HiDew
Dehumidifiers

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RSO - RSV - RSE

USER MANUAL

UNIT COMPLETE DOCUMENTATION:

- ☑ USER MANUAL
- ☑ WIRING DIAGRAM
- ☑ REFRIGERANT DIAGRAM
- ☑ DIMENSIONALS

RSO - RSV - RSE

Dehumidifiers for radiant systems

BEFORE USING THIS UNIT, READ CAREFULLY THIS USER MANUAL

Dear Customer,

Thank you for having chosen one of our products.
We are glad to provide this User Manual to you, in order to allow an optimum usage of the unit, for a better comfort and a higher safety.

We strongly recommend a careful reading of the directions mentioned in the following pages and to let the present manual available to all the operators who will work for the management and the maintenance of the unit itself.

We remain at your disposal for any further information and explication you may need, whether in the first-starting phase and in every following moment.

For necessary ordinary or extraordinary maintenance operations, we remain at your disposal with our Technical support Service, to assist you and supply the spare parts.

For a quicker assistance, please contact us at the following references:

HIDEW s.r.l.
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SUMMARY

1 INTRODUCTION

The present User Manual indicates the uses of the unit and gives instructions for transport, installation, assembling and regulation of the machine. It gives directions about maintenance, spare parts request, residual risks presence and staff education.

The User Manual should be read and used in the following way:
- each operator and person concerned with the use and maintenance of the unit should read it carefully and follow the instructions given;
- the employer has to verify that the operator has the required attitudes to conduct the unit and that he has carefully read the manual; the employer is also supposed to inform the operator about the risks of accidents, mainly risks deriving from the noise, the individual protection devices and the rules preview according to the law, both at an international level and at the destination Country level;
- the manual should always be available for the user, the transport Company, the operators for the placement, the maintenance, the reparation and the dismantling of the unit;
- the manual should be protected from humidity and hot zones and considered as an integrant part of the unit for all its lifetime; it has to be delivered to the next owner of the unit;
- please make sure that every update is included in the manual;
- do not damage, remove, strip or re-write the manual, neither part of it; in case it is lost or damaged, please contact the manufacturer for the request of a new user manual and communicate the matriculation number of the unit (you find it on the data label).

Please, take care of the following symbols. Their function is to underline the following information:

It makes reference to dangerous situations that can occur when using the machine, in order to grant people safety.

It makes reference to dangerous situations that can occur when using the machine, in order to avoid damages to the unit itself and to things around it.

It makes reference to suggestions or additional integration for a correct use of the unit.

The manufacturer has the right to update products and relative manuals, without being obliged to update previous versions, with exception of particular cases.
This manual refers to the current technologies adopted at the moment of the selling of the unit and can not be considered inadequate according to following updating due to technology evolutions.
To ask for eventual manual updating or for integration, please forward your request to the previously indicated references.
Please contact the manufacturer for further information or suggestions.
In case of re-selling of the unit, please inform the manufacturer about the new owner references, in order to facilitate the communication between the both of us.

1.1 RESPONSABILITIES

The unit is granted according to the contract clauses subscribed in the sales negotiation.

The manufacturer is not responsible for accidents that can occur because of:

- the non-following of the instructions given in this manual about the correct use, maintenance and first-starting of the machine;
- changes made in the unit or in the safety devices without a written authorization from the manufacturer;
- non-authorized attempts of repair;
- negligence in constant maintenance or use of non-original spare parts.

Anyhow, if the user accuses the manufacturer for any fault of the unit, he has to demonstrate that the damage occurred has been a direct consequence of the supposed fault.

1.2 SERVICE RULES

The service rules described in this manual have to be considered as integral part of the unit supplied.
Moreover, these rules are reserved to the operator, who has previously been instructed about the unit in object and they provide necessary information about safety and correct use of the machine.
Please, consider that incorrect and incomplete education about the units can cause accidents.

Read carefully the following suggestions:

- the first-starting of the unit should be done only by a qualified and manufacturer-authorized operator;

- when installing the unit or when an intervention is required, it is fundamental to follow the rules described in this manual and to pay attention to the directions given by the control of the machine;
- accidents can be avoided by following these technical instructions, with reference to the machine-directive CE/42/2006 and its following revisions; in every case, keep attention to the national safety rules;
- do not remove or damage protections, labels and writings, especially those imposed by the law; in case they are no more readable, please substitute them. .

The machine-directive CE/42/2006 gives the following definitions:

DANGEROUS ZONE: *every zone internal or in the nearby of a unit where the presence of men is a risk their safety or wealth;*
EXPOSED PERSON: *every person who stands within or nearby a danger zone;*
OPERATOR: *the person charged for the installation, the starting, the regulation, the maintenance, the cleaning, the reparation and the transport of the unit.*

All the operators should follow the accidents prevention measures, both international and of the destination Country, in order to avoid accidents.

Please remember that the European Community has issued several directives concerning workers' safety and wealth, such as CEE/391/89, CEE/686/89, CEE/654/89, CEE/655/89, CEE/656/89, CEE/188/89, CEE/58/92 and CEE/57/92, that employers are supposed to follow and to make them followed.

The units have been realized in conformity with technical laws, dispositions and rules in force.
Used materials, equipment parts, production processes, quality warranty and control satisfy the required maximum safety standards.
The lifetime of the unit and its correct functioning can be granted by using it for the supposed usages, by moving them carefully and by following accurately maintenance and revisions.

1.3 INTERVENTION AND MAINTENANCE

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1.4 USES

RS units are dehumidifiers to be installed combined to radiant systems, which allow to dehumidify, or to cool and dehumidify air.

Its use is recommended within the functioning limitations indicated in this manual.

Place the unit where there are not explosion or fire dangers, neither in vibrating areas or in presence of electro-magnetical fields. Furthermore, do not operate in ways which differ from those indicated and do not underestimate safety operations.

1.5 RESIDUAL RISK AREAS

Due to the peculiar functionality of the unit, in some areas of it, there are residual risks which was not possible to elude during the project neither to reduce. Each operator should be aware of the residual risks in this unit, in order to avoid accidents.

Residual risk areas:

- *Short circuit or fire caused by short circuit risk;*
- *Explosion danger because of the presence of under pressure circuits or pollution due to the refrigerant gas in the circuit;*
- *Burn danger because of high temperature pipes;*
- *Slash danger.*

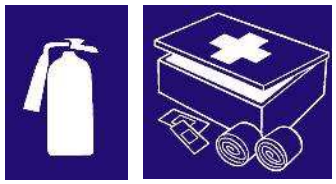
1.6 GENERALS SAFETY RULES

1.6.1 Safety clothes

Operators should wear safety equipment such as gauntlet, helmet, safety glasses, safety footwear and cap for protection from the noise.

1.6.2 Fire extinguisher and first aid

Place a first aid box and a fire extinguisher near the unit.
Check regularly that fire extinguishers are charge and that you have understood how to use them.
In case of fire use it according to the regulations in force and contact the fire-men.
Check regularly that the first aid box is fully equipped.
Verify to have nearby the useful emergency phone numbers.



The owner of the place where the unit is installed is responsible for the fire extinguisher and the first aid box.

1.6.3 Suggestions for advices and maintenance

Put an “under maintenance” label on all sides of the unit.
Check carefully the unit by following the list of operations suggested in the present manual.

1.6.4 Safety labels

General danger

High voltage danger

Burn danger

Equipment in movement danger

Slash danger

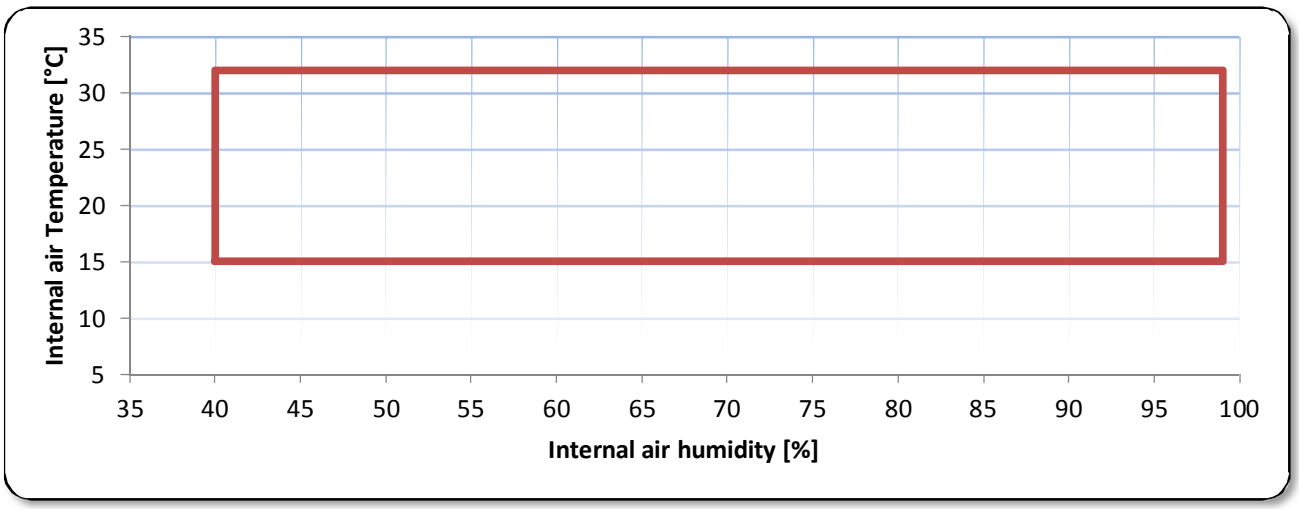
2 PRODUCT DESRIPTION

RSV models are vertical dehumidifiers to be housed, while RSEO / RSE are ductable horizontal dehumidifiers for drop ceiling, thought for the use in residential and commercial ambiences with a high latent charge, where the functioning 24 h/day is required.
They are recommended in those buildings where the cooling is realized through radiant systems, such as floor, walls or ceilings.
RS dehumidifiers combine technical solutions with a pleasant aesthetic design and, thanks to the external covers (optional) they can be installed at sight .
RS _ A (isothermal) dehumidifiers, if correctly supplied with water at 15°C can dehumidify the ambience air without changing the temperature. This is possible thanks to the presence of two heat exchangers which pre-cool the entering air and post-cool it after the dehumidifying process.
RS _ I (hybrid) if correctly supplied with water at 15°C can dehumidify the ambience air without changing the temperature; they are also furnished of an ambience thermo-hygrostat and a braze welded plates condenser, which allow the unit to supply fresh air if the ambience temperature goes over the set point set on the dehumidifier. The low air speed will not create annoying air currents, typical of traditional air conditioning systems, granting the maximum comfort.
The use of exclusive high-quality refrigerant, hydraulic and electrical components make RS dehumidifiers the state-of.art in terms of efficiency, reliability and sound emitted level.

2.1 STRUCTURE

The unit is realized in pre-painted white steel; structural internal elements are realized in electro-galvanized steel, for a further corrosion protection. Bolts and screws are in non-oxidable material, INOX or carbon steel with superficial treatment of passivation. Panels are covered with synthetic open-cells polyurethane material, in order to grant the maximum phono-absorbent. The used material is classified in 1st class, according to regulations UL 94.
The unit is completely closed and the access is possible only from the front part for vertical models and from the side for the horizontal ones. The access to the compressor area is easier thanks to the removable panel, which allows operations without obstacles.

2.2 OPERATING LIMITATIONS



2.3 OPTIONS

2.3.1 Formwork

It is composed by a galvanized steel container to be inserted in the wall. It aims to contain the unit within a place dedicated and is predisposed with all the holes for hydraulic and electrical connections. Moreover, it is provided with splines to grant an optimal fixing on the wall. It is available only for vertical units.

2.3.2 White lacquered wooden panel

It is composed by a white lacquered wooden panel provided with holes for suction and supplying of the air. It is predisposed for a correct and practical fixing with the formwork. It is available only for vertical units.

2.3.3 Painted steel sheet panel with plastic grills

It is composed by a white galvanized sheet panel, with plastic grills for suction and supply of the air. It is predisposed for a correct and practical fixing with the formwork. It is available only for vertical units.

2.3.4 Supply plenum

A supply plenum allow the canalization of the supply air with flexible spiral pipe. It is available only for vertical units (addition information on demand).

2.3.5 Mechanical humidistat

It is the external equipment to be mounted on the wall to activate the on / off of the unit. It covers a working range from 30 up to 99% R.H. and the precision is +/- 3 %.

2.3.6 RS485 serial port

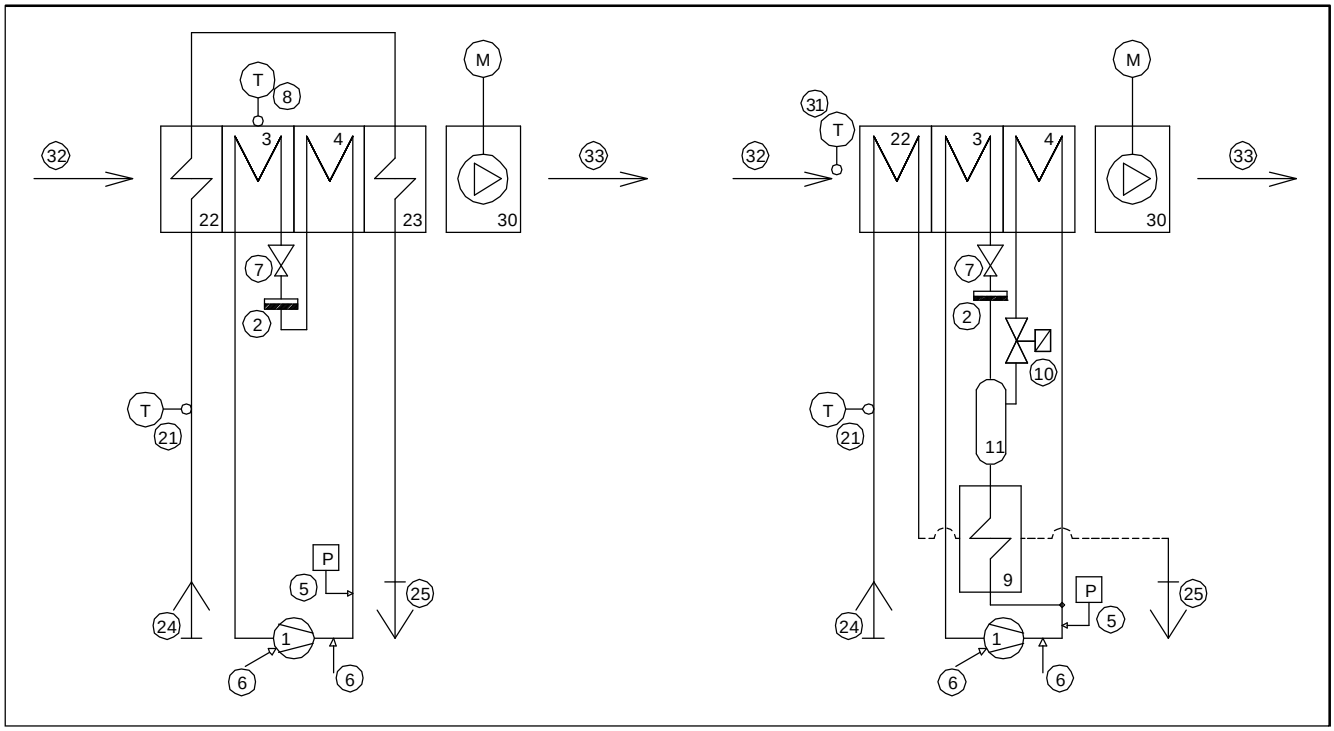
The bus RS485 connection is available to supervise the unit at distance or by a domotic plant. (Additional information on demand).

2.3.7 Supply flange

It is a supply flange to make easier the connection of the unit with ducts for air distribution. It is available only for horizontal unit.

3 REFRIGERANT AND HYDRAULIC CONNECTIONS

RS _ A (isothermal) **RS _ I (hybrid)**



1 Compressor
2 De-hydrator filter
3 Evaporating coil
4 Condensing coil
5 High pressure safety manostat
6 Service plugs
7 Throttling valve
8 Defrosting temperature probe
9 Plates condenser
10 Electro-valve control temperature
11 Liquid receiver

21 Inlet water temperature probe
22 Pre-cooling coil
23 Post-cooling coil
24 Water enter from radiant system
25 Water return to radiant system

30 Fan
31 Temperature probe
32 Inlet Air
33 Exit Air

3.1 PROJECT CRITERIA

All copper pipes are realized under our specifications in order to control all the construction process and to increase our products quality standards. Each pipe is tested through the FEM code on the more stressed point with a 90° fold and under the maximum allowed pressure according to the safety coefficient.
All the units mount, on the exchangers basis, bowls for the condense collection in INOX steel.

- Compressors: alternative compressors are mounted on the units. Engines are thermally protected through an internal protection which controls the temperature of winding and disables the power supply in case of maintenance.

- Refrigerant components:
  - De-hydrator filter with molecular sieve
  - Throttling valve
  - Schrader valve for control / maintenance

- Thermal exchange coils:
  - Copper pipe with aluminium fin

4 ELECTRICAL CONNECTIONS

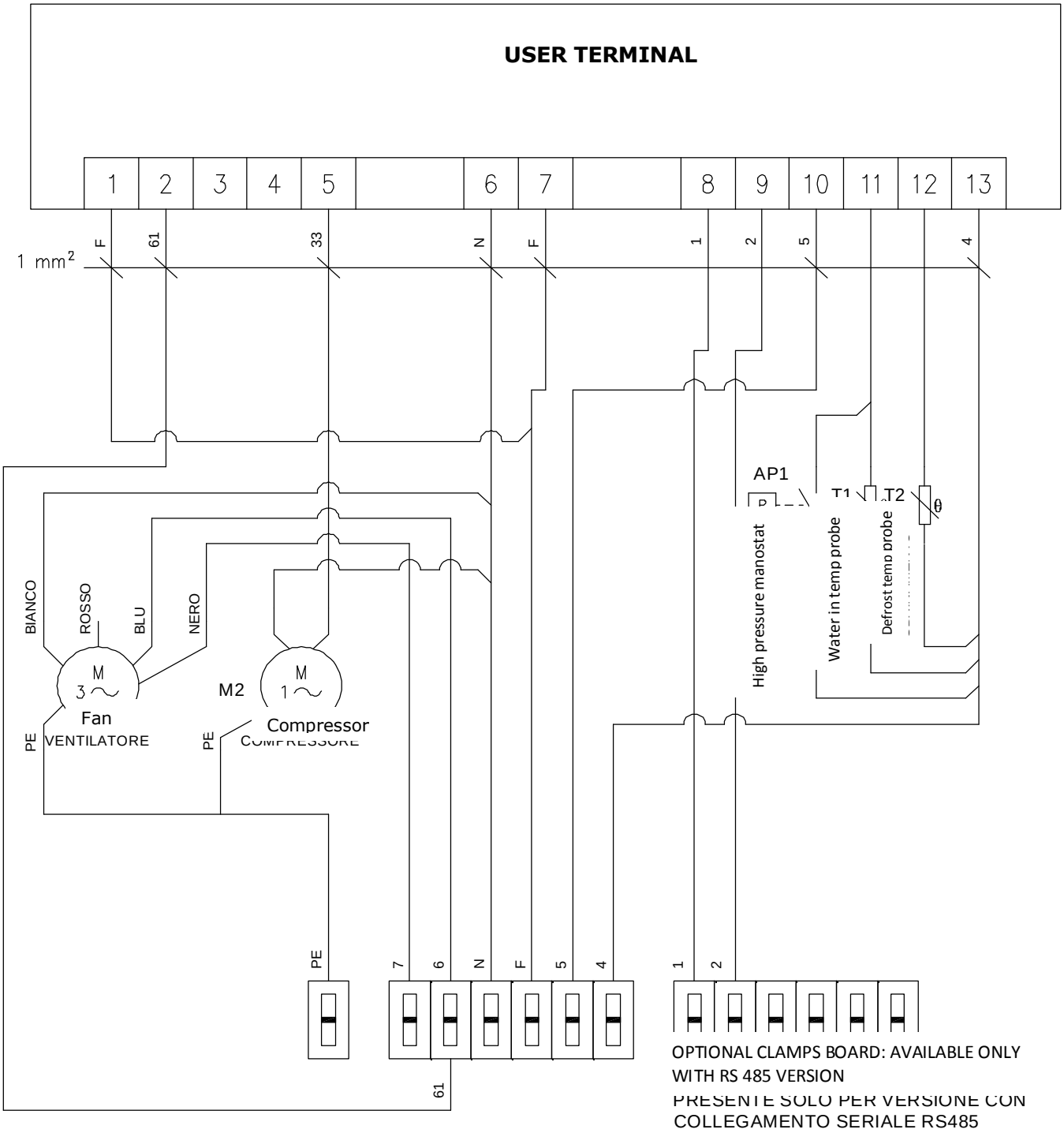
4.1 ELECTRICAL EQUIPMENTS

The electrical panel is realized and wired according to the Regulations mentioned in the Declaration of Conformity.
The control circuit is protected by a dedicated fuse.
All the remote commands are realized with low tension, supplied by an insulation transformer.

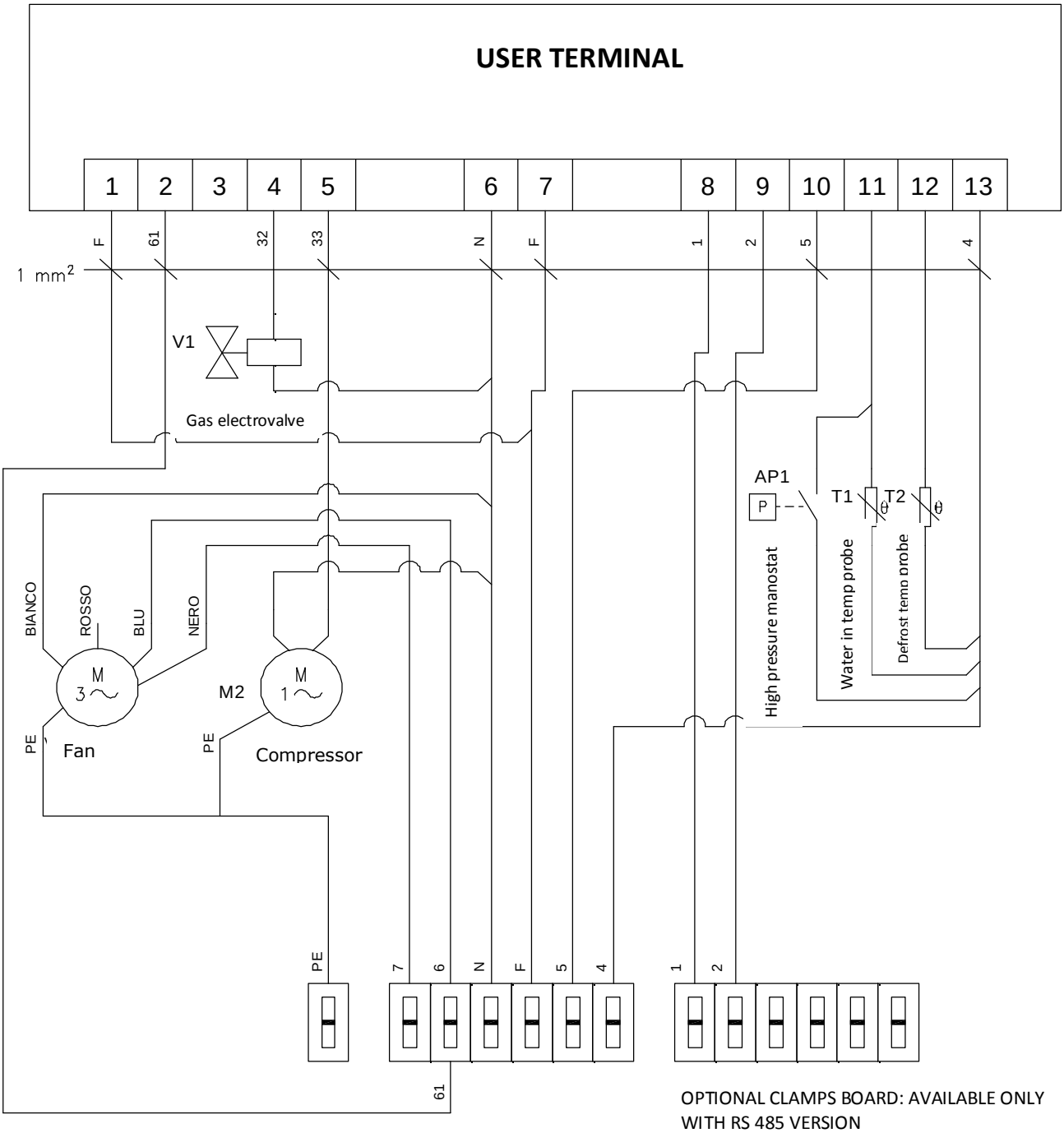
To stop the group do not remove tension through the protection at the base of the unit: this organ should be used to section the whole unit for maintenance. To turn off, use the user terminal.

4.2 WIRING DIAGRAMS

WIRING DIAGRAM MODEL RS 020 A (isothermal)

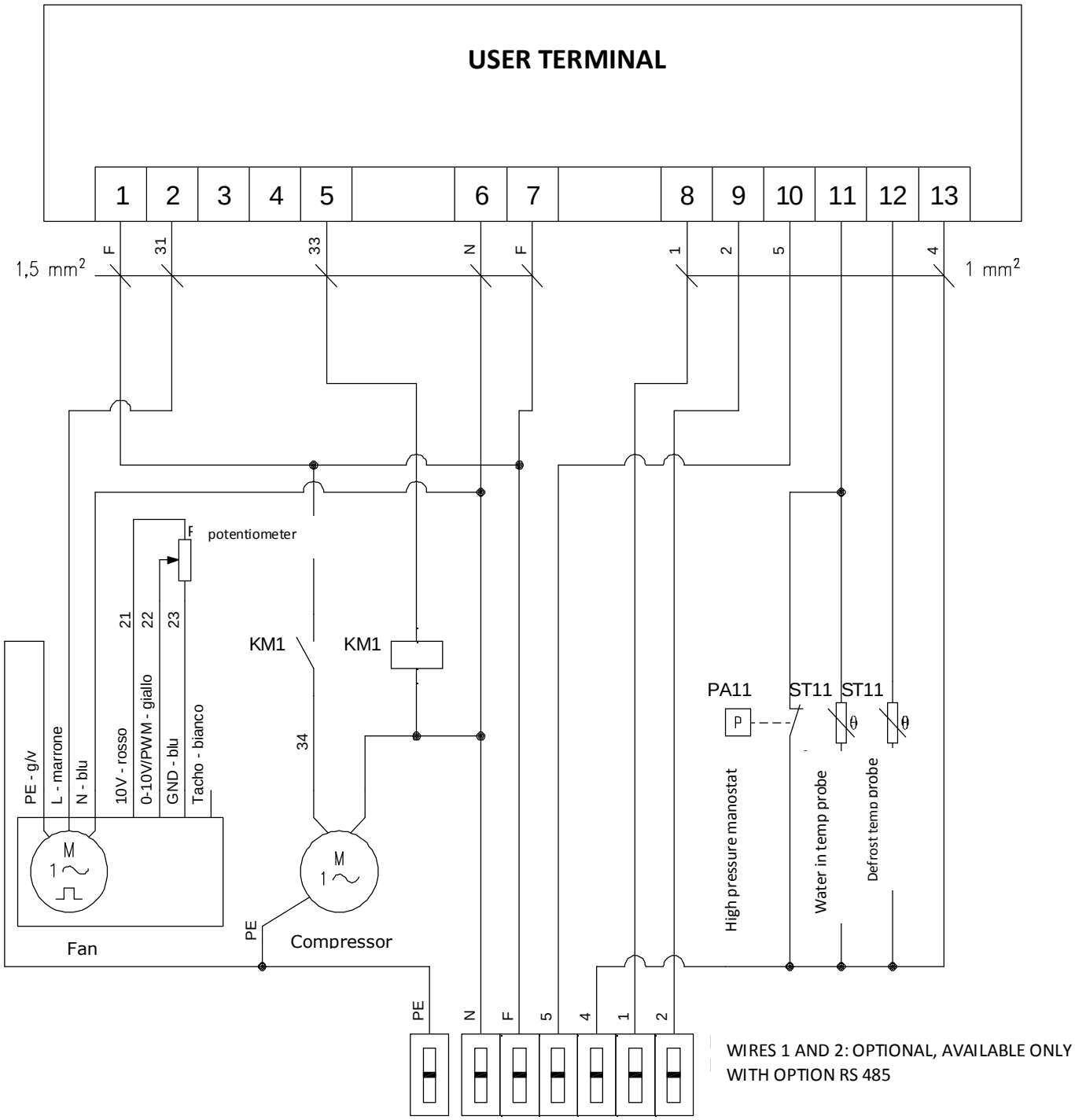


WIRING DIAGRAM MODEL RS 020 I (hybrid)

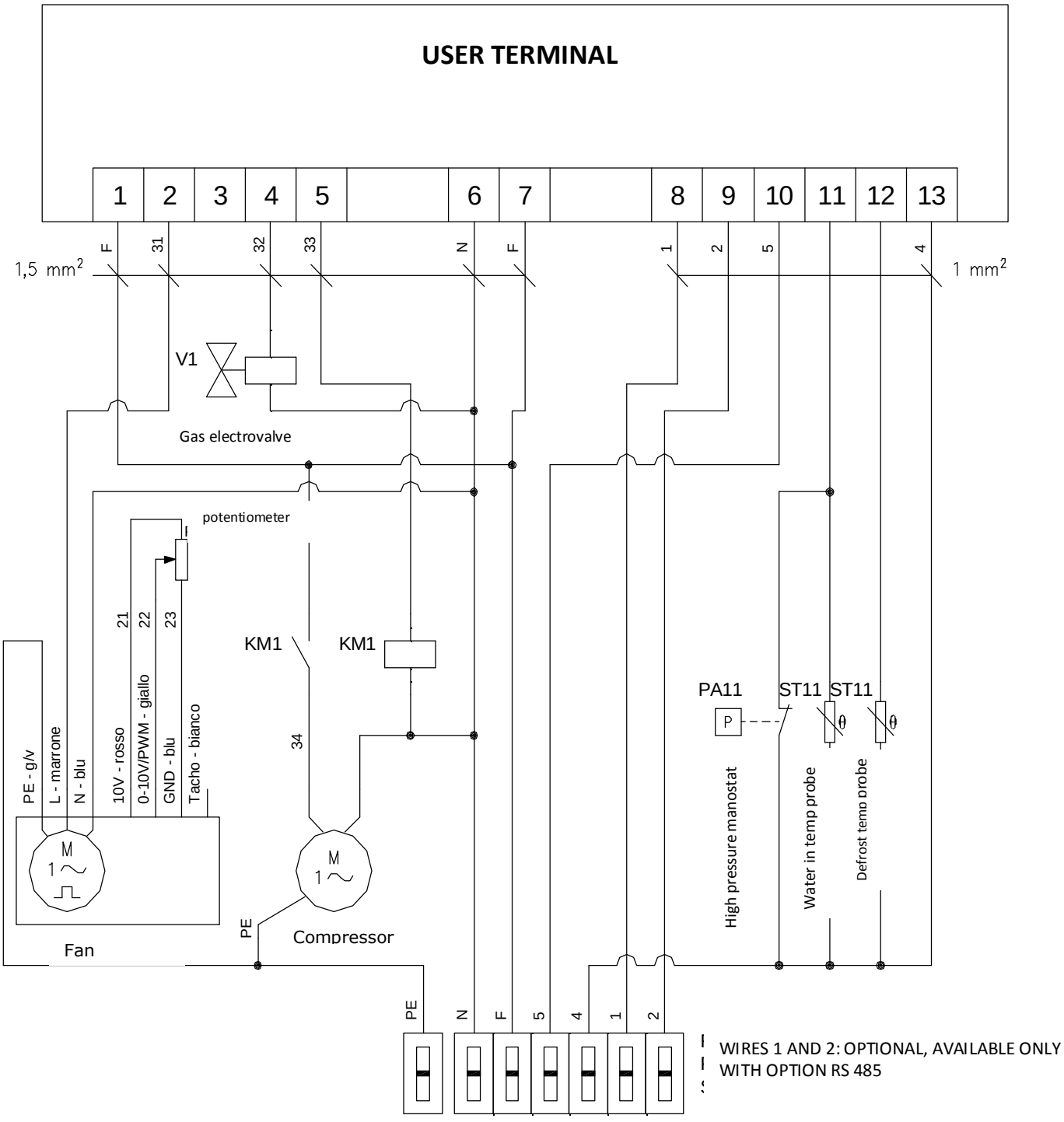


OPTIONAL CLAMPS BOARD: AVAILABLE ONLY WITH RS 485 VERSION

WIRING DIAGRAM MODEL RSE 050 A (isothermal)



WIRING DIAGRAM MODEL RSE 050 I (hybrid)



5 USER TERMINAL

The unit is delivered in “OFF” (to turn it on, keep pressed for more than 1 second the [STAND-BY] key, and it will turn to “ON”), ready to function.
The control manages all the functions and the devices of the unit, by operating under the call from the external humidistat.
Remember that the compressor has a delay when starting and re-starting of 5 minutes, in order to avoid mechanical damages to the internal components.
Every problem / error is displayed, according to the DIAGNOSTICS AND ALARMS table below.
By default, the ventilation is combined with the compressor starting.
Some of these regulations can be modify according to the PARAMETERS TABLE below.

5.1 DISPLAY AND KEYS

1. UP Key (▲)

Increases the values / Browses parameters.
Turns off the sound alarm, if present.

2. DOWN Key (▼)

Decreases the values / Browses parameters.

3. STAND-BY Key

Pushed for more than 1 second, it changes the OFF status to the ON one and vice-versa.
When the status is changed, a sound signal is emitted.
In stand-by status, the plant stops and on the display you see the OFF writing.

4. SET Key

Allows to set the parameters.
Restores the sound alarm, if present.
Except from the programming, it has no functions.

5. TEMPERATURE / PARAMETERS Values

6. COLD CALLING Icon

Led OFF	= Cold calling OFF
Led ON	= Cold calling ON
Led flashing	= Cold calling ON, but waiting for the re-starting time

7. HOT CALLING Icon (if active)

Led OFF	= Hot calling OFF
Led ON	= Hot calling ON

8. DEFROST CALLING Icon

Led OFF	= Defrost calling OFF
Led ON	= Defrost calling ON

9. FANS CALLING Icon

Led OFF	= Fans calling OFF
Led ON	= Fans calling ON

10. DIGITAL INPUT ACTIVATED BY HUMIDISTAT (if active)

Led On	= Active digital input
Led flashing	= Compressor off because of missed humidistat consent

11. ALARM Icon

Led OFF	= No alarms present
Led flashing	= Alarm present

5.2 USER PARAMETERS

To enter the user parameters setting menu, it is necessary to:

1. Keep pushed for 3 seconds the keys UP (▲) and DOWN (▼) till you see on the display the first variable. When entering the menu, a sound signal will be emitted.
2. Select with the keys UP (▲) or DOWN (▼) the variable you want to modify.
3. Now it is possible to change the value by keeping pushed the SET key and pushing the key UP (▲) or DOWN (▼).
4. Once finished the setting, to exit the menu, keep pushed the keys UP (▲) or DOWN (▼) (or wait 30 seconds without pushing any keys) till the status of the unit (OFF or ON) appears on the display.
   When exiting from the menu, a sound signal will be emitted.
5. The memorizing of the modifications will be automatic after the exit from the configuration menu.

PARAM	*DESCRIPTION*	*DEFAULT*
SEc	Setting temperature set-point (if active)	26,0
tAC	Display temperature: - water probe	Reading
tEu	Display temperature: - coil probe - (version A isothermal) - ambient probe - (versione I hybrid)	Reading
reL	Software release	Reading

For the dehumidifiers with cold integration, the defrost is cyclic, every 120 minutes.
This time is set by default.

5.3 OTHER FUNCTIONS

5.3.1 DEFROST MANUAL ACTIVATION

When the activation conditions are satisfied (temperature read by the probe <5°C), it is possible to activate the defrost manually, by pushing the (▼) key for more than 3 seconds; a sound signal will be emitted as confirmation.
In this way, the defrost is activated by turning off the compressor and keeping on the fan.

5.3.2 END-DEFROST MANUAL FORCING

During the defrost, pushing the key (▼) for 3 seconds, it is possible to force the end of the defrost; a sound signal will be emitted as confirmation.
This function can not be activate from the programming menu.

6 TECHNICAL DATA

6.1 TECHNICAL DATA SHEET

		WALL-MOUNTED		DROP CEILING			
		RSV 020 A	RSV 020 I	RSO 020 A	RSO 020 I	RSE 050 A	RSE 050 I
Dehumidification capacity	L/day	20,8				48	
Cooling power	Watt	/	1240	/	1240	/	3230
Absorbed power	Watt	320				700	
Absorbed current	Amp	2,15				5	
Power supply	V/ph/Hz	230 / 1+N / 50					
Tolerance power supply	%	+/- 10					
Air flow rate	m³/h	250				600	
Static prevalence	Pa	40				150	
Nominal water flow	L/ora	150				500	
Water load losses	Kpa	15				30	29
Storage limit temperature	°C	-10 / +43					
Storage limit humidity	%ur	90					
Sound level	dB(A)	38				43	
Weight	Kg	34	36	35	37	52	55

The unit in "I" version, to function, need to be always supplied with refrigerated water, otherwise they can not function and will turn to block.

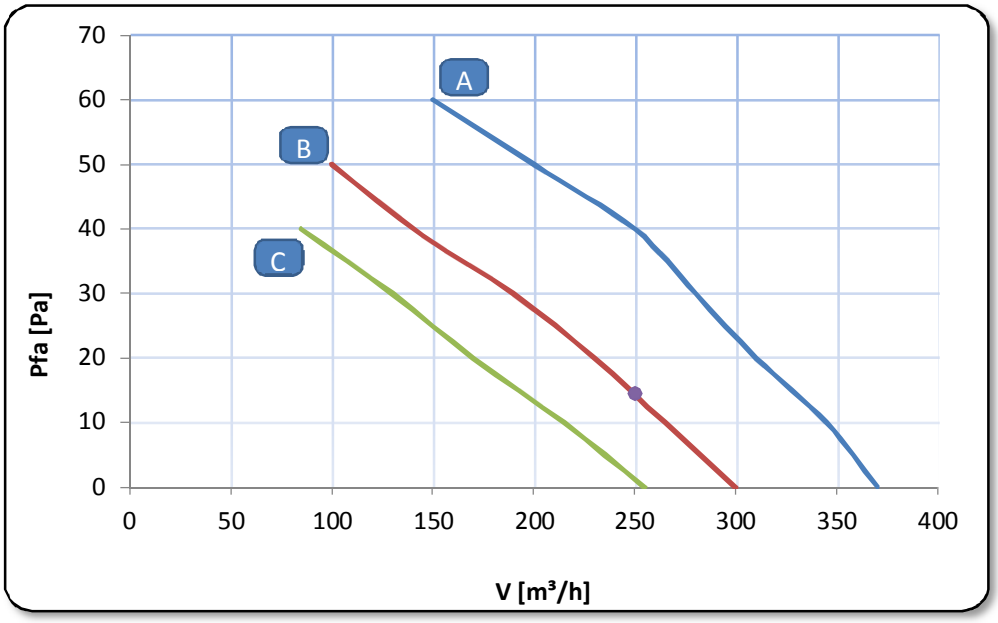
The unit in "A" version can function also without refrigerated water; in this case, the outlet air will be warmer than the inlet one while, at the same time, the dehumidification capacity is reduced. This possibility is particularly useful during mid-seasons, when a thermal provision is welcome.

The dehumidification capacity is declared at nominal point 26°C, 65% R.H. with supplied refrigerated water at 15°C.

6.1.1 MODEL 020 – 3 SPEEDS

The models 020 mount a 3-speeds fan; by default, it is set at the medium speed but, if it is not sufficient, it is possible to set the max speed. Please, make reference to the installation paragraph.

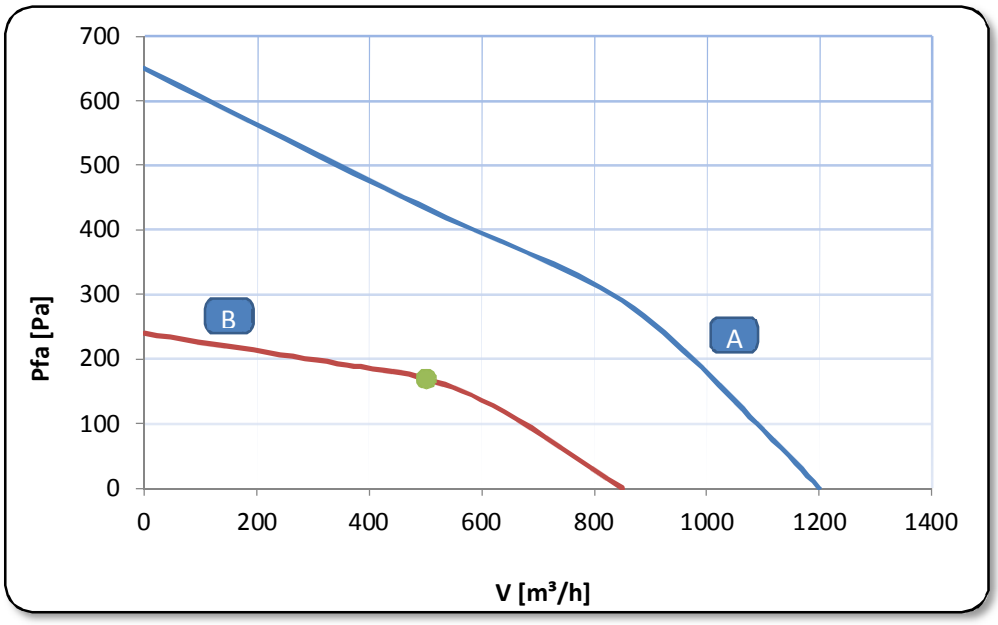
A Curve = max speed
B Curve = medium speed
C Curve = low speed



6.1.2 MODEL 050 - POTENTIOMETER

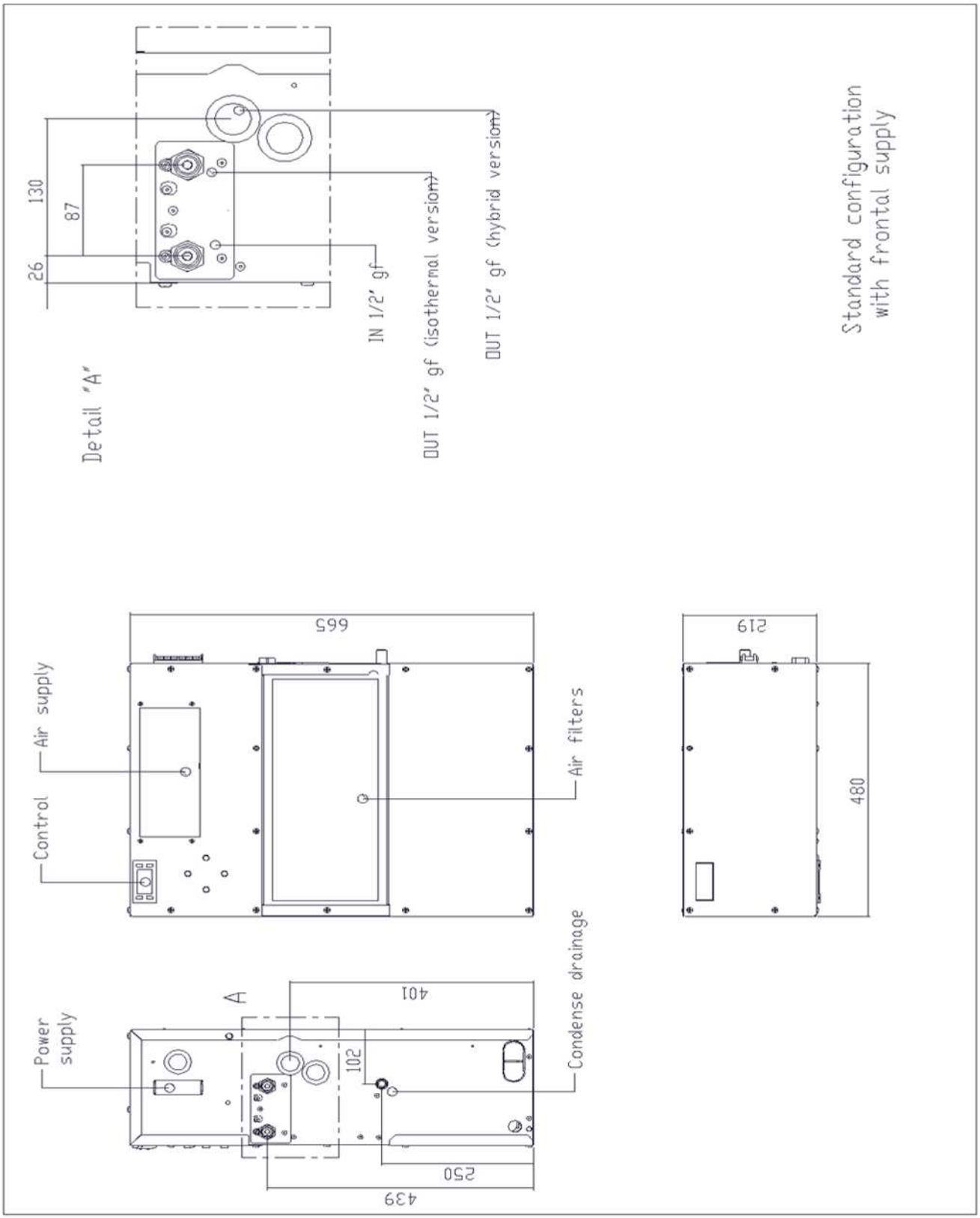
The models 050 mount an electronic radial fan with brushless engine and integrated inverter, manager by a potentiometer; by default, it is set at a standard speed, but this is easily adjustable. Please, make reference to the installation paragraph.

A Curve = max limit
B Curve = suggested limit



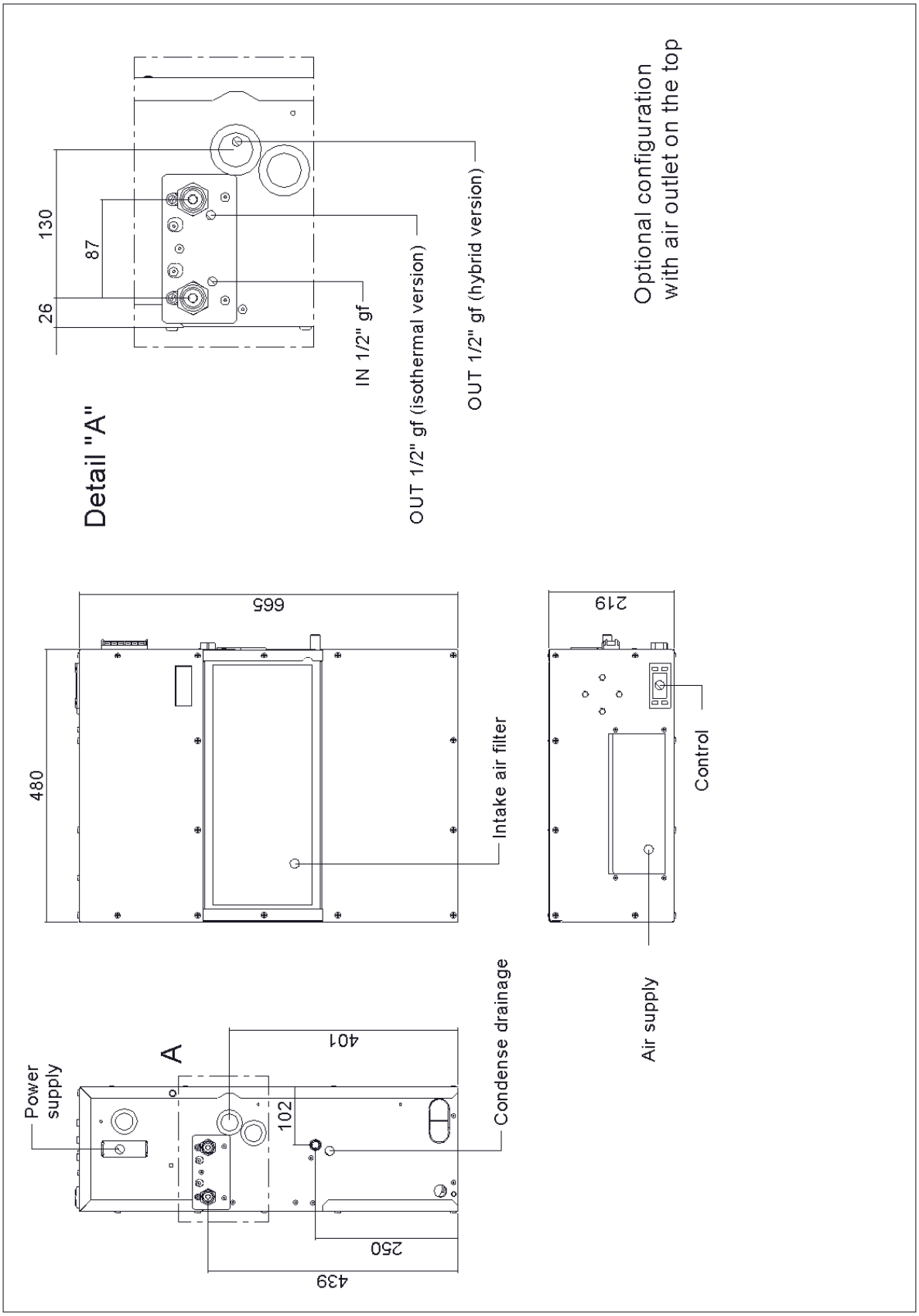
6.2 DIMENSIONALS

6.2.1 VERTICAL MODEL FRONTAL SUPPLY

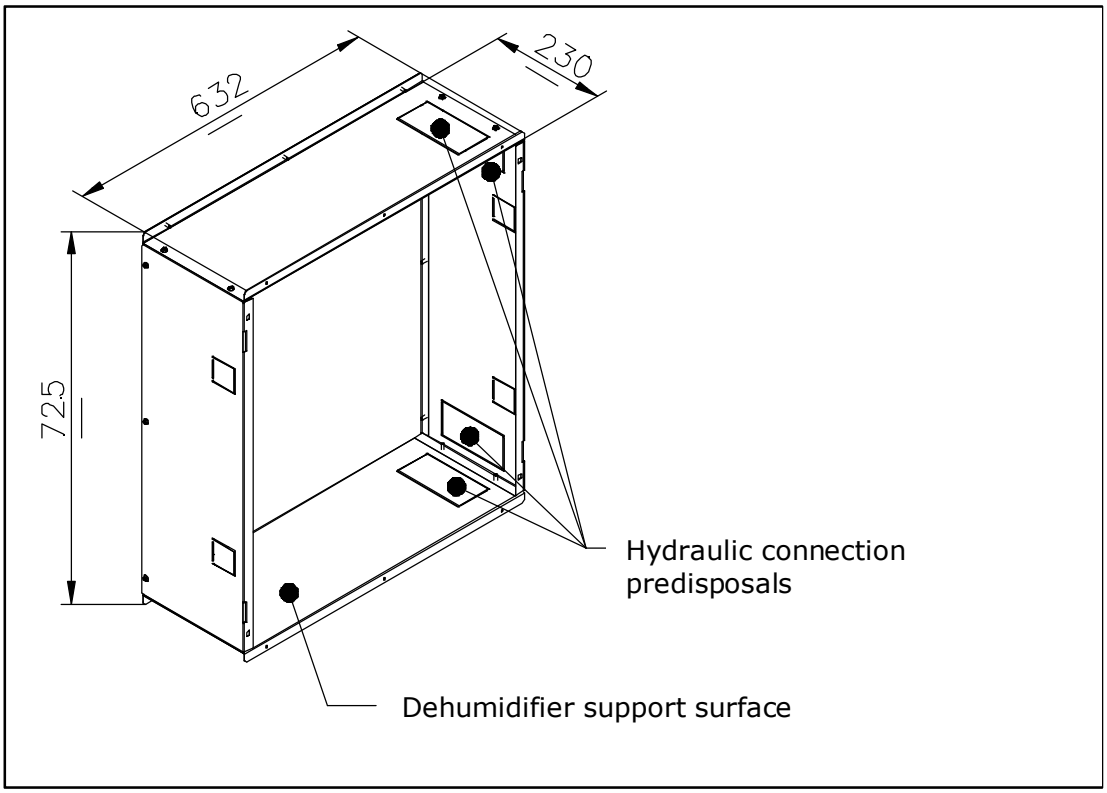


6.2.2 VERTICAL MODEL UP SUPPLY

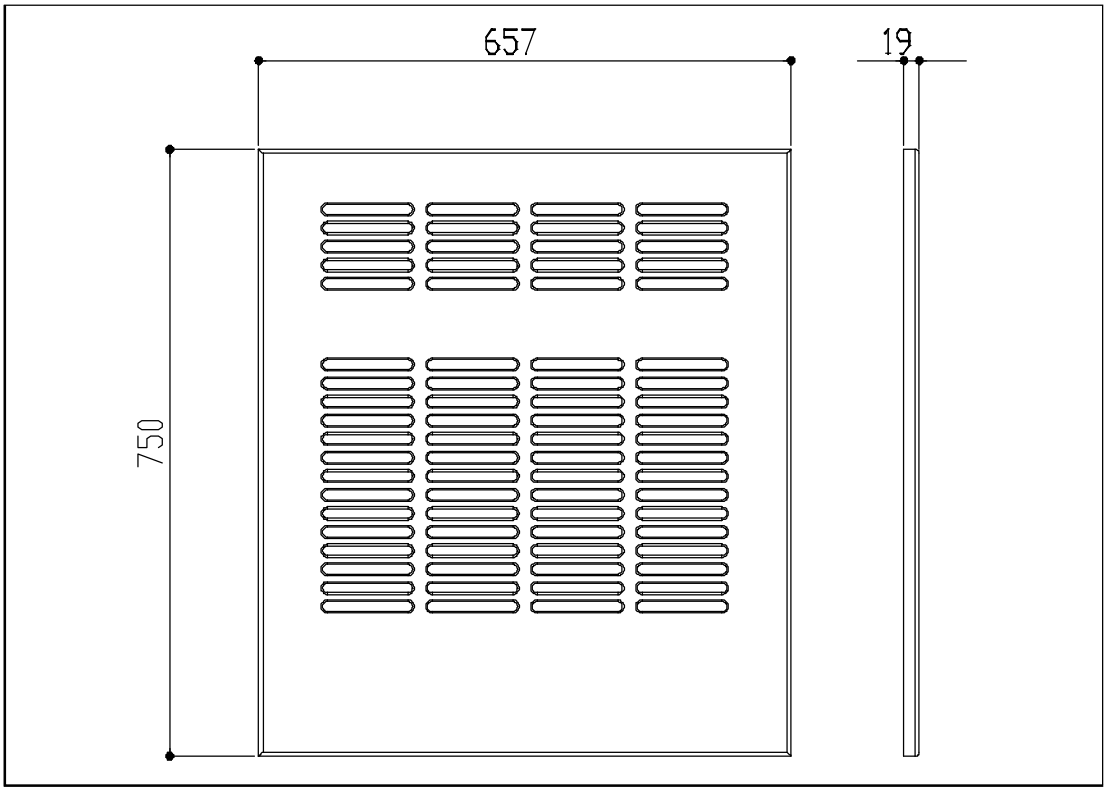
L'unità esce di fabbrica con la mandata laterale, se necessità la mandata verso l'alto fare riferimento al paragrafo installazione.



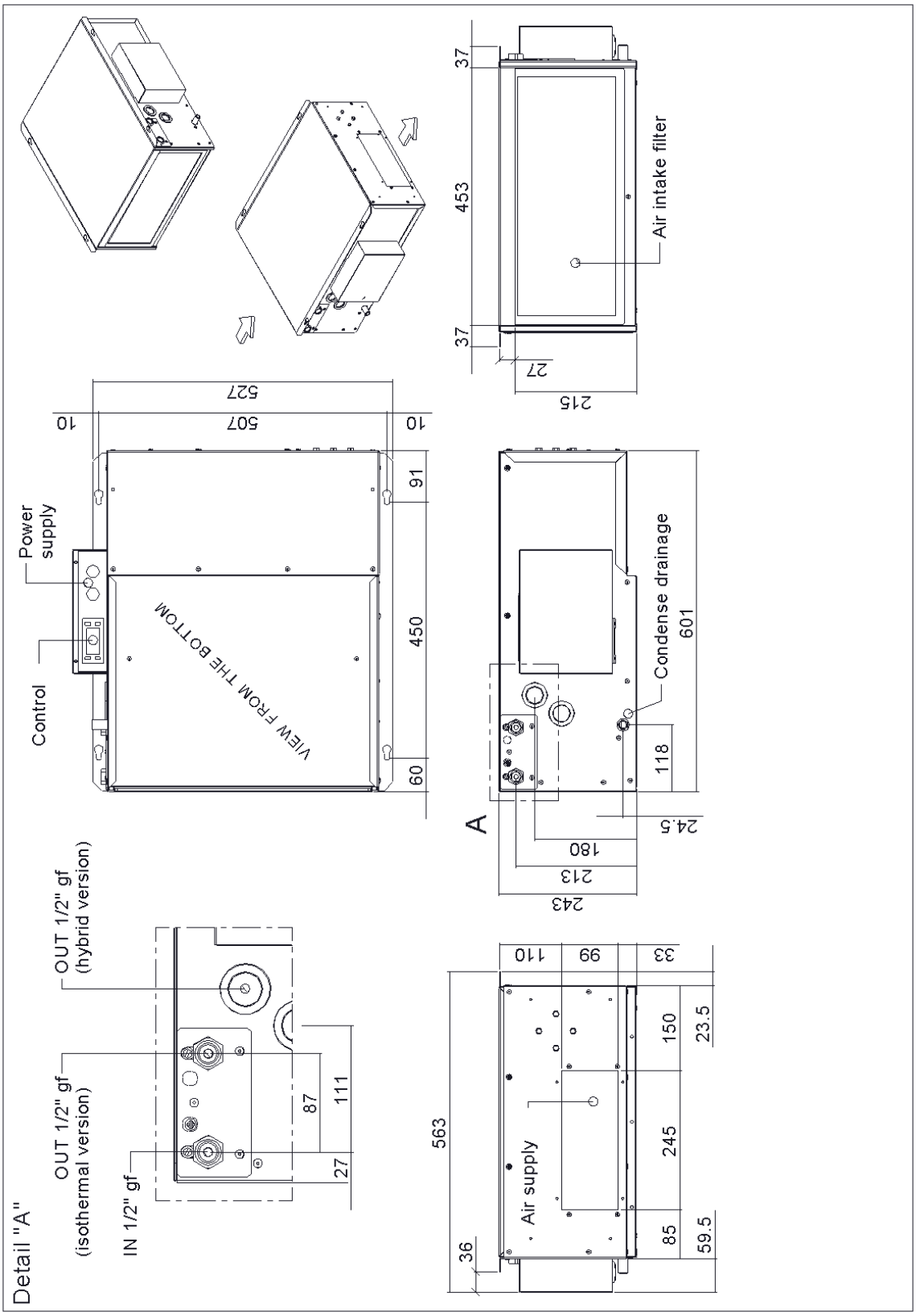
OPTIONAL FORMWORK FOR VERTICAL MODELS



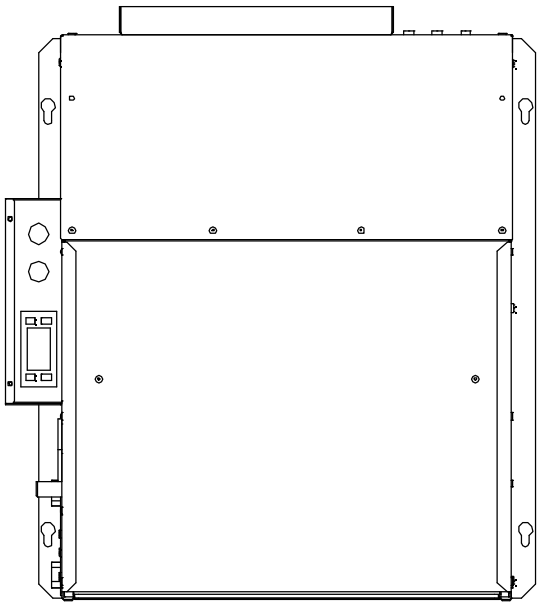
6.2.3 OPTIONAL FRONTAL WHITE LACQUERED WOODE PANEL FOR VERTICAL UNITS

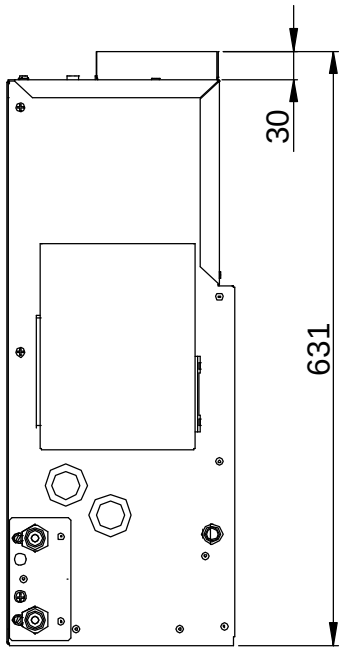


6.2.4 RSO 020 UNIT FOR DROP CEILING

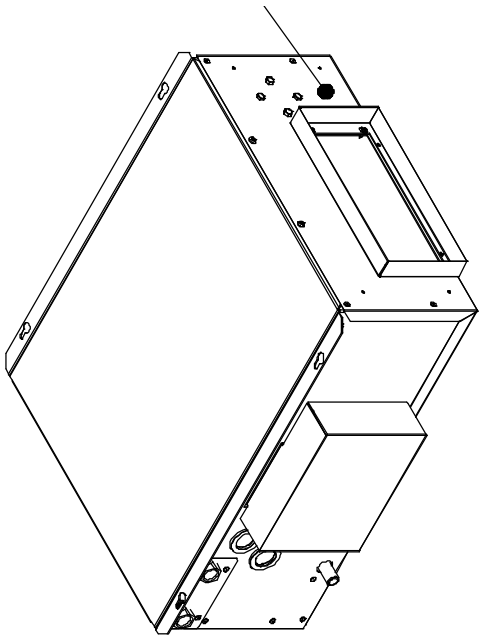


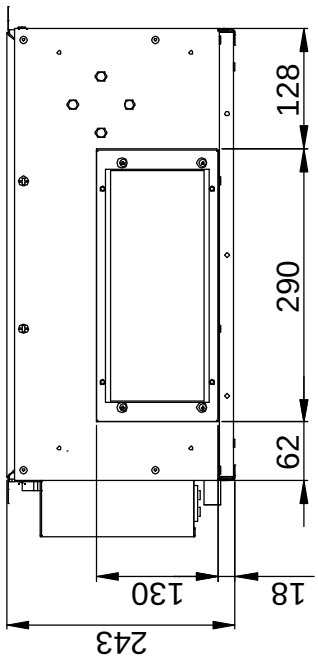
6.2.5 OPTIONAL FLANGE FOR UNITS RSO 020



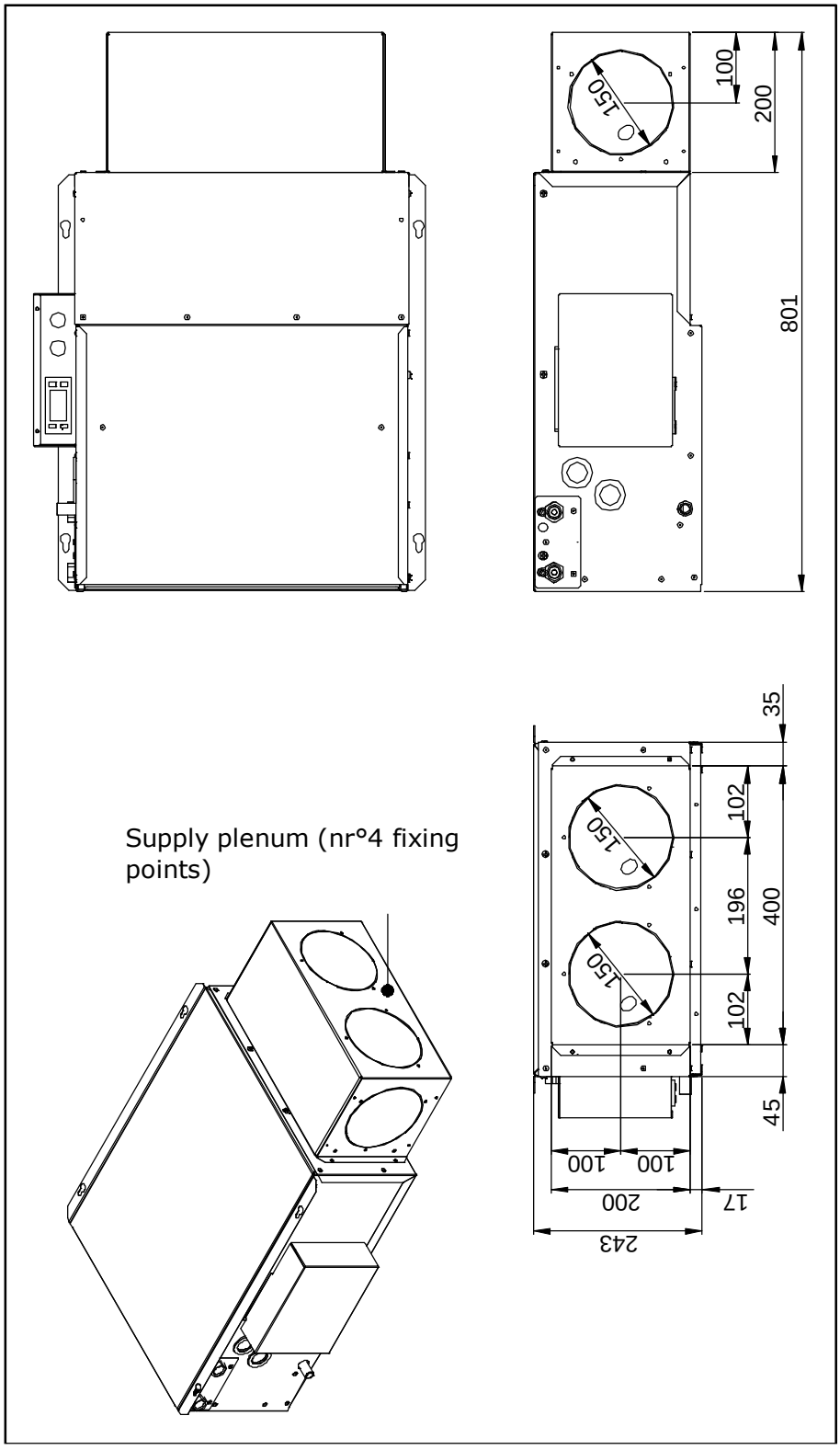


Supply flange (nr°4 fixing points)



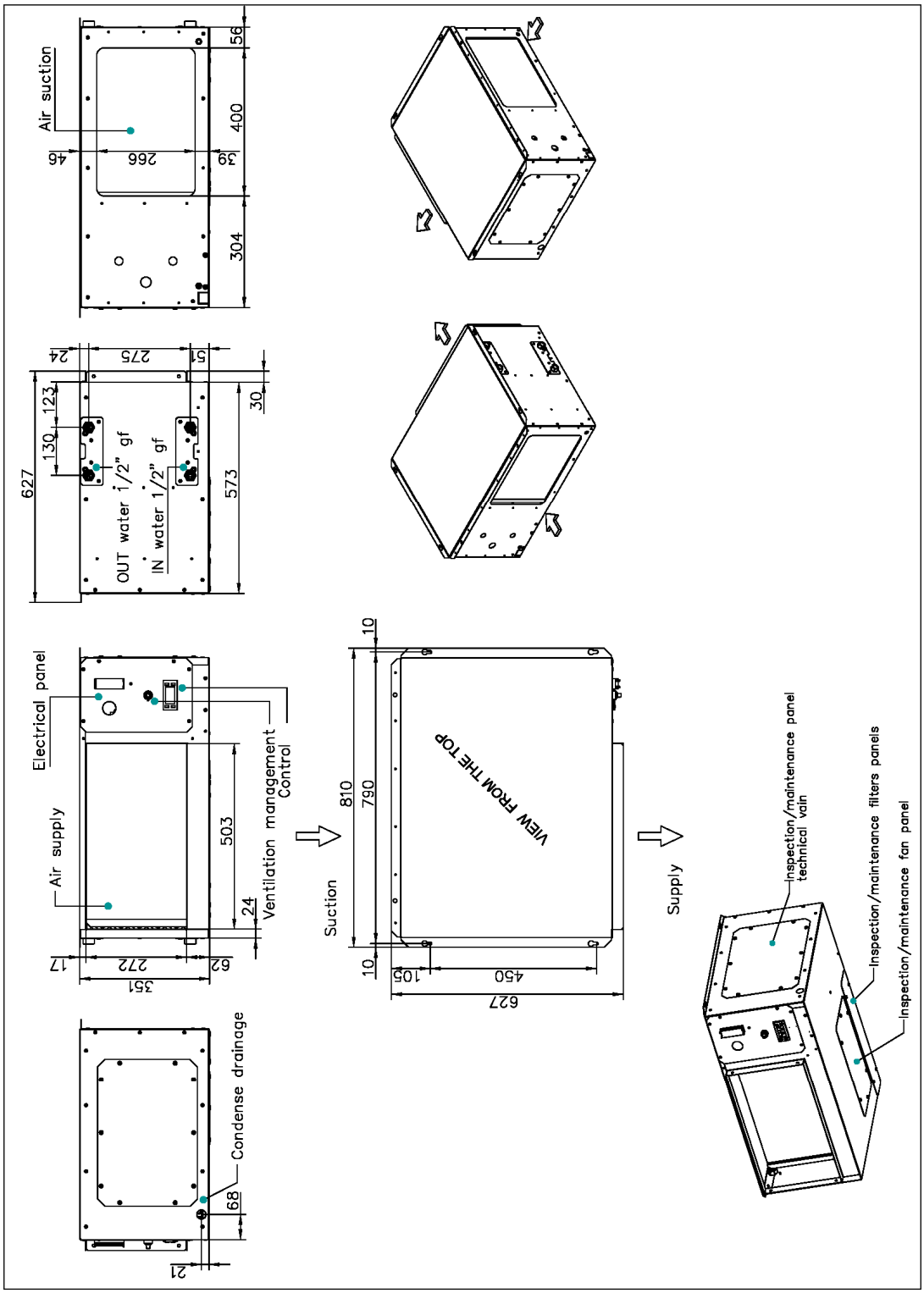


6.2.6 OPTIONAL PLENUM FOR UNIT RSO 020

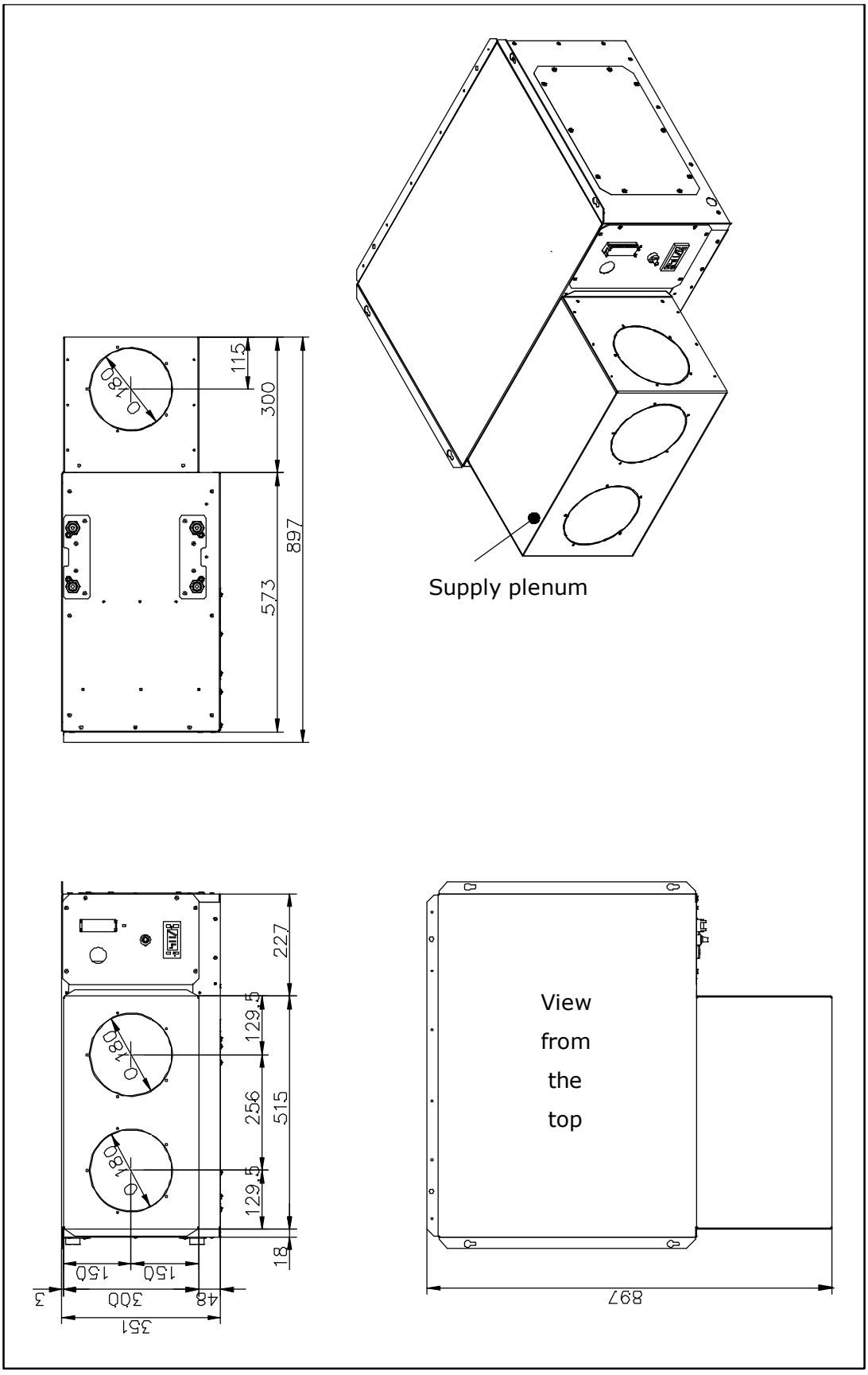


The plenum is supplied with nr 2 gaskets for the connection to flexible pipes Ø150 that have to be placed on the 4 available holes (you can chose on which ones).
Gaskets with different diameters and plenums with more gaskets are available on demand.

6.2.7 RSE 050 UNIT FOR DROP CEILING



6.2.8 OPTIONAL PLENUM FOR RSE 050 UNIT



7 AFTER-SALES

7.1 FAULTS

In the following pages there is a list of the most common causes which could lead to the block of the unit or to a non-correct functioning.

Be careful when executing the operations suggested for the resolution of the different problems: wounds may occur.
After having identified the cause, it is strongly recommended to contact the manufacturer or a qualified technician.

NR	ANOMALIES	POSSIBLE CAUSES ANALYSIS	SOLUTIONS
1	The unit does not start	Lack of supply power	Check the power supply on the clamps
		The user terminal is in OFF mode	Push the Stand-by key to turn the unit on
		There are alarms present	Check on the display, remove the cause and re-start the unit
		The unit has just been turned on and the compressor has a delay	Wait few minutes
2	The compressor does not start	Intervention of the internal thermal-protector	Remove the power supply, wait for the cooling of the compressor and check, reconnecting the power supply, if it starts again.
		Intervention of the high pressure protection on the refrigerant circuit	Make reference to the anomaly nr 4
3	The fan is too noisy	The distribution channel has deformed the unit	Remove the fixing screws from the ducted channel and fix it in a different way
4	Flashing writings “E1” and “On” and alarm presence flashing led and sound signal	High pressure anomaly for insufficient air flow	Check the correct rotation of the fan
			Check the cleaning of thermal exchange coils and filters
		High pressure anomaly for insufficient air flow (only for I version)	Check the load losses and the correct functioning of the hydraulic circuit. Check that the inlet water T is not too high.
		WATER probe anomaly. (Errors may be caused by short-circuit or probe interruption)	Check the WATER probe status. If the problem remains, substitute the probe
5	Flashing writings “E1” and “On” and alarm presence flashing led	EVAP. Probe anomaly (Errors may be caused by short-circuit or probe interruption)	Check the EVAP probe status. If the problem remains, substitute the probe. In this case, defrosts cycles are timed.
6	Flashing writings “E2” and “On” and alarm presence flashing led	An error has occurred in the EEPROM memory. (Outputs are all in-active)	Turn off and re-start the unit. If the problem remains, substitute the user terminal.
7	Flashing writings “EL” and “On” and alarm presence flashing led	Low temperature read by the WATER probe	Increase the temperature of the water supplied to the unit
8	Flashing writings “EH” and “On” and alarm presence flashing led	High temperature read by the WATER probe	Reduce the temperature of the water supplied to the unit

7.2 MAINTENANCE TABLE

To grant the continuity of the unit performances it is suggested to respect the following table as reference for the maintenance.

MAINTENANCE		Control and safety equipment status	Status, fixing and balance of the fans	Status and fixing of the compresor	Sound level emitted	No oil losses from the compressor	No refrigerant losses from the refrigerant circuit	No water losses from the hydraulic circuit	Clamps control on the electrical panel and on the user terminal	Cleaning / substitution air filters	Condense small basin collector cleaning	Thermal exchange coil cleaning			
YEAR ____	4° quarter														
	3° quarter														
	2° quarter														
	1° quarter														
YEAR ____	4° quarter														
	3° quarter														
	2° quarter														
	1° quarter														
YEAR ____	4° quarter														
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YEAR ____	4° quarter														
	3° quarter														
	2° quarter														
	1° quarter														
YEAR ____	4° quarter														
	3° quarter														
	2° quarter														
	1° quarter														

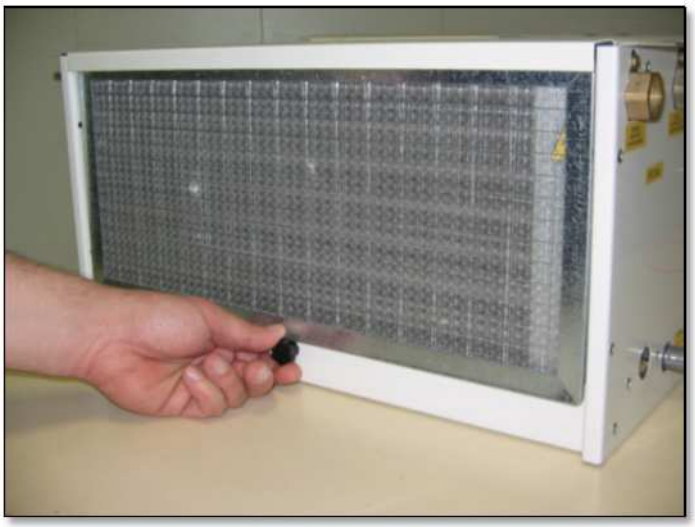
7.3 ORDINARY MAINTENANCE

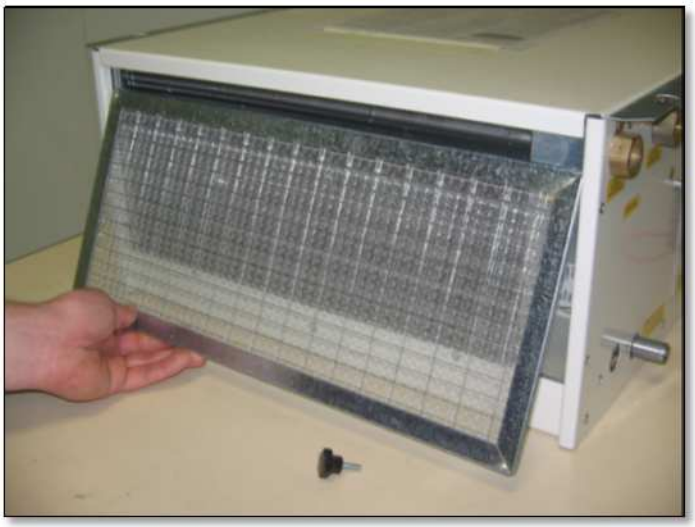
7.3.1 Air filter substitution

For a correct functioning of the unit, it is necessary to wash periodically the air filter of the unit.
Remove the screws as in the picture below, unpick the filters and wash them with current water, removing manually impurities which could avoid the correct air flux, keeping attention not to damage them.
A ruined, holed or damaged filter has to be substituted.

RSV 020 - (vertical unit)

RSO 020 - (horizontal unit)





7.4 EXTRAORDINARY MAINTENANCE

the extraordinary maintenance has to be done only by qualified staff.

DO NOT IMPROVISE, WOUND OR DEATH DANGER

7.4.1 Thermal exchange coil cleaning

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

7.4.2 Electric circuit check

The check has to be done when there is no tension.

Check that all the clamps are correctly fixed; if not, tighten the screws or the connectors.
Check that all the contactors or power relays, if present, are functioning and not-blocked; if not, the substitution is compulsory.

8 DISMANTLING OF THE UNIT

When the unit has to be dismantled, please follow the below directions:
- the refrigerant has to be recovered by qualified staff and sent to dedicated collection centers;
- the compressor oil has to be recovered and sent to the dedicated collection centers;
- the structure and the components, if cannot be used, has to be dismantled according to their category: this is particularly true for copper and aluminium.

These directions mean to facilitate the collection, dismantling and recycling centers and reduce the environmental impact.

- If the unit, or part of it, has to be dismantled, the kittle components has to become harmless.

For the substitution of every components, please make reference to the current directions regarding the process for dismantling.

Remember that it is compulsory to register the charge and discharge of special waste and of the toxic-dangerous ones.
The collection of special waste has to be managed by qualified and dedicated Companies.
The dismantling of special waste should be lead according to the current regulations active in the user Country.

Before proceeding with the demolition, ask for the inspection of a dedicated agency and for a report by it.
Proceed with the demolition following the regulation of the user Country.

The disassembly and demolition operations have to be leaden by qualified staff.

8.1 ENVIRONMENTAL PROTECTION

The rule for the regulation [reg. CE 2037/00] of the usage of substances which damage the ozone and of gas responsible for the greenhouse effect, establishes the prohibition of dispersion of them in ambient and the compulsory recover and delivery to the resellers or to dedicated collection centers.
The refrigerant gas R134a, even if not dangerous for the ozone, is mentioned within the substances responsible of the greenhouse effect, so it has to be treated as mentioned above.

Please, keep attention during the maintenance operations, in order to reduce as much as possible the risk of gas escapes.

9 INSTALLATION

9.1 INTRODUCTION

9.1.1 INSPECTION

When receiving the unit, please check its integrity: the unit leaves the factory after having been checked ; eventual damages due to transport, should be immediately referred to the courier and noted on the Delivery Sheet before signing it.
The manufacturer or its agent should be informed as soon as possible regarding the damage entity.
The Customer should write a paper listing all the eventual relevant damages.

9.1.2 LIFTING AND TRANSPORT

During the unload and the placement of the unit, pay attention in order to avoid rude movements.
All transports, included those in the plant, should be lead by paying attention and not using the unit's components as strenght points.

During all lifting operation, check if the unit has been properly anchored, in order to avoid falls or overturns. DO NOT MOVE NEITHER LIFT THE UNIT FROM ITS REMOVABLE PANELS.

9.1.3 UNPACKING

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

9.1.4 UNIT IDENTIFICATION

Each unit has its own identification label, placed on the casing, where you can find all the data necessary for the installation, maintenance and tracking of the unit.

Please take note of the model, the serial number, the refrigerant charge and the reference diagrams of the unit on the table (see right)

Modello - Model	
Matricola - Serial number	
Data di produzione - Date of production	
Categoria PED/ CE 97/23 Category	
Procedura di valutazione conformità - Conformity module	
Max temp. di stoccaggio - Max storage temperature [°C]	
Max temp. funzionamento - Max ambient working temperature [°C]	
Min.temp.ambiente di funzionamento-Min ambient working temp. [°C]	
Potenza frigorifera nominale - Nominal Cooling Capacity [kW]	
Potenza nominale in riscaldamento - Nominal Heating Capacity [kW]	
Refrigerante - Refrigerant [Ashrae 15/1992]	
Carica refrigerante - Refrigerant charge [kg]	
Peso a vuoto - Empty weight [kg]	
Alimentazione - Power supply	
Potenza assorbita Nominale -- Nominal power input [kW]	
Corrente nominale - Nominal absorbed current [A]	
Corrente massima - Full load ampere FLA [A]	
Corrente di spunto - Starting Current LRA [A]	
Schema elettrico - Wiring diagram	
Schema frigorifero - Refrigeration diagram	

9.2 PLACEMENT

ATTENZIONE
WARNING

All the RS models have been projected for an internal installation.
Do not install the unit outside and check that it is not exposed to weather agents such as rain, humidity and frost.

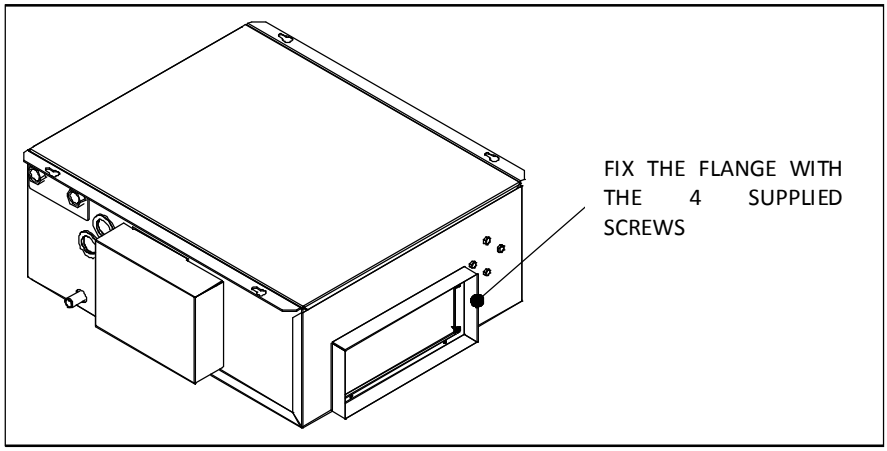
Please pay attention to the following points, in order to define the most suitable place for the installation of the unit and the related connection:

- dimensions and source of hydraulic pipes;
- place of the power supply;
- complete access for maintenance actions;
- strenght of the fixing point.

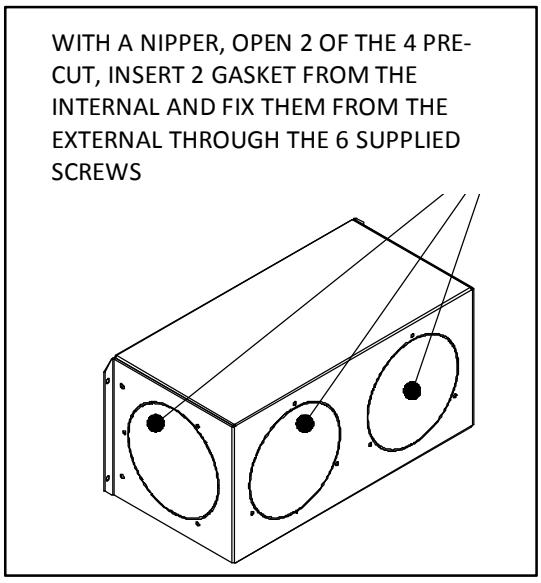
HORIZONTAL UNITS

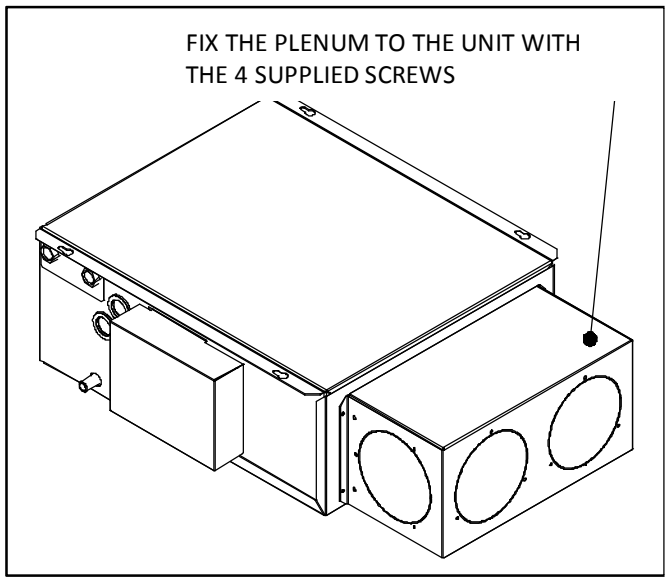
9.2.1 HOW TO MOUNT THE SUPPLY FLANGE ON MODELS RSO 020 [OPTIONAL]

In order to duct the unit, it is necessary to install the supply flange for connection. The picture below show how to mount it:



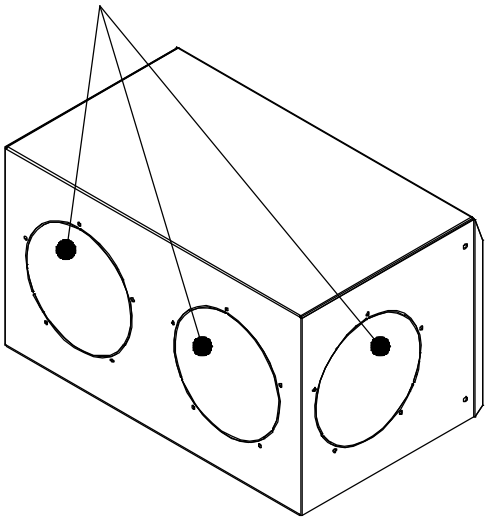
9.2.2 HOW TO MOUNT THE SUPPLY PLENUM ON MODELS RSO 020 [OPTIONAL]



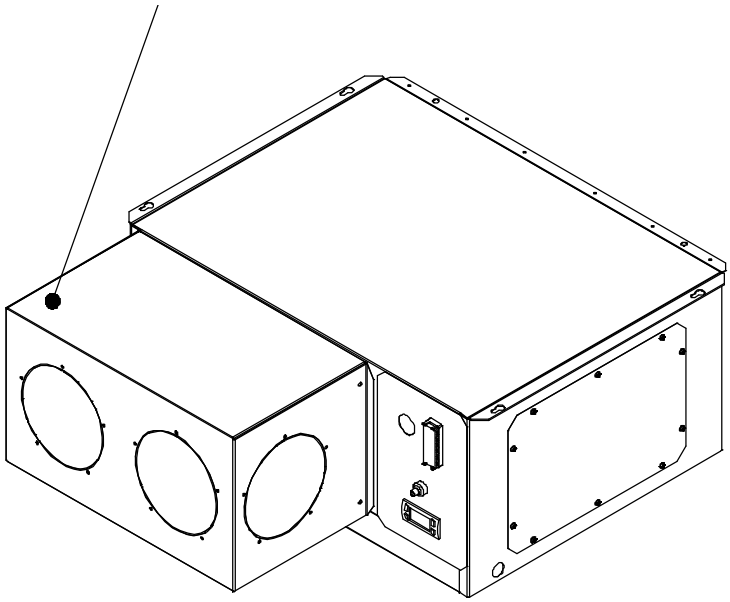


9.2.3 HOW TO MOUNT THE SUPPLY PLENUM ON MODELS RSE 050 [OPTIONAL]

WITH A NIPPER, OPEN 2 OF THE 4 PRE-CUT, INSERT 2 GASKET FROM THE INTERNAL AND FIX THEM FROM THE EXTERNAL THROUGH THE 10 SUPPLIED SCREWS



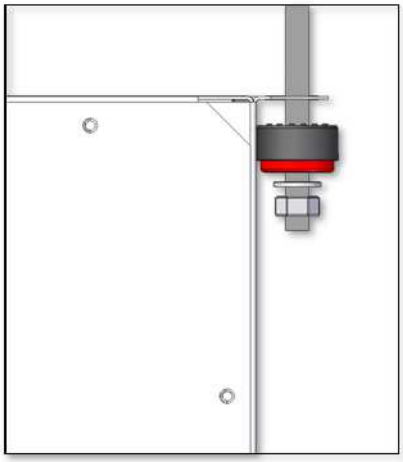
FIX THE PLENUM TO THE UNIT WITH THE 4 SUPPLIED SCREWS



9.2.4 HOW TO FIX THE UNIT ON THE DROP CEILING

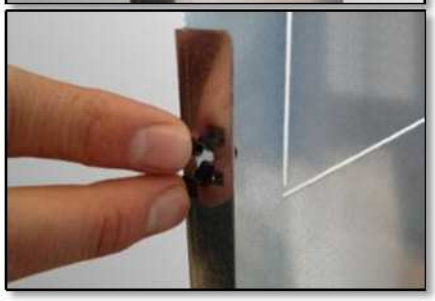
ATTENZIONE
WARNING

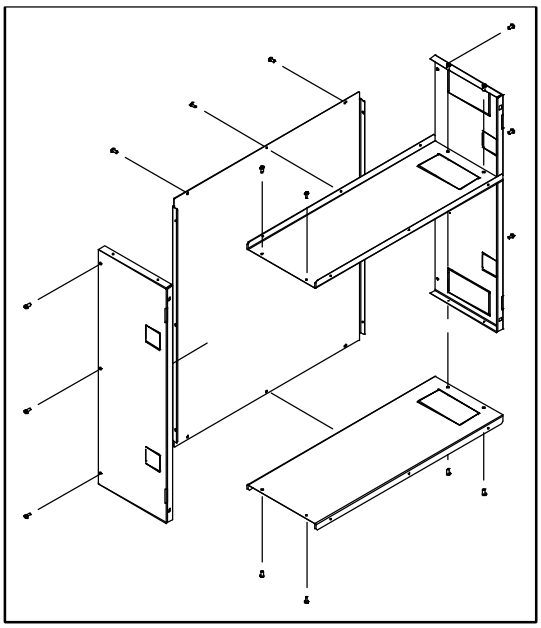
The installation of anti-vibration feet is suggested for every anchorage point, in order to avoid noise and vibration, as shown in the picture (see right).



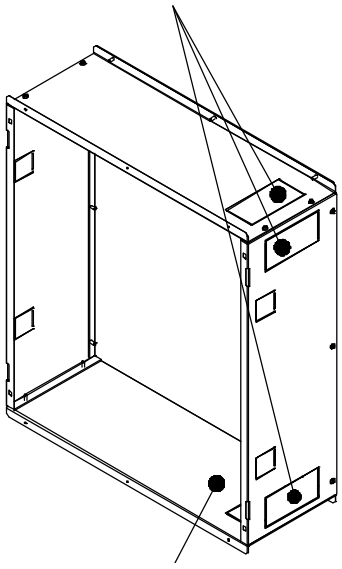
9.2.5 HOW TO MOUNT THE FRAMEWORK [OPTIONAL] AND HOW TO PLACE THE UNIT

- Fix the components with the supplied screws. Pay attention when mounting the base (the creases should be towards the down) and the cover (the creases should be towards the top). [see pictures here below]
- Insert in the rectangular holes of the side panels, the 4 closing springs and then fix the closing panel. [see pictures on the right]

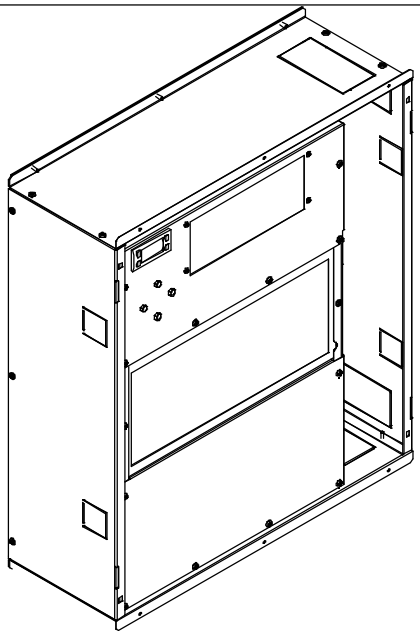




Predisposed hydraulic connections



Support surface for the dehumidifier

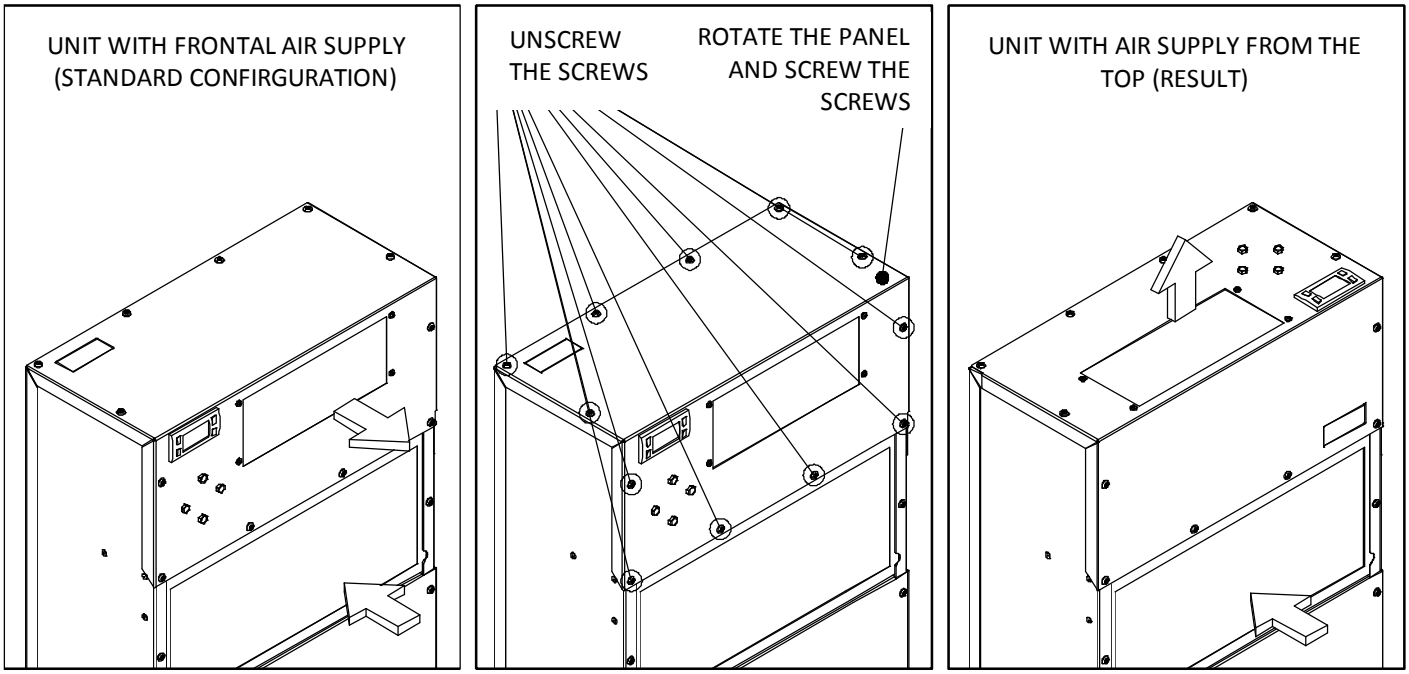


Placement of the unit within the framework

The installation of an insulation coat (within the framework and the unit itself) is suggested in order to reduce the sound level and the vibration perceived.

9.2.6 HOW TO ROTATE THE FAN PANEL TO GET THE AIR SUPPLY FROM THE TOP

For those applications which may need the air supply from the top, it is possible to do the following modification:



PERICOLO
DANGER

Take off tension before proceeding with the modification, do not remove other screws. After having done the modification, before giving tension, try to have the fan turning with the hand, in order to check that its rotation is not clogged.

9.3 CANALIZATION

9.3.1 VERTICAL UNITS

The vertical unit is conceived to be placed within its framework (optional); it is not predisposed to be duct in supply, neither in recover.
For different applications, when the unit is not placed within the framework, a supply flange (optional) can be mounted; to read how to mount it, please make reference to page 38.

ATTENZIONE
WARNING

The fixing on the unit of a suction duct or a supply duct without mounting the flange can produce a wrong functioning of the dehumidifier and this lead to the loss of the warranty.

9.3.2 HORIZONTAL UNITS

The unit RSE is provided with a flange to duct the air supply.
On the unit RSO the supply flange can be mounted [optional].
All the horizontal units are not predisposed for the duct on recovery.

ATTENZIONE
WARNING

The fixing on the unit of a suction duct or a supply duct without mounting the flange can produce a wrong functioning of the dehumidifier and this lead to the loss of the warranty.

ATTENZIONE
WARNING

The fixing on the unit of a suction duct or a supply duct without mounting the flange can produce a wrong functioning of the dehumidifier and this lead to the loss of the warranty.

9.4 HYDRAULIC CONNECTION

9.4.1 WATER CIRCUIT CONNECTION

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 installation of the following components on the pipes is strongly recommended:

-temperature and pressure indicators for the maintenance and the control of the group. The pressure control indicates the correct functioning of the expansion vase and highlight water losses in the plant;
- interception valves (dampers) to insulate the hydraulic circuit in case of maintenance interventions;
- metallic clew (inlet pipe) with 1 mm mesh, to protect the exchanger from the impurities present in the pipes. This prescription is necessary overall during the first starting;
- vent valve, to be placed on the highest areas of the hydraulic circuit, in order to allow the air purge. On the internal pipes there are manual vent valves: this operation should be done with tension off;
- discharge tap and, where necessary, drain tank to allow the empty of the plant for maintenance actions/seasonal pauses.

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

AVVERTENZA
CAUTION

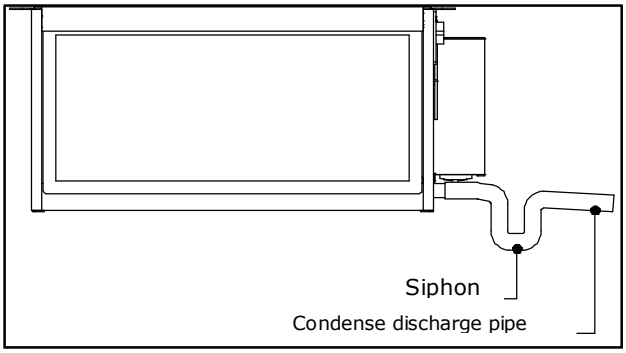
It is fundamental that the water inlet is realized in correspondence with the connection indicated by the label "Water Inlet". If not, the counter-current circulation will not be respected and this will lead to risks of non-functioning, blocking or breaking up of the unit.

ATTENZIONE
WARNING

The hydraulic circuit should grant the constant nominal water flow (+/- 15%) in every functioning condition.

9.4.2 CONDENSE DISCHARGE CONNECTION

Realize the connection with a flexible rubber pipe, internal diameter 16 mm. On the discharge pipe a siphon has to be done, with a shutter of a diameter, at least, equal to the prevalence of the inlet fan, as indicated in the pictures below.



ATTENZIONE
WARNING

The inclination of the discharge pipe should grant, in every case, the pouring out of water towards the external. If this is not granted, condense can overflow from the unit.

9.5 ELECTRICAL CONNECTIONS

Open the electrical panel, introduce the supply cable and the other necessary cables on the dedicated holes, realize the connections on the clamps and close the panel.

PERICOLO
DANGER

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

Electric connection, supply cables and protections have to be realized according to the wiring diagram attached and by following the current local and international dispositions.

Suggested protection to be inserted: models 020 = switch MGT – C10
models 050 = switch MGT – C16

Suggested supply line: models 020 = cable FROR - 3G1,5
models 050 = cable FROR - 3G2,5

PERICOLO
DANGER

The wiring and the modification of the fan speed have to be done when there is no tension.

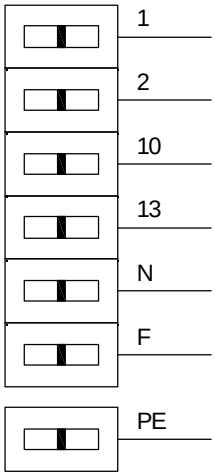
DEATH DANGER

CONNECTION MODELS 050

BUS RS485 CONNECTION (OPTION): CONNECT TO THESE TWO CLAMPS THE BUS LINE COMING FROM A DOMOTIC OR A SUPERVISION SYSTEM.
SEE THE MANUAL FOR RS485 SERIAL.

HUMIDISTAT CONNECTION: CONNECT THESE TWO CLAMPS WITH THE CLEAN CONTACT OF THE HUMIDISTAT. IF THE HUMIDISTAT NEED TO BE SUPPLIED IN 230V, CONNECT IT TO THE DEHUMIDIFIER SUPPLY (CLAMPS F and N)

POWER SUPPLY CONNECTION: CONNECT PHASE, NEUTRAL AND PE, PROTECTING THE DEHUMIDIFIER AND THE LINE WITH A MOUNT PROTECTION
(SEE THE COVER FOR THE SUGGESTED PROTECTION)



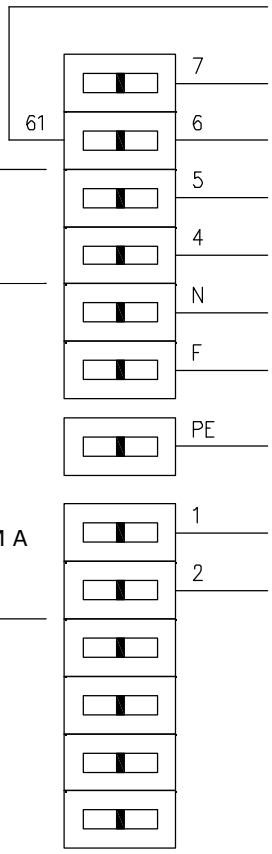
CONNECTION MODELS 020

FAN CONNECTION: MEDIUM SPEED WIRE 6; HIGH SPEED WIRE 7.
BY DEFAULT THE UNIT IS CONNECTED TO THE MEDIUM SPEED;
IF THE MEDIUM SPEED IS NOT SUFFICIENT, MOVE THE WIRE 61 AND CONNECT IT TO THE WIRE 7

HUMIDISTAT CONNECTION: CONNECT THESE TWO CLAMPS WITH THE CLEAN CONTACT OF THE HUMIDISTAT. IF THE HUMIDISTAT NEED TO BE SUPPLIED IN 230V, CONNECT IT TO THE DEHUMIDIFIER SUPPLY (CLAMPS F and N)

POWER SUPPLY CONNECTION: CONNECT PHASE, NEUTRAL AND PE, PROTECTING THE DEHUMIDIFIER AND THE LINE WITH A MOUNT PROTECTION
(SEE THE COVER FOR THE SUGGESTED PROTECTION)

BUS RS485 CONNECTION (OPTION): CONNECT TO THESE TWO CLAMPS THE BUS LINE COMING FROM A DOMOTIC OR A SUPERVISION SYSTEM.
SEE THE MANUAL FOR RS485 SERIAL.



9.6 FIRST STARTING

Before proceeding with the starting, check that all the panels are in the correct position and closed with their screws.
For the first starting follow carefully the below directions:

Check that all the connections (hydraulic, electric and aeraulic) are correctly installed and that all the information reported on manual and labels are followed.

Check that the taps of the hydraulic circuit (if present) are open; check that the hydraulic circuit have been leaked and that every residual has been eliminated, then charge it gradually and by opening the devices for the leaking on the top part.
Check that there are no losses on the hydraulic circuit.

9.6.1 INSTALLER PARAMETERS MODIFICATION

To enter the installer parameters' setting menu, follow the process below:

1. Keep pushed for 5 seconds the keys UP (▲) and STAND-BY till the first variable appears on the display. When entering the menu, a sound signal will be emitted, as a confirmation.
2. Select with the UP (▲) or DOWN (▼) key the variable to modify.
3. Now it is possible to change the valur by keeping pushed the SET key and pushing the UP (▲) or DOWN (▼) keys.
4. When finishing the setting, to exit the menu, keep pushed the UP (▲) or DOWN (▼) keys (or wait 30 seconds without pushing any keys) till the functioning status (OFF or ON) appears again on the display.
   When exiting from the menu, a soung signal will be emitted, as confirmation.
5. The memorizing of the modifications will be automatic when exiting from the menu.

PARAM	*DESCRIPTION*	*VALUES*	*DEFAULT*
F3	An status with compressor off	0= fan on with unit ON 1= fan on with only compressor on 2= fan on with closed humidistat contact	2
CM3	Compressor activation (only for unit version "I" – with cold integration)	The compressor is activated: 0= humidistat input or cooling request 1= humidistat input 2= cooling request 3= humidistat input or cooling request	1
Ad	Net address for serial RS485	from 1 ot 247	1

9.6.2 TURNING ON THE UNIT

If supplying the unit you see "OFF" on the display, push the stand-by key: a sound signal will be emitted as confirmation of the turning on of the unit.
Till the humidistat contact is open, the unit will be waiting.
When the humidistat closes the contact, i.e. there is request for dehumidification, the unit will turn on after a 5 minutes delay set by default on the compressor starting.
For all the other functions make reference to the dedicated paragraph (user terminal).

9.6.3 CALIBRATION OF THE UNIT

During the installation phase, it is recommended to measure the inlet air flow. In some cases it could be necessary to modify the speed of the fan. This function is compulsory for the correct functioning of the unit.
For the RSO and RSV units, the ideal speed of air is 1 m/sec (inlet) and it corresponds to an air flow of 250 m³/h; if an air speed less than 15% is measured, it is compulsory to modify the electric connection of the fan on the corresponding clamp.
For the RSE unit, the ideal speed is 1 m/sec (inlet) and it corresponds to an air flow of 600 m³/h; if an air speed less or more than 10% is measured, it is compulsory to regulate the potentiometer of the fan in order to go as close as possible to the ideal speed; by default, the potentiometer is set at a standard speed.

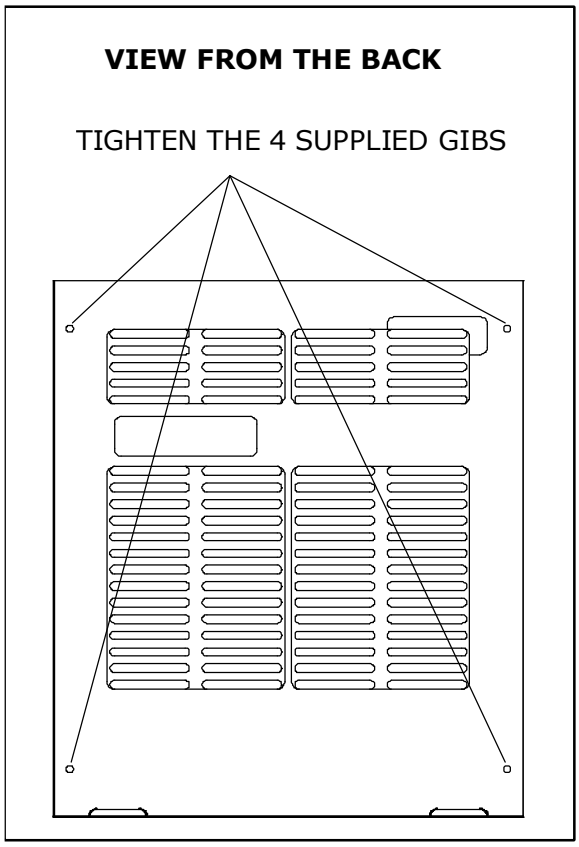
9.6.4 SERIAL RS485

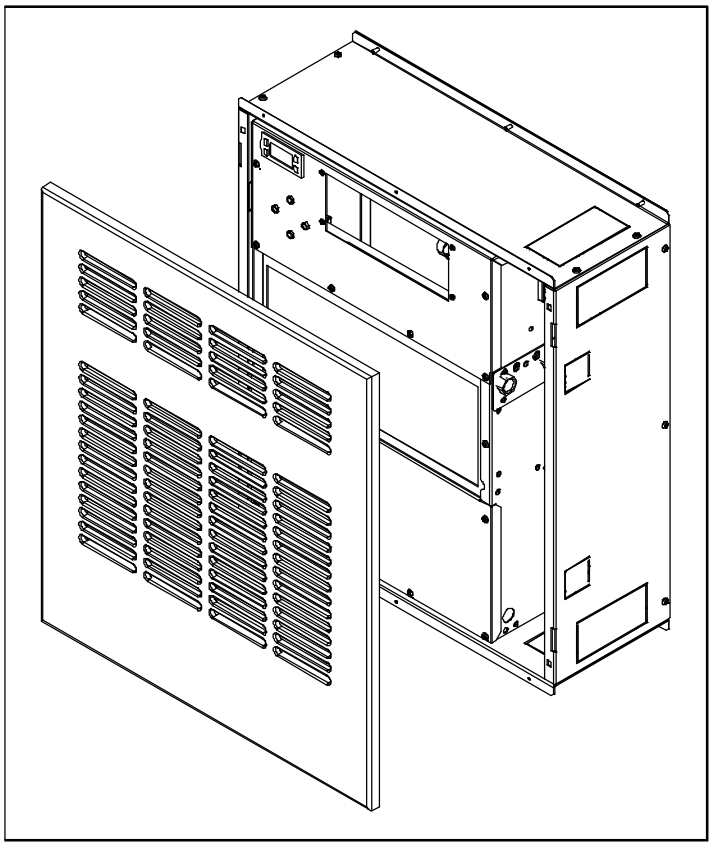
Serial connection: **A → 1**
B → 2

For the serial communication modbus RS485 to the unit, make reference to the dedicated manual.

9.7 FINISHING

9.7.1 CLOSING PANEL MOUNTING FOR RSV 020 UNIT [OPTION]





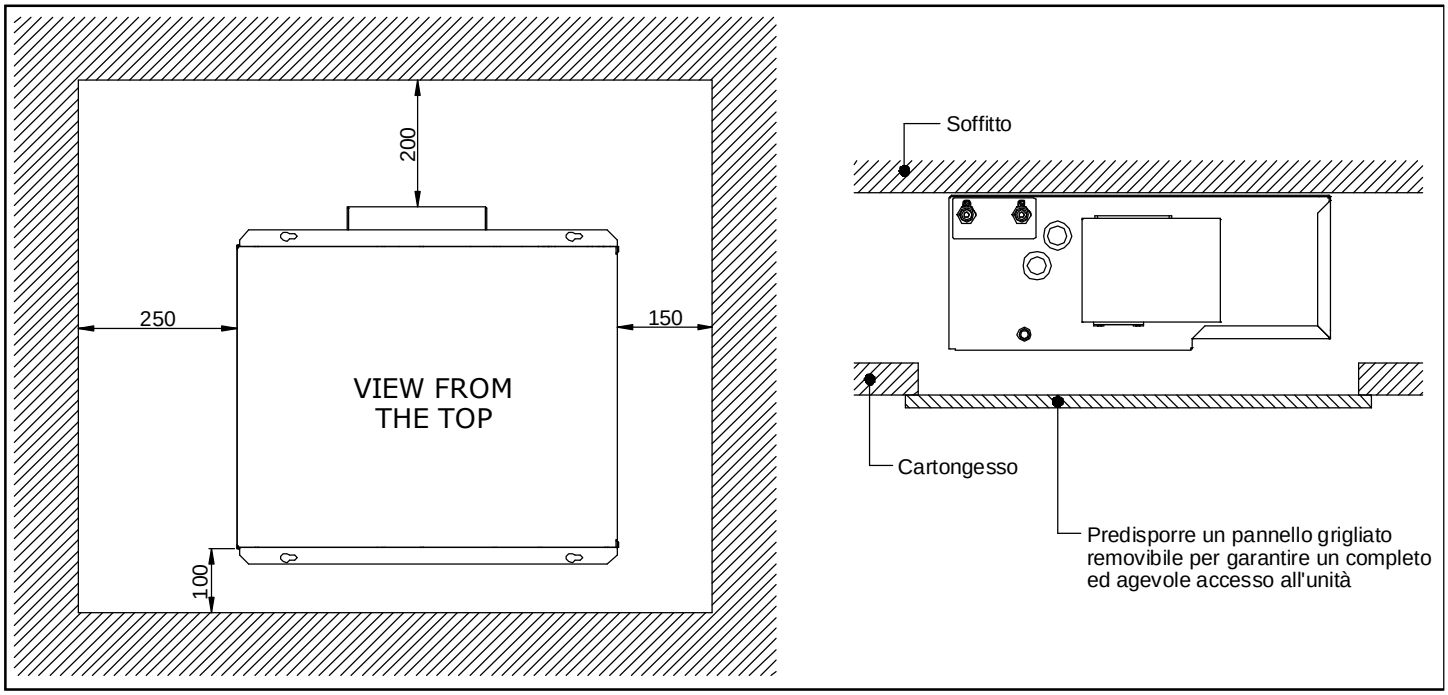
AVVERTENZA
CAUTION

After having tightened the 4 gibs on the panel, it is possible to fix it on the formwork, hidden in this way both the unit and the formwork.
For the following re-opening or maintenance, pull the panel from the bottom.

9.7.2 CLEAR SPACE FOR RSO 020 UNIT

AVVERTENZA
CAUTION

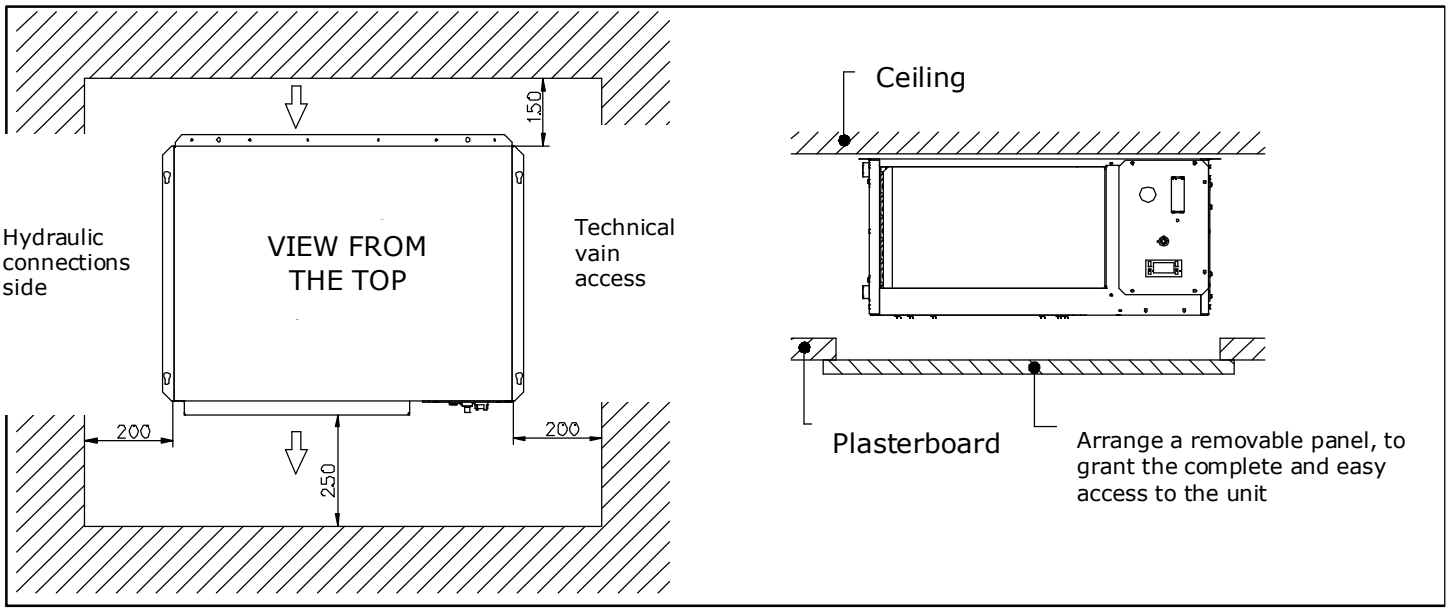
he quotes indicated have to be considered the minimum useful for the correct positioning of the unit and the following maintenances.



9.7.3 CLEAR SPACE FOR RSE 050 UNIT

AVVERTENZA
CAUTION

The quotes indicated have to be considered the minimum useful for the correct positioning of the unit and the following maintenances.



10 ADDITIONAL NOTES

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