HiDew
Dehumidifiers

www.hidew.it
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DDS Dehumidifier for exposed installation swimming pools

DCS Piped dehumidifier for technical compartment installation swimming pools

DVS Vertical dehumidifier for exposed installation swimming pools

DOS Horizontal dehumidifier for false ceiling installation swimming pools

INSTALLATION, USE AND MAINTENANCE MANUAL

DDS – DCS – DVS - DOS

Dehumidifiers for small swimming pools

READ THIS MANUAL CAREFULLY BEFORE USING THE UNIT

Dear Customer,

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

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

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

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

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

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EEE Register: IT18080000010604

SUMMARY

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 personnel training.

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

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

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

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

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

The manufacturer has the right to update the production and manuals, without being obliged to update previous versions, except for exceptional cases.
This manual reflects the applicable technology at the time the unit is sold and cannot be considered inadequate due to subsequent updates based on new technology.
For any requests for updates of the use and maintenance manual or supplements, which are to be considered an integral part of the manual, please refer to the contact information indicated in this manual.
Contact the manufacturer for further information and to submit any proposals on how to improve the manual.
The manufacturer kindly asks you to communicate the address of the new owner if the unit is passed on to third parties, in order to facilitate the forwarding of any supplements of the manual to the new user.

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 given in this manual with regard to operation, use, maintenance and events, however, 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 SERVICE RULES

The operating rules described in this manual are an integral part of the unit supply.
These rules are also intended for operators previously trained specifically to operate this type of unit and contain all the necessary and important information for operating safety and optimal use of the unit.
Rushed and incomplete training leads to improvisation, which is the cause of many accidents.

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

- **the 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 no longer legible.

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

DANGEROUS ZONE: *any zone within and/or close to a machine in which the presence of an exposed person constitutes a risk to the health and safety of that person.*
EXPOSED PERSON: *any person who is completely or partially in a hazardous zone.*
OPERATOR: *the person or persons assigned to installing, operating, regulating, performing maintenance on, cleaning, repairing and transporting the machine.*

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

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

The units have been designed and built according to the current state-of-the-art and technical rules in force.
Applicable laws, provisions, regulations, decrees and directives for such machinery have been complied with.
The materials used and the parts of equipment, as well as production procedures, quality and control assurance comply with the highest standards of safety and reliability.
Unit performance, continuous operation and durability are maintained by using the above-mentioned materials and parts for the purposes specified in this user manual, handling them with due care and performing thorough maintenance and up-to-standard service.

1.3 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, not 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 vibrations or electromagnetic fields. It is also prohibited to operate in any way other than that stipulated or disregard required safety operations.

The units are designed for use on swimming pools or places with the 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 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.

1.4 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 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.*

1.5 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 lighted; insufficient or excessive lights can be a danger;
- wait about 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 electrical components presence can be dangerous during installation and maintenance operations;

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

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

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

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

Make sure that the pressurised pipes, or other components subject to wear, are intact. Also make sure there are no leaking fluids or hazardous substances.
Should there be a leak, the operator must not restart the unit before having resolved the problem.

1.6 GENERAL SAFETY RULES

1.6.1 Wearing protective clothing

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

1.6.2 FIRE EXTINGUISHER AND FIRST AID

Place a first aid box and a fire extinguisher near the unit.
Periodically check that the fire extinguishers are loaded and all operators know how to use them.
If a fire breaks out, use the fire extinguisher according to the relative regulations in force and contact the fire brigade.
Periodically check that the first aid kit is complete.
Make sure the emergency telephone numbers are readily available and nearby.

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

1.6.3 Suggestions for advices 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.

1.6.4 SAFETY DATA PLATE

Generic danger

Electric voltage hazard

Risk of burns

Hazard: moving mechanical parts

Shearing risk

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 COMPONENTS

2.1.1 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-oxidizable 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.

2.1.2 Refrigerant circuits

The refrigeration circuit is made entirely in 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.

2.1.3 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 .

2.2 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

2.2.1 DDS

40	50	60
70	90	100
160	190	
210	230	300

2.2.2 DCS

40	50	60
70	90	100
160	190	
210	230	300

2.2.3 DVS

70	90	100	
160	190	210	230

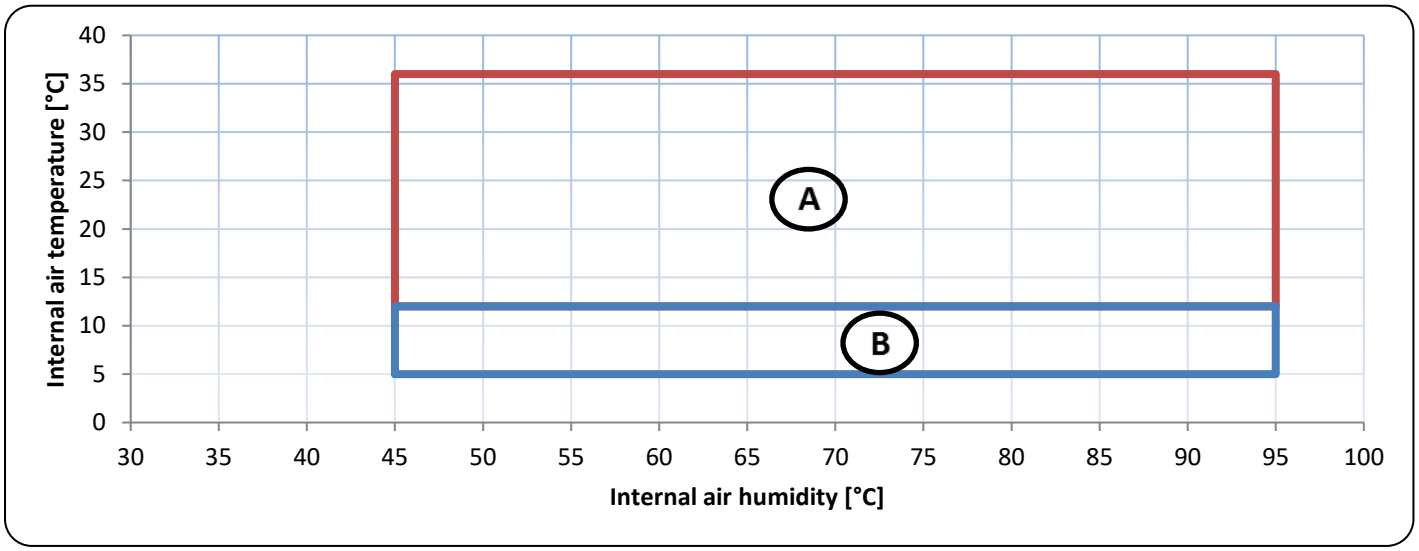
2.2.4 **DOS**

70	90	100

160	190	210	230

2.3 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

2.4 DIMENSIONS

		40	50	60	70	90	100	160	190	210	230	300
DDS	mm	850 x 780 x 280			1050 x 780 x 280			1350 x 850 x 330		1550 x 850 x 330		
DCS	mm	802 x 763 x 257			1002 x 763 x 257			1302 x 833 x 307		1502 x 833 x 307		
DVS	mm	-			550 x 1700 x 330			750 x 1700 x 330				-
DOS	mm	-			1105 x 800 x 410			1105 x 1051 x 510				-

2.5 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 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 bands.
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 band management
- Time slot temperature management
- Time slot humidity management
- Alarm history management
- Simultaneous management of electric heating elements and hot water coil with 3-way valve (models 040 - 050 - 060 excluded)
- 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

2.6 OPTIONS

	DDS	DCS	DVS	DOS
Hot water coil with 3-way valve	●	●	●	●
Electric heating elements	●	●	●	●
EC modulating electronic fan	●	●	SERIES	SERIES
Hot gas defrost	●	●	●	●
Silenced version with soundproofing of the compressor	●	●	●	●
Display remote kit (10 or 20 m)	●	●	-	-
RS485 Modbus serial card	●	●	●	●
Support feet kit for floor installation	●	-	-	-
Wall crossing plenum kit (2 pcs)	-	●	-	-
Air supply and return plenum (2 pcs)	-	●	-	-
Supply and return air grilles (2 pcs)	-	●	-	-
Display mounted on board	-	-	●	-
Upwards supply rectangular flange kit	-	-	●	-
Rear supply rectangular flange kit	-	-	●	-
Display remoting cable (5, 10 or 20 m)	-	-	●	●
Remote display with connection cable (2 m)	-	-	SERIES	SERIES
High efficiency filter	-	-	-	●
Circular channel supply flange kit	-	-	-	●
Circular channel return flange kit	-	-	-	●

● = option available

- = option not available

2.6.1 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.

2.6.2 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 mounted inside.

2.6.3 EC modulating electronic fan

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

2.6.4 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.

2.6.5 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.

2.6.6 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.

2.6.7 RS485 Modbus serial card

The RS485 modbus connection is made available for remote or home automation system supervision.
More information available on request.

2.6.8 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.

2.6.9 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.

2.6.10 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.

2.6.11 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.

2.6.12 Display mounted on board

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

2.6.13 Upwards supply rectangular flange kit

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

2.6.14 Rear supply rectangular flange kit

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

2.6.15 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 ready and adjusted for connection between the machine and the wall display, it is only available for DVS and DOS units.

2.6.16 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 is available only for the DVS and DOS units.

2.6.17 High efficiency filter

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.

2.6.18 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 mount a 250 mm opening, for the 160, 190, 210 and 230 units it will mount two 250 mm openings. It is only available for the DOS units.

2.6.19 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 mount a 250 mm opening, for the 160, 190, 210 and 230 units it will mount two 250 mm openings. It is only available for the DOS units.

2.7 INSTALLATION

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 ELECTRIC CIRCUITS

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

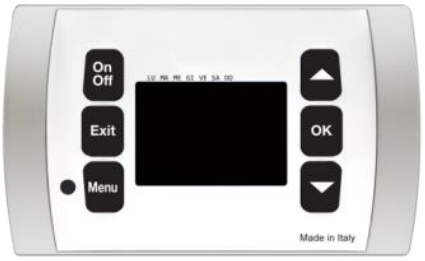
All the remote controls are implemented with low voltage signals, powered by an isolation transformer.

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

on the 'main' page it allows temporary shutdown of the unit
- on 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 to exit 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

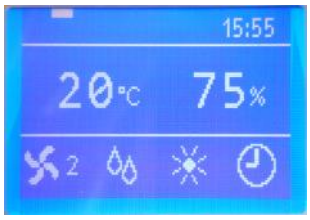
- it is used to slide from screen to screen or to modify a value

3.2 MAIN PAGE

AVVERTENZA
CAUTION

USE OF KEYS:

- *With OFF you turn off the unit*
- *By keeping pushed EXIT, you display temporarily the software version*
- *with MENU you 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
- indicates that the unit is dehumidifying the air
- it indicates that a heating device is active
- indicates that there are the time slots active
- 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 writing 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. Set of the desired humidity *
3. Setting of the desired temperature *
4. Alarms management *
5. Time-bands programming *
6. Language setting
7. Day and time setting
8. Unit status displaying
9. Password request

* page not always present

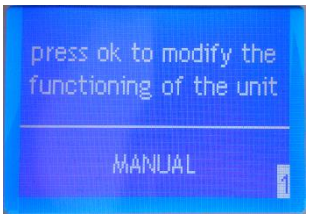
Each page has a number on the right part, in order to simplify its use.

AVVERTENZA
CAUTION

USE OF KEYS:

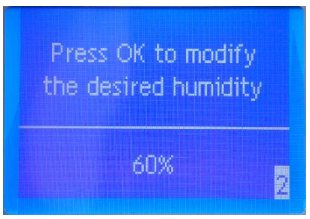
- *With UP and DOWN you slide from one page to another (some screens do not always appear)*
- *press EXIT to exit and to return to the main page*
- *use the OK button to execute the function indicated on the page*

Now let's see in detail 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)

- 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, it 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 3 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 4 of the user menu is used to manage the alarms present
(the page appears if: there are alarms)

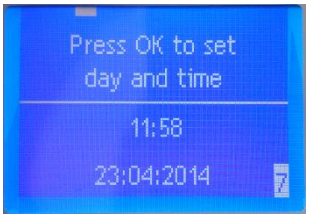
- press OK to enter the alarm menu
- press EXIT to exit and to return to the main page
- use the UP key to return to the previous page
- use the DOWN key to continue on the next page

On the left page 5 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-bands 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 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 7 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

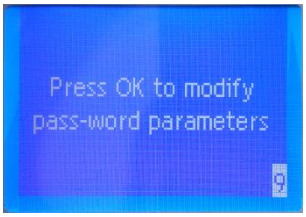
You will modify sequentially:

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 in 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

On the left, page 8 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 9 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

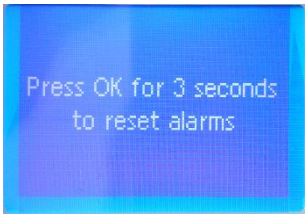
This menu is available only if there is an alarm on the unit and it allows to display the active alarm and, if possible, to reset it.

On the left is the 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 resistances 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



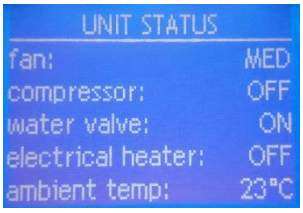
To the left is the page to reset the alarms. Only certain alarms can be reset and must be reset with the knowledge that the cause that generated the alarm has not been resolved and the alarm could recur.

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

3.5 UNIT STATUS MENU

This menu is always accessible and allows to display 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 some 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 resistance 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 HOUR BAND 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.

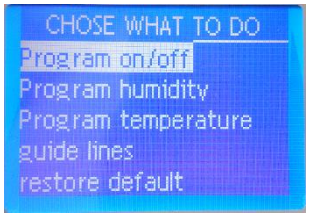
AVVERTENZA
CAUTION

It is of fundamental importance to set the current time and date, go to page 7 of the user menu (more information in the previous paragraphs).

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:
  - 28°C from 08:00 to 20:00
  - 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.



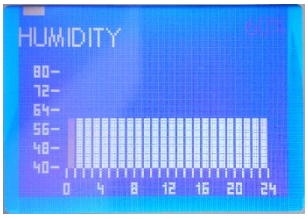
To the left the page that is used to choose what to do

- 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 resistance 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, there is the bar indicating the 24 hours
- on the left you find the bar indicating the desired humidity you can set

AVVERTENZA
CAUTION

USE OF KEYS:

- *pressing OK you change the time to program*
- *pressing MENU, you change the day to program*
- *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 Guide

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

AVVERTENZA
CAUTION

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.

AVVERTENZA
CAUTION

USE OF KEYS:

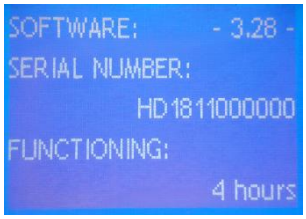
- *- Pressing for 3 seconds OK, you recover all the values*
- *the EXIT key is used to return to the previous page*

3.7 OTHER PAGES

3.7.1 Off and stand-by page

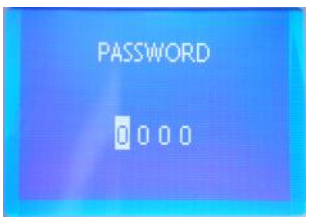
This page is used to turn on the machine by pressing the ON-OFF button.
If the machine is left off for more than 180 minutes, the stand-by mode will be activated automatically, which is signalled by means of the dedicated wording on this page. Stand-by mode turns ventilation on at minimum.

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 turn 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/day	46	52	62
Nominal air flow	m^3/h	350	450	500
Useful static head	Pa	40	40	40
Sound pressure	dB(A)	43	45	46
Hot water coil power	kW	3.7	4.5	4.8
Water coil load loss with valve	kPa	11	16	17
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50	230/1+N/50
Heating element power	kW	1	1	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	9.5	9.5	12.2
Peak unit current with resistances	A	23.4	23.4	25.6
DDS dimensions (base x depth x height)	mm	850 x 280 x 780	850 x 280 x 780	850 x 280 x 780
DCS dimensions (base x depth x height)	mm	803 x 257 x 764	803 x 257 x 764	803 x 257 x 764
Weight	Kg	46	46	46
Refrigerant	type	R410A	R410A	R410A

MODEL	um	070	090	100
Dehumidification capacity	L/day	68	89	98
Nominal air flow	m^3/h	600	700	800
Useful static head	Pa	40	40	40
Sound pressure	dB(A)	47	48	49
Hot water coil power	kW	6.1	6.8	7.5
Water coil load loss with valve	kPa	35	42	50
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50	230/1+N/50
Heating element power	kW	2	3.2	3.2
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	14.5	22.8	22.8
Peak unit current with resistances	A	27.9	50.4	50.4
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/day	165	186
Nominal air flow	m^3/h	1000	1200
Useful static head	Pa	40	40
Sound pressure	dB(A)	51	53
Hot water coil power	kW	10.1	11.5
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	4
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	31.1	32.5
Peak unit current with resistances	A	72.4	80.4
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/day	211	226	290
Nominal air flow	m^3/h	1500	1500	2000
Useful static head	Pa	40	40	40
Sound pressure	dB(A)	54	55	57
Hot water coil power	kW	14.5	14.5	17
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	7.2	7.2	7.2
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	23.4	23.5	25.1
Peak unit current with resistances	A	63.9	63.9	78.9
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	070	090	100
Dehumidification capacity	L/day	67	92	99
Nominal air flow	m^3/h	600	700	800
Useful static head	Pa	40	40	40
Sound pressure	dB(A)	46	47	48
Hot water coil power	kW	6.1	6.8	7.5
Water coil pressure drops with valve	kPa	33	40	47
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50	230/1+N/50
Electrical heaters capacity	kW	2	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	0.93	1.47	1.51
Maximum unit power	kW	1.36	2.02	2.02
Nominal unit current	A	4.6	7.1	7.5
Maximum unit current	A	6.6	9.7	9.7
Peak unit current	A	20	37.3	37.3
Maximum unit current with resistances	A	15.3	22.8	22.8
Peak unit current with resistances	A	28.7	50.3	50.3
Dimensions (base x depth x height)	mm	550 x 330 x 1700	550 x 330 x 1700	550 x 330 x 1700
Weight	Kg	80	80	80
Refrigerant	type	R410A	R410A	R410A

MODEL	um	160	190	210	230
Dehumidification capacity	L/day	161	182	213	225
Nominal air flow	m^3/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
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	2.1	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	31.9	33.3	18	18.1
Peak unit current with resistances	A	73.2	81.2	58.5	58.5
Dimensions (base x depth x height)	mm	750 x 330 x 1700	750 x 330 x 1700	750 x 330 x 1700	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	070	090	100
Dehumidification capacity	L/day	67	92	99
Nominal air flow	m^3/h	600	700	800
Useful static head	Pa	200	175	150
Sound pressure	dB(A)	46	47	48
Hot water coil power	kW	6.1	6.8	7.5
Water coil pressure drops with valve	kPa	33	40	47
Electrical power supply	V/ph/Hz	230/1+N/50	230/1+N/50	230/1+N/50
Electrical heaters capacity	kW	2	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	0.93	1.47	1.65
Maximum unit power	kW	1.36	2.02	2.18
Nominal unit current	A	4.6	7.1	8.6
Maximum unit current	A	6.6	9.7	11
Peak unit current	A	20	37.3	38.6
Maximum unit current with resistances	A	15.3	22.8	24.1
Peak unit current with resistances	A	28.7	50.3	51.6
Dimensions (base x depth x height)	mm	1105 x 800 x 410	1105 x 800 x 410	1105 x 800 x 410
Weight	Kg	84	84	84
Refrigerant	type	R410A	R410A	R410A

MODEL	um	160	190	210	230
Dehumidification capacity	L/day	161	182	213	225
Nominal air flow	m^3/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
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	33.7	35.1	19.8	19.9
Peak unit current with resistances	A	75	83	60.3	60.3
Dimensions (base x depth x height)	mm	1105 x 1050 x 510	1105 x 1050 x 510	1105 x 1050 x 510	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.

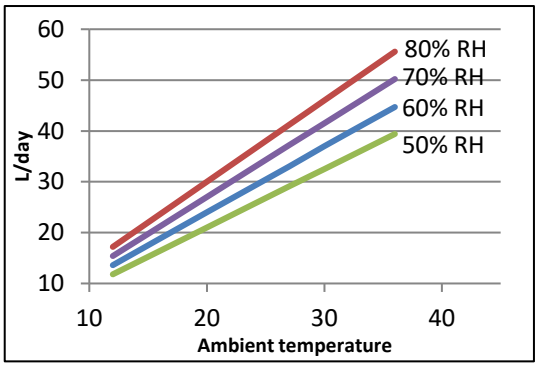
4.4 PERFORMANCE CURVES

The temperature is shown on the bottom axis.
The dehumidification capacity is indicated on the left axis.

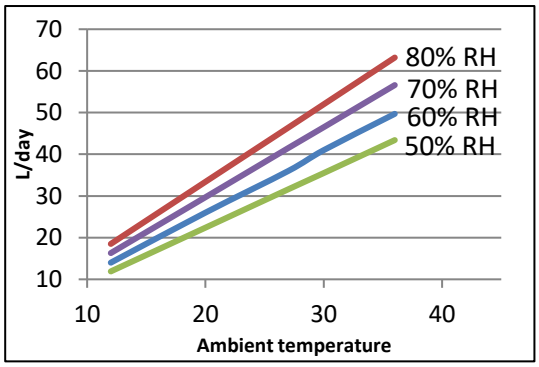
To calculate the dehumidification capacity at a specific work point:

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

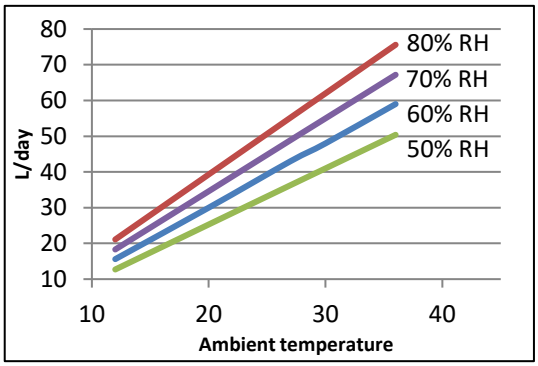
40



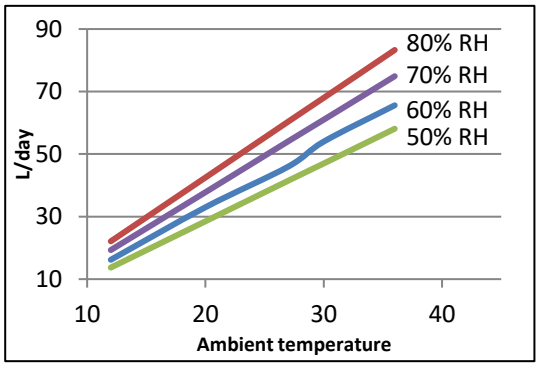
50



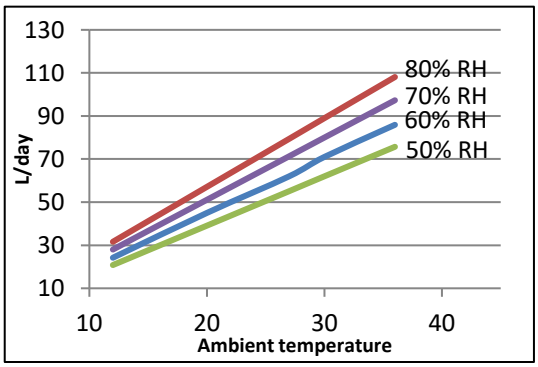
60



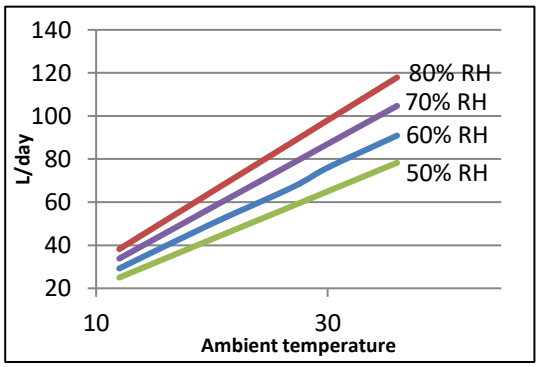
70



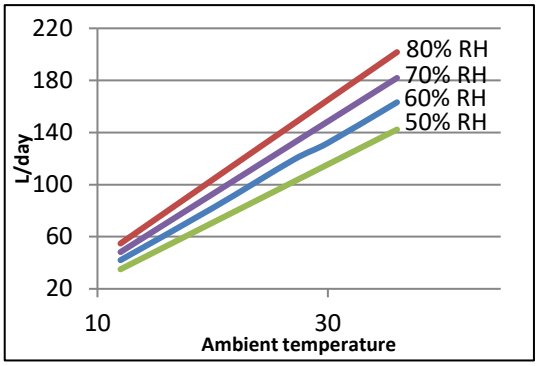
90



100



160



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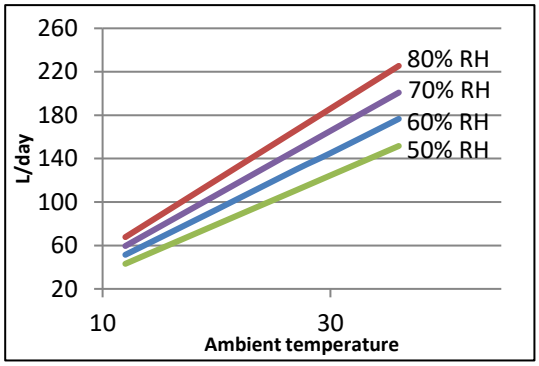

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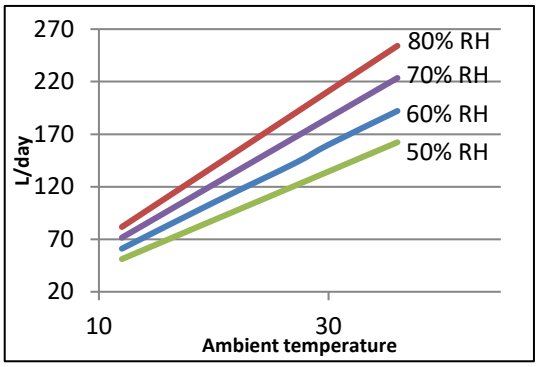

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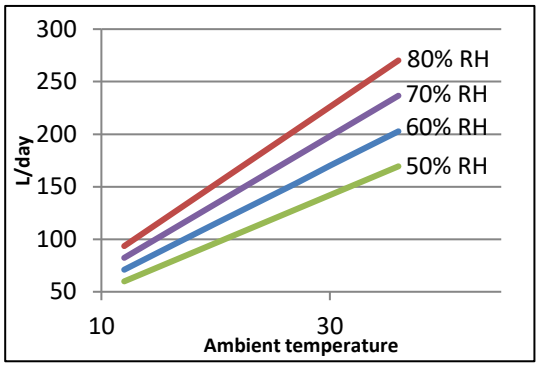

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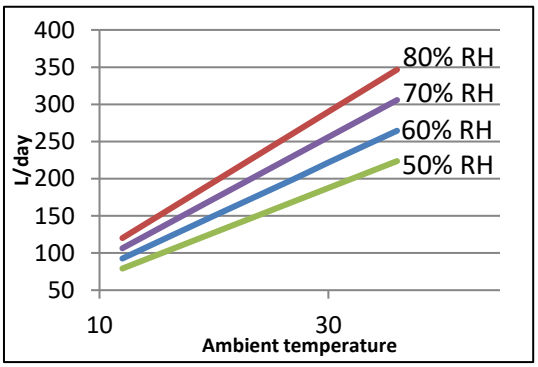
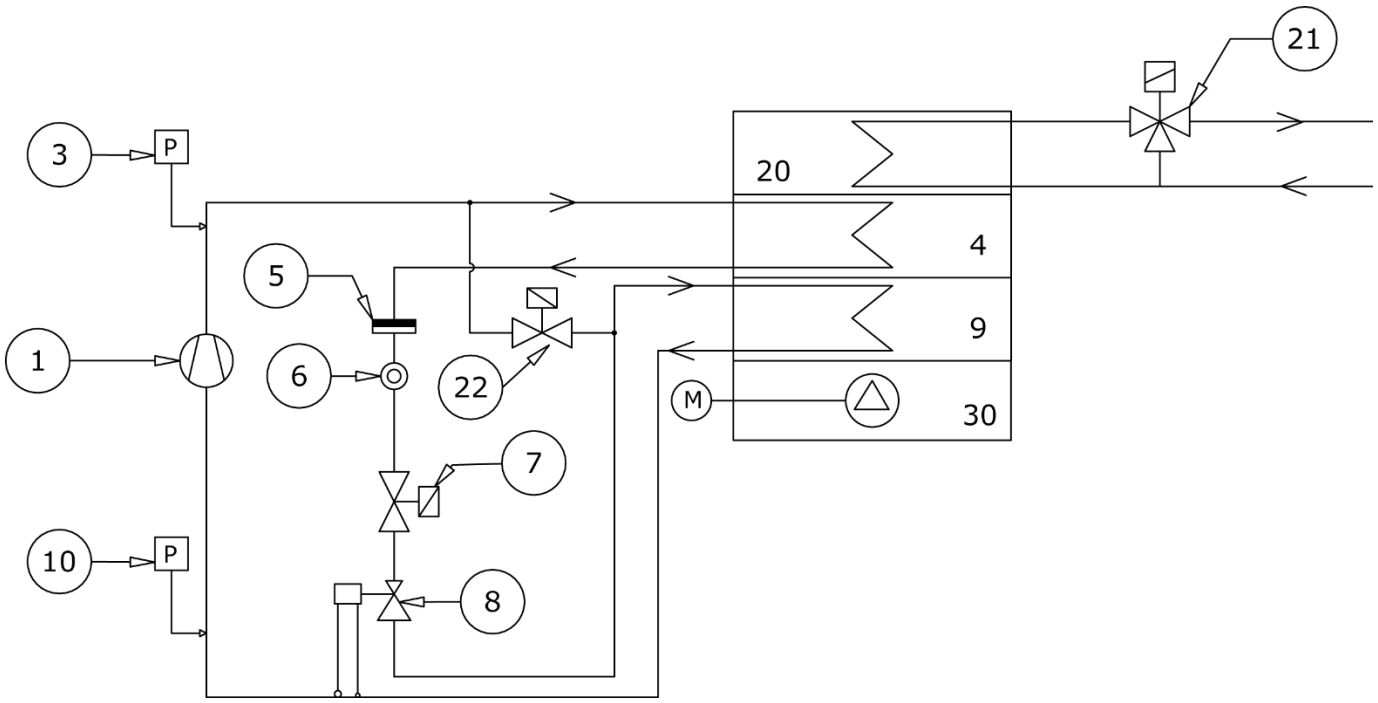


4.5 FUNCTIONAL DIAGRAM



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

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")
2	The compressor does not start	Intervention of the internal thermo-protector	Unplug the unit, wait for the compressor to cool down and check to see if it restarts by reconnecting the power supply. Identify the cause of the intervention and eliminate it
		High-pressure protection on the refrigerant circuit	Make reference to anomaly 3
		The humidity set value does not allow it to be turned on	Set a different humidity set value
		Low ambient temperature	Heat the room above 12°C or above 5°C only if there is an optional hot gas defrost
3	High pressure	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 it is mounted increase the fan speed (refer to the paragraph "Calibration of the flow rate for units with electronic fan")
		Other causes	Call a specialised technician
4	Low pressure	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
5	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.
			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 it is mounted increase the fan speed (refer to the paragraph "Calibration of the flow rate for units with electronic fan")
		Other causes	Call a specialised technician
6	Discharge machine alarm	Loss of refrigerant gas	Call a specialised technician

5.2 ORDINARY MAINTENANCE

5.2.1 Cleaning/replacing air filters

ATTENZIONE
WARNING

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. Please, check periodically the cleaning status. We remind you that, an incorrect cleaning or the removal of the air filters from the unit, leads to serious risks about its correct functioning and integrity. If the cleaning/replacement of the filters is not respected, the warranty expires.

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.

ATTENZIONE
WARNING

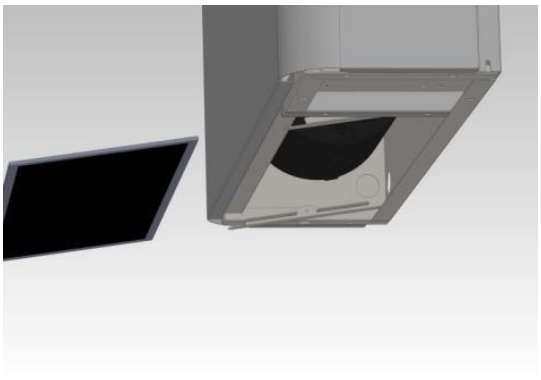
By removing access' panels, filters may fall down. Therefore, pay maximum attention during the opening phase to prevent the air filters from falling to the ground.

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

DDS - DCS

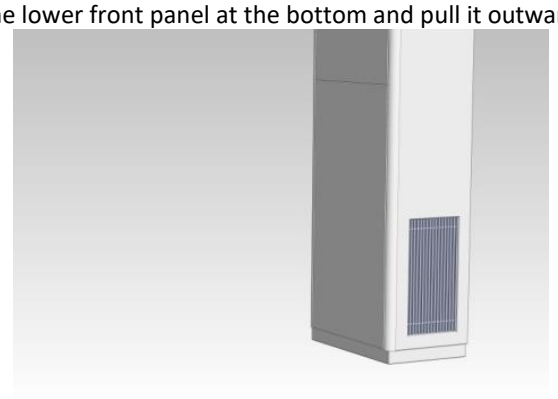
Incline the filter downwards

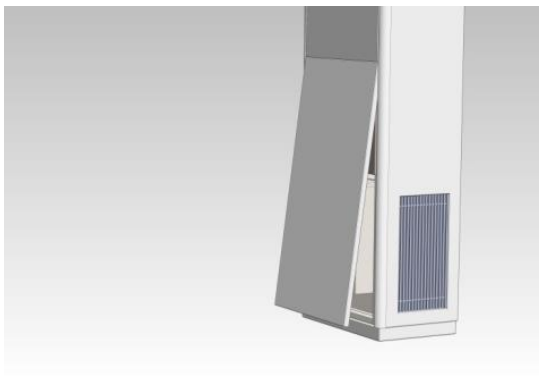
Pull the filter out and remove it



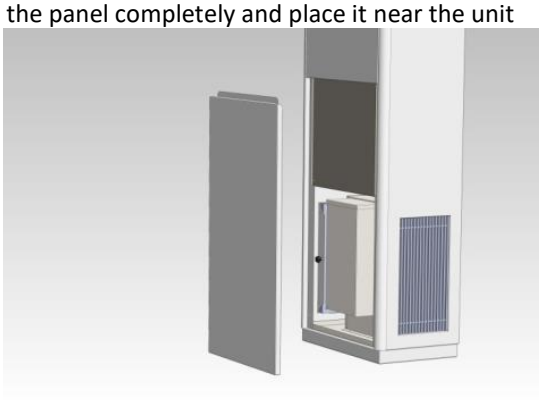
DVS

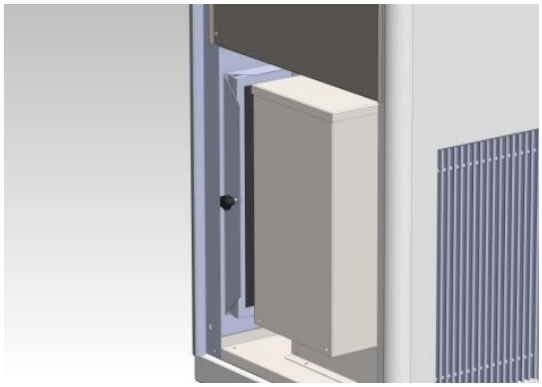
Take the lower front panel at the bottom and pull it outwards



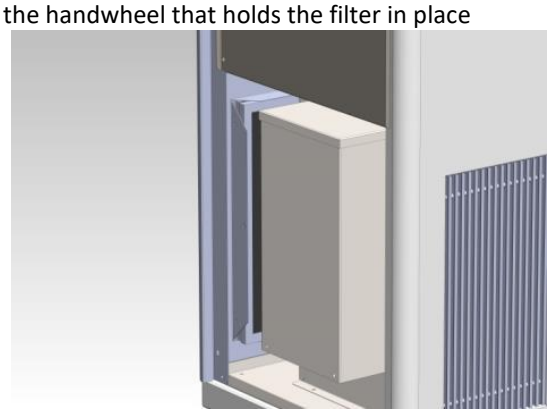


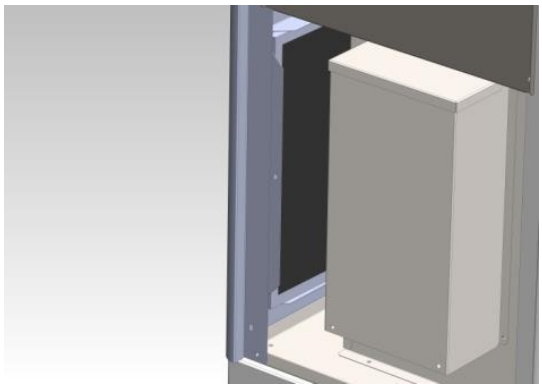
Remove the panel completely and place it near the unit



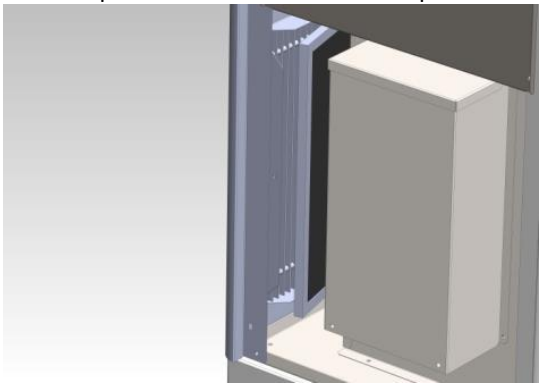


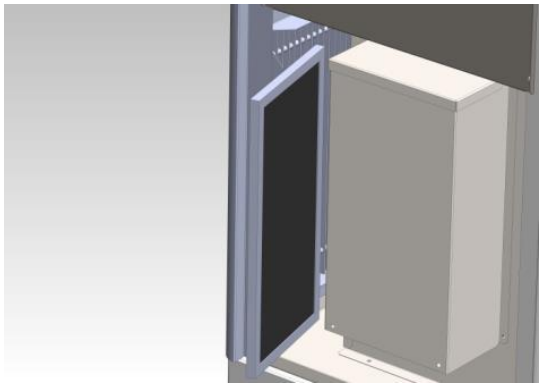
Loosen the handwheel that holds the filter in place





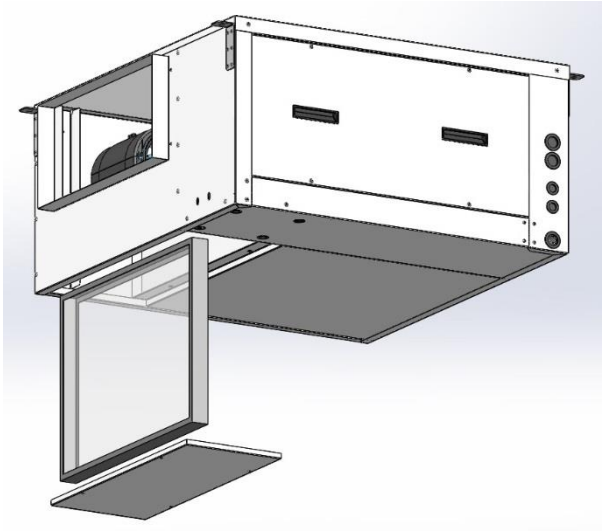
Tilt the filter and pull it out. Also incline the sequence for the right filter





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.



5.3 EXTRAORDINARY MAINTENANCE

5.3.1 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 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 plugging
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 resistances, 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

5.3.2 Maintenance table

To ensure continuity in performance over time, we recommended using this table as a reference for all maintenance carried out and planned for the unit.

YEAR ____	4th quarter														
	3rd quarter														
	2nd quarter														
	1st quarter														
YEAR ____	4th quarter														
	3rd quarter														
	2nd quarter														
	1st quarter														
YEAR ____	4th quarter														
	3rd quarter														
	2nd quarter														
	1st quarter														
YEAR ____	4th quarter														
	3rd quarter														
	2nd quarter														
	1st quarter														
YEAR ____	4th quarter														
	3rd quarter														
	2nd quarter														
	1st quarter														
MAINTENANCE		Operation of control and safety equipment	Status, fixing and balancing fans	Compressor state and fixing	Normal noise emitted	No compressor oil leakage	No refrigerant leakage from the refrigerant circuit	No water leakage from the hydraulic circuit	Check terminals on electric panel	Cleaning/replacing air filters	Cleaning/replacing condensate drip pan	Cleaning heat exchange coil			

6 DISMANTLING OF 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 has to be recovered by qualified staff and sent to dedicated collection centres;
- The compressor oil has to be recovered and sent to the dedicated collection centres;

If the structure and the various components cannot be used, they should be demolished and divided into material types. This is particularly important for copper and aluminium of which there are significant quantities in the machine.

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

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

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

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

Dismantling and demolition must be entrusted to qualified personnel.

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 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 aforesaid regulations.

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

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 Slip” before signing it.
The manufacturer or its agent must be promptly notified of the extent of the damage.
The Customer must submit a written report describing all significant signs of damage.

7.1.2 Lifting and transport

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

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

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 retrieved if the data plate gets worn.

Modello - Model	
Matricola - Serial number	
Data di produzione - Date of production	
Categoria PED/ CE 97/23 Category	
Procedura di valutazione conformità - Conformity module	
Max temp. di stoccaggio - Max storage temperature [°C]	
Max temp. funzionamento - Max ambient working temperature [°C]	
Min. temp. ambiente di funzionamento-Min. ambient working temp. [°C]	
Potenza frigorifera nominale - Nominal Cooling Capacity [kW]	
Potenza 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 - Full load ampere FLA [A]	
Corrente di spunto - Starting Current LRA [A]	
Schema elettrico - Wiring diagram	
Schema frigorifero - Refrigeration diagram	

7.2 POSITIONING

ATTENZIONE
WARNING

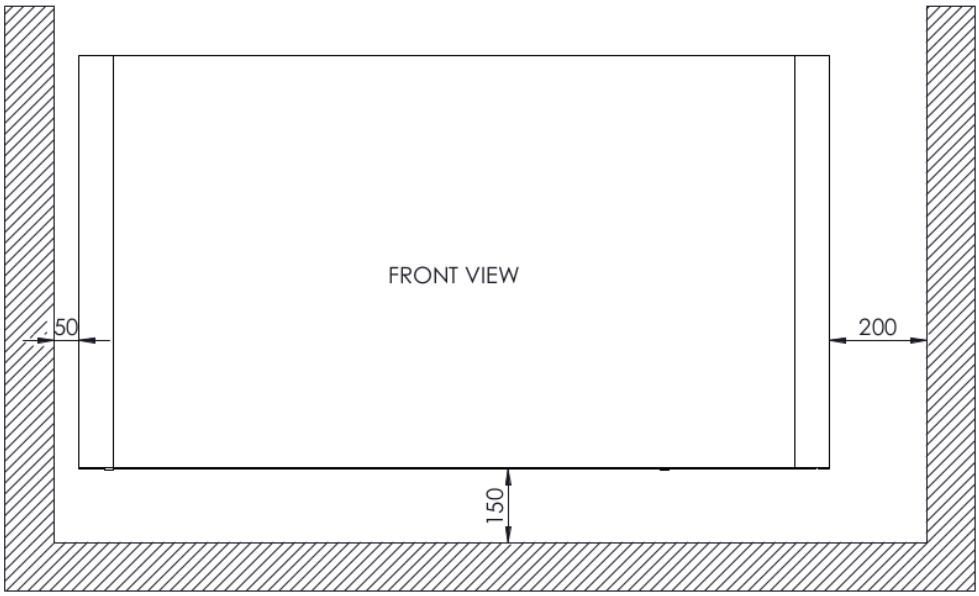
All the DDS - DCS - DVS and DOS models are designed and built for indoor installation.
Do not install the unit outdoors and make sure that it is not exposed to atmospheric agents such as: rain, hail, humidity and frost.

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 to high heights to avoid high temperature blocks.

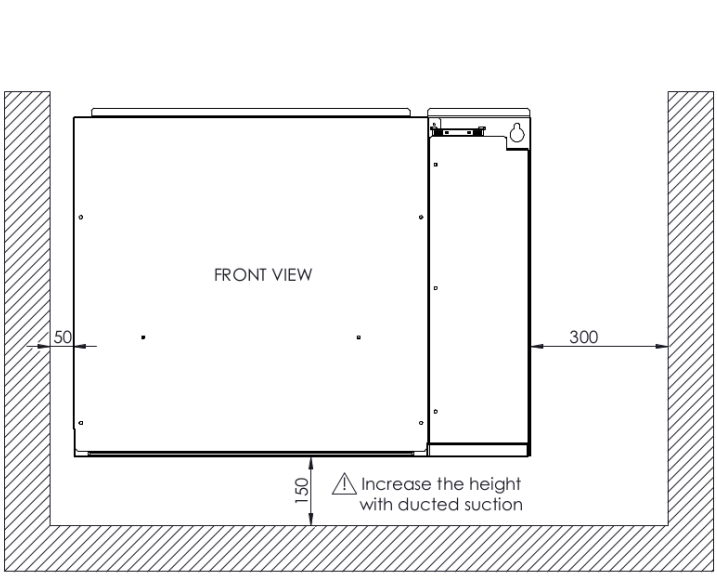
It is of utmost importance to ensure complete accessibility to the unit.

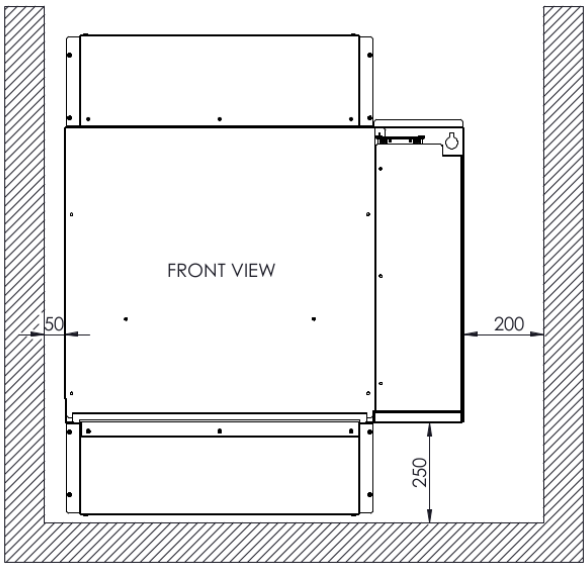
The installation of anti-vibration material is recommended for each anchor point or support point to avoid noise and vibration transmissions.

7.2.1 DDS respect spaces

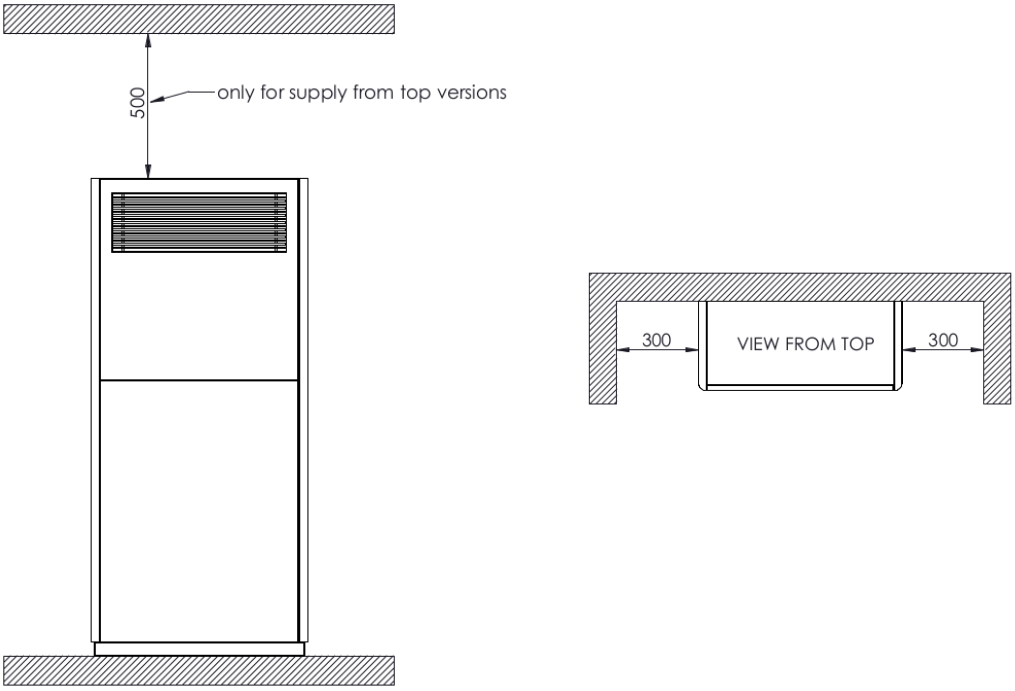


7.2.2 DCS respect spaces

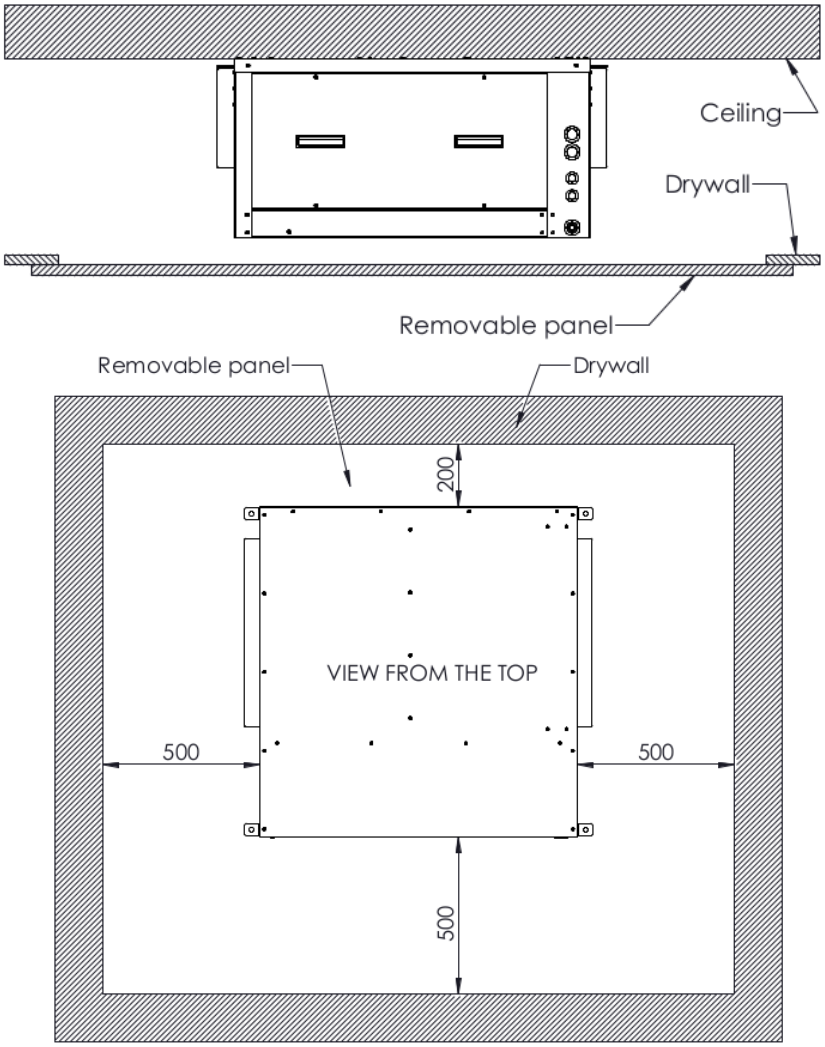




7.2.3 DVS respect spaces



7.2.4 DOS respect spaces



7.3 HYDRAULIC CONNECTION

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

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

Use flexible joints to join the pipes in order to dampen vibrations and to compensate for thermal expansion.
The following components should be installed on the piping:
- temperature and pressure indicators for routine maintenance and inspections of the unit. Pressure control allows you 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 cock and drain tank, where needed, in order to empty the system for maintenance;
- for process applications, it is recommended to install a decoupling heat exchanger, which avoids the fouling of the heat exchangers.

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

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

Connect with a flexible rubber hose with an internal diameter of 16 mm.
There is no siphon inside the unit. It is not mandatory to perform the siphon.

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 on the dedicated holes, realize the connections on the clamps and close the panel.

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

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

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

7.4.1 Recommended MGT switch to be inserted upstream of the line

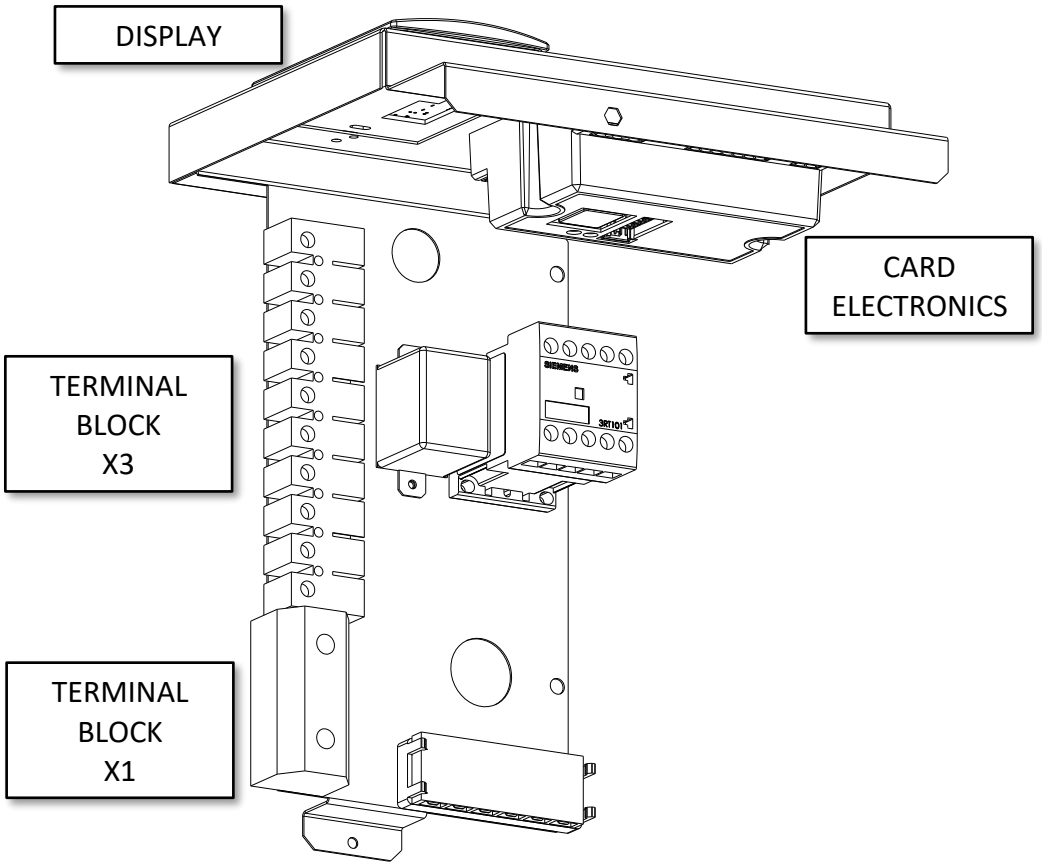
	DDS - DCS										
	Single-phase								Three-phase		
Models	40	50	60	70	90	100	160	190	210	230	300
Without electric heating element	C10	C10	C10	C10	C16	C16	C20	C20	C16	C16	C16
With electric heating element	C16	C16	C20	C20	C32	C32	C40	C40	C32	C32	C32

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

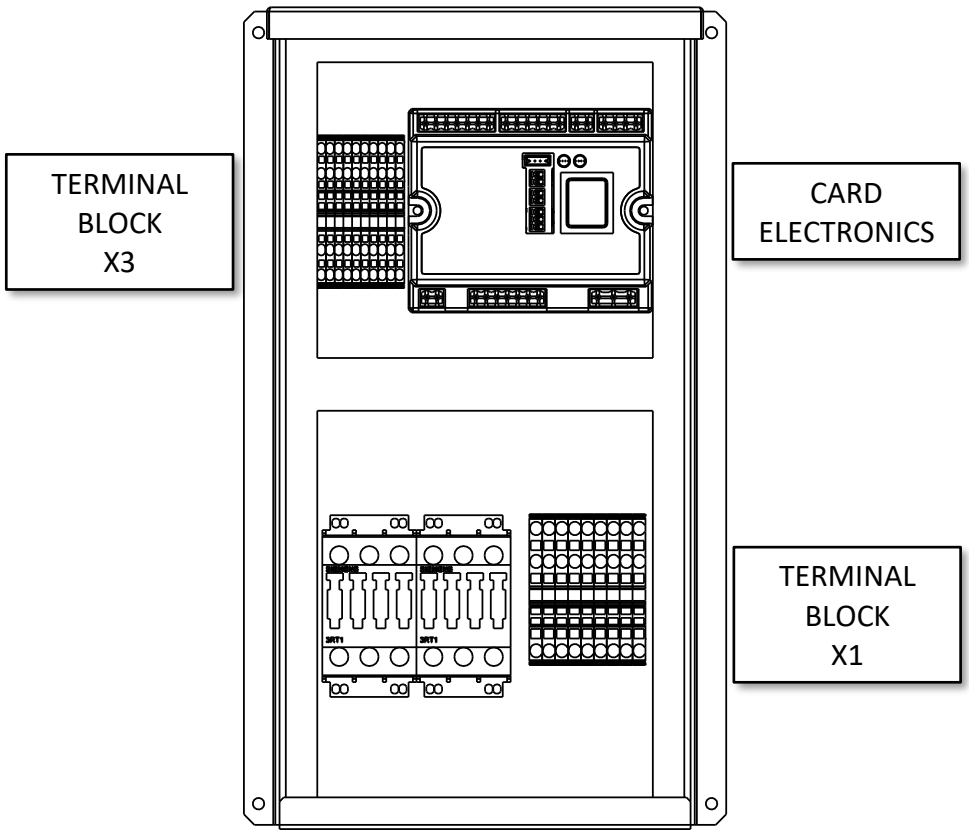
	DOS						
	Single-phase					Three-phase	
Models	70	90	100	160	190	210	230
Without electric heating element	C10	C16	C16	C20	C20	C16	C16
With electric heating element	C20	C32	C32	C40	C40	C32	C32

7.4.2 Equipment fitting

DDS AND DCS MODELS



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

AVVERTENZA
CAUTION

*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 special relay mounted in the electrical panel. There are two signalling LEDs on the phase sequence relay. When the green LED is on, it indicates 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 right order. If it is not on, check that the sequence of the phases is correct.

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 **DDS/DCS** models the command is in **230V** (not available with hot gas option)
In the case of **DVS/DOS** models, connect only a **clean contact**

The 103 - 104 terminals are for connection of a zone head, a water valve or 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.

The 105 - 106 terminals are for remote, connect a contact from a switch or a control unit to control the switching on of the unit remotely.
Only connect a clean contact

- contact open → unit off
- contact closed → unit on

The 107 - 108 terminals are for dehumidifying on/off, for connecting of a contact from a switch or from a control unit to control the activation of remote dehumidification.
Only connect a clean contact

- open contact → inactive dehumidification request
- closed contact → active dehumidification request

The 109 - 110 terminals are for on/off heating, connect a contact from a switch or a control unit to control the activation of the heating from remote.
The contact only works if the hot water coil option with valve or the electric resistance option has been purchased
Only connect a clean contact

- open contact → heating request inactive
- closed contact → active heating request

AVVERTENZA
CAUTION

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.

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 at 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 at the first start-up to enable the dehumidification and heating contacts.

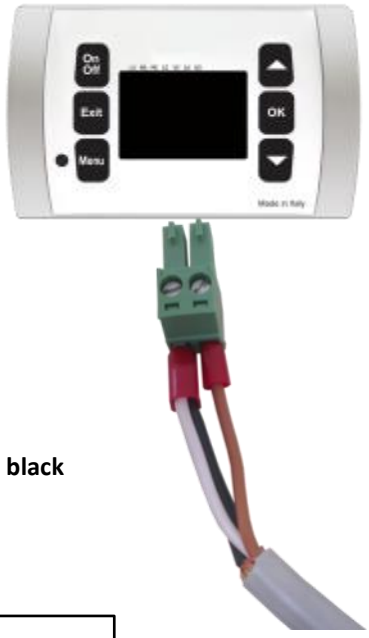
7.4.4 Display connection

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, display the functioning status of the unit and, eventually, 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 back 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**

Use a CEAM Y08761 wire or an equal one.

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 back of the display.

The cable should be connected as shown here below:

7.4.5 RS485 - Modbus Connection - [optional]

Connect the Modbus RS485 cable on the removable clamp indicated in the image to the left.
Respect on all the connected devices, the connection A and B and connect on the GND connection the shielded.
For the Modbus parameters' configuration, make reference to the installer paragraph on the following pages.
RS485 Modbus connection is optional, but the clamp should be always present. Check that you have set this option; if not, the unit will not function.
For the connection of all the Modbus system/network use a CEAM Y08761 cable or an equivalent one.

7.5 FIRST START, CALIBRATION AND CONFIGURATIONS

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

Before starting, check that all the panels are in their position and 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 given on the labels and user manual are observed.

Check that the refrigerant circuit taps, if present, are open and that the hydraulic plant is cracked, by eliminating any residual air, charging it gradually and opening the cracking devices on the top side.
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

For the basic settings (for example the humidity set point) refer to the previous paragraph "advanced control".
For advanced settings (optional), refer to the "modify installer parameters" paragraph.

7.5.1 Flow rate calibration for unit with electronic fan

ATTENZIONE
WARNING

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 that 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	40	50	60	70	90	100	160	190	210	230	300
Nominal flow rates in m³/h	DDS - DCS	350	450	500	600	700	800	1000	1200	1500	1500	2000
	DVS	-	-	-	600	700	800	1000	1200	1400	1400	-
	DOS	-	-	-	600	700	800	1000	1200	1500	1500	-

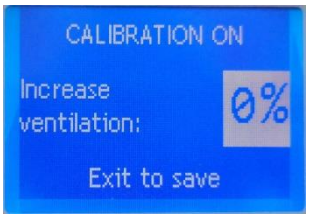
Place on the display; enter the main screen by pressing EXIT (more times, if necessary) or pressing ON/OFF if the unit is turned off.

AVVERTENZA
CAUTION

During 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 requiring you 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 allow you to modify some of the advanced settings of the unit.

ATTENZIONE
WARNING

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

To access the installer menu, follow these steps:

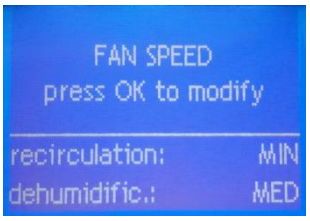
- go to the main page by pressing the EXIT button if necessary
- press the MENU button to access the first page of the user menu
- scroll with the DOWN key to the last page (page 9)
- press the OK key
- the password is requested, enter "0010" and confirm with the OK button

AVVERTENZA
CAUTION

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*

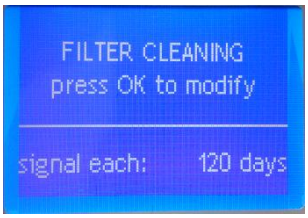
Some screens may be not always present



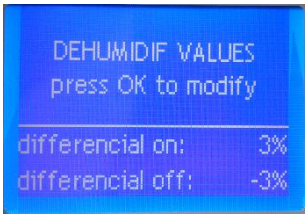
It is used to change the fan speed in the operating phases:

1. in recirculation it is possible to set MINIMUM, MEDIUM or MAXIMUM
2. in dehumidification it is possible to set MEDIUM or MAXIMUM

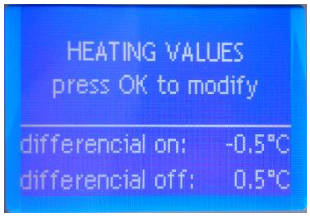
default: minimum recirculation and average dehumidification



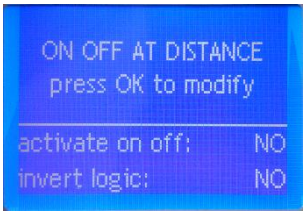
It is used to change the timer that indicates filter cleaning
Setting 120 days the need to clean the filters is reported on the main page every 4 months
default: it is signalled every 120 days



It is used to modify the differentials that regulate the dehumidification request
default: differential on 3% and off -3%

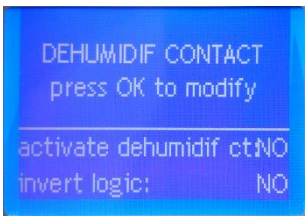


It is used to change the differentials that regulate the heating request
This page is only present if the hot water coil option with valve or the electric resistance option has been purchased.
default: differential on -0.5°C and off 0.5°C



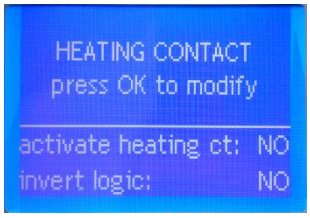
It is used to enable the contact for the remote device and, if necessary, to invert the operating logic
This page is only present if the modbus communication is not active.
Without reversing the logic:
- contact open → unit off
- contact closed → unit on

default: remote on and logic inversion not active



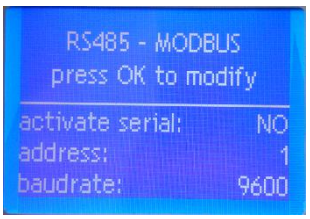
It is used to enable the dehumidification on/off contact and, if necessary, to invert the operating logic
This page is only present if the modbus communication is not active.
Without reversing the logic:
- open contact → inactive dehumidification request
- closed contact → active dehumidification request

default: dehumidification contact and logic inversion disabled

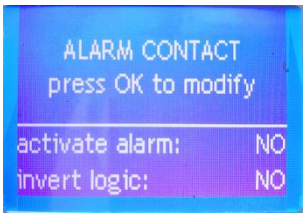


It is used to enable the heating on/off contact and, if necessary, to invert the operating logic
This page is only present if the modbus communication is not active and only if the hot water coil option with valve or the electric resistance option has been purchased.
Without reversing the logic:
- open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

default: heating contact enabling and logic inversion disabled

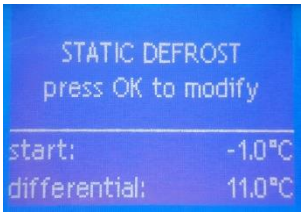


It is used to enable and modify the parameters related to the modbus communication
This page is only present if the modbus communication option has been purchased.
default: serial enabling not active, address 1 and baud rate 9600

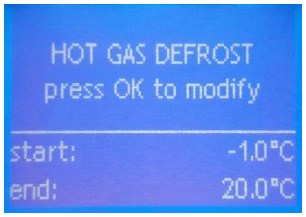


It is used to enable the contact for the alarm and, if necessary, to reverse the operating logic.
This page is only present in the DDS/DCS versions where there is no option for hot gas defrost and in the DVS and DOS versions regardless of the options.
Without reversing the logic:
- contact open → alarm signal inactive
- closed contact → active alarm signalling

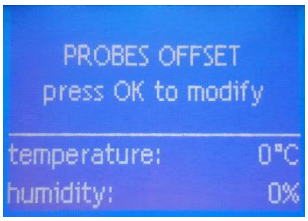
default: alarm contact enabling and logic inversion not active



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

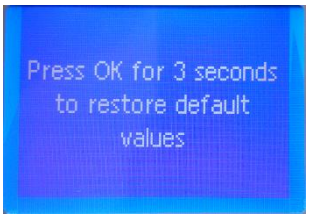


It is used to set the parameters for the hot gas defrost operation.
This page is only present if the hot gas defrost option has been purchased.
default: start -1.0°C and differential 20.0°C



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

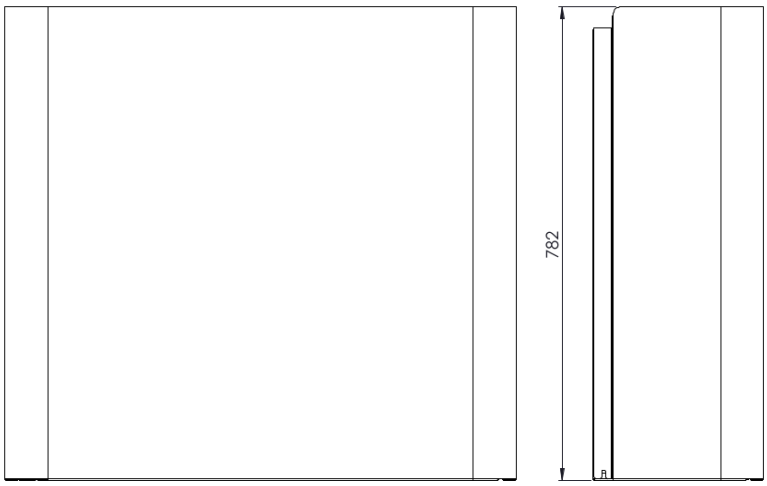


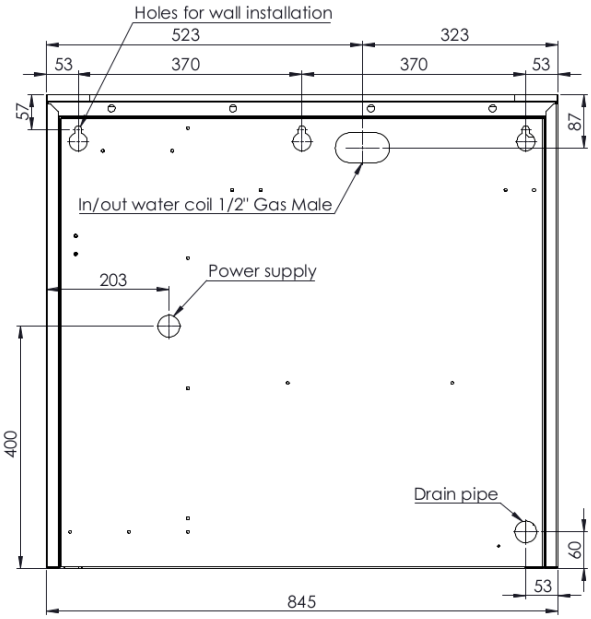
Possibility to restore all installer, user and calibration parameter.
If some parameters are changed on the installer menu, on the user menu and on the calibration one by mistake, it is possible to restore all the parameters and to return the unit as newly purchased.
ATTENTION: restoring all the user 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

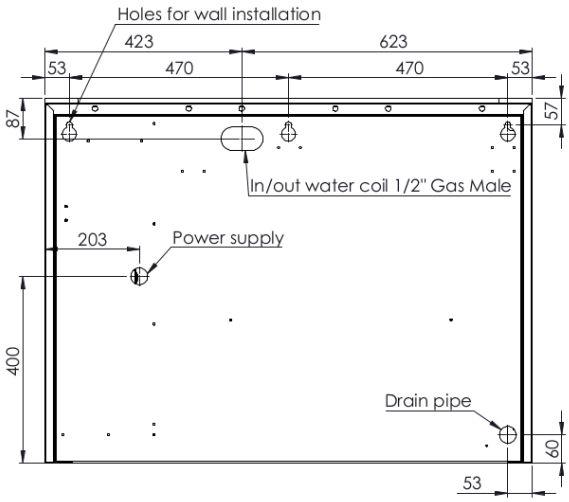
8.1 DDS

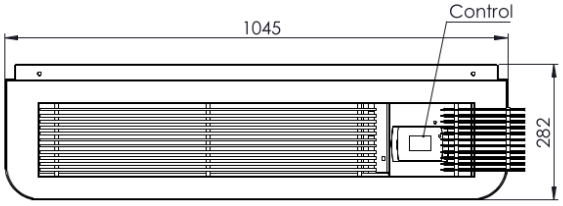
8.1.1 DDS 40 – 50 – 60



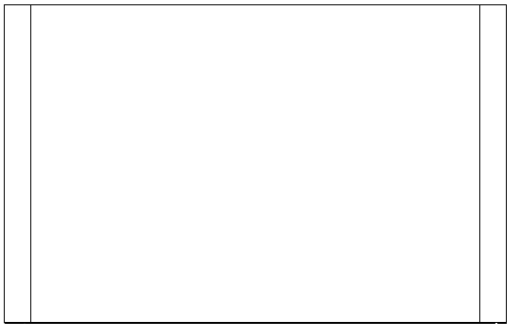


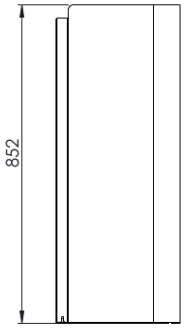
8.1.2 DDS 70 – 90 - 100

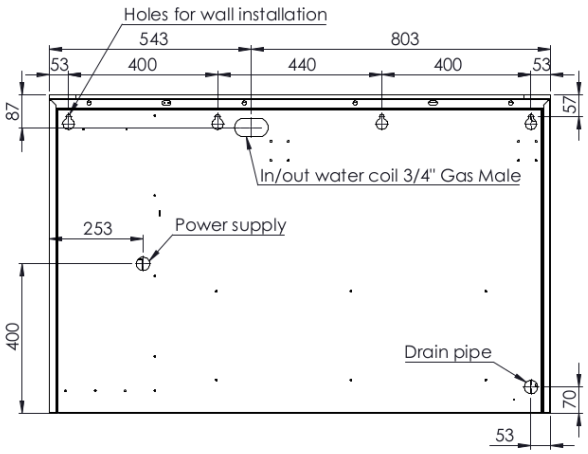


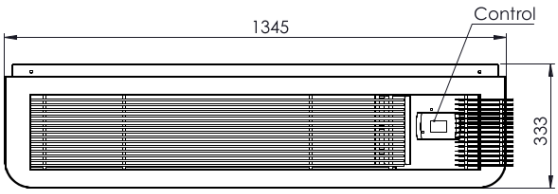


8.1.3 DDS 160 - 190

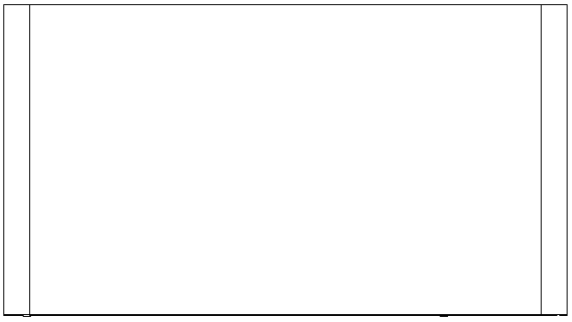


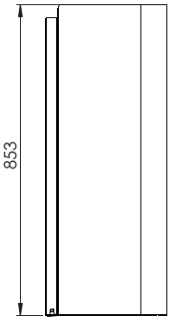


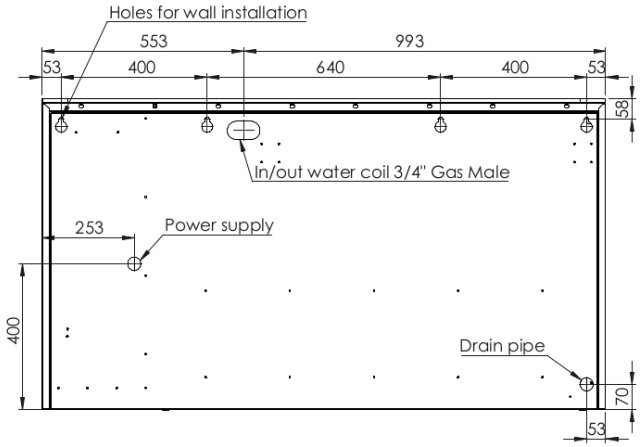


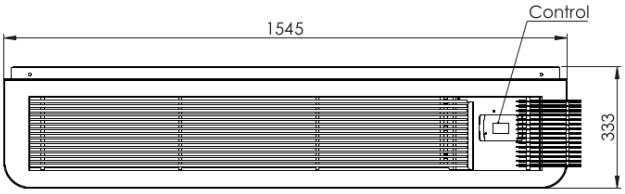


8.1.4 DDS 210 – 230 – 300



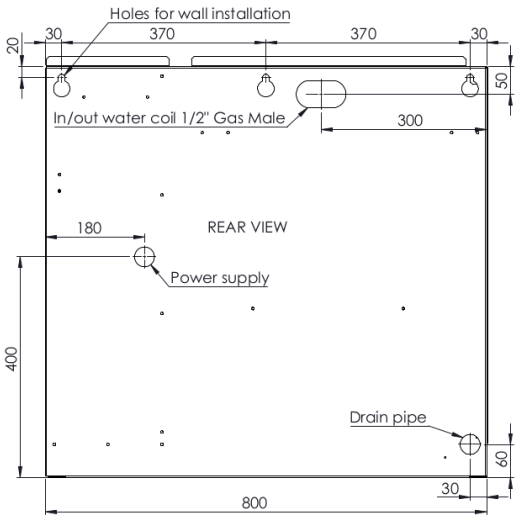


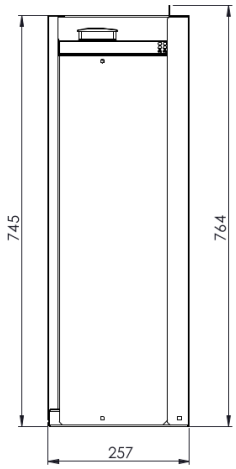


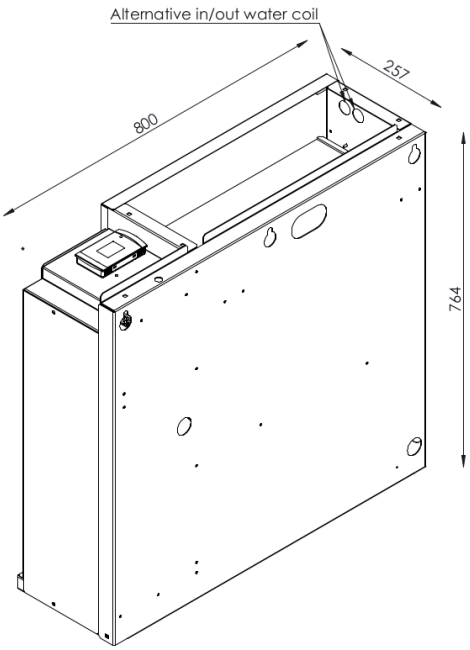


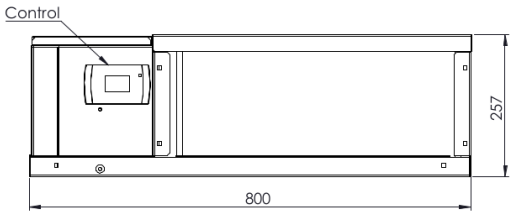
8.2 DCS

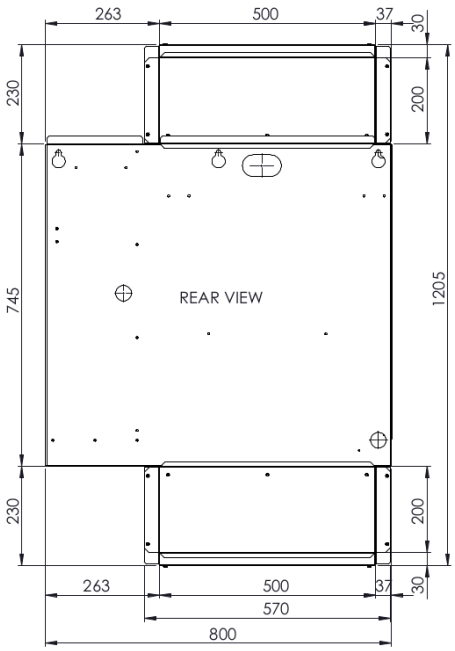
8.2.1 DCS 40 – 50 - 60

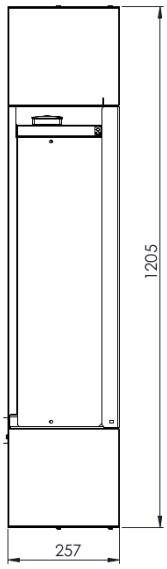


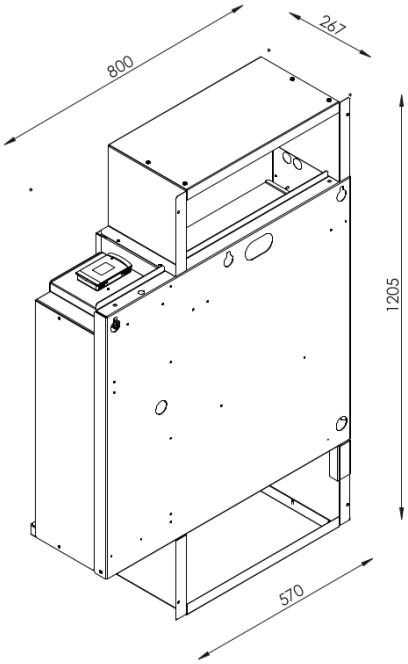


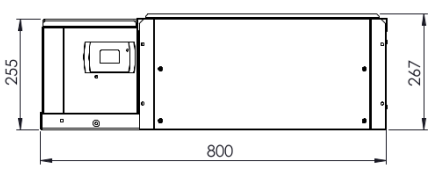




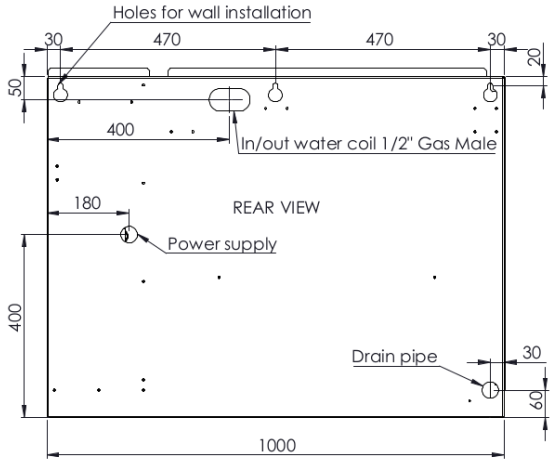


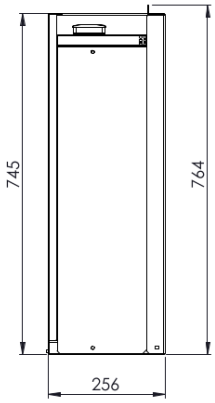


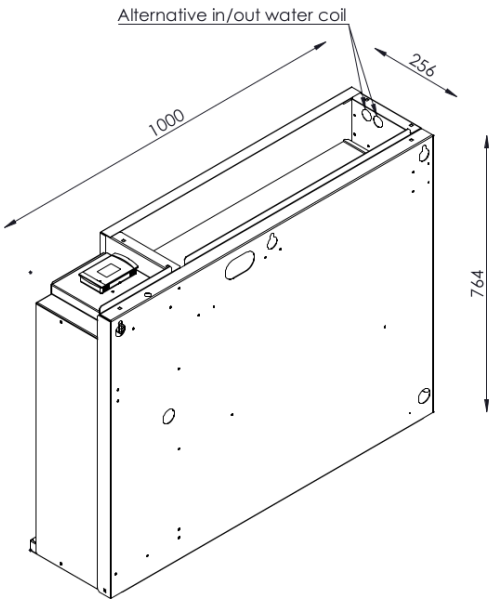


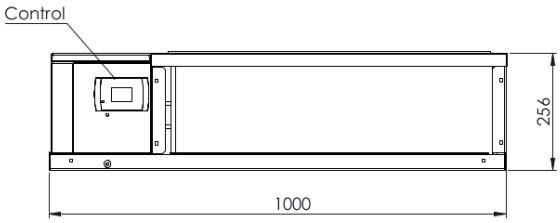


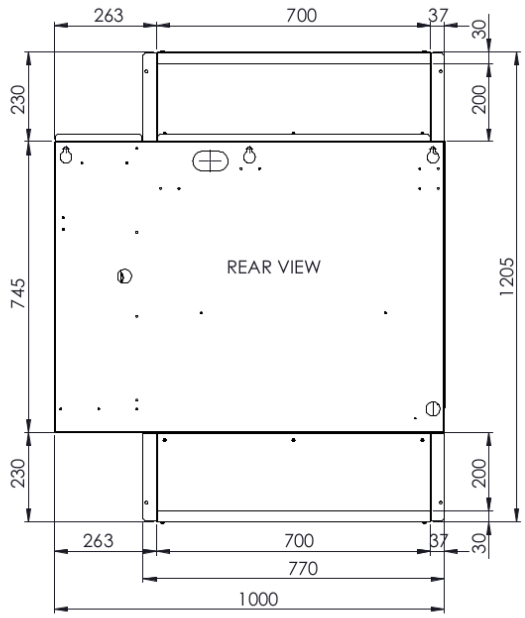
8.2.2 **DCS 70 – 90 – 100**

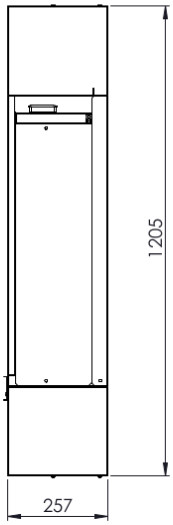


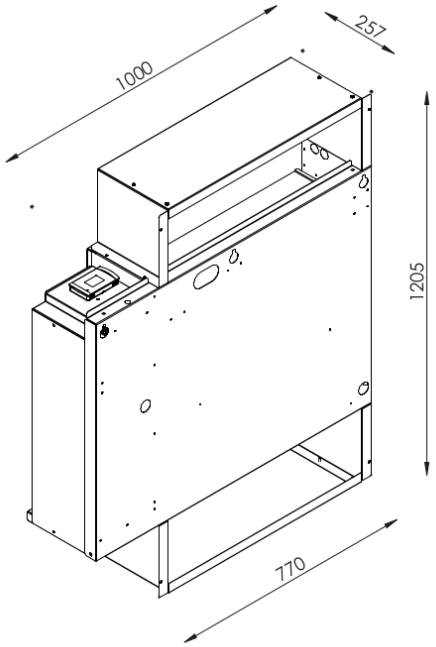


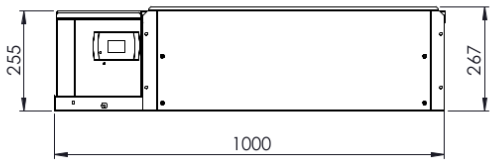




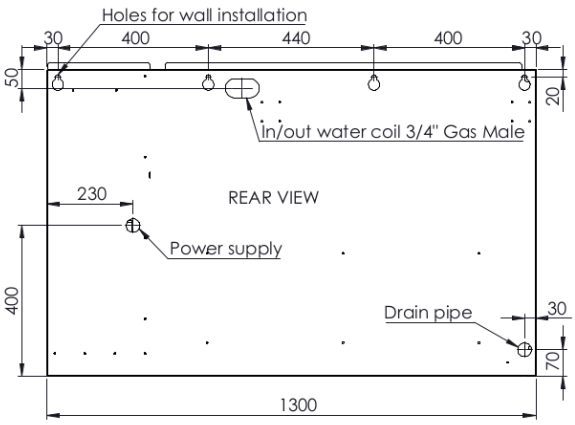


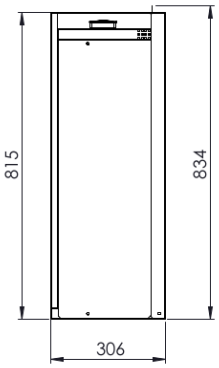


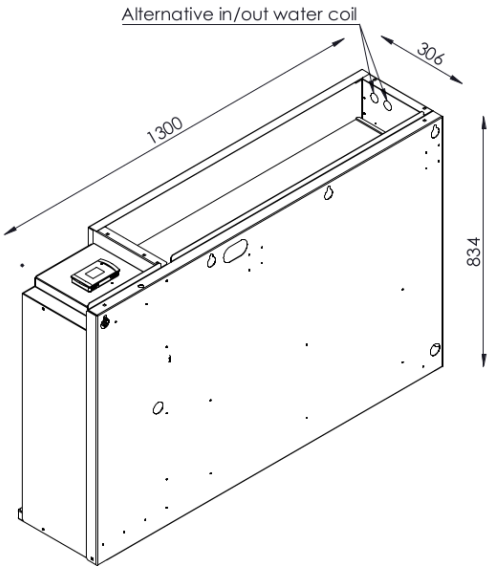


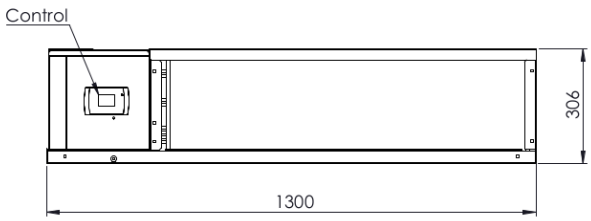


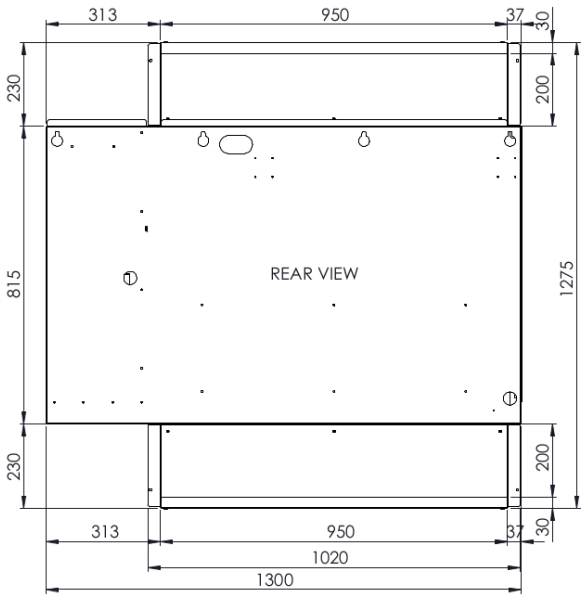
8.2.3 DCS 160 - 190

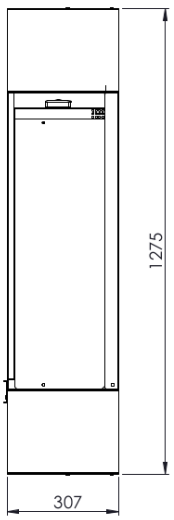


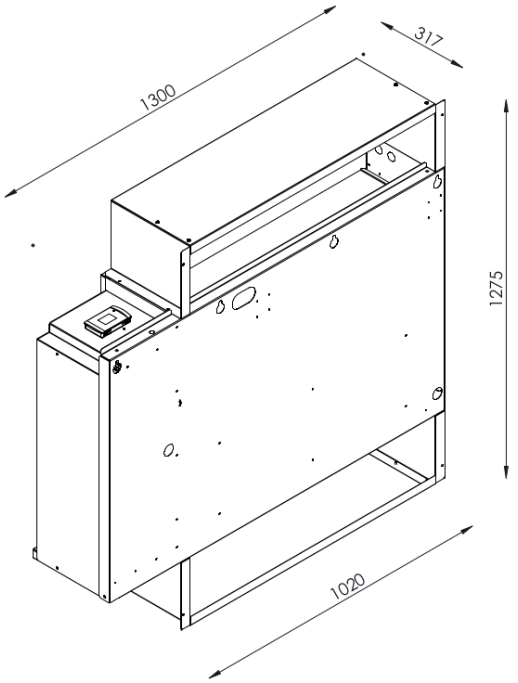


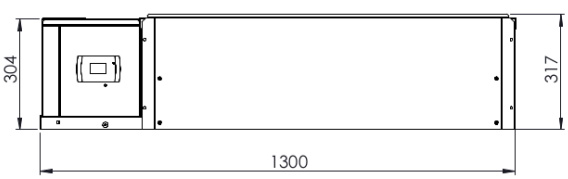




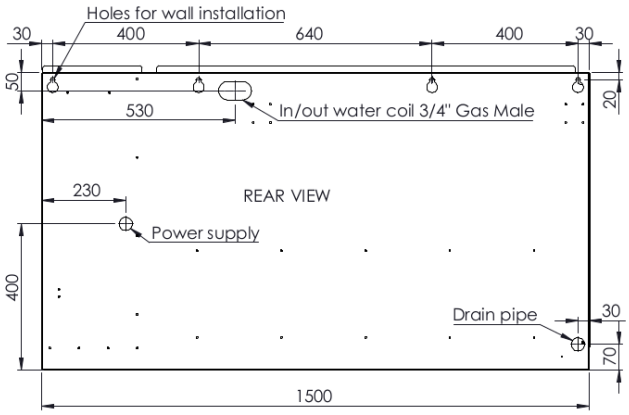


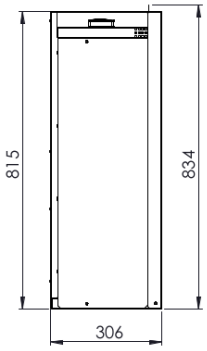


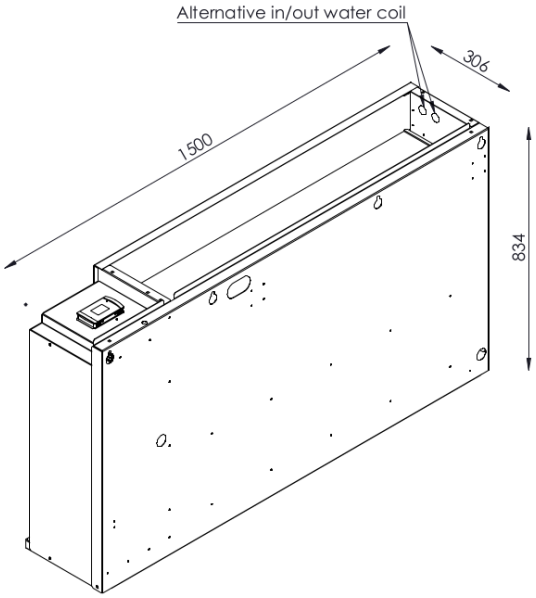


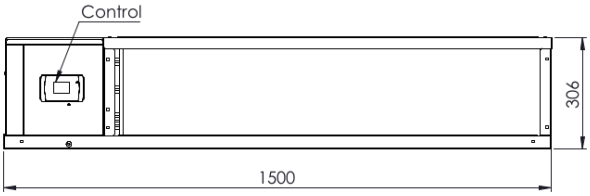


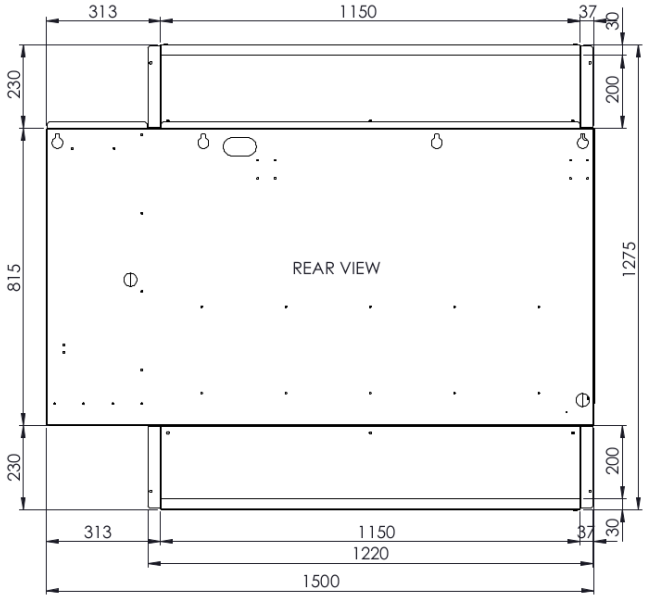
8.2.1 **DCS 210 – 230 – 300**

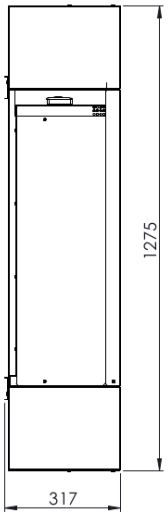


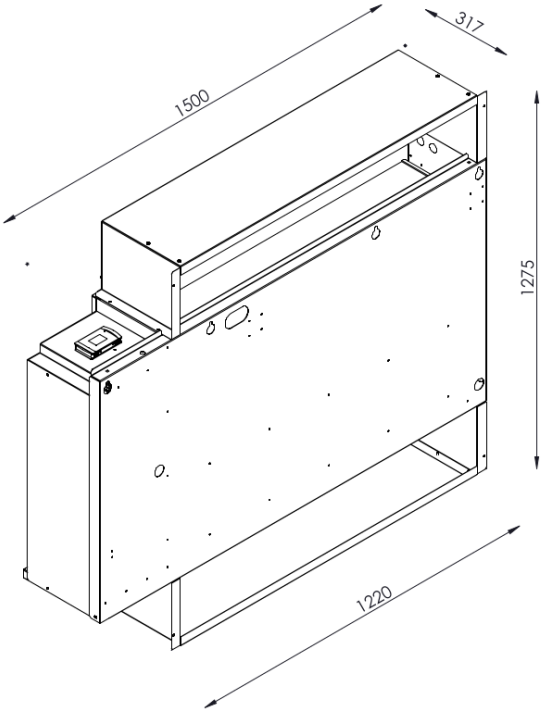


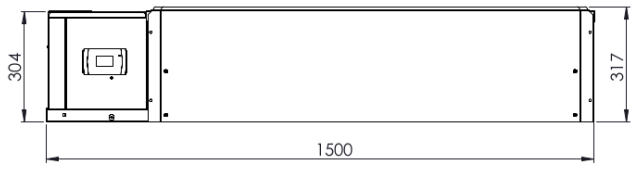






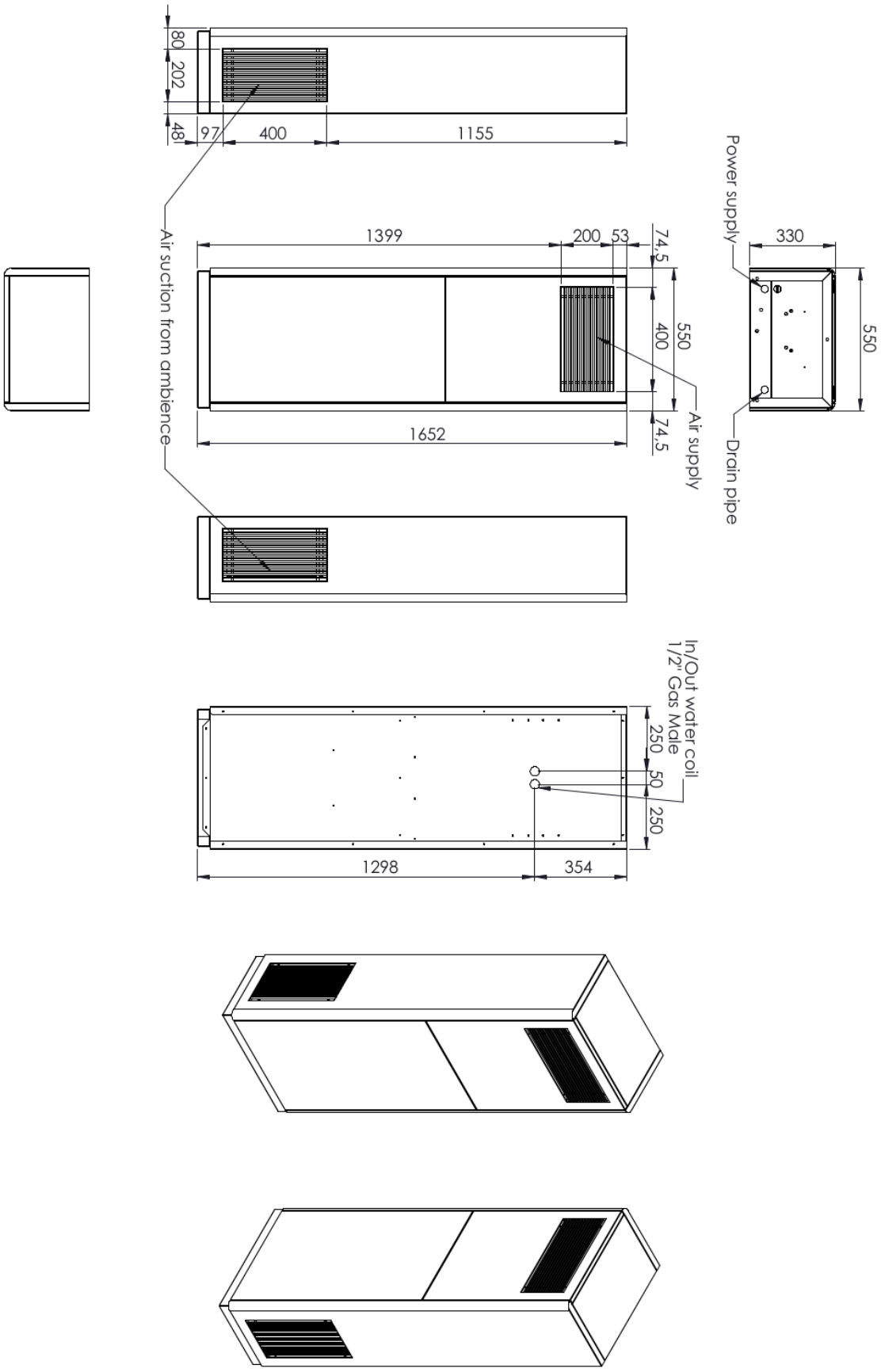




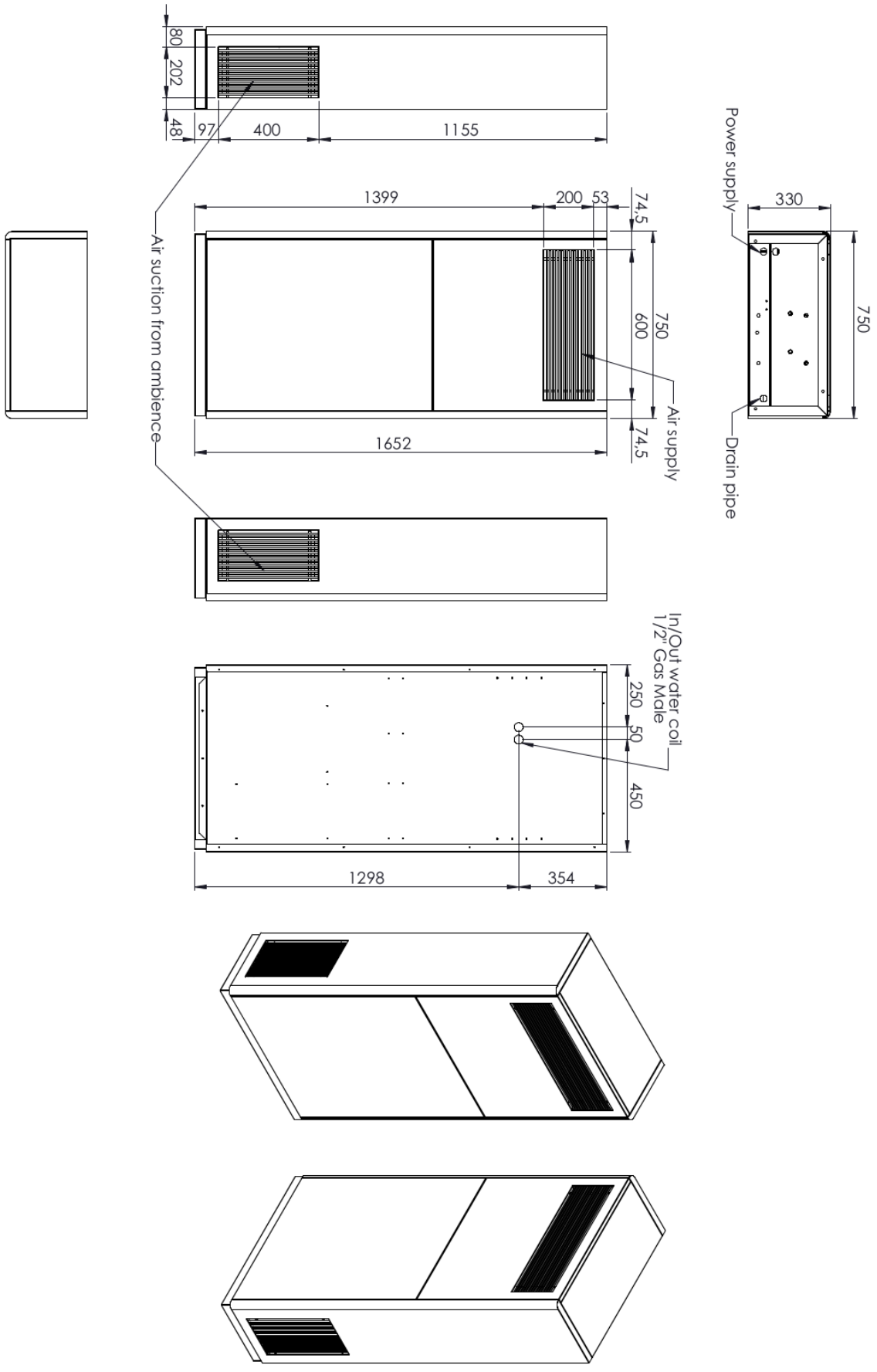


8.3 DVS

8.3.1 DVS 70 – 90 - 100

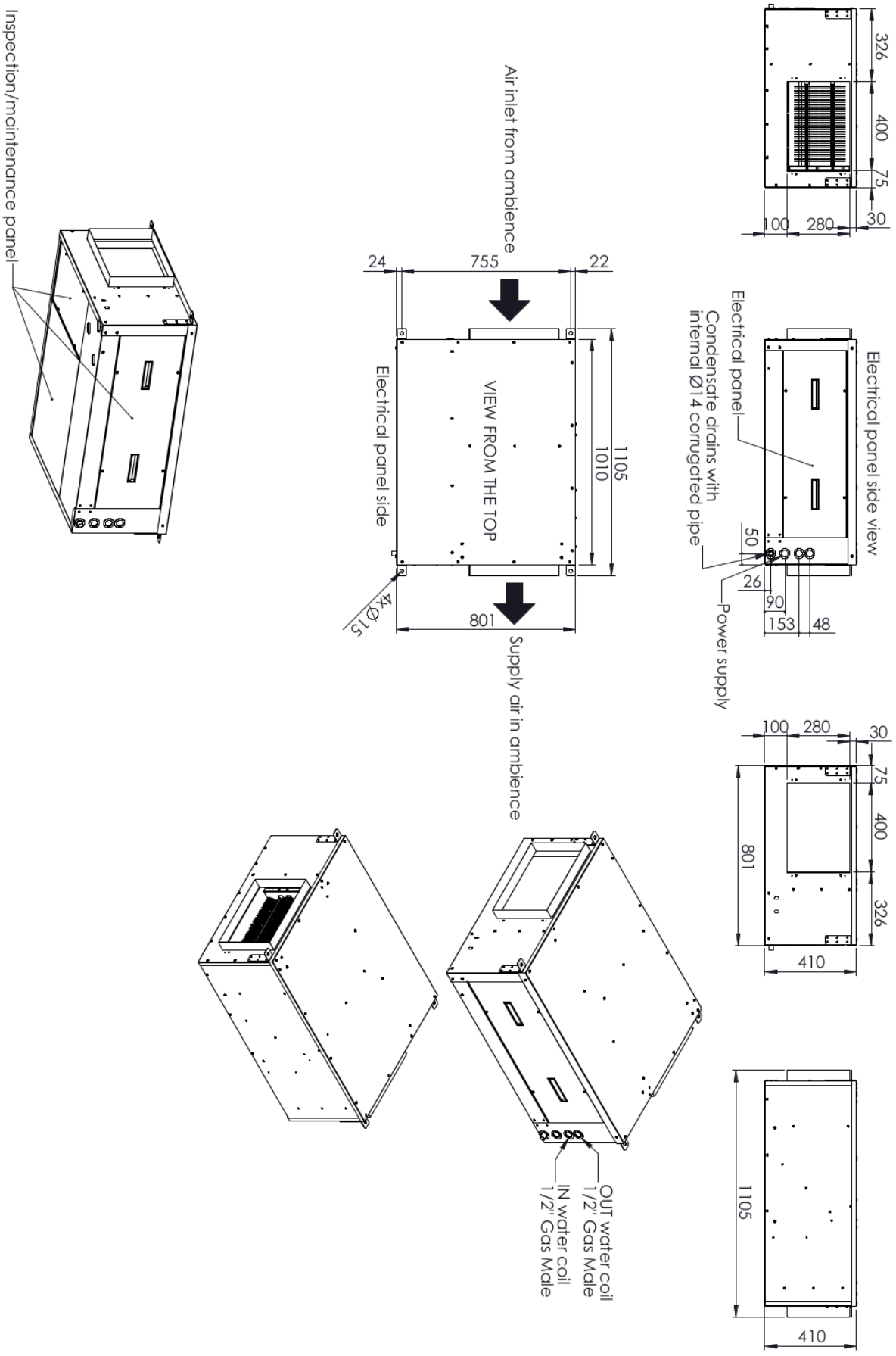


8.3.2 **DVS 160 – 190 – 210 – 230**

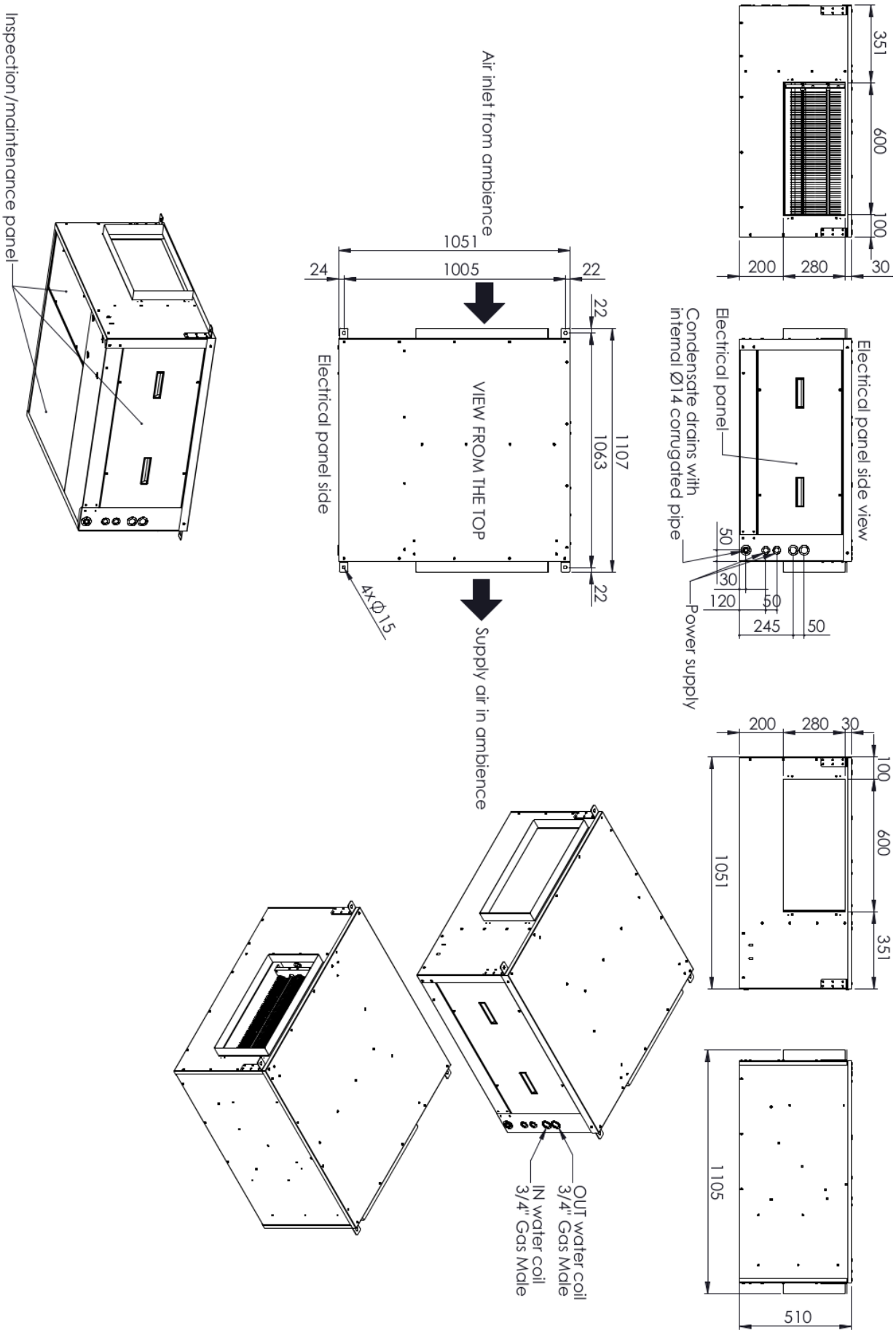


8.4 DOS

8.4.1 DOS 70 – 90 – 100



8.4.2 **DOS 160 – 190 – 210 – 230**



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