HiDew
Dehumidifiers

www.hidew.it
info@hidew.it

RSO
RSV
RSE

Dehumidifiers for radiant systems

USER MANUAL

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.
info@hidew.it - www.hidew.it

Operational Headquarter
Via dell'Artigianato, 5 - 35026 - Conselve (PD) – Italy
Tel +39 049 9502511

Registered Office
Viale Spagna, 31/33 - 35020 - Tribano (PD) - Italy
Tel +39 049 9588511 - Fax +39 049 9588522

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 cannot 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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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.

1.4 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:

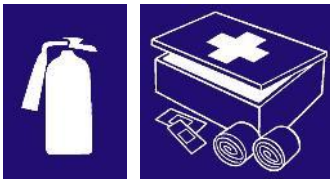
- *Short circuit or fire caused by short circuit risk;*
- *Explosion danger because of the presence of under pressure circuits or pollution due to the refrigerant gas in the circuit;*
- *Burn danger because of high temperature pipes;*
- *Shearing risk*

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 risk

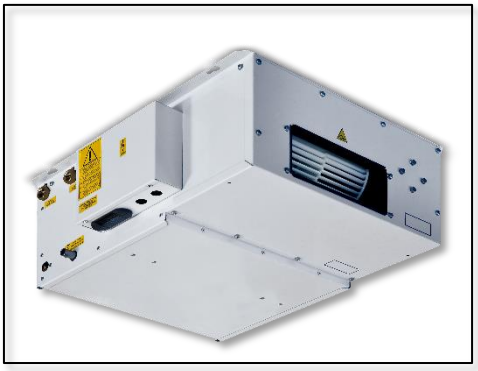
High voltage

Burn danger

Equipment in movement danger

Shearing risk

2 PRODUCT DESCRIPTION



RSV are vertical dehumidifiers for in-wall installation, **RSO – RSE** are horizontal dehumidifiers ductable for ceiling installation. They are suitable for residential and commercial applications with a high latent load, where it is required functioning 24 h/day.
They are recommended in those buildings where cooling is realized through radiant systems, such as floor, walls or ceilings.

RS _ A (isothermal) dehumidifiers, if correctly supplied with water at 15°C can dehumidify the air without changing the temperature. This is possible thanks to the presence of two heat exchangers which pre-cool the inlet air and post-cool it after the dehumidifying process.

RS _ I (hybrid) if correctly supplied with water at 15°C can dehumidify the inlet air without changing the temperature; they have also an ambience thermo-hygrostat and a water plates condenser, which allow the unit to supply cold air if required.

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.

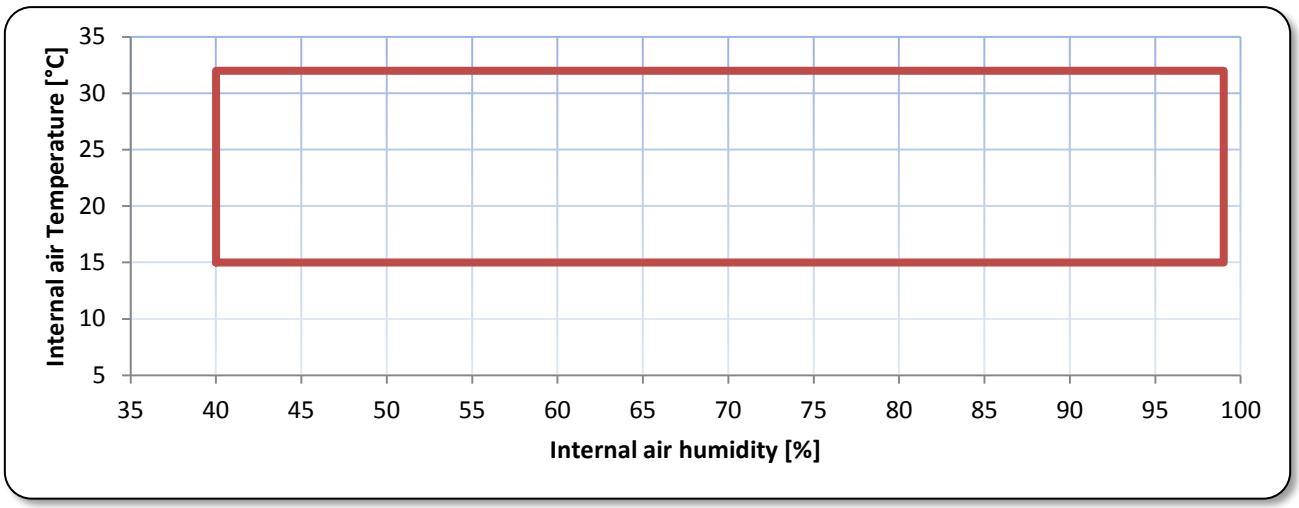
2.1 SERIES

RSO 020 A	RSO 020 I	RSE 020 A	RSE 020 I
RSO 035 A	RSO 035 I	RSE 035 A	RSE 035 I
		RSE 050 A	RSE 050 I
		RSE 100 A	RSE 100 I
RSV 020 A	RSV 020 I	RSVE 020 A	RSVE 020 I
RSV 035 A	RSV 035 I	RSVE 035 A	RSVE 035 I

2.2 STRUCTURE

The unit is realized with pre-painted white steel panels; structural internal elements are realized in electro-galvanized steel, for a further corrosion protection. Bolts and screws are made of non-oxidable material, INOX or carbon steel with superficial treatment of passivation. Panels are covered with synthetic open-cells polyurethane material, in order to ensure the maximum phono-absorbent.
The unit is completely closed and the access is possible only from the front panel 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.

2.3 OPERATING LIMITATIONS



2.4 OPTIONS

2.4.1 Formwork (only for vertical units)

It is a galvanized steel formwork for installation in the wall. It aims to contain the unit and it has all the holes necessary for hydraulic and electrical connections. It has also the splines in order to allow an optimal fixing on the wall.

2.4.2 White lacquered wooden panel (only for vertical units)

It is a white lacquered wooden panel with holes for suction and supply air. It is suitable for the formwork.

2.4.3 Painted steel sheet panel with plastic grills (only for vertical units)

It is a white galvanized panel, with plastic grills for suction and supply air. It is suitable for the formwork.

2.4.4 Supply plenum (only for vertical units)

A supply plenum allows the canalization of the supply air with flexible spiral pipe. *(More information contacting our offices).*

2.4.5 Mechanical humidistat

It is an external device to be installed on the wall and it manages the activation of the unit.
Humidity operating range: 30 – 99% RH, precision +/- 3 %.

2.4.6 RS485 serial port

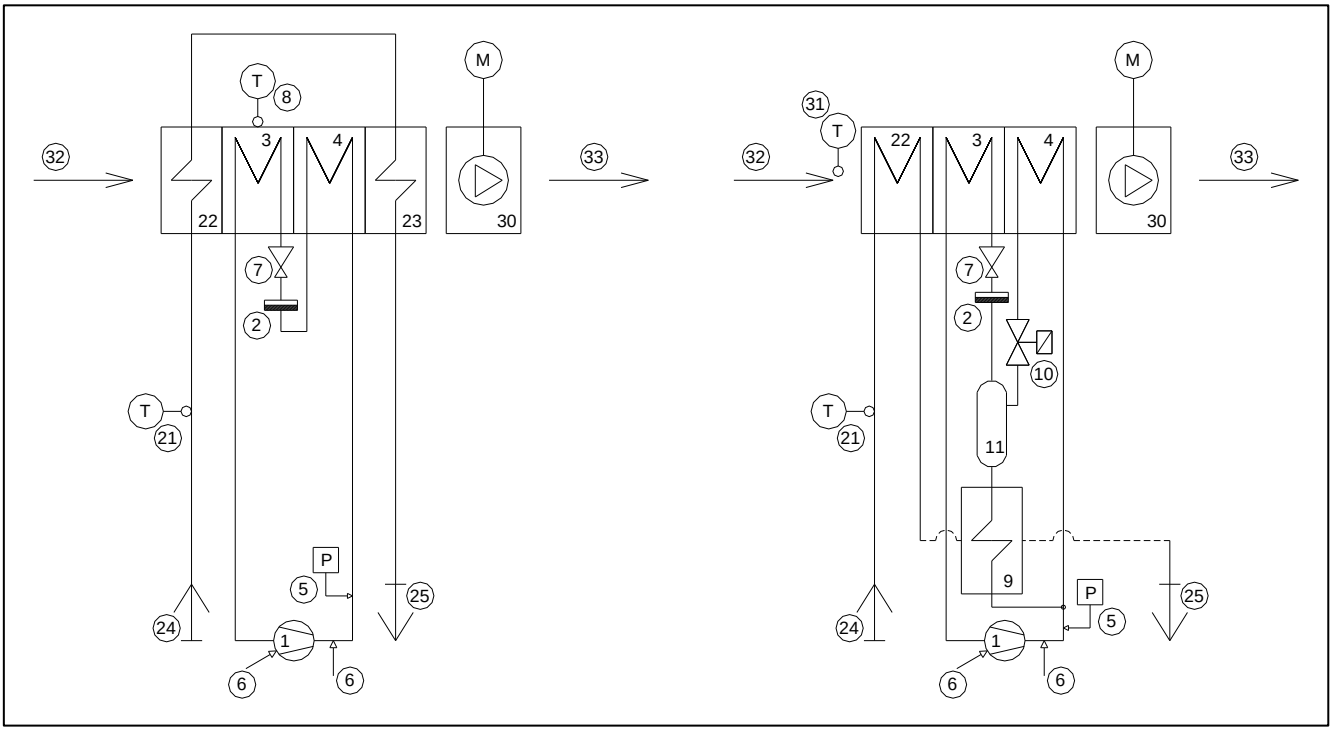
The bus RS485 connection is available to control the unit at distance or by a home automation plant.
(More information contacting our offices).

2.4.7 Supply flange (only for horizontal units)

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

3 REFRIGERANT AND HYDRAULIC CONNECTIONS

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



1 Compressor
2 Filter drier
3 Evaporator
4 Condenser
5 High pressure safety switch
6 Service connections
7 Throttling valve
8 Defrosting temperature probe
9 Water plates condenser
10 Solenoid valve for ambient temperature control
11 Liquid receiver

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

30 Fan
31 Temperature probe
32 Air inlet
33 Air outlet

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.

- Compressors
  Reciprocating 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
  - Filter drier with molecular sieve
  - Throttling valve
  - Schrader valve for control / maintenance

- Thermal exchange coils
  - Copper pipes and aluminum fins

- Condensate tray (below coils)
  - INOX steel

4 ELECTRICAL CONNECTIONS

4.1 ELECTRICAL EQUIPMENTS

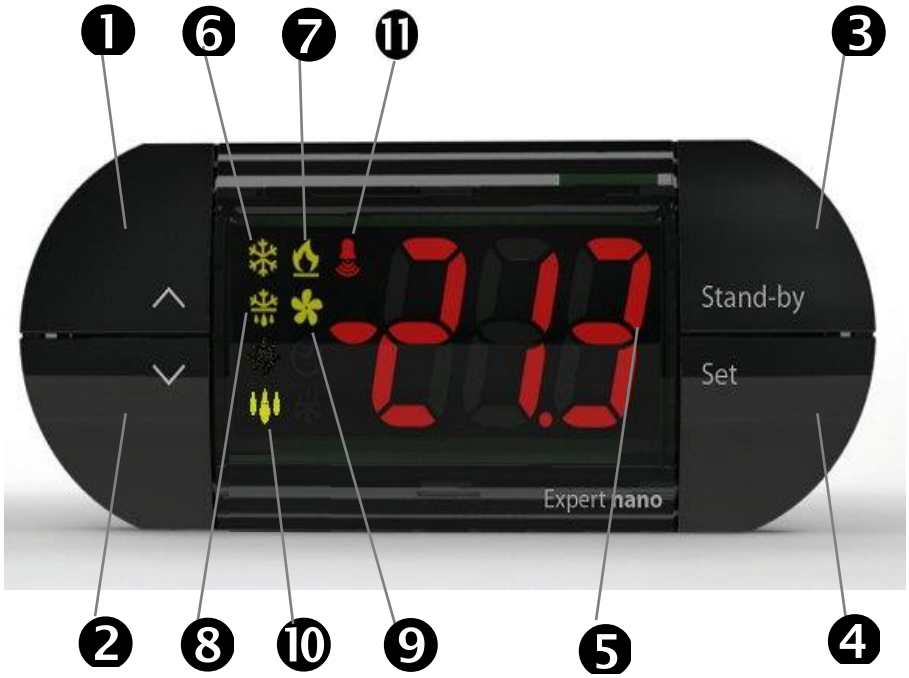
The electrical panel is realized and wired according to the Regulations mentioned in the Declaration of Conformity.
The control circuit is protected by a dedicated fuse.
All the remote commands are realized with low tension, supplied by an insulation transformer.

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.

5 USER TERMINAL

The unit leave the factory with status “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 chapter.
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



UP (▲)

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

DOWN (▼)

Decreases the values / Browses parameters.

STAND-BY

Hold down 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, unit stops and on the display there is OFF.

SET

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

1. **TEMPERATURE / PARAMETERS values**

2. **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

3. **HOT CALLING Icon (if active)**
   Led OFF = Hot calling OFF
   Led ON = Hot calling ON

4. **DEFROST CALLING icon**
   Led OFF = Defrost calling OFF
   Led ON = Defrost calling ON

5. **FANS CALLING icon**
   Led OFF = Fans calling OFF
   Led ON = Fans calling ON

6. **DIGITAL INPUT ACTIVATED BY HUMIDISTAT (if active)**
   Led On = Active digital input
   Led flashing = Compressor off because of missed humidistat consent

7. **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. Hold down for 3 seconds the keys UP (▲) and DOWN (▼) till you see on the display the first variable. A sound will be emitted.
2. Select with the keys UP (▲) or DOWN (▼) the variable to modify.
3. It is possible to change the value holding the SET key and the key UP (▲) or DOWN (▼).
4. At the end of the setting, to exit the menu, hold down the keys UP (▲) or DOWN (▼) or wait 30 seconds without. The status of the unit (OFF or ON) appears on the display. A sound will be emitted.
5. Confirmation 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 - (version 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 lower than 5°C), it is possible to activate the defrost manually, by holding down the (▼) key for more than 3 seconds; a sound 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 DEFROST END MANUAL FORCING

During the defrost, holding down 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 cannot be activated from the programming menu.

6 TECHNICAL DATA

6.1 TECHNICAL DATA TABLES

6.1.1 Size 020

		Horizontals				Verticals			
		RSO		RSE		RSV		RSVE	
		A	I	A	I	A	I	A	I
Dehumidification capacity	l/day	20	20	20	20	20	20	20	20
Refrigerant	-	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Cooling capacity	W	/	1240	/	1240	/	1240	/	1240
Absorbed power	W	250	250	240	240	250	250	240	240
Absorbed current	A	1,7	1,7	1,8	1,8	1,7	1,7	1,8	1,8
Electrical supply	V/ph/Hz	230 / 1+N / 50		230 / 1+N / 50		230 / 1+N / 50		230 / 1+N / 50	
Airflow	m³/h	250	250	250	250	250	250	250	250
Available static pressure	Pa	40	40	180	180	40	40	180	180
Nominal water flow	l/h	150	150	150	150	150	150	150	150
Water pressure drop	kPa	15	15	15	15	15	15	15	15
Storing temp. limit	°C	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
Storing humidity limit	%	90	90	90	90	90	90	90	90
Sound pressure level	dB(A)	38	38	39	39	38	38	39	39
Dimensions	mm	530x600x242		530x600x242		480x220x665		480x220x665	
Weight	kg	35	37	35	37	34	36	34	36

6.1.2 Size 035

		Horizontals				Verticals			
		RSO		RSE		RSV		RSVE	
		A	I	A	I	A	I	A	I
Dehumidification capacity	l/day	28	28	28	28	28	28	28	28
Refrigerant	-	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Cooling capacity	W	/	1740	/	1740	/	1740	/	1740
Absorbed power	W	800	800	780	780	800	800	780	780
Absorbed current	A	4,8	4,8	4,9	4,9	4,8	4,8	4,9	4,9
Electrical supply	V/ph/Hz	230 / 1+N / 50		230 / 1+N / 50		230 / 1+N / 50		230 / 1+N / 50	
Airflow	m³/h	350	350	350	350	350	350	350	350
Available static pressure	Pa	40	40	180	180	40	40	180	180
Nominal water flow	l/h	260	260	260	260	260	260	260	260
Water pressure drop	kPa	18	18	18	18	18	18	18	18
Storing temp. limit	°C	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43	-10 / +43
Storing humidity limit	%	90	90	90	90	90	90	90	90
Sound pressure level	dB(A)	39	39	40	40	39	39	40	40
Dimensions	mm	680x600x242		680x600x242		630x220x665		630x220x665	
Weight	kg	42	44	42	44	41	43	41	43

Units "I" need to be supplied with cold water in order to function properly, otherwise units cannot function and they will block.

Units "A" can function without cold water, in this case dehumidification capacity decrease and air is supplied at temperature higher than the inlet.

1. Dehumidification capacity is declared at nominal conditions 26°C, 65% RH with water at 15°C.
   In other conditions dehumidification capacity varies.
2. Sound pressure level is declared in free field at 1 m from the unit ducted.

6.1.1 Sizes 050 e 100

		Horizontals			
		RSE 050		RSE 100	
		A	I	A	I
Dehumidification capacity	l/day	48	48	100	100
Refrigerant	-	R134a	R134a	R410A	R410A
Cooling capacity	W	/	3360	/	6800
Absorbed power	W	800	800	1460	1460
Absorbed current	A	5	5	7	7
Electrical supply	V/ph/Hz	230 / 1+N / 50		230 / 1+N / 50	
Airflow	m³/h	600	600	1000	1000
Available static pressure	Pa	150	150	150	150
Nominal water flow	l/h	500	500	950	950
Water pressure drop	kPa	30	29	28	28
Storing temp. limit	°C	-10 / +43	-10 / +43	-10 / +43	-10 / +43
Storing humidity limit	%	90	90	90	90
Sound pressure level	dB(A)	43	43	46	46
Dimensions	mm	760x650x350		1000x600x450	
Weight	kg	52	55	80	82

Units "I" need to be supplied with cold water in order to function properly, otherwise units cannot function and they will block.

Units "A" can function without cold water, in this case dehumidification capacity decrease and air is supplied at temperature higher than the inlet.

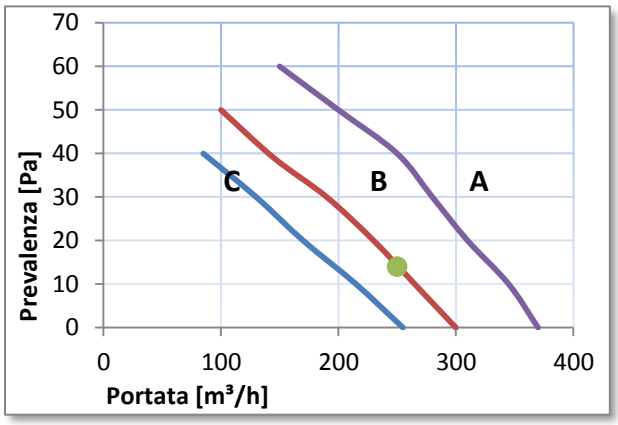
1. Dehumidification capacity is declared at nominal conditions 26°C, 65% RH with water at 15°C.
   In other conditions dehumidification capacity varies.
2. Sound pressure level is declared in free field at 1 m from the unit ducted.

6.1 AIRFLOW AND STATIC PRESSURE

6.1.1 RSO e RSV 020 – 3 velocities

Units install a three velocities fan; medium velocity is set as default.
Refers to “Installation” paragraph for velocity change.

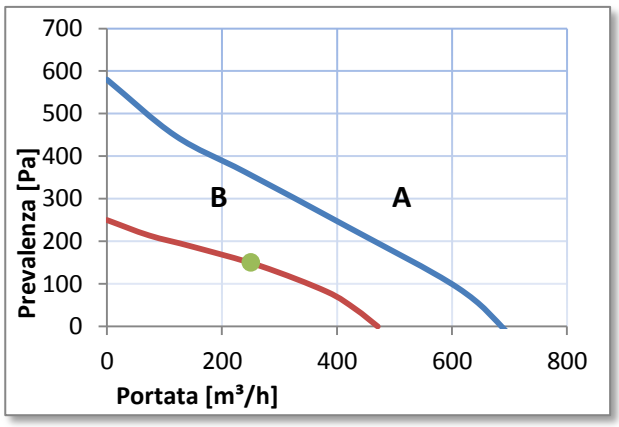
CURVE A = high velocity
CURVE B = medium velocity
CURVE C = low velocity



6.1.2 RSE e RSVE 020 – potentiometer

Units install an electronic fan with inverter and brushless motor controlled by a potentiometer. A default velocity is set in factory.
Refers to “Installation” paragraph for velocity change.

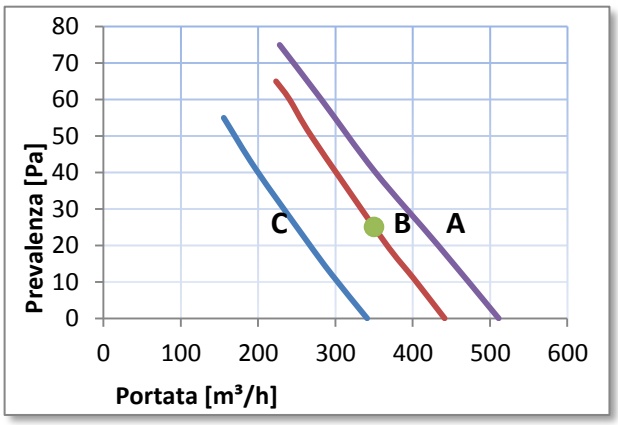
CURVE A = maximum limit
CURVE B = suggested curve



6.1.3 RSO e RSV 035 – 3 velocities

Units install a three velocities fan; medium velocity is set as default.
Refers to “Installation” paragraph for velocity change.

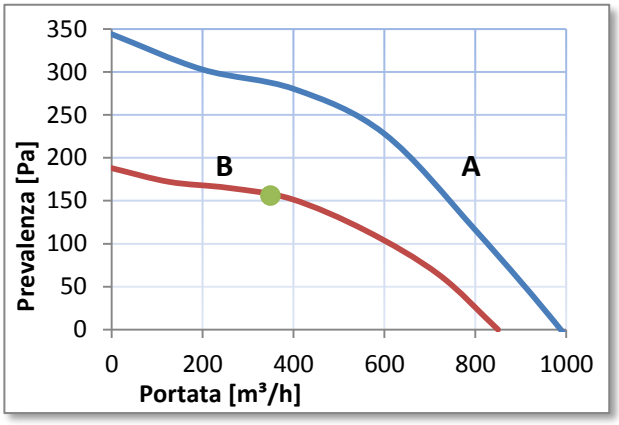
CURVE A = high velocity
CURVE B = medium velocity
CURVE C = low velocity



6.1.4 RSE e RSVE 035 – potentiometer

Units install an electronic fan with inverter and brushless motor controlled by a potentiometer. A default velocity is set in factory. Refers to “Installation” paragraph for velocity change.

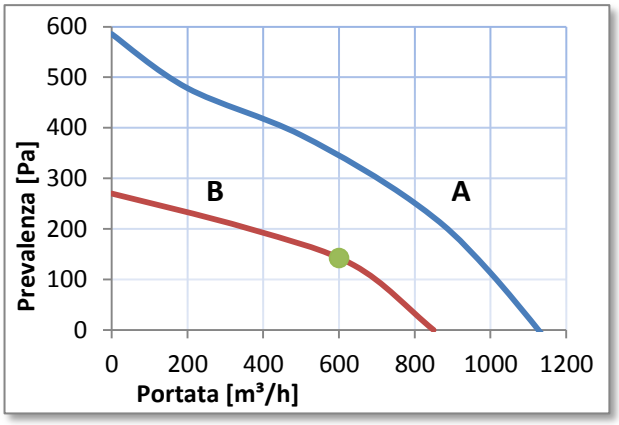
CURVE A = maximum limit
CURVE B = suggested curve



6.1.5 RSE 050 – potentiometer

Units install an electronic fan with inverter and brushless motor controlled by a potentiometer. A default velocity is set in factory. Refers to “Installation” paragraph for velocity change.

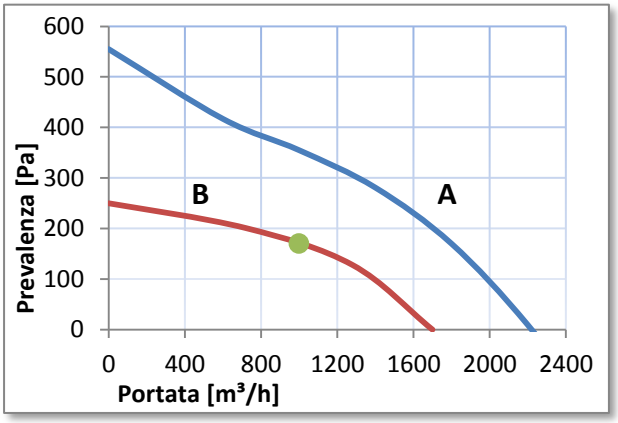
CURVE A = maximum limit
CURVE B = suggested curve



6.1.6 RSE 100 – potentiometer

Units install an electronic fan with inverter and brushless motor controlled by a potentiometer. A default velocity is set in factory. Refers to “Installation” paragraph for velocity change.

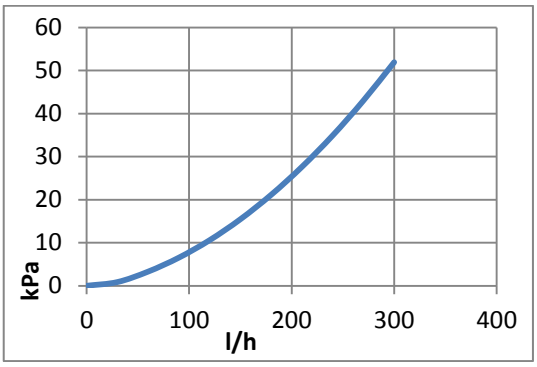
CURVE A = maximum limit
CURVE B = suggested curve



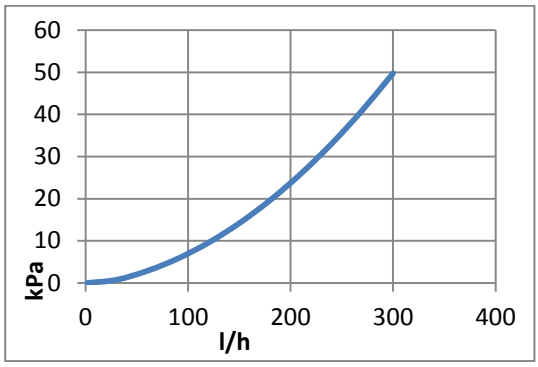
6.1 HYDRAULIC CIRCUIT WATER PRESSURE DROPS

X axis → water flow, Y axis → water pressure drops

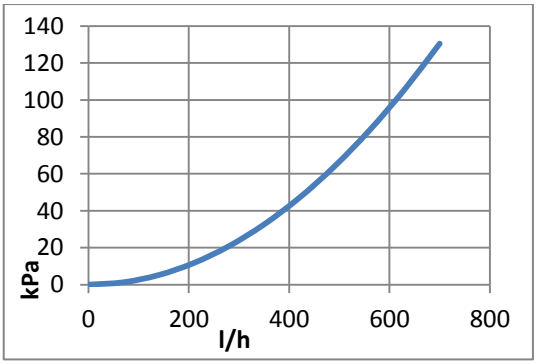
020 A



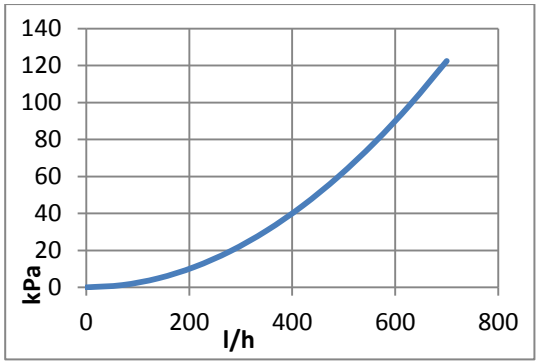
020 I



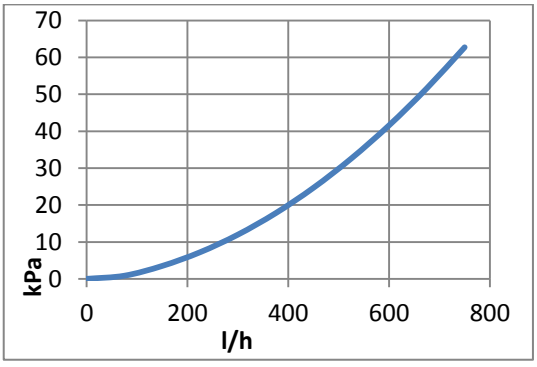
035 A



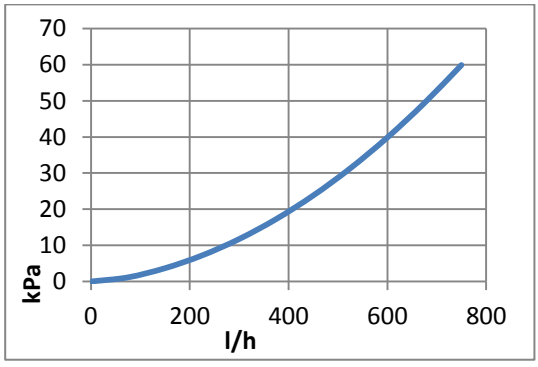
035 I



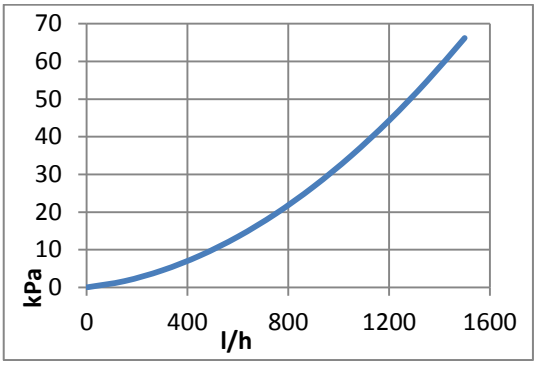
050 A



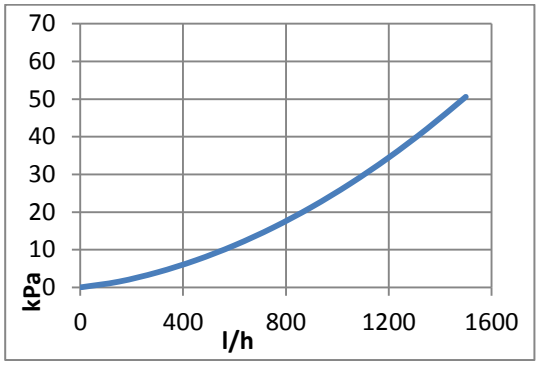
050 I



100 A



100 I



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 ensure good performances of the unit, 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 compressor	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														
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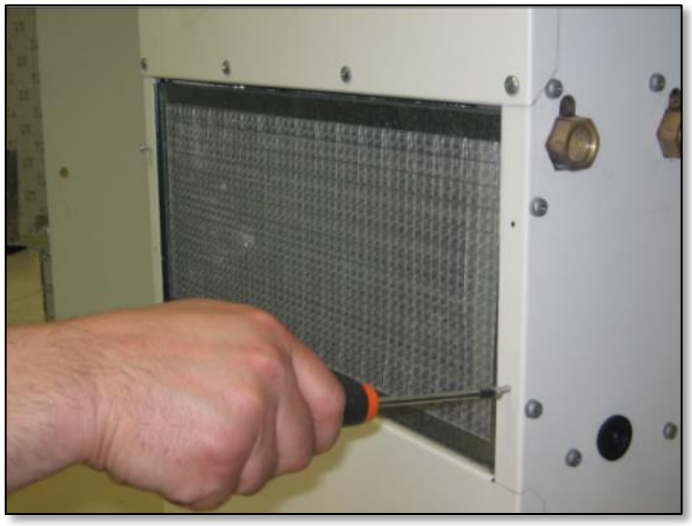
	1° quarter														
YEAR ____	4° quarter														
	3° quarter														
	2° quarter														
	1° quarter														

7.3 ORDINARY MAINTENANCE

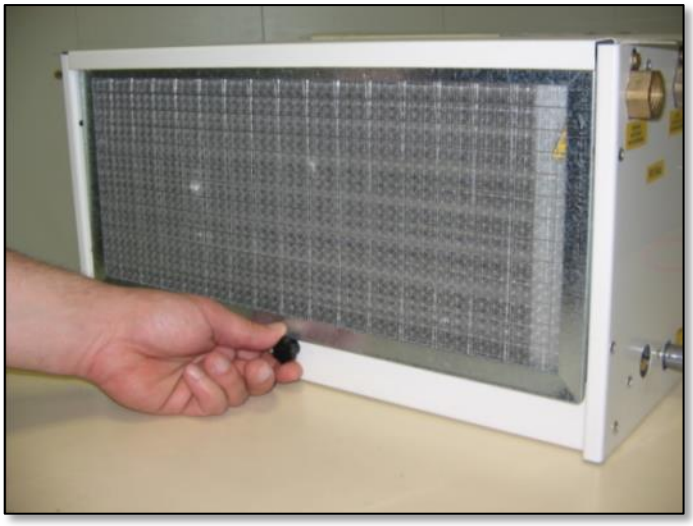
7.3.1 Air filter substitution

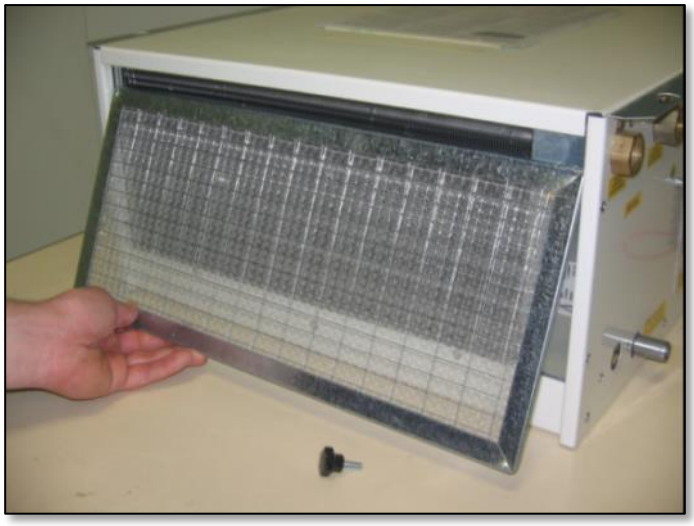
For a correct functioning of the unit, it is necessary to wash periodically the air filter of the unit.
Remove the screws as in the picture below, unpick the filters and wash them with current water, removing manually impurities which could avoid the correct air flux, keeping attention not to damage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

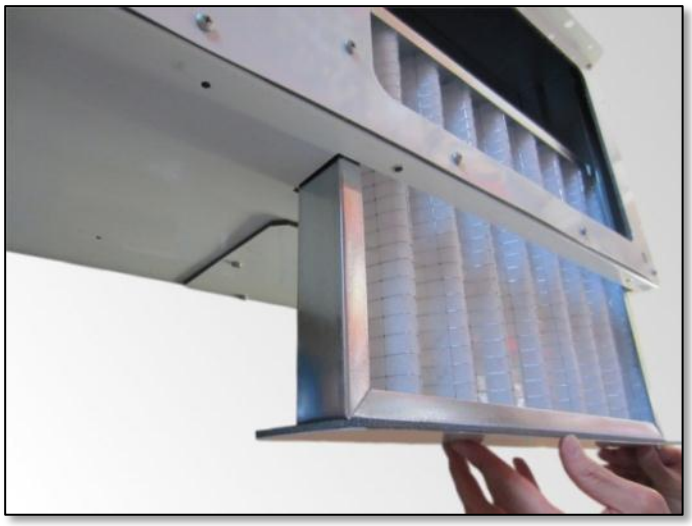
RSV 020 - (vertical unit)



RSO 020 - (horizontal unit)







7.4 EXTRAORDINARY MAINTENANCE

ATTENZIONE
WARNING

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

PERICOLO
DANGER

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 aluminum.

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

ATTENZIONE
WARNING

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.

AVVERTENZA
CAUTION

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.

ATTENZIONE
WARNING

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

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 strength 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.

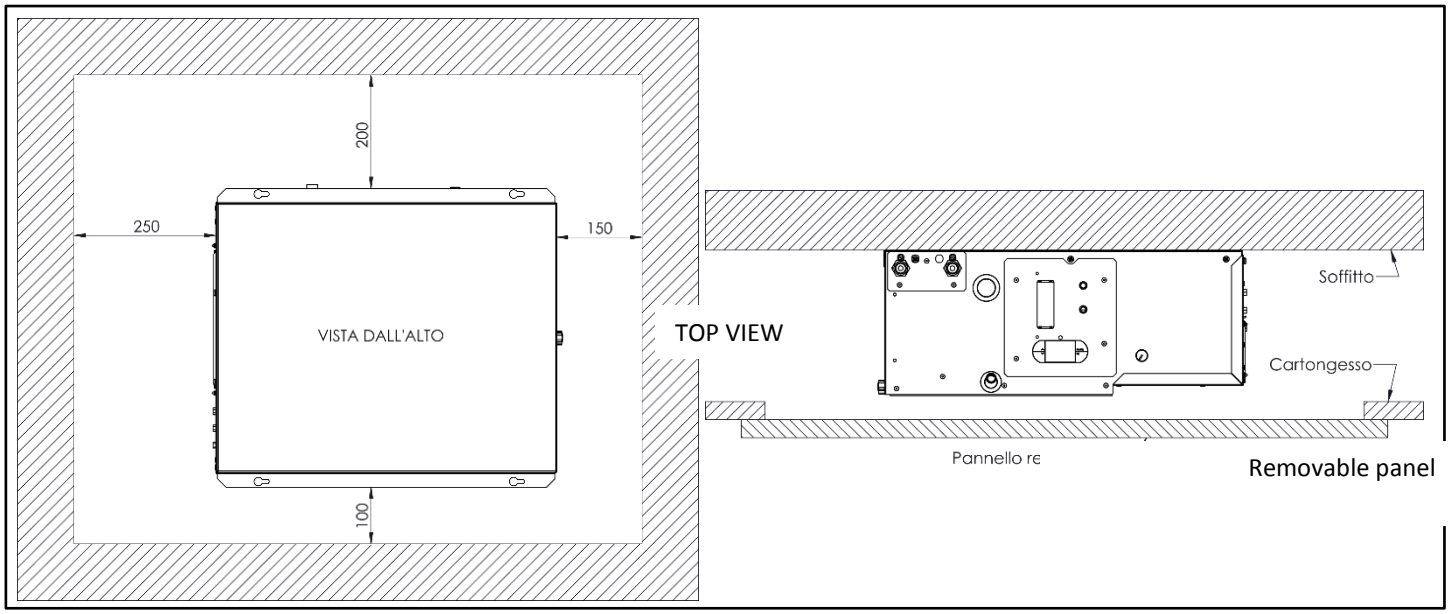
Please pay attention to the following points, in order to define the most suitable place for the installation of the unit and the related connection:

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

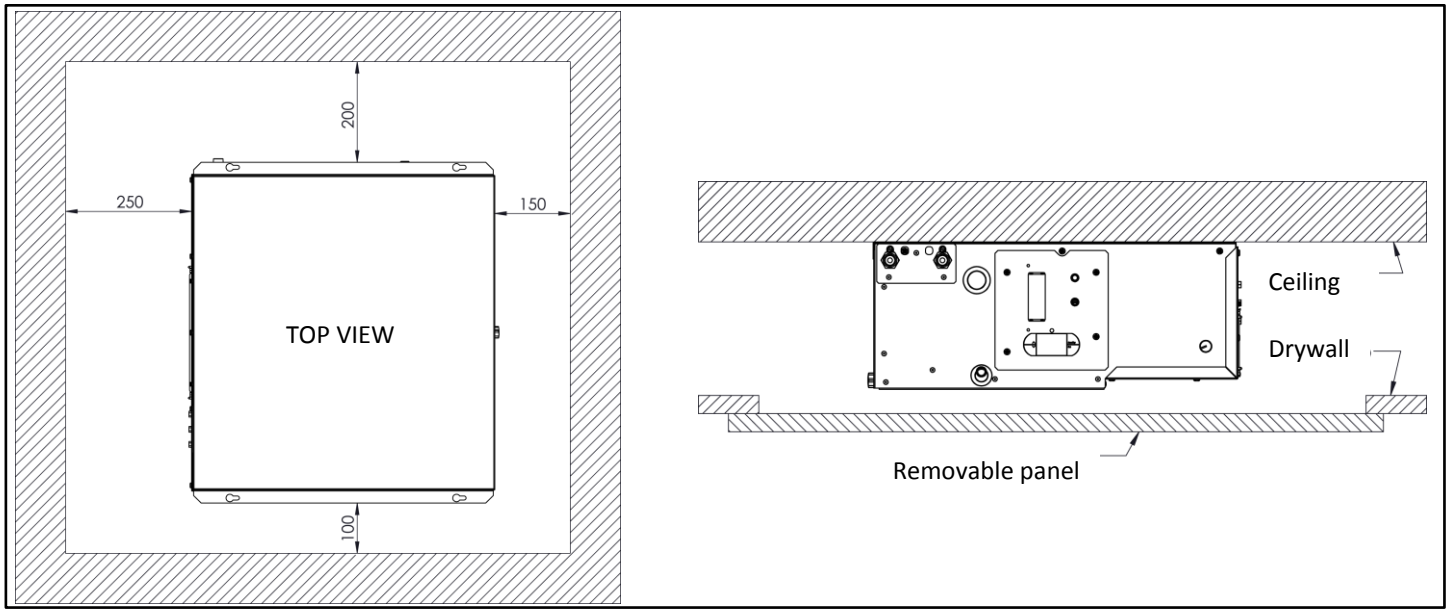
AVVERTENZA
CAUTION

Dimensions indicated are the minimum for the correct installation and manutention of the unit.

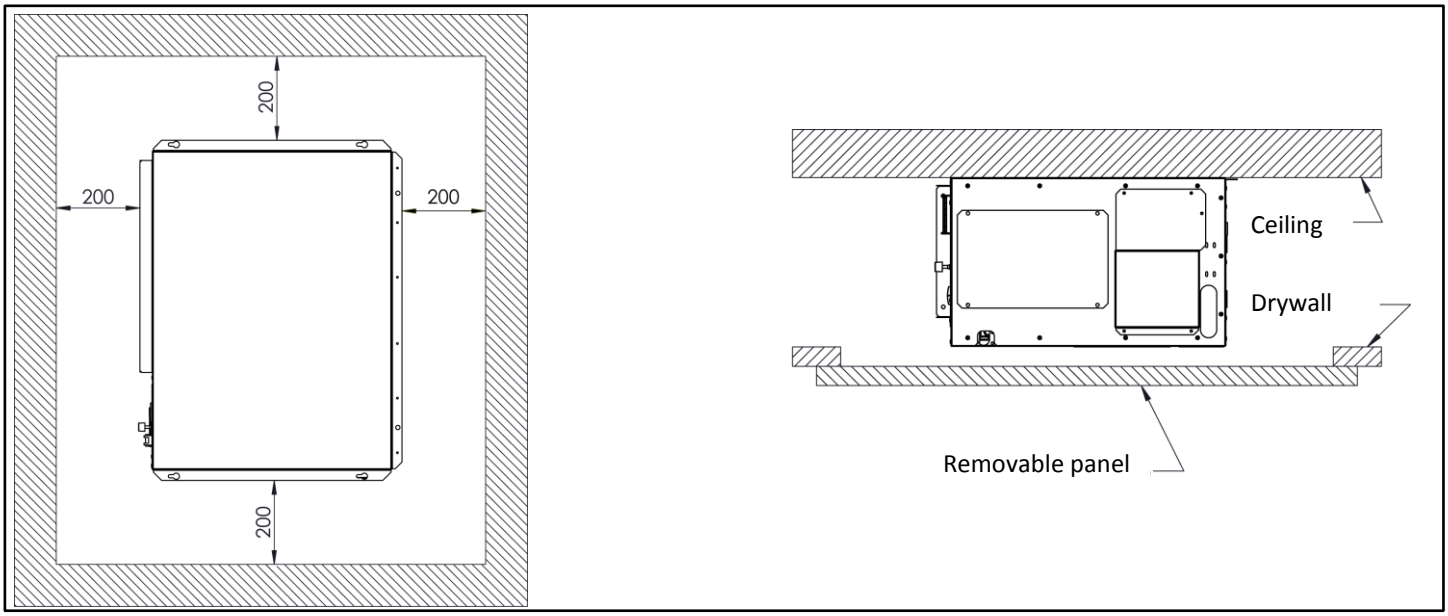
9.2.1 Clearances for RSO – RSE 020



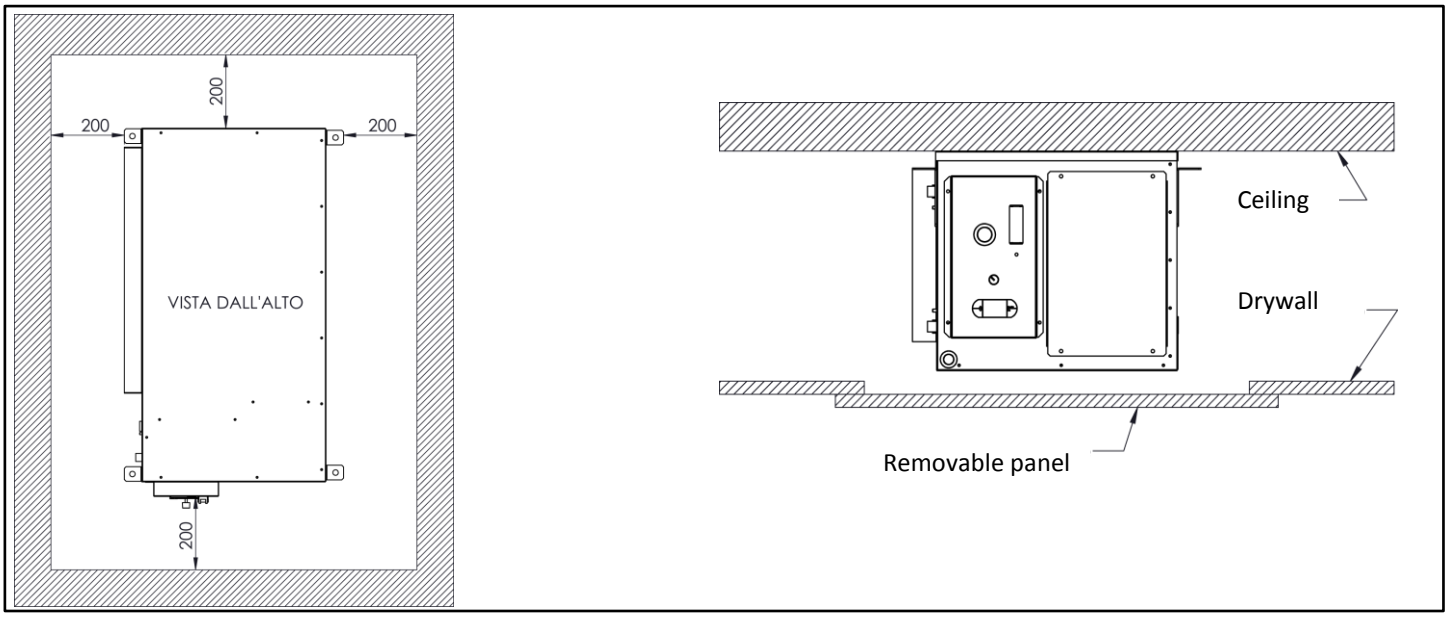
9.2.2 Clearances for RSO – RSE 035



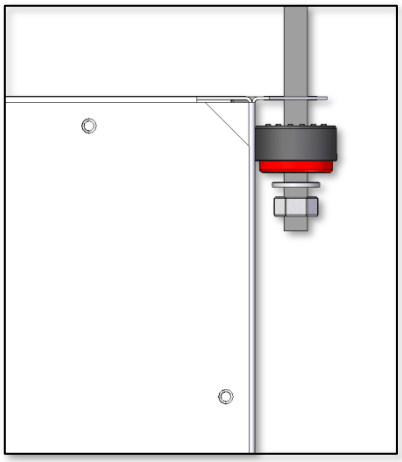
9.2.3 Clearances for RSE 050



9.2.4 Clearances for RSE 100



9.2.5 Ceiling installation



ATTENZIONE
WARNING

In order to avoid vibration and noise transmission, it is recommended use of rubber anti-vibration dampers on each fixing point.

9.2.6 Installation of the unit in the formwork [optional]

ATTENZIONE
WARNING

In order to avoid vibration and noise transmission, it is recommended use of a layer of insulating material between formwork and unit.

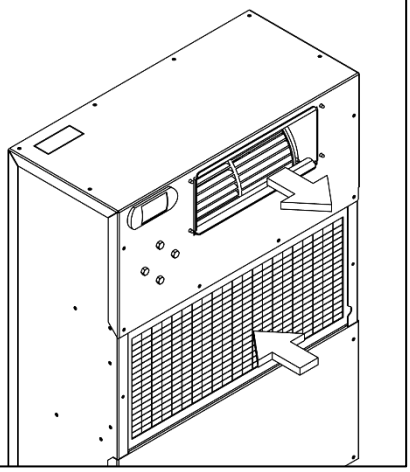
9.2.7 Fan panel rotation for top supply

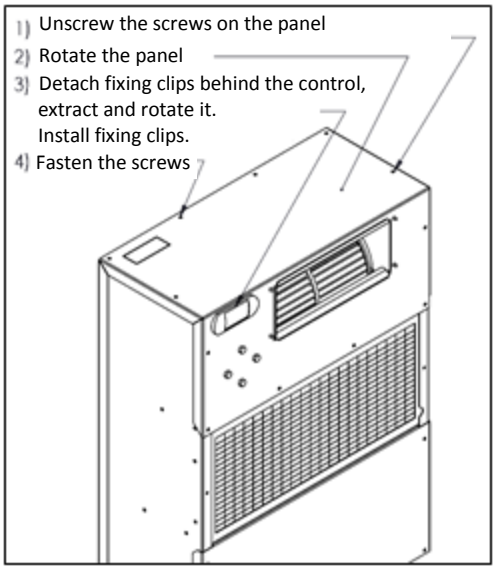
When it is required top supply for units RSV refer to the following instructions (this configuration is standard in units RSVE).

PERICOLO
DANGER

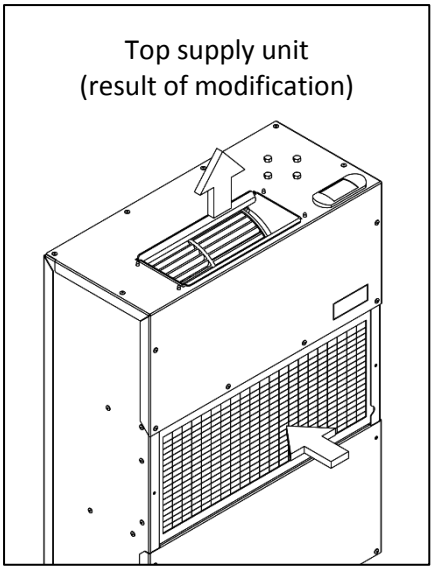
Before operating on the unit cut off the voltage.
Do not remove any other screws.
After modification of the unit, before switching on the voltage, it is necessary to check the fan.
Try to rotate the fan by hand and check that nothing blocks fan rotation.

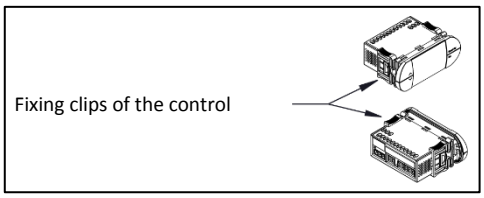
In line supply unit
(RSV standard configuration)





Top supply unit
(result of modification)





9.3 CANALIZATION

9.3.1 VERTICAL UNITS

The vertical unit is conceived to be placed within a formwork (optional); it is not arranged to be ducted.
For different applications, when the unit is not placed within formwork, a supply flange (optional) can be mounted.

ATTENZIONE
WARNING

Installation of a duct on the unit without the flange can lead to a wrong functioning and this is cause of warranty expiration.

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 arranged for the duct on return.

ATTENZIONE
WARNING

Installation of a duct on the unit without the flange can lead to a wrong functioning and this is cause of warranty expiration.

9.4 HYDRAULIC CONNECTION

9.4.1 WATER CIRCUIT CONNECTION

For the realization of 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
- Valves to close the hydraulic circuit in case of maintenance interventions
- Mechanical filter (inlet pipe) with 1 mm mesh, to protect the exchanger from the impurities present in the pipes. This prescription is necessary overall during the first starting
- Air vent valve, to be placed on the highest point of the hydraulic circuit, in order to allow the air purge. On the internal pipes there are manual air vent valves: this operation should be done with no tension
- Discharge valve and, where necessary, drain tank to allow emptying of the plant for maintenance or seasonal pauses.

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

AVVERTENZA
CAUTION

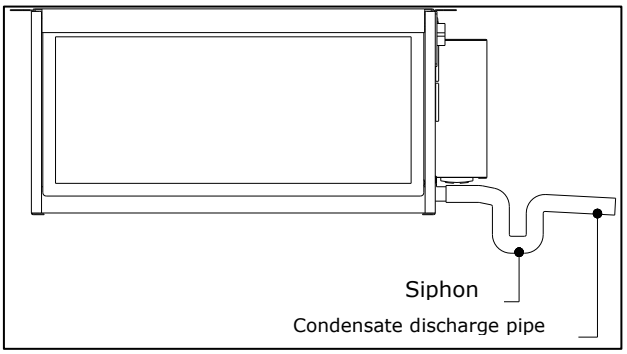
It is fundamental that the water inlet is realized in correspondence with the connection indicated by the label "Water Inlet". If not, the counter-current circulation will not be respected and this will lead to risks of non-functioning, blocking or breaking up of the unit.

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 ensure, 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 – C6
models 035 = switch MGT – C10
models 050 = switch MGT – C16
models 100 = switch MGT – C20

Suggested supply line:

models 020 = cable FROR - 3G1,5
models 035 = cable FROR - 3G1,5
models 050 = cable FROR - 3G2,5
models 100 = cable FROR - 3G2,5

PERICOLO
DANGER

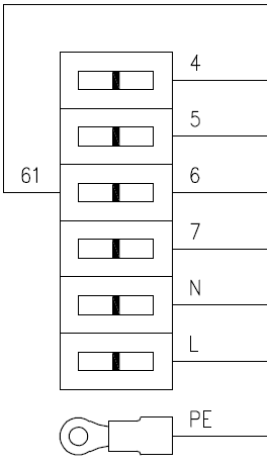
The wiring and the modification of the fan speed have to be done when there is no tension. DEATH DANGER

RSO and RSV MODELS

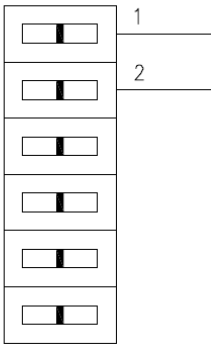
HYGROSTAT CONNECTION: CONNECT TO THESE 2 CLAMPS THE DRY CONTACT OF THE HYGROSTAT.
IF THE HYGROSTAT NEED TO BE SUPPLIED 230 V, CONNECT IT IN PARALLEL TO THE DEHUMIDIFIER ELECTRICAL SUPPLY (F and N CLAMPS)

FAN CONNECTION: MEDIUM SPEED WIRE 6; HIGH SPEED WIRE 7.
FACTORY SETTING: MEDIUM VELOCITY
IF MEDIUM VELOCITY IS NOT SUFFICIENT MOVE WIRE 61 AND CONNECT TO WIRE 7.

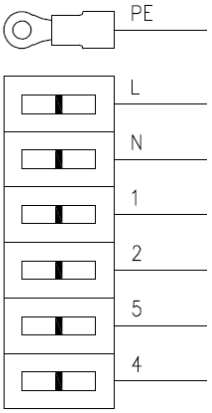
ELECTRICAL SUPPLY CONNECTION: CONNECT PHASE, NEUTRAL AND PE
PROTECT THE DEHUMIDIFIER AND THE LINE WITH A PROTECTION UPSTREAM
(REFERS TO THE PARAGRAPH “ELECTRICAL CONNECTIONS” FOR THE SUGGESTED PROTECTION)



BUS RS485 CONNECTION [OPTIONAL]: CONNECT TO THESE 2 CLAMPS THE BUS LINE COMING FROM THE DOMOTIC OR SUPERVISION SYSTEM.
REFERS TO THE SERIAL MANUAL RS485



RSE and RSVE MODELS



ELECTRICAL SUPPLY CONNECTION: CONNECT PHASE, NEUTRAL AND PE
PROTECT THE DEHUMIDIFIER AND THE LINE WITH A PROTECTION UPSTREAM
(REFERS TO THE PARAGRAPH “ELECTRICAL CONNECTIONS” FOR THE SUGGESTED PROTECTION)

BUS RS485 CONNECTION [OPTIONAL]: CONNECT TO THESE 2 CLAMPS THE BUS LINE COMING FROM THE DOMOTIC OR SUPERVISION SYSTEM.
REFERS TO THE SERIAL MANUAL RS485

HYGROSTAT CONNECTION: CONNECT TO THESE 2 CLAMPS THE DRY CONTACT OF THE HYGROSTAT.
IF THE HYGROSTAT NEED TO BE SUPPLIED 230 V, CONNECT IT IN PARALLEL TO THE DEHUMIDIFIER ELECTRICAL SUPPLY (F and N CLAMPS)

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 Installation parameters modification

To access the installation menu follows the instructions below:

1. Hold down together for 5 seconds keys UP (▲) and STAND-BY or till a parameter will appear on the display. A sound will be emitted.
2. Select the parameter to modify with keys UP (▲) or DOWN (▼.
3. It is possible to modify the value: hold down key SET, then keys UP (▲) or DOWN (▼).
4. To confirm the modification and exit from the menu, hold down keys UP (▲) and DOWN (▼) or wait 30 seconds. A sound will be emitted.
5. Modification will be saved automatically at the exit of the menu.

PARAM	DESCRIPTION	VALUES	DEFAULT
F3	Fan state when compressor is switched off	0 = fan switched on with unit ON 1 = fan switched on only with compressor switched on 2 = fan switched on with hygrostat contact closed	2
CM3	Compressor activation (only unit I – cooling integration)	Compressor will switch on: 0 = hygrostat OR cooling request 1 = hygrostat 2 = cooling request 3 = hygrostat AND cooling request	1
Ad	Net address for serial RS485	da 1 a 247	1
bdr	Choice parameter Modbus baudrate	0 = 300, 1 = 600, 2 = 1200, 3 = 2400, 4 = 4800, 5 = 9600, 6 = 14400, 7 = 19200, 8 = 38400.	5

9.6.2 Switching on the unit

Switch on the voltage, if on the display will appear OFF so press key STAND-BY. A sound will be emitted. The dehumidifier is switched on. As long as hygrostat contact will be open the unit is waiting.

When hygrostat will close the contact, unit will switch on, after 7 minutes compressor will switch on (it is factory settings)

For other information refers to paragraph “User display”.

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.

RSO and **RSV** units
Ideal speed of air is 1 m/s (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.

RSE unit
Ideal speed is 1 m/s (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.

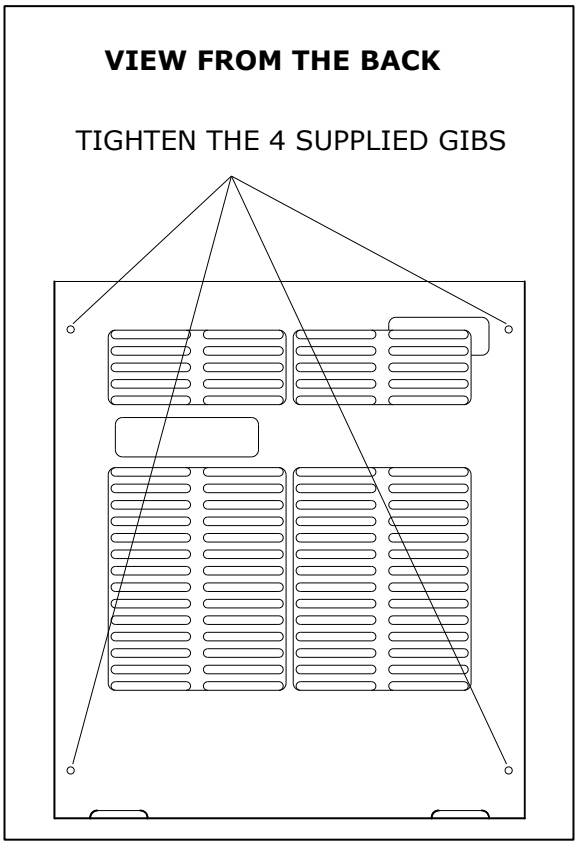
9.6.4 SERIAL RS485

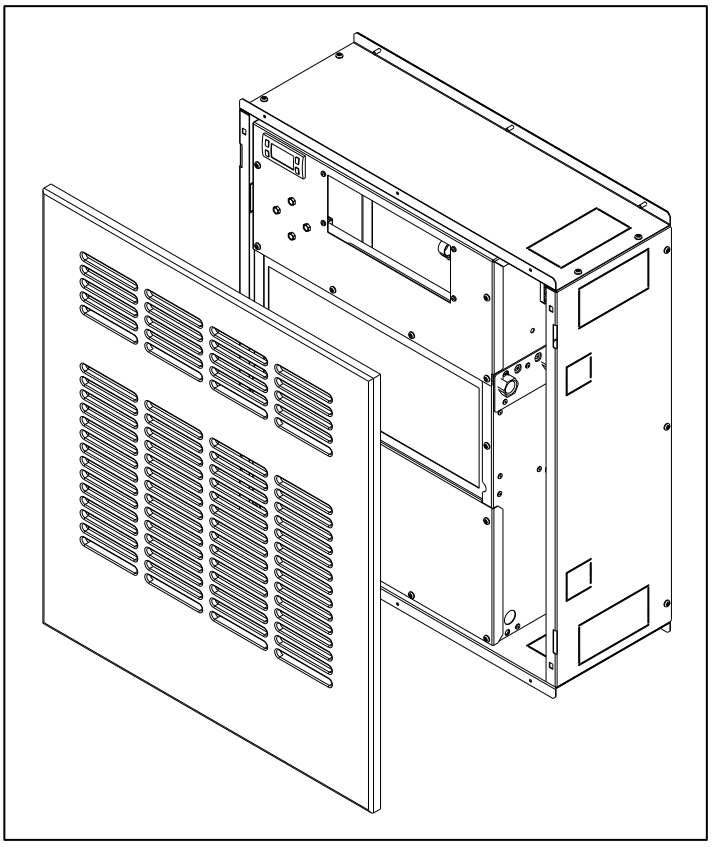
Serial connection: **A ➔ 1**
B ➔ 2

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 [OPTIONAL]





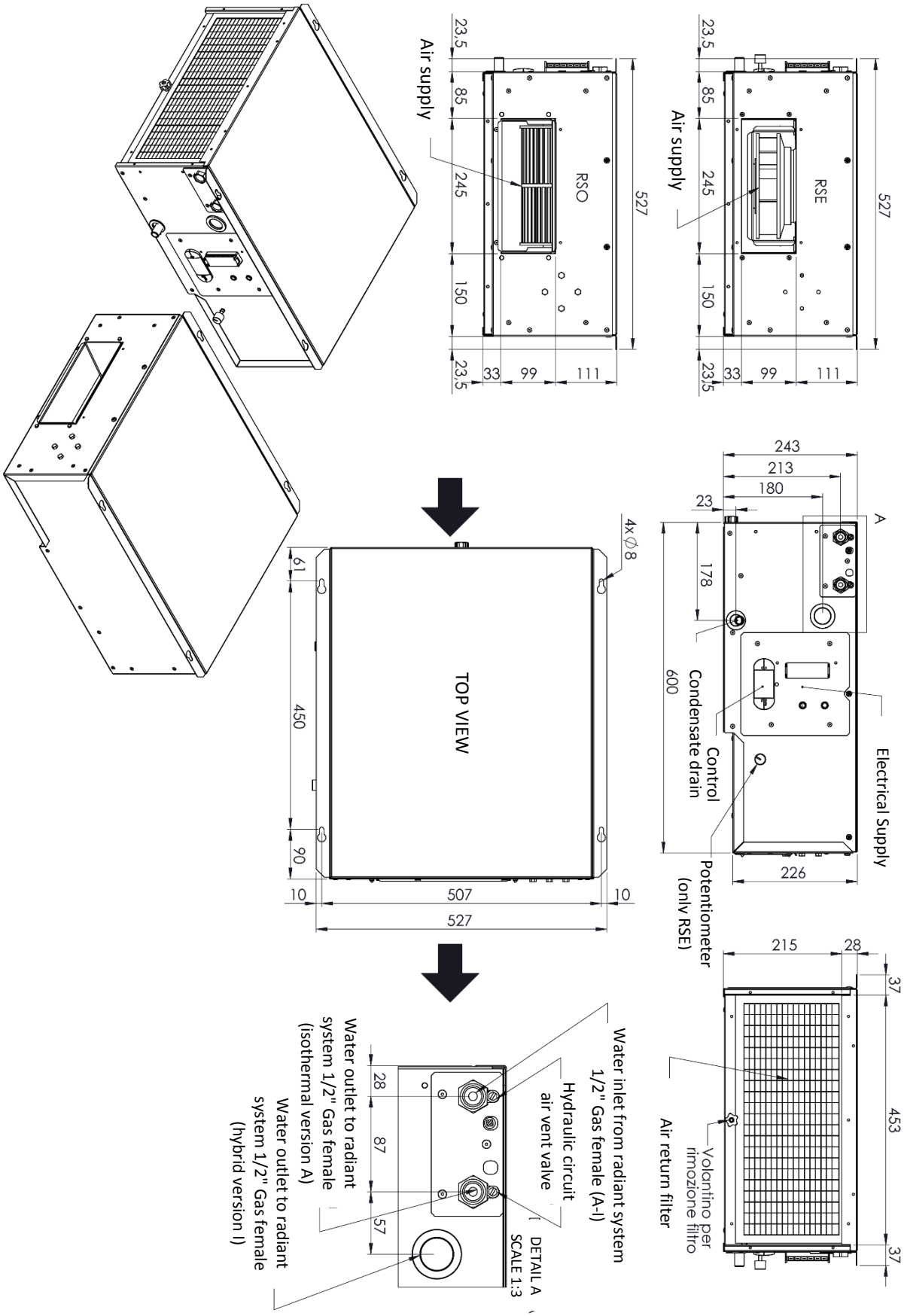
AVVERTENZA
CAUTION

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.

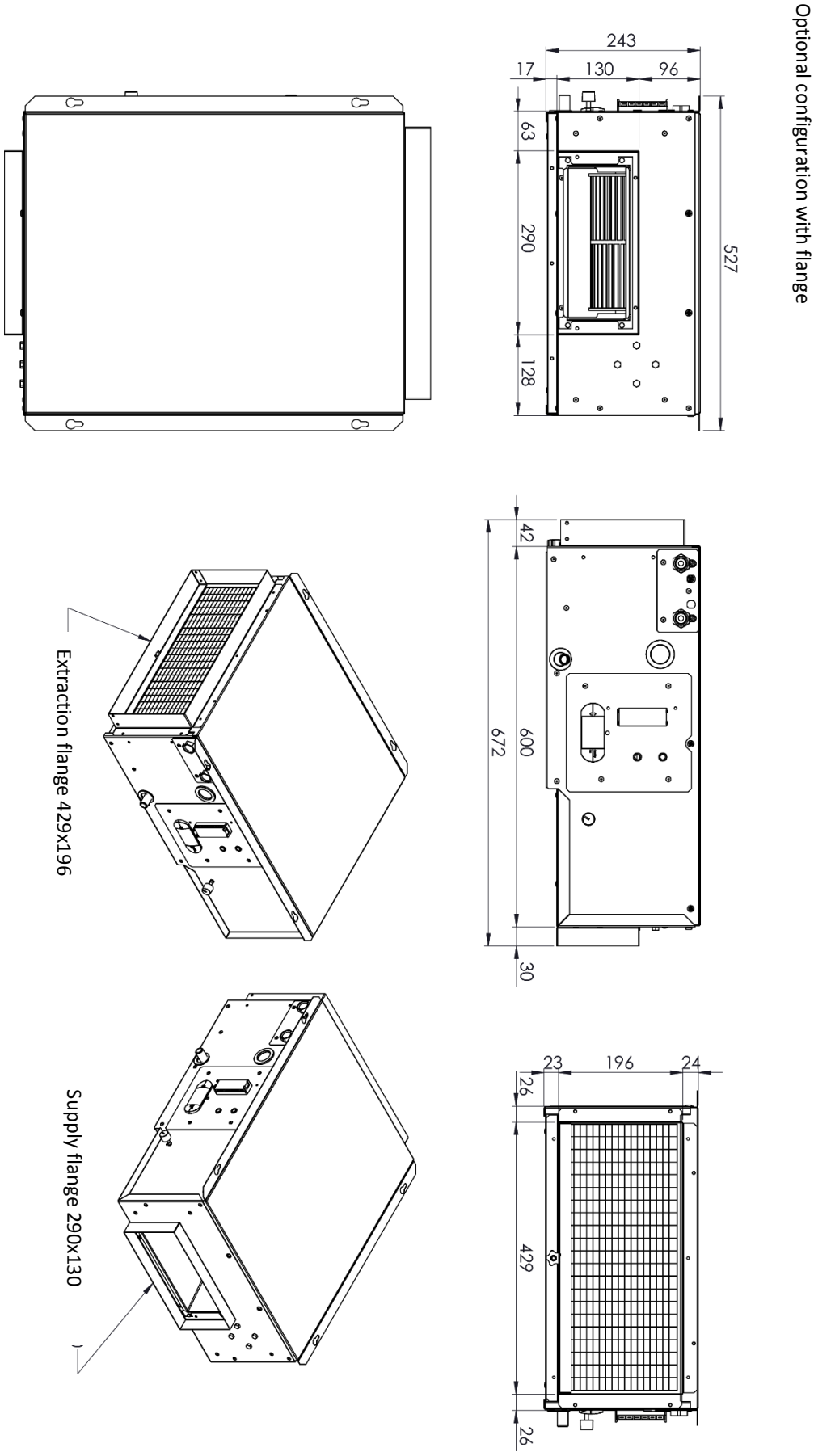
10 DIMENSIONAL DRAWINGS

10.1 RSO – RSE 020

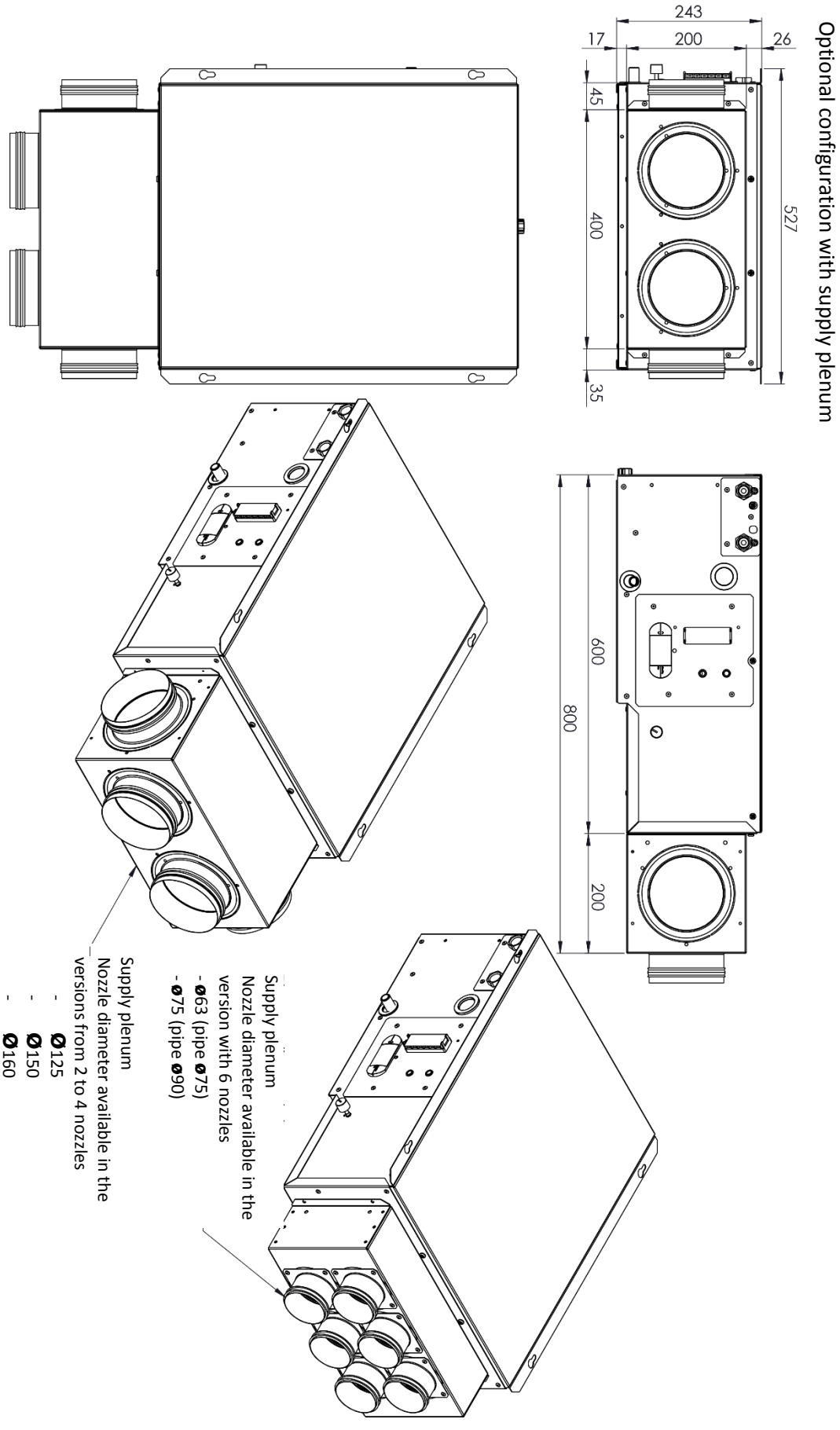
10.1.1 RSO – RSE 020 (all versions)



10.1.2 Extraction and supply flange RSO – RSE 020

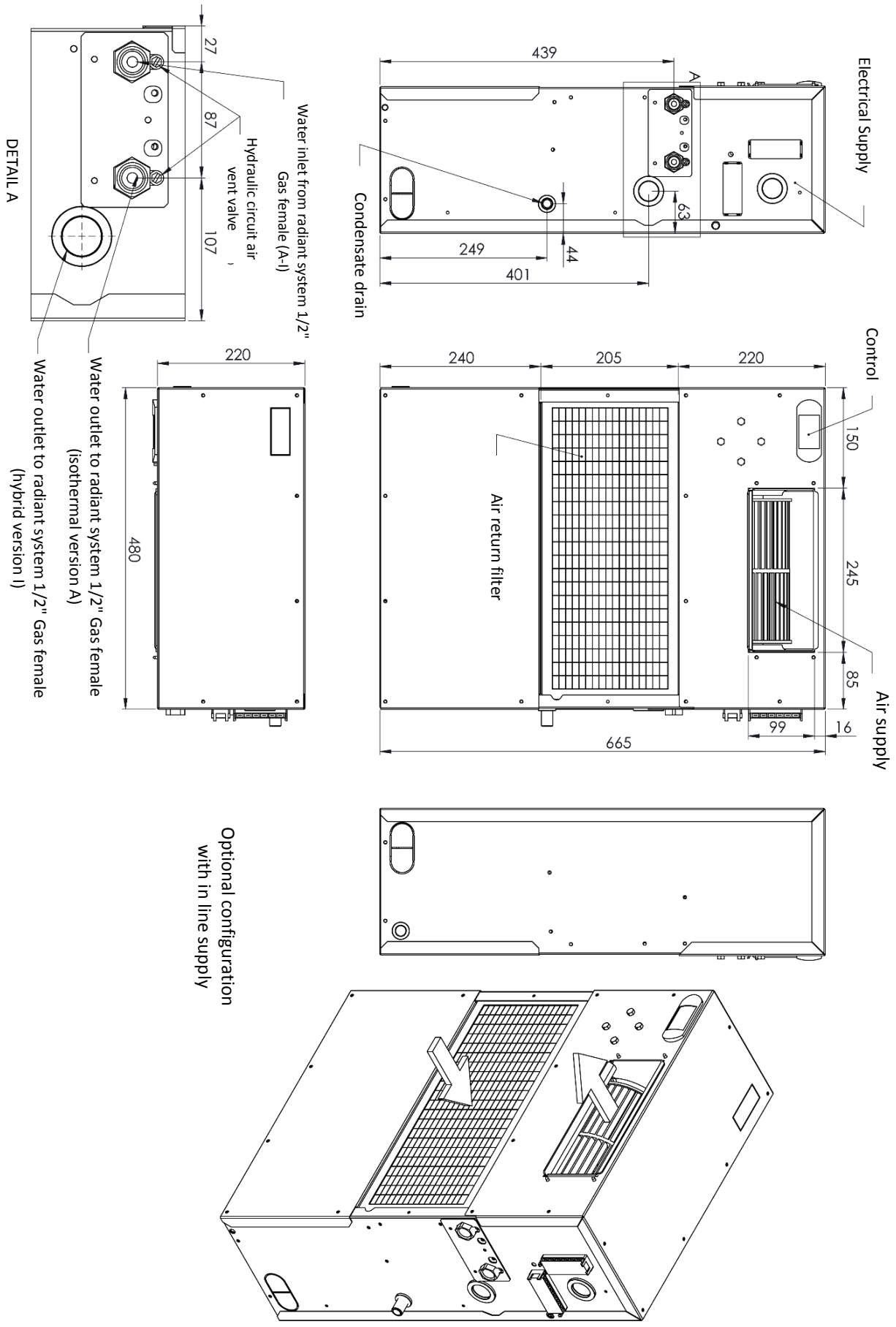


10.1.3 Supply plenum RSO – RSE 020

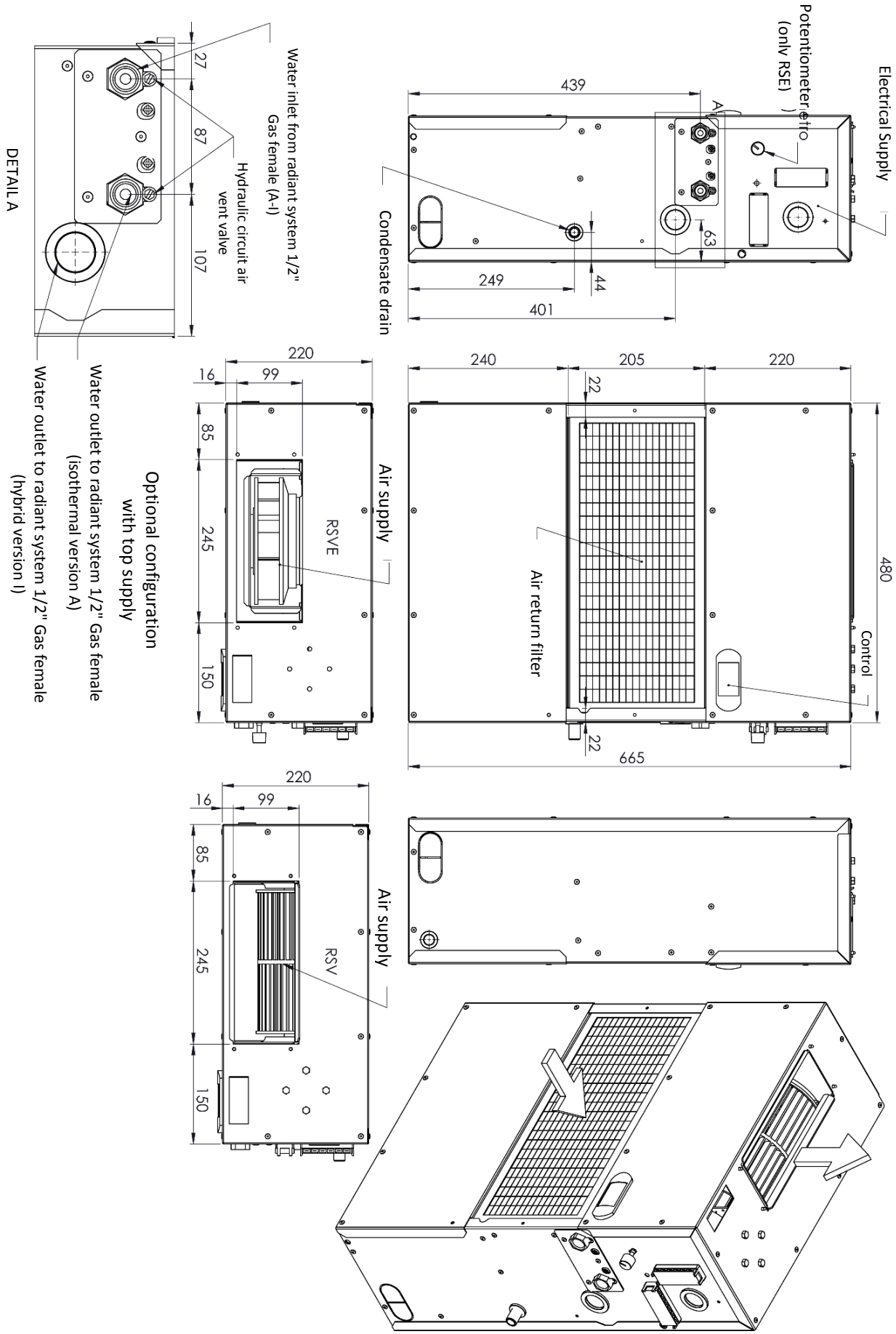


10.2 RSV – RSVE 020

10.2.1 RSV 020 in line supply (all versions)

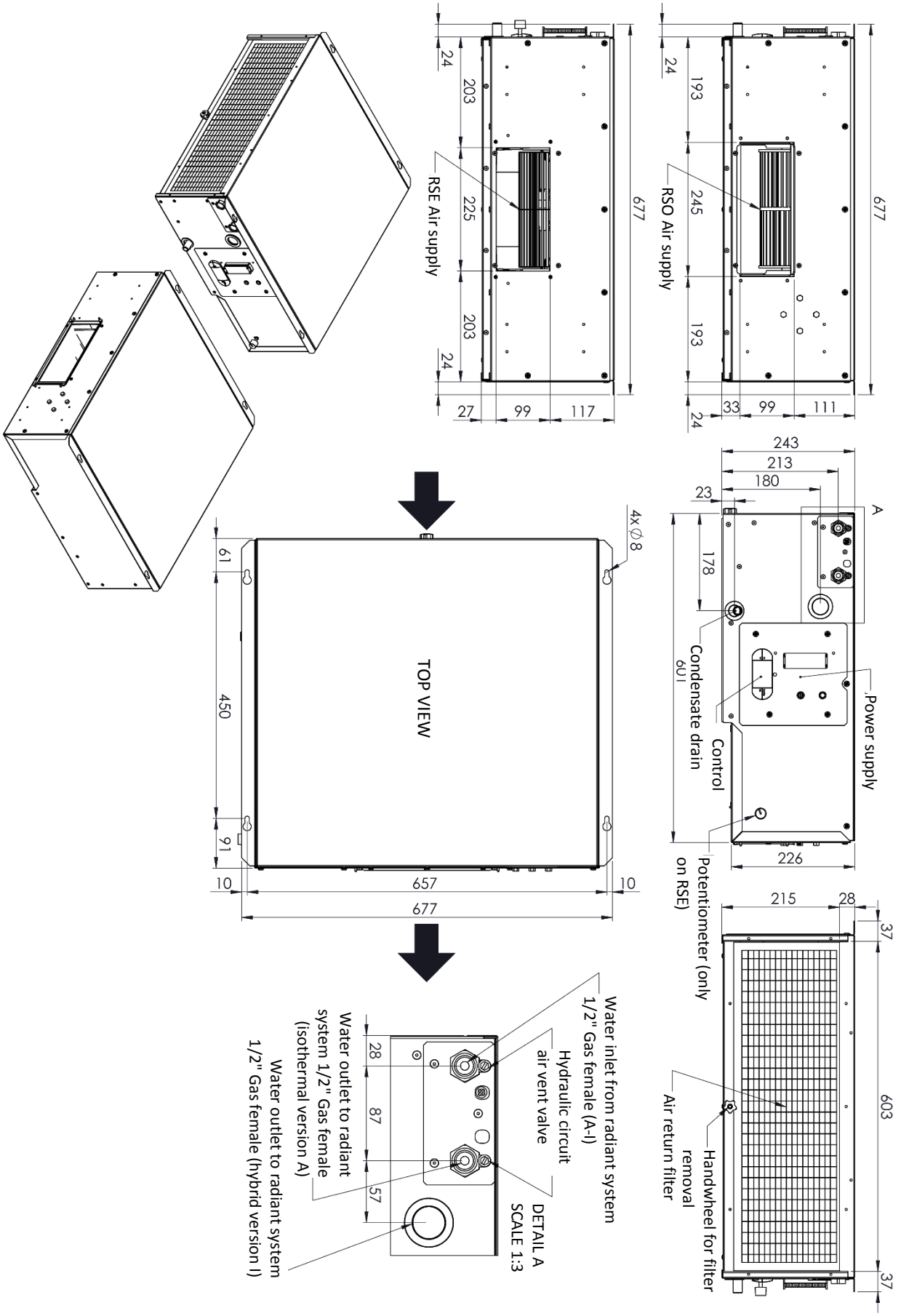


10.2.2 RSV – RSVE 020 top supply (all versions)

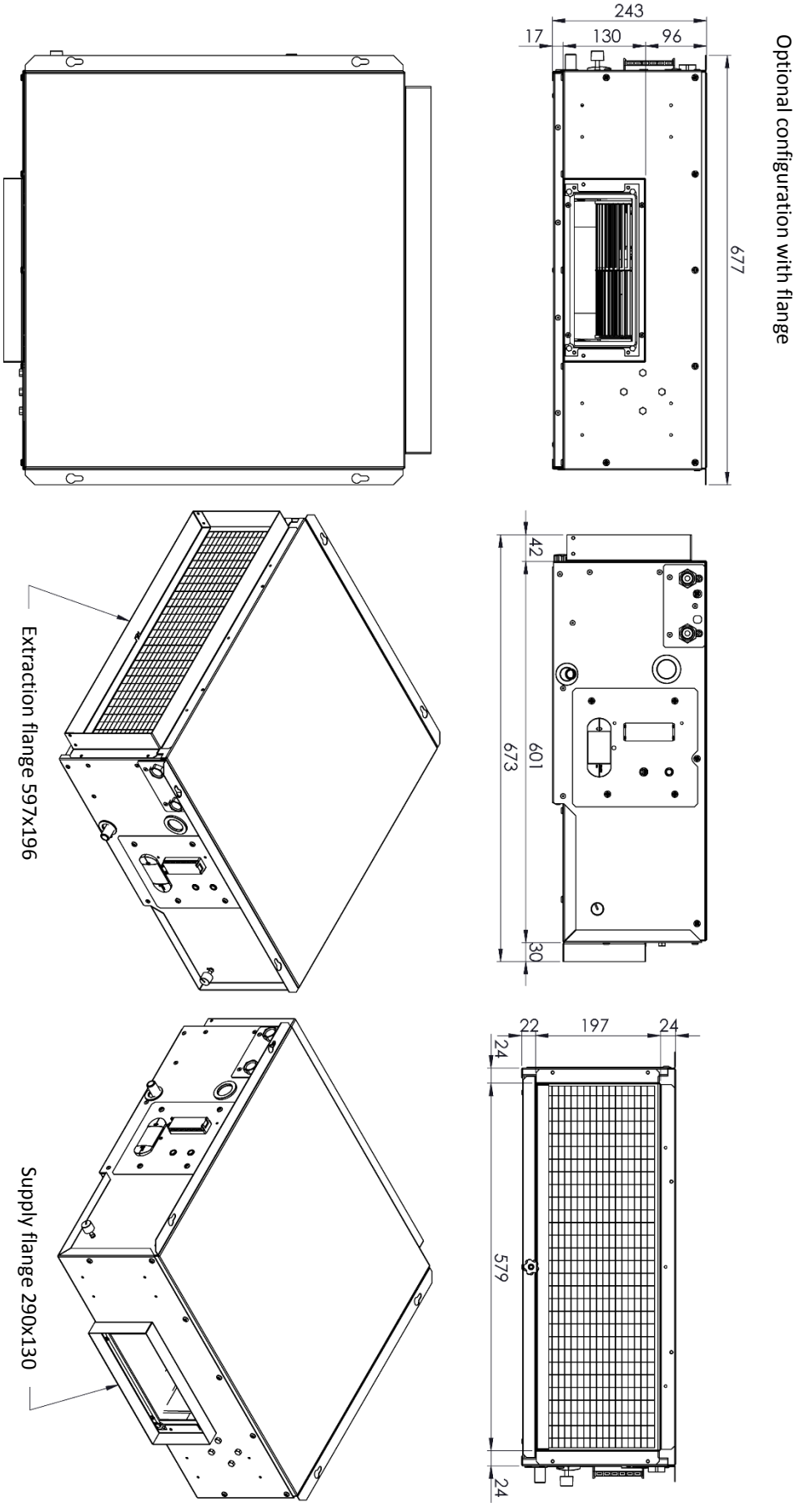


10.3 RSO – RSE 035

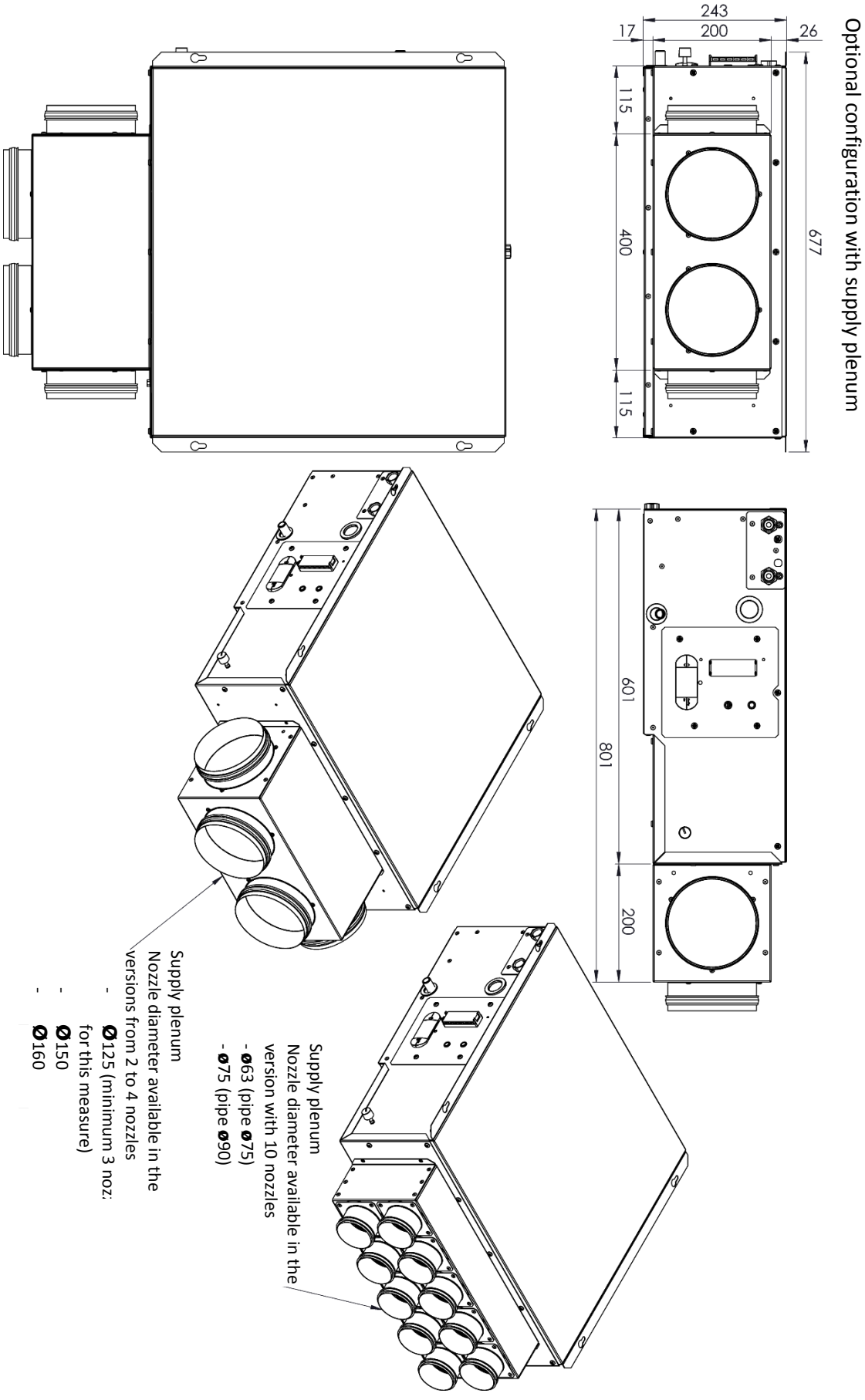
10.3.1 RSO – RSE 035 (all versions)



10.3.2 Extraction and supply flange RSO – RSE 035

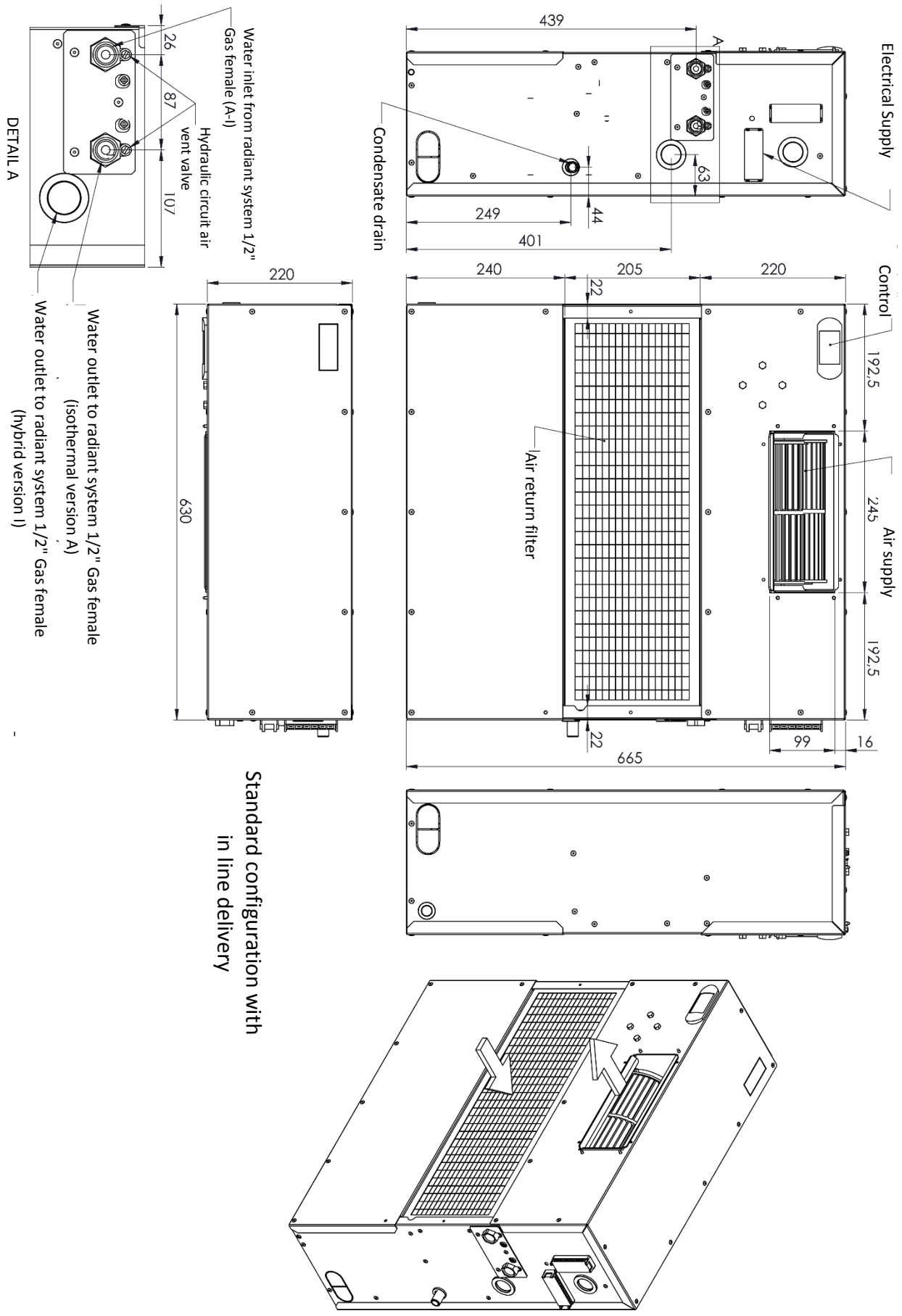


10.3.3 Supply plenum RSO – RSE 035

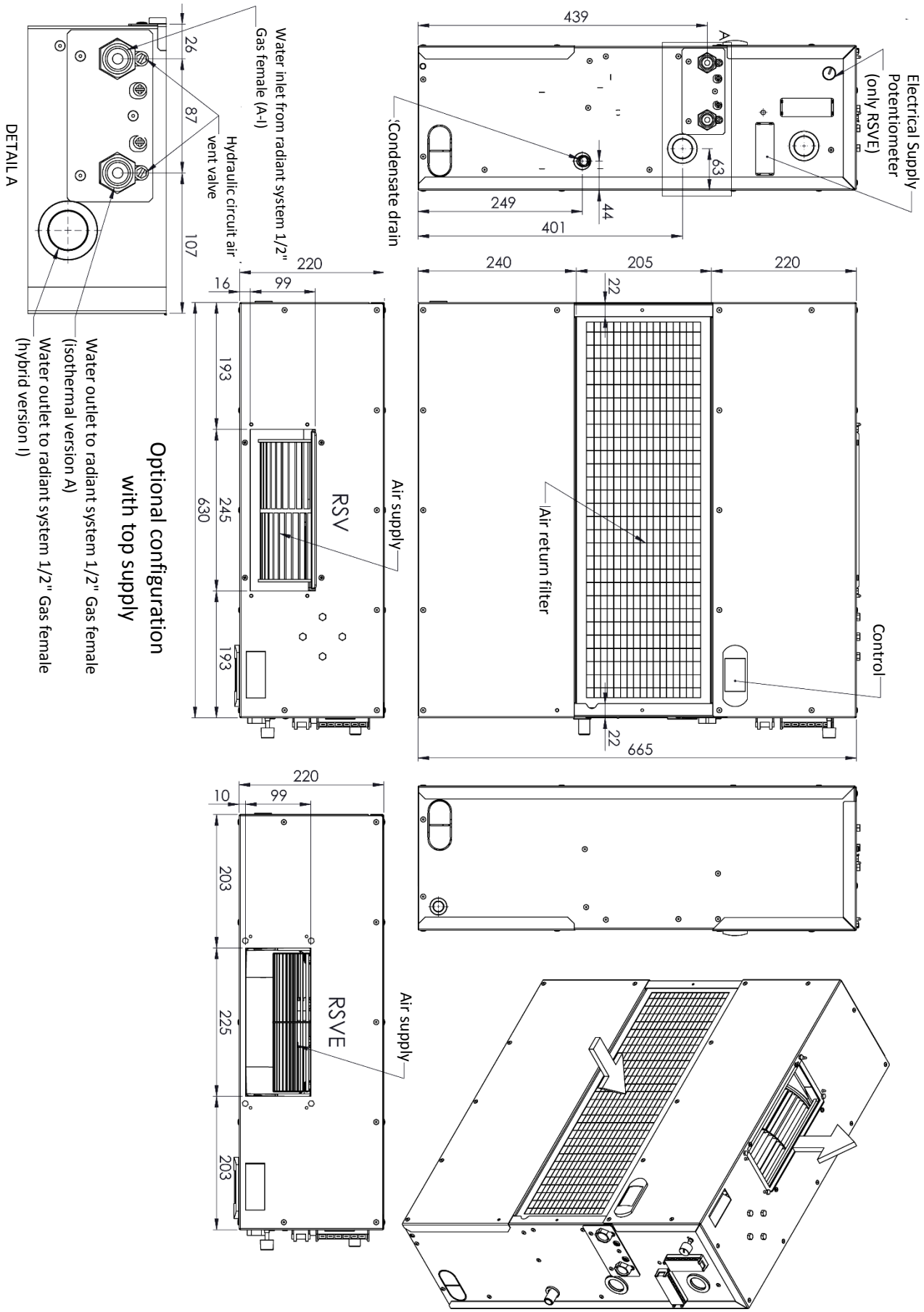


10.4 RSV – RSVE 035

10.4.1 RSV 035 in line supply (all versions)

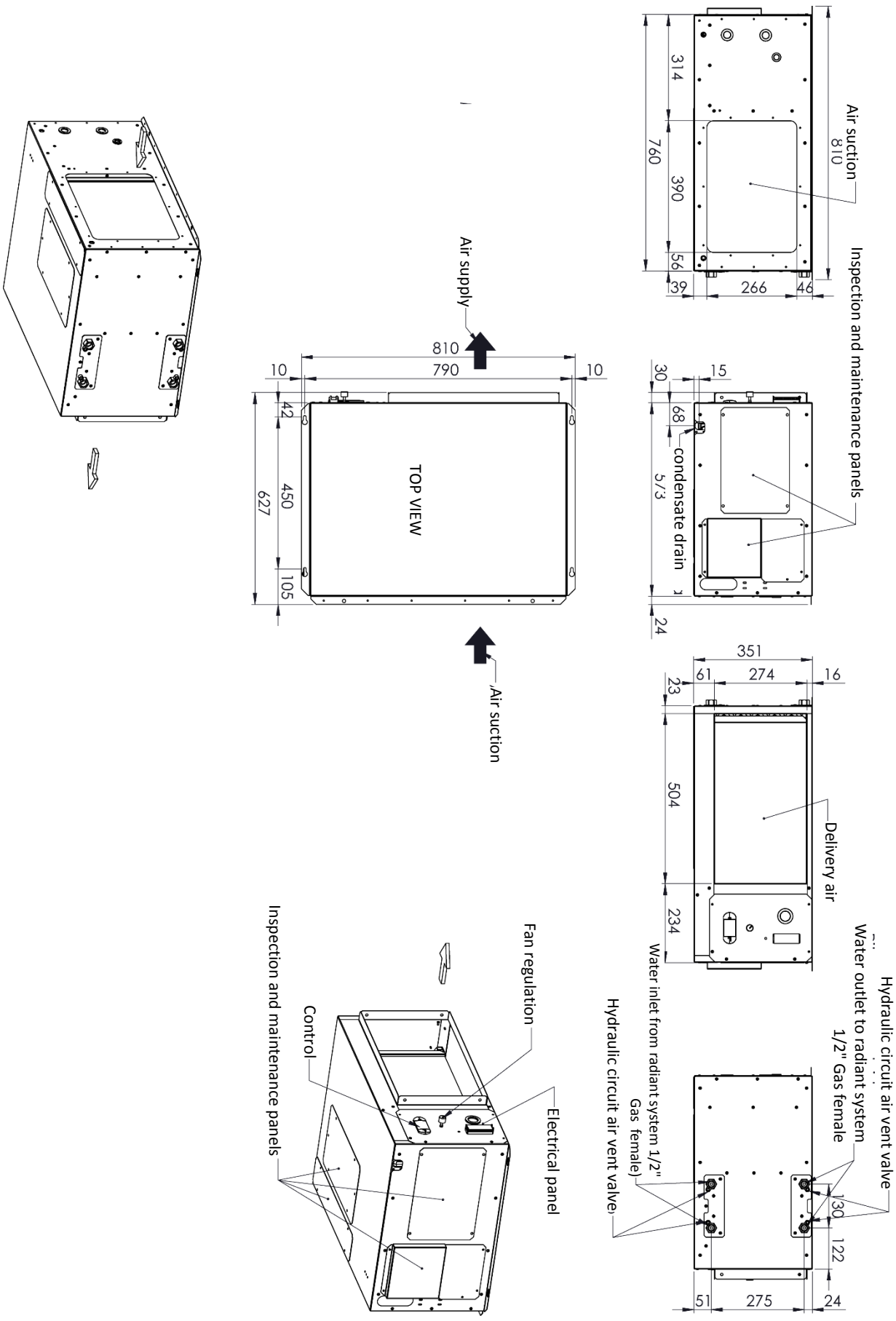


10.4.2 RSV – RSVE 035 top supply (all versions)

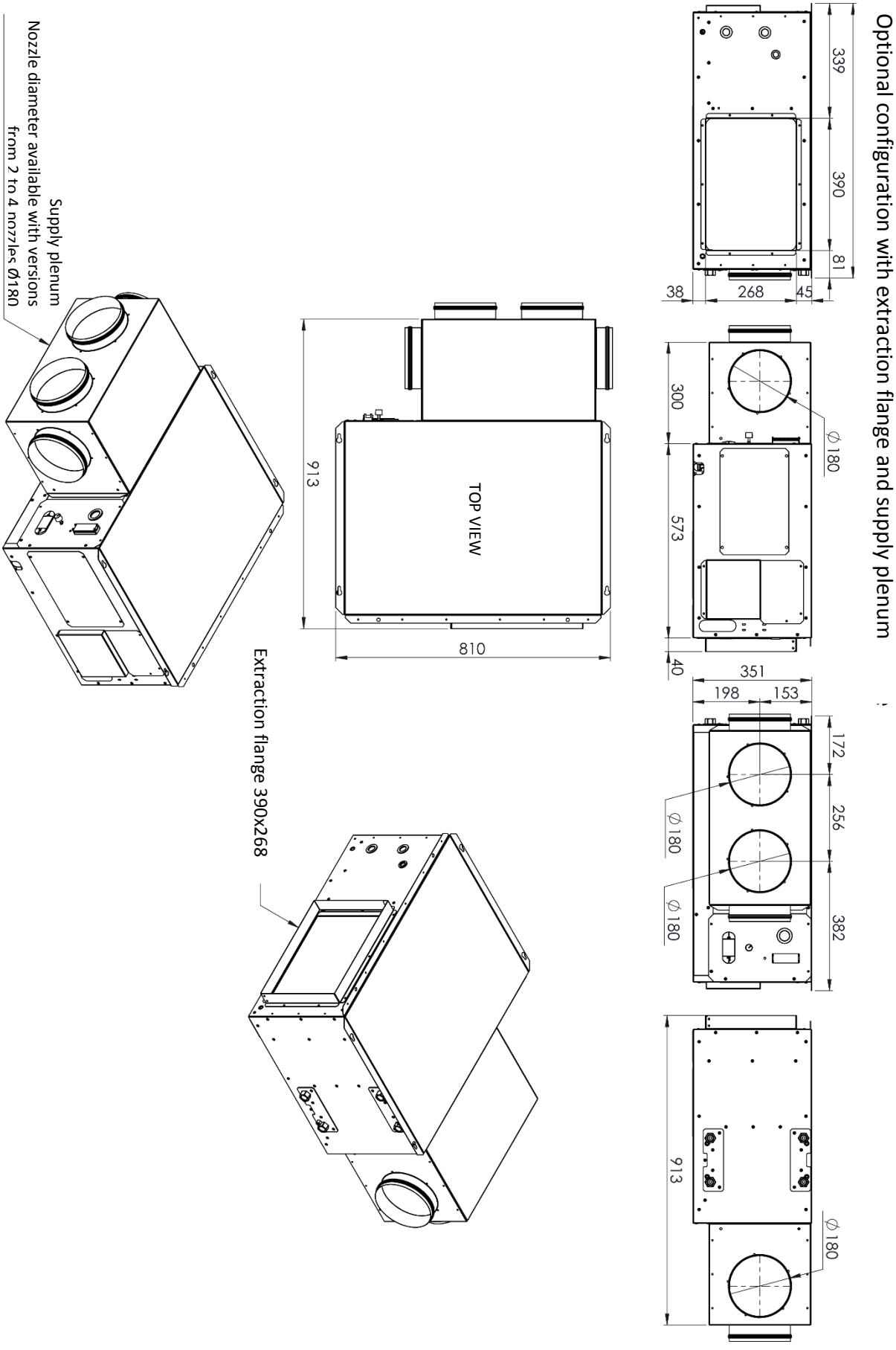


10.5 RSE 050

10.5.1 RSE 050

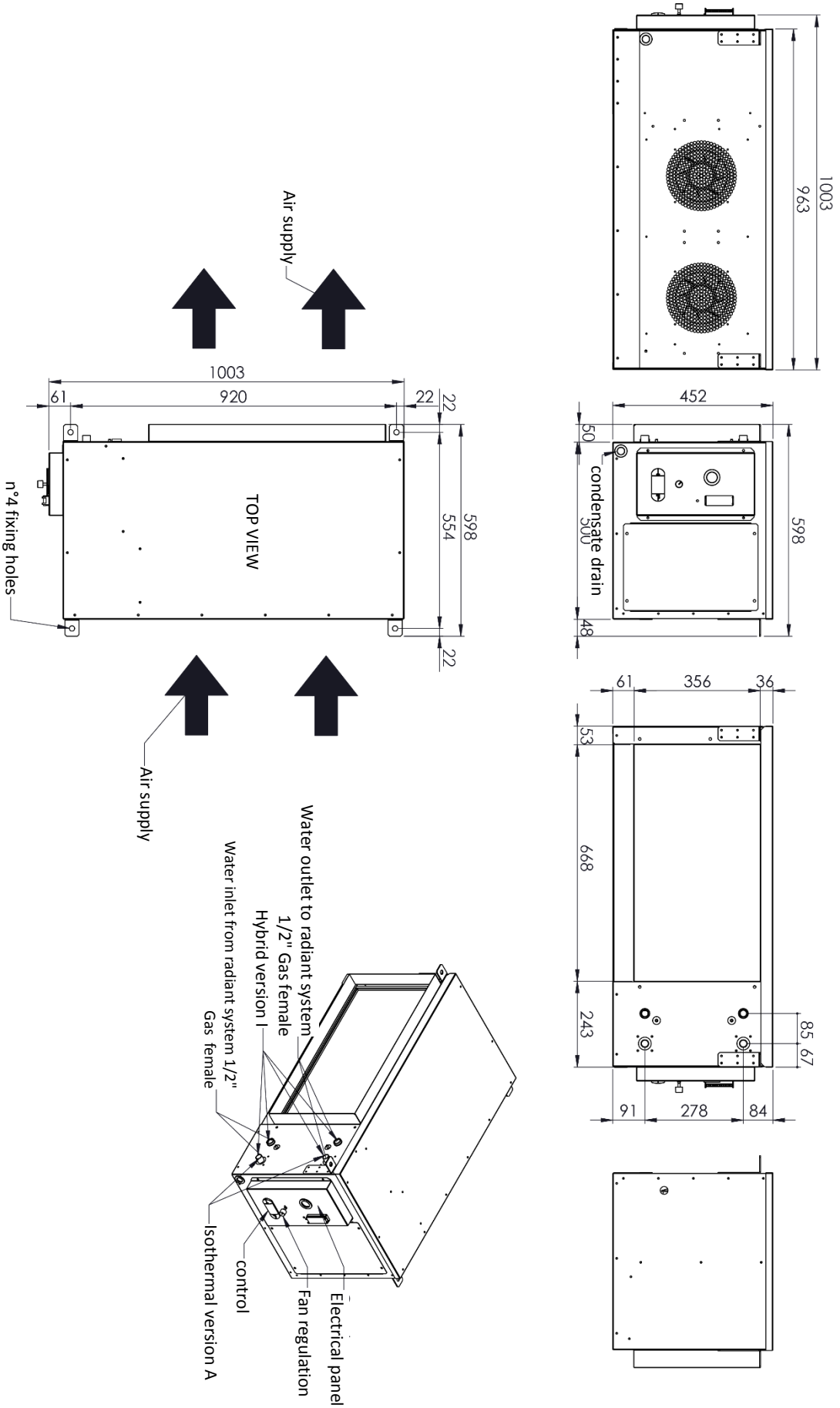


10.5.2 Extraction flange and supply plenum RSE 050



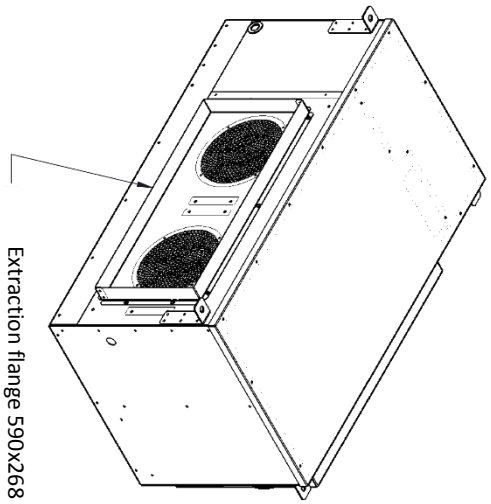
10.6 RSE 100

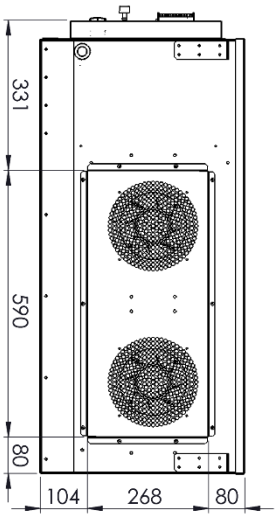
10.6.1 RSE 100

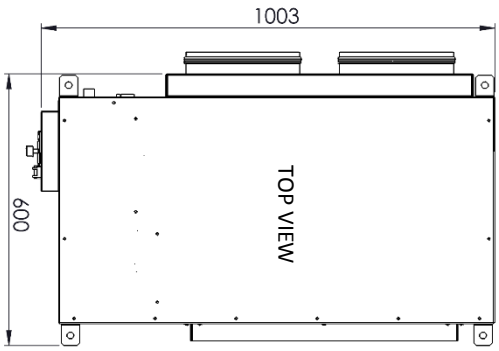


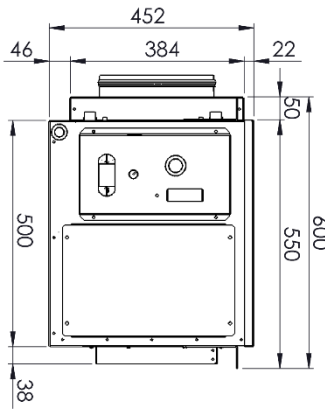
10.6.2 Extraction flange and supply plenum RSE 100

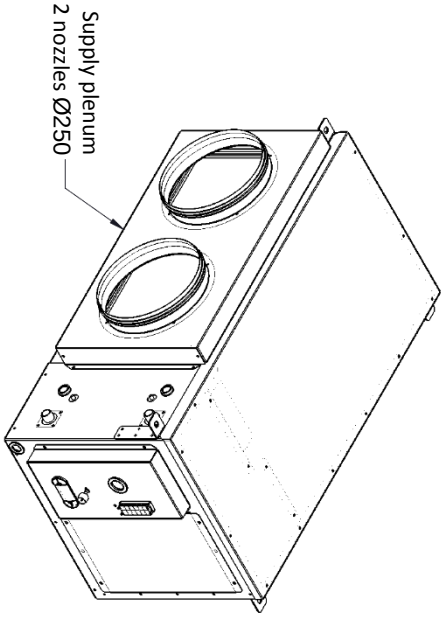
Optional configuration with extraction flange and supply plenum

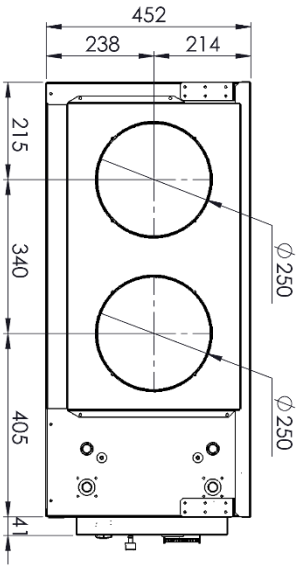






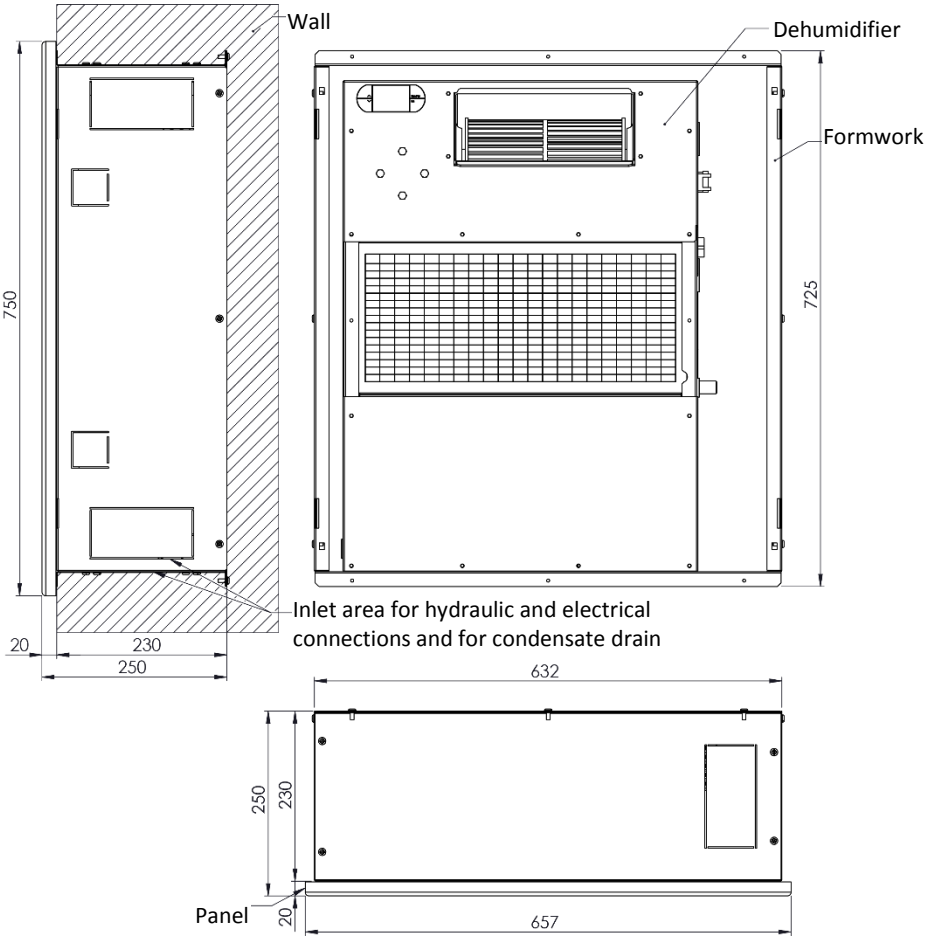


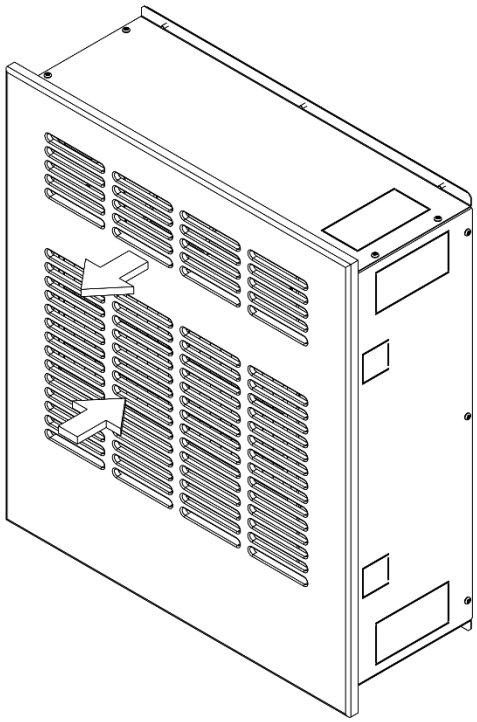




10.7 FORMWORK RSV – RSVE 020

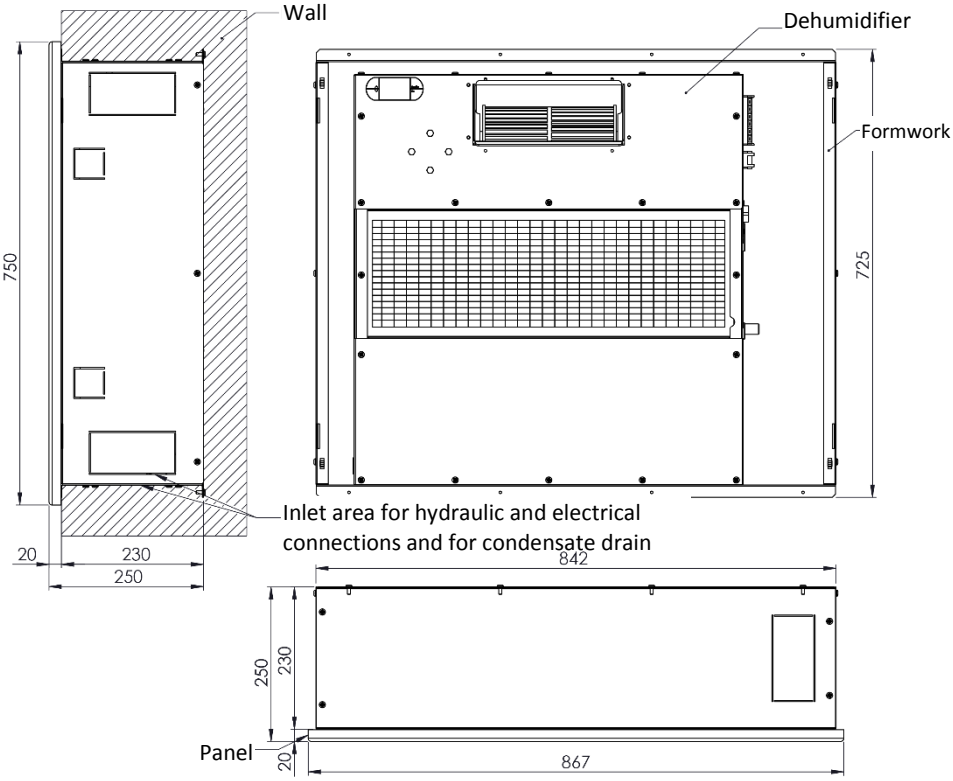
10.7.1 Formwork and wooden panel RSV – RSVE 020

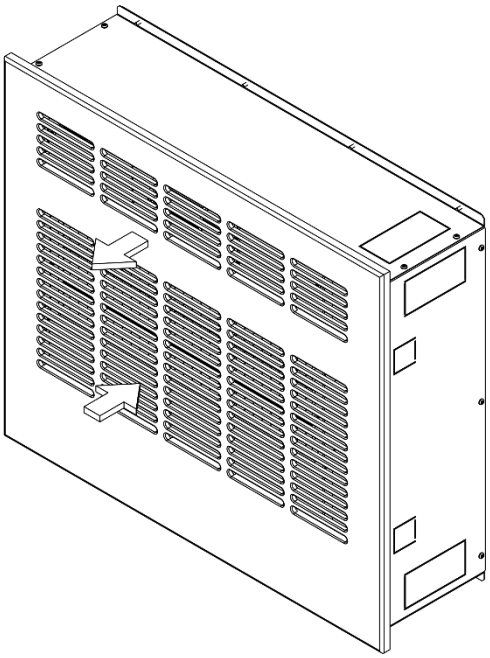




10.8 FORMWORK RSV – RSVE 035

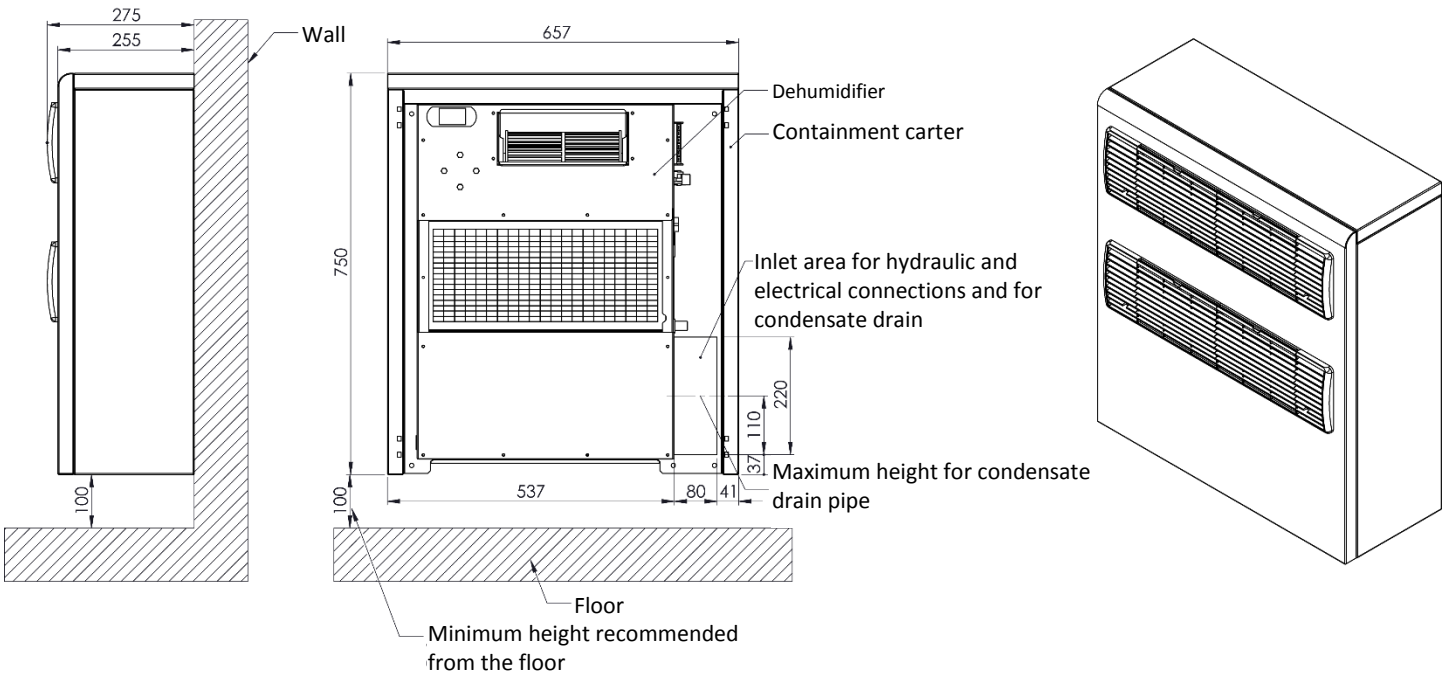
10.8.1 Formwork and wooden panel RSV – RSVE 035





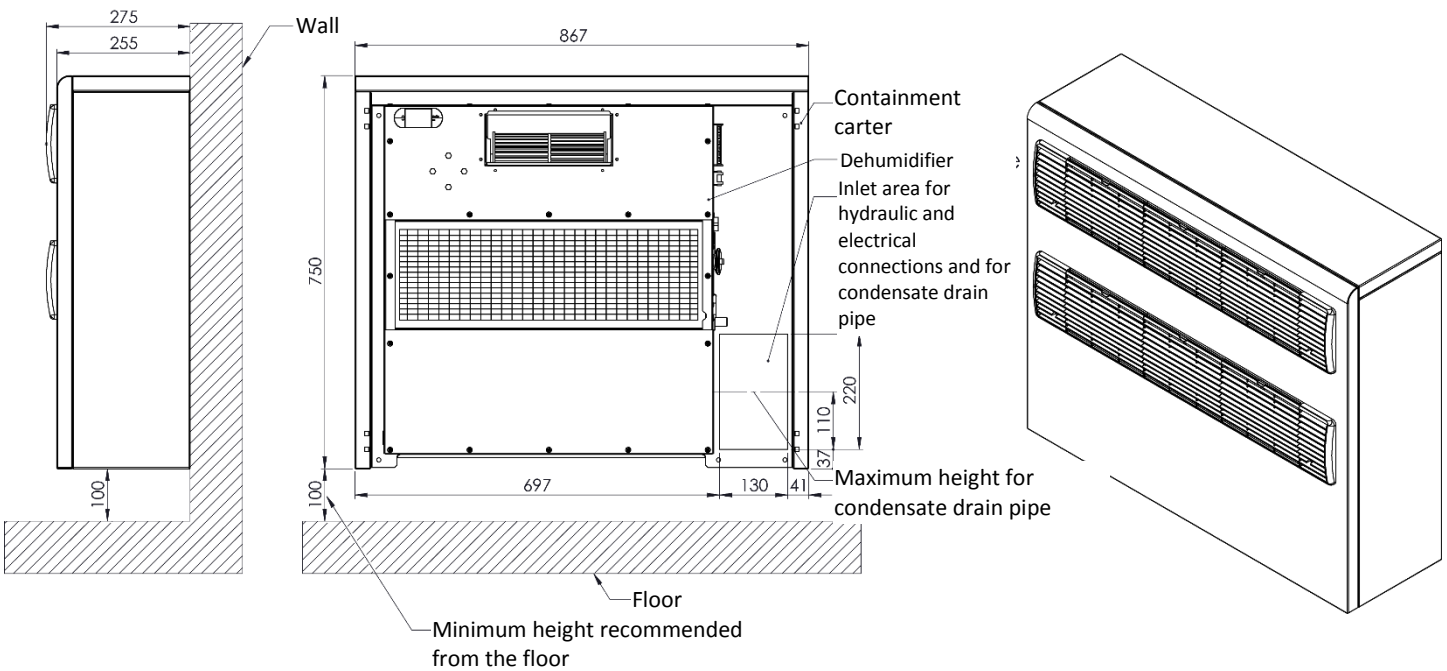
10.9 CARTER RSV – RSVE 020

10.9.1 Carter and painted steel panel RSV – RSVE 020



10.10 CARTER RSV – RSVE 035

10.10.1 Carter and painted steel panel RSV – RSVE 035



11 NOTES

HiDew S.r.l.
info@hidew.it - www.hidew.it

Operational Office:
Via dell'Artigianato, 5 - 35026 - Conselve (PD) – Italy
Tel +39 049 9502511
Registered Office:
Viale Spagna, 31/33 - 35020 - Tribano (PD) - Italy
Tel +39 049 9588511 - Fax +39 049 9588522