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RDE

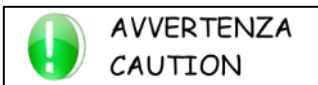
**Horizontal and vertical high-efficiency
polypropylene heat recovery units**

**USE, MAINTENANCE AND
INSTALLATION MANUAL**

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RDE

Horizontal and vertical high-efficiency polypropylene foam heat recovery units



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 so you can use our product in the best way, for maximum comfort and increased safety.

Please read the recommendations described on 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:



ENEREN S.r.l.
info@eneren.it - www.eneren.it

Sede Operativa
Viale Spagna, 31/33 - 35020 - Tribano (PD) - Italy

Sede Legale
Viale Spagna, 31/33 - 35020 - Tribano (PD) - Italy

Tel +39 049/9588511 - Fax +39 049/9588522

Registro AEE: IT18080000010592

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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:

- each operator and the personnel involved in the use and maintenance of the unit must read this manual completely and with the utmost attention and respect what is reported;
- 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 service life, 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 close 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.

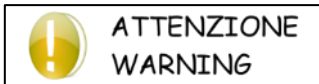
Contact the manufacturer for further information and to submit any proposals on how to improve the manual.

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.

1.1 RESPONSIBILITIES

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

The manufacturer considers itself exempt from any responsibility and obligation, and the form of warranty provided by the sales contract becomes invalidated for any accident to persons or property that may occur due to:



- 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;
- changes made to the unit or to the safety devices without written authorisation from the manufacturer;

manufacturer;

- unauthorised attempts at repair;
- failure to perform regular maintenance work 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”.

1.2 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.


1.3 SERVICE RULES

The service 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:

 **ATTENZIONE
WARNING** - ***the initial 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;
- possible accidents to persons and property can be prevented by following these technical instructions with reference to 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 Machinery Directive 2006/42/EC provides the following definitions:

DANGEROUS AREA: *any area 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 dangerous area.*

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

 **AVVERTENZA
CAUTION** ***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.

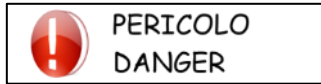
The materials used and the parts of equipment, as well as production procedures, quality and control assurance comply with the highest standards of safety and reliability.

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.

1.4 INTENDED USE

RDE units are high-efficiency heat recovery units that allow for the air to be exchanged, minimising the dispersion of the room temperature.

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



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.

1.5 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. Each operator must be aware of the residual risks present in the unit in order to prevent any accidents.

- danger of short circuit or fire caused by short circuit;
- risk of shearing.

1.6 INTERVENTIONS 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:

- Constant and accurate preventive maintenance always guarantees the safe operation of the unit. Never put off necessary repairs and ensure they are performed exclusively by specialised personnel, using only original spare parts;
- plan each intervention carefully;
- the operators' workspace should be clean and clear 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;
- even necklaces, bracelets and rings can pose a hazard;
- the workspace must be adequately lit for the intended operations. Insufficient or excessive lighting can be a danger;
- wait about 10 minutes after switching the unit off before performing any maintenance in order to avoid scalding;



***- do not repair high pressure pipes with welds;
- pressurised liquids in the cooling circuit and the presence of electrical components can be dangerous during installation and maintenance operations;***

- leave the cooling circuit open for the shortest time possible. Even if the oil is exposed to air for a short time, it absorbs a 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 the safety devices work properly and that there are no doubts about their operation; if not, do not start the unit;
- use only the tools indicated 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 installed clean and tidy. Oil and grease stains, broken tools or broken pieces are harmful to people 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.

1.7 GENERAL SAFETY RULES

1.7.1 Wear protective clothing

Operators should wear personal protective equipment such as gloves, helmet, safety glasses, safety footwear and hearing protection.



1.7.2 FIRE EXTINGUISHER AND FIRST AID

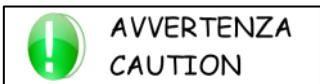
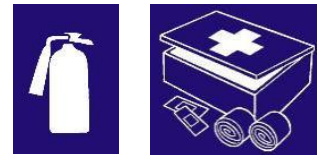
Place a first aid box and a fire extinguisher near the unit.

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.

1.7.3 Warnings for checks and maintenance

Place a notice with the wording: "MAINTENANCE IN PROGRESS" on all sides of the unit.

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



1.7.4 SAFETY DATA PLATE



Generic danger



Hazard: moving mechanical parts



Shearing risk



Electric hazard



Risk of burns

2 PRODUCT DESCRIPTION

2.1 FOREWORD

Air quality, temperature and humidity are essential elements for comfort, especially during winter when opening the windows for air exchange involves a significant dispersion of heat and inconvenience for the occupants. In this case, a controlled mechanical ventilation system is the best solution to maintain both the energy performance levels of the building and the indoor air quality. The recent regulations on energy savings in buildings, combined with thermal insulation and increasingly performing doors and windows, have made our homes certainly more comfortable both thermally and acoustically, but they have also turned them into “sealed harmful traps”, where the spontaneous elimination of pollutants has become difficult. To achieve the essential air exchange in the building and ensure good air quality in the rooms, it is extremely important to install a controlled mechanical ventilation system.

The same European Parliament has drawn up legislations on the matter, mentioning ventilation as one of the building's “needs”. However, this “need” clashes with the need to improve the energy performance of the building in order to minimise consumption. Controlled mechanical ventilation with RDE heat recovery unit by Eneren is the best solution to reduce the energy needs of the building while improving the healthiness of the rooms.

2.2 DESCRIPTION

RDE series high-efficiency polypropylene foam heat recovery units have been designed for use in residential environments, to achieve air exchange while recovering the heat of the expelled air, thus minimising the energy consumption of the building and always keeping the air in the rooms healthy.

Installing a high-efficiency heat recovery unit allows the building to access the Class A energy classification, thus increasing the value of the property and creating the conditions for it to be preserved over time. Therefore, installing a heat recovery unit, in addition to ensuring a healthier environment, is also an investment for the property.

RDE units have features that make them a reference point in the market.

- High performance in terms of reduction of electricity consumption and noise thanks to the electronic fans with permanent magnet brushless motors with built-in inverter;
- High efficiency, reliability, accessibility and low emitted sound power thanks to quality electrical and aeraulic components;
- A unit that is light, but has high mechanical strength thanks to the polypropylene casing with sheet metal inserts;
- High-efficiency counter-current heat recovery units with performance over 90%, EN 308 certified;
- Completely recyclable material;
- Optimised air flows.

RDE units can be installed both horizontally and vertically; when installed horizontally, it is possible to reverse the air flows.

2.3 STRUCTURE

The unit is made of black polypropylene, it can be accessed from the bottom thanks to removable panels that allow access to the filters, fans and heat recovery unit.

The presence of four metal inserts and the lightness of the RDE unit make it very easy to install.

The degree of protection of the unit is IP22.

2.4 AIR FLOWS

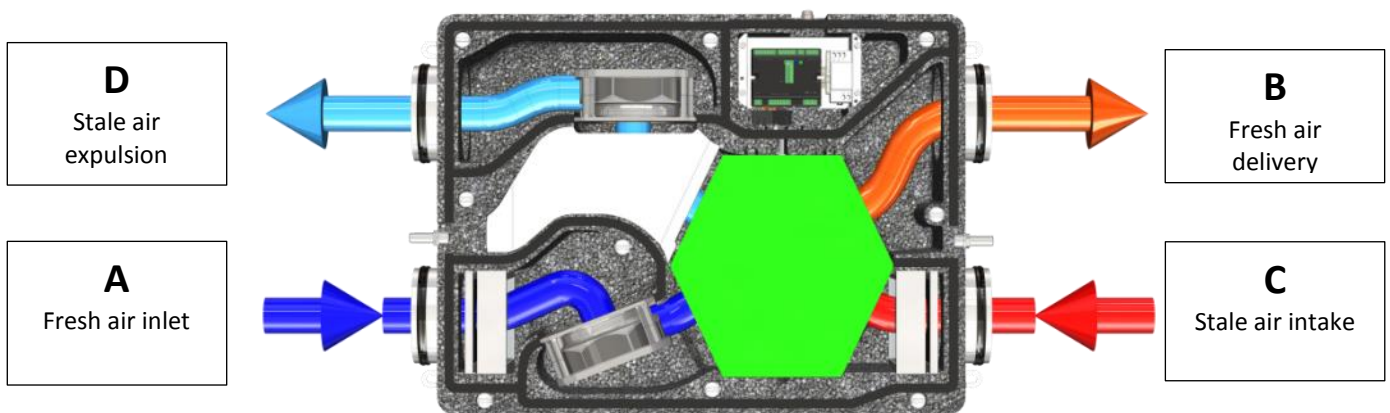
RDE units feature 4 circular nozzles with sealing gaskets for connection to circular air ducts:

1. Fresh air delivery (bedrooms, kitchen and living room)
2. Exhaust air intake (bathrooms, laundry room and kitchen)
3. Stale air expulsion
4. Fresh air inlet

2.4.1 Standard flows

In RDE units it is possible to reverse the flows, in other words it is possible to reverse the operation of the unit without the need to make mechanical changes to it. The air flows can be reversed only when the machine is installed horizontally.

The following figure shows the standard operating flows of the unit, the same indicated on the yellow labels affixed to the machine frame.

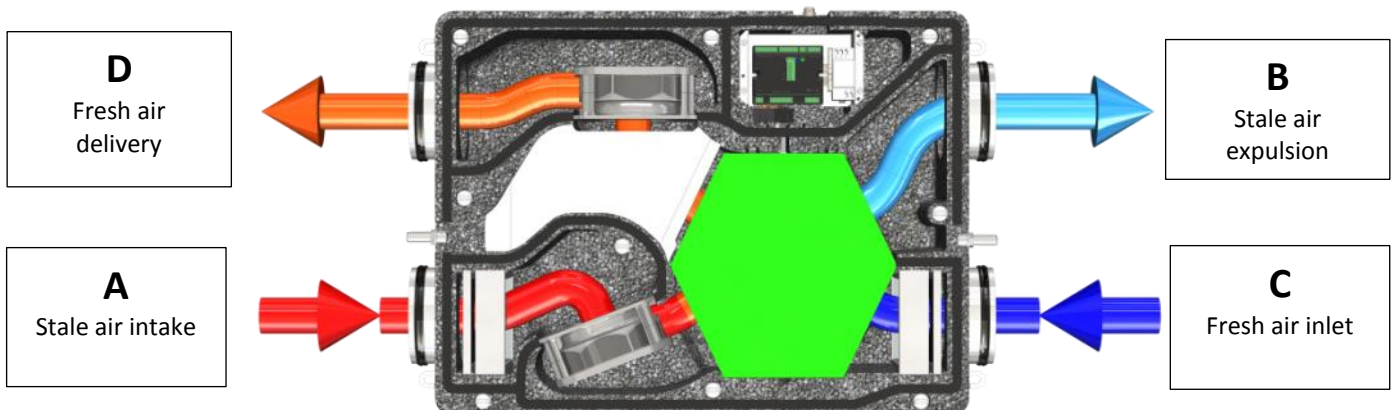


2.4.2 Reversed flows

If the **flows are reversed**, connections A-C and B-D swap roles.

Therefore, in detail:

- connection A will become *stale air intake*;
- connection B will become *stale air expulsion*;
- connection C will become *fresh air inlet*;
- connection D will become *fresh air delivery*.



2.5 OPTIONS AVAILABLE

CHARACTERISTICS - FUNCTIONS - OPTIONS	BASIC CONTROL	ADVANCED CONTROL
Wall-mounted graphic control display with temperature probe, complete with a 2 m shielded connection cable	-	OPTION
Wall-mounted graphic control display with humidity and temperature probe, complete with a 2 m shielded connection cable	-	OPTION
3 speed adjustment	SERIES	-
Multi-speed adjustment	-	SERIES
Turbo mode	-	SERIES
Time slots programming	-	SERIES
Electronic fans with brushless motor and built-in inverter	SERIES	SERIES
Dirty filter timed signal	SERIES	SERIES
Fault signal	SERIES	SERIES
Smart automatic defrosting	SERIES	SERIES
Free-cooling	SERIES	SERIES
RS485 - Modbus serial card	-	OPTION
High-efficiency air filters set	OPTION	OPTION
Shielded connection cable for display, 5, 10 or 20 metres long)	-	OPTION
CO ₂ probe	-	OPTION
Ioniser control	-	SERIES
Water coil from duct	OPTION	OPTION
Delivery temperature control kit	-	OPTION

2.6 DESCRIPTION OF OPTIONS

2.6.1 Graphic display with temperature probe

The display activates the advanced control and allows the reading of the temperature. Only one display can be installed.

2.6.2 Graphic display with temperature and humidity probe

The display activates the advanced control and allows the reading of the temperature and humidity. The humidity probe adjusts the fresh air exchange automatically based on the humidity in the air. Only one display can be installed.

2.6.3 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 expert user 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.

2.6.4 Time slots programming

The time slots function allows you to set, for each hour of the day, parameters such as switch-on, switch-off, exchange speed, delivery air temperature (if the "Delivery temperature control kit" is connected), the humidity set-point (if the graphic display option with temperature and humidity probe is connected), ioniser activation, if installed. Programming is weekly and each day can have a different setting.

2.6.5 Dirty filter timed signal

The heat recovery unit features two air filters, for which periodic maintenance is recommended, in order to maintain high air quality and ensure the proper operation of the unit. This option with basic control features a LED that turns on when the filters are dirty; with advanced control, the message “CLEAN FILTERS” appears on the main screen of the display. In both cases, the signal must be reset manually, even if the filters are not checked and cleaned.

2.6.6 Fault signal

The fault signal warns the user that the heat recovery unit is not working properly and it is therefore necessary to have a specialised technician check the cause of the problem. With basic control, the LED installed in the building flashes, while with advanced control the nature of the fault will be indicated on the display on the wall.

2.6.7 Smart automatic defrosting

Air exchange in winter, with particularly low outdoor temperatures, can lead to the formation of ice inside the heat recovery unit. RDE units are able to automatically activate the defrost function. This function maintains the high efficiency of the heat recovery unit in any climatic condition.

2.6.8 Free-cooling / free-heating

When the outdoor temperature is favourable compared to the temperature set for the indoor environment, the unit automatically activates the introduction of outdoor air into the room without recovering the heat of the exhaust air; this allows for the desired set temperature to be reached using outdoor air only.

With basic control, the temperature set-point for the indoor environment is always set to 25°C.

With advanced control, the temperature set-point for the indoor environment is defined by the user, who must set one for winter and one for summer. If the user sets “mid season”, the option remains disabled.

2.6.9 RS485 Modbus serial card

RDE units with advanced control can be connected to a supervision system or a home automation system that communicate via Modbus RS485, thus allowing for the unit to be controlled remotely. In this case, the display must not be disconnected from the machine for any reason.

2.6.10 High efficiency air filters set

Instead of standard filters, it is possible to install higher efficiency filters: G2 for extraction and F6 for exchange.

2.6.1 CO₂ probe

The CO₂ probe is particularly useful for installation in environments such as offices or meeting rooms, where the presence of people affects the concentrations of CO₂. The probe adjusts the fresh air exchange automatically based on the concentrations of CO₂.

2.6.2 Ioniser control

The ioniser is a device that purifies the fresh air sent into a room, also purifying the air distribution pipes. The ioniser is managed, by means of the dedicated 230 V output of the board, in 2 ways: manually, by turning it on and off from the wall-mounted display, or according to time slots.

2.6.3 Water coil from duct

The water coil is contained in a duct plenum with circular nozzles equipped with sealing gaskets. It can be supplied with both hot and cold water.

2.6.4 Delivery temperature control kit

This option allows for the delivery air temperature to be controlled; it consists of a post-heating water coil, a 3-way modulating valve, a temperature probe and control software.

3 ELECTRIC CIRCUITS

3.1 ELECTRICAL DEVICES

The electrical panel is created and wired according to the regulations mentioned in the Declaration of Conformity. All the remote controls work with low voltage signals, powered by an isolation transformer.



***Do not stop the unit by disconnecting it via the protection upstream of the unit; this device must be used to disconnect the entire unit for maintenance operations.
To turn off, use the user terminal.***

4 USER TERMINAL - BASIC CONTROL

RDE units can be supplied with 2 types of control: basic (supplied as standard) or advanced (optional). No display is provided with the basic control; a 3-speed switch and a warning light must be purchased separately.

4.1 THE SWITCH

Switch-on, switch-off and speed adjustment:

- in position 0 the unit is off
- in positions 1 - 2 - 3 the unit is on at the set speed

4.2 THE WARNING LIGHT

The light has two functions:

- reminder for routine maintenance (cleaning of air filters)
- Alarm signal: in the event of a fan or probe alarm, it will start flashing until the alarm has been resolved (in this case, the unit will remain off even when the switch is set to a speed).

4.3 EXAMPLES OF INSTALLATION

BTICINO MATIX



BTICINO LIVING



BTICINO AXOLUTE



VIMAR PLANA



VIMAR IDEA



VIMAR EIKON



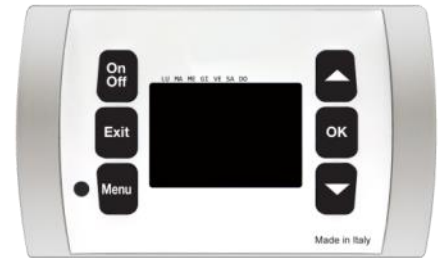
With this solution, the control of the unit is perfectly integrated into the home, without any aesthetic impact; it can be installed in any room in a 503 flush-mounted box.

5 USER TERMINAL - ADVANCED CONTROL

RDE heat recovery units can be managed by advanced control. This option comes with a display, to be installed on a wall in a 503 flush-mounted electrical box.

Advanced control is essential to control parameters such as CO₂ values, air quality, delivery air temperature, time slots, etc. The functions that can be managed with advanced control are indicated in the table.

The graphic display features 6 keys.



5.1 KEYS



ON/OFF KEY

- on the “main” and “alarm” screens, it allows you to turn the unit off
- on the ‘OFF’ screen, it allows you to turn the unit on



EXIT KEY

- on the “user menu” and “expert user menu” screens, it allows you to exit and go back to the “main” screen
- on the “user menu” and “expert user menu” screens, if a value is being edited, it allows you to exit



MENU KEY

- on the “main” and “alarm” screens, it allows you to access the first screen of the ‘user menu’
- on the “time slot” screen, it allows you to change the day being programmed



UP KEY

- on the “main” screen, if the unit is in manual mode, it allows you to increase the speed
- on the “user menu” and “expert user menu” screens, it allows you to scroll through the screens
- on the “user menu” and “expert user menu” screens, it allows you to change a value
- on the “time slot” screen, it allows you to change the flashing value



OK KEY

- on the “main” screen, keeping it pressed, it is possible to activate turbo mode
- on the “user menu” and “expert user menu” screens, it allows you to perform what is indicated on the display



DOWN KEY

- on the “main” screen, if the unit is in manual mode, it allows you to decrease the speed
- on the “user menu” and “expert user menu” screens, it allows you to scroll through the screens
- on the “user menu” and “expert user menu” screens, it allows you to change a value
- on the “time slot” screen, it allows you to change the flashing value

5.2 BASIC FUNCTIONS

5.2.1 Operating modes

The unit has 3 operating modes:

MANUAL

- The exchange speed is set directly by the user from the main screen, using the UP and DOWN keys.
- The other configurations are always set manually by the user.

TIME SLOTS

- Machine switch-on and switch-off, exchange speed, temperature, humidity*, air ionisation* are managed by time slots.
- The other configurations are always set manually by the user.
- To enable the time slots, go to screen 1 of the user menu.
- To configure the time slots, go to screen 7 of the user menu.

AUTOMATIC

- The exchange air is managed automatically by the probes, if present in the unit.
- The other configurations are always set manually by the user.
- To enable automatic mode, go to screen 1 of the user menu.

* (if present)

5.2.2 Humidity

To set the humidity set, if the function is available, use screen 4 of the user menu.

5.2.3 Temperature and season

To set the temperature, use screen 3 of the user menu.

To set the season, use screen 2 of the user menu.

If one of the screens is not visible, it means that the temperature or season are adjusted automatically (for example, if time slots are set, the temperature needs to be set for the individual slots and not manually on screen 3)

The seasons that can be set are:

- Summer
- Winter
- Mid-season

For fresh air exchange only, set "Mid-season"

5.2.4 Turbo mode

Turbo mode allows you to set the maximum speed for a certain period of time, useful for fast fresh air exchange.

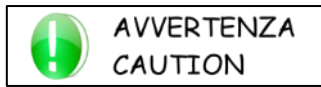
It is possible to activate TURBO mode by pressing and holding OK on the main screen or via an external button (if installed by the electrician and appropriately set as a configurable input).

By default, the duration of turbo mode is set to 10 minutes; it is possible to change this time on screen 10 of the expert user menu.

5.3 EXPERT USER FUNCTIONS

5.3.1 Night mode

Night mode allows to configure the unit for night-time operation every day. It is possible to set the exchange speed and the temperature difference.



Example

- operation from 23:00 to 06:00
- set speed 2
- temperature difference 2°C

With this configuration, at 23:00 night mode will be activated automatically, the unit is set to speed 2 and, assuming it is winter with a temperature set to 20°C, the unit adjusts to a temperature of 18°C. At 6am, the unit goes back to the previous settings, before NIGHT mode. The set humidity is not changed with night mode.

“Night mode” is activated/deactivated on screen 11 of the “expert user” menu. The start time and end time of “night mode” can be set on screen 12 of the “expert user” menu. The operation of the unit during “night mode” is set on screen 13 of the “expert user” menu.

Screens 12 and 13 are displayed only if “night mode” is active.

5.3.2 Holiday mode

Holiday mode allows to set a constant fresh air exchange; it is similar to “night mode”, but it is active all day long. It disables all the functions of the unit (no air treatment), except the exchange speed.

Holiday mode is activated on screen 14 of the “expert user menu”. The exchange speed during holiday mode is set on screen 15 of the “expert user menu”.

Screens 15 is displayed only if “holiday mode” is active.

5.3.3 Delivery temperature control

The delivery temperature control function allows to control and set the temperature of the air introduced in the room. This option is available only if the special kit has been purchased and it must be activated during installation on the dedicated screen of the installer menu.

The delivery temperature control function settings are available on screen 16 of the “expert user menu”.

Screen 16 is displayed only if the “delivery temperature control kit” is present and has been activated in the installer menu.

5.3.4 Backlight

The display stays on for 1 minute, then the unit remains on but the display brightness is lowered, in order to reduce energy consumption and not have an excessive light source in the house. By pressing any key, the display will light up again and one of the following three screens will appear:

- the off screen if the unit is off;
- the alarm screen if there is a problem;
- the main screen.
-

It is also possible to turn off the display backlight completely: by setting the backlight to 0, after one minute the backlight will turn off and one of the main screens will be displayed.

The backlight value is set on screen 17 of the “expert user menu”.

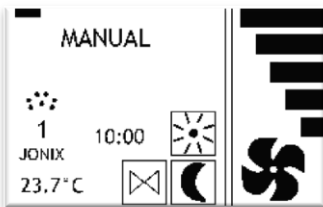
5.4 MAIN SCREENS








5.4.1 On/Off screen



- If the word 'OFF' is displayed, the unit is off; press the ON-OFF key to turn it on: the word 'ON' will appear for a few seconds and then the main screen will appear;
- if "OFF FROM REMOTE" is displayed, the unit has been turned off from an external contact and it is not possible to turn it on from the display;
- if "OFF FROM SERIAL" is displayed, the unit has been turned off from supervision, probably from the system control unit and, for this reason, it is not possible to turn it on from the display.

5.4.2 Main screen



-  The current day is shown at the top.
- **10:00** indicates the current time
- **23.7°C** indicates the room temperature;
- **NIGHT** indicates the operating mode of the unit which can be: **manual, time slots, automatic, turbo, holiday, night**; depending on the operating mode, the unit will perform certain functions indicated in the following paragraphs.
- **CLEAN FILTERS** (which appears under the operating mode) reminds the user to check the cleanliness of the air filters; to hide the message, simply press the EXIT key.
-  indicates that the summer season has been set;
-  indicates that the winter season has been set
- If neither of these symbols is displayed, it means that mid-season has been set.
-  indicates that NIGHT mode is set
-  indicates that the pump contact is closed.
-  **JONIX** indicates that the ioniser is active
-  indicate the exchange speed, adjustable from 0 to 5:
If the unit is in manual mode, the speed can be changed directly using the UP and DOWN keys; in all other operating modes, the speed is indicated but it cannot be changed.

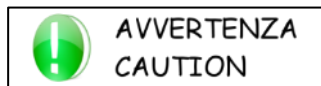
5.5 USER MENU

The user menu includes 8 screens:

1. Operating modes
2. Season
3. Temperature set*
4. Humidity set*
5. Date and time settings
6. Time slots programming*
7. Alarms management*
8. Access to expert user menu

* screen not always present.

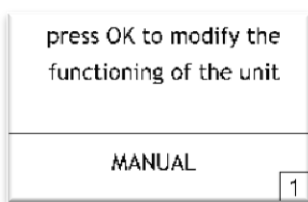
Each screen has a number in the bottom right corner, in order to further simplify its use.



USE OF KEYS:

- with UP and DOWN you can scroll between the screens (some screens do not always appear)
- with EXIT you can exit and go back to the main screen
- with OK you can perform the function indicated on the screen

The user menu screens are shown below:

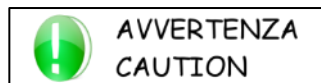


On the left is screen 1 of the user menu, which allows you to set the operating mode of the unit:

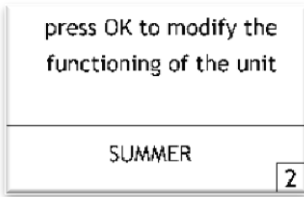
1. MANUAL: exchange speed, desired temperature and humidity can be changed from the dedicated screens;
2. TIME SLOTS: machine on/off, exchange speed, desired temperature and humidity will operate as set in the time slots programming menu;
3. AUTOMATIC: air exchange is managed by the probes on the unit, the humidity follows the logic set in the installer menu.

(the screen does not appear if the unit is controlled by modbus serial)

- press OK to edit;
- use the UP and DOWN keys to change the operating mode and press OK to confirm and to exit;
- press EXIT to exit and to go back to the main screen
- press DOWN to go to the next screen



If AUTOMATIC mode is set, but the unit does not have the probes required to operate the machine automatically (humidity and/or CO₂ probes), the unit will remain in manual mode.

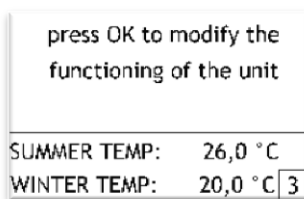


On the left is screen 2 of the user menu, which allows you to set the season:

1. SUMMER: air exchange and cooling, activation of the dehumidification contact (if set as configurable output);
2. WINTER: air exchange and heating;
3. MID SEASON: exchange only.

(the screen does not appear if the unit is controlled by modbus serial)

- press OK to edit, press UP and DOWN to select the desired season and press OK to confirm and to exit;
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



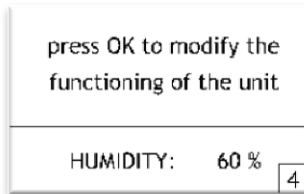
On the left is screen 3 of the user menu, which allows you to set a temperature set for summer and one for winter; the default temperature set is 26°C for summer and 20°C for winter.

(the screen does not appear if the unit is controlled by modbus serial)

- press OK to edit, press UP and DOWN to change the temperature set for summer and press OK to confirm and to move onto the temperature set for winter; press UP and DOWN to change the temperature and then press OK to confirm and exit;
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.

On the left is screen 4 of the user menu, which allows you to set the desired humidity.

(the screen appears only if there is a humidity probe installed)



- press OK to edit, press UP and DOWN to change the desired humidity set-point and press OK to confirm and to exit;
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.

On the left is screen 5 of the user menu, which allows you to set the current date and time, information required for the time slots and other functions of the unit to work properly.



The following can be edited, in sequence:

- the day of the week
- the hour
- the minutes
- the day
- the month
- the year

- press OK to edit;
- press UP and DOWN to change the setting
- press OK to confirm and to move onto the next item
- after the last modification, press OK to confirm and exit;
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



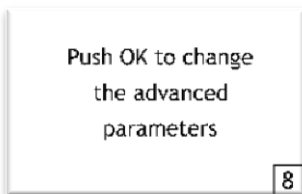
On the left is screen 6 of the user menu, which allows you to program the time slots. (See the dedicated paragraph on the following pages).
(the screen appears only if the unit is in time slot mode)

- press OK to enter time slots programming. (See the dedicated paragraph on the following pages);
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen



On the left is screen 7 of the user menu, which allows you to view and manage the active alarms. (See the dedicated paragraph on the following pages).
(the screen appears only if there are active alarms)

- press OK to enter the alarm menu;
- press EXIT to exit and to go back to the main screen;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.

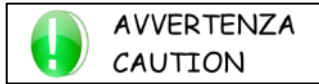


On the left is screen 8 of the user menu, which allows you to access the expert user menu to change other settings. See the dedicated paragraph on the following pages.

- press OK to enter the expert user menu
- press EXIT to exit and to go back to the main screen
- press UP to go back to the previous screen

5.6 TIME SLOTS MENU

This menu is accessible only if the unit is in time slot mode and it allows you to program the time slots that manage machine switch-on/off, air exchange, summer temperature, winter temperature, humidity and ioniser activation.

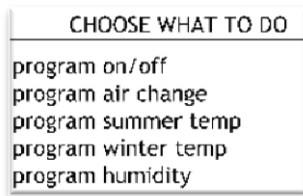


It is very important to set the current time and date; go to screen 7 of the user menu (further information in the previous paragraphs)

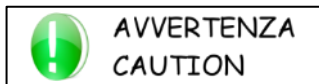
Default values are:

- Unit always turned on (24h/day and 7days/week)
- Fresh air flow desired always set at level 2 of 5 (24h/day and 7days/week)
- Desired summer temperature always set to 26.0°C (24h/day and 7days/week)
- Desired winter temperature set for all days:
 - o 20°C from 08:00 to 20:00
 - o 18°C from 20:00 to 08:00
- desired humidity always set to 55% (24h/day and 7days/week)
- ioniser active every day (24h/day and 7days/week).

You can set different parameters for each hour of the day and for each day of the week.



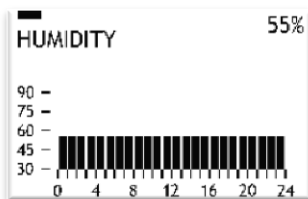
- press EXIT to exit and to go back to the main screen
- press UP and DOWN to select what to do
- press OK to confirm the selection and to access the dedicated screen indicated below



“Humidity program” and “ioniser prog” appear only if there is, respectively, a humidity probe and a ioniser.

5.6.1 Programs

Select a program to access the programming screen; below is an example of humidity programming.



- as soon as you enter, the first bar will flash, from 00:00 to 01:00, and the value set in the top right corner will flash
- in the top left corner, there is a rectangle indicating the day being programmed
- what is being programmed is indicated below the day-rectangle: “HUMIDITY”
- at the bottom there is the bar indicating the 24 hours
- on the left is the bar indicating the desired humidity you can set



USE OF KEYS:

- *press OK to change the time to be programmed*
- *press MENU to change the day to be programmed*
- *press UP and DOWN to change the flashing hour*
- *press EXIT to go back to the previous screen*
- *keeping pressed OK and MENU, copy the program of the active day to the following day of the week.*

5.6.2 User guide

Select this guide to gain access to 5 screens which explain how to set the time slots program.



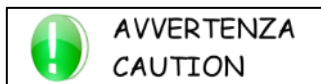
USE OF KEYS:

- *press UP and DOWN to scroll through the 5 screens*
- *press EXIT to go back to the previous screen*

5.6.3 Reset default

The first time the time slots are scheduled, it can happen that mistakes are made or it may be the case that the time slots are set in a certain way and after a period it is found that the programming is not ideal; in both cases it is possible to completely cancel the programming and to start again from the default values.

Within the menu for programming the time slots, select "Reset default" to access the screen that allows you to reset of all the values of the time slots using the initial default setting.

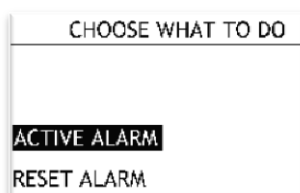


USE OF KEYS:

- *press OK for 3 seconds to reset all the values*
- *press EXIT to go back to the previous screen*

5.7 ALARMS MENU

This menu is available only if there is an alarm on the unit and it allows to display the active alarm and, if possible, to reset it.



On the left is the screen which allows you to choose whether to display the alarm or to reset it.

- *press EXIT to exit and to go back to the main screen;*
- *press UP and DOWN to select what to do;*
- *press OK to confirm the selection and to access the dedicated screen indicated below.*



On the left is a screen with an example of alarm display; the device in alarm or the type of alarm is indicated at the bottom.

This screen is compulsory for assistance in case of alarms.

- *press EXIT to exit and go back to the previous screen.*



On the left is the screen to reset the alarms. Only some alarms can be reset and when you reset them bear in mind that the cause of the alarms has not been solved and the alarm could appear again.

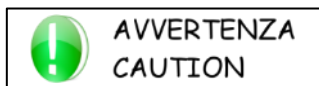
- *press OK for 3 seconds to reset the alarm and go back to the main screen;*
- *press EXIT to exit and go back to the alarms menu.*

5.8 EXPERT USER MENU

The expert user menu includes 10 screens:

9. Change the duration of turbo mode
10. Enable night mode
11. Night mode time settings*
12. Parameter configuration for night mode*
13. Enable holiday mode
14. Parameter configuration for holiday mode*
15. Delivery temperature control*
16. Backlight configuration in standby
17. Unit status display
18. Access to the password entry screen

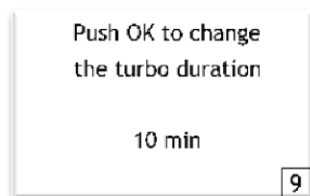
* screen not always present.



USE OF KEYS

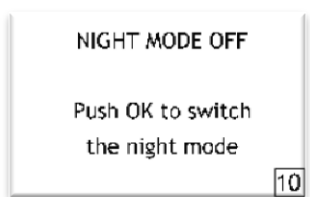
- with UP and DOWN you can scroll between the screens (some screens do not always appear)
- with EXIT you can exit and go back to the main screen
- with OK you can perform the function indicated on the screen

Now we will examine in detail the possible screens of the user menu:



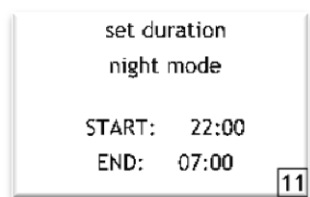
On the left is screen 09 which allows you to change the duration of turbo mode.

- press OK to edit, press UP and DOWN to select the desired duration and press OK to confirm and to exit;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press DOWN to go to the next screen.



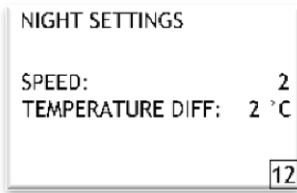
On the left is screen 10, which allows you to activate night mode.

- press OK to activate or deactivate night mode directly;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



On the left is screen 11, which allows you to set the activation times of night mode. (the screen appears only if night mode has been activated on the previous screen)

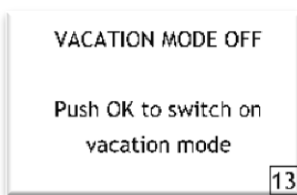
- press OK to edit, press UP and DOWN to change the activation time and press OK to confirm and to move onto the deactivation time; press UP and DOWN to change the time and then press OK to confirm and exit;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



On the left is screen 12, which allows you to configure the operating parameters of night mode. In detail:

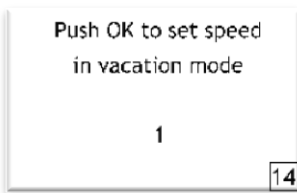
1. SPEED: refers to the exchange speed you want to set for night mode;
2. TEMPERATURE DIFFERENCE: refers to the temperature difference, with respect to the set-point (screen 3 of the user menu) that you want to set for night mode.

- press OK to edit, press UP and DOWN to change the exchange speed and press OK to confirm and to move onto the temperature difference; press UP and DOWN to change the parameter and then press OK to confirm and exit;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



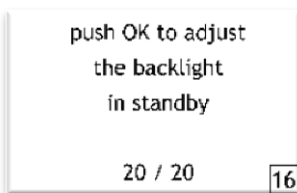
On the left is screen 13, which allows you to activate holiday mode.

- press OK to activate or deactivate holiday mode directly;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



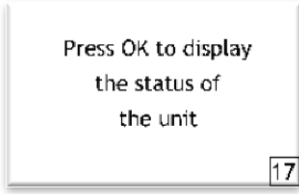
On the left is screen 14, which allows you to change the exchange speed in holiday mode. *(the screen appears only if night mode has been activated on the previous screen)*

- press OK to edit, press UP and DOWN to change the exchange speed and press OK to confirm and to exit;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



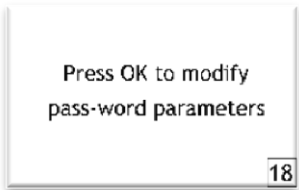
On the left is screen 16 which allows you to change the display backlighting when it is in stand-by.

- press OK to enter modification mode, press UP and DOWN to adjust the backlighting and press OK to confirm and to exit;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



On the left is screen 17, which allows you to read all the information on the status of the unit. For further details, refer to the next paragraph in this manual.

- press OK to enter the menu;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen;
- press DOWN to go to the next screen.



On the left is screen 18, which allows you to edit the password-protected parameters and to access the installer menu.

- press OK to access the password entry screen;
- press EXIT to exit and to go back to screen 9 of the user menu;
- press UP to go back to the previous screen.

5.9 UNIT STATUS MENU

This menu is always accessible and allows you to view all the information regarding the unit status, specifically the following lines: delivery fan, extraction fan, room temperature, outdoor temperature, room humidity, free cooling damper, delivery temperature, pump contact, water valve, VOC probe, CO2 probe, ioniser, turbo, defrost, filter cleaning, delivery, extraction, delivery, extraction.

Some devices may be optional or depend on the type of unit or not be available for this particular model; in this case, there will be some dashes on the line corresponding to the missing device.

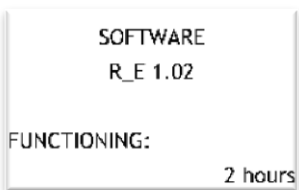
UNIT STATUS	
supply fan:	30%
extraction fan:	30%
ambient temp:	22.5 °C
external temp:	22.4 °C
ambient humidity:	27%

On the left is the unit status screen; in this case, the delivery fan is working at 30%, the extraction fan is working at 30%, the room temperature is 22.5°C, the outdoor air temperature is 22.4°C, the room humidity is 27%.

- press UP and DOWN to scroll through and display other lines;
- press EXIT to exit and to go back to the main screen.

5.10 OTHER SCREENS

5.10.1 SOFTWARE VERSION



This screen shows the software version, serial number and the hours of operation; this screen can only be accessed from the main screen by pressing the EXIT key for 3 seconds; the screen is displayed for a few seconds and then the main screen reappears automatically.

5.10.2 PASSWORD



This screen allows you to enter the password to edit advanced parameters.

- press EXIT to exit and to go back to the main screen;
- press UP and DOWN to set each number of the password;
- press OK to move onto the next value or to confirm.

Password to enter the installer menu = 0010.

6 TECHNICAL DATA

6.1 TECHNICAL DATA SUMMARY TABLE

		020	035
AIR FLOW	<i>m³/h</i>	200	350
EFFICIENCY (1)	%	90	90
HEAT OUTPUT RECOVERED IN WINTER (1)	<i>W</i>	1520	2576
HEAT OUTPUT RECOVERED IN SUMMER (2)	<i>W</i>	525	533
MAXIMUM ABSORBED POWER (3)	<i>W</i>	73	179
MAXIMUM ABSORBED CURRENT (3)	<i>A</i>	1	1.5
POWER SUPPLY	<i>V/Ph/Hz</i>	230/1~+N/50	230/1~+N/50
USEFUL STATIC HEAD MAXIMUM SPEED	<i>Pa</i>	160	100
STORAGE TEMPERATURE LIMIT	<i>°C</i>	- 10 / + 43	- 10 / + 43
STORAGE HUMIDITY LIMIT	<i>% RH</i>	90	90
EMPTY WEIGHT	<i>kg</i>	19	20

1. The efficiency and heat output recovered in winter are indicated with room air +20°C 50% RH and outdoor air -5°C 80% RH.
2. The heat output recovered in summer is indicated with room air +26°C 50% RH and outdoor air +35°C 70% RH.
3. Maximum total value, including the two fans and the electronic devices.

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

6.2 PRODUCT DATA SHEET PURSUANT TO EU REGULATIONS 1254/2014 AND 1253/2014

CLASS A HEAT RECOVERY UNITS

Name of Supplier		ENEREN s.r.l.	
MODEL		RDE 020	RDE 035
SPECIFIC ENERGY CONSUMPTION (SEC), kWh/(m ² year)	C	-76,3	-72,7
	M	-38,7	-35,1
	W	-14,5	-10,9
SEC CLASS		A	A
TYPE OF VENTILATION UNIT		UVR, BIDIRECTIONAL	UVR, BIDIRECTIONAL
TYPE OF ACTIVATION INSTALLED		VARIABLE SPEED	VARIABLE SPEED
TYPE OF HEAT RECOVERY SYSTEM		RECOVERY	RECOVERY
THERMAL EFFICIENCY OF HEAT RECOVERY (%)		85	85
MAXIMUM FLOW RATE m ³ /h		270	350
ELECTRIC POWER ABSORBED AT MAXIMUM FLOW RATE, W		136	179
SOUND POWER LEVEL L _{WA} , dB (A) (1)		55,1	56,4
REFERENCE FLOW RATE, m ³ /s		0,052	0,069
REFERENCE PRESSURE DIFFERENCE, Pa		50	50
SPECIFIC POWER INPUT (SPI), W/(m ³ /h)		0,26	0,42
CONTROL FACTOR		0,85	0,85
TYPE OF CONTROL		Centralised environmental control	Centralised environmental control
MAXIMUM PERCENTAGE OF INTERNAL LEAKING		<2%	<2%
MAXIMUM PERCENTAGE OF EXTERNAL LEAKING		<2%	<2%
POSITION AND DESCRIPTION OF THE VISUAL FILTER WARNING		In units with basic control, the clogged filter indicator is a LED on the wall. In units with advanced control, the indicator is visible on the display. To protect the performance and energy efficiency of the unit, it is advisable to replace the filter at regular intervals.	In units with basic control, the clogged filter indicator is a LED on the wall. In units with advanced control, the indicator is visible on the display. To protect the performance and energy efficiency of the unit, it is advisable to replace the filter at regular intervals.
INTERNET ADDRESS WITH INSTRUCTIONS FOR PRE-ASSEMBLY AND DISASSEMBLY		www.Eneren.it	www.Eneren.it
ANNUAL ELECTRICITY CONSUMPTION (AEC), kWh ELECTRICITY/a	C	814	961
	M	276	422
	W	231	377
ANNUAL HEATING SAVINGS (AHS), kWh PRIMARY ENERGY/a	C	8792	8792
	M	4494	4494
	W	2032	2032

1. The sound power is indicated with ducted unit.

CLASS A+ HEAT RECOVERY UNITS

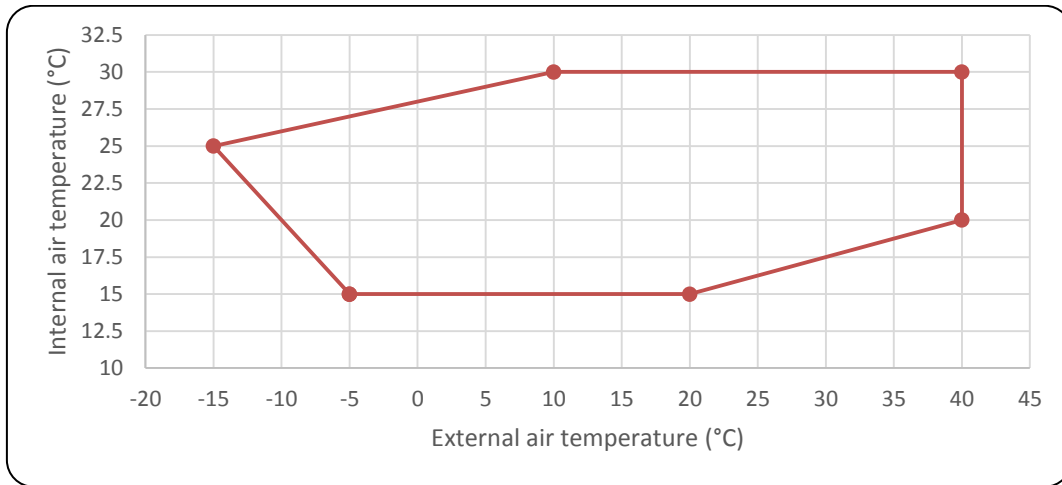
Name of Supplier		ENEREN s.r.l.	
MODEL		<i>RDE 020</i>	<i>RDE 035</i>
SPECIFIC ENERGY CONSUMPTION (SEC), kWh/(m ² year)	C	-80,6	-78,4
	M	-42,1	-39,9
	W	-17,2	-15,2
SEC CLASS		A+	A
TYPE OF VENTILATION UNIT		UVR, BIDIRECTIONAL	UVR, BIDIRECTIONAL
TYPE OF ACTIVATION INSTALLED		VARIABLE SPEED	VARIABLE SPEED
TYPE OF HEAT RECOVERY SYSTEM		RECOVERY	RECOVERY
THERMAL EFFICIENCY OF HEAT RECOVERY (%)		85	85
MAXIMUM FLOW RATE m ³ /h		270	350
ELECTRIC POWER ABSORBED AT MAXIMUM FLOW RATE, W		136	179
SOUND POWER LEVEL L _{WA} , dB (A) (1)		55,1	56,4
REFERENCE FLOW RATE, m ³ /s		0,052	0,069
REFERENCE PRESSURE DIFFERENCE, Pa		50	50
SPECIFIC POWER INPUT (SPI), W/(m ³ /h)		0,26	0,42
CONTROL FACTOR		0,65	0,65
TYPE OF CONTROL		Local environmental control	Local environmental control
MAXIMUM PERCENTAGE OF INTERNAL LEAKING		<2%	<2%
MAXIMUM PERCENTAGE OF EXTERNAL LEAKING		<2%	<2%
POSITION AND DESCRIPTION OF THE VISUAL FILTER WARNING		These units feature advanced control as standard. The indicator is visible on the display. To protect the performance and energy efficiency of the unit, it is advisable to replace the filter at regular intervals.	These units feature advanced control as standard. The indicator is visible on the display. To protect the performance and energy efficiency of the unit, it is advisable to replace the filter at regular intervals.
INTERNET ADDRESS WITH INSTRUCTIONS FOR PRE-ASSEMBLY AND DISASSEMBLY		www.Eneren.it	www.Eneren.it
ANNUAL ELECTRICITY CONSUMPTION (AEC), kWh ELECTRICITY/a	C	718	804
	M	180	266
	W	135	221
ANNUAL HEATING SAVINGS (AHS), kWh PRIMARY ENERGY/a	C	8979	8979
	M	4590	4590
	W	2075	2075

1. The sound power is indicated with ducted unit.

To access class A+, heat recovery units must be equipped with advanced control and one of the following options:

- Humidity probe
- CO2 probe

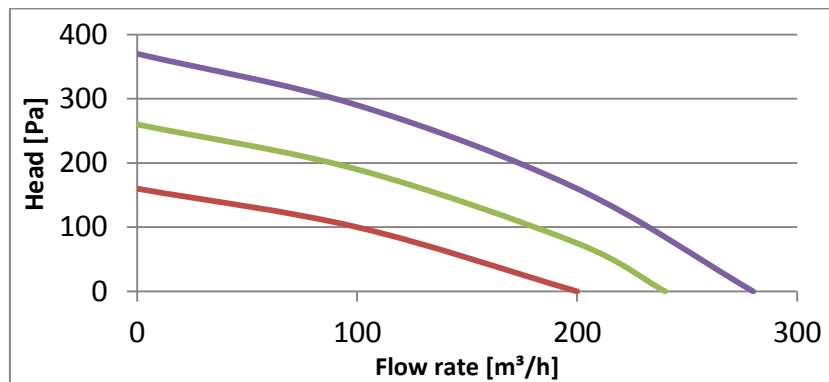
6.3 OPERATING LIMITS



Correct operation is guaranteed within the limits shown in the graph.

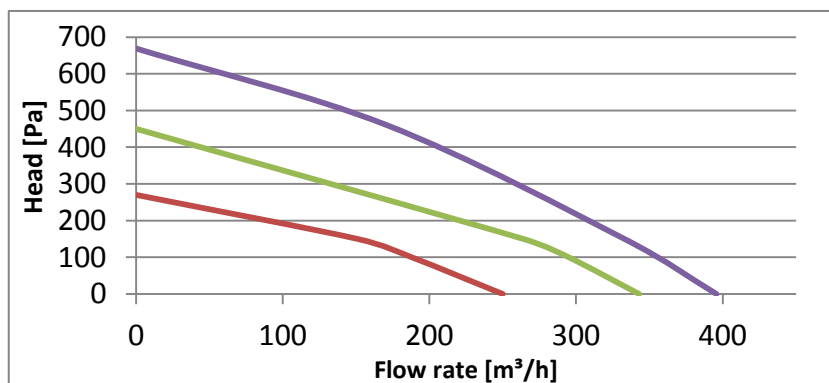
6.4 FLOW RATE - HEAD CURVES and PERFORMANCE CURVES

Flow rate - head curve for RDE 020



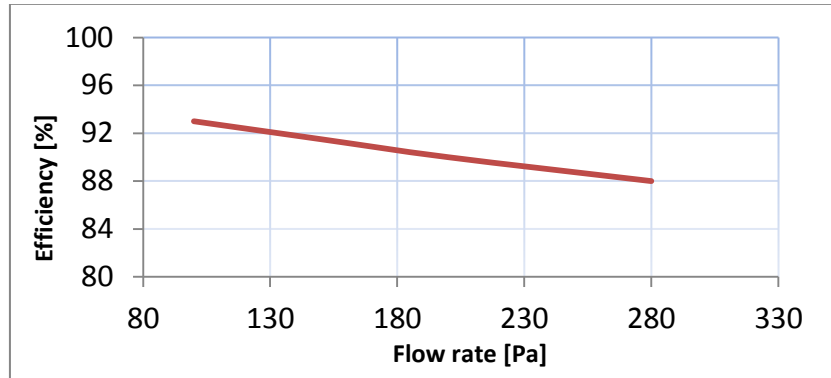
The 3 curves of the graph refer respectively to the three exchange speeds of the unit with basic control.

Flow rate - head curve for RDE 035

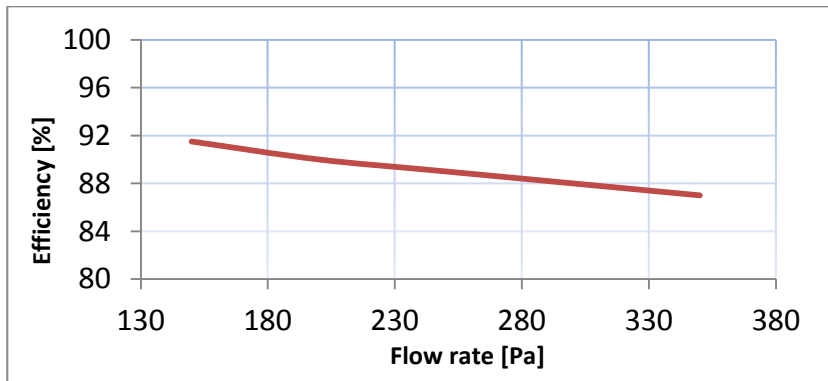


The 3 curves of the graph refer respectively to the three exchange speeds of the unit with basic control.

Performance curve for RDE 020

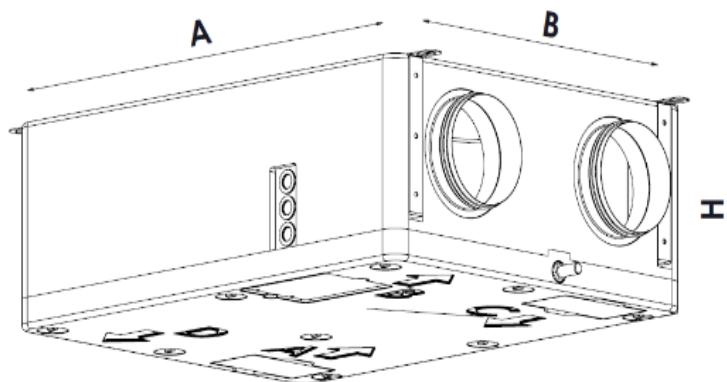


Performance curve for RDE 035



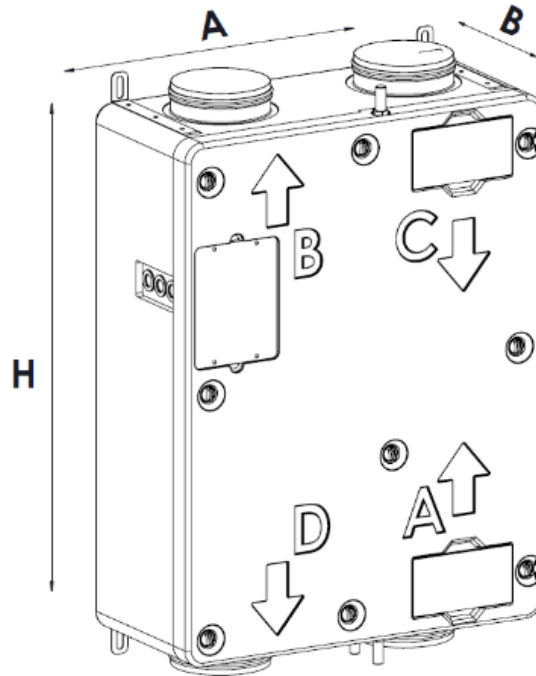
6.5 DIMENSIONS

HORIZONTAL UNIT



	A	B	H	Diameter Nozzles \varnothing
RDE 020	870	660	300	160
RDE 035	870	660	300	160

VERTICAL UNIT



	A	B	H	Diameter Nozzles \varnothing
RDE 020	660	300	870	160
RDE 035	660	300	870	160

7 MAINTENANCE AND TROUBLESHOOTING

7.1 TROUBLESHOOTING

On the next pages you will find a list of the most common reasons that may cause the unit to block or, at least, malfunction. They are listed according to the easily identifiable symptoms.



**ATTENZIONE
WARNING**

Be extremely careful when performing the suggested operations to resolve the various problems: poor attention may result in serious injuries. We recommend contacting the manufacturer or a qualified technician after having identified the cause.

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 unit is OFF	Basic control: turn the switch to one of the speeds
			Advanced control: if the unit is off, press the on/off key
			Advanced control: if the unit is on but the speed is on zero, press UP to increase the speed
	There are alarms present	Eliminate the cause and restart the unit	
2	The display does not turn on <i>(advanced control only)</i>	The connection cable is not shielded or it is unlike the cable indicated	Replace the cable with an appropriate one
		The connection cable has been connected incorrectly	Check the wiring of the cable both on the display and on the power board
		The connection cable has been passed with other cables including power cables	Change the path of the cable
3	The fan is noisy	A distribution duct that has deformed the unit has been connected	Remove the fastening screws of the duct and secure it in a different way
		The maximum speed has been set	Reduce the speed
		Turbo mode has been activated <i>(advanced control only)</i>	Wait a few minutes for turbo mode to end
4	The warning light on the wall is on <i>(basic control only)</i> or the message "CLEAN FILTERS" appears on the display <i>(advanced control only)</i>	The filters need to be cleaned	Follow the instructions in the following paragraphs for routine maintenance
5	The warning light on the wall is flashing <i>(basic control only)</i>	If the alarm is shown as soon as the unit is turned on, one of the temperature probes is not working	Check the electrical connections of the probes on the electronic board and on the terminals Replace the broken probe (further information in the paragraph "Repairs")
		If the unit works normally for about 2 minutes after it has been turned on and then the alarm is shown, one of the fans is not working	Check the electrical connections of the fans on the electronic board and on the terminals Replace the broken fan (further information in the paragraph "Repairs")
6	The alarm displayed does not allow the unit to be switched on <i>(advanced control only)</i>	There is an alarm relating to a device inside the unit	Check the electrical connections of the faulty device on the electronic board and on the terminals
			Replace the faulty device (further information in the paragraph "Repairs")

7.2 MAINTENANCE TABLE

The units work properly if the maintenance operations indicated in the table are carried out and if the frequency indicated is respected.

Operation	Period
Air filters	<ul style="list-style-type: none"> • Visual inspection and cleaning every 6 months (or more frequently in the case of dirty environments) • Replacement at least every 12 months
Heat recovery unit	<ul style="list-style-type: none"> • Visual inspection and cleaning at least every 12 months • Replacement when required or at least every 4 years
Check correct drainage of condensate downstream of the unit	Every 6 months
Check cleanliness of nozzles and air grilles, internal and external	Every 6 months
Visual and acoustic check (check the noise emitted by the unit and its integrity)	Every 6 months
Visual inspection of the electrical panel, of the wiring and of the cables	Every 12 months
Check the condition of the fans and make sure they are fastened	Every 4 years
Clean the condensate collection containers	Every 4 years

ROUTINE MAINTENANCE REGISTER

Record the maintenance operations performed in the following table.

Operation	Year _____		Year _____		Year _____	
	1st half	2nd half	1st half	2nd half	2nd half	2nd half
Air filters						
Heat recovery unit						
Check correct drainage of condensate						
Check cleanliness of nozzles and air grilles, internal and external						
Visual and acoustic check (check the noise emitted by the unit and its integrity)						
Visual check of cooling circuit and hydraulic circuit (oil, refrigerant and/or water leaks)						
Visual inspection of the electrical panel, of the wiring and of the cables						
Check the condition of the fans and make sure they are fastened						
Clean the condensate collection containers						

EXTRAORDINARY MAINTENANCE REGISTER

Record any extraordinary maintenance operations performed on the unit below.

7.3 ROUTINE MAINTENANCE

7.3.1 Cleaning the Air Filters

For the correct operation of the unit, it is necessary to clean the air filters of the unit periodically, when indicated:

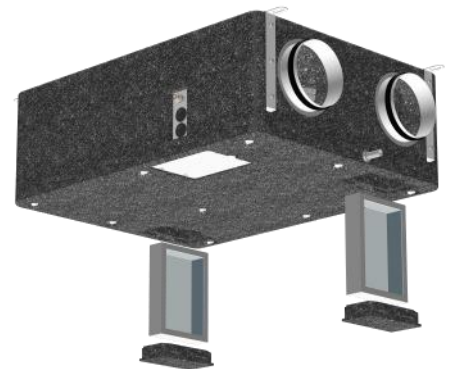
- by the warning light for basic control;
- by a message on the graphic display for advanced control.

A ruined, punctured or damaged filter must be replaced.

RDE (HORIZONTAL INSTALLATION)

On the lower side of the unit, there are two removable panels.

- remove the panels shown in the figure, paying attention to falling filters;
- clean the filters using a vacuum cleaner or even compressed air, remove any impurities manually; be careful not to damage the filter;
- reinsert the filters;
- replace the panels removed previously.



**ATTENZIONE
WARNING**

FILTER MAINTENANCE:

- Do not wash the filters with water;
- Damaged filters must be replaced;
- Never start the unit without the filters.

RDE (VERTICAL INSTALLATION)

On the front side of the unit, there are two removable panels.

- remove the panels shown in the figure;
- clean the filters using a vacuum cleaner or even compressed air, remove any impurities manually; be careful not to damage the filter;
- reinsert the filters;
- replace the panels removed previously.



**ATTENZIONE
WARNING**

FILTER MAINTENANCE:

- Do not wash the filters with water;
- Damaged filters must be replaced;
- Never start the unit without the filters.

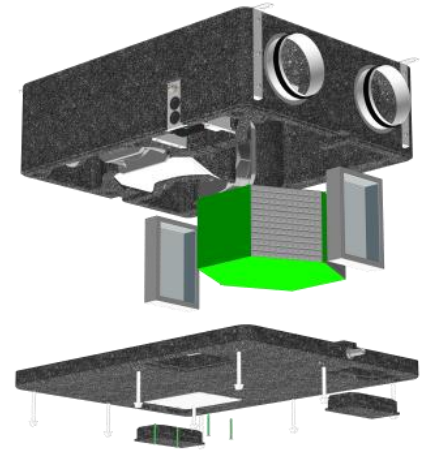
After cleaning the filters, it will be necessary to remove the warning:

- **basic control:** simply turn the exchange air to 0.
- **advanced control:** press EXIT on the main screen.

7.3.2 Cleaning the Condensate Collection Tray and the Heat Recovery Unit

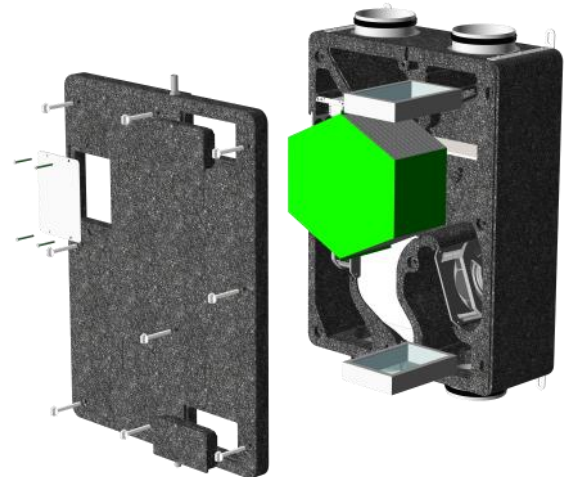
RDE (HORIZONTAL INSTALLATION)

- Open the lower panel by unscrewing the fixing screws, **PAY ATTENTION to falling filters and to the heat recovery unit;**
- Remove the heat recovery unit and clean it with a vacuum cleaner in the direction opposite to the air flow;
- Clean the removed panel, which collects condensate;
- Reinstall the heat recovery unit in its housing;
- Close the panel and secure it with its screws.



RDE (VERTICAL INSTALLATION)

- Open the front panel by unscrewing the fixing screws, **PAY ATTENTION to falling filters and to the heat recovery unit;**
- Remove the heat recovery unit and clean it with a vacuum cleaner in the direction opposite to the air flow;
- Clean the removed panel, which collects condensate;
- Reinstall the heat recovery unit in its housing;
- Close the panel and secure it with its screws.



7.4 EXTRAORDINARY MAINTENANCE

7.4.1 Electric circuit check



The check should be performed with the unit disconnected from the power supply.

Check that all the terminals are correctly fastened; if not, tighten the screws or the connectors.
Check that all the contactors or power relays, if present, work properly and are not blocked or oxidised; otherwise they must be replaced.

7.5 REPAIRS

7.5.1 Replacing the Fan



Replacements should be performed with the unit disconnected from the power supply.

The fans can be replaced in all models.

RDE (HORIZONTAL INSTALLATION)

- DISCONNECT FROM THE POWER SUPPLY;
- open the lower panel by unscrewing the fixing screws, **PAY ATTENTION to falling filters and to the heat recovery unit.**
- remove the filters and heat recovery unit as indicated in the previous paragraphs;
- remove the faulty fan;
- remove the electrical connection of the faulty fan;
- wire the new fan;
- insert the new fan;
- insert the filters and heat recovery unit;
- close the panel and secure it with its screws;
- power up the unit and check that it works properly.

RDE (VERTICAL INSTALLATION)

- DISCONNECT FROM THE POWER SUPPLY;
- open the front panel by unscrewing the fixing screws;
- remove the faulty fan;
- remove the electrical connection of the faulty fan;
- wire the new fan;
- insert the new fan;
- close the panel and secure it with its screws;
- power up the unit and check that it works properly

7.5.2 Replacing a temperature probe or another type of probe

POSITION OF THE PROBES IN THE UNIT

Stale air intake →	room air temperature probe
Fresh air inlet →	outdoor air temperature probe

The position of the air flows varies according to the type of installation.

8 DISMANTLING THE UNIT

When the unit reaches the end of its service life and must be removed and replaced, it is necessary to do the following:

- if the structure and the various components can no longer be used, they must be demolished and divided according to their product type;
- commodity-related: this applies in particular to copper and aluminium that can be found in fair amounts in the machine.



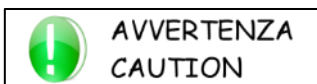
This will facilitate the work carried out in the waste collection, disposal and recycling facilities and minimise the environmental impact of such processes.



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 the laws 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.

8.1 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

9.1 FOREWORD

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 must submit a written report describing all significant signs of damage.

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 prevent it from falling or overturning. Do not move or lift the unit by the removable panels.

9.1.3 Unpacking

The unit packaging must be removed with care to avoid damaging the machine. Different packing materials have been used: wood, cardboard, nylon etc. They should be separated and taken to suitable waste disposal or recycling facilities to minimise their environmental impact.

9.1.4 Identification of the unit

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.

Write down the model, the serial number and the reference diagrams of the machine in the table to the side, so that this information can be easily found in case of deterioration of the data plate.

Model	
Serial number	
Date of production	
PED / CE 97/23 Category	
Conformity module	
TSe external ambient (max/min) [°C]	
TSi internal ambient (max/min) [°C]	
IP protection degree	
Max storage temperature [°C]	
Max ambient working temperature [°C]	
Min ambient working temp.[°C]	
Refrigerant [Ashrae 15/1992]	
Refrigerant charge [kg]	
Empty weight [kg]	
Power supply [Vac/no. phases/Hz]	
Nominal power input [kW]	
Nominal absorbed current [A]	
Full load ampere FLA [A]	
Starting Current LRA [A]	
Wiring diagram	

9.2 POSITIONING



ATTENZIONE WARNING

All RDE 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.

The unit is designed for installation in a fixed position, it is not possible to treat air with a high concentration of dust, containing aggressive/corrosive agents, industrial processing residues. Also, please pay attention to the following points, in order to define the most suitable place for the installation of the unit:

- Customer approval
- Size and origin of water pipes
- Position of the power supply
- Complete accessibility for maintenance/repair operations
- Strength of the fixing points
- Space for ducting
- Provide openings to be able to access the unit for maintenance work or other needs



ATTENZIONE WARNING

The installation of anti-vibration feet is recommended for each anchorage point in order to prevent the transmission of noise and vibrations.

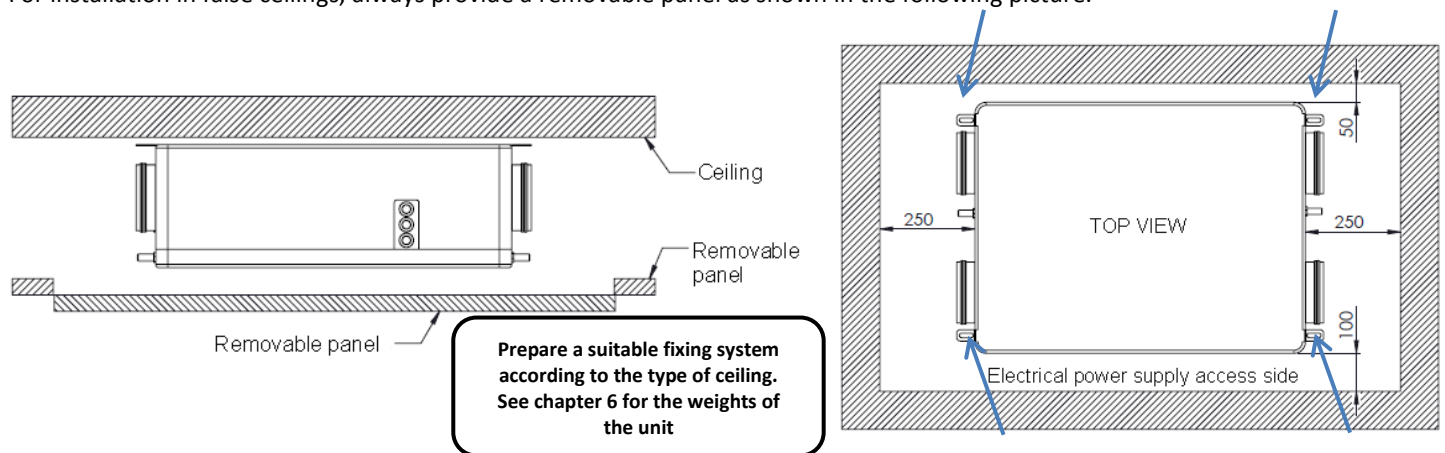


AVVERTENZA CAUTION

The values indicated are to be considered the minimum values for correct positioning and operation of the unit and for subsequent maintenance operations

9.2.1 Horizontal installation

For installation in false ceilings, always provide a removable panel as shown in the following picture.



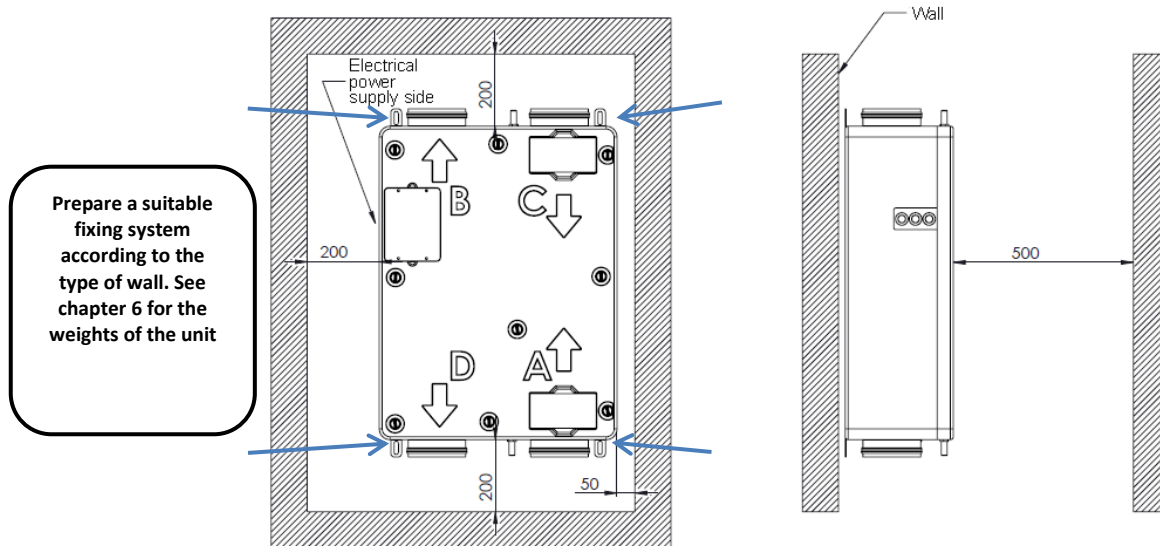
The removable panel must be big enough to allow access to all sides of the unit, in any case it must not be smaller than the removable panel of the unit.

For the size of the panel, it is advisable to also consider any accessories attached to the unit, such as the delivery plenum or return plenum, and to consider subsequent calibration (refer to the following paragraphs).

9.2.2 Vertical installation

OPEN INSTALLATION

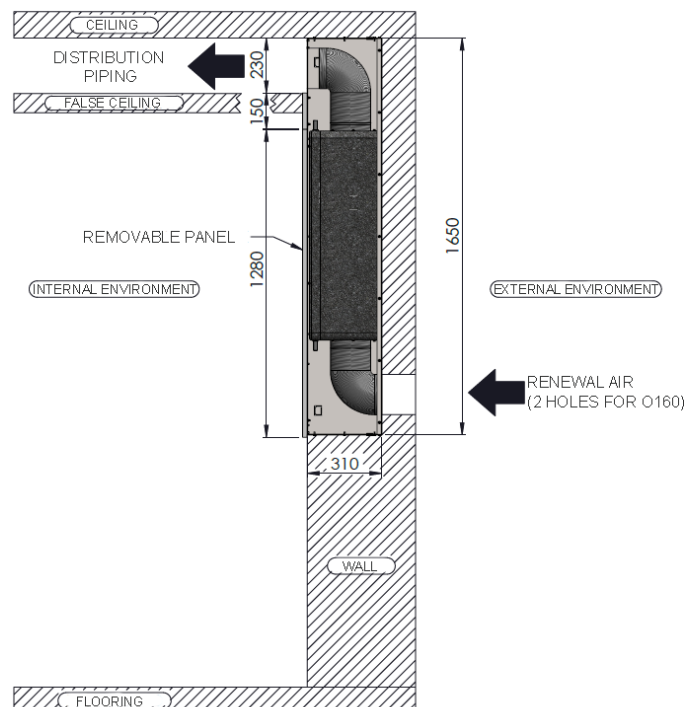
For open installation on walls, respect the distances indicated in the following pictures.



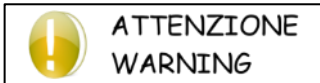
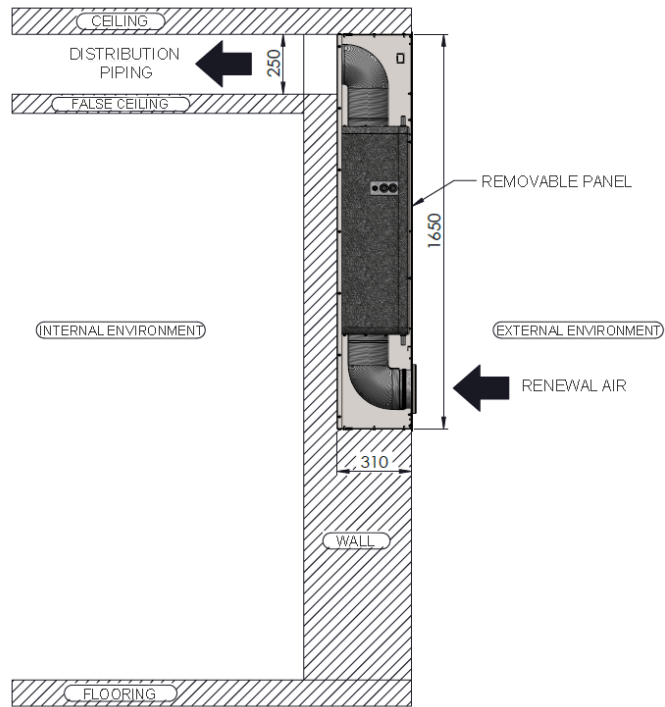
BUILT-IN INDOOR INSTALLATION

For built-in installation, both indoors or outdoors, it is necessary to provide suitable formwork in a wall during the building phase. To attach the unit:

- slightly bend the 4 support flaps inside the formwork using a flat screwdriver
- insert the unit within the formwork and hang it to the 4 two support flaps



BUILT-IN OUTDOOR INSTALLATION



"if the unit is installed in a room with a temperature below 0°C, take the appropriate measures to avoid the formation of ice in the siphon and in the condensate drain"

9.3 DUCTING

All units feature four openings for the aeraulic connections to rigid or flexible pipes.



**AVVERTENZA
CAUTION**

For connections to the outside, it is advisable to use pipes with insulating inserts to avoid thermal exchanges of the outdoor air with the indoor environment.



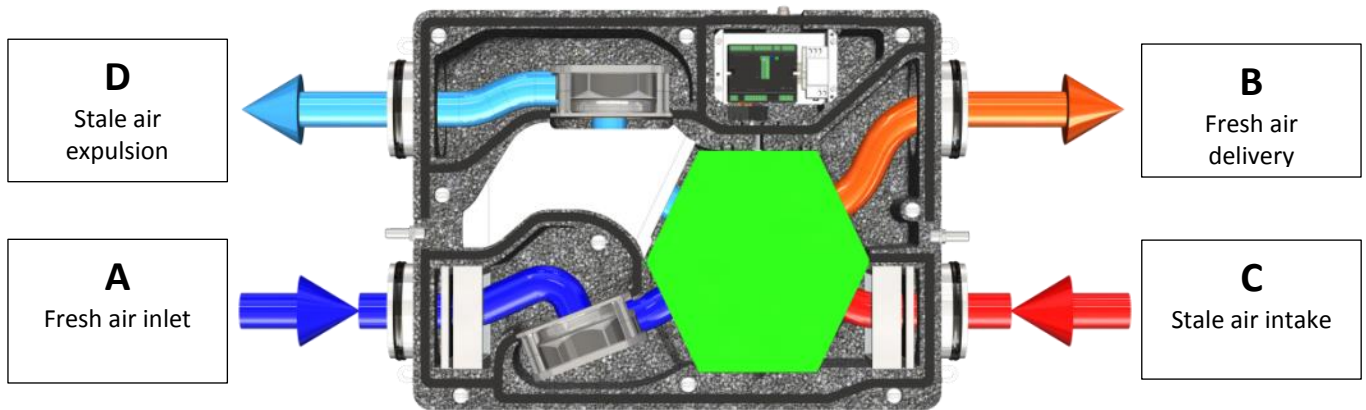
**ATTENZIONE
WARNING**

*For all connections, it is **recommended** to use pipes with large diameters and to limit the use of elbows and reducers. In this way, pressure drops are reduced and, with the same flow rate, there will be less noise.*

Below is some information on air flows, useful for the connection of ducts to the unit's nozzles. The air flows change according to the type of installation chosen.

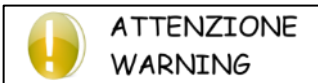
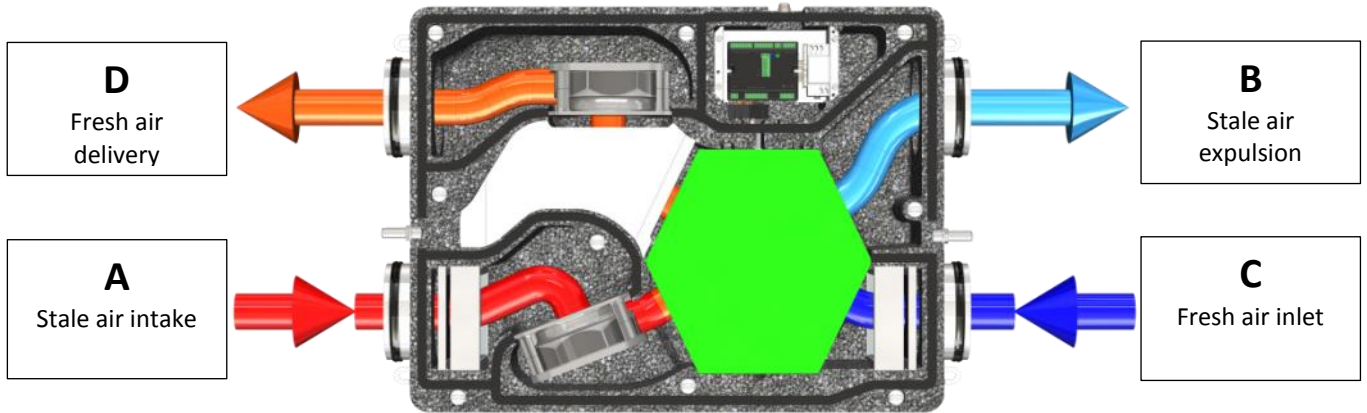
9.3.1 Horizontal installation (standard flows)

The following figure shows the configuration of standard air flows. The unit leaves the factory ready for this type of installation.



9.3.2 Horizontal installation (reversed flows)

The following figure shows the configuration of the air flows for horizontal installation with reversed flows compared to the standard configuration.



Unit with high-efficiency filters and with reversed flows

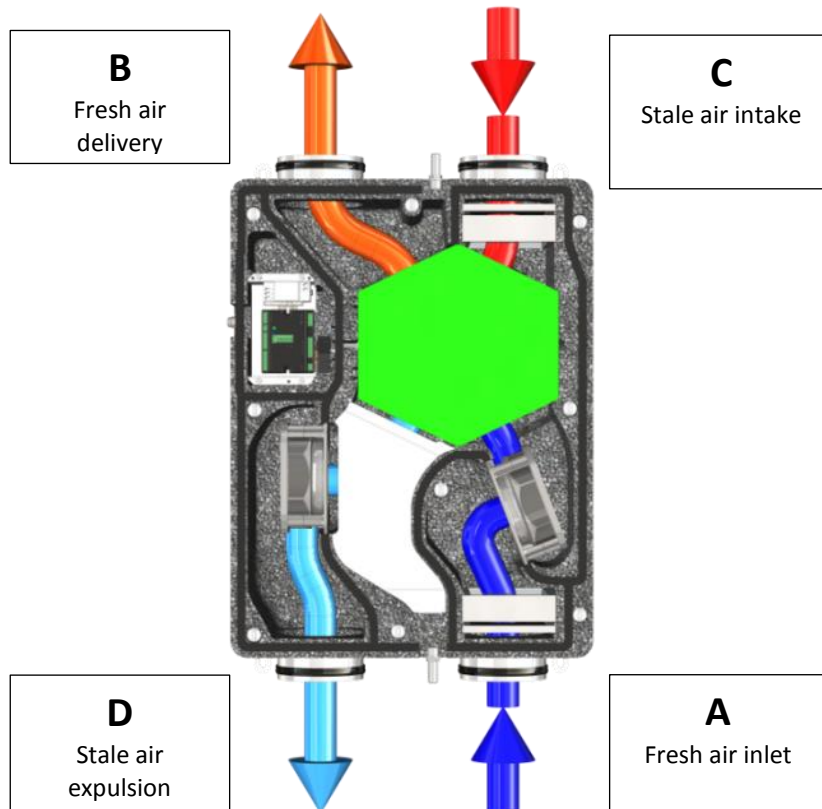
If the unit is used with reversed flows, it is necessary to reverse two high-efficiency air filters. In this way, the high-efficiency filter G2 will always be on the indoor air intake side and the high-efficiency filter F6 will be on the fresh air inlet side.



See the following paragraphs for further modifications to be made in case of installation with reversed flows.

9.3.3 Vertical installation

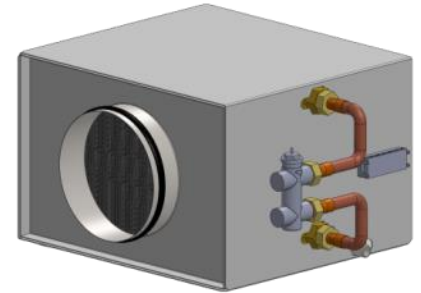
The following figure shows the configuration of the air flows in case of vertical installation.



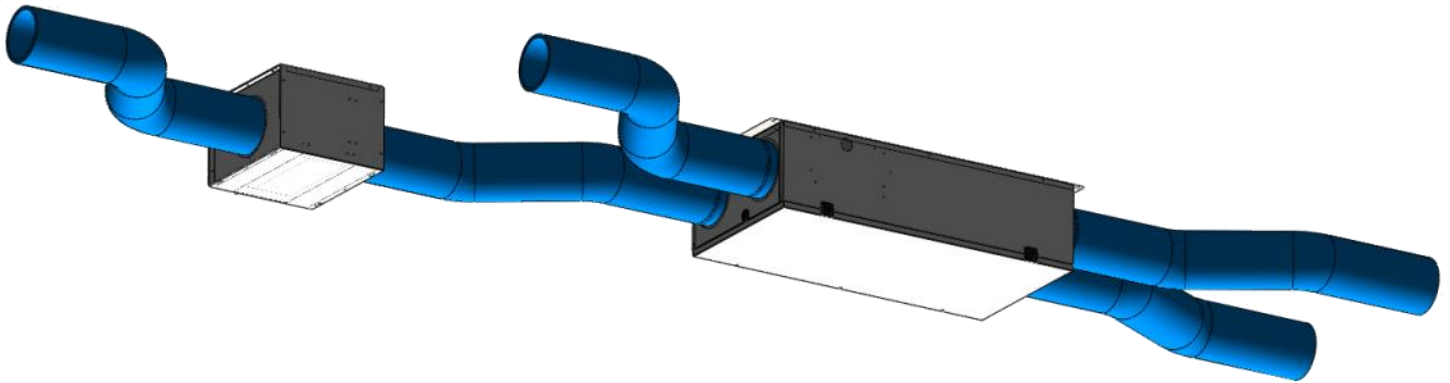
9.4 INSTALLATION OF OPTIONAL KITS

9.4.1 Delivery Temperature Control Kit

The kit is an accessory that allows to control the delivery air temperature, it is available only in combination with an RDE heat recovery unit with advanced control.



The kit must be installed on the fresh air delivery duct, respecting the air flow indicated by a special sticker on the kit itself.



To keep the delivery air temperature constant or to adjust it according to a set, it is necessary to supply cold water during summer and hot water during winter. The unit, based on the reading of the delivery air temperature probe, will automatically adjust the modulating valve in order to always guarantee the desired temperature for the delivery air.

9.4.2 CO₂ probe

The CO₂ probe must be installed in the room where a greater presence of people is expected. In this way, the unit, if correctly set, will adjust the exchange speed based on the reading of the CO₂ value detected. For the electrical connection of the probe, see the following paragraphs.

9.5 HYDRAULIC CONNECTION

9.5.1 Condensate Drain Connection

There are 3 condensate drains, the use depends on the type of installation of the unit.

The unit is supplied with all 3 drains closed with a transparent cap. Simply open and connect one of the 3 drains, as per the following indications.

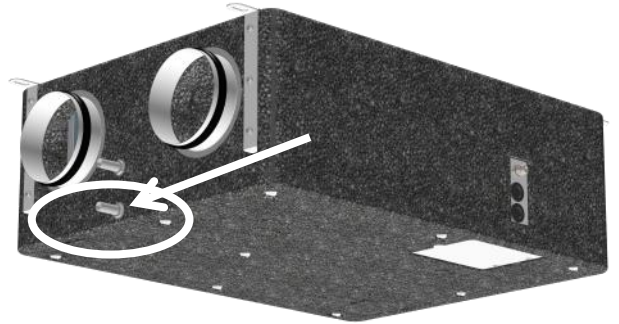


**ATTENZIONE
WARNING**

The unit provides for the possibility of reversing the flows, so pay attention to the correct connection of the condensate drain.

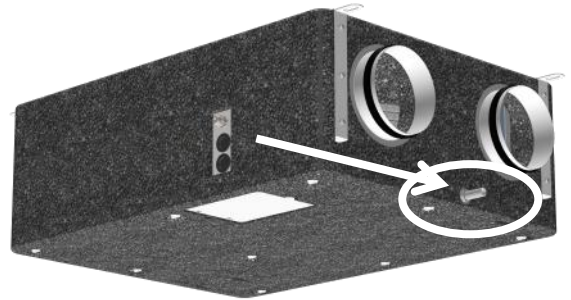
Horizontal installation - standard flows

Open and connect the condensate drain located on the removable cover of the unit, on side D - A, as shown in the figure to the side.



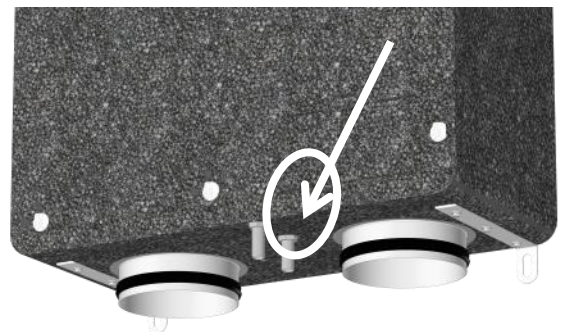
Horizontal installation - reversed flows

Open and connect the condensate drain located on the removable cover of the unit, on side B - C, as shown in the figure to the side.



Vertical installation

In this case, the condensate drain is in the unit casing, on side D - A. Open and connect the condensate drain located in the casing, as indicated in the figure.



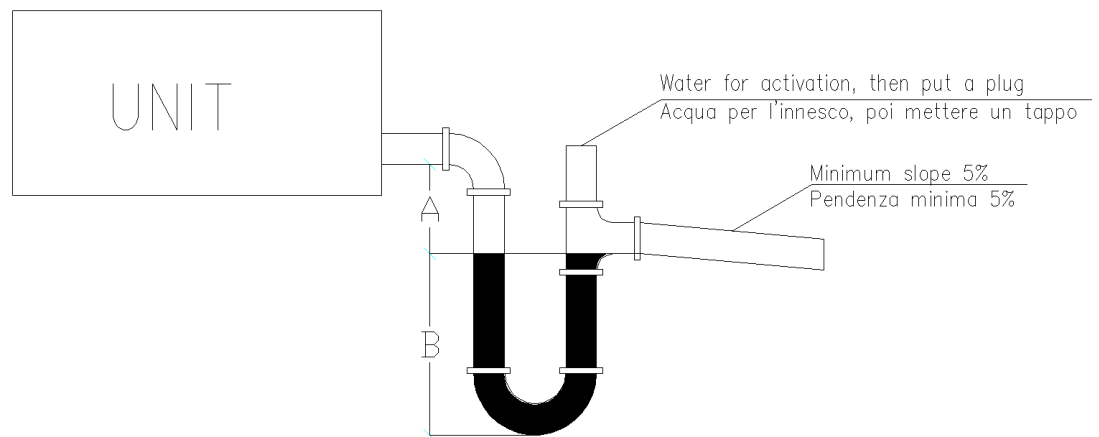
**ATTENZIONE
WARNING**

The inclination of the drain pipe must be such as to drain the water from the unit to the outside in all cases. The siphon must respect the indications and measurements shown in the figure. Failure to comply with these instructions may result in the leakage of condensate from the unit.

Make the connection using a pipe with an internal diameter of 16 mm. The condensate drainage must have no uphill sections along its path.

It is necessary to prime the siphon by pouring water into it before starting the unit.

The following picture shows the recommended siphon configuration.



Minimum height of the siphon

A greater than 50 mm

B greater than 50 mm

9.5.2 Water Circuit Connection (if there is a water coil from duct or a delivery temperature control kit)

When realizing the hydraulic circuit, it is compulsory to follow the below indications and also the national/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.

Adapt the pipes through flexible joints, in order to avoid the transmission of vibrations and compensate the thermal dilatations.

The following components should be installed on the piping:

- Temperature and pressure indicators for maintenance and control of the unit. The pressure control indicates the correct functioning of the expansion vase and highlights in advance water losses in the plant;
- metal mesh filter (inlet piping) with mesh no larger than 1 mm, to protect the heat exchanger from waste or impurities inside the piping. This requirement is, above all, necessary for commissioning;
- drain tap and, where necessary, drain tank to allow the system to be emptied for maintenance operations/seasonal breaks.

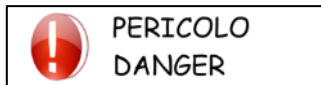


**AVVERTENZA
CAUTION**

It is essential to use the connection indicated with the label "Water Inlet" for the water inlet. Otherwise the countercurrent circuitry would not be respected with the risk of malfunction, blockage or breakage of the unit.

9.6 ELECTRICAL CONNECTION

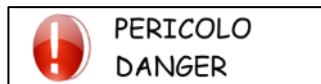
Open the electrical panel, insert the power cable and the other necessary cables in the dedicated holes, make the connections on the terminals and close the panel.



The ground lead is compulsory. The installer should provide the grounding wire with the dedicated terminal located within the electrical panel, labelled with the indications.

The electrical connection, the power cables and the protections must be made according to the following instructions and in compliance with local and international regulations.

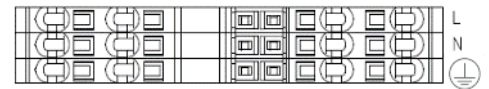
	RDE 020	RDE 035
Suggested power line	H05VV-F 3G1,5	H05VV-F 3G1,5
Recommended MGT switch to be inserted upstream of the line	C6	C6



Wiring must be carried out when the power supply is disconnected. DANGER OF DEATH!

9.6.1 Power terminal board

The unit power supply needs to be connected to the power terminal board; there are 3 terminals, once for each connection, that is 1 for the phase, 1 for the neutral and 1 for the PE.

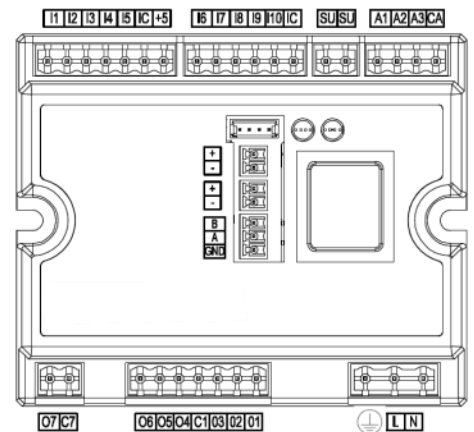


9.6.2 Power board – basic control

INPUTS

Terminals **I8**, **I9**, **I10** and **IC** must be connected to the multi-speed selector for the adjustment of the air exchange. **Clean contacts, do not connect to electrical voltage.** By closing the contact between I8 and IC, the unit switch to speed 1; by closing the contact between I9 and IC, it will switch to speed 2; by closing the contact between I10 and IC, it will switch to speed 3.

The following temperature probes are connected to terminals **I3** and **I4**: I3 room temperature, I4 outdoor temperature.



Warning: unit with reversed flows

Unit used with reversed flows, that is when side BC is the external one (expulsion and exchange). It is necessary to physically reverse the connection of the temperature probes: remove the connector inserted in I3 e I4, reverse the wires inside it, reinsert the connector.

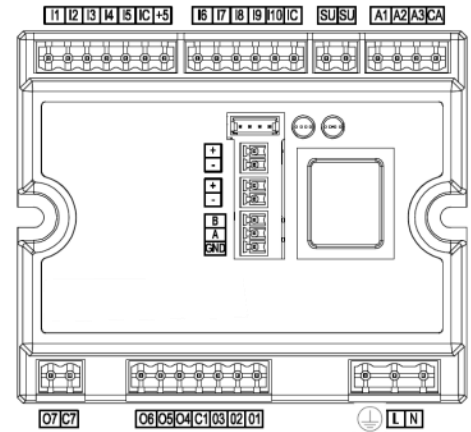
OUTPUTS

A 230 V warning light can be connected between terminal **O6** and **N** (neutral). The light will be on if the filters need to be cleaned, it will flash when there is an alarm and it will be off if there are no errors or if the unit is off.

The command is 230 V.

9.6.3 Power board – advanced control

To activate the unit with advanced control, it is necessary to connect the display to the power board, as indicated in the next paragraph. This operation will allow for advanced control to be activated automatically.



**ATTENZIONE
WARNING**

When the display is disconnected, the unit will go back to basic control and all settings will be lost.

The following temperature probes are connected to terminals **I3** and **I4**: I3 room temperature, I4 outdoor temperature.

Connect the delivery kit temperature probe to terminals **I5 – IC**, as indicated below.

Connect the CO₂ probe to terminals **I7 – IC**, as indicated in the following paragraph.



**ATTENZIONE
WARNING**

Warning: unit with reversed flows

If the unit is used with reversed flows, that is when side BC is the external one (expulsion and exchange), it is necessary to change the probe reversal parameter on the dedicated screen of the installer menu (see installer menu chapter).

Do not reverse the probes physically on the power board.

CO₂ probe connection [optional]

To operate and power the CO₂ probe, use a 4-wire cable from the probe to the unit, connecting it in the following way:

Terminals 1 and 2 of the probe must be connected to the terminals of the appropriate transformer for the 24V power supply of the probe, taking care to respect the correct polarities that are indicated on the probe and on the transformer.

Terminal 5 of the probe must be connected to **terminal I7 of the power board**, extract the connector to be able to connect it.

Terminal 6 of the probe must be connected to any **terminal IC** of the power board.



**AVVERTENZA
CAUTION**

If the accessory has been supplied in a separate kit, follow the instructions contained in the kit for the correct installation of all its parts.

CONFIGURABLE INPUTS

Terminals (I8-IC) - (I9-IC) - (I10-IC) are the configurable commands; they are 3 digital inputs that can be configured to perform the functions listed in the table. **WARNING: connect only the clean contacts** and not the live ones.

POSSIBLE CONFIGURATIONS	OPEN CONTACT	CLOSED CONTACT
Remote ON/OFF	unit turned off from remote	unit turned on and managed via display
activation of turbo mode	fresh air set via display	the fresh air is at maximum speed until the contact is closed and for another 10 minutes after it has been opened
summer/winter switch	unit in summer mode	unit in winter mode
ioniser	ioniser off	ioniser on
air treatment enabling	heating, cooling and dehumidification not active	heating, cooling and dehumidification active according to the settings on the display and to ambient conditions
fresh air forcing	fresh air set via display	the fresh air is at maximum speed until the contact is closed

For each configurable command, it is possible to invert the logic.

All the settings not used by configurable commands must be made manually from the display.



**AVVERTENZA
CAUTION**

In addition to the electrical wiring, the configurable commands must be set from the display during the first start-up; refer to the dedicated paragraph

OUTPUTS

Terminal **O4 and N** (neutral) can be connected to a ioniser. The command is 230 V. For appliances with consumptions higher than 1A, add a contactor or a power relay.

Terminal **O6 and N** (neutral) can be connected to a pump contact (max 1 A) to control a zone head or an on/off valve or a small water pump. The command is 230 V. For appliances with consumptions higher than 1A, add a contactor or a power relay.

Terminals O7 – C7 are a configurable output. The command is a clean contact. For the settings, follow the instructions in the chapter “Installer parameter configuration”.

The configurable output can be selected among the following:

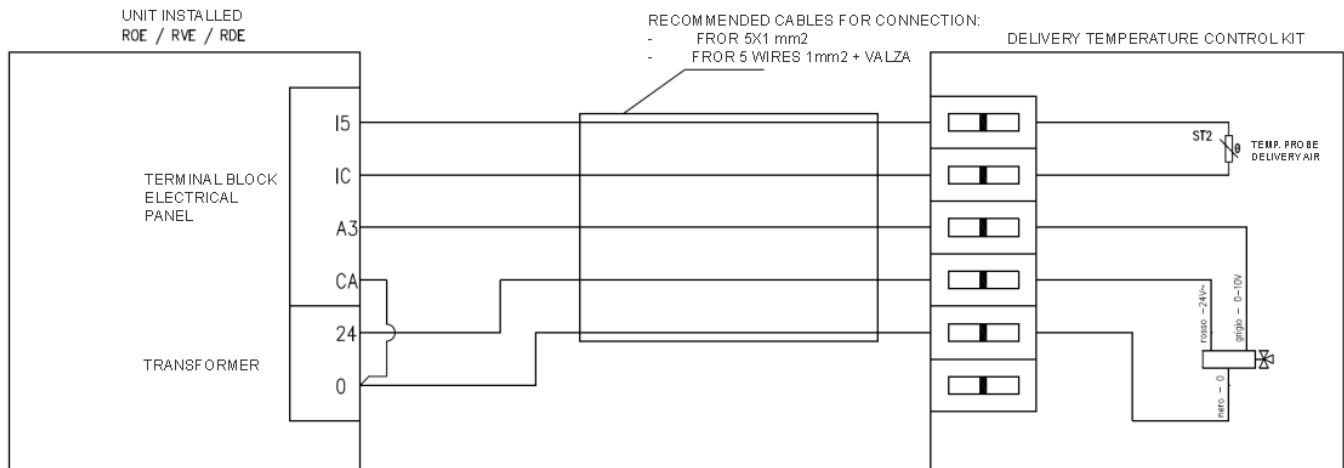
- Not active
- Unit on
- Dehumidification request (active only when summer is set)
- Alarms



In addition to the electrical wiring, the configurable output must be set from the display during the first start-up; refer to the dedicated paragraph.

9.6.4 Delivery Temperature Control Kit Connection

The delivery temperature control kit must be electrically connected to the unit; it is necessary to take a 5-wire cable and connect it as per the following instructions.



9.6.5 Advanced control display

The display and the cable are inside the electrical panel, pay attention not to make them fall.

The display can be of two types, as required:

1. Display with temperature probe;
2. Display with temperature and humidity probe.

POSITIONING AND SECURING THE DISPLAY

The display should be installed in a practical position, so that the user can perform the essential operations, view the operating status of the unit and any alarms present. It should be placed far away from heat sources and air flows, otherwise temperature and humidity probes (if present) might read incorrect values and this will compromise the correct operation of the unit.

For assembly proceed as follows:

- Prepare a 503 horizontal box built into the wall;
- Unscrew the lower screw closing the command;
- Pass the cable through the dedicated back slots and fix the base on the wall-mounted box;
- Proceed with the electrical wiring and close the command.

WIRING THE DISPLAY

To connect the display, the cable from the unit must be connected as shown on the right:

- (negative) first wire and shielding + (positive) second wire

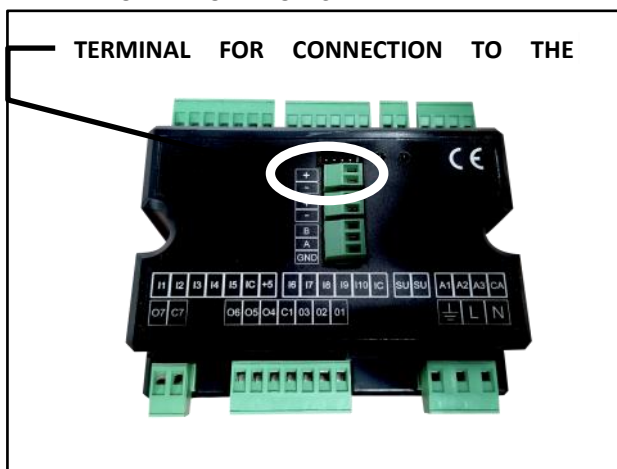
For the connection, it is mandatory to use a shielded and twisted cable like the 2 metre one supplied, or like the 5, 10 or 20 metres cables supplied on request.

Alternatively, especially in the case of installations where there are possible electromagnetic interferences that may compromise communication between the board and the display, it is advisable to use a CEAM Y08761 cable or equivalent (2-wire shielded and twisted belden cable).



If the poles are inverted, the display will not work. The poles are indicated both on the plastic black power board (on board) and on the back of the display. The cable should be connected as shown below:

POWER BOARD ON UNIT



DISPLAY TO BE PLACED IN THE ROOM



It is recommended to keep the communication cable between the board and display as far away as possible from any power cable, in order not to compromise communication between the two.
Therefore, it is strictly FORBIDDEN to pass the cable with power cables.

9.6.1 RS485 - Modbus Connection - [optional]



For the connection of all the Modbus system/network use a CEAM Y08761 cable or an equivalent one.

Connect the Modbus RS485 cable on the removable terminal indicated in the picture on the left:

- + (positive pole) to terminal **A**
- - (negative pole) to terminal **B**
- the shielding to terminal **GND**

On all the devices connected in the network, respect the connection A, B, GND.

For the Modbus parameter configuration, refer to the installer paragraph on the following pages.

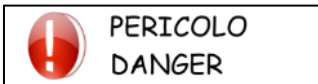
RS485 Modbus connection is optional, but the terminal should be always present. Check that you have set this option; if not, the unit will not work.

9.7 FIRST START-UP, CALIBRATION AND CONFIGURATIONS



Initial start-up, calibration and configuration must be carried out exclusively by specialist personnel.
DO NOT IMPROVISE, UNIT MALFUNCTION DANGER

Before starting, check that all the panels are in their position and secured with their screws.
Follow these instructions carefully for commissioning:



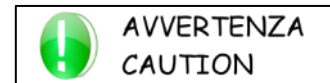
Check that all the hydraulic, electric and aeraulic connections are correctly installed and that all the indications given on the labels and in the user manual are observed.

All the operations to be performed are clearly explained in the following paragraphs.

9.7.1 Turning on the unit

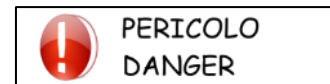
Power up the unit. After a few seconds, necessary for loading, the unit will be ready to work autonomously:

- with basic control, turn the switch to one of the speeds
- with advanced control, from the OFF screen, press the ON/OFF key to turn on and display the main screen; use the UP and DOWN keys to change the speed



After powering up the machine, it will be necessary to wait a few minutes for the application to load. During this time, the machine will not respond to commands. After the necessary time has elapsed, the unit can be turned on.

9.7.2 Flow Rate Calibration (Advanced Control only)



*For the calibration, you need an anemometer for ducts.(airflow hot wire measurer for canal use).
The following lines indicate where the air flow should be measured.*

Now it is possible to proceed with the calibration.
Why does the calibration procedure need to be performed?

The units are heat recovery units that introduce fresh air into the room.

Every installation is different from the others, so it is essential to measure and correct the air flows, according to the real operating conditions. In this regard, the units leave the factory with fixed minimum and maximum fan speed values (speed 1 and 5) but they will not be exactly those suitable for installation.

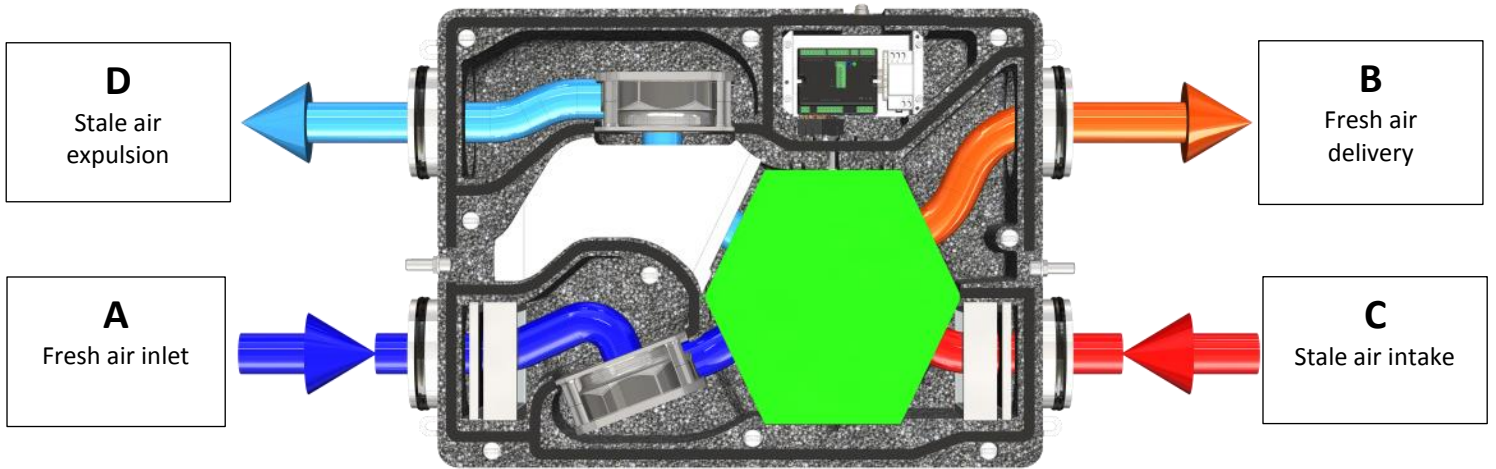
It is therefore essential to correct the air flow rates in the various operating conditions:

- Minimum speed (phase 1)
- Maximum speed:(phase 2)

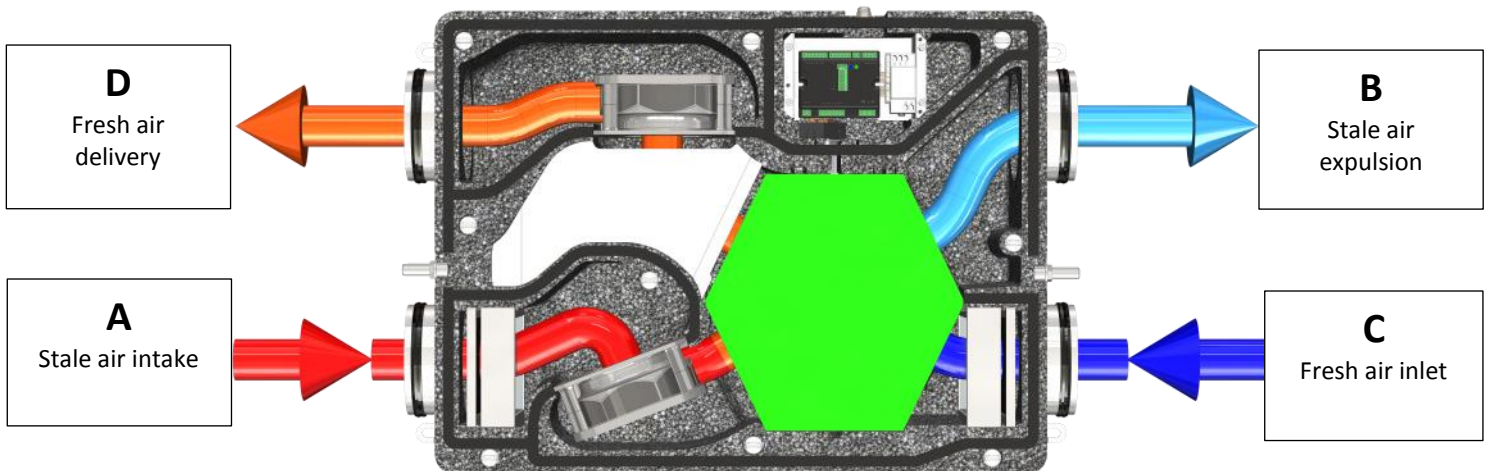
Otherwise, if the calibration is not carried out at all or it is not carried out correctly, the RDE unit will have air flow rates different from the design flow rates and this will result in a loss of efficiency of the heat recovery.

The pictures on the following pages show the measuring points, specific for each type of installation.
Refer to the following pages for the calibration procedure.

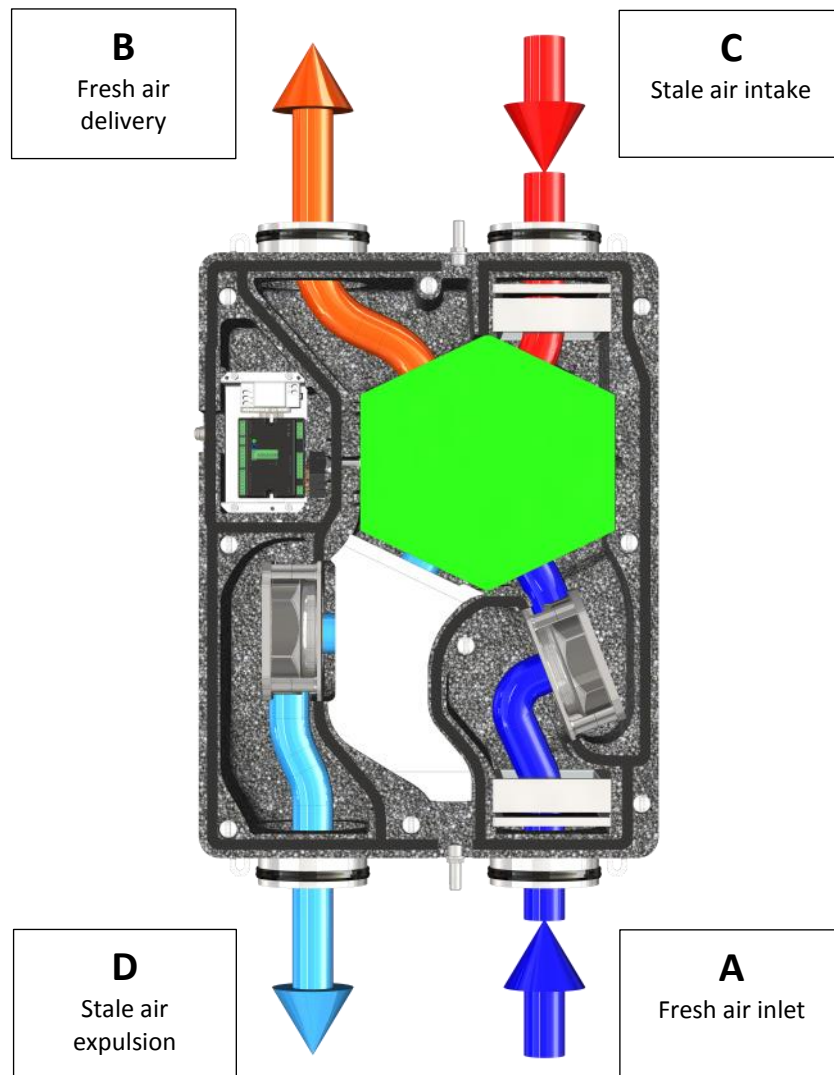
RDE (HORIZONTAL INSTALLATION) – STANDARD FLOWS



RDE (HORIZONTAL INSTALLATION) – REVERSED FLOWS



RDE (VERTICAL INSTALLATION)

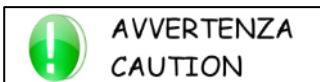


Usually the fan of an anemometer has a diameter of less than 20 millimetres. It will be necessary to drill a hole in the fresh air inlet and stale air intake pipes to insert the anemometer. It will not be necessary to drill any holes in the other two pipes. For the calibration, you need to access to the dedicated menu. As anticipated, the calibration process is divided into 2 phases. During each phase, two parameters must be changed to reach the desired air flow rate values.

During calibration, it will be necessary to move from the wall-mounted display to change the values and the air ducts to measure the flow rate; if the display and the ducts are far apart, it may be convenient to disconnect the display from the wall and temporarily connect it to the machine; for this temporary connection, a special 2 metre cable is supplied.



The unit with horizontal installation can operate with reversed flows; before performing the calibration, check whether or not the air flows are in the direction of the arrows shown on the unit casing.



It may occur that some installations feature air ducts that are too long or too tight or twisted. These will create high pressure drops and compromise the air flows. During the calibration phase, it will be necessary to increase the speed of the fans too much and this will create an uncomfortable noise level for the user. This is the reason why we suggest, during the calibration, not to exceed an acceptable noise level. Reducing the air flow rates by 10/15% is tolerated.



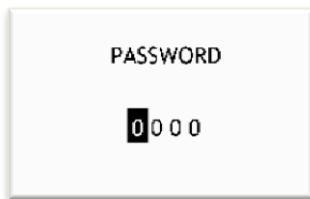
Read all the following instructions before performing the calibration. Then, start reading from the beginning and perform all the operations indicated.

The table shows the flow rates to be obtained during the calibration phase.

	RDE 020	RDE 035
Minimum flow rate [m ³ /h]	40	40
Maximum flow rate [m ³ /h]	200	350

STARTING CALIBRATION

To enter the calibration menu:



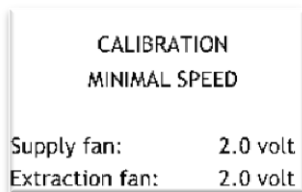
1. Go to the main screen (press EXIT if necessary)
2. Keep pressed for 3 seconds UP, OK and DOWN
3. Enter '0099' as the password and press OK to confirm



If no keys are pressed on the calibration screen for 30 seconds, the program will exit automatically and the main screen will be displayed. In this case, you will have to repeat the process, from phase 1.

During the modification phase (highlighted parameters), the program will wait for the confirmation without exiting.

PHASE 1 - MINIMUM SPEED CALIBRATION



After a short waiting time required by the unit to adjust the speed of the fans, the minimum speed calibration menu will appear on the display (as shown in the picture).

1. Press OK to highlight the *Delivery fan* parameter; place the anemometer in the **“Fresh air inlet”** pipe (refer to the previous pages).
The anemometer must read an air flow rate corresponding to the correct minimum flow rate value indicated in the table at the top of this page.
If the anemometer reads a different air flow, with UP and DOWN modify the speed of the fan until you find the desired air flow.
2. Press OK to highlight the *Extraction fan* parameter; place the anemometer in the **“Stale air intake”** pipe. The anemometer must read an air flow rate corresponding to the minimum flow rate value indicated in the table at the top of this page.
If the anemometer reads a different air flow, with UP and DOWN modify the speed of the fan until you find the desired air flow.
Press OK to finish editing the parameter.
Press DOWN to move onto the next calibration.

PHASE 2 - MAXIMUM SPEED CALIBRATION

CALIBRATION	
MAX SPEED	
Supply fan:	6.0 volt
Extraction fan:	6.0 volt

After a short waiting time required by the unit to adjust the speed of the fans, the maximum speed calibration menu will appear on the display (as shown in the picture).

1. Press OK to highlight the *Delivery fan* parameter; place the anemometer in the “**Fresh air inlet**” pipe (refer to the previous pages).
The anemometer must read an air flow rate corresponding to the maximum flow rate value indicated in the table at the top of this page.
If the anemometer reads a different air flow, with UP and DOWN modify the speed of the fan until you find the desired air flow.
2. Press OK to highlight the *Extraction fan* parameter; place the anemometer in the “**Stale air intake**” pipe. The anemometer must read an air flow rate corresponding to the maximum flow rate value indicated in the table at the top of this page.
If the anemometer reads a different air flow, with UP and DOWN modify the speed of the fan until you find the desired air flow. Press OK to finish editing the parameter.

Press EXIT to confirm the values entered and to go back to the password entry menu, thus ending the calibration.

9.7.3 Parameter and calibration value table

	Delivery fan	Extraction fan
PHASE 1		
PHASE 2		



At the end of the calibration, after filling in the table (shown above), it is necessary to send this page to the manufacturer via fax or email to validate the warranty. Otherwise, the warranty will be void.

9.7.4 Installer Parameter Configuration (Advanced Control Only)

To enter the installer menu:



- go to the main screen (press EXIT if necessary)
- keep pressed for 3 seconds UP, OK and DOWN
- enter '0010' as the password and press OK to confirm

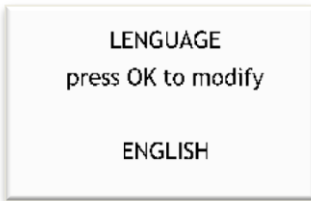


If no keys are pressed in the installer menu for 30 seconds, the program will automatically exit and the main screen will be displayed. In this case, you will have to start the process again, from the beginning.

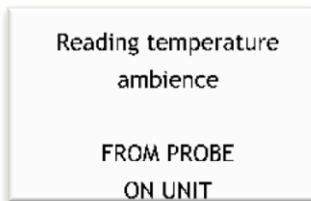


Use of keys:

- with UP and DOWN you can scroll between the screens (some screens do not always appear)
- with EXIT you can exit and go back to the main screen
- with OK you can perform the function indicated on the screen

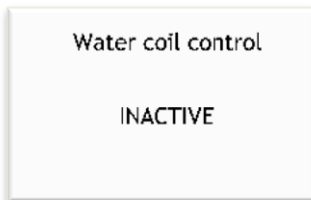
Some screens may not be present.

Possibility to change the interface language.



Possibility to set the temperature reading from:

- probe on the unit
 - probe on the display
- default: from probe on the unit.*



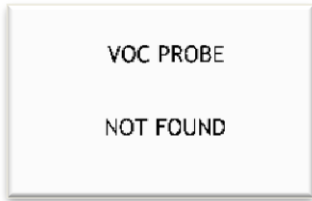
Possibility to enable the water control: in this way, it will not be possible to control a zone head or an on/off valve or a small water pump (maximum 1A). The output will work in heating mode during winter and in cooling mode during summer.
default: disabled



Possibility to set the presence of an ioniser.
default: not present



Possibility to set the presence of a CO₂ probe
default: not present



Possibility to set the presence of a VOC probe.
(the screen is present; however, in the RFE model it is not possible to install a VOC probe)
default: not present

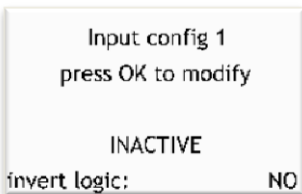


Possibility to change the fresh air logic for unit operation in automatic mode. This screen appears only when the display is equipped with a humidity probe.

The possible selections are the following:

- **NORDIC:** the fresh air exchange speed increases as the humidity detected in the room increases, in order to let humid air out and let drier air in.
- **MEDITERRANEAN:** the fresh air exchange speed decreases as the humidity detected in the room increases, in order to minimise the entry into the room of more humid air from outside.

default: nordic



Possible setting of the 3 configurable commands; these are 3 digital inputs which can be configured to perform several functions.

For the electrical wiring and other information, refer to the dedicated paragraph on the previous pages.

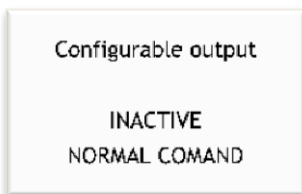
Each command can be set as: 'remote on/off', 'turbo activation', 'summer/winter switch', 'ioniser on', 'enable treatment', 'force maximum fresh air exchange'.

For each command set it is possible to invert the logic.

It is not possible to set 2 configurable commands with the same information.

WARNING: the configurable commands modify the operation of the unit, do not improvise.

default: all 4 commands not active and with logic inversion set to no



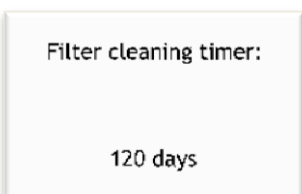
Possibility to set the configurable output.

The output can be not active, it can be set as "unit on", as "dehumidification" or as an "alarm" signal.

For each command set it is possible to invert the logic.

For the electrical wiring and other information, refer to the dedicated paragraph on the previous pages.

default: output not active



Possibility to change the warning timing for filter cleaning.

A reminder will be indicated on the display (main screen): it is possible to choose from 3 months to 6 months for the reminder.

default: 120 days



Possibility to correct the reading of the temperature and humidity probes, the latter only if present.

default: 0.0 °C and 0 %

Serial configuraion
SERIAL OFF

Possible setting of parameters for Modbus communication on serial board RS485.
With the optional RS485 Modbus, this screen is active and allows to control the whole unit at distance.
More information available on request.
default: serial not enable, address 1 and baud rate 9600

Press OK to display
alarms history

Possibility to display the alarm history of the unit.
The alarm history contains all the alarms, with the indication of the alarm number and day, month and year of the warning.

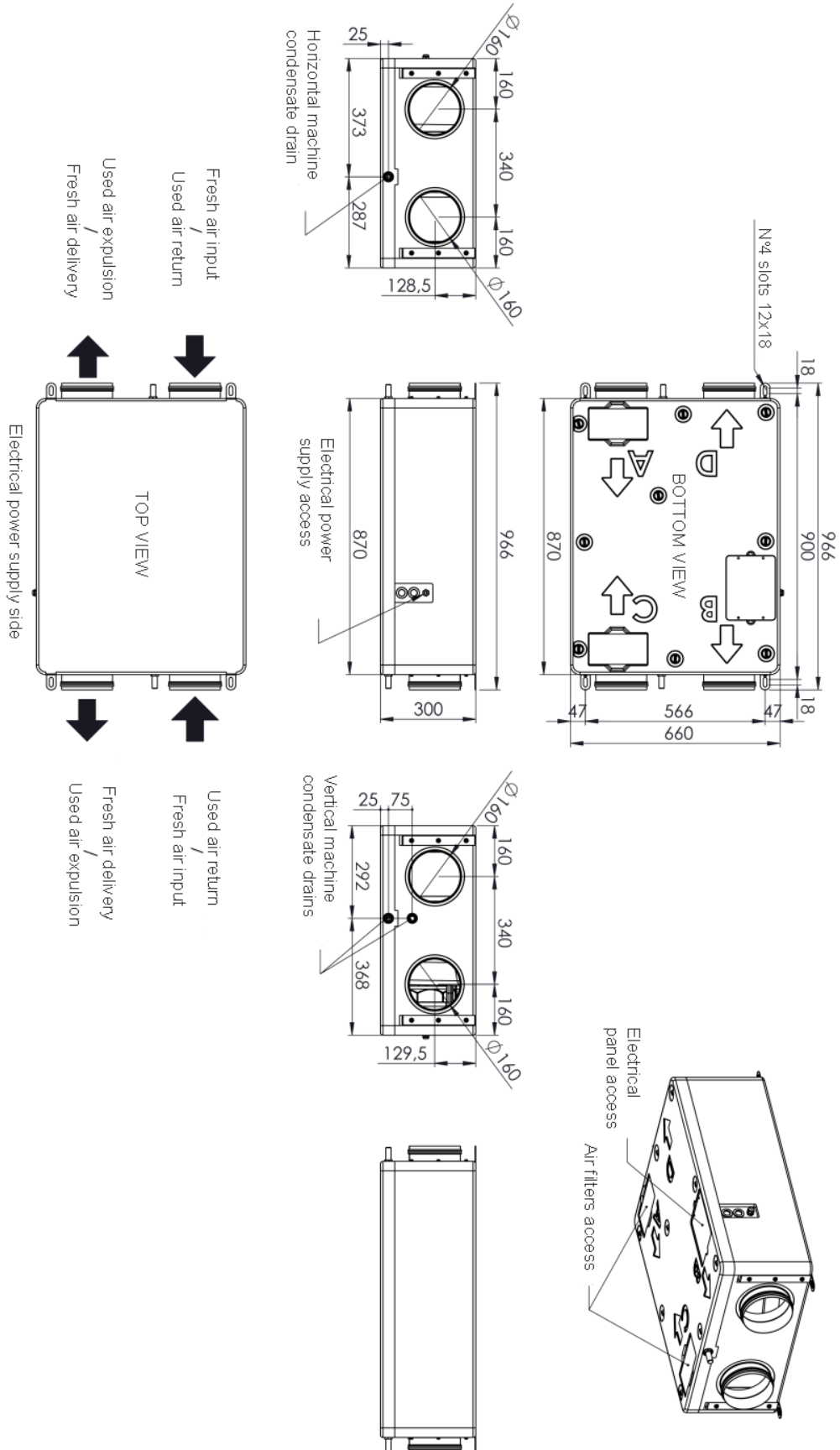
INSTALLER VALUES

Press OK for 3 seconds
to restore default
values

Possibility to reset all the installer and user parameters.
If you incorrectly change some parameters on the installer menu or on the user menu, you can restore the default values.
WARNING: by resetting, the following are deleted: all user settings, such as the desired temperature and humidity, the set season and all the installer parameters, but the calibration parameters and time slot programming are not deleted.

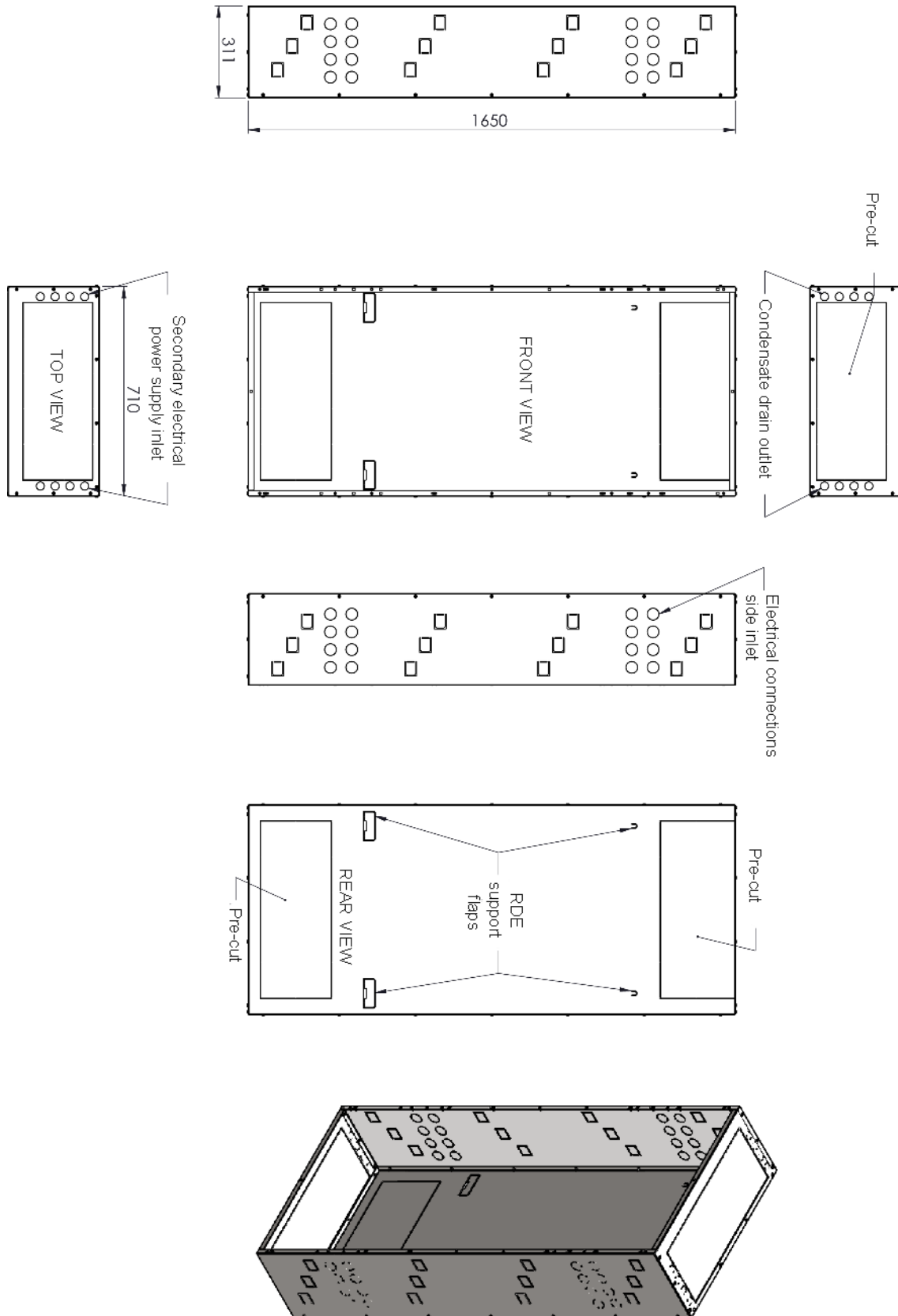
10 DIMENSIONAL DRAWINGS

RDE 020 - 035

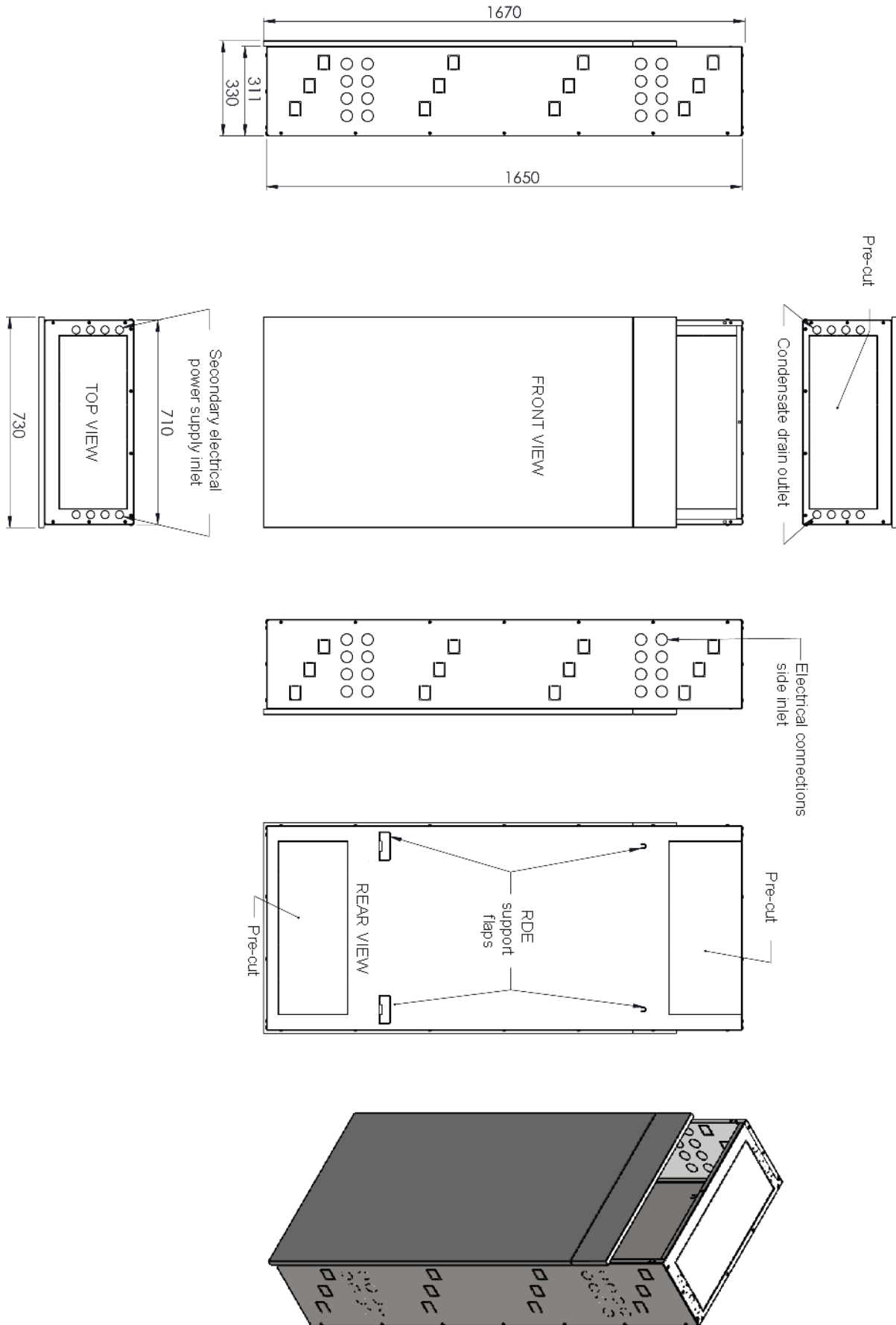


10.1 FORMWORK for RDE 020 - 035

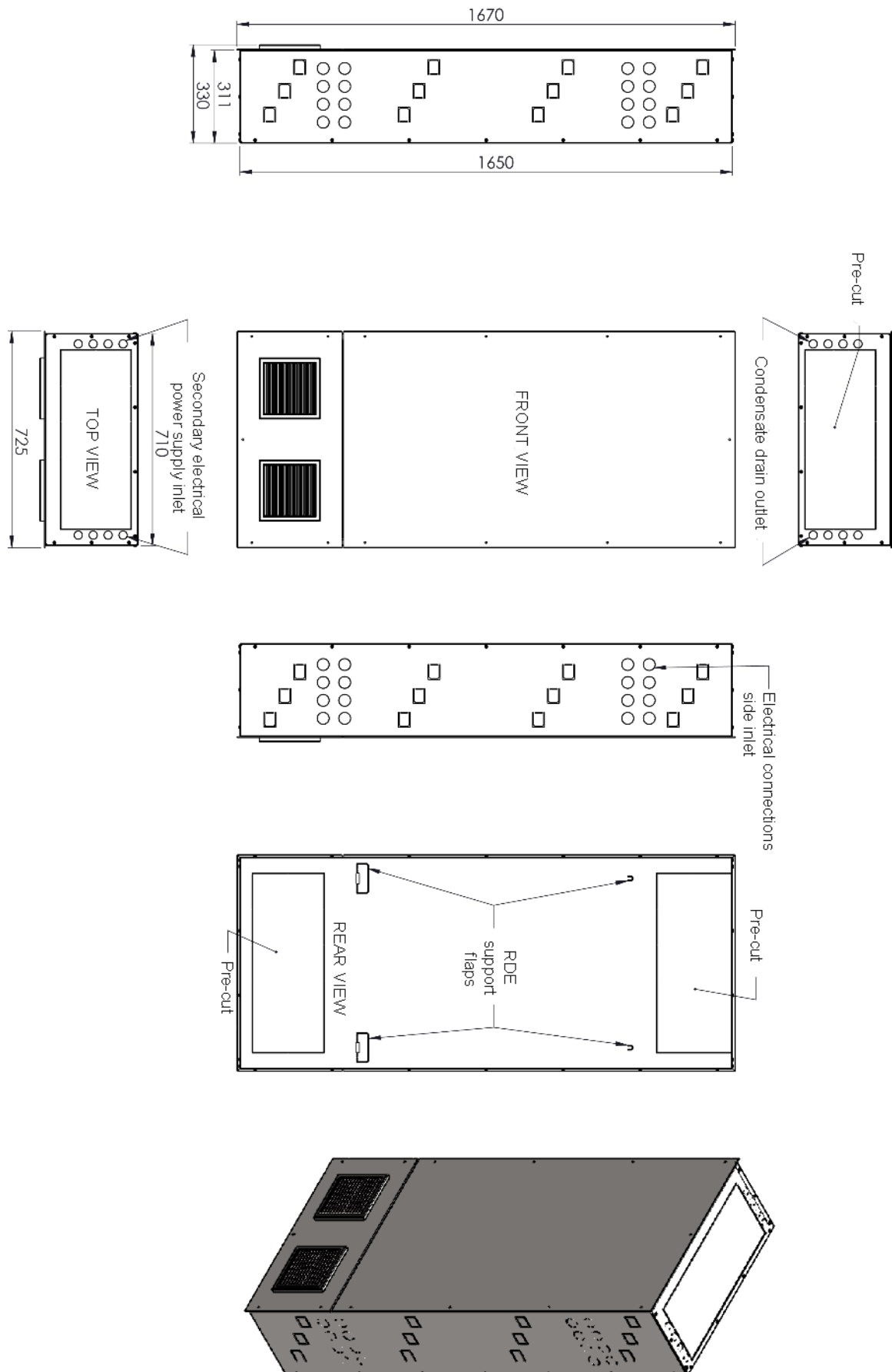
10.1.1 Dimensions of formwork for RDE 020 - 035



10.1.2 Indoor FORMWORK for RDE 020 -035 with panels



10.1.3 Outdoor FORMWORK for RDE 020 – 035





Eneren s.r.l.
info@eneren.it - www.eneren.it

Sede operativa: Viale Spagna, 31/33 - 35020 - Tribano (PD) – Italy

Sede legale: Viale Spagna, 31/33 - 35020 - Tribano (PD) – Italy

Tel +39 049/9588511 - Fax +39 049/9588522

Registro AEE: IT18080000010592