

# HiDew

Dehumidifiers

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**DDS** Exposed dehumidifier for swimming pools

**DCS** Piped dehumidifier for technical compartment  
installation of swimming pools

**DVS** Vertical exposed dehumidifier for swimming pools

**DOS** False ceiling installation horizontal dehumidifier for  
swimming pools

**INSTALLATION, USE AND  
MAINTENANCE MANUAL**

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# DDS – DCS – DVS - DOS

Dehumidifiers for small swimming pools



**AVVERTENZA**  
**CAUTION**

**READ THIS MANUAL CAREFULLY BEFORE USING THE UNIT**

Dear Customer,

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

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

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

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

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

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Dehumidifiers

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**SUMMARY**

<b>1</b>	<b>PREAMBLE .....</b>	<b>5</b>
1.1	RESPONSIBILITY.....	6
1.2	RULES FOR CORRECT OPERATION .....	6
1.3	SERVICE RULES.....	7
1.4	INTENDED USE.....	8
1.5	RESIDUAL RISK AREAS.....	8
1.6	INTERVENTION AND MAINTENANCE .....	9
1.7	GENERAL SAFETY RULES .....	10
<b>2</b>	<b>PRODUCT DESCRIPTION .....</b>	<b>11</b>
2.1	SERIES.....	11
2.2	INTERNAL COMPONENTS.....	12
2.3	STRUCTURE .....	12
2.4	FUNCTIONS.....	13
2.5	OPTIONS .....	13
2.6	OPERATING LIMITS.....	16
2.7	INSTALLATION INDICATIONS.....	16
2.8	REFRIGERATION AND HYDRAULICS CIRCUIT.....	16
2.9	ELECTRIC CIRCUITS .....	16
<b>3</b>	<b>CONTROL.....</b>	<b>17</b>
3.1	BUTTONS .....	17
3.2	MAIN PAGE .....	17
3.3	USER MENU.....	18
3.4	ALARMS MENU .....	21
3.5	UNIT STATUS MENU.....	21
3.6	TIME SLOT MENU .....	22
3.7	OTHER PAGES .....	23
<b>4</b>	<b>TECHNICAL DATA.....</b>	<b>24</b>
4.1	DDS - DCS TECHNICAL DATA TABLES.....	24
4.2	DVS TECHNICAL DATA TABLES.....	26
4.3	DOS TECHNICAL DATA TABLES .....	27
4.4	PERFORMANCE CURVES .....	28
4.5	FUNCTIONAL DIAGRAM .....	30
<b>5</b>	<b>AFTER-SALES.....</b>	<b>31</b>
5.1	TROUBLESHOOTING.....	31
5.2	MAINTENANCE TABLE .....	33
5.3	ORDINARY MAINTENANCE .....	34
5.4	EXTRAORDINARY MAINTENANCE .....	37
<b>6</b>	<b>DISMANTLING THE UNIT .....</b>	<b>38</b>
6.1	AMBIENT PROTECTION.....	38
6.2	WASTE FROM ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) .....	38
<b>7</b>	<b>INSTALLATION .....</b>	<b>39</b>
7.1	PREAMBLE .....	39
7.2	POSITIONING.....	40
7.3	HYDRAULIC CONNECTION.....	42
7.4	ELECTRICAL CONNECTION.....	43
7.5	FIRST START-UP, CALIBRATION AND CONFIGURATIONS.....	47
<b>8</b>	<b>DIMENSIONAL DRAWINGS.....</b>	<b>52</b>
8.1	DDS.....	52
8.2	DCS.....	54
8.3	DVS.....	59
8.4	DOS.....	65

# 1 PREAMBLE

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

The user manual must be read and used as follows:

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

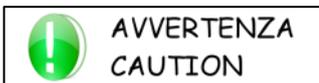
Pay the utmost attention to the following symbols. Their purpose is to highlight specific information such as:



*Hazardous situations that could occur while using the unit, in order to guarantee personal safety.*



*Hazardous situations that could occur while using the unit, in order to prevent damaging property and the unit itself.*



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

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

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

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

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

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

## 1.1 RESPONSIBILITY

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

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



- **failure to follow the instructions provided in this manual with regard to operation, use, maintenance and events, in any case unrelated to the normal and correct use of the unit;**

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

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

## 1.2 RULES FOR CORRECT OPERATION

Failure to observe the instructions given in this manual regarding operation, use, maintenance and all events related to the normal and correct use of the unit, will result in immediate invalidation of the warranty.

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

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

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

Install the unit in places where there is no risk of explosion, corrosion (near the sea), fire and where there are no vibrations and electromagnetic fields. It is also forbidden to operate in any other way than indicated and to neglect operations necessary for safety.

There are residual hazards present in some areas of the unit that could not be addressed in this design phase nor prevented by safety guards because of the characteristics of the unit. Each operator must be aware of the residual hazards present in this unit in order to prevent possible accidents.

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

Maintenance should only be performed by specialist personnel, with the unit disconnected from the power supply. Make sure that the unit is properly disconnected from the power supply.

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

Only qualified personnel must dismantle and demolish the unit.

### 1.3 SERVICE RULES

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

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

Rushed and incomplete training results in improvisation, which is the cause of many accidents.

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



**- the initial start up must be performed exclusively by qualified personnel authorised by the manufacturer;**

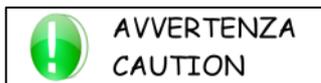
- when installing or servicing the unit, the rules indicated in this manual must be complied with, together with those on board the unit and, in any case, all necessary precautions must be taken;
- possible accidents to persons and property can be prevented by following these technical instructions with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

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

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

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

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



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

Please note that the European Union has issued certain Directives regarding health and safety of workers, including: Directive 89/391/EEC, 89/686/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 86/188/EEC, 92/58/EEC and 92/57/EEC, which every employer must comply with and enforce.

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

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

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

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

## 1.4 INTENDED USE

The DDS – DCS – DVS – DOS units are dehumidifiers for small swimming pools with exposed, on technical room and false ceiling installation, designed for use in all environments in which failure to control humidity can cause damage to the structure.

It is intended for use in swimming pools treated with chlorine, nor for use in salt swimming pools.

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



***Position the unit in environments where there is no danger of explosion, fire, where there are no vibrations or electromagnetic fields. It is also prohibited to operate in any way other than that stipulated or to disregard the required safety operations.***



**The units are designed for use on swimming pools or in places with a high presence of chlorine and other corrosive substances. It is extremely important to leave the unit always on in order to avoid the depositing of corrosive substances and therefore its probable damage.**

- The unit set to OFF from the display on the machine. After 180 minutes it will be reactivated in STAND BY operating mode (no air treatment, ventilation at minimum speed).
- The unit with dehumidification and inactive heating is factory set to keep the ventilation to a minimum.
- The unit will be switched off and disconnected necessarily for ordinary and extraordinary maintenance; it is good practice to perform maintenance, to power it up and to turn it back on as soon as possible.
- Do not stop the unit for seasonal breaks.



**All these indications are used to prevent the formation of chlorine deposits that could damage the unit.**



**The normal process of air dehumidification inevitably leads to heating of the same. It is advisable to take it into consideration the temperature of the pool environment.**

## 1.5 RESIDUAL RISK AREAS



***In some areas of the unit there are residual risks that could not be eliminated at the time of design or delimited with guards, given the particular functionality of the unit. Each operator must be aware of the residual risks present in this unit and must exercise the utmost care and appropriate precautions in order to prevent accidents.***

Residual risk areas:

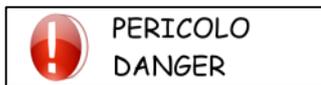
- risk of short circuit and fire caused by short circuit;
- risk of explosion due to the presence of pressurised circuits and risk of pollution due to the presence of refrigerant in the circuit;
- risk of burns due to the presence of very hot pipes;
- risk of shearing.

## 1.6 INTERVENTION AND MAINTENANCE

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

Carefully read the following recommendations:

- constant and precise preventive maintenance always guarantees the high operational safety of the unit. If there are some necessary maintenance interventions, do not delay them and make reference only to qualified operators and original spare-parts;
- schedule each task with care;
- The operators' working space should be clean and free in order to grant the necessary movements without dangers.
- Operators should avoid clumsy operations, in uncomfortable conditions which can compromise their balance.
- Operators must pay attention to the risk of clothing and/or hair being caught or entangled in moving parts. A cap should be worn to keep long hair in place.
- The use of chains, bracelets and rings can also be dangerous.
- Even the use of necklaces, bracelets and rings can be a danger. The working place should be correctly lit; insufficient or excessive lights can be a danger;
- wait approximately 30 minutes after switching the unit off before performing any maintenance in order to prevent burns;



- ***do not repair high pressure pipes with welds;***
- ***pressure liquids on the refrigerant circuits and the presence of electrical components can be dangerous during installation and maintenance operations;***

- reduce as far as possible the time of opening for the refrigerant circuit. Oil exposure to air causes the absorption of a high quantity of humidity and this leads to the creation of weak acids;
- only qualified personnel may perform work on the unit;
- before performing any kind of work or maintenance on the unit, make sure it has been disconnected from the power supply;
- make sure that safety devices work properly and that there is no uncertainty about their functioning; if not do not start the unit;
- use only tools prescribed by the unit manufacturer. In order to avoid personal injury, do not use worn or damaged, low quality or improvised tools;



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

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

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

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

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

## 1.7 GENERAL SAFETY RULES

### 1.7.1 Protective clothing

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



### 1.7.2 FIRE EXTINGUISHER AND FIRST AID

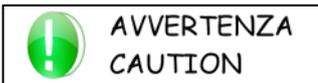
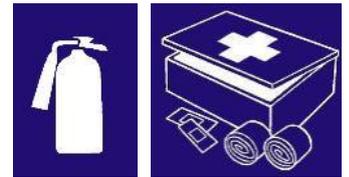
Place a first aid box and a fire extinguisher near the unit.

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

If a fire breaks out, use the fire extinguisher according to the relative regulations in force and contact the fire brigade.

Periodically check that the first aid kit is complete.

Make sure the emergency telephone numbers are readily available and nearby.



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

### 1.7.3 Suggestions for advice and maintenance

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

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



### 1.7.4 SAFETY DATA PLATE



Generic hazard



Electric voltage hazard



Burn hazard



Moving mechanical parts hazard



Shear hazard

## 2 PRODUCT DESCRIPTION

The dehumidifiers of the DDS, DCS, DVS and DOS series are designed for use in small pools with a high latent load where 24-hour operation is required. Even if the typical installation of this product is inside private swimming pools, the technical characteristics of the DDS, DCS, DVS and DOS dehumidifiers also allow their use in other environments such as in underground rooms, museums, libraries, archives, places of religious worship, warehouses and in general where the formation of condensation and humidity can cause damage to the structure or to the product or could simply create discomfort.



The DDS, DCS, DVS and DOS dehumidifiers combine cutting-edge technical solutions with elegant but understated aesthetics, so they can also be easily inserted in prestigious environments characterised by a refined design.

The exclusive use of top quality components in the refrigeration, hydraulic, aeraulic and electrical components make the DDS, DCS, DVS and DOS units of the dehumidifiers state of the art in terms of efficiency, reliability and sound power output. The DDS, DCS, DVS and DOS dehumidifiers have been designed to be easily inspected and to make ordinary and extraordinary maintenance quick and easy.

A large number of accessories also makes it possible to meet any type of request, and if the standard range and available accessories are not sufficient to meet the customer's needs, the Company is available to create specific solutions.

The range of DDS, DCS, DVS and DOS dehumidifiers consists of 36 models ranging from 350 to 2000 m3/h and from 46 to 290 litres of moisture removed per day, and is placed on the market as a reference point due to the high number of sizes available, the extension in terms of air flow and dehumidification capacity and the pleasant design.

### 2.1 SERIES

There are 36 models to choose from, classified by model and dehumidifying performance  
The numeric value indicates the dehumidification capacity in litres per day

#### 2.1.1 DDS

<b>040</b>	<b>050</b>	<b>060</b>
<b>070</b>	<b>090</b>	<b>100</b>
<b>160</b>		<b>190</b>
<b>210</b>	<b>230</b>	<b>300</b>

#### 2.1.2 DCS

<b>040</b>	<b>050</b>	<b>060</b>
<b>070</b>	<b>090</b>	<b>100</b>
<b>160</b>		<b>190</b>
<b>210</b>	<b>230</b>	<b>300</b>

2.1.3 **DVS**

<b>050</b>	<b>070</b>	<b>090</b>	<b>100</b>
<b>160</b>	<b>190</b>	<b>210</b>	<b>230</b>

2.1.4 **DOS**

<b>050</b>	<b>070</b>	<b>090</b>	<b>100</b>
<b>160</b>	<b>190</b>	<b>210</b>	<b>230</b>

**2.2 INTERNAL COMPONENTS**

2.2.1 **Refrigerant circuits**

The refrigeration circuit is made entirely at the Company using only high quality components. Production processes are performed by specialist personnel. Each unit is assembled, welded, wired and tested entirely in-house, guaranteeing high product reliability. The range complies with Directive 97/23/EC. All machines are made with ecological R410a gas.

Refrigerant components:

- Compressors: rotary or scroll type of a leading international brand. The motors are thermally protected by an internal protection that controls the temperature of the windings and disables the power supply where required.
- Molecular sieve dehydrator filter.
- Laminating element or thermostatic valve based on the size of the model.
- Liquid indicator.
- High pressure switch.
- Schrader valves for the control of operating pressures and/or for maintenance of the refrigeration circuit.
- Heat exchanger batteries painted to withstand the corrosive atmosphere of swimming pools.

2.2.2 **Ventilation**

For the DDS and DCS models, multi-speed double-suction centrifugal fans with plastic impeller and fan are used as standard (excluding sizes 210 - 230 - 300) for greater resistance to corrosion and for a significant reduction in the noise emitted in the environment to the full advantage of acoustic comfort.

For the DVS and DOS models and optionally for the DDS and DCS models, single suction electronic centrifugal fans with plastic impeller and fan are used for greater resistance to corrosion and for a significant reduction in the noise emitted in the environment to the benefit of acoustic comfort.

**2.3 STRUCTURE**

The unit is made with an exclusive design that, with the machine closed, ensures inaccessibility to all the components.

Removable front panel for complete accessibility to the unit to guarantee simple and quick maintenance.

Screws and fixing systems in non-oxidisable materials, stainless steel or carbon steels with passivation surface treatments.

Condensate collection basin in stainless steel. Carpentries entirely painted with polyester powders as protection against corrosion. Heat exchangers created with anti-corrosion paint treatments.

## 2.4 FUNCTIONS

The DDS, DCS, DVS and DOS units are equipped with a powerful control with graphic display and on-board temperature and humidity probes that make the dehumidifier completely autonomous in terms of reading and managing temperature and humidity.

The control consists of a card with programmable microprocessor and a graphic display that allows a large number of functions and options that can be easily managed thanks to a simple, complete and intuitive interface.



The dehumidifier management software is entirely developed in the company by highly specialist technicians. The Control display can be remoted up to 20m away and, thanks to the temperature and humidity probe on the machine, it can manage temperature, humidity and machine stand-by time slots.

*Personalised software is available on request in special version.*

Below are all the control functions:

- Display of unit operating status and/or alarms
- Temperature and humidity probe on the machine
- Low evaporation pressure protection probe
- Management of 3 ventilation speeds in dehumidification, recirculation and heating
- Stand-by time slot management
- Time slot temperature management
- Time slot humidity management
- Alarm history management
- Automatic static defrost management
- Automatic hot gas defrost management
- Digital output for generic alarm
- Backlit graphic display
- Possibility to remote the display for a wall positioning

## 2.5 OPTIONS

	DDS	DCS	DVS	DOS
Hot water coil with 3-way valve	OPTIONAL			
Electric heating elements	OPTIONAL			
Neutral air dehumidification function	OPTIONAL			
Finned coils with epoxy treatment	OPTIONAL			
EC modulating electronic fan	OPTIONAL		SERIES	
Hot gas defrost	OPTIONAL			
Silenced version with soundproofing of the compressor	OPTIONAL			
Display remote kit (10 or 20 m)	OPTIONAL		-	
RS485 Modbus serial card	SERIES			
Remote display with cable (2m)				SERIES
Support feet kit for floor installation	OPTIONAL	-	-	-
Rear cover	OPTIONAL			
Wall crossing plenum kit (2 pcs)	-	OPTIONAL	-	-
Air supply and return plenum (2 pcs)	-	OPTIONAL	-	-
Supply and return air grilles (2 pcs)	-	OPTIONAL	-	-
Supply plenum with nozzles (1 pcs)	-	OPTIONAL	-	-
Air intake plenum 90° (1 pcs)	-	OPTIONAL	-	-
Display assembled on board	-	-	OPTIONAL	-
Upwards supply rectangular flange kit	-	-	OPTIONAL	-
Rear supply rectangular flange kit	-	-	OPTIONAL	-
Remote display cable (5, 10 or 20 m)	-	-	OPTIONAL	
High efficiency filter	-	-	-	OPTIONAL
Circular channel supply flange kit	-	-	-	OPTIONAL
Circular channel return flange kit	-	-	-	OPTIONAL
Replacement filter	OPTIONAL			
Wood Cage	OPTIONAL			

### 2.5.1 Hot water coil with 3-way valve

It consists of a hot water post-heating coil and a 3-way valve directly controlled by the unit which have the purpose of heating the supply air thanks to the hot water arriving from a boiler or from a heat pump. The unit is supplied with a coil and valve already assembled and wired.

*For the position of the water connections, refer to the dimensional drawings.*

### 2.5.2 Electric heating elements

They allow supply air heating when no hot water is available. Safety is guaranteed by a thermostat that in the event of overheating disables the heating elements and signals the alarm. The unit is supplied with the electric heating elements already assembled inside.

### 2.5.3 Neutral air dehumidification function

The neutral air dehumidification function allows the supply air to be cooled so that the room is dehumidified with neutral air. The neutral air function is only available in conjunction with the Hot Water Coil option with 3-way-valve.

### 2.5.4 Finned coils with epoxy treatment

Epoxy treatment consists of painting the coils with epoxy powder to prevent corrosion due to use in aggressive environments.

### 2.5.5 EC modulating electronic fan

The fans assembled inside the unit will be modulating EC brushless type.

### 2.5.6 Hot gas defrost

It consists of a gas valve which injects hot gas into the evaporating coil allowing rapid defrosting and extending the dehumidifier application limit.

### 2.5.7 Silenced version with soundproofing of the compressor

It allows the noise emitted by the compressor to be decreased and thus makes the dehumidifier particularly silent. It consists of a sound absorbing mat in the compressor compartment that attenuates the noise emitted by the compressor.

### 2.5.8 Display remote kit (10 or 20 m)

It is used to move the unit's display to a position that is more comfortable for the user.

It consists of a 10 or 20 meter cable ready for connection and a cover for the display hole on the unit.

### 2.5.9 Remote display with cable (2m)

Available for DOS units only, this kit consists of a display (intended to be wall mounted) and a 2-meter long shielded 2-wire cable. More information on request.

### 2.5.10 RS485 Modbus serial card

The RS485 modbus connection is made available for remote or home automation system supervision.

*Further information available on request.*

### 2.5.11 Support feet kit for floor installation

Only in combination with the DDS version, they allow the unit to rest on the floor avoiding wall mounting. Required in all those situations where the wall cannot support the weight of the unit.

### 2.5.12 Rear cover

Only in combination with the DDS version, they allow the unit to rest on the floor avoiding wall mounting. Required in all those situations where the wall cannot support the weight of the unit.

### 2.5.13 Wall crossing plenum kit (2 pcs)

Only in conjunction with the DCS version, this accessory can be supplied which allows installation of the unit on a wall adjacent to the room to be dehumidified. The channels must be cut to size during assembly (they are suitable for walls of up to 300 mm) and must be inserted inside the wall.

### 2.5.14 Air supply and return plenum (2 pcs)

Only in conjunction with the DCS version, this accessory can be supplied which allows installation of the unit on a wall adjacent to the room to be dehumidified. The plenums should be fixed on the unit with the air flows towards the wall.

### 2.5.15 Supply and return air grilles (2 pcs)

Only in conjunction with the DCS version, this accessory can be supplied which allows installation of the unit on a wall adjacent to the room to be dehumidified. The grids must be inserted in the crossing channels from the room to be dehumidified. They are in anodised aluminium with fixed fins and are characterised by a pleasant, elegant but understated design.

**2.5.16 Supply plenum with nozzles (1 piece)**

Only in combination with the DCS version, this plenum allows the unit to be ducted (in supply) with a varying number of spiral tubing, depending on the size and dimensions of the unit itself.

More information on request.

**2.5.17 Air intake plenum 90° (1 piece)**

Only in combination with the DCS version, this plenum that allows the ducting to be oriented by 90°.

**2.5.18 Display assembled on board**

Only in combination with the DVS version, the machine has a dedicated front panel that houses the unit's display.

**2.5.19 Upwards supply rectangular flange kit**

Only in combination with the DVS version, the machine is fitted with a dedicated panel that directs the supply air upwards.

**2.5.20 Rear supply rectangular flange kit**

Only in combination with the DVS version, the machine is fitted a dedicated panel that directs the supply air behind the machine.

**2.5.21 Display remoting cable (5, 10 or 20 m)**

A shielded 2-wire cable with a length of 5, 10 or 20 meters is provided, already prepared and adjusted for connection between the machine and the wall display. It is only available for the DVS and DOS units.

**2.5.22 Remote display with connection cable (2 m)**

The display is supplied and a 2-meter shielded 2-meter long cable ready for use between the machine and the wall display. It is only available for the DVS and DOS units.

**2.5.23 High efficiency filter (Only for DOS)**

A filter is installed that is more efficient than the one already present in the unit, which increases the cleanliness of the air and retains the dust particles arriving from the outside more effectively.

**2.5.24 Circular channel supply flange kit**

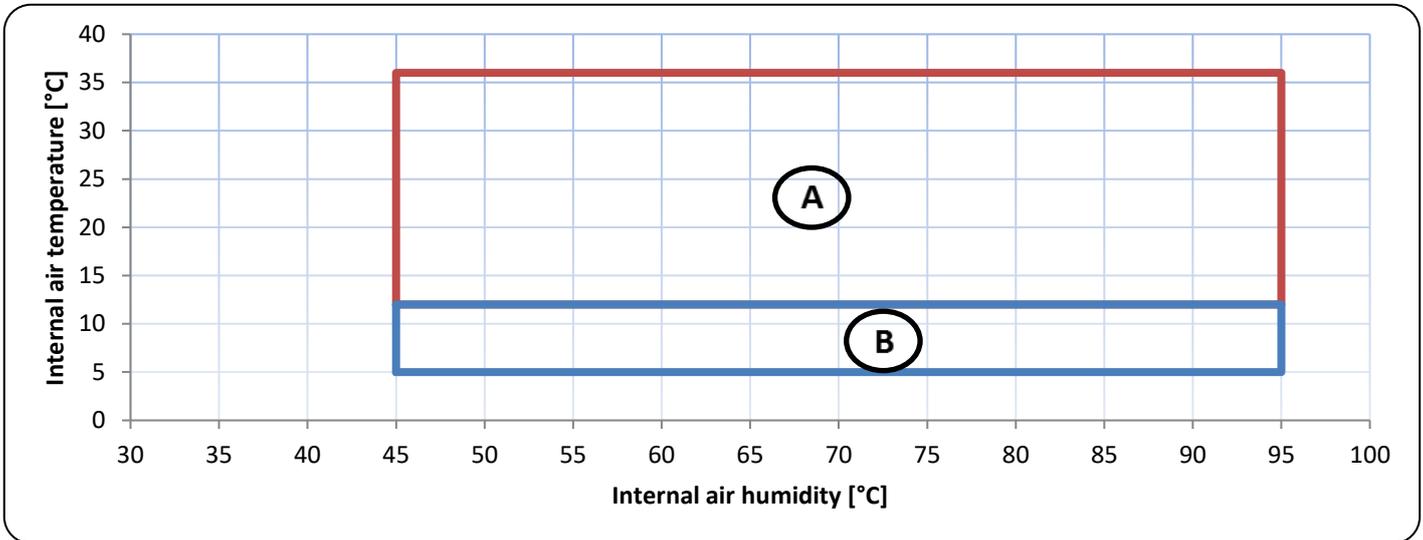
A flange allows ducting of the delivery of the unit with spiral hoses. For the 70, 90 and 100 units the flange will be fitted with a 250 mm opening, for the 160, 190, 210 and 230 units it will be fitted with two 250 mm openings. It is only available for the DOS units.

**2.5.25 Circular channel return flange kit**

A flange is used to channel the return of the unit with spiral hoses. For the 70, 90 and 100 units the flange will be fitted with a 250 mm opening, for the 160, 190, 210 and 230 units it will be fitted with two 250 mm openings. It is only available for the DOS units.

## 2.6 OPERATING LIMITS

Outside the limits indicated below, unit operation is not guaranteed.



A. Humidifier operating limit

B. Additional operational limit with hot gas defrost option installation

## 2.7 INSTALLATION INDICATIONS

The DDS, DVS and DOS units are designed for installation directly in the room to be dehumidified.

The DCS units are designed for installation in a technical room adjacent to the room to be dehumidified and are supplied without the front cover (see dimensional drawings).

The DCS units are designed for connection to plenums, supply and return air ducts and grilles (optional), or to other types of ducts that allow extraction and delivery of the air from and into the room to be dehumidified.

## 2.8 REFRIGERATION AND HYDRAULICS CIRCUIT

All copper pipings are specifically made in order to match our quality standards, therefore we design and control their construction process. Each pipe meets the requirements imposed by the directive and is verified by FEM calculation in the most stressed point by bending with the maximum pressure permitted by the safety elements, considering appropriate safety coefficients. All units are fitted with exchangers and stainless steel condensate drip trays.

## 2.9 ELECTRIC CIRCUITS

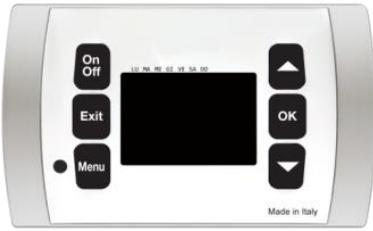
The electric panel is built and wired in accordance with standard EN 60204-1.

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



**Do not disconnect the unit by removing voltage through the protection upstream of the unit; this device must be used to disconnect the entire maintenance unit. To switch off temporarily act on the user terminal.**

### 3 CONTROL



The control consists of a power board and an elegant display that is used to control the unit and to modify all the various functions.

The functions of the various buttons and all the pages present are shown below

#### 3.1 BUTTONS



##### ON/OFF KEY

- in the 'main' page, it allows temporary shutdown of the unit
- in the 'OFF' and 'STAND-BY' page, it allows the unit to be turned on



##### EXIT KEY

- it is used to exit and return to the 'main' page
- If you are modifying a value, it allows exiting from the modification
- from the main screen, by keeping it pushed for 4 seconds, it is used to display the software version



##### MENU KEY

- on the 'main' page it allows access to the first page of the 'user menu'
- in the time slot programming pages, it allows modifying of the programming day



##### UP KEY

- it is used to slide from screen to screen or to modify a value



##### OK KEY

- it is used to perform what is shown on the display



##### DOWN KEY

- it is used to slide from screen to screen or to modify a value

#### 3.2 MAIN PAGE



**AVVERTENZA  
CAUTION**

USE OF KEYS:

- OFF is used to turn off the unit
- Keeping EXIT pushed temporarily displays the software version
- MENU is used to enter the user menu



- at the top, it indicates the current day
- **15:55** it indicates the current time
- **20°C** it indicates the current temperature
- **75%** it indicates the current humidity
- **2** it indicates that the fan is on and running at the second speed
- it indicates that the unit is dehumidifying the air
- it indicates that a heating device is active
- it indicates that there are time slots active
- it indicates that the unit is managed through Modbus
- it indicates that defrosting is active
- CLEAN THE AIR FILTERS remember to check the state of cleanliness of the air filters. To hide the text simply press the EXIT key

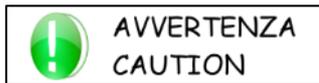
### 3.3 USER MENU

The user menu consists of 9 very easy to use pages for the basic configurations of the unit:

1. Unit control: manual or time slots \*
2. Season\*
3. Setting of the desired humidity \*
4. Setting of the desired temperature \*
5. Alarms management \*
6. Time-slots programming \*
7. Language setting
8. Day and time setting
9. Unit status display
10. Password request

\* page not always present

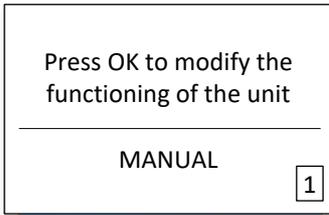
Each page has a number on the right part, in order to simplify its use.



USE OF KEYS:

- With UP and DOWN you slide from one page to another (some screens do not always appear)
- press EXIT to exit and to return to the main page
- use the OK button to execute the function indicated on the page

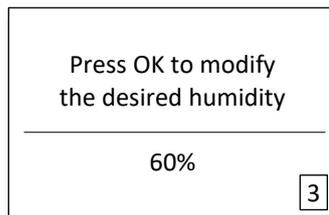
Now let's look in detail at the various pages of the user menu:



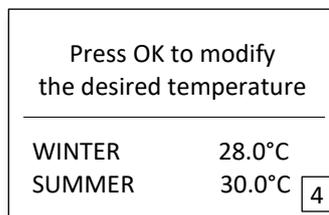
- On the left, page 1 of the user menu is used to set the operation of the unit: MANUAL or TIME SLOTS  
*(the page does not appear if: the unit is controlled by a Modbus serial)*
- MANUAL: unit "on/off", "desired humidity" and "temperature", can be manually changed from the specific screen
  - TIME SLOTS: machine on/off, desired humidity and temperature will be regulated by the time slots programming menu
- press OK to enter the modification phase, press UP and DOWN to modify and press OK to confirm and to exit from the modification phase
  - press EXIT to exit and to return to the main page
  - use the DOWN key to continue on the next page



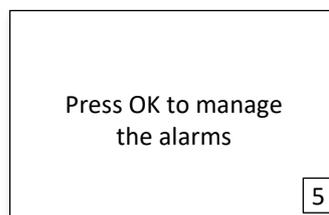
- On the left, page 2 of the user menu is used to set the season setting.  
*(The page does not appear if: the unit is controlled by modbus serial or if there are no options for temperature control)*
- WINTER: the unit will be able to heat the air
  - SUMMER: the unit will be able to cool the air
  - DEHUMIDIFICATION ONLY: the unit will not treat the air temperature and will only act only on humidity.
- with the OK key you enter the edit phase, with the UP and DOWN keys you edit and with the OK key you confirm and exit the edit phase
  - with the EXIT key you exit and return to the main page
  - with the UP key you return to the previous page
  - with the DOWN key you continue to the next page



- On the left, page 3 of the user menu is used to set the desired humidity  
*(the page does not appear if: the unit is controlled by a Modbus serial or if it is set in time slots)*
- press OK to enter the modification phase, press UP and DOWN to modify and press OK to confirm and to exit from the modification phase
  - press EXIT to exit and to return to the main page
  - use the UP key to return to the previous page
  - use the DOWN key to continue on the next page

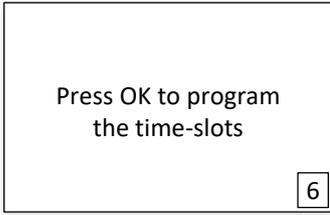


- On the left, page 4 of the user menu is used to set the desired temperature  
*(the page does not appear if: the unit is controlled by a Modbus serial or if it is set in time slots or if there are no heating options)*
- press OK to enter the modification phase, press UP and DOWN to modify and press OK to confirm and to exit from the modification phase
  - press EXIT to exit and to return to the main page
  - use the UP key to return to the previous page
  - use the DOWN key to continue on the next page



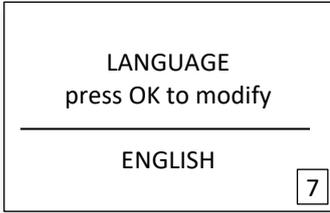
On the left, page 5 of the user menu is used to manage the alarms present  
*(the page appears if: there are alarms)*

- press OK to enter the alarm menu
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page
- use the DOWN key to continue on the next page



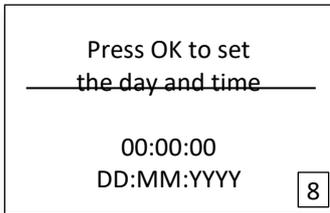
On the left, page 6 of the user menu is used to program the time slots  
(the page does not appear if: the unit is controlled by a Modbus serial or if it is set in manual)

- press OK to enter the time-slots menu
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page
- use the DOWN key to continue on the next page



On the left, page 7 of the user menu is used to set the language

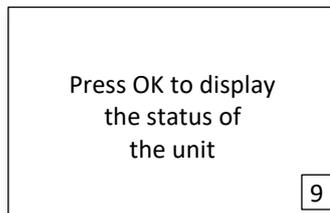
- press OK to enter the modification phase, press UP and DOWN to modify and press OK to confirm and to exit from the modification phase
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page
- use the DOWN key to continue on the next page



On the left, page 8 of the user menu is used to set the time and date necessary for correct functioning of the time slots and the other functions of the unit  
Sequential modification will take place of:

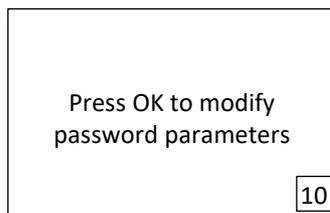
1. the day of the week
  2. the hour
  3. the minutes
  4. the day
  5. the month
  6. the year
- press OK to enter the modification phase  
press UP and DOWN to modify the setting  
press OK to confirm and to go to the following modification  
having arrived at the last modification, with OK you confirm and exit from the modification phase
  - press EXIT to exit and to return to the main page
  - use the UP key to return to the previous page
  - use the DOWN key to continue to the next page

If "IOT" option is enabled (see installer menu for further details, RS485 screen), an option to choose whether to set the time from serial or set it manually from display appears.



On the left, page 9 of the user menu is used to view the status of the unit, therefore what is on or off and the temperature and humidity probes reading

- press OK to enter the unit status menu
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page
- use the DOWN key to continue on the next page

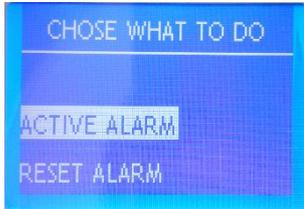


On the left, page 10 of the user menu is used to modify the password-protected parameters

- with the OK button it is possible to enter the password request page
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page

### 3.4 ALARMS MENU

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



On the left is the page which is used to choose whether to display the alarm or to reset it

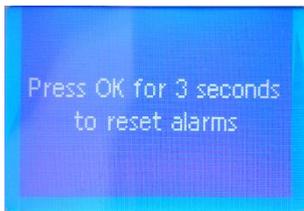
- press EXIT to exit and to return to the main page
- press UP and DOWN to select what to do
- press OK to confirm the choice and to access the page indicated below



To the left is an example page displaying the alarm, the device in alarm or the type of alarm is shown at the bottom; in this example the electric heating elements are in alarm.

This page is essential for assistance in case of alarms

- use the EXIT button to exit and to return to the previous page



To the left is the page to reset the alarms. Only certain alarms can be reset and must be reset with the knowledge that the cause that generated the alarm has not been resolved and the alarm could recur.

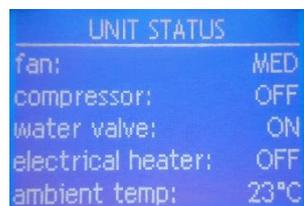
- holding down the OK button for 3 seconds the alarm is reset with return to the main page
- press EXIT to exit and to return to the alarms menu

### 3.5 UNIT STATUS MENU

This menu is always accessible and displays all the information regarding the unit status, specifically the following lines:

Fan, compressor, water valve, electric heater, ambient temperature, ambient humidity, evaporation temperature, defrost temperature, water temperature, dehumidification request, heating request.

The water valve and the electric heater are options so they may not be present; in this case a number of dashes will appear on the corresponding line.



To the left is the unit status page. In this case it can be seen that the fan is working at medium speed, the compressor is off, the water valve is present and is open, the electric heating element is present and is off and the ambient temperature is at 23°C.

- press UP and DOWN to scroll and display other lines
- press EXIT to exit and to return to the main page

## 3.6 TIME SLOT MENU

This menu is only accessible if the unit is set in time slots and is used for programming of the slots that manage stand-by, humidity and temperature.

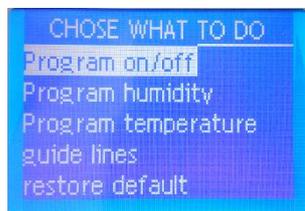


*It is of fundamental importance to set the current time and date. Go to page 7 of the user menu (further information in the previous paragraphs).*

The default values are:

- Unit always turned on (24h/day and 7days/week)
- desired humidity always at 60% (24h/day and 7days/week)
- desired temperature set daily:
  - o 28°C from 08:00 to 20:00
  - o 25°C from 20:00 to 08:00

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



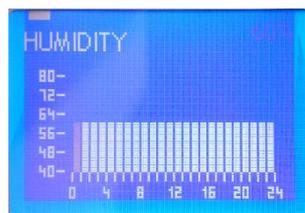
To the left the page that is used to choose what to do

- press EXIT to exit and to return to the main page
- press UP and DOWN to select what to do
- press OK to confirm the choice and to access the page indicated below

*The temperature program is only present if the hot water coil option with valve or the electric heating element option has been purchased.*

### 3.6.1 Program on - humidity program - temperature program

Selecting a program accesses the programming page; below is the humidity programming



- once entered, the first bar will flash, from 00.00 to 01.00 and the value set in the upper right will flash
- in the upper left part, you find the rectangle indicating the day you are programming
- below the day-rectangle, you find the topic you are programming: "HUMIDITY"
- in the lower part is the bar indicating the 24 hours
- on the left you find the bar indicating the desired humidity you can set



USE OF KEYS:

- pressing OK you change the time to be programmed
- pressing MENU, you change the day to be programmed
- pressing UP and DOWN you modify the programming of the flashing hour
- the EXIT key is used to return to the previous page
- keeping pressed OK and MENU, you copy the program of the active day to the following day

**3.6.2 Guides**

Selecting this guide, you have access to 5 screens which explain how to set the time slots program.



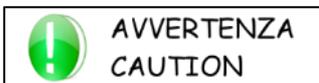
USE OF KEYS:

- the UP and DOWN screens are used to slide between the 5 pages
- the EXIT key is used to return to the previous page

**3.6.3 Default recovery**

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

Selecting Restore Defaults provides access to a page that allows restoration of all the values of the time slots.



USE OF KEYS:

- Pressing OK for 3 seconds recovers all the values
- the EXIT key is used to return to the previous page

**3.7 OTHER PAGES**

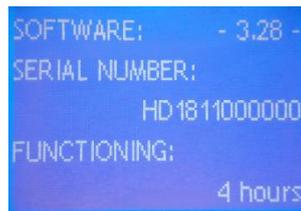
**3.7.1 Off and stand-by page**



This page is used to turn on the machine by pressing the ON-OFF button.  
If the machine is left off for more than 180 minutes, the stand-by mode will be activated automatically, which is signalled by means of the dedicated wording on this page. Stand-by mode turns ventilation on at minimum.



**3.7.2 Software version**



This page is used to view the software version loaded on the advanced control and the serial number of the machine; only enter this page from the main page by holding down the EXIT button for 3 seconds. The page is displayed for a few seconds and then returns automatically to the main page

**3.7.3 Password**



This page is used to enter the password to modify the advanced parameters

- press EXIT to exit and to return to the main page
- press UP and DOWN to set each number of the password
- press OK to move to the modification of the following value or to confirm

## 4 TECHNICAL DATA

### 4.1 DDS - DCS TECHNICAL DATA TABLES

MODEL	um	040	050	060
Dehumidification capacity	L/24h	46	52	62
Nominal air flow	m <sup>3</sup> /h	350	450	500
Useful static head	Pa	40	40	40
Useful static head EC FANS	Pa	250	200	150
Sound pressure	dB(A)	43	45	46
Hot water coil power	kW	3.7	4.5	4.8
Nominal water flow	l/h	300	400	400
Water coil load loss with valve	kPa	11	16	17
Electrical power supply	V/ph/Hz	230/ 1~+N /50		
Heating element power	kW	1,5	1,5	1,5
Nominal compressor power	kW	0.7	0.7	0.9
Nominal compressor current	A	3.34	3.34	3.89
Nominal unit power	kW	0.8	0.8	0.9
Maximum unit power	kW	1.1	1.1	1.3
Nominal unit current	A	3.5	3.6	4.2
Maximum unit current	A	5.1	5.1	5.7
Peak unit current	A	19.1	19.1	19.1
Maximum unit current with resistances	A	12,6	12,7	13,2
Peak unit current with resistances	A	26,6	26,6	26,6
DDS dimensions (base x depth x height)	mm	850 x 280 x 780		
DCS dimensions (base x depth x height)	mm	803 x 257 x 764		
Weight	Kg	46	46	46
Refrigerant	type	R410A	R410A	R410A

MODEL	um	070	090	100
Dehumidification capacity	L/24h	68	89	98
Nominal air flow	m <sup>3</sup> /h	600	700	800
Useful static head	Pa	40	40	40
Useful static head EC FANS	Pa	250	200	150
Sound pressure	dB(A)	47	48	49
Hot water coil power	kW	6.1	6.8	7.5
Nominal water flow	l/h	500	600	600
Water coil load loss with valve	kPa	35	42	50
Electrical power supply	V/ph/Hz	230/ 1~+N /50		
Heating element power	kW	3	3	3
Nominal compressor power	kW	0.85	1.37	1.37
Nominal compressor current	A	3.89	6.37	6.37
Nominal unit power	kW	0.9	1.5	1.5
Maximum unit power	kW	1.3	2	2
Nominal unit current	A	4.2	6.8	6.8
Maximum unit current	A	5.8	8.9	8.9
Peak unit current	A	19.2	36.5	36.5
Maximum unit current with resistances	A	19,8	22,9	22,9
Peak unit current with resistances	A	33,2	50,5	50,5
DDS dimensions (base x depth x height)	mm	1050 x 280 x 780	1050 x 280 x 780	1050 x 280 x 780
DCS dimensions (base x depth x height)	mm	1003 x 256 x 745	1003 x 256 x 745	1003 x 256 x 745
Weight	Kg	55	55	55
Refrigerant	type	R410A	R410A	R410A

The dehumidification power is declared in the nominal point 30° C/80% RH

The currents and the absorbed powers are declared in the nominal point 30°C/80% RH

The power of the hot water coil is declared with ambient air at 30°C and water in 80°C and out 70°C

The sound pressure is measured at 1 meter in free field.

In different conditions the declared values will undergo variations which can also be very important, the further away from the nominal operating conditions.

MODEL	um	160	190
Dehumidification capacity	L/24h	165	186
Nominal air flow	m <sup>3</sup> /h	1000	1200
Useful static head	Pa	40	40
Useful static head EC FANS	Pa	250	200
Sound pressure	dB(A)	51	53
Hot water coil power	kW	10.1	11.5
Nominal water flow	l/h	900	1000
Water coil pressure drops with valve	kPa	24	31
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50
Electrical heaters capacity	kW	4,5	4,5
Nominal compressor power	kW	2	2.49
Nominal compressor current	A	9.1	11.5
Nominal unit power	kW	2.2	2.7
Maximum unit power	kW	3	3.3
Nominal unit current	A	9.9	12.4
Maximum unit current	A	13.7	15.1
Peak unit current	A	55	63
Maximum unit current with resistances	A	32,9	34,3
Peak unit current with resistances	A	74,2	82,2
DDS dimensions (base x depth x height)	mm	1350 x 330 x 850	1350 x 330 x 850
DCS dimensions (base x depth x height)	mm	1302 x 306 x 834	1302 x 306 x 834
Weight	Kg	88	88
Refrigerant	type	R410A	R410A

MODEL	um	210	230	300
Dehumidification capacity	L/24h	211	226	290
Nominal air flow	m <sup>3</sup> /h	1500	1500	2000
Useful static head	Pa	40	40	40
Useful static head EC FANS	Pa	150	150	150
Sound pressure	dB(A)	54	55	57
Hot water coil power	kW	14.5	14.5	17
Nominal water flow	l/h	1200	1200	1400
Water coil pressure drops with valve	kPa	52	52	67
Electrical power supply	V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50
Electrical heaters capacity	kW	7,5	7,5	7,5
Nominal compressor power	kW	3.15	3.24	4.12
Nominal compressor current	A	5.9	6.1	7.4
Nominal unit power	kW	3.4	3.5	4.4
Maximum unit power	kW	4.9	5	6.2
Nominal unit current	A	7.1	7.3	8.9
Maximum unit current	A	9.5	9.6	11.2
Peak unit current	A	50	50	65
Maximum unit current with resistances	A	27,7	27,8	30,8
Peak unit current with resistances	A	68,2	68,2	84,6
DDS dimensions (base x depth x height)	mm	1550 x 330 x 850	1550 x 330 x 850	1550 x 330 x 850
DCS dimensions (base x depth x height)	mm	1503 x 306 x 834	1503 x 306 x 834	1503 x 306 x 834
Weight	Kg	100	100	102
Refrigerant	type	R410A	R410A	R410A

The dehumidification power is declared in the nominal point 30° C/80% RH

The currents and the absorbed powers are declared in the nominal point 30°C/80% RH

The power of the hot water coil is declared with ambient air at 30°C and water in 80°C and out 70°C

The sound pressure is measured at 1 meter in free field

*In different conditions the declared values will undergo variations which can also be very important, the further away from the nominal operating conditions.*

## 4.2 DVS TECHNICAL DATA TABLES

MODEL	um	050	070	090	100
Dehumidification capacity	L/24h	52	67	92	99
Nominal air flow	m <sup>3</sup> /h	450	600	700	800
Useful static head	Pa	250	40	40	40
Sound pressure	dB(A)	45	46	47	48
Hot water coil power	kW	5.2	6.1	6.8	7.5
Nominal water flow	l/h	390	500	600	600
Water coil pressure drops with valve	kPa	18	33	40	47
Electrical power supply	V/ph/Hz	230/1~+N/50			
Electrical heaters capacity	kW	1,5	2,25	3	3
Nominal compressor power	kW	0.7	0.85	1.37	1.37
Nominal compressor current	A	3.3	3.89	6.37	6.37
Nominal unit power	kW	0.73	0.93	1.47	1.51
Maximum unit power	kW	1.23	1.36	2.02	2.02
Nominal unit current	A	3.6	4.6	7.1	7.5
Maximum unit current	A	6.2	6.6	9.7	9.7
Peak unit current	A	20.1	20	37.3	37.3
Maximum unit current with resistances	A	12,7	19,7	22,9	22,9
Peak unit current with resistances	A	26,6	33,1	50,4	50,4
Dimensions (base x depth x height)	mm	550 x 330 x 1700			
Weight	Kg	52	80	80	80
Refrigerant	type	R410A			

MODEL	um	160	190	210	230
Dehumidification capacity	L/24h	161	182	213	225
Nominal air flow	m <sup>3</sup> /h	1000	1200	1400	1400
Useful static head	Pa	40	40	40	40
Sound pressure	dB(A)	50	52	53	54
Hot water coil power	kW	10.4	11.9	13.3	13.3
Nominal water flow	l/h	900	1000	1100	1100
Water coil pressure drops with valve	kPa	34	44	55	55
Electrical power supply	V/ph/Hz	230/1~+N/50			
Electrical heaters capacity	kW	4	4	4	4
Nominal compressor power	kW	2	2.49	3.15	3.24
Nominal compressor current	A	9.1	11.5	5.9	6.1
Nominal unit power	kW	2.1	2.62	3.31	3.4
Maximum unit power	kW	3.02	3.28	4.72	4.78
Nominal unit current	A	9.9	12.5	7.1	7.3
Maximum unit current	A	14.5	15.9	9.3	9.4
Peak unit current	A	55.8	63.8	49.8	49.8
Maximum unit current with resistances	A	32,9	34,3	19	19,1
Peak unit current with resistances	A	74,2	82,2	59,5	59,5
Dimensions (base x depth x height)	mm	750 x 330 x 1700			
Weight	Kg	140	140	160	160
Refrigerant	type	R410A	R410A	R410A	R410A

The dehumidification power is declared in the nominal point 30° C/80% RH

The currents and the absorbed powers are declared in the nominal point 30°C/80% RH

The power of the hot water coil is declared with ambient air at 30°C and water in 80°C and out 70°C

The sound pressure is measured at 1 meter in free field

*In different conditions the declared values will undergo variations which can also be very important, the further away from the nominal operating conditions.*

4.3 DOS TECHNICAL DATA TABLES

MODEL	um	050	070	090	100
Dehumidification capacity	L/24h	52	67	92	99
Nominal air flow	m <sup>3</sup> /h	450	600	700	800
Useful static head	Pa	250	200	175	150
Sound pressure	dB(A)	45	46	47	48
Hot water coil power	kW	5.2	6.1	6.8	7.5
Nominal water flow	l/h	390	500	600	600
Water coil pressure drops with valve	kPa	18	33	40	47
Electrical power supply	V/ph/Hz	230/1~+N/50			
Electrical heaters capacity	kW	1,5	2,25	3	3
Nominal compressor power	kW	0.7	0.85	1.37	1.37
Nominal compressor current	A	3.3	3.89	6.37	6.37
Nominal unit power	kW	0.73	0.93	1.47	1.65
Maximum unit power	kW	1.23	1.36	2.02	2.18
Nominal unit current	A	3.6	4.6	7.1	8.6
Maximum unit current	A	6.2	6.6	9.7	11
Peak unit current	A	20.1	20	37.3	38.6
Maximum unit current with resistances	A	12,7	16,5	22,9	22,9
Peak unit current with resistances	A	26,6	29,9	50,4	50,4
Dimensions (base x depth x height)	mm	1105 x 800 x 410			
Weight	Kg	80	84	84	84
Refrigerant	type	R410A			

MODEL	um	160	190	210	230
Dehumidification capacity	L/24h	161	182	213	225
Nominal air flow	m <sup>3</sup> /h	1000	1200	1500	1500
Useful static head	Pa	230	200	150	150
Sound pressure	dB(A)	50	52	53	54
Hot water coil power	kW	10.4	11.9	13.3	13.3
Nominal water flow	l/h	900	1000	1100	1100
Water coil pressure drops with valve	kPa	34	44	55	55
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50	400/3+N/50	400/3+N/50
Electrical heaters capacity	kW	4	4	4	4
Nominal compressor power	kW	2	2.49	3.15	3.24
Nominal compressor current	A	9.1	11.5	5.9	6.1
Nominal unit power	kW	2.19	2.74	3.48	3.57
Maximum unit power	kW	3.27	3.53	4.97	5.03
Nominal unit current	A	10.6	13.5	8.4	8.6
Maximum unit current	A	16.3	17.7	11.1	11.2
Peak unit current	A	57.6	65.6	51.6	51.6
Maximum unit current with resistances	A	32,9	34,3	19	19,1
Peak unit current with resistances	A	74,2	82,2	59,5	59,5
Dimensions (base x depth x height)	mm	1105 x 1050 x 510			
Weight	Kg	147	147	168	168
Refrigerant	type	R410A	R410A	R410A	R410A

The dehumidification power is declared in the nominal point 30° C/80% RH

The currents and the absorbed powers are declared in the nominal point 30°C/80% RH

The power of the hot water coil is declared with ambient air at 30°C and water in 80°C and out 70°C

The sound pressure is measured at 1 meter in free field

*In different conditions the declared values will undergo variations which can also be very important, the further away from the nominal operating conditions.*

## 4.4 PERFORMANCE CURVES

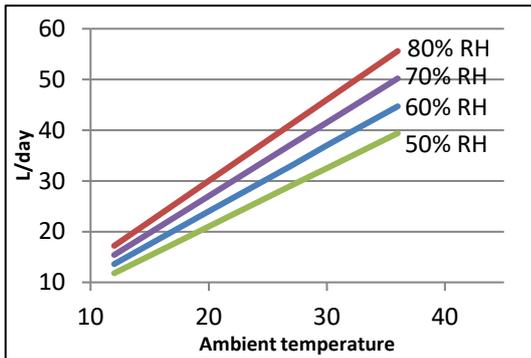
The temperature is shown on the bottom axis.

The dehumidification capacity is indicated on the left axis.

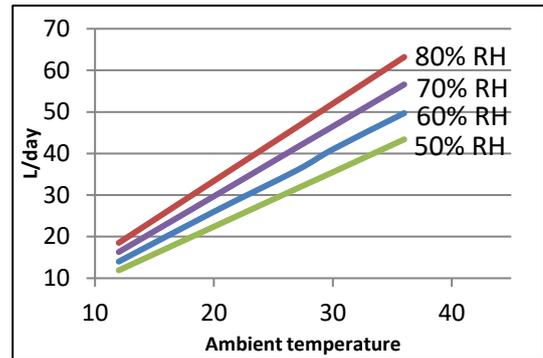
To calculate the dehumidification capacity at a specific work point:

- Assume a position on the lower axis at ambient temperature
- Ascend until crossing the ambient humidity curve
- Move to the left and read the dehumidification capacity at that work point

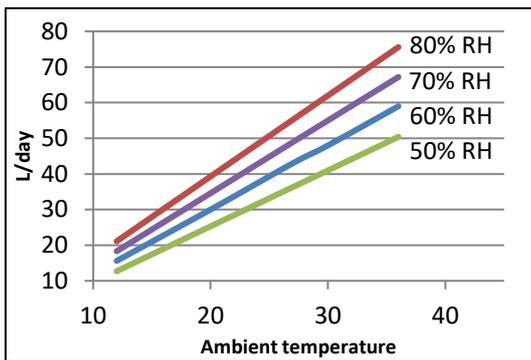
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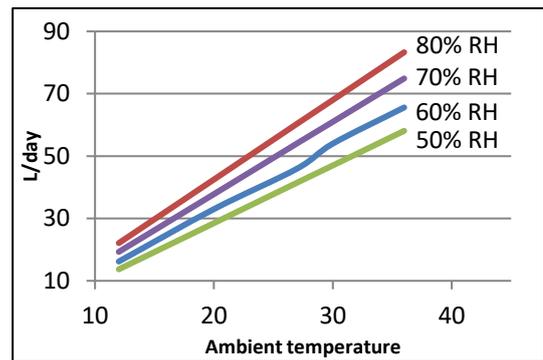
50



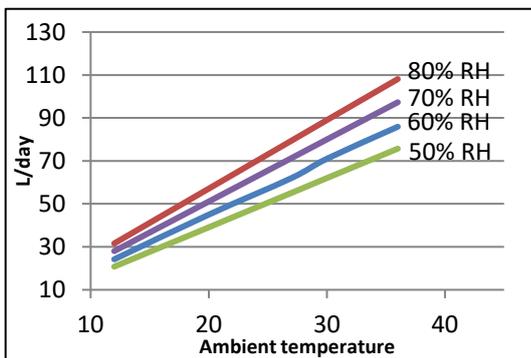
60



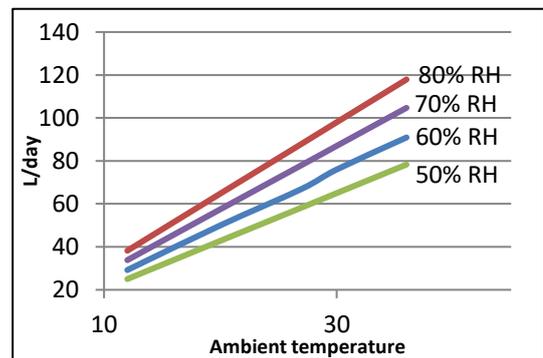
70



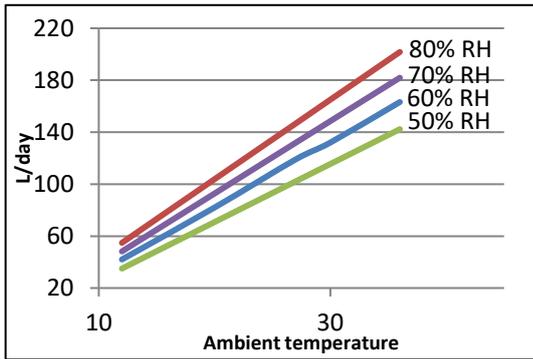
90



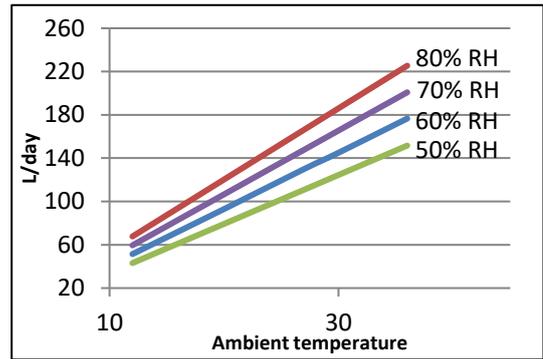
100



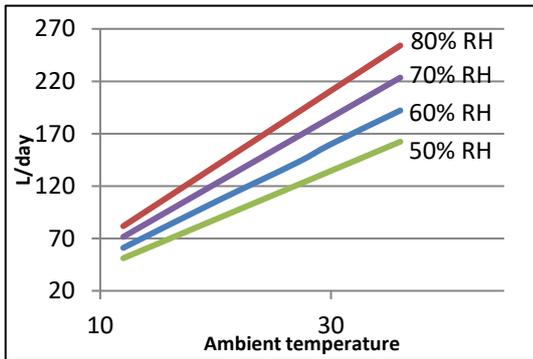
160



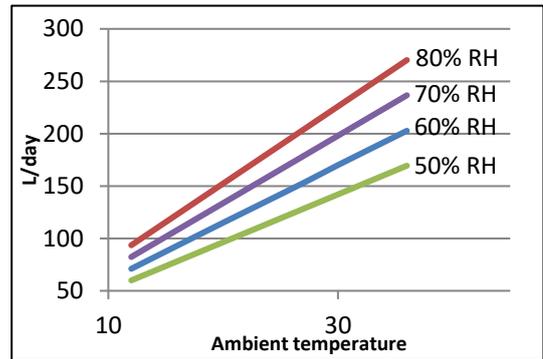
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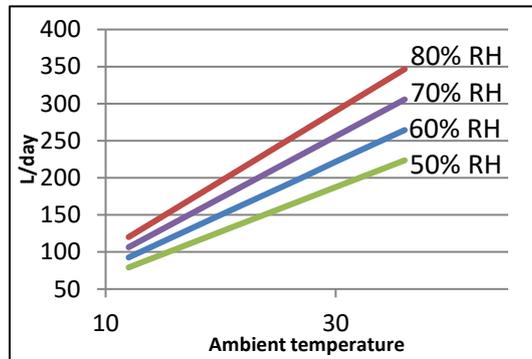
210



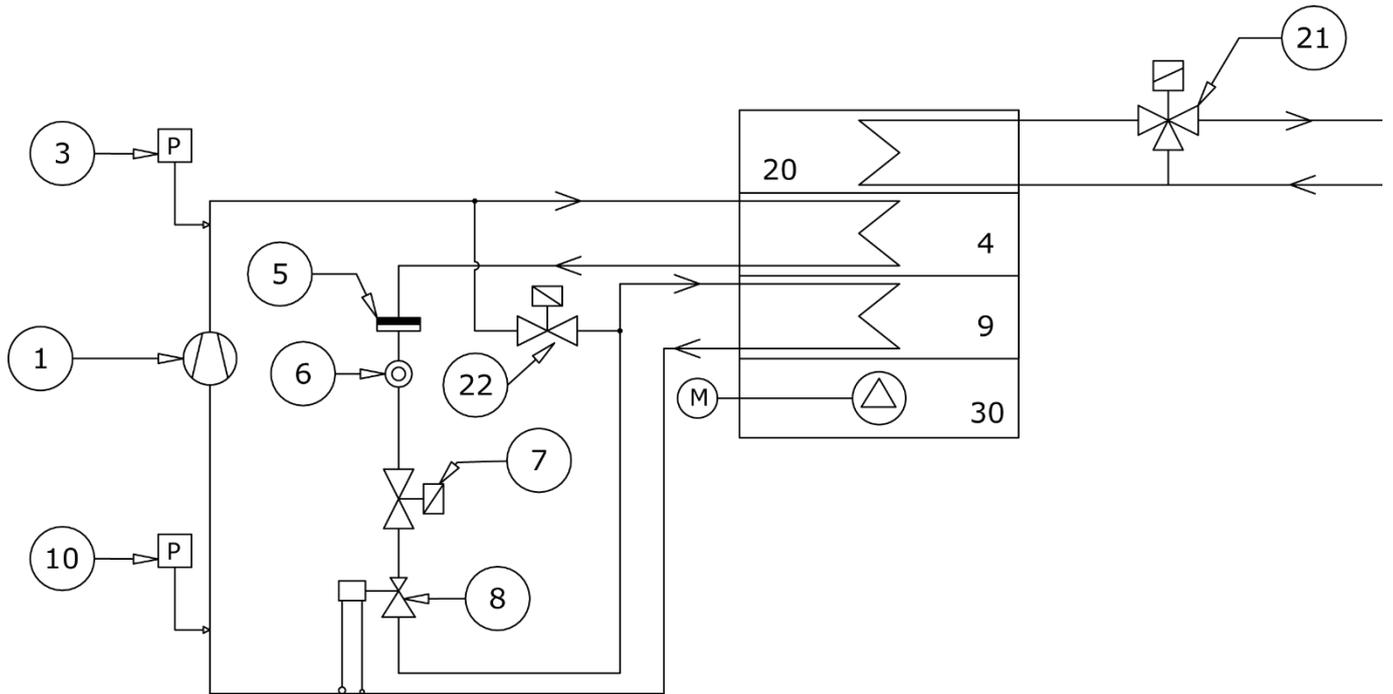
230



300



**4.5 FUNCTIONAL DIAGRAM**



- 1 compressor
- 3 high-pressure switch
- 4 condensing coil
- 5 dehydrating filter
- 6 flow indicator
- 7 solenoid valve
- 8 lamination elements
- 9 evaporating coil
- 10 low pressure probe
- 20 water post-heating coil [optional]
- 21 3-way water valve [optional]
- 22 hot gas defrost valve [optional]
- 30 fan

## 5 AFTER-SALES

### 5.1 TROUBLESHOOTING

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



**Pay the utmost attention in the execution of the suggested operations for resolution of the various problems: excessive lack of attention can cause serious injuries. We recommend contacting the manufacturer or a qualified technician after having identified the cause.**

NR	FAULT	ANALYSIS OF POSSIBLE CAUSES	CORRECTIVE ACTIONS
1	The unit does not start	No electrical power supply to the unit	Check its presence on the power supply terminals
		No power supply to the electronic board	Check its presence on the terminal boards
		There are alarms present	Check the presence of alarms on the terminal, eliminate the causes and restart the unit.
		Phase sequence relay cut-out (only models 210, 230 and 300)	Check if the sequence of phases is correct (refer to paragraph "Electrical connections on the panel")
		Display is turned off	Press ON/OFF button to turn it on
2	The display doesn't turn on	No power supply to the unit	Incorrect wiring between display and circuit board
		Incorrect wiring of connection between display and electronic board	Check the integrity of the connection cable, verify that the connection A with A and B with B is respected, avoid passing the connection cable together with power cables
3	The compressor does not start	The unit just turned on but the compressor hasn't started	Wait a few minutes
		Intervention of the internal thermo-protector	Unplug the unit, wait for the compressor to cool down and check to see if it restarts by reconnecting the power supply. Identify the cause of the intervention and eliminate it
		High-pressure protection on the refrigerant circuit	Refer to anomaly 3
		The humidity set value does not allow it to be turned on	Set a different humidity set value
		Low ambient temperature	Only heat the room above 12°C or above 5°C if there is an optional hot gas defrost
4	High pressure alarm  From the first report to the second the reset is automatic, if it occurs 3 times in less than one hour the reset is manual	Air flow is inadequate	Check the cleanliness of the filters, heat exchange coils and recovery unit
			Check that all the fans are turning correctly.
			Check the length and the number of curves of the channels and if the unit does not have electronic fans reduce their length and number. If they are assembled, increase the fan speed (refer to the paragraph "Calibration of the flow rate for units with electronic fan")
		Other causes	Call a specialised technician
5	Low pressure  From the first report to the second the reset is automatic. If it occurs 3 times in less than one hour the reset is manual	Ice has formed on the evaporating coil	If there is ice on the evaporating coil, temporarily switch off the unit and melt all the ice present
		Other causes	Call a specialised technician

6	Electric heating element overheating	Air flow is inadequate	Check the cleanliness of the filters, heat exchange coils and recovery unit
			Check that all the fans are turning correctly.
		Other causes	Check the length and the number of curves of the channels and if the unit does not have electronic fans reduce their length and number. If they are assembled, increase the fan speed (refer to the paragraph "Calibration of the flow rate for units with electronic fan") Call a specialised technician
7	Discharged machine alarm	Loss of refrigerant gas	After 3 minutes from every start-up, the evaporation probe checks the temperature. If the reading is above 35°C, the "unit discharged" alarm is triggered. Call a specialised technician
			Call a specialised technician
8	Ambient temperature probe alarm	Probe failure (errors can be caused by short circuit or interruption of the probe)	Check probe status. If the problem persists replace it
9	Ambient humidity probe alarm		Check probe status. If the problem persists replace it
10	Water temperature probe alarm		Check probe status. If the problem persists replace it
11	Filter cleaning warning (on the main screen)	Filters may be clogged, clean or replace them	Go to the maintenance section for further details

**5.2 MAINTENANCE TABLE**

To ensure continuity in performance over time, we recommended using this table as a reference for the related maintenance activities.

Activity	Period
Filter replacement	<ul style="list-style-type: none"> <li>Visual inspection and cleaning every 6 months (or more frequently in dirty environments)</li> <li>Filter replacement at least every 12 months</li> </ul>
Check correct condensation drainage at the base of the unit	Every 6 months
Check and clean air vents and grilles, both interior and exterior	Every 6 months
Visual and acoustic confirmation (check the noise emitted by the unit and the integrity of the unit)	Every 6 months
Visual inspection of the refrigeration and hydraulic circuit (look for oil, refrigerant, and/or water leaks)	Every 12 months
Visual inspection of the electrical panel, its wiring and cables	Every 12 months
Check the status and fastening of the fans	Every 4 years
Clean the condensation collection trays	Every 4 years
Clean the heat exchange coils	Every 4 years

**REGISTER OF ORDINARY MAINTENANCE OPERATIONS**

Record the maintenance operations performed in the following table.

Activity	Year _____		Year _____		Year _____	
	1 <sup>st</sup> six months	2 <sup>nd</sup> six months	1 <sup>st</sup> six months	2 <sup>nd</sup> six months	1 <sup>st</sup> six months	2 <sup>nd</sup> six months
Filter replacement						
Check correct condensation drainage at the base of the unit						
Check and clean air vents and grilles, both interior and exterior						
Visual and acoustic confirmation (check both the noise emitted by the unit and the integrity of the unit)						
Visual inspection of the refrigeration and hydraulic circuit (look for oil, refrigerant, and/or water leaks)						
Visual inspection of the electrical panel, its wiring and cables						
Check the status and fastening of the fans						
Clean the condensation collection trays						
Clean the heat exchange coils						

**REGISTER OF EXTRAORDINARY MAINTENANCE OPERATIONS**

Indicate below any extraordinary maintenance operations performed on the unit.

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### 5.3 ORDINARY MAINTENANCE

#### 5.3.1 Cleaning/replacing air filters



There is no standard time to clean the filters. Clogging of the air filters depends on use of the machine and on the installation area. Periodically check the cleaning status. We remind you that incorrect cleaning or removal of the air filters from the unit can result in serious risks relating to their correct functioning and integrity. If the cleaning/replacement of the filters is not respected, the warranty expires.

Vacuum the filters with a vacuum cleaner, manually removing any impurities that may prevent correct air flow, avoiding any damage to them. Any damaged, punctured or otherwise damaged filter must always be replaced.



Before maintenance, ensure that the power supply is turned off and that you can safely carry out the operations. By removing the access panels, the filters may fall. Therefore, pay maximum attention during the opening phase to prevent the air filters from falling to the ground.

To remove the indication on the display “clean air filters” press the EXIT button.

#### DDS - DCS

Incline the filter downwards

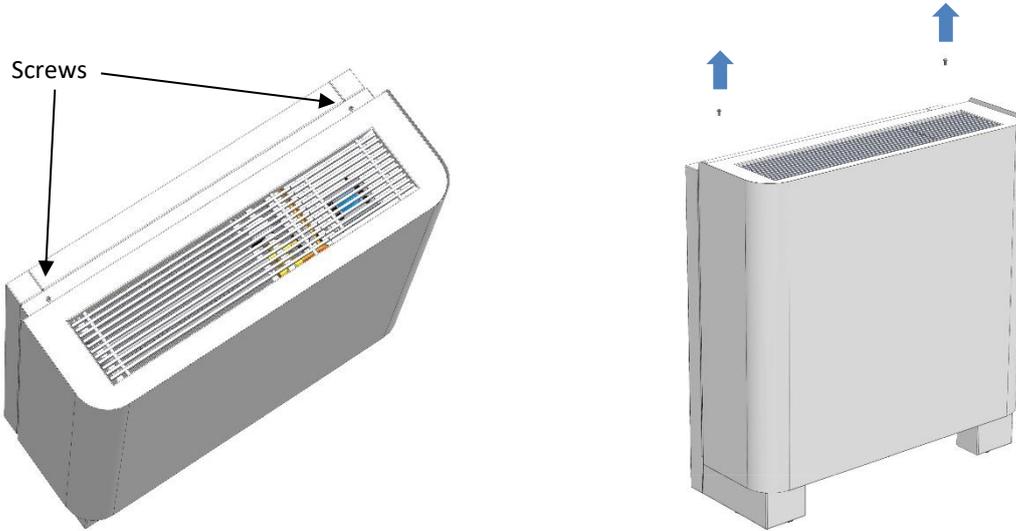


Pull the filter out and remove it

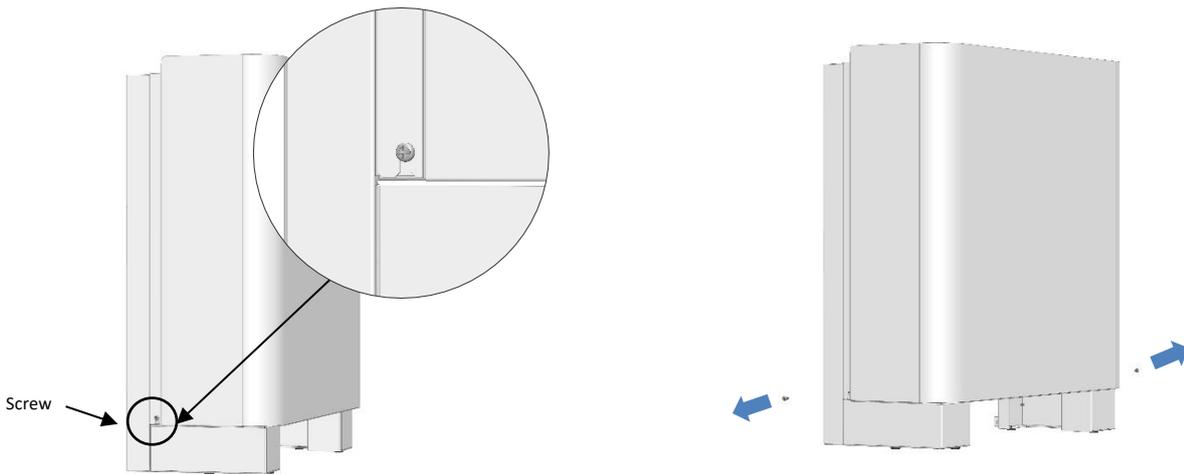


**DDS (with feet)**

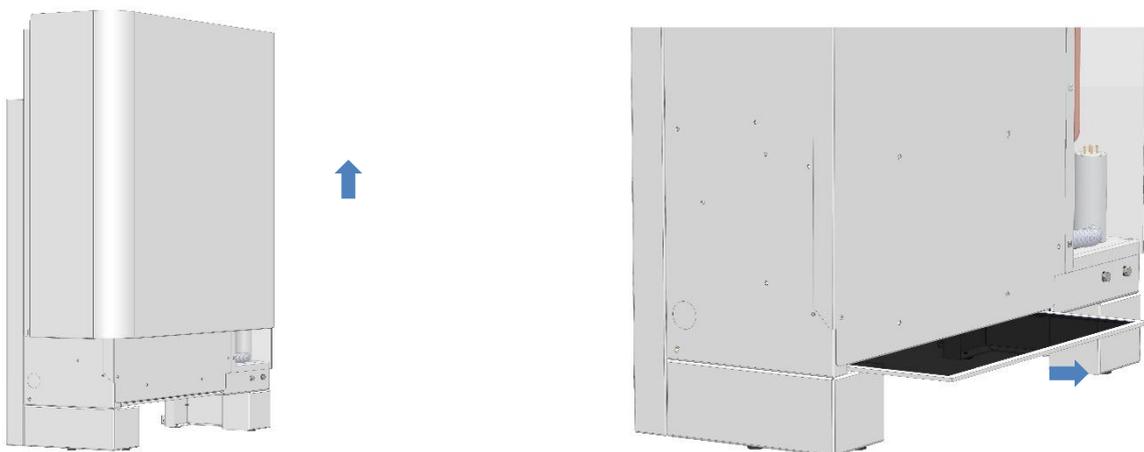
Remove the screws on the top of the unit (as illustrated below)



Remove the screws on both sides of the unit (as illustrated below)

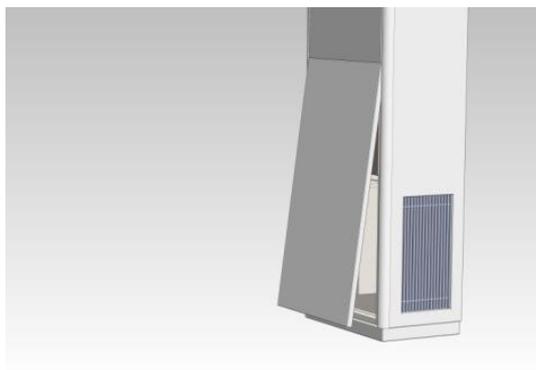
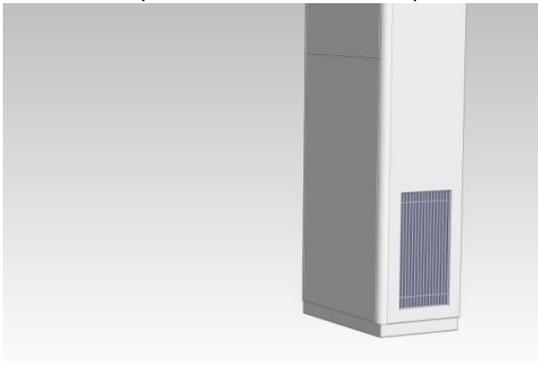


Lift the hood vertically and pull the filter off by sliding it out horizontally

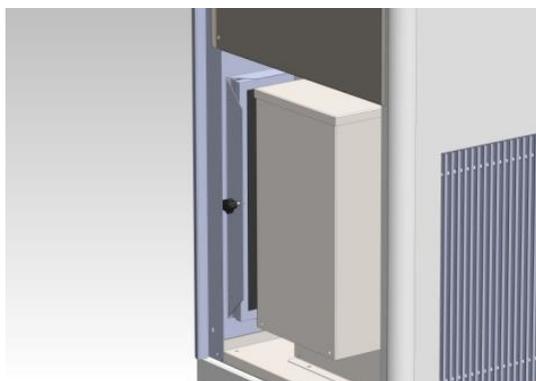


## DVS

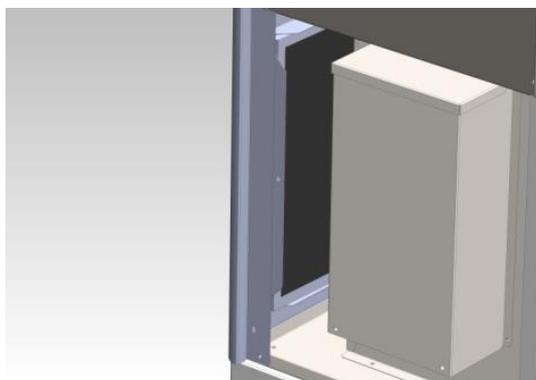
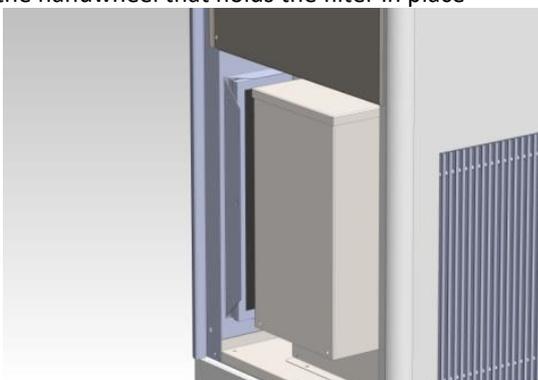
Take the lower front panel at the bottom and pull it outwards



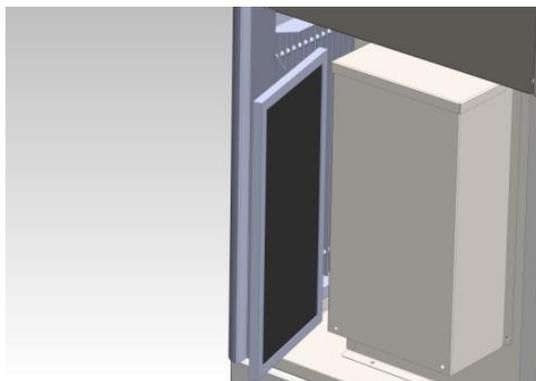
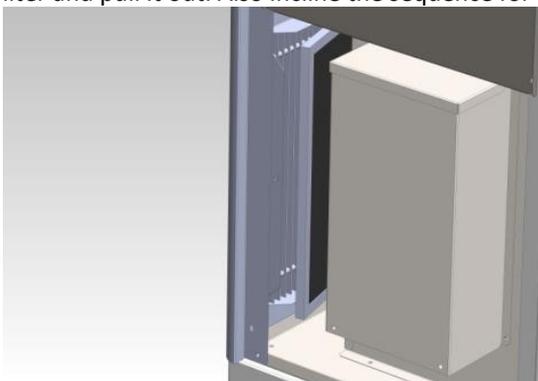
Remove the panel completely and place it near the unit



Loosen the handwheel that holds the filter in place

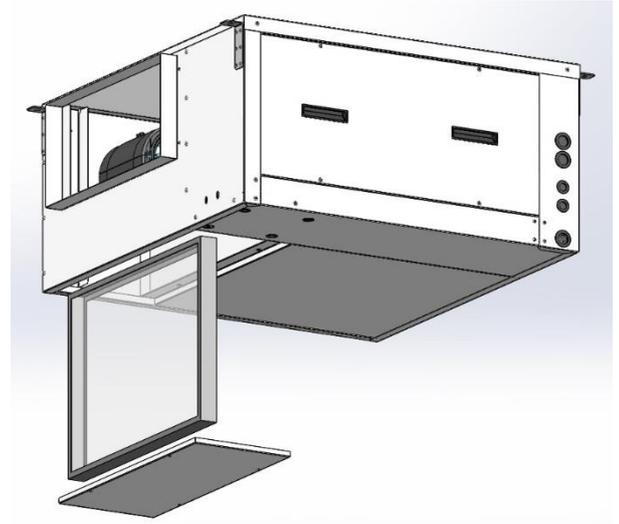


Tilt the filter and pull it out. Also incline the sequence for the right filter



**DOS**

For routine maintenance simply remove the lower panel as shown in the figure by unscrewing the screws and the filter will also descend with the panel.



**5.4 EXTRAORDINARY MAINTENANCE**

**5.4.1 Cleaning of the condensate collection tray and condensate drain pipe**

**DDS - DCS**

1. Completely loosen the screws at the top, lift the hood and remove it (DDS only)
2. Loosen the screws and remove the right angled panel that closes the compartment containing the electrical panel and compressor
3. Loosen the screws and remove the left panel that closes the compartment containing the heat exchange coils, fan and tank
4. Clean the condensate collection tray with a damp cloth and check that the condensate drain is not blocked
5. Reassemble everything following the procedure in reverse

**DVS**

1. Remove the lower front panel as for filter cleaning
2. Loosen the visible screws and remove the upper front panel
3. Loosen the visible screws and remove the front panel
4. Clean the condensate collection tray with a damp cloth and check that the condensate drain is not blocked
5. Reassemble everything following the procedure in reverse

**DOS**

1. Loosen the screws that hold the filter panel and remove it together with the filter closing panel. The filter itself will also descend
2. Loosen the screws of the side access panel to the compressor compartment and remove the panel
3. Accessing from the compressor compartment and from the rear of the machine, remove the screws that hold the lower panel of the machine to access the tank
4. Remove the lower panel by pushing it towards the machine outlet
5. Disconnect the condensate drain hose from the tray
6. Loosen the screws that hold the tank. First proceed with those that connect the tank to the access panel to the heating elements, then from inside and outside the machine remove those that support it
7. Remove the tray
8. Clean the condensate collection tray with a damp cloth and check that the condensate drain is not blocked
9. Reassemble everything following the procedure in reverse

## 6 DISMANTLING THE UNIT

When the unit reaches the end of its working life and must be removed and replaced, a number of measures must be followed:

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



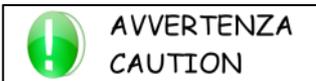
This will facilitate the work carried out in the waste collection, disposal and recycling facilities and will minimise the environmental impact of such processes.



**Should the unit, or a part of it, be decommissioned, the parts that could potentially cause any hazard must be rendered harmless.**

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

Please note it is mandatory to register the loading and unloading of special and toxic-harmful waste. Special and toxic-harmful waste must be collected by authorised companies. Special and toxic-harmful waste must be disposed of in compliance with the applicable laws in the user's country. Dismantle the unit according to the requirements imposed by law in force in the user's country. Before demolishing the unit, ask the relative Authority to perform an inspection and issue a report. Lastly, scrap the unit in compliance with the applicable laws in the user's country.



*Dismantling and demolition must be entrusted to qualified personnel.*

### 6.1 AMBIENT PROTECTION

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

The refrigerant R410A is not harmful to the ozone layer, but is included among the substances responsible for the greenhouse effect and thus falls within the scope of the afore-mentioned regulations.



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

### 6.2 WASTE FROM ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

This product is covered by Directive 2012/19/EU on the management of waste electrical and electronic equipment (WEEE). The appliance must not be disposed of with household waste because it is made of different materials that can be recycled at appropriate facilities. Contact your local authority to find out where the nearest recycling centre is, so that the product can be disposed of and recycled.

Also remember that if you purchase an equivalent appliance, the dealer is required to collect the old product for free. The product is not potentially harmful to human health and to the environment as it does not contain harmful substances according to Directive 2011/65/EU (RoHS), but if it is abandoned in the environment, it has a negative impact on the ecosystem. Read the instructions carefully before using the appliance for the first time. It is advisable not to use the product for any purpose other than that for which it was intended, as there is a risk of electric shock if it is used improperly.



*The crossed-out bin symbol on the sticker attached to the appliance indicates that this product complies with the legislation on waste electrical and electronic equipment. Abandoning the equipment in the environment or disposing of it illegally are punishable by law.*

## 7 INSTALLATION

### 7.1 PREAMBLE

#### 7.1.1 Inspection

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

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

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

#### 7.1.2 Lifting and transportation

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



**During all lifting operations, check if the unit has been properly anchored, in order to avoid falls or overturns. Do not move or lift the unit by the removable panels. DO NOT TURN THE UNIT.**

#### 7.1.3 Unpacking

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

#### 7.1.4 Identification of the unit

Each unit is characterised by an identification plate showing all the data necessary for the installation, maintenance and traceability of the machine. The plate on the DDS-DCS will be located above the display, on the DVS inside the technical compartment and on the DOS outside on the compressor compartment side.

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

Modello - Model	
Matricola - Serial number	
Data di produzione - Date of production	
Categoria PED/ CE 2014/68/EU Category	
Procedura di valutazione conformità - Conformity assessment procedure	
Max temp. di stoccaggio - Max storage temperature [°C]	
Max temp. funzionamento - Max operating temperature [°C]	
Min. temp. ambiente di funzionamento - Min. ambient operating temp. [°C]	
Potenza frigorifera nominale - Nominal Cooling Capacity [ kW ]	
Potenza frigorifera nominale - Nominal Cooling 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 - Maximum current FLA [A]	
Corrente di spunto - Starting current LRA [A]	
Schema elettrico - Wiring diagram	
Schema frigorifero - Refrigeration diagram	

## 7.2 POSITIONING



**ATTENZIONE  
WARNING**

All the DDS - DCS - DVS and DOS models are designed and built for indoor installation. Do not install the unit outdoors and make sure that it is not exposed to atmospheric agents such as: rain, hail, humidity and frost.

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

- dimensions and origin of hydraulic pipes (if present);
- Place of the power supply;
- accessibility for use, maintenance and repair operations;
- solidity of the anchoring plane;
- avoid fixing the machine at elevated heights to avoid high temperature blocks.

It is of utmost importance to ensure complete accessibility to the unit.

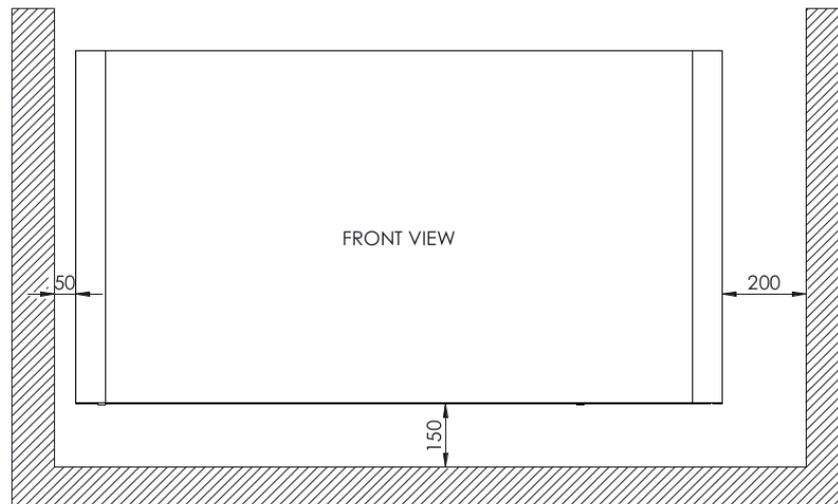
The installation of anti-vibration material is recommended for each anchor point or support point to avoid noise and vibration transmissions.



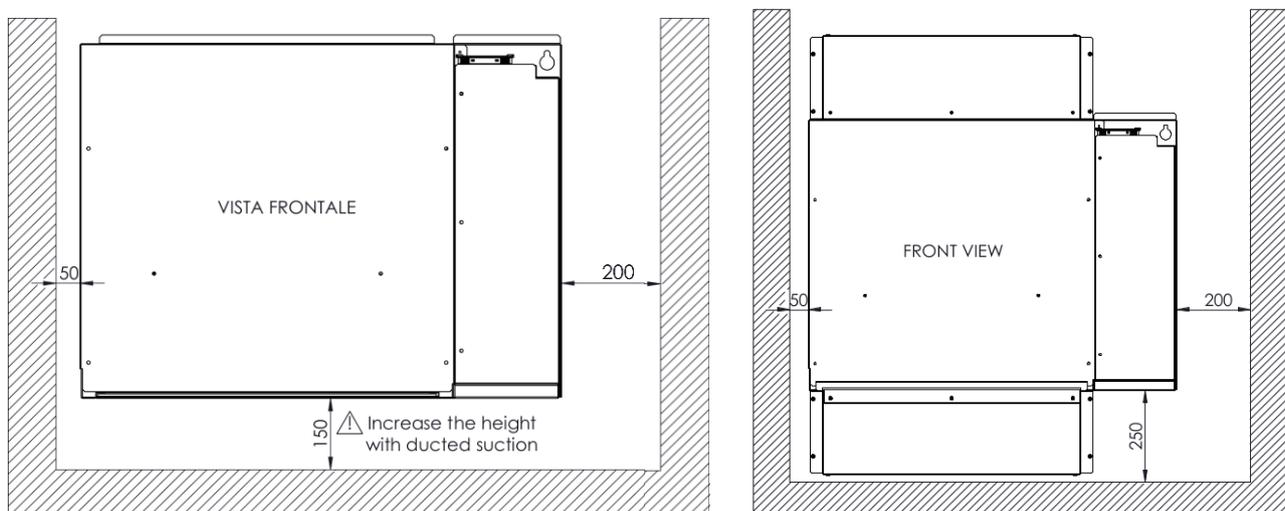
**ATTENZIONE  
WARNING**

For the DOS units, it is recommended to install anti-vibration feet for each anchoring point in order to avoid the transmission of noise and vibrations.

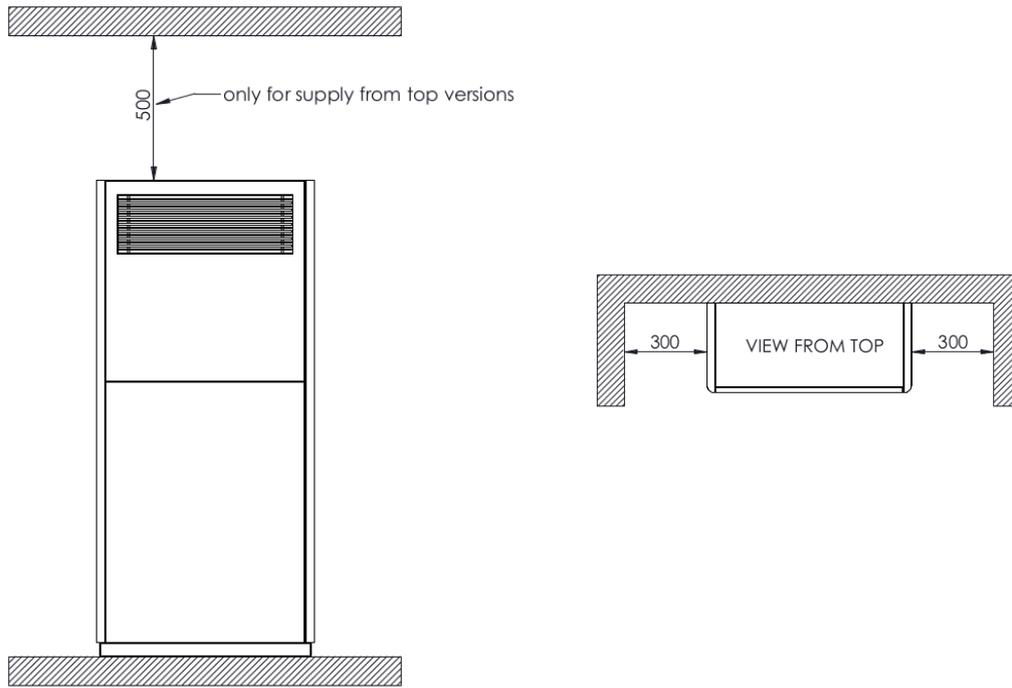
### 7.2.1 DDS respect spaces



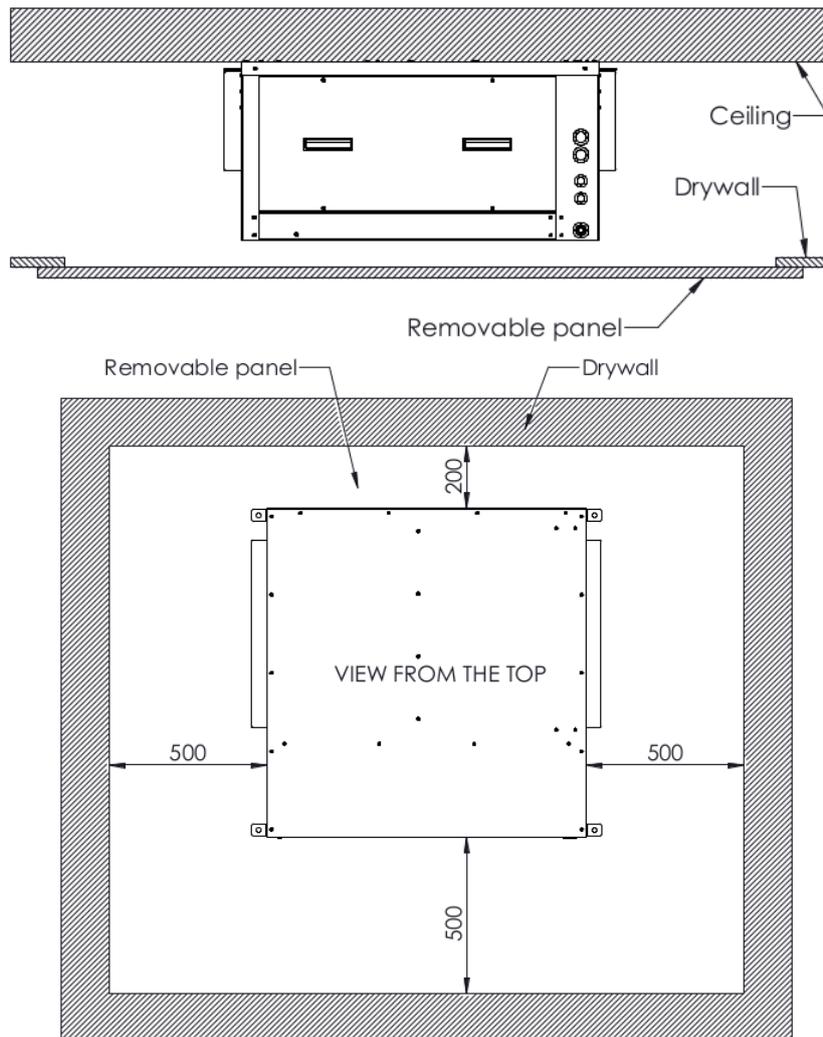
### 7.2.2 DCS respect spaces



7.2.3 DVS respect spaces



7.2.4 DOS respect spaces



### 7.3 HYDRAULIC CONNECTION

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



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

Use flexible joints to join the pipes in order to dampen vibrations and to compensate for thermal expansion.

The following components should be installed on the piping:

- temperature and pressure indicators for routine maintenance and inspections of the unit. Pressure control is used to assess the correct functioning of the expansion tank and to detect water leakage in advance;
- interception valves (dampers) to insulate the hydraulic circuit in case of maintenance interventions;
- mechanical clew (inlet pipe) with 1 mm mesh, to protect the exchanger from the impurities present in the pipes. This requirement is, above all, necessary for commissioning;
- vent valves, to be placed on the highest areas of the hydraulic circuit, in order to allow the air purge;
- discharge valve and drain tank, where required, in order to empty the system for maintenance;
- for process applications, it is advisable to install a decoupling heat exchanger, which avoids fouling of the heat exchangers.



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

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



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

#### 7.3.1 Condensate discharge connection

To perform it, a flexible rubber hose (internal diameter of 16mm) is required.

There is no siphon inside the unit and it is not necessary to install it but, in order to prevent unpleasant odours coming from the drainage and air leaks toward the outside, the recommended installation height is at least 50mm.



**The inclination of the discharge pipe must be such that the water flows from the unit to the outside in all cases. If this does not happen and the collection tray inside the unit fills up, overflows may occur with consequent water leakage.**

**7.4 ELECTRICAL CONNECTION**

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



*The earth wire is compulsory. The installer must provide the earthing wire with the dedicated clamp located within the electrical panel, labelled with the indications.*

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

**7.4.1 Recommended MGT switch to be inserted upstream of the line**

Models	DDS - DCS										
	Single-phase								Three-phase		
	40	50	60	70	90	100	160	190	210	230	300
Without electric heating element	C10	C10	C10	C10	C16	C16	C20	C20	C16	C16	C16
With electric heating element	C16	C16	C20	C20	C32	C32	C40	C40	C32	C32	C32

Models	DVS							
	Single-phase						Three-phase	
	050	70	90	100	160	190	210	230
Without electric heating element	C10	C10	C16	C16	C20	C20	C16	C16
With electric heating element	C20	C20	C32	C32	C40	C40	C32	C32

Models	DOS							
	Single-phase						Three-phase	
	050	70	90	100	160	190	210	230
Without electric heating element	C10	C10	C16	C16	C20	C20	C16	C16
With electric heating element	C20	C20	C32	C32	C40	C40	C32	C32

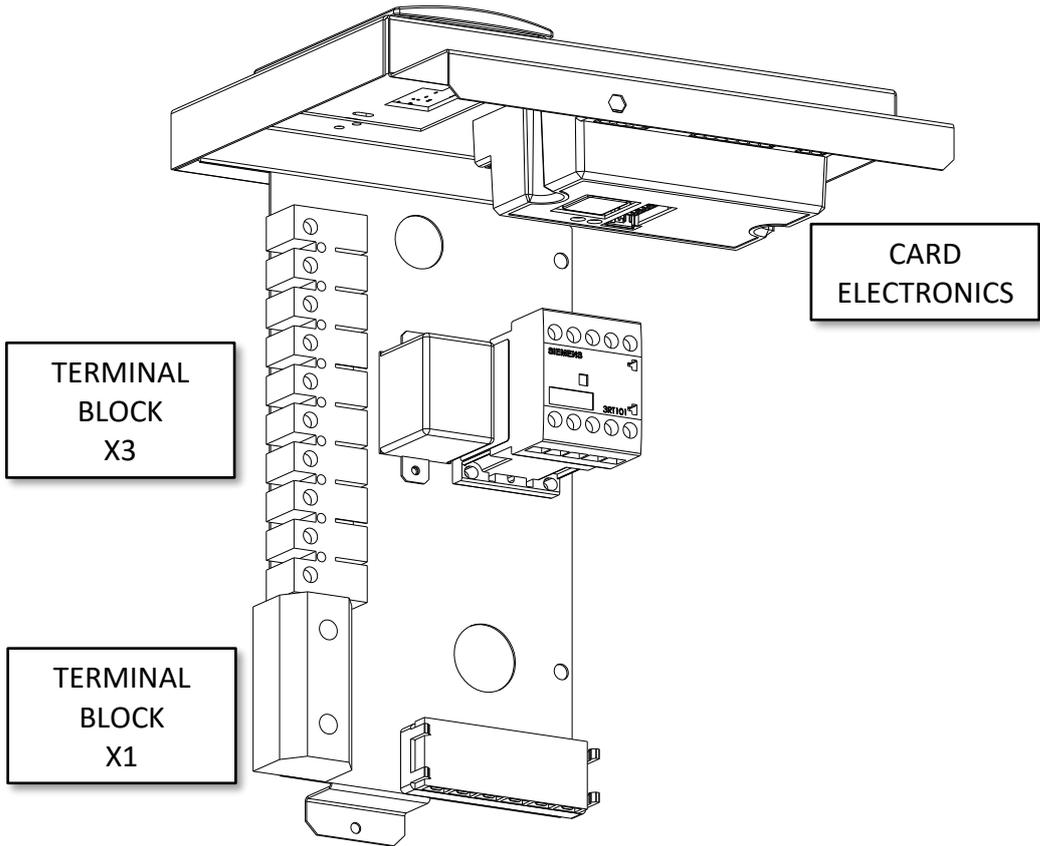


*Wiring must be performed when the power supply is disconnected.  
RISK OF DEATH!*

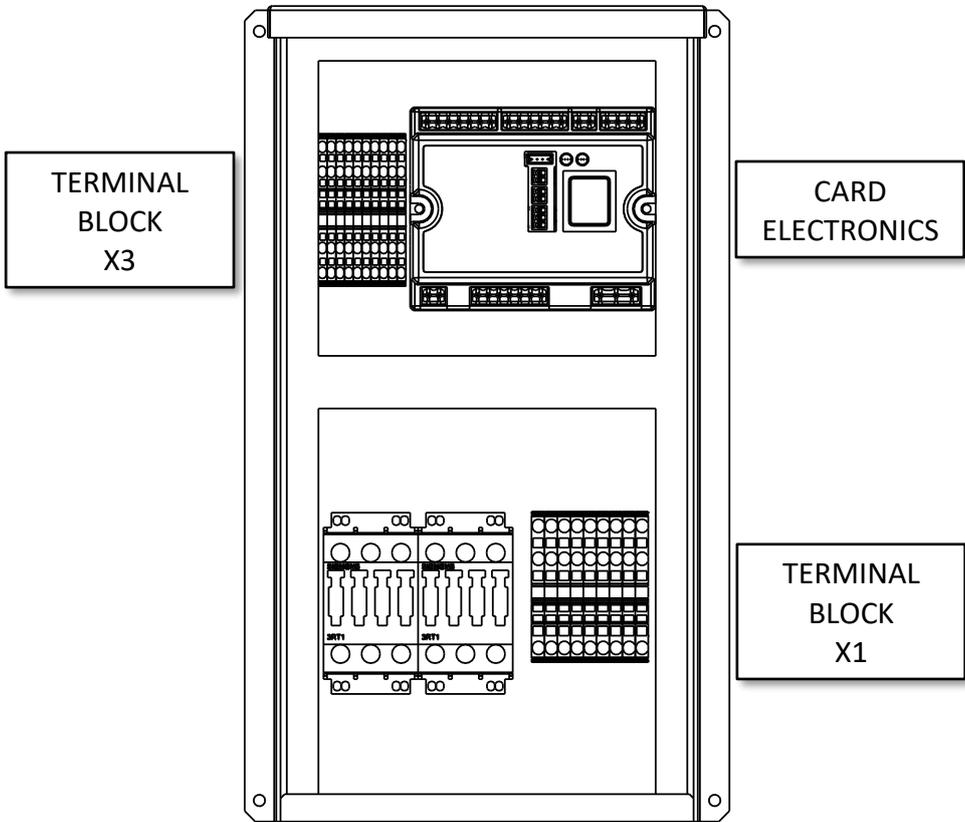
**7.4.2 Equipment fitting**

**DDS AND DCS MODELS**

DISPLAY



**DVS MODELS**



7.4.3 Electrical connections on the panel

**X1 TERMINAL BOARD**

This terminal block is for the power supply of the unit:

- For the 40-50-60-70-90-11-160-190 models connect phase, neutral and PE
- For the 210-230-300 models connect the 3 phases, neutral and PE



*Check the correct sequence of phases (210 - 230 - 300 models only).  
Be careful to connect the phases in the correct sequence.  
It is possible to check the correct phase sequence by means of the dedicated relay assembled in the electrical panel. There are two signalling LEDs on the phase sequence relay. When the green LED is on, it indicates that all three phases are present. If it is not on, check that to see if the line of one of the three phases has been interrupted. When the yellow LED is on, it indicates that the phases are in the correct order. If it is not on, check that the sequence of the phases is correct.*



**X2 TERMINAL BOARD**

In the DDS-DCS units with electronic fans, terminals 6-N can be used to connect an EXTRACTOR. The output is 230V max 1A and is activated when the fan is set to MEDIUM or MAXIMUM speed.

**X3 TERMINAL BOARD**

**The 101 - 102 terminals** are for the alarm signalling of the unit. It is possible to connect an indicator light or to connect to a control unit of the system. To activate the contact, follow the procedure in paragraph 7.4.1.

In the case of the DDS/DCS models the command is in 230V MAX 1A (not available with hot gas option)

In the case of the DVS/DOS models, connect only a clean contact



*In addition to the electrical wiring, the on/off contacts (remote - dehumidification - heating) must be set on the terminal during the first start-up and, if necessary, it is possible to reverse the logic of each contact. Refer to the relevant paragraph.*

Terminals 101-102 can only be used to connect an EXTRACTOR if the unit has multi-speed fans and lacks the hot gas defrost option. The EXTRACTOR output is active when the fan has a MEDIUM or MAXIMUM speed.

**The 103 - 104 terminals** are used to connect to a zone head, a water valve or to a water pump (max 1A) to control the water supply to the unit. For devices with consumption over 1A, insert a power relay.

The drive is in 230V.

**CONFIGURABLE COMMANDS**

**(105-106) - (107-108) - (109-110) terminals** are configurable commands; they consist of 3 digital inputs that can be configured to perform various tasks. Please note: Connect only clean contacts, only when the unit is turned off.

POSSIBLE CONFIGURATIONS	OPEN CONTACT	CLOSED CONTACT
ON remote	Unit turned off by remote	Unit active and controlled by display
Dehumidif Contact	Dehumidification request is inactive	Dehumidification request is active

*The following controls are only available if either the "hot water coil option with valve" or the "electric heater option for temperature control" was purchased*

POSSIBLE CONFIGURATIONS	OPEN CONTACT	CLOSED CONTACT
Temperature contact	Heating request is inactive relative to season set	
Summer-Winter	Winter	Summer
Temperature Enabling	Temperature handling disabled unit in dehumidification-only mode	Enabled temperature set control

**For each configurable command it is possible to switch logic**

All the unused configurable commands will be manually set from the display

EXAMPLES:

- **The user requests being able to put the unit ON from a wall switch:** to use the remote contact, connect the 2 wires of the switch to the 105 - 106 terminals and upon the first start of the unit enable the contact on remote.
- **With a control unit for the temperature control system with a dry contact for dehumidification and a clean contact for heating:** to use the dehumidification on/off contact and the heating on/off contact, connect the contact of the control unit for the activation of dehumidification on 107 - 108 terminals and contact of the control unit for heating activation on the 109 - 110 terminals and upon the first start-up to enable the dehumidification and heating contacts.

**X1 TERMINAL BOARD**

In the DVS-DOS units, output 03 on the board and N in the terminal block can be used to connect an EXTRACTOR.

**TERMINAL FOR CONNECTION TO THE BOARD**     ⇒ the fan has a MEDIUM or MAXIMUM speed.

**7.4.4 Display connection**

The DDS and DCS units are supplied with the display fixed on the machine and wired.

For the DVS and DOS units the disconnected display is provided. The installer must fix the display on the wall and connect it to the machine.

In the case of installation of a DDS or DCS unit in an inaccessible place, it is possible to purchase the display remote kit which includes a 5, 10 or 20 meter cable ready for connection and a closing plate for the hole of the display.

In this case the installer will need to remove the display from the machine, to fix the display to the wall, to use the cable supplied to connect the display to the machine and to close the previous hole on the display with the supplied closure plate on the machine

The display should be installed in a practical position so that the user can execute the fundamental operations and display the functioning status of the unit and, possibly, the alarms.

- Plan a 503 box for the horizontal in-wall placement;
- Unscrew the lower screw of the display closing;
- Pass the cable to the dedicated rear holes and fix the base on the on-wall box;
- Reclose the control.



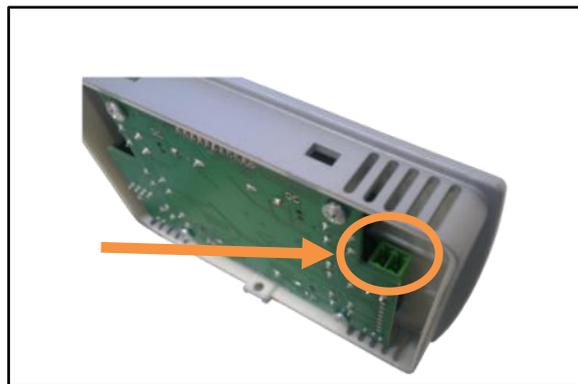
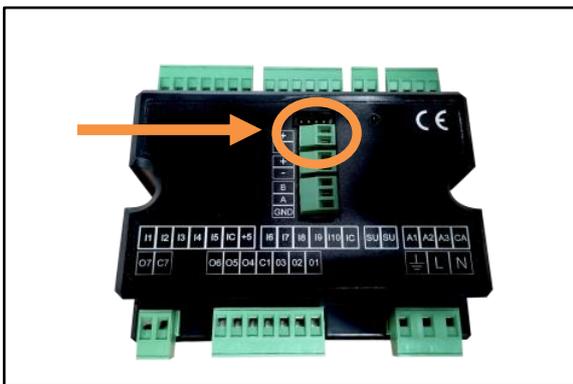
To connect the display, the cable from the unit must be connected as shown on the right:

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

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

**If the poles are inverted, the display will not function. The poles are indicated both on the plastic black power board (on board) and on the rear of the display.**

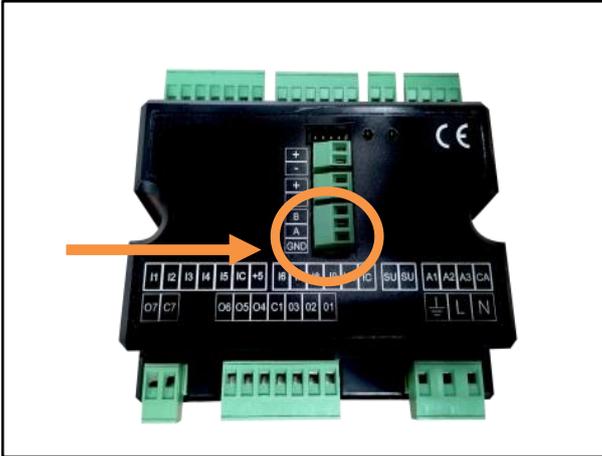
The cable should be connected as shown here below:





It is advisable to keep the communication cable between the board and the display as far as possible from any power cable in order to avoid compromising the communication between the two. It is therefore absolutely **FORBIDDEN** to run the cable close to power cables.

7.4.5 RS485 - Modbus Connection



Use a CEAM Y08761 cable or equivalent to connect the entire Modbus network.

Connect the Modbus RS485 cable to the removable terminal shown in the image on the left:

- to terminal **A** the (positive pole)
- to terminal **B** the - (negative pole)
- the shield braid to the **GND** terminal

Respect connection A, B, GND on all the devices connected to the network.

Refer to the installer section on the following pages for the Modbus parameters configuration.

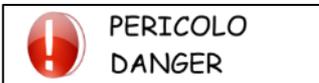
The RS485 Modbus connection is optional, but the terminal is always included

7.5 FIRST START-UP, CALIBRATION AND CONFIGURATIONS



First start-up and configurations must be performed exclusively by specialist personnel. **DO NOT IMPROVISE, UNIT MALFUNCTION DANGER**

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



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

Check that the refrigerant circuit valves, if present, are open and that the hydraulic system is vented, by eliminating any residual air, charging it gradually and opening the vent devices on the top. Check that there are no water leaks.

The unit leaves the factory ready for operation; follow the steps below to proceed with the first start-up:

1. Power the unit
2. Make sure the unit is OFF and if it is not, press the ON/OFF button to turn it off
3. **Wait 2 hours with the unit OFF before proceeding with the first ignition**
4. Once the time has passed press the ON/OFF button to switch on

### 7.5.1 Flow rate calibration for unit with electronic fan



Calibration of the recirculation fan is only necessary if when channelling of the air flow into the environment, the nominal flow rate is reduced, and it is necessary to increase the fan speed to compensate for the load losses. For the calibration of the unit a channel anemometer (hot-wire air flow meter for use in the channels) is required.

If a flow rate is measured that is either 10% higher or lower than the nominal rate indicated in the technical data table, the speed must be modified from the on-board user terminal. This function is essential to ensure the unit works correctly.

The nominal flow rates to be reached for the various units are the following:

	Models	040	050	060	070	090	100	160	190	210	230	300
Nominal flow rates in m <sup>3</sup> /h	DDS - DCS	350	450	500	600	700	800	1000	1200	1500	1500	2000
	DVS	-	450	-	600	700	800	1000	1200	1400	1400	-
	DOS	-	450	-	600	700	800	1000	1200	1500	1500	-

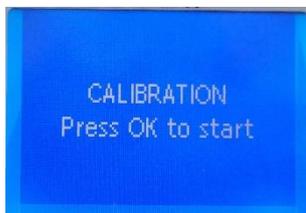
Go to the display; enter the main screen by pressing EXIT (multiple times, if necessary) or by pressing ON/OFF if the unit is turned off.



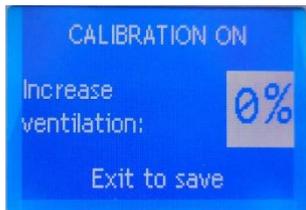
*During the modification phase (highlighted parameters), the program will wait for the confirmation without exiting.*



Press at the same time the keys on the right side UP, DOWN and OK. The screen on the left will appear. This screen is prompting for the password. Insert 0099 and press OK to confirm.



Press OK to start the calibration.



We are now in the calibration menu as shown in the image to the left. On the right it is possible to increase the speed of the recirculation fan for all those installations where the flow is ducted and therefore the load losses increase. Then proceed to measure with the anemometer and check that the flow rate reached is the nominal one. If this is not the case, increase the value until reaching of the nominal flow rate. *default: 0%*

Once the nominal flow is reached, press the EXIT button a few times to return to the main screen.

### 7.5.2 Installer parameter configuration

The installer parameters are used to modify some of the advanced settings of the unit.



**Some parameters significantly change the operation of the unit.  
ONLY MODIFY IF NECESSARY**

To access the installer menu, follow these steps:

- go to the main page by pressing the EXIT button if necessary
- press the MENU button to access the first page of the user menu
- scroll with the DOWN key to the last page (page 9)
- press the OK key
- the password is requested, enter "0010" and confirm with the OK button



*Use of keys:*

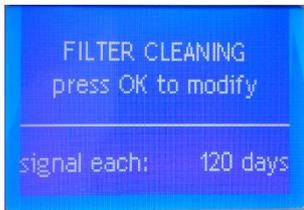
- With UP and DOWN you slide from one screen to another (some screens do not always appear)
- With EXIT you exit and enter the main screen
- with OK you execute the function indicated on the screen

#### Some screens may be not always present



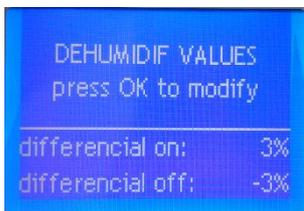
It is used to change the fan speed in the operating phases:

1. in recirculation it is possible to set MINIMUM, MEDIUM or MAXIMUM
  2. in dehumidification it is possible to set MEDIUM or MAXIMUM
- default: minimum recirculation and average dehumidification*



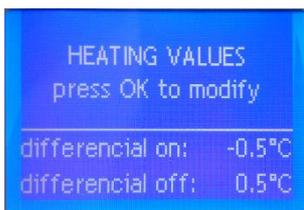
It is used to change the timer that indicates filter cleaning

Setting 120 days the need to clean the filters is reported on the main page every 4 months  
*default: it is signalled every 120 days*



It is used to modify the differentials that regulate the dehumidification request

*default: differential on 3% and off -3%*



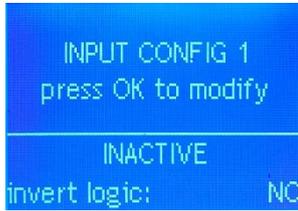
It is used to change the differentials that regulate the heating request

*This page is only present if the hot water coil option with valve or the electric resistance option has been purchased.*

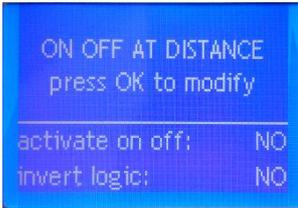
*default: differential on -0.5°C and off 0.5°C*



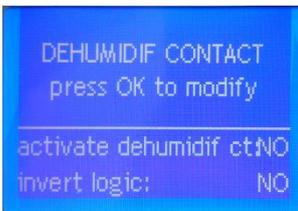
Used to change the differentials that control the cooling demand  
*This page is only present if the option for air cooling has been purchased*  
*default: differential on 0.5°C and off -0.5°C*



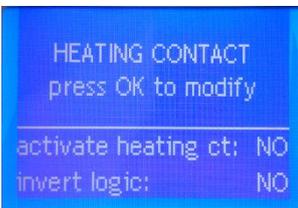
Three pages regarding the three digital inputs that can be configured to perform various functions. Go to the specific section on the previous pages for electrical connections and other information. For each command it is possible to reverse the logic. It is not possible to set 2 configurable commands the same. **WARNING: the configurable commands change the operation of the unit; do not change if you do not know what you are doing.**  
*default: all 3 commands not active and with logic reversal set to no*



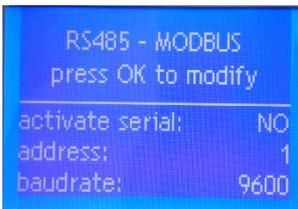
It is used to enable the contact for the remote device and, if necessary, to invert the operating logic  
*This page is only present if the modbus communication is not active.*  
 Without reversing the logic:  
 - contact open → unit off  
 - contact closed → unit on  
*default: remote on and logic inversion not active*



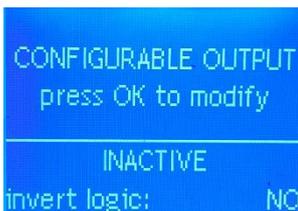
It is used to enable the dehumidification on/off contact and, if necessary, to invert the operating logic  
*This page is only present if the modbus communication is not active.*  
 Without reversing the logic:  
 - open contact → inactive dehumidification request  
 - closed contact → active dehumidification request  
*default: dehumidification contact and logic inversion disabled*



It is used to enable the heating on/off contact and, if necessary, to invert the operating logic  
*This page is only present if the modbus communication is not active and only if the hot water coil option with valve or the electric heating element option has been purchased.*  
 Without reversing the logic:  
 - open contact → heating request inactive  
 - closed contact → active heating request  
*default: heating contact enabling and logic inversion disabled*



Parameter settings for Modbus communication over RS485 serial.  
 This screen is always present. Below are the possible configurations:  
 - NO: serial not enabled  
 - SLAVE: the machine is controlled from serial  
 - IOT: Ability to control the board both from serial and from the display (advanced feature, see dedicated documentation).  
 More information on request.  
*default: serial not enabled, address 1 and baud rate 9600*



Configurable output setting.  
 The output can be inactive, as a generic alarm or as an air extractor output in the cases indicated in the electrical connections section.  
 For each command set, it is possible to reverse the logic.  
 For electrical connection and other information refer to the specific section on the previous pages.  
*default: output not active*



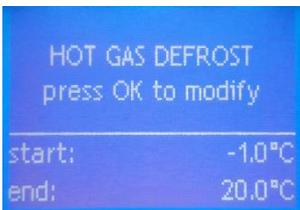
It is used to enable the contact for the alarm and, if necessary, to reverse the operating logic.  
*This page is only present in the DDS/DCS versions where there is no option for hot gas defrost and in the DVS and DOS versions regardless of the options.*

Without reversing the logic:

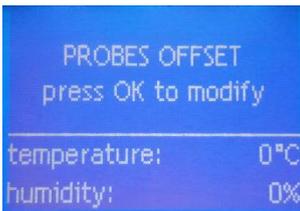
- contact open → alarm signal inactive
  - closed contact → active alarm signalling
- default: alarm contact enabling and logic inversion not active*



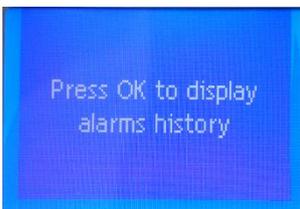
It is used to set the parameters for static defrost operation.  
*This page is only present if the hot gas defrost option has not been purchased.*  
*default: start -1.0°C and differential 11.0°C*



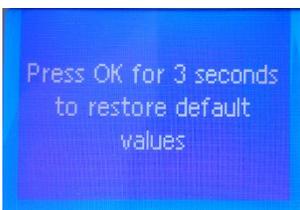
It is used to set the parameters for the hot gas defrost operation.  
*This page is only present if the hot gas defrost option has been purchased.*  
*default: start -1.0°C and differential 20.0°C*



It is used to set an offset for the ambient temperature and humidity probes.  
*default: 0°C and 0%*



It offers access to the alarm log and displaying of all the stored alarms

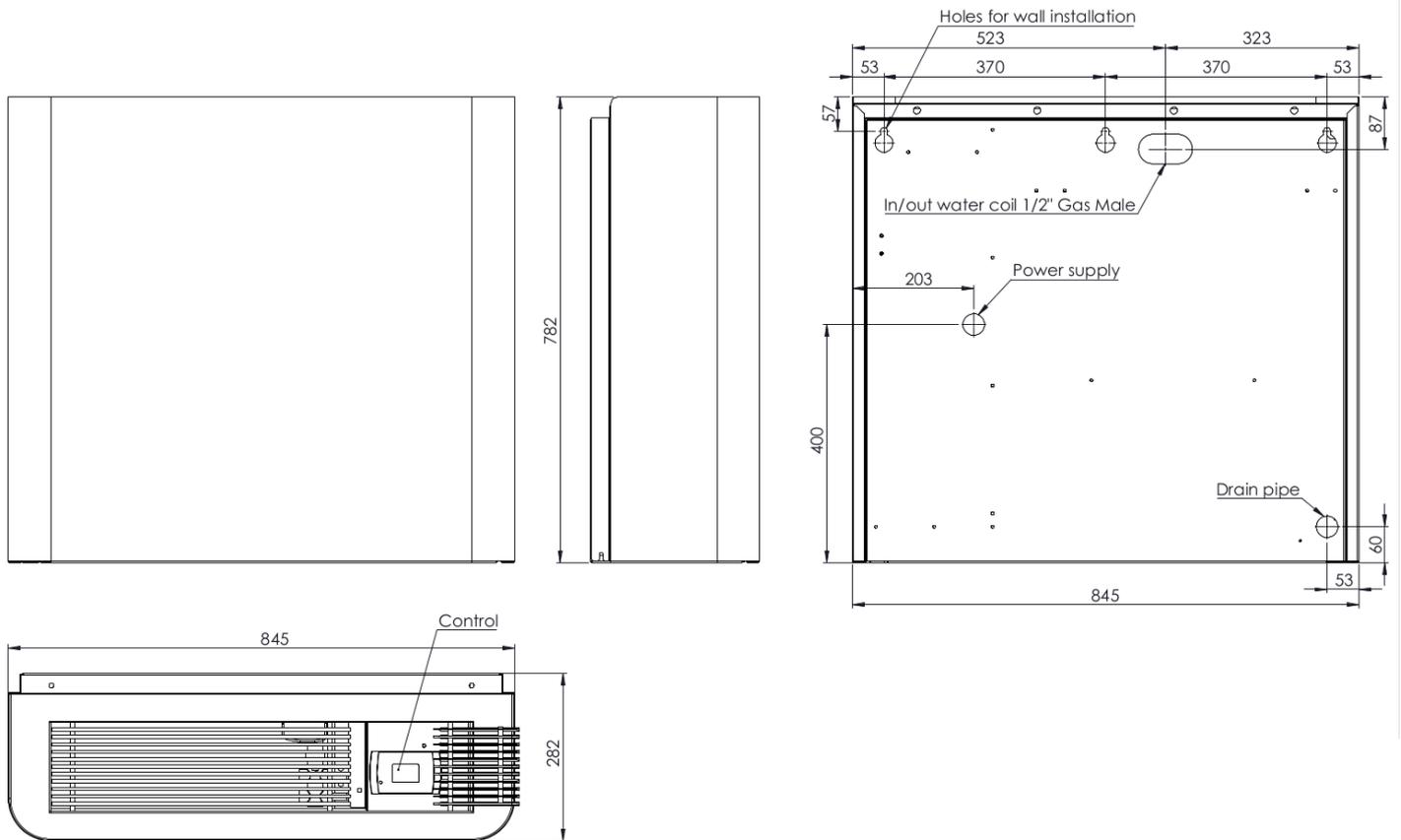


Possibility to restore all the installer, user and calibration parameters.  
 If some parameters are modified on the installer menu, on the user menu and on the calibration menu by mistake, all the parameters can be restored and the unit restored as just purchased.  
ATTENTION: restoring all the user settings such as the desired temperature and humidity, the set season and all the installer parameters and the calibration parameters are deleted but the programming parameters of the time bands are not deleted.

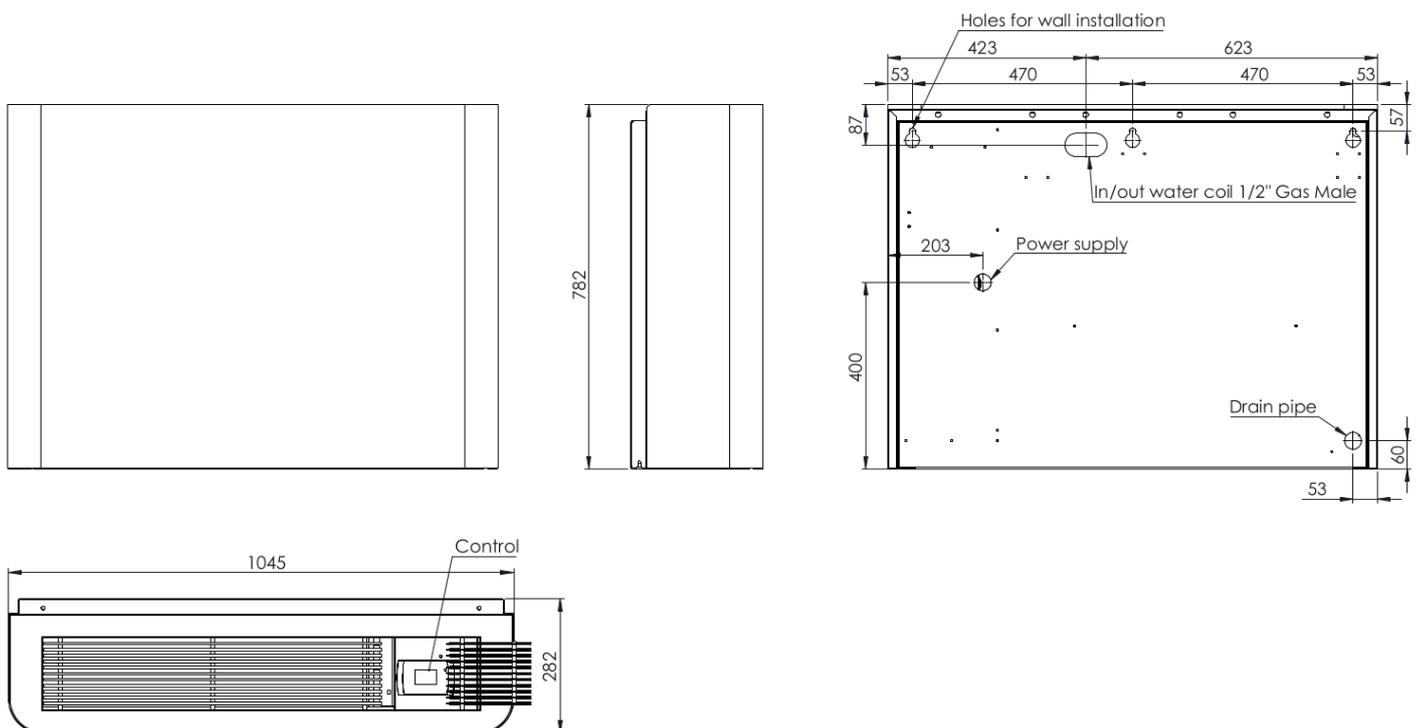
## 8 DIMENSIONAL DRAWINGS

### 8.1 DDS

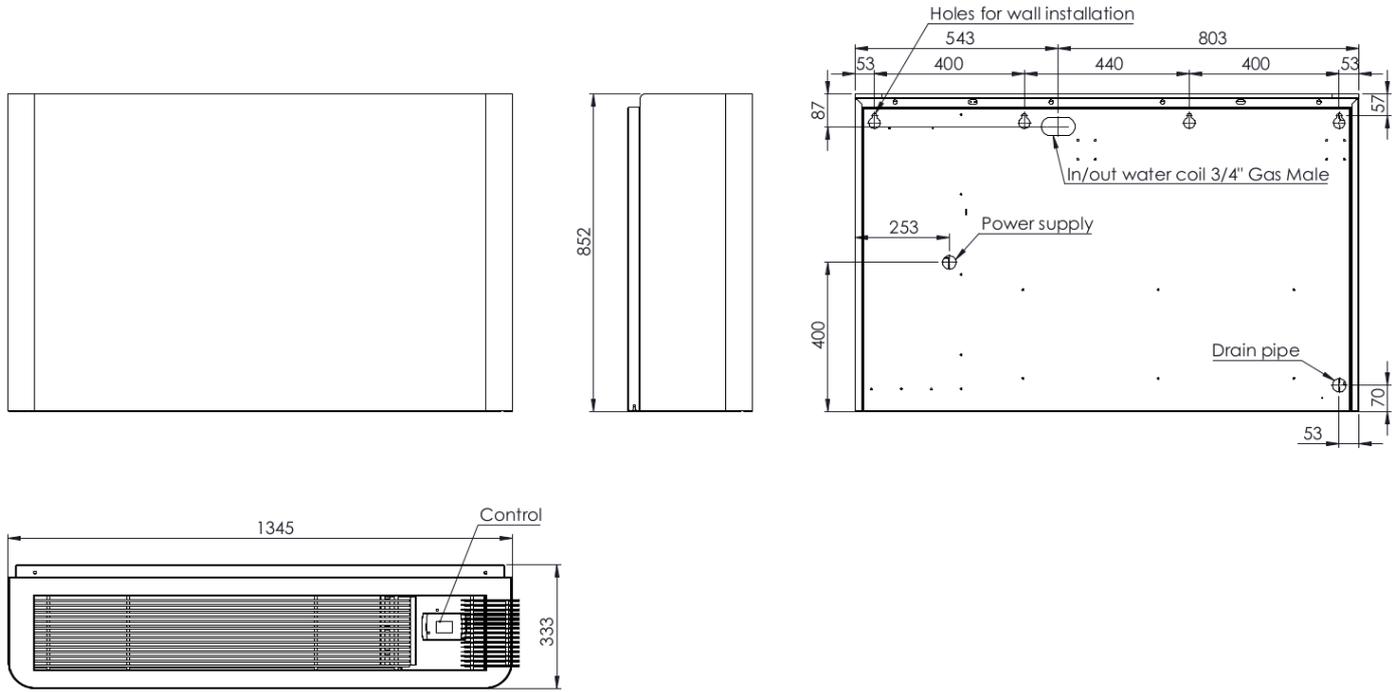
#### 8.1.1 DDS 40 – 50 – 60



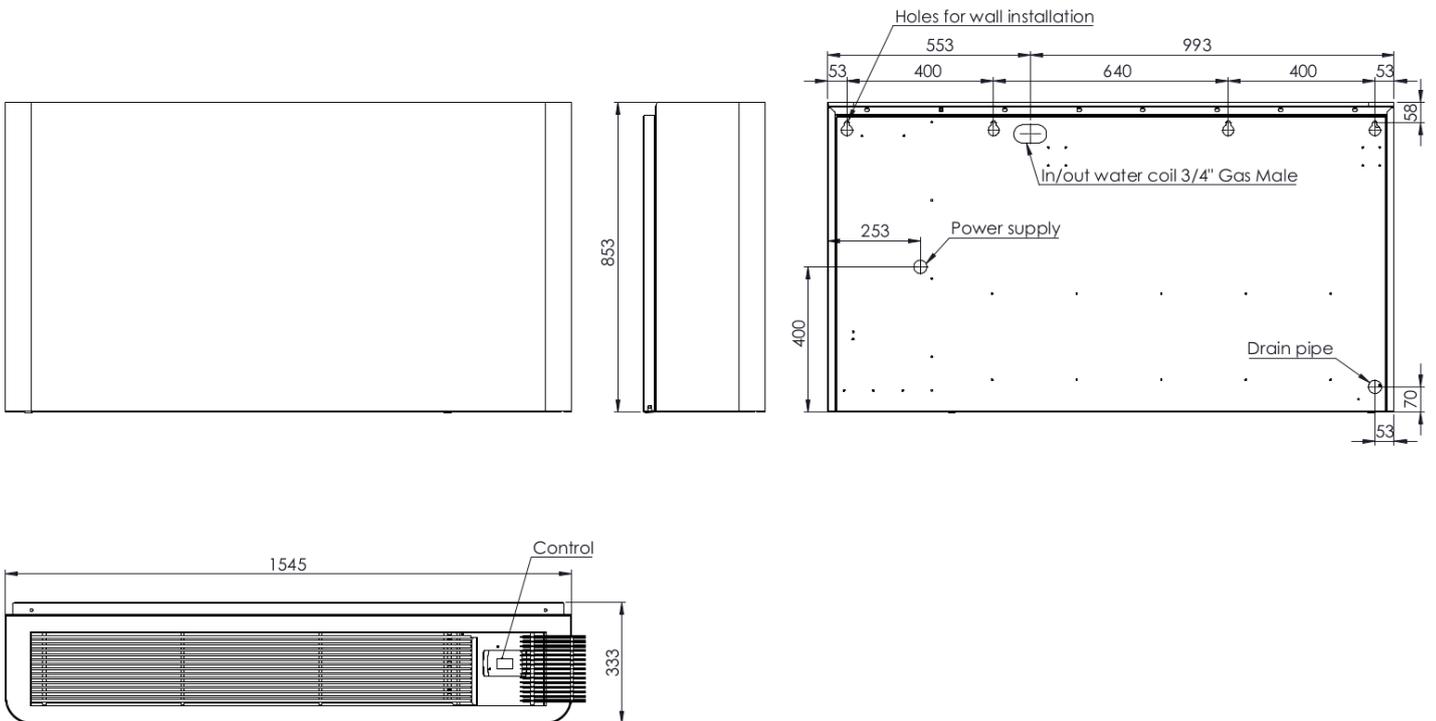
#### 8.1.2 DS 70 – 90 - 100



8.1.3 DDS 160 - 190

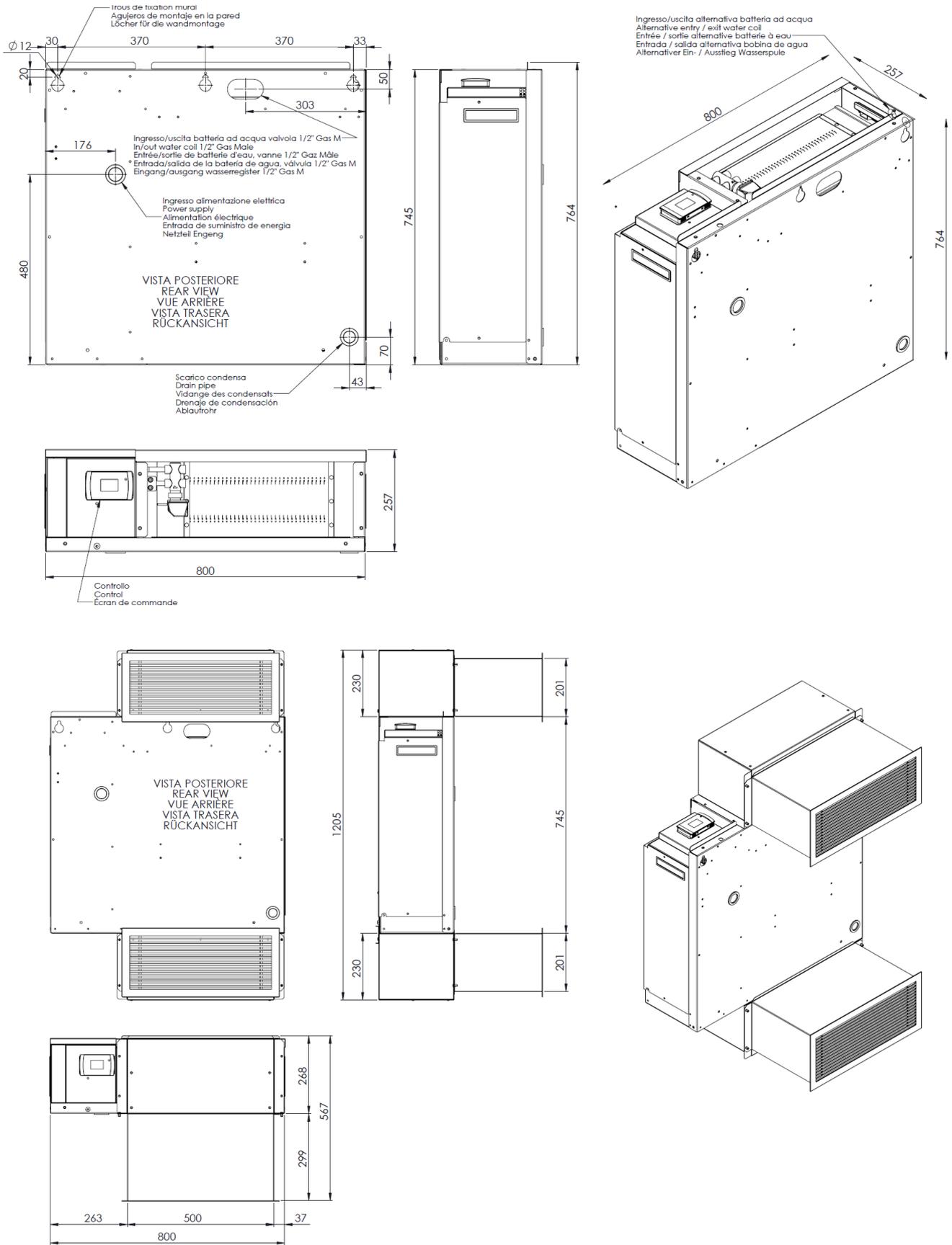


8.1.4 DDS 210 - 230 - 300

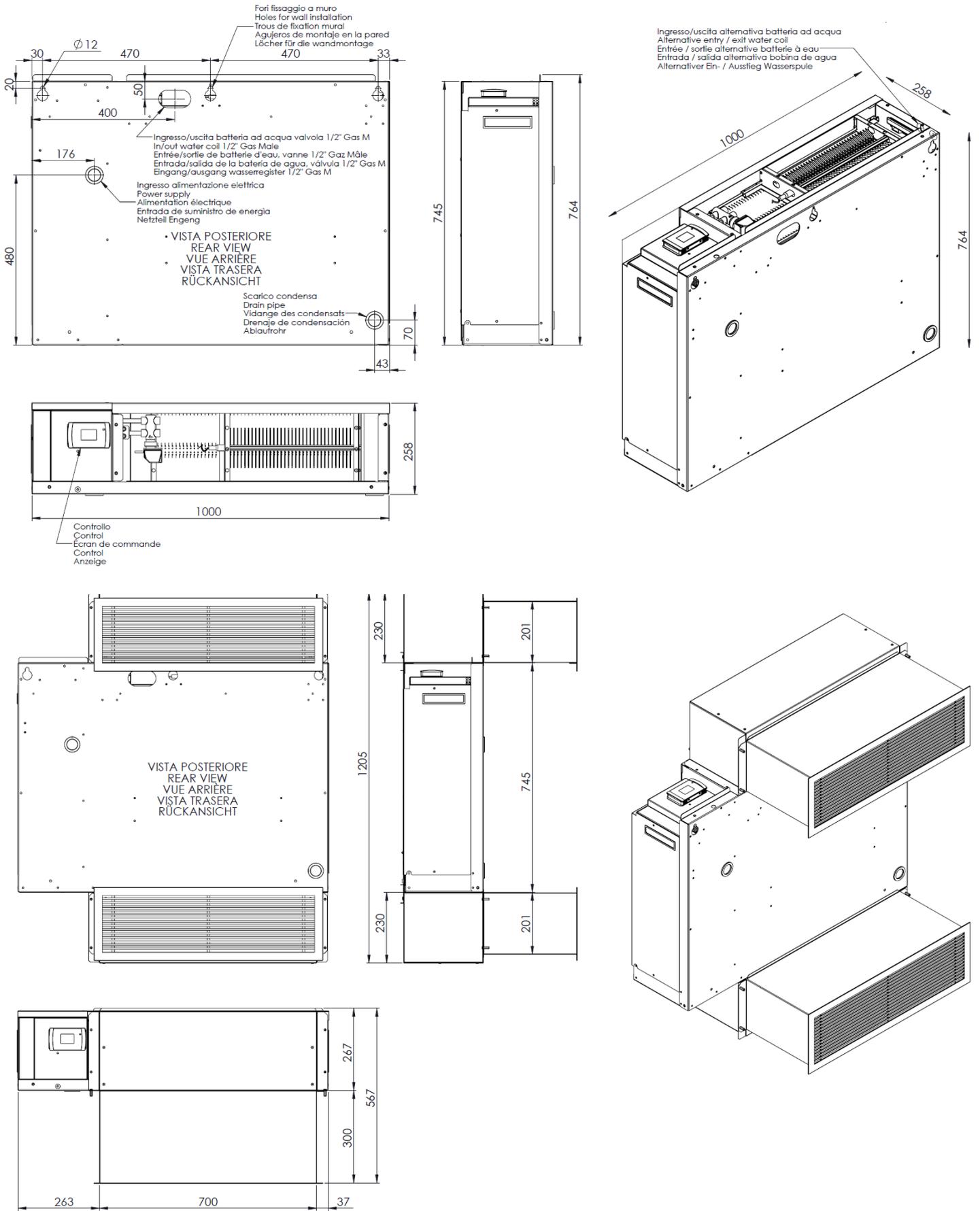


## 8.2 DCS

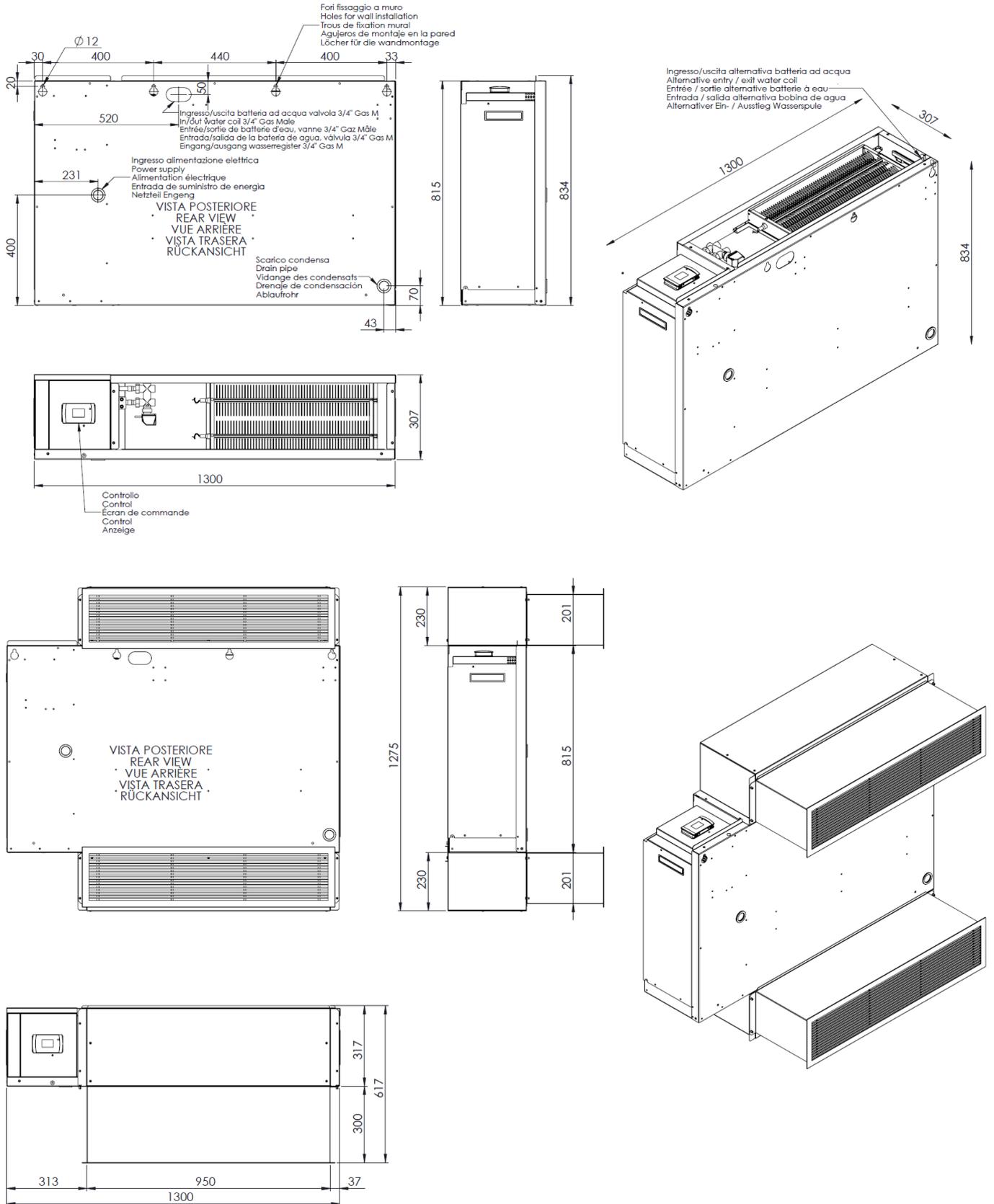
### 8.2.1 DCS 40 - 50 - 60



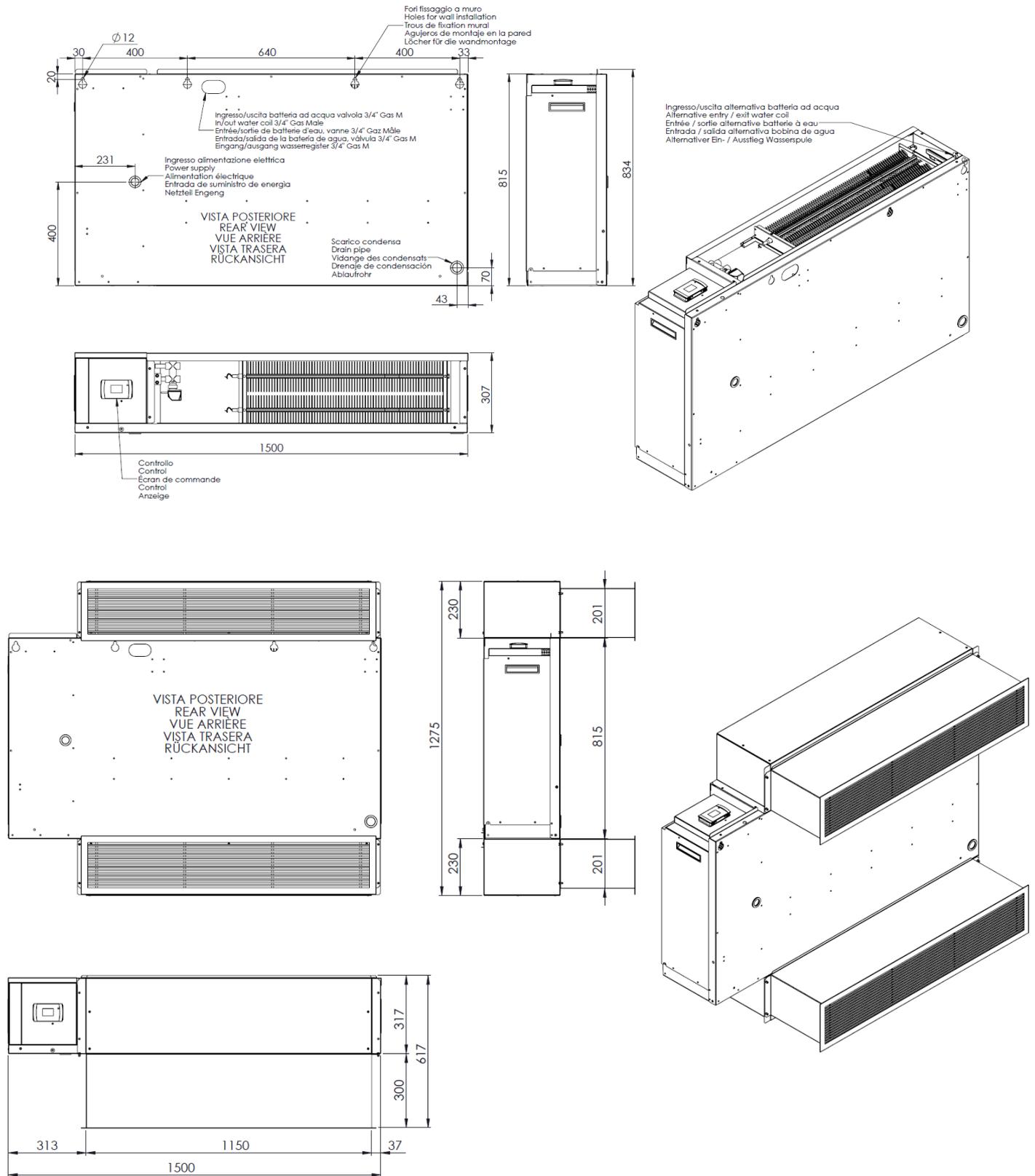
8.2.2 DCS 70 – 90 – 100

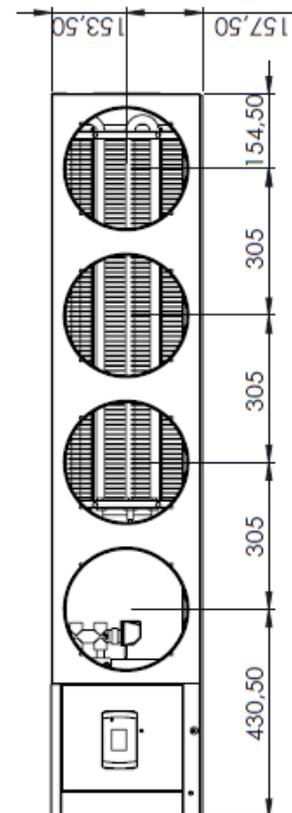
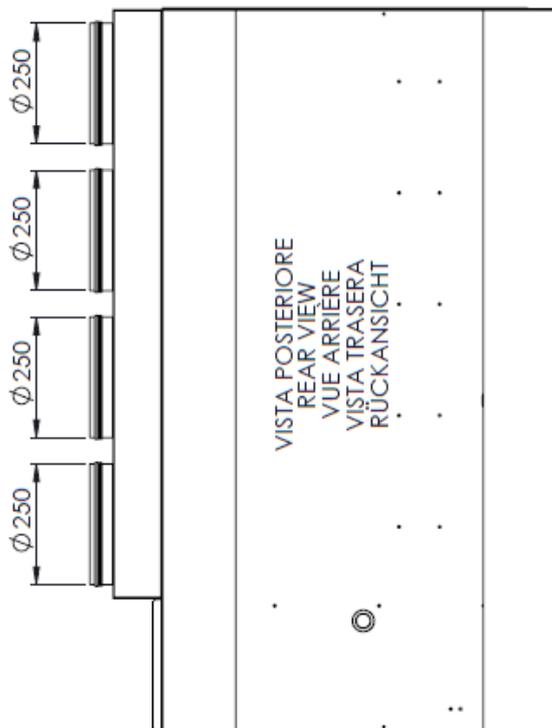
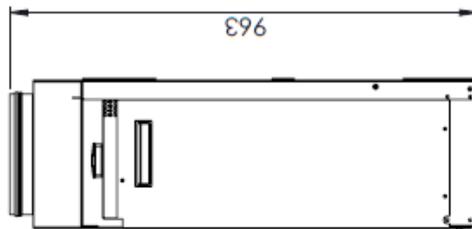
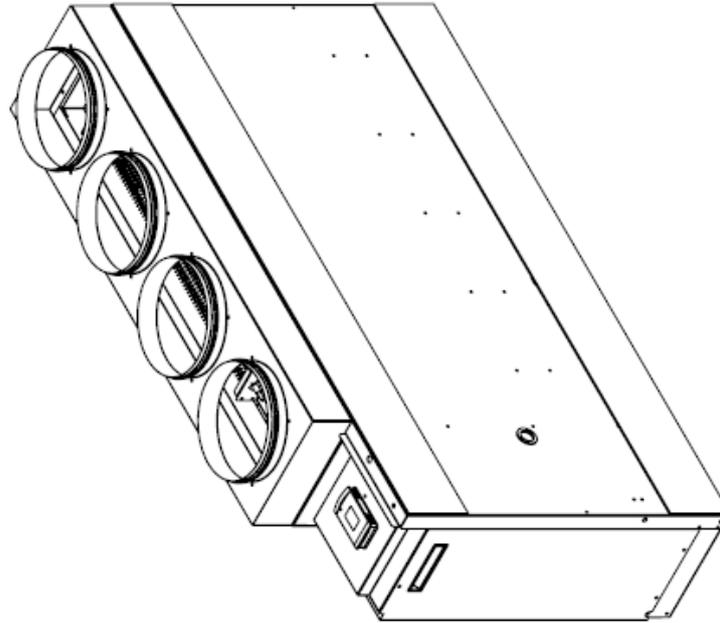


## 8.2.3 DCS 160 - 190



8.2.1 DCS 210 – 230 – 300

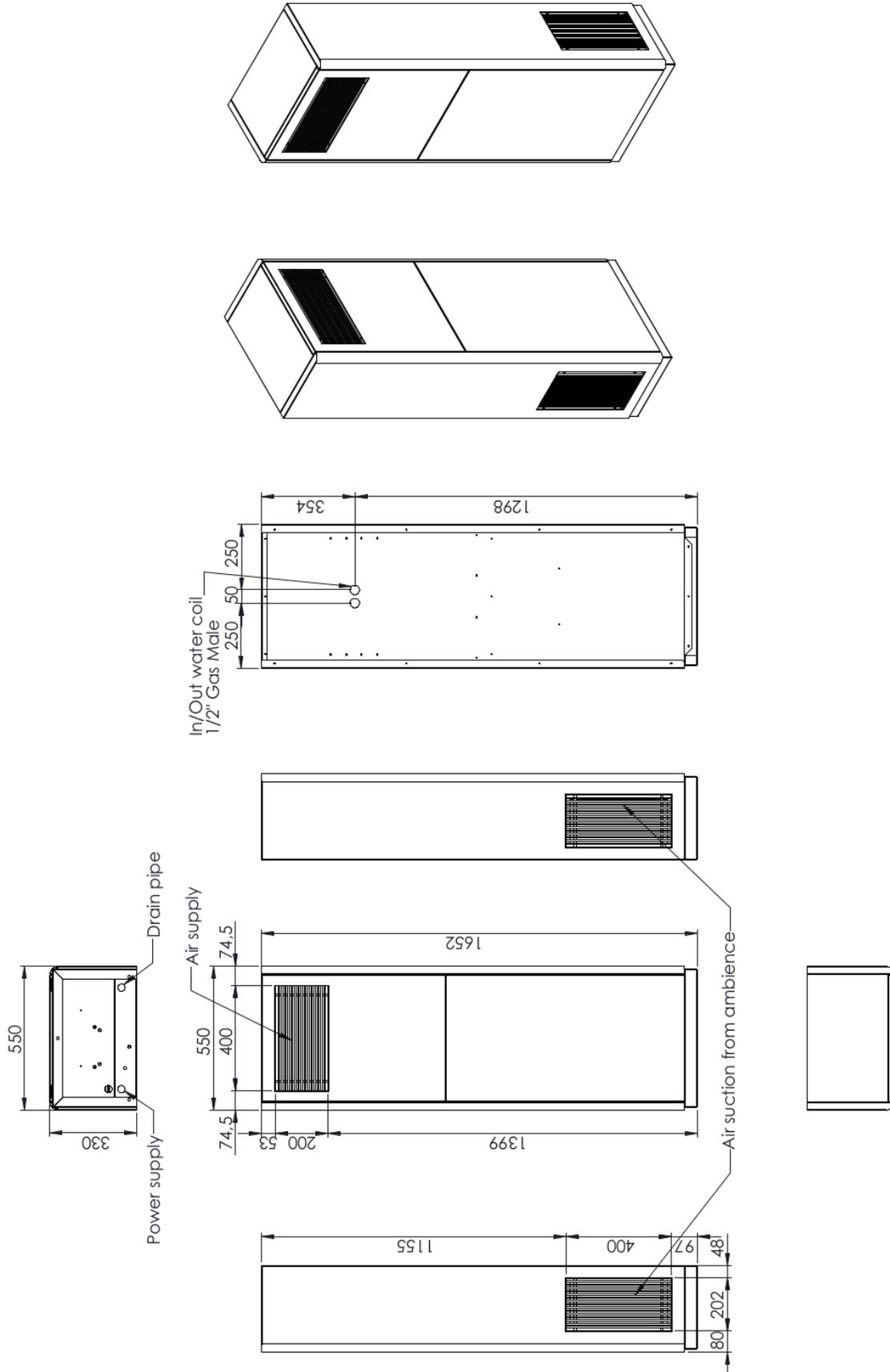




**8.3 DVS**

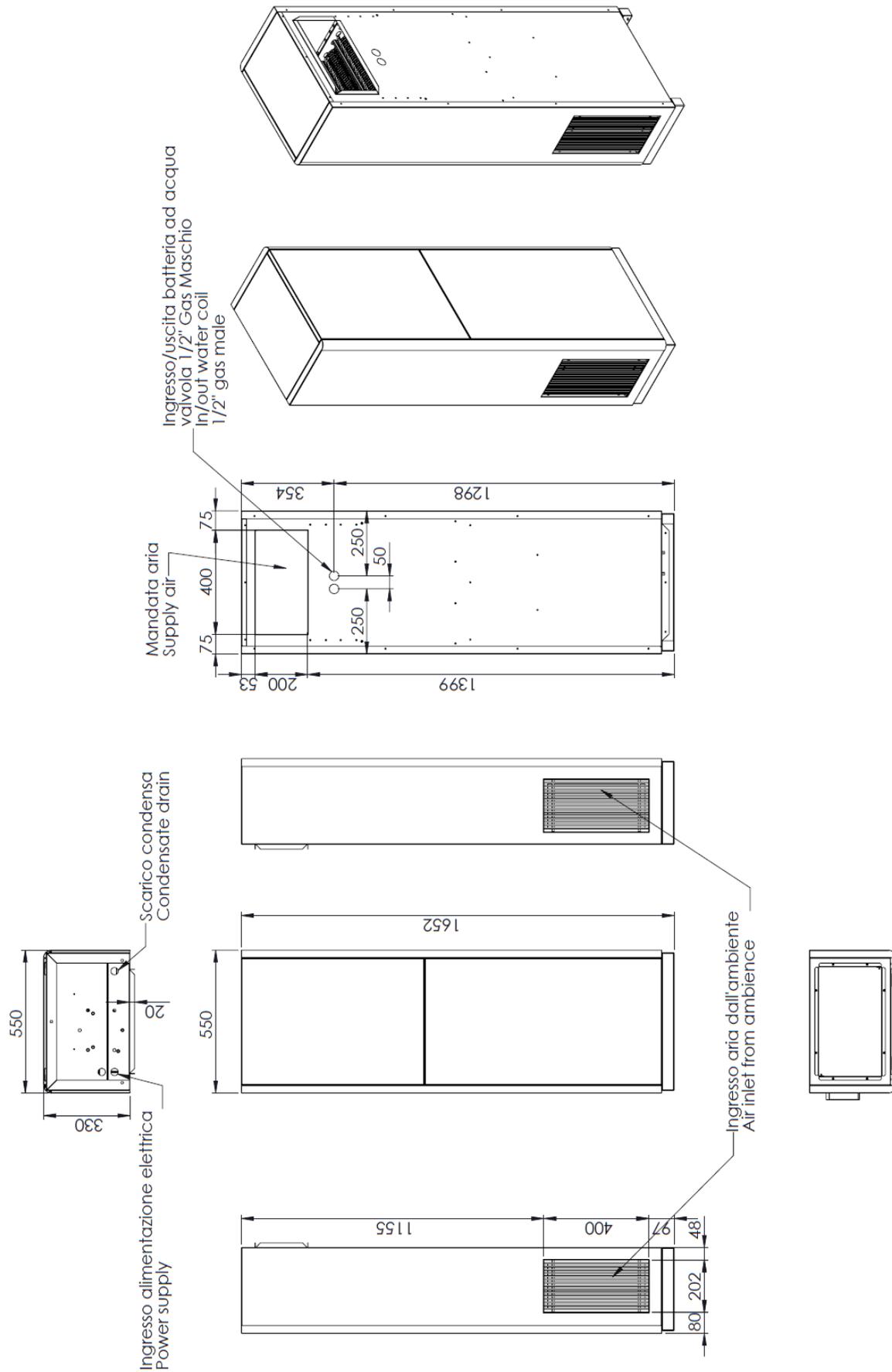
**8.3.1 DVS 50 – 70 – 90 – 100**

**STANDARD VERSION**



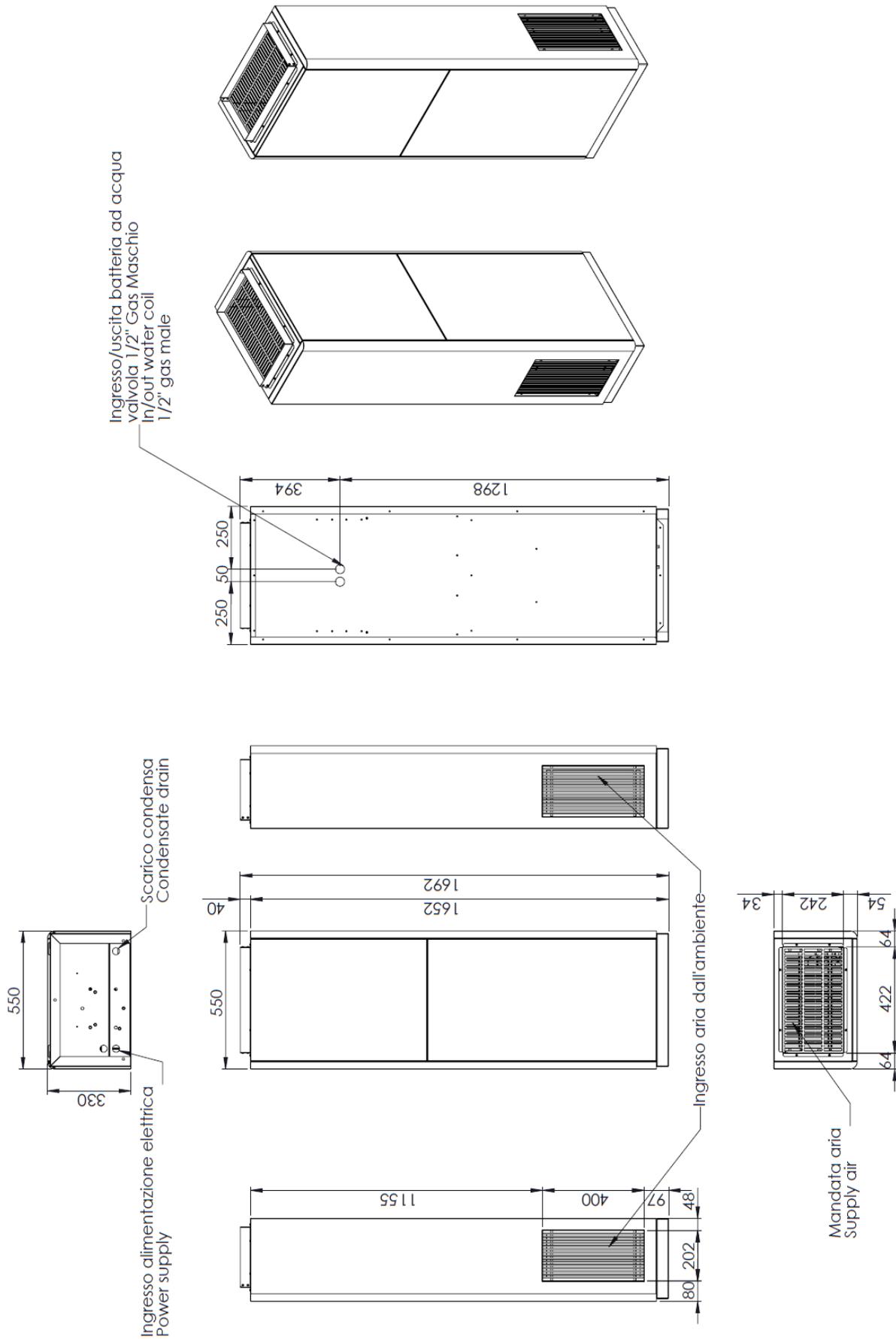
## 8.3.1 DVS 50 – 70 – 90 – 100

### BACK SUPPLY

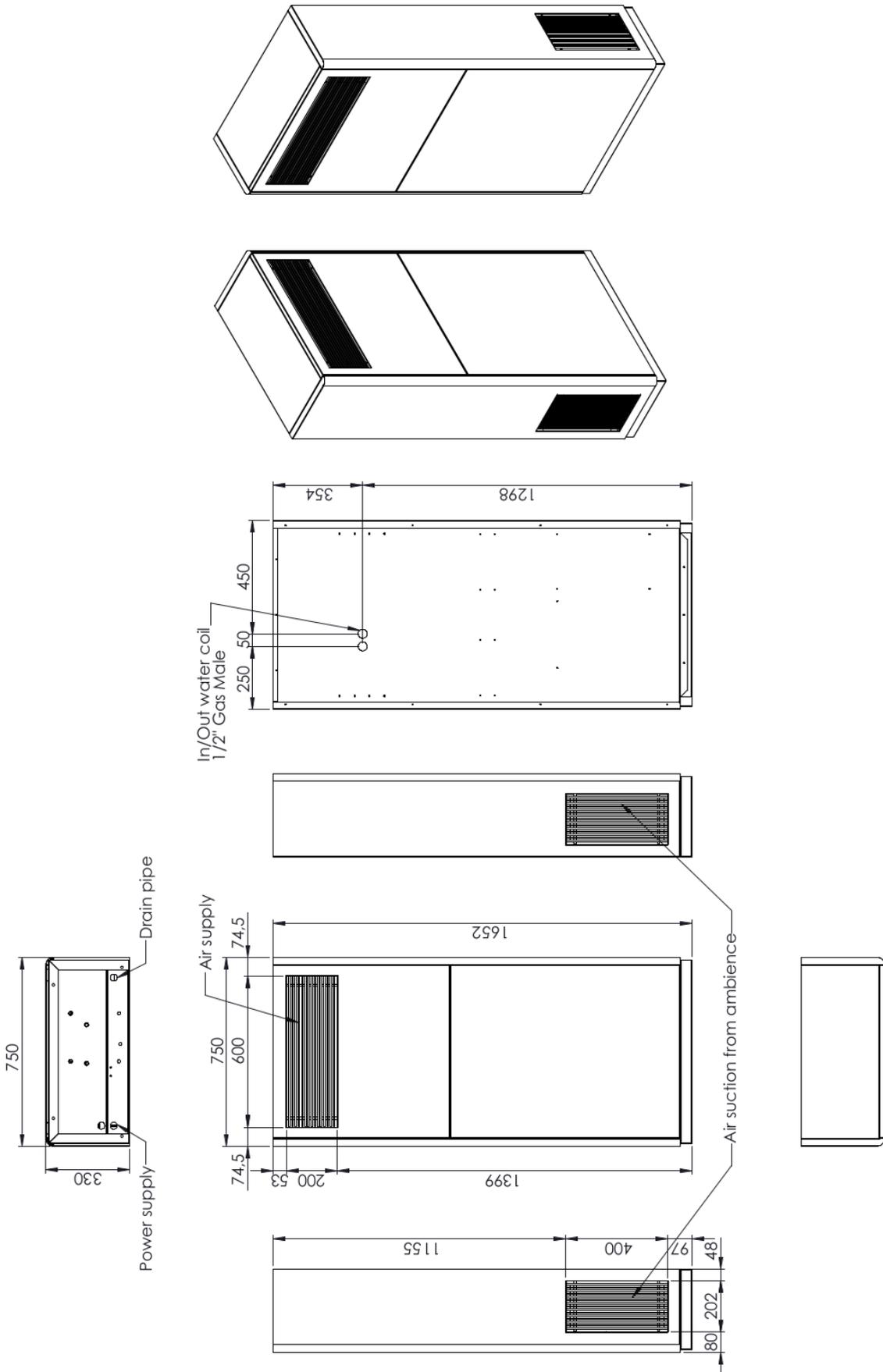


8.3.2 DVS 50 – 70 – 90 – 100

TOP SUPPLY

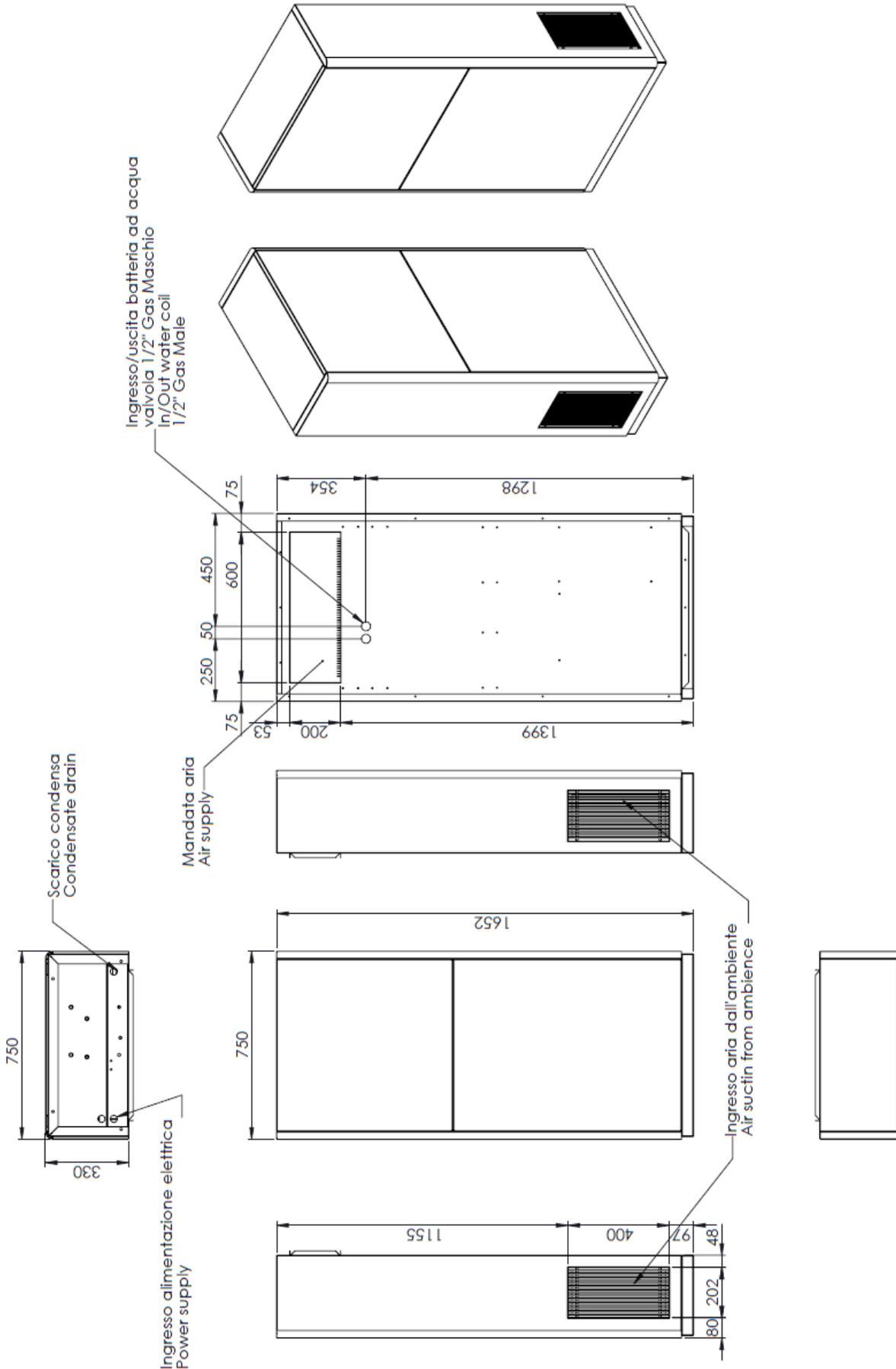


8.3.3 DVS 160 – 190 – 210 – 230  
STANDARD VERSION



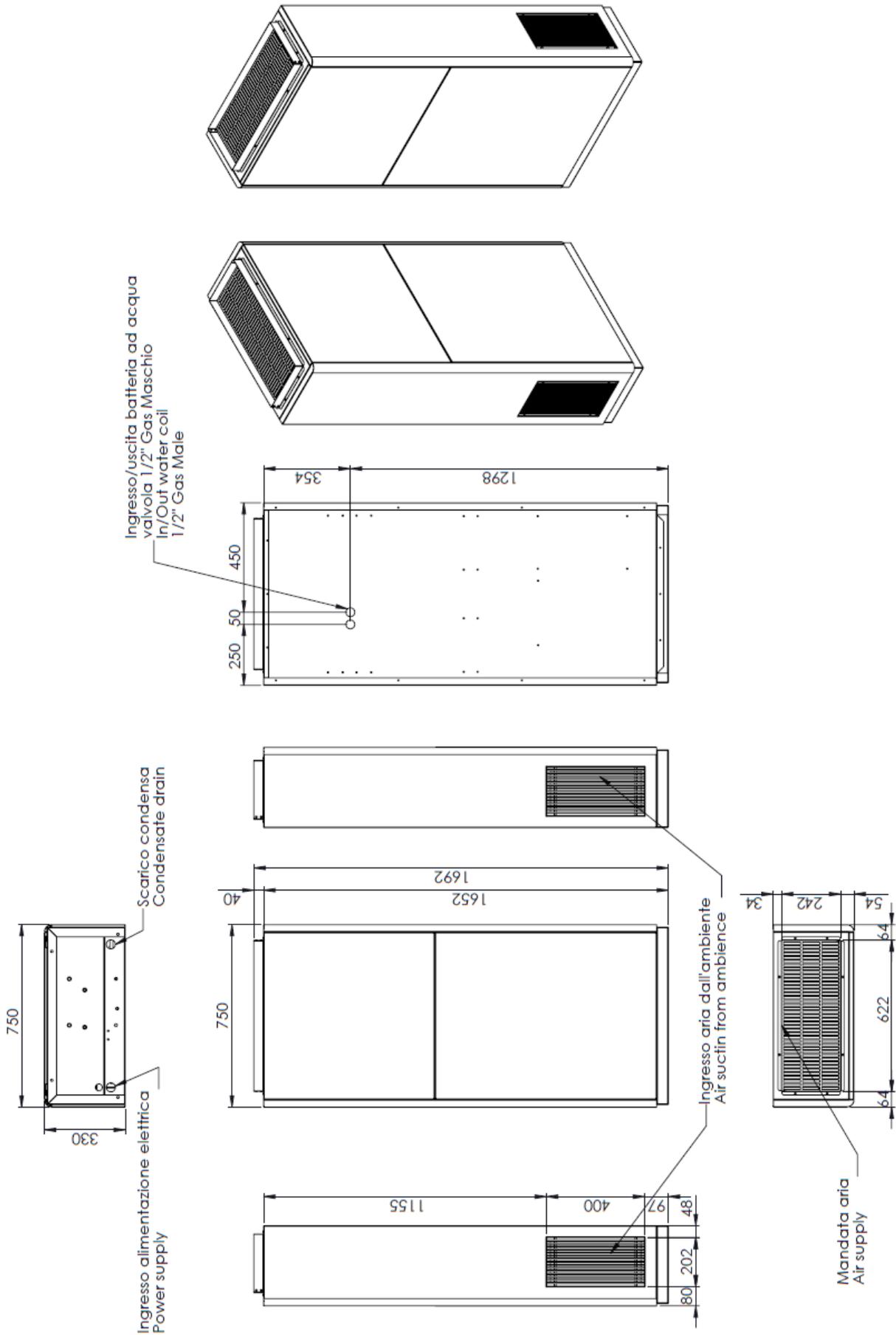
8.3.4 DVS 160 – 190 – 210 – 230

**BACK SUPPLY**



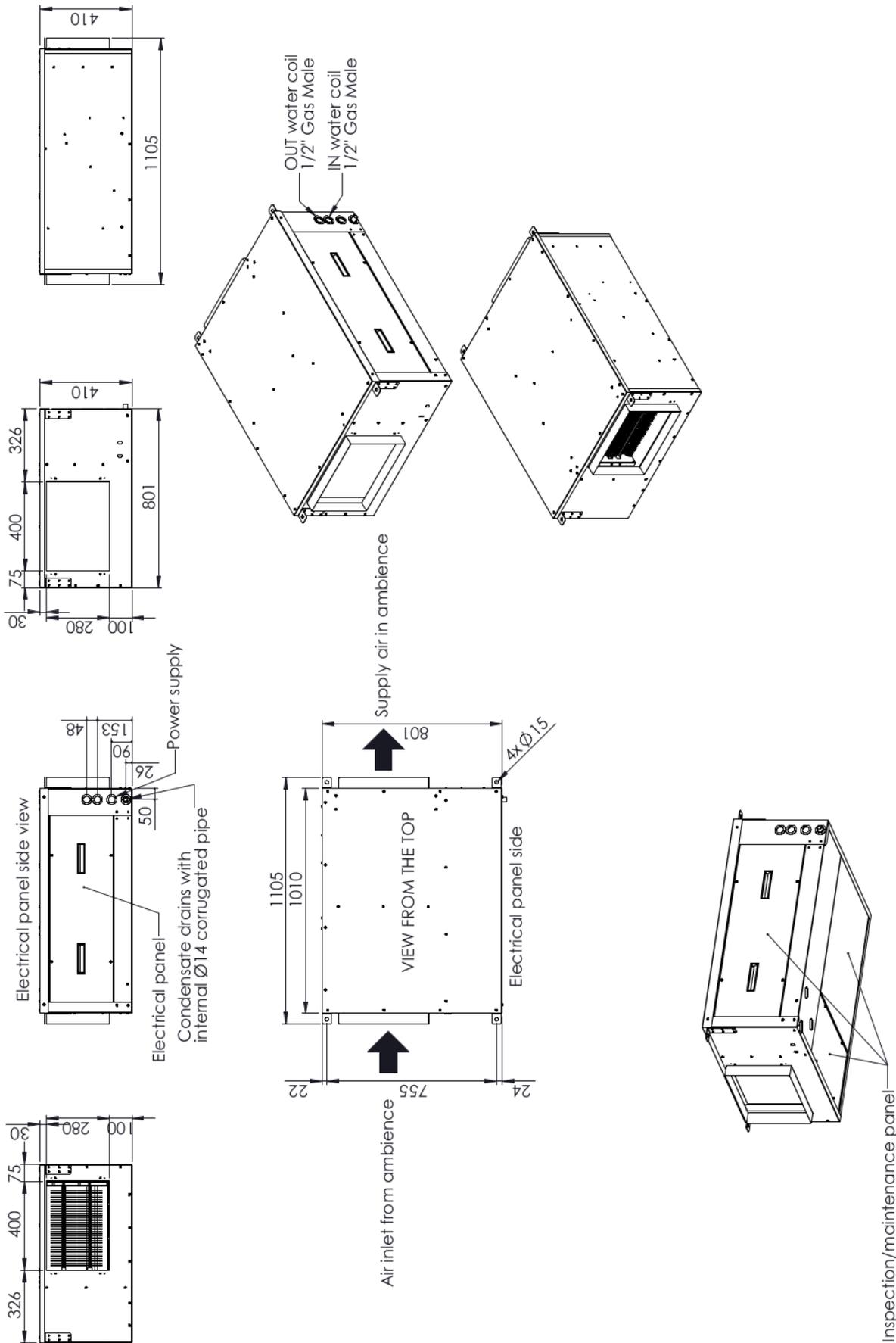
8.3.5 DVS 160 – 190 – 210 – 230

TOP SUPPLY

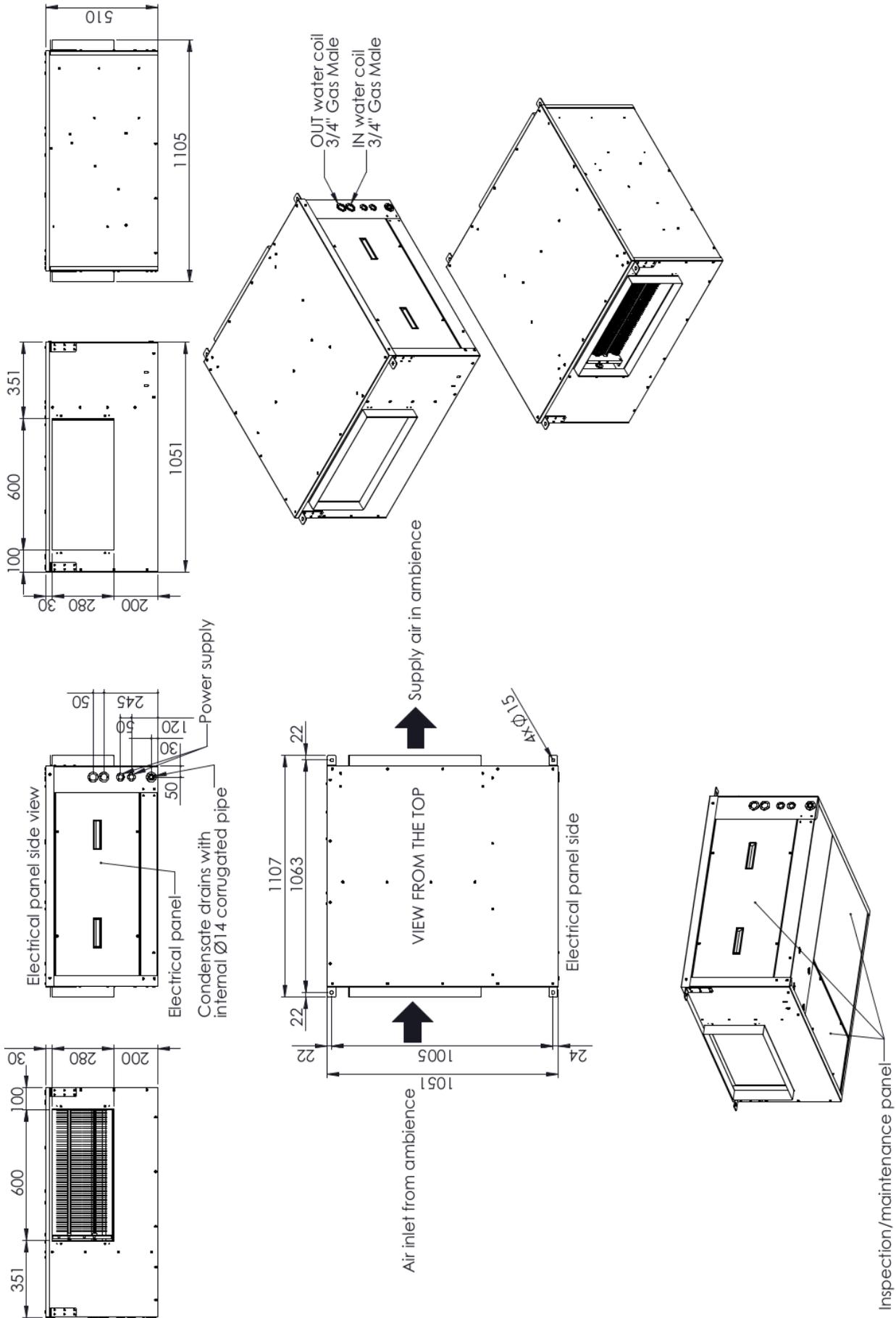


**8.4 DOS**

**8.4.1 DOS 50 – 70 – 90 – 100**



8.4.2 DOS 160 – 190 – 210 – 230





# HiDew

Dehumidifiers 

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