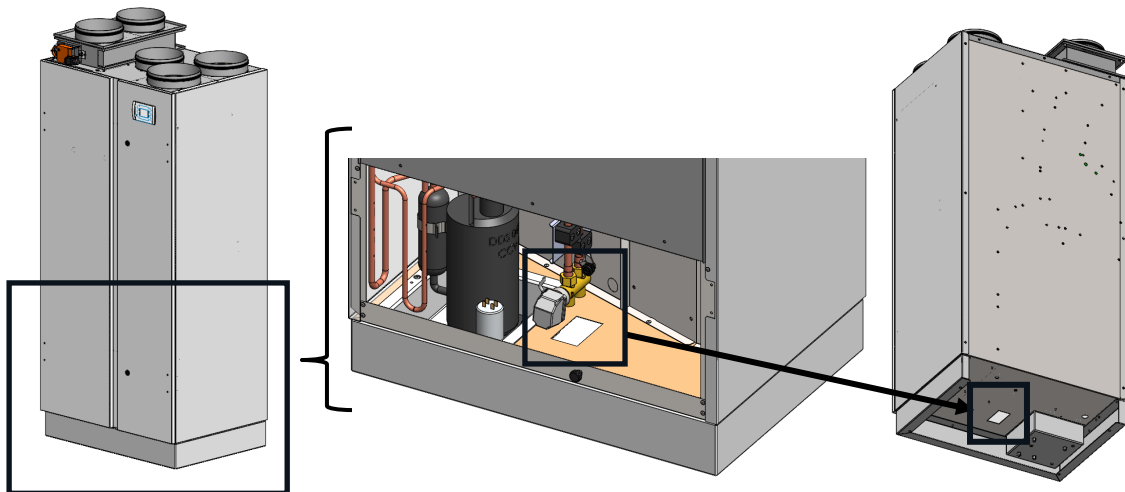
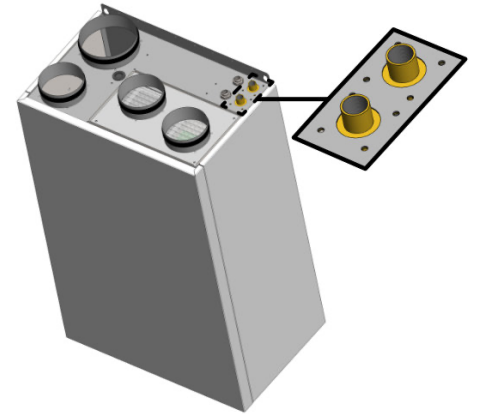
You can find the location of water inlet and outlet connections within the attached drawings.

9.1.2 Water connections for REV 020 e REV 035 units

The water inlet and outlet connections are located at the top of the unit, as shown in the picture opposite.

9.1.3 Water connections for REV 050 e REV 070 units

The water inlet and outlet connections are situated inside the unit at the bottom, as illustrated in the images below. Access is from the front when the doors are opened. Position the piping so that it passes through the designated hole, leading toward the rear of the unit.



Water characteristics for thermal plants

The standard UNI 8065/89 is the reference standard for the treatment of water in thermal plants for civil use and establishes the chemical-physical parameters useful to prevent events of fouling and corrosion inside the plants.

The indications given within the standard are schematically listed below.

FILLING AND REFILLING WATER CHARACTERISTICS	
Aspect	limpid
Total hardness	< 15°F

WATER CIRCUIT CHARACTERISTICS	
Aspect	Possibilmente limpido
pH	compreso tra 7 e 8
Hardness	<15°F
Iron (Fe)	<0,5 mg/kg
Copper (Cu)	<0,1 mg/kg

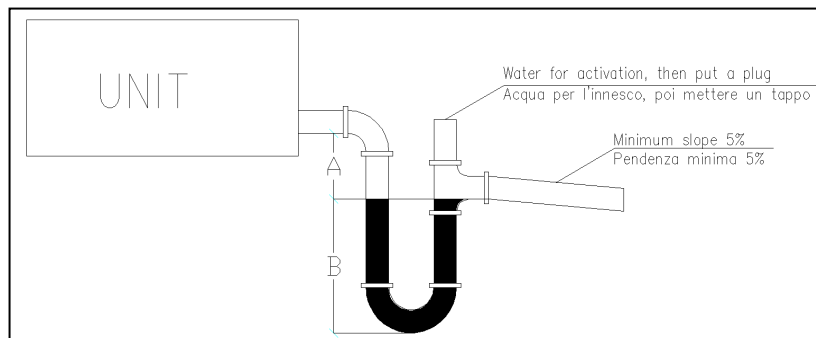
9.1.1 Condensate drain

Use a rubber hose with an internal diameter of 16 mm. The drain pipe should not have ascents during all the way. It is necessary to activate the siphon by pouring water before turning on the unit. The following picture shows the recommended construction of the siphon.

Minimum siphon height

A greater than 50 mm

B greater than 50 mm

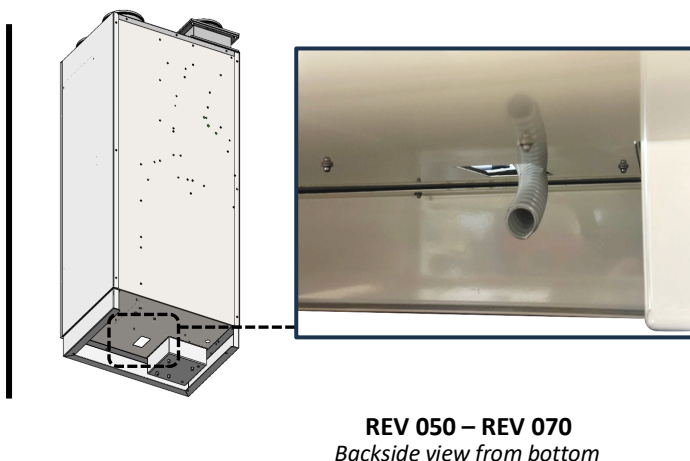
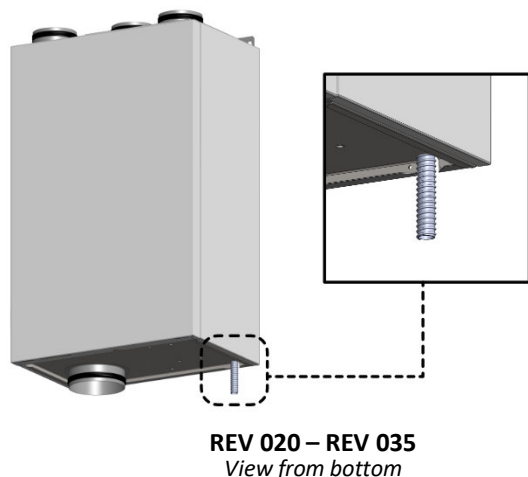


**ATTENZIONE
WARNING**

The slope of the drain pipe must be sufficient to drain water from the unit to the outside in all circumstances. If this does not happen, overflows may occur

For the RER units, there are two condensate drains, one for the dehumidifier and one for the heat recovery unit (you can find the location of the connections within the attached drawings). It is mandatory to place a siphon on each drain outlet and, only after the two siphons, it is possible to use a 'T' connection for joining. It is forbidden to insert 'T' connections before the siphons. In REV units, instead:

- if 020 or 035, follow the instructions on the label at the end of the condensate drain tube
- if 050 or 070 don't install a siphon as it is integrated in the unit. The drain tube can be found on the back of the unit, at the bottom (as shown in the images below on the right).



9.1.2 Temperature control function with adjustable supply [optional]

For the adjustable control for supply air temperature function in heating mode, a controlled valve with a signal of 0-10 Volt must be mounted to intercept the water coming into the unit. We recommend a 3 ways valve with 4 attachments, which should have a diameter equal to the one of the unit's attachments.

In the case you use a 3 ways valve with just 3 attachments, it will be necessary to connect the valve bypass and the exit of the water from the unit with a "T" connection.

ELECTRICAL CONNECTIONS

Open the electrical panel, insert the supply cable and any other necessary cables through the designated holes, make the connections on the clamps, and then close the panel.



**PERICOLO
DANGER**

The ground lead is compulsory. The installer should provide the grounding wire with the dedicated clamp located within the electrical panel, as shown in the next picture.

The electrical connection, the power cables and the protections must be implemented according to the electrical wiring diagram attached and in compliance with local and international regulations.

	015		020		035		050		100	
	W	A - I	W	A - I	W	A - I	W	A - I	W	A - I
Suggested supply line	3G1,5	3G1,5	3G1,5	3G1,5	3G1,5	3G2,5	3G1,5	3G2,5	3G2,5	3G4
Suggested MGT switch upstream of the line	C6	C10	C10	C10	C6	C16	C6	C16	C10	C20
Plug-in terminals recommended for power cables: mod CEMBRE	BF-F608P	BF-F608P	BF-F608P	BF-F608P	BF-F608P	BF-F608P	BF-F608P	BF-F608P	BF-F608P	GF-F608P



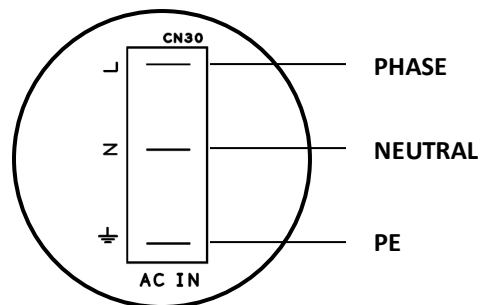
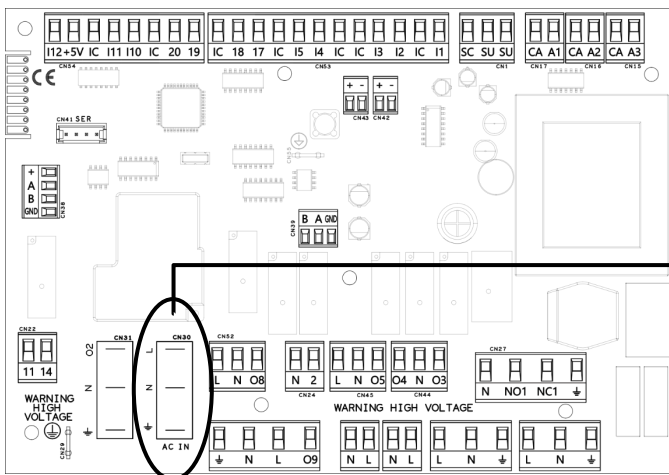
**PERICOLO
DANGER**

Wiring must be performed with the power supply disconnected. DANGER OF DEATH.!

9.1.3 Clamping box and wiring

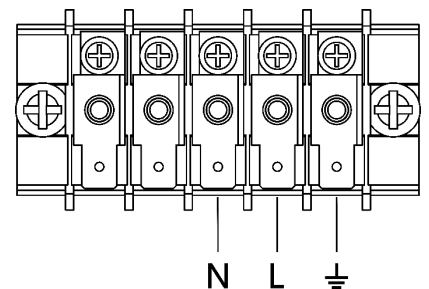
POWER SUPPLY CONNECTION

The unit's power supply must be connected to the connector shown in the figure, for each of the 3 connections to be made there is a male faston terminal: one for phase L, one for neutral N and one for grounding PE. Just connect each of the 3 terminals with the respective cable, equipped with a faston terminal with female coupling.

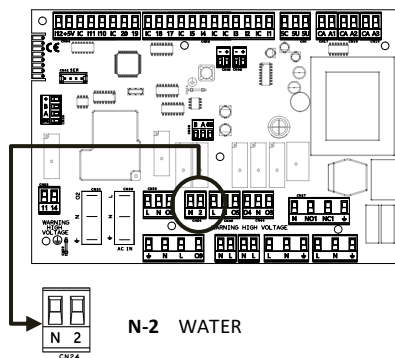


ONLY FOR UNIT SIZE 100 VERSION A or I

Bring the 230V power supply only to the terminal block in the electrical panel under the power board, connecting only to the terminals indicated in the picture.



9.1.4 Main board and wiring - connection user



Correct installation of the unit requires a direct electrical connection between the 230 V zone valve (or thermal head) and the N-2 terminals. The zone valve must have a limit contact for activating the system's pump. Electrical connections other than the one shown in the image above may not guarantee the flow of water to the unit, and, consequently, create operating problems for the unit.



**ATTENZIONE
WARNING**

Terminals N-2 must be connected to a zone head, water valve or water pump (max. 1 A) to control the water supply to the unit. The control is 230 V.

For units consuming more than 1 A, use a contactor or power relay. In "I" versions, if the N-2 contacts are not connected as indicated, the unit may be damaged. In such a case, the warranty will be immediately void.

INSTALLATION WITHOUT TOUCH DISPLAY

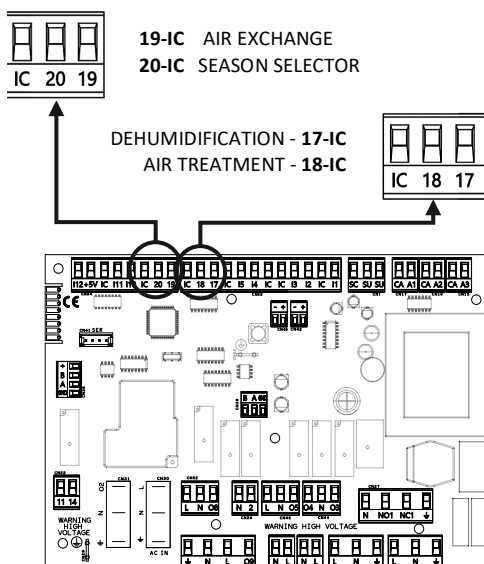
This chapter is only intended for unit installations without a display, which are divided into two types, depending on the final control method:

- through pre-configured inputs
- via Modbus connection

9.1.5 Pre-configured inputs

This installation type is designed for using the unit without a display, exclusively via dry contacts (e.g., switches, thermostats, or control units). If the unit is ordered without a touch display, it is pre-configured to be controlled via pre-configured commands. Unlike configurable inputs and outputs, there are a limited number of pre-configured I/Os, with control functions described in the related chapter. For the four available inputs, the connections should be made as shown in the next image.

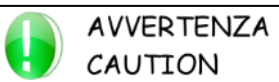
- (17-IC) for dehumidification activation/deactivation (open/closed contact), or the hygrostat contact (open/closed contact)
- (18-IC) for activation/deactivation of heating/cooling (open/closed contact), or the thermostat contact (open/closed contact)
- (19-IC) for replacement activation/deactivation (contact open/closed)
- (20-IC) for summer (if contact is open) or winter (if contact is closed) season selection



**ATTENZIONE
WARNING**

Only connect dry contacts.

Once the cables have been connected to the correct terminals, the installation process is complete. For information on operating the unit, please refer to the corresponding chapter.



**AVVERTENZA
CAUTION**

If the unit is not equipped with ACF fans, it will be necessary to use a touch display, which can be subsequently removed. It will also be necessary to follow the instructions under "FIRST START-UP, CONFIGURATION, AND CALIBRATION" chapter. It is possible, by placing a wire bridge on (I-11) terminals to activate "Silent Mode".

9.1.6 Modbus connection

This section covers the installation of Modbus communication with remote control systems. It is strongly recommended to use a touch display during this installation step (instructions in the next). Alternatively, if not available, you can configure the unit via Modbus following chapter. Once you have completed the chosen procedure you can consider the installation complete.



AVVERTENZA CAUTION

For this type of installation, the touch display must be used. It will be used temporarily, only to complete the procedure.

- The first step, after ensuring that the unit is disconnected from the power supply, is to remove the bridge present on the contacts (IC-I5).
- Connect the display to the unit and connect the Modbus cable in the Modbus port (as in their corresponding chapter).
- Restore power to the unit and start the configuration process as in chapter "FIRST START-UP, CONFIGURATION, AND CALIBRATION". Specifically, set, in the "RS485 - Modbus" tab, the "IoT" connection type and the desired address/baudrate in the installer menu.
- Finally, remove and disconnect the touch display.

Installation and configuration - without touch display



AVVERTENZA CAUTION

This type of installation requires the use of a Modbus writing software and the BMS manual, which contains instructions and a list of available controls (to be requested from your supplier separately).

- Ensure that the unit is disconnected from the power supply, then remove the bridge on the contacts (IC-I5).
- Add a bridge to the terminals (IC-I11) and proceed with the Modbus connection as indicated in its relative chapter.
- Supply power to the unit again, which is now reachable at address "1" and baud rate "9600."
- By using Modbus related software it is possible to change the default address and baud rate, using register no. 61 and 62 from the IoT table. When the procedure is complete, to confirm the changes remove power to the unit and the previously made bridge on the terminal (IC-I11).
- To finish the installation and proceed to use the unit, restore power.

RS485 SERIAL CONNECTION- MODBUS

Use 2 x 2 twisted pair (recommended: Belden cable 3106A) for the connection of the entire Modbus network and connect the cable in the port shown in the next picture, considering that

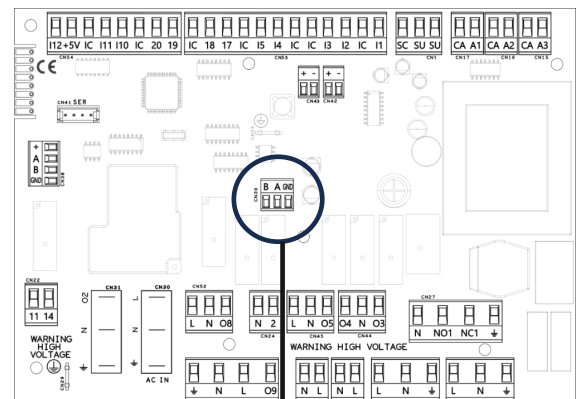
- at terminal A insert the + (positive pole)
- to terminal B insert the - (negative pole)
- to terminal GND insert the shielding braid

Ensure that connections A, B, and GND are consistent across all networked devices. The Modbus parameters will be configured later during the unit setup.



AVVERTENZA CAUTION

In certain units, there may be an additional transformer along with an extra terminal. Connect the display cable to this terminal.



Modbus terminal connection

UNIT CONTROL WIRING

9.1.7 Description and examples of use

There are four inputs and one digital output available for performing special communication functions between devices. These are listed and described in the tables in the corresponding chapter. Example use cases include:

- **Switching the unit on and off with a wall switch:** Use the first configurable control, connect the two wires of the switch to terminals 17-IC, and set the first configurable control as "remote ON/OFF" in the installer menu during initial setup.
- **Thermoregulation system control unit:** For summer/winter season changeover and heating/cooling enable, use the first configurable input for season changeover and the second for heating/cooling enable. Connect the first contact to terminals 17-IC and the second contact to 18-IC. Then, set both contacts with their functions in the installer menu during initial setup.
- **Integration of a generic or dew point alarm into an external control unit:** Connect the two wires to terminals 11-14 and set the configurable output as 'dew point alarm' in the installer menu during initial setup.

9.1.8 Configurable inputs and outputs installation

To install the configurable commands, it is necessary to connect to the dedicated terminals: (17-IC) - (18-IC) - (19-IC) - (20-IC) for the inputs and (11 - 14) for the output (as in the image above). To complete the installation, at first start-up, continue with the configuration via display in the "Configurable inputs and outputs" tab in the installer menu.



It is recommended to set the output as a generic machine alarm or as a dew-point alarm

9.1.9 Configurable input list

Possible configurations	Open contact	Closed contact
Remote ON/OFF	Command to switch off the unit	Command to turn on the unit
Summer - Winter	Command to activate summer season	Command to activate winter season
Air Exchange activation	<i>with external dampers: renewal off</i> <i>without external dampers: minimum speed</i>	Air exchange set by display
Forced air exchange	Renewal set from display	Renewal is set to maximum speed
Air treatment activation	Heating, cooling and dehumidification not active	Heating, cooling and dehumidification active according to the set from the display and to ambient conditions
Boost (See section '5.1.1 - Quick Guide')	Regular unit operation	Activates turbo function
Request by temperature	If 'summer' season → cooling inactive If 'winter' season → heating inactive	If 'summer' season → cooling active If 'winter' season → heating active
Request by umidity	summer: dehumidification not active winter: dehumidification not active	summer: dehumidification active winter: dehumidification not active
Kitchen extractor hood cope (See section '5.1.1 - Quick Guide')	Regular unit operation	Activation of 'Kitchen extractor hood cope' function
Fire protection system Only available if connected to terminals 17-IC and thus present as configurable input #1 on the display)	Unit switched off with priority over any other logic	Unit activated and controlled from the display. After resetting any previous fire alarm exclusively from the display, press the ON/OFF button

9.1.10 Configurable output list

Possible configurations	Open contact	Closed contact
Ventilation status	Signals: active ventilation	Signals: inactive ventilation
Dew Point Alarm	Signals Dew Point alarm active	Signals Dew Point alarm inactive
Generic alarm	Signals Genericalarm inactive	Signals Generic alarm inactive

TOUCH DISPLAY – WIRING

9.1.11 Cable type



To connect the display, the cable from the unit must be connected as in the picture above:

- (negative) first wire
- A
- B
- + (positive) second wire



**AVVERTENZA
CAUTION**

For the connection, it is mandatory to use a shielded, twisted pair cable such as the one supplied. Alternatively, especially in the case of installations where electromagnetic interference is possible that could impair communication between the board and the display, we recommend cables (commercially available) B6602CA249842 (Berica cables, 2x2x24AWG) or 50012L - RS485, (Belden

cables, 2P 24AWG).

9.1.12 Collegamento scheda-display



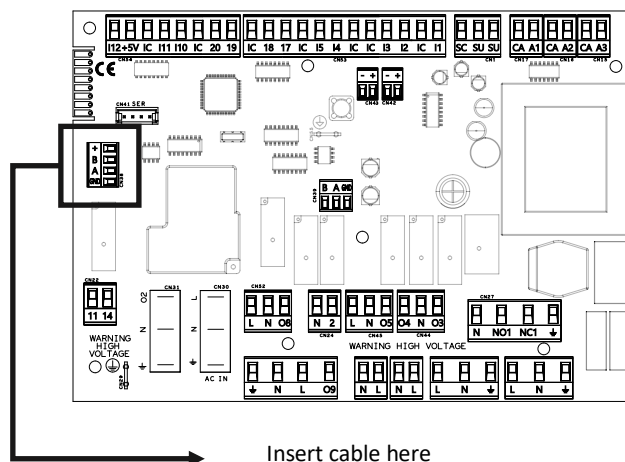
**AVVERTENZA
CAUTION**

At this stage we will connect the cable to the display but leave it unattached. This will make the upcoming configuration and calibration process easier. Once connected, ensure it is stored safely to avoid any potential damage..

To complete the wiring procedure, retrieve the previously stored cable and proceed with the connection, plug it into the display and board terminals, as shown in the following pictures.



Insert cable here



Insert cable here

FIRST START-UP, CONFIGURATION, AND CALIBRATION



**ATTENZIONE
WARNING**

Please read the entire chapter before starting the procedures. These tasks should only be performed by trained personnel to avoid the risk of unit malfunction. Ensure all components are correctly installed before proceeding. Verify that all hydraulic, electrical, and aeraulic connections are made according to the instructions on the labels and in the manual. Check that the taps of the hydraulic circuit, if present, are open and that the hydraulic system has been vented by gradually removing any residual air and opening the venting devices. Pressurize the system and ensure that any water leaks are present before using the machine.

A few seconds after powering up the unit, the display will light up and you can proceed to the configuration phase, which ends with calibration.

- Configuration, which is done via the installer menu, is the process by which certain unit parameters can be changed to finalize the installation (more on this in the next chapter).
- Calibration is a process of adjusting air flows by correcting the unit's airflow rates according to actual operating conditions. This is a guided configuration that requires the use of the touch display and an anemometer (flush recommended). Further details can be found in the following pages.

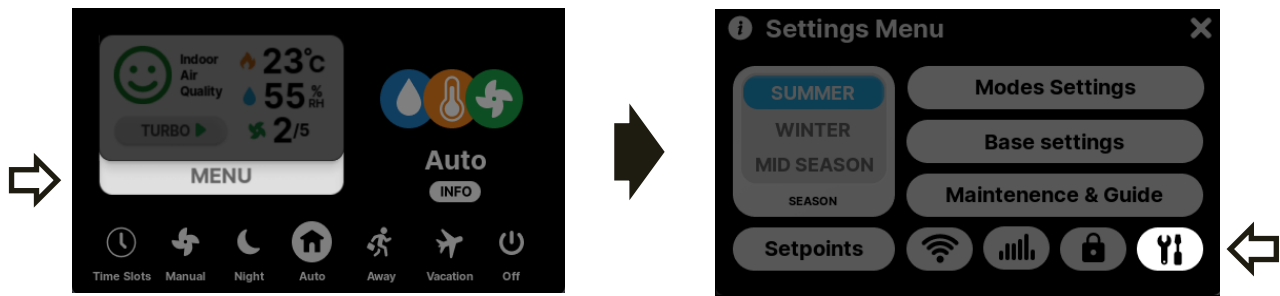
9.1.13 Configuration and installer menu



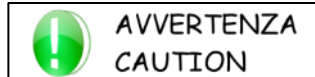
**ATTENZIONE
WARNING**

Use of this menu is intended for installers or experienced users only. Changing the following settings without knowing their effects may affect the operation of the unit.

To enter the installer menu, press the menu button on the screen and then the button at the bottom left (see the following images).



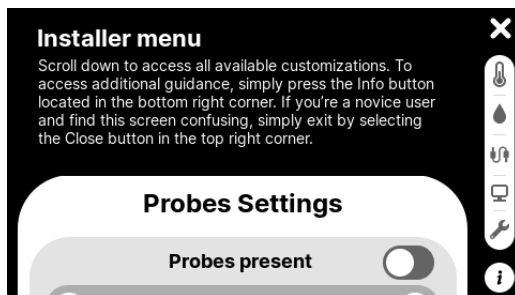
A password entry screen will appear before accessing the dedicated screen containing the list of settings.



By entering the code '0010' it will be possible to continue.

This menu contains all configuration settings of the unit, grouped in 5 cards:

- Probes
- Air Treatment
- Configurable inputs and outputs
- Modbus connection
- Utilities (filter cleaning countdown).



The image on the left displays the installer menu screen. The vertical bar on the right includes quick access buttons for the cards of the mentioned groups, as well as “info” for help and “X” for exit. On the left side of the screen, you’ll find a description followed by the five cards. To configure the unit, we recommend navigating through all five cards and selecting the desired settings, which we will detail in the following paragraphs.

9.1.13.1 Probes

In this card you can configure probe settings, organized into the following sections from top to bottom:

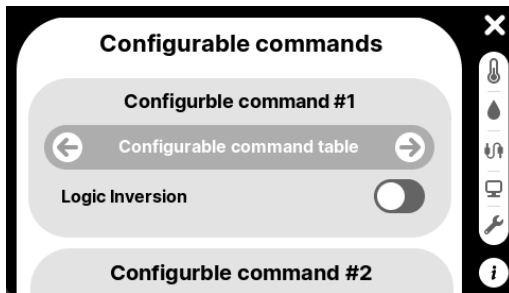
- **On-board Probes:** Choose whether to activate or deactivate the presence of on board temperature probes for air treatment. If activated, select which probes to use, either on-board or on the display (default: “Active” and “Probes on display”).
- **Room T/H Probe:** Adjust the deviation value for the temperature and humidity probes (default: 0% and 0.0°).
- **IAQ Probe in Use (if available):** Select the type of air quality detection probe in use, either “IAQ” or “eCO2” (default: “eCO2”).

9.1.14 Air Treatment

In this tab, you can choose settings related to air treatment, grouped in the following sections from top to bottom:

- **Dew Point Settings:** Here you can choose one of the two possible methods for calculating the risk of surface condensation (default: “Fixed Dew Point”, “19.0 °C”):
 - **Fixed Dew Point:** This is the surface temperature value, which can be set as a fixed value by the user.
 - **Variable Dew Point:** This is the surface temperature value, intended as the sum of the incoming water temperature and a differential set by the user.
- **Cooling management:** allows the user to choose how to manage air cooling (default: compressor only):

- compressor only: cooling managed solely by the compressor
- water only: cooling managed exclusively by the running water through the coils
- water + compressor: cooling with water or compressor depending on the distance of the room temperature from the set-point
- **Air treatment priority - Summer:** Cooling is managed by either water or the compressor, depending on how far the room temperature is from the setpoint.



9.1.15 Configurable inputs and outputs

Configurable inputs and outputs are a special function of the unit that allows communication with other devices, via digital contacts. In this board there are four inputs and one output: for each one it is possible to set the type of command to be associated and the ability of inverting the logic.



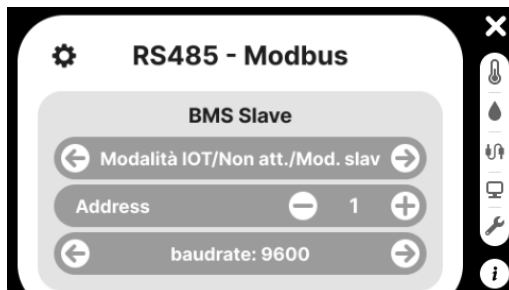
'Fire protection system' command is only available on configurable input #1.

Inputs

- Remote ON/OFF
- Summer/winter season
- Air exchange activation
- Forced air exchange
- Air treatment activation
- Boost
- Request by temperature
- Request by humidity
- Kitchen extractor hood mode
- Fire protection system

Outputs

- Ventilation status
- Dew Point Alarm
- Generic alarm



9.1.16 RS485 – Modbus

In this card you can set the parameters and connection options. In the first field, we can decide the remote management mode:

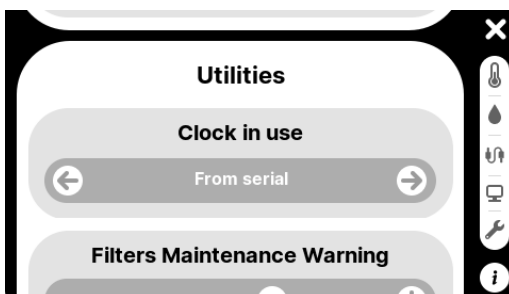
- **Not active:** Modbus control disabled.
- **IoT:** the control of the unit is managed either by serial and directly by the touch display,



The following two options are available only for backward compatibility; we recommend to not use them.

- **Slave:** the control of the unit is exclusively and completely managed by serial;
- **Slave SL:** all unit functions can be controlled from the display, with the exception of the 'season' selector, which is managed by serial,

By default, the Modbus connection is not active; to enable it, IoT (or Slave and Slave SL for retrocompatibility purposes) must be selected. It is also possible to change the communication address and baudrate, whose default values are '1' and '9600' respectively.



9.1.17 Utilities

The last card contains several settings, including:

- **Filter cleaning warning:** determines how often a filter cleaning warning is shown on the display (default: 120 days)
- **Calibration:** opens the calibration tool, for experienced users only (more information in the next chapter)
- **Alarm History:** provides access to the screen presenting a list of the most recent alarms recorded by the unit.
- **Reset calibration values:** allows the calibration values to be reset.
- **Factory Reset:** resets all values in general and installer menus to factory settings.



Calibration should only be used by specialized personnel who are aware of their actions. Improper use could in fact compromise the correct operation of the unit.

Activation of the 'Reset calibration values' and 'Reset factory settings' buttons leads to permanent deletion of the respective settings, making it impossible to recover them. Therefore, we recommend using these buttons only if you are aware of the consequences and, under all circumstances, with extreme caution.

9.1.18 Calibration

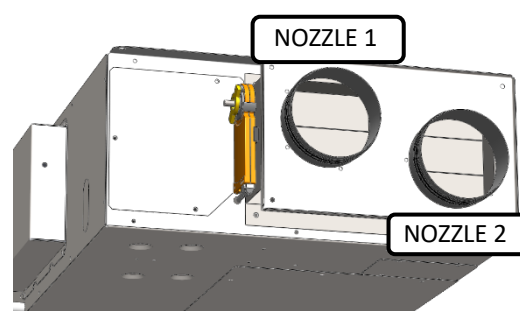
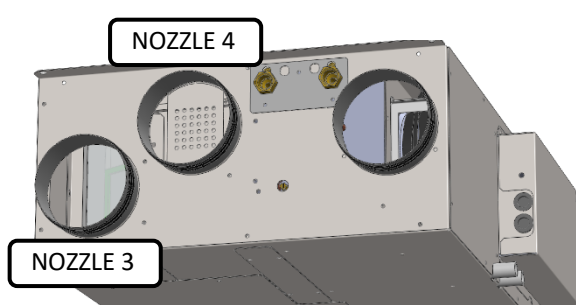


Since each installation has its own peculiarities, it is essential to measure and correct air flow rates according to actual operating conditions. The units are factory-programmed to offer a 'fixed' airflow, but this will almost certainly not be suitable for the installation. It therefore becomes essential to correct the airflow rates under different operating conditions:

- Recirculation only (Calibration phase 1)
- Replacement only (Calibration phase 2)
- Recirculation + replacement (Calibration phase 3).

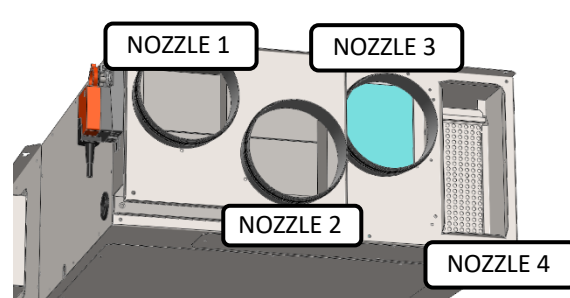
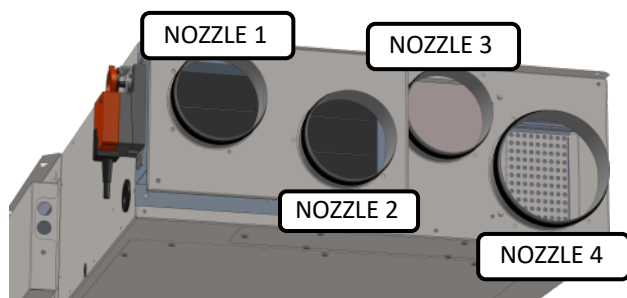


If the calibration is not performed correctly or omitted, the airflow rates will differ from the design flow rates, thus impairing the correct operation of the unit and reducing performance efficiency. A unit that has not been correctly calibrated by unqualified personnel is excluded from the warranty. If ACF optional is present, calibration is not mandatory (more information in the following pages).

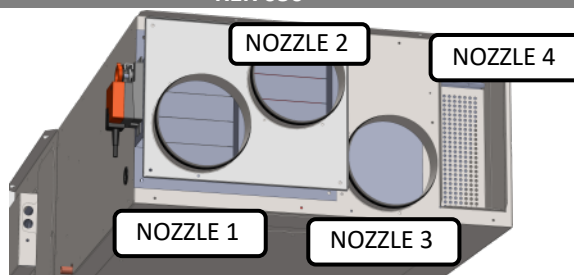


RER 020

RER 035

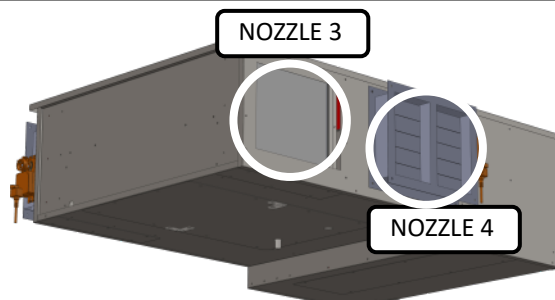
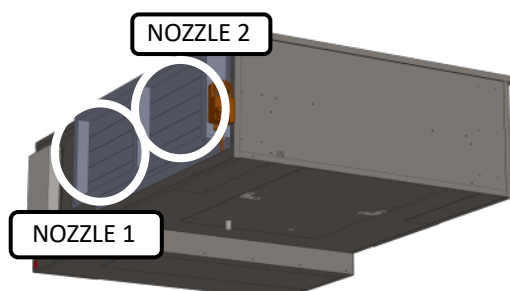


RER 050



RER 100 ELECTRIC PANEL SIDE

RER 100 OPPOSITE SIDE



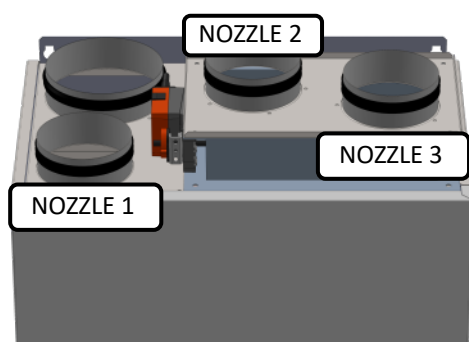
NOZZLE 1 – EXHAUST AIR EXPULSION FROM
EXPULSION FAN

NOZZLE 3 – AMBIENT AIR EXTRACTION BY EXTRACTION
FAN FOR EXPULSION
(EXTRACTION FROM BATHROOMS AND KITCHEN)

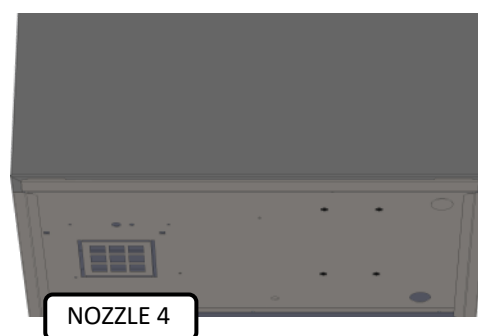
NOZZLE 2 – EXTERNAL AIR EXTRACTION BY SUPPLY FAN
FOR RECOVERY

NOZZLE 4 – AMBIENT AIR EXTRACTION FOR
RECIRCULATION
(EXTRACTION FROM BEDROOMS AND LIVING ROOM)

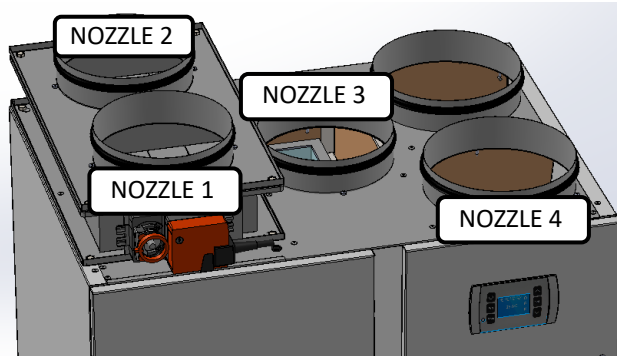
REV 020 and REV 035 TOP VIEW



REV 020 and REV 035 LOWER VIEW



REV 050 TOP VIEW



NOZZLE 1 – EXHAUST AIR EXPULSION FROM
EXPULSION FAN

NOZZLE 3 – AMBIENT AIR EXTRACTION BY EXTRACTION
FAN FOR EXPULSION
(EXTRACTION FROM BATHROOMS AND KITCHEN)

NOZZLE 2 – EXTERNAL AIR EXTRACTION BY SUPPLY FAN
FOR RECOVERY

NOZZLE 4 – AMBIENT AIR EXTRACTION FOR
RECIRCULATION
(EXTRACTION FROM BEDROOMS AND LIVING ROOM)

Usually the fan of an anemometer has a diameter of less than 20 millimetres. It will be necessary to make a hole on nozzles 2, 3 and 4 to insert the anemometer. You will not need to do a hole on nozzle 1. For the calibration, you need to access to the dedicated menu. As anticipated, the calibration process is divided in 3 phases. During each phase, you are required to modify one (or more) parameters to reach the desired air flows' values.

During the calibration you will need to move several times from the on-wall display (for values modifications) to the ducts (for flows measures); if the display and the ducts are very far, we suggest disconnecting the display from the wall and connect it temporary to the unit; for this temporary connection you need a 2 m cable.



**AVVERTENZA
CAUTION**

It may occur that in some installations there are too long or too tight channels: these will create large pressure drop leading to a large increase of the fans speed and consequently to uncomfortable noisy level. It is suggested, during the calibration, not to exceed a noise level acceptable by the user.

A 10 – 15% reduction of the air flows is acceptable.

Read carefully all the following information before starting the calibration process. Then, start reading again and execute all the passages indicated.

The numbers and arrows indicate the origin and direction of ventilation:

- 1 · Exhausted air expulsion
 - 2 · External air intake from supply fan (for air renewal)
 - 3 · Exhaust air extraction (extraction from bathroom and kitchen)
 - 4 · Room air extraction for recirculation (extraction from bedrooms and living room)
- The remaining nozzle represents supply.

Usually, the fan of an anemometer has a diameter of less than 20 millimeters. It will be necessary to drill a hole in nozzles 2, 3 and 4 to insert it. It will not be necessary to drill any holes in nozzle 1. For calibration, you will need to access the special menu on the touch display, which, as previously mentioned, should be kept close to the unit to facilitate installation (otherwise it will be necessary to move several times between the unit and the wall with the display, to change the values). As mentioned above, the calibration procedure is divided into three phases. During each phase, one or two parameters will have to be changed to achieve the desired air flow rate values.



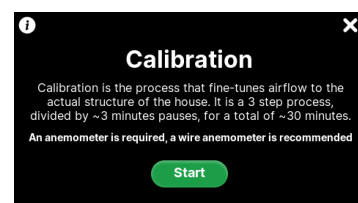
In some installations, excessively long, narrow, or twisted air ducts may cause high pressure losses and obstruct air flow. When calibrating the unit, the fan speed may increase excessively, generating noise that is unpleasant for the user. Keep in mind that a reduction in air flow rates of up to 15% is tolerable.

Now you can start the calibration steps: enter the installer menu (the button at the bottom right of the menu screen), enter the password (0010) and scroll down the page to the 'calibration' button.



Alternatively, the calibration menu can be accessed directly using the password '0099'.

The screen shown in the image on the side will appear, containing information about the procedure. After reading the instructions, press the 'Start' button to initiate a countdown (as shown in the image below). Once the countdown expires, the first calibration phase will begin.



9.1.18.1 Calibration phase 1 – recirculation only

Unit	Nominal airflow rate (m ³ /h) – Phase 1
15	160
20	260
35	380
50	520
70	700
100	1000

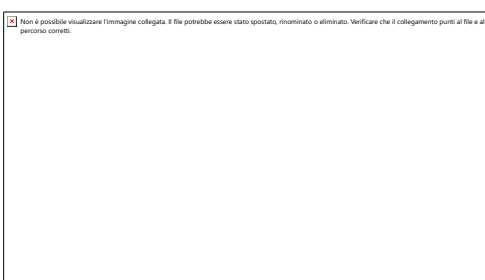
In this calibration phase, the fan speed is changed to balance the air flow in recirculation only:

- Place the anemometer in recirculation nozzle "4" (indicated on the display). The measured air flow rate must correspond to the box on the right side of the screen, named "Nominal Supply Request" (or consult

the table below). If the anemometer indicates a different flow rate, use the "-" and "+" buttons to change the fan speed until the air flow rate is as required. Once it is reached, press the "Confirm" button.



9.1.18.2 Calibration phase 2 – Air exchange only



In this calibration step, the speeds of the supply and ex-tract fans will be changed to balance the air flow rates in the exchange only. After pressing the "Confirm" button in the previous step, a countdown will appear again, which is necessary for the unit to go into edit mode. When finished, the screen in the image above will appear:

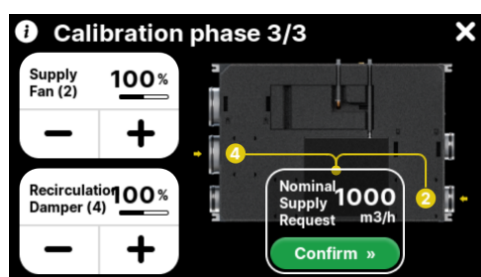
Unit	Nominal airflow rate (m ³ /h) – Phase 2
15	80
20	130
35	190
50	260
70	350
100	500

- Place the anemometer in nozzle "2". The measured air flow rate must correspond to the box on the right side of the screen, named "Nominal Supply Request" (or consult the table below). If the anemometer indicates a different flow rate, press the "-" and "+" buttons to change the speed value (expressed as a percentage) of the supply fan until the required air flow rate is reached.
- Therefore, place the anemometer in nozzle "3", the measured air flow must always correspond to the nominal air flow mentioned before. If the anemometer indicates a different flow rate, change the speed value (expressed as a percentage) of the extractor fan until the required air flow rate is reached.
- With both fans adjusted, proceed to the next step by pressing the confirm button.



During calibration step 2, it is extremely important that the airflow rates of nozzle 2 and nozzle 3 coincide, otherwise the air flows will not be balanced. This could lead to malfunctioning and poor heat recovery efficiency.

Calibration phase 3 – Air exchange and recirculation



In this phase the unit must be calibrated for recirculation and exchange: the speed of the supply fan and the opening of the internal recirculation damper can be changed to the desired values. After pressing the "Confirm" button in the previous step, a countdown necessary for the unit to go into edit mode will appear again. When finished, the screen in the image on the side will appear again. Unlike the previous steps, in this stage of the calibration, it is necessary to balance the flows on nozzle 2 and 4 at the same time so that the anemometer reading matches the value indicated in the bottom right corner of the "Nominal Supply Request" screen (or in the following table). It will therefore be necessary to move the anemometer between the two

indicated nozzles throughout the process:

Model	Nominal airflow rate (m ³ /h) – Phase 3
15	80
20	130
35	190
50	260
70	350
100	500

- Increasing the percentage of the supply fan increases the sum of the flow rates of nozzle 2 and nozzle 4.
- As the percentage of the opening of the recirculation damper increases, the flow rate on nozzle 2 is reduced and the flow rate on nozzle 4 is increased; as the percentage of the opening of the recirculation damper decreases, the flow rate on nozzle 2 is increased and the flow rate on nozzle 4 is reduced.

Once the desired value are set, press confirm to proceed.



Before proceeding with the wall display installation, turn off the unit and disconnect the cable from the display.

CALIBRATION COMPLETE

The unit has been calibrated and now it is ready to function. If necessary, it is possible to modify the values, by doing the calibration procedure again.

	UPPER VALUE	LOWER VALUE
PHASE 1		
PHASE 2		
PHASE 3		



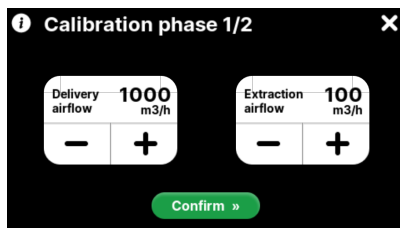
After finishing the calibration and the parameters configuration, it is mandatory to send this page (via fax or email) with the fulfilled table to the manufacturer to activate the warranty. Otherwise, the warranty will expire.

9.1.19 ACF Calibration

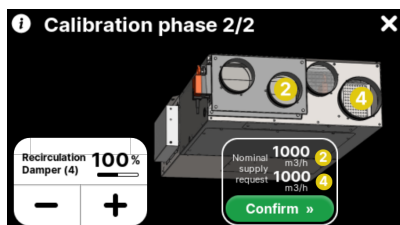


ACF calibration is not mandatory. This procedure is designed to increase or decrease the nominal flow rate and the maximum speed of air renewal (phase 1) and/or to balance them (phase 2, for example, in cases where the delivery and suction pipes have significantly different lengths).

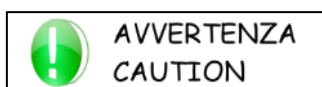
If you intend to change the airflow rates or balance the unit's intake flows, follow this procedure:



- Access the calibration mode as described in the previous section “Starting and calibration of unit air flow” Once you have entered the password you will be directed directly to the “Calibration Phase 1/2” screen where you can change the fan flow rates. In this screen you can adjust the preset maximum flow rates (in m³/h) for supply or exhaust. The maximum values that can be set can be obtained from the curves in the “AIR FLOW AND PRESSURE” section of this manual (the minimum supply values correspond to 50% of the nominal “Supply flow rate”).



Confirm the previous fan flow rates and, to balance the flows you can adjust the damper opening by pressing the “+” and “-” keys and check (with an anemometer) that the flow rate values set in the previous step are correct. Remember that increasing the opening percentage of the recirculation damper reduces the flow rate from outside and increases the recirculation flow rate. Conversely, decreasing the opening percentage has the reverse effect.

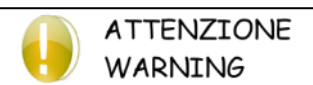


Please note: the damper moves slowly, once the opening is changed wait a few seconds for repositioning

DISPLAY INSTALLATION – WALL MOUNTING

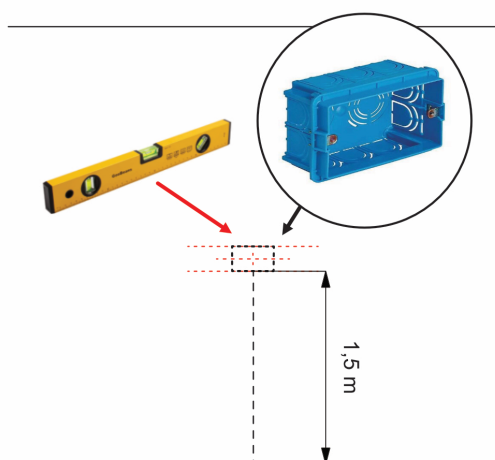
The installation of the display is divided in two parts:

- Wall box preparation
- Display Mounting



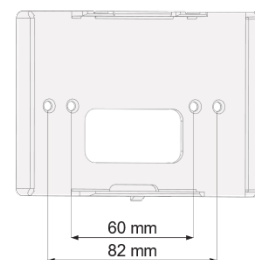
Proceed with caution during these operations to avoid damaging the touch display.

9.1.20 Box placement



We recommend positioning the cassette at an height of 1,5 meters. We also recommend the use of a horizontal level for a perfectly horizontal installation of the cassette. For the installation, we recommend using the following cassette 503 (Italy), or round cassette (Austria/Germany), or similar

models that are compatible with the hole positions on the back of the touch display (as shown in the following image).

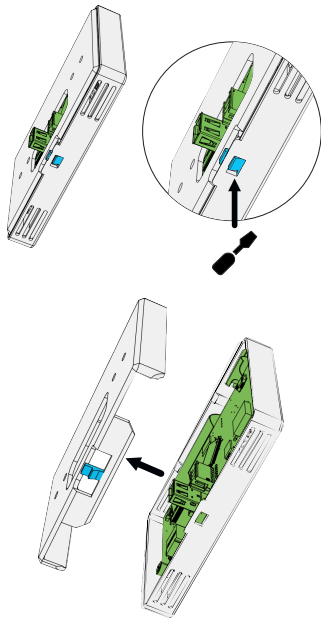


Once the cassette has been installed, insert and slide the display connection cable from the unit, previously connected to the board.

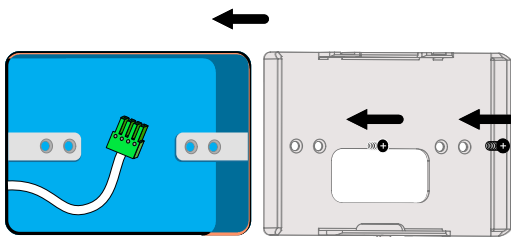
The display must be positioned away from sources of heat and draughts, otherwise the internal temperature and humidity probes will read incorrect values, impairing the correct operation of the unit. If the display is equipped with a Wi-Fi module, position it within range of the access point. It is recommended to test the operation of the connection before setting up the box.

9.1.21 Display wall mount

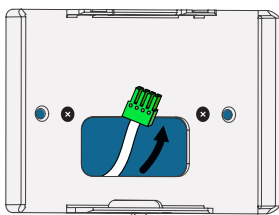
Step 1: Using a flathead screwdriver, press the tab on the bottom edge of the display (as shown in the picture) to separate the rear cover, which will be the wall-mounting base for the display.



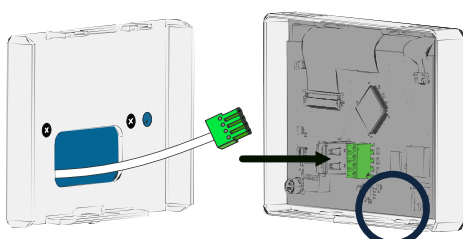
Step 2: Proceed by fastening the rear cover with screws, inserting them into the available holes of the previously installed cassette.



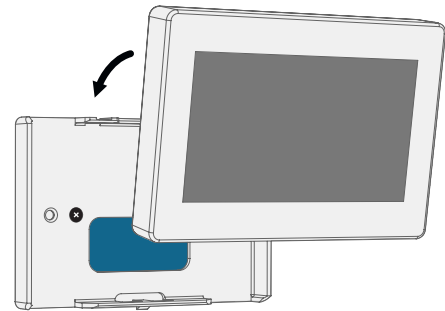
Step 3: After tightening the screws, pull the connection cable out of the central opening of the rear cover.



Step 4: Plug the cable into the terminal on the back of the display.



Step 5: To complete the installation, hook the display body onto the wall-mounted cover.



The unit is then ready to be used, once power is supplied, the display will turn on. Refer to the next chapter for instructions on how to use the display.



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