

# ASPIRCOMFORT PRO dH

INSTALLATION, USE AND MAINTENANCE MANUAL

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## 1. GENERAL

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### 1.1 INTRODUCTION

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This manual was prepared with the aim of making the installation and management of your system as simple as possible.

By reading and applying the suggestions of this manual, you can achieve the best performance of the purchased product.

We would like to thank you for choosing to purchase one of our products.

Read this file carefully before performing any operation on the unit.

The unit must not be installed, nor must any operation be performed on it, without firstly reading and understanding the entirety of this manual. In particular it is necessary to adopt all of the precautions listed in the manual.

The documentation provided with the unit must be delivered to the system manager for safe keeping (at least 10 years) for future assistance, maintenance and repairs.

Unit installation must take into account the strictly technical needs for good operation, as well as any local legislation in force and specific requirements.

Make sure that when the unit is delivered there are no evident signs of damage caused by transport. If there is, state this on the delivery note.

This manual reflects the state of the technical standards at the time of sale and cannot be considered inadequate if updated at a later date based on new experiences. The Manufacturer reserves the right to update production and the manuals without being required to update previous ones, except in exceptional cases.

Contact the Manufacturer's Sales Office to receive further information or updates on/to the technical documentation and for any suggestions for improvement to this manual. All suggestions shall be strictly vetted.

### 1.2 FUNDAMENTAL SAFETY RULES

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Remember that the use of products that use electrical energy and water requires certain fundamental safety rules to be followed:

- Unable and unassisted persons are forbidden from using the device
- It is forbidden to touch the device in bare feet and with wet or damp parts of the body
- Any cleaning activity is forbidden without firstly disconnecting the device from the electrical power mains by placing the system's main switch on 'off'
- It is forbidden to modify the safety or regulation devices without the authorisation and indications of the device manufacturer

- It is forbidden to pull, detach, twist the electrical cables coming out of the device, even if it is disconnected from the electrical power mains.
- It is forbidden to insert objects and substances through the air intake and supply grids.
- It is forbidden to open the access doors to the inside of the device, without firstly placing the system's main switch on 'off'.
- It is forbidden to release and leave packaging material within the reach of children as it is a potential source of danger.
- Comply with the safety distances between the machine and other devices or structures to guarantee enough access space to the unit for maintenance and assistance operations as stated herein.
- The unit's Power supply must be provided with electrical cables duly sized for the power of the unit. The voltage and frequency values must match those stated for the respective machines; all machines must be earthed according to the regulations in force in the various countries.

### 1.3 SYMBOLS

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The symbols used in the following file quickly provide information necessary for the correct use of the unit.  
Safety symbols



**ATTENTION**

Authorised personnel only. This means that the stated operations are important to safe machine operation



**DANGER**

Risk of electric shock. This means that failure to comply with the warnings poses the risk of electric shock.



**DANGER**

This means that failure to comply with the warnings poses the risk of injury to the exposed persons.



**WARNING**

This means that failure to comply with the warnings poses the risk of damage to the unit or system.



**DANGER**

This means that there are moving parts and poses the risk of harm to exposed persons

## 1.4 WARNINGS

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The unit must be installed by qualified and authorised personnel according to the rules in force in the various countries.

If installation is not carried out, this could lead to a situation of danger



Avoid installing the unit in very damp rooms or where there are large sources of heat.



On the electric side, to prevent any risk of electrocution, it is essential to disconnect the main switch before setting up the electrical connections and performing any maintenance operation.



If there are any water leaks from inside the unit, place the system's main switch on 'Off', close the water valves and contact the technical service



Always use a dedicated power supply circuit; never use a power supply shared with other devices.



Always install an earth leakage circuit-breaker; failure to install this device could cause electric shock.



For the connection, use a sufficiently long cable to cover the entire distance without any connection; do not use extensions and do not apply other loads on the power supply, rather, always use a dedicated power supply circuit.



When the electrical cables are connected, make sure that the cables are arranged so that they do not press excessively on covers or electrical panels; any incomplete connection of the covers may cause overheating of the terminals.



Make sure that the earthing connection is set up; do not earth the device on distribution pipes.

Momentary high intensity overcurrents may damage the unit



Installations made outside of the warnings set forth herein or use outside of the operating limits will instantly void the warranty.



Make sure that commissioning is carried out by personnel authorised by the company (see commissioning request form)

## 1.5 CONFORMITY

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The CE marking (applied on each machine) certifies compliance with the following Community standards:

- Low Voltage Directive 2014/35/EC
- Electromagnetic Compatibility Directive 2014/30/EC
- Ecodesign 2009/125/EC

## 1.6 RANGE

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Code	Total Flow Rate/renewal air flow rate	Type of installation
AP20060	300/150	Horizontal
AP20062	500/250	Horizontal

## 1.7 IDENTIFICATION

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- The unit can be identified by the rating plate attached to the front bottom panel.
- On the packaging there is another identification rating plate with the unit model and the shipping references.

The rating plate on the packaging is not valid for tracking the product over the years after sale.

The removal, deterioration and illegibility of the rating plate attached to the unit makes machine identification and ordering spare parts very difficult, and therefore all future maintenance.

## 1.8 CONSTRUCTION FEATURES

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### RECOVERY SECTION

High efficiency counter current polypropylene exchanger >90%. Summer and winter mode.

### VENTILATION

Brushless plug-fans with electronic motor and modulating control.

Very high efficiency and low noise levels. Compliant with directive ErP1018.

#### AIR HANDLING SECTION

The unit can be equipped with a cooling circuit for dehumidification or integration of cooling and heating. In the various configurations, it will be possible to select the type of desired air handling from dehumidification only or dehumidification with heating and cooling of the primary air.

#### FILTRATION

PM1 80% filters, easily removable on the outdoor air intake on the exhaust air.  
Easily removable coarse filters with low head loss on the recirculation air.

#### STRUCTURE

Double sandwich panelling, unit with external coating and internal galvanised finish.  
Galvanised sheet metal self-supporting perimeter structure. Panel insulation is built with high performance 20 mm-thick insulation and adhesive polyethylene 6 mm-thick insulation.

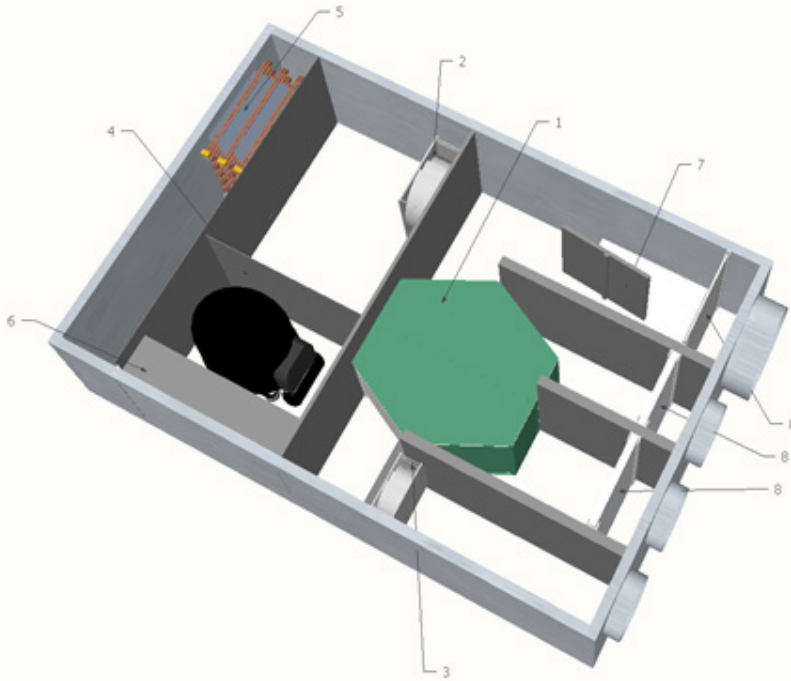
#### COOLING CIRCUIT

Built with braze welded copper, complete with: High efficiency compressor, Filter dryer, finned coils, water exchanger, solenoid valves, lamination device, liquid receiver, high and low pressure switches and pipe thermal insulation.

#### ADJUSTMENT

Electric panel on-board the unit with microprocessor and dedicated regulation. Fan control, display of the temperature probes inside the machine, timed dirty filter control, recirculation and renewal air control. Possibility of unit control with MODBUS RTU RS 485 communication

## 1.9 MAIN COMPONENTS OF THE UNIT



1. Heat recovery unit
3. Exhaust fan
5. Finned coils
7. Recirculation air damper

2. Supply fan
4. Compressor and cooling circuit compartment
6. Electrical panel
8. Air filters

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## 1.10 PACKAGING AND TRANSPORT

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The units are prepared for transport secured to a wooden pallet and placed inside cardboard boxes. To facilitate relocation, the units have a wooden pallet and hooks on the base so it can be lifted and positioned in the place of installation

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## 1.11 RECEIVING, CHECKING AND HANDLING

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The unit is shipped fully loaded with refrigerant gas in the circuits and non-freezing oil in the compressors. In no case can there be water in the hydraulic circuits, since the unit is carefully emptied after final testing. Upon arrival the customer is required to inspect the unit, including the inside, to ensure that no damage occurred during transport; the unit left the factory in perfect conditions. If damage is found the customer must immediately report this to the courier by providing details on the extent of the damage on the delivery note, providing photographic evidence of the alleged damage and notifying the shipping company of any alleged damage by registered mail with return receipt. The manufacturer will not be held liable for damage caused by transport even if he himself did the shipping. It is necessary to be very careful when handling the unit during unloading and positioning on site so as to avoid damage to the enclosure and the more delicate inside parts such as compressors, exchangers, etc. in any case keep the unit upright without tilting it. All of the indications on what precautions to take to prevent damage to the unit and the indications of its weight, are provided on the packaging. The packaging can be composed of various materials such as wood, cardboard or polyethylene (plastic). It is good practice to send them for disposal or recycling through specialised companies to reduce the impact on the environment.

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## 1.12 DISASSEMBLY AND DISPOSAL

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Do not take down or dispose of the product on your own. The product must be disassembled, demolished, disposed of by authorised personnel in compliance with local regulations.





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## 2. INSTALLATION

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### 2.1 INSTALLATION CONDITIONS

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The unit must be installed based on national and local regulations governing the use of electrical devices and based on the following indications:

- install the unit inside residential buildings with room temperature between 0°C and 45°C;
- avoid areas near sources of heat, steam, inflammable and/or explosive gases and particularly dusty areas;
- install the unit in a place that is not subject to frost (the condensation water must be discharged not frozen, at a certain slope, using a trap);
- do not install the unit in zones with a high relative humidity rate (such as bathroom or toilet) to avoid condensation on the external surface;
- choose a place of installation where there is enough room around the unit for the connections of the air ducts and to perform maintenance activities;
- the consistency of the ceiling/wall/floor where the unit will be installed must be suitable for the weight of the unit and not cause vibrations.

The room chosen for installation must have:

- air duct connections;
- 230V single-phase electrical connection
- connection for the condensation discharge
- hydraulic connection

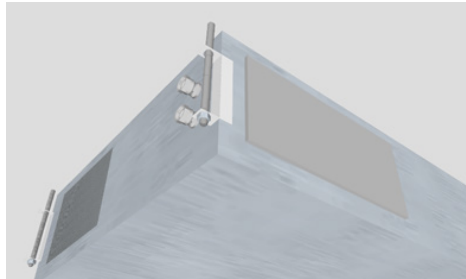
## 2.2 UNIT POSITIONING

### CEILING-MOUNTING

To mount the unit on the ceiling, it is necessary to:

- Place 4 threaded bars inside the brackets set up on the 4 corners of the unit;
- Secure the unit to the ceiling, by the brackets, using suitable anchoring systems (plugs, chains...) and use a level to make sure it is level.
- Provide enough space to perform maintenance activities: it must be possible to open the cover of the unit (from below).

Do not install the unit with the sides directly touching the walls to avoid possible noise from contact, insert rubber or neoprene strips in that case.

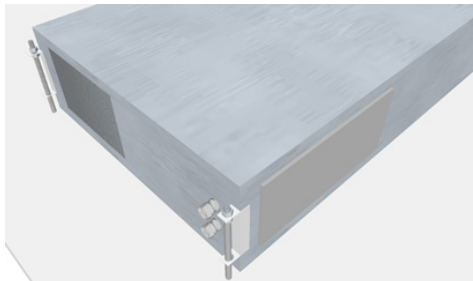


### FLOOR-MOUNTING

To mount the unit on the floor, it is necessary to:

- Floor-mounting Place 4 threaded bars inside the brackets set up on the 4 corners of the unit;
- Secure the unit to the floor, by the brackets, using suitable anchoring systems (plugs, chains...) and use a level to make sure it is level.
- Provide enough space to perform maintenance activities: it must be possible to open the cover of the unit (from below).

Do not install the unit with the sides directly touching the walls to avoid possible noise from contact, insert rubber or neoprene strips in that case.



### 2.3 CONDENSATE DISCHARGE CONNECTION

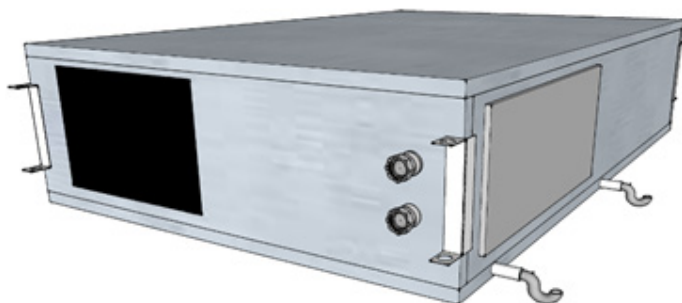


Because of the heat recovery system (the exhaust air is cooled by the air supplied into the heat exchanger) and the dehumidification coils, the humidity contained in the internal air condenses inside the unit.

For correct operation of the heat recovery unit, it is necessary to connect two condensation discharges to the home hydraulic system (discharge). Also, in order for the condensation water to correctly flow out and avoid air from being sucked in, the condensation discharges must always feature special traps supplied and installed by the installer;

For installation of the condensation discharge, follow these rules:

- set up a slope of at least 2% to the discharge pipe;
- allow the possibility of disconnecting the discharge pipe for any maintenance (especially with ceiling installation);
- make sure that the discharge end of the pipe is at least below the level of the trap water;
- make sure that the trap is always full of water.



### 3 AERAULIC CONNECTIONS

#### 3.1 AERAULIC ORIENTATIONS

The unit has 4 male circular rear fittings of different  $\varnothing$  and one rectangular front opening based on the size; To correctly connect the air ducts, refer to the following diagram and stickers on the unit.

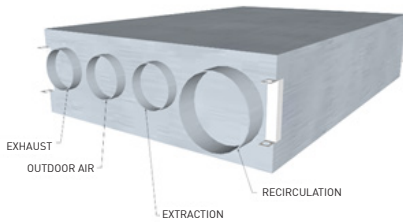
Table of unit aeraulic connection diameters

Codes	AP20060	AP20062
$\varnothing$ Recirculation mm	160	200
$\varnothing$ Stale air mm	125	160
$\varnothing$ Outdoor air mm		
$\varnothing$ Exhaust mm		
Supply cross section mm	350x180	490x255

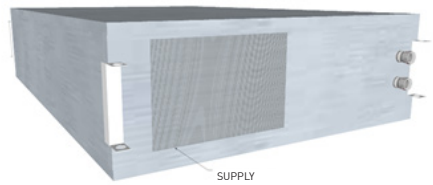
It is advisable to install at least 500mm of hose to avoid transmitting vibration and bothersome noises caused by the installation.

Depending on what system the unit will be installed in, it will be possible to duly direct the four aeraulic connections.

Below are the possible configurations:



REAR CONNECTIONS



FRONT CONNECTIONS

## 4 ELECTRICAL CONNECTIONS

### 4.1 GENERAL



- The units are equipped with hydronic coils with water air exchange;  
The connections on the units, also in the various applications and versions, are always common to all units.
- Be sure to comply with the flow stated on the rating plates: inlet (water entering towards the unit), outlet (water coming out the unit)
- Arrange it so that the weight of the pipes does not bear on the set-up connections
- Set up shut-off valves on the system's supply and return pipes
- All of the chilled water pipes must be insulated to limit undesirable heat exchanges and the formation of condensation to a minimum.
- Before filling the pipes, make sure they do not contain foreign materials: such as sand, stones, flakes of rust, welding drops, slags, etc. Otherwise wash the hydraulic circuit by-passing the unit.
- Strictly avoid cavitation of the pump and the subsequent presence of air in the hydraulic circuit.

#### CHEMICAL PHYSICAL FEATURES OF THE WATER

Non-compatible chemical physical features could jeopardise the integrity of the unit's hydraulic parts.

Check the characteristics of the water;

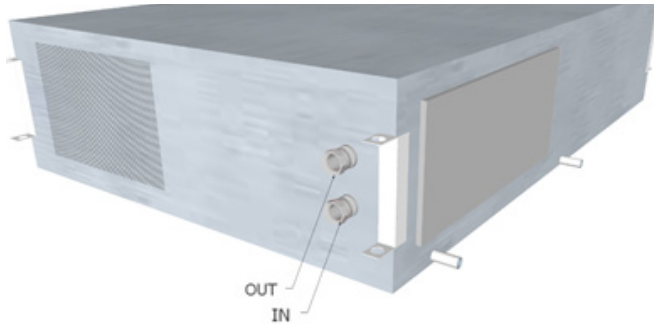
DESCRIPTION	Limit value
Hardness	< 10°F
PH value	7.5 / 9
Oxygen	< 2 mg / l
Conductivity	< 500 uS / cm
Iron	< 2 mg/l
Manganese	< 1 mg/l
Nitrate	< 70 mg/l
Sulphate	< 70 mg/l
Chlorine compounds	< 300 mg/l
Carbon dioxide free radical	< 10 mg/l
Ammonium	< 20 mg/l

## 4.2 POSITIONING AND PROCEDURES OF THE CONNECTIONS

The hydraulic connections are positioned on the side of the unit;

The connections have male threading;

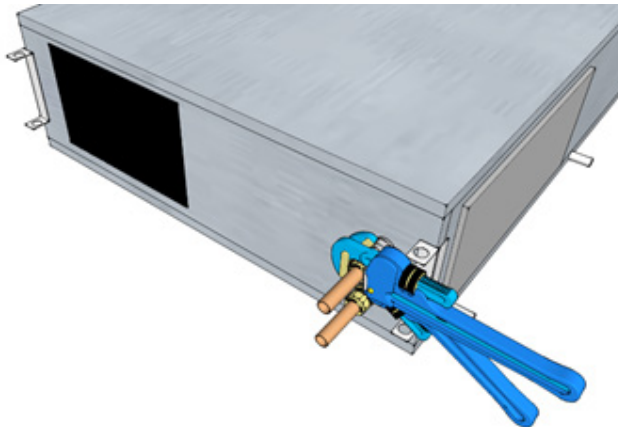
Observe IN as the water inlet into the unit and OUT as the water outlet from the unit



Connect the pipes with female threaded fitting and tighten with dedicated tools;

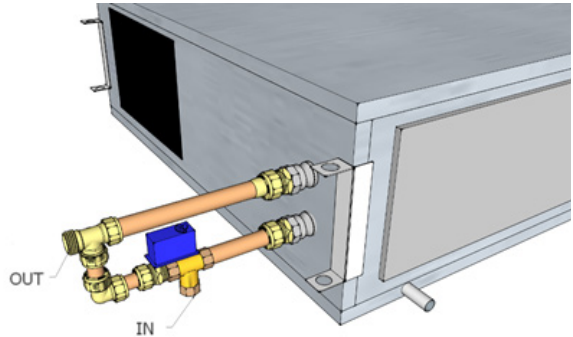
Be careful not to turn or twist the pipes coming from inside the unit;

Letting the pipes turn during the connection could damage the connections inside the unit and cause water leaks during operation;



#### 4.3 2-3 WAY VALVE CONNECTION

The connections of the optional 2 / 3 valves must be set up as stated;  
Be sure to comply with the directions on the valve:

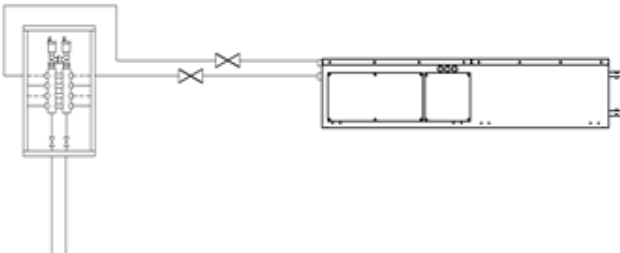


#### 4.4 DIAGRAMS RECOMMENDED FOR THE CONNECTION

##### CONNECTION TO THE RADIANT SYSTEM MANIFOLD:

The unit is powered by a circuit of the radiant system manifold. Make sure the circuit has the necessary flow rate.

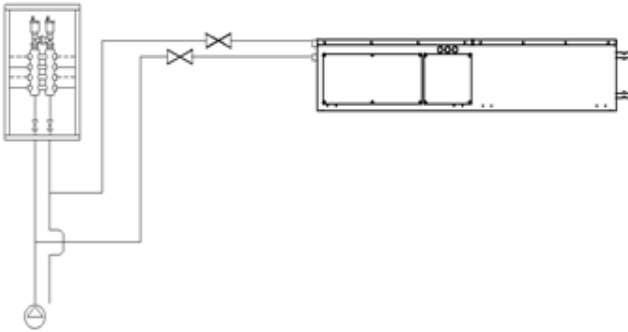
N.B: With this type of installation it is necessary to guarantee the machine with the rated flow rate described in the technical data sheet;



**RECOMMENDED INSTALLATION-CONNECTION BEFORE THE RADIANT SYSTEM MANIFOLD:**

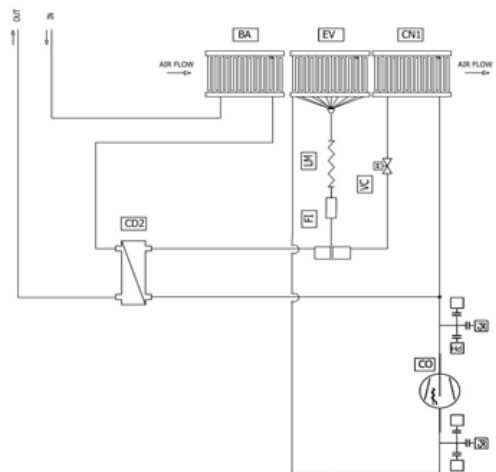
The unit is powered in parallel with the radiant system manifold, thereby having guaranteed the necessary water flow rate for correct operation.

N.B: In both cases, the failure to provide the unit with the rated flow rate will place it a functional block.



**4.5 COOLING DIAGRAMS**

C0	Compressor
PH	High pressure switch
PS	Service socket
CN1	Air condenser
EV	Evaporator
BA	Water coil
FI	Filter dryer
LM	Lamination part
CD2	Water condenser
LM	Lamination part
VC	Solenoid valve





## 5 ELECTRICAL CONNECTIONS

### 5.1 GENERAL

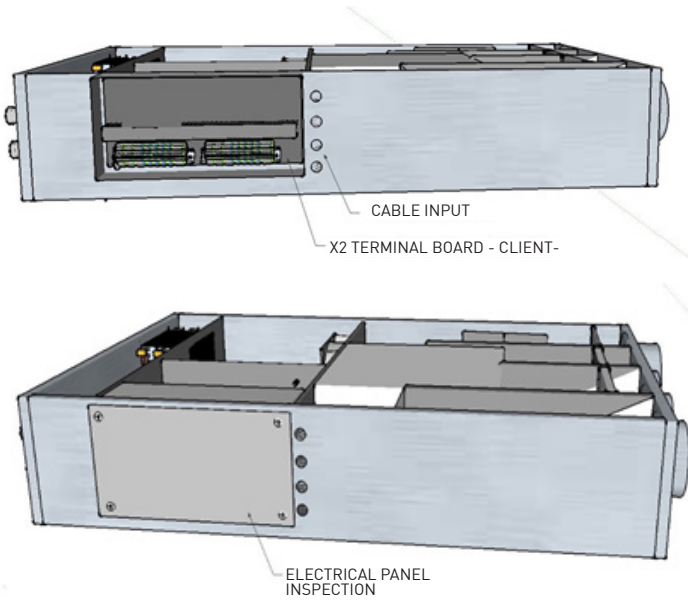
- Before starting any operation to perform the electrical connection make sure that the unit is not electrically powered
- Perform the necessary electrical connections referring exclusively to the wiring diagram attached to this manual.
- Install a suitable cut-off and breaker device exclusively serving the unit.
- It is essential for the unit to be earthed.
- Check that the electrical components chosen for installation (main switch, breakers, cable size and terminals) are suitable for the electrical power of the installed unit and that they take into account the start-up currents of the compressor in addition to the maximum achievable load. The relative data is stated on the attached wiring diagram and on the unit's rating plate
- It is forbidden to enter the unit with electrical cables except where specified in this file.
- Use duly-sized electrical cables and conductors that comply with the regulations in force in the various countries.
- Strictly avoid feeding through the electrical cables so that they are directly touching pipes or parts inside the unit
- After the first moments of operation, check the tightness of the power supply terminal screws

Table for power supply line sizing

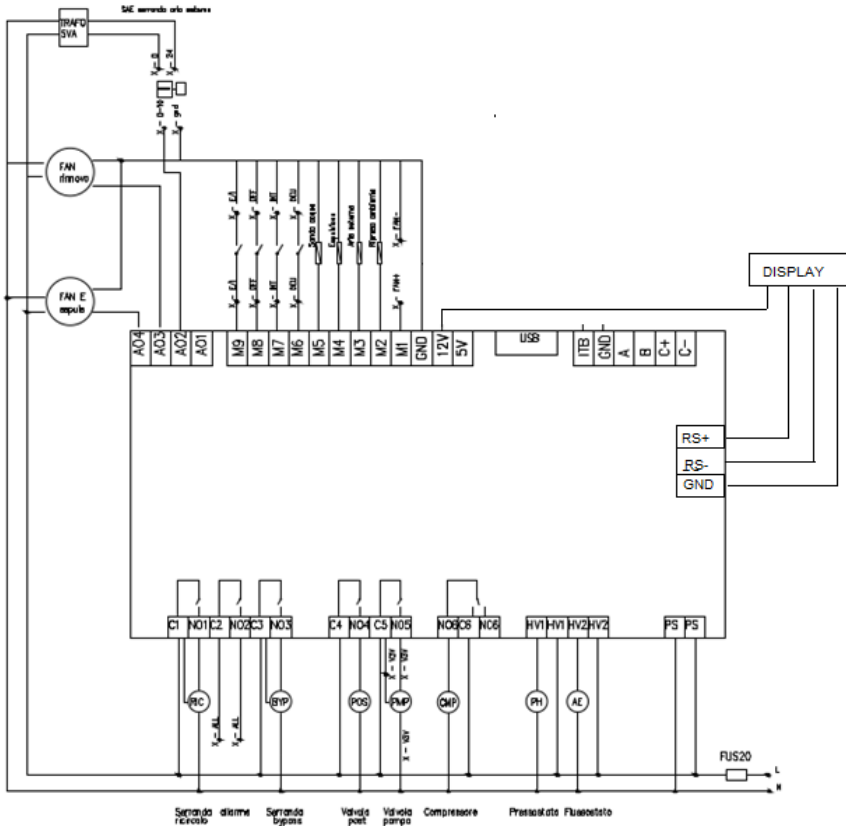
Codes		AP20060	AP20062
Power supply	V/Ph/Hz	230/1/50	
Max absorbed current	A	3.5	5.9

## 5.2 POSITIONING AND PROCEDURES OF THE CONNECTIONS

The inlet of the electrical cables is positioned on the side of the unit;  
There are two dn20mm openings;



5.3 UNIT WIRING DIAGRAMS



## CONNECTIONS SET UP BY THE CUSTOMER

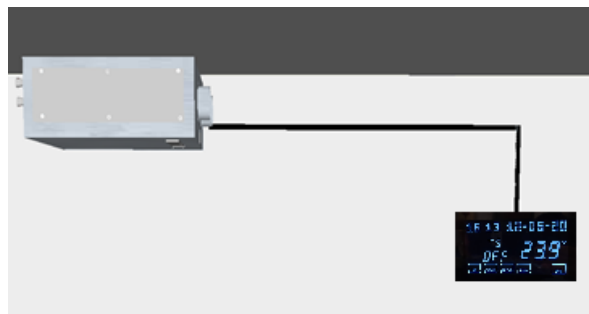
L - PE - N	Unit power supply	230 / 1 / 50
12 - GND - RS+ RS-	Remote display connection (optional)	12-0 Power supply A+ B- Communication

## 5.4 POSSIBLE MODES AND OPERATING CONFIGURATIONS FOR THE UNIT

## OPERATION WITH MODBUS RS485 RTU

The unit is designed to be controlled through modbus RS485, which is installed on it;

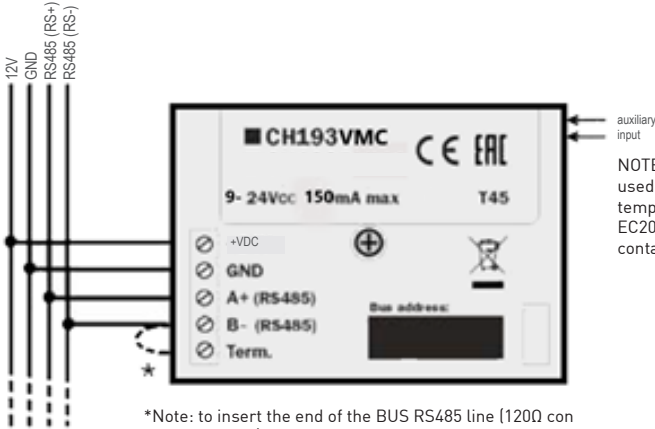
Through communication from an external Master CH193VMC device it will be possible to activate and modify all of the unit's functions;



5.5 ELECTRICAL CONNECTIONS



CH193VMC remote panel connection



NOTE: The auxiliary input can be used for the connection of an outdoor temperature probe (mod. EC18, EC19, EC20), or of an alarm-armable ON/OFF contact

\*Note: to insert the end of the BUS RS485 line (1200 con 0,1µF in series), set up the jumper between terminals "Term." and "B-(RS485)".

N.B Do not swap the connection on the display; this could cause damage to both display and unit;

Recommended cable = 4 x 0.75mm

Display connection (up to 15m)

CH193VMC - REMOTE CONTROL

Semi-recessed touch screen remote control for installation on 503 box;  
 Speed control and operating modes;  
 Equipped with temperature, relative humidity and air quality sensor for automatic control of VMC speed.  
 Dehumidification control and activation and heating and cooling integration coils management.





## 6 MAINTENANCE

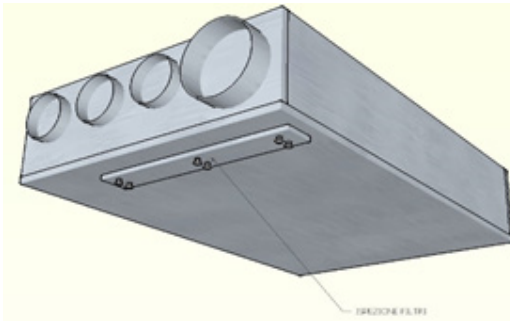
To always guarantee correct and optimal unit operation, it is necessary to periodically perform all of the maintenance activities.

### 6.1 FILTER CLEANING AND REPLACEMENT

To replace the filters, or periodically clean them, do the following:

- cut off the power to the unit;
- open the covers of the filters by the relative knobs;
- take out the dirty filters;
- gently insert the new ones;
- close the cover back up again with the relative knobs;

If the conditions of the filters allow it, it is possible to proceed with cleaning them using a vacuum cleaner or low pressure compressor.



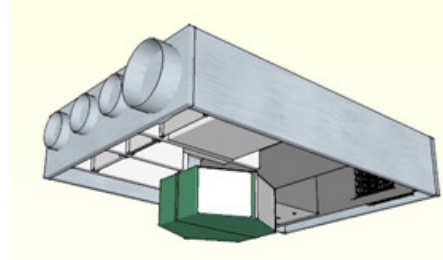
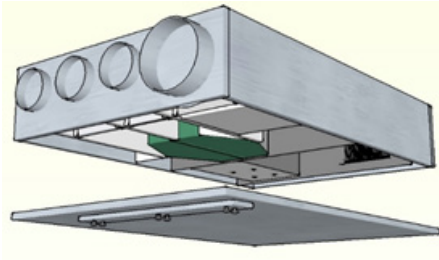
## 6.2 HEAT EXCHANGER CLEANING

It is advisable to check the status of the heat exchanger every time the filters are cleaned/changed, and clean it if necessary. This must only be done by qualified personnel (installer).

To clean the heat exchanger proceed as follows:

- cut off the power supply to the unit
- with ceiling installation, disconnect the condensation discharge pipe;
- open the unit's cover by releasing the hooks and taking out the screws;
- take out the heat exchanger with the aid of the green strap;
- proceed with cleaning very carefully using a vacuum cleaner or low pressure compressor (to prevent dirt from getting into the heat exchanger, clean in the direction opposite the air flow);
- put the exchanger back in place;
- close the cover by locking it in position with the hooks and screws;

Caution! Never touch the exchanger fins, handle the exchanger by holding it only by the closed sides.



### 6.3 GENERAL UNIT CLEANING

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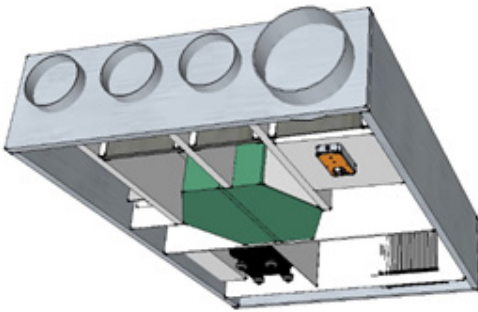
It is advisable to occasionally check and possibly clean the fans of the condensation discharge and the inside walls of the unit. These activities must only be carried out by qualified personnel (installer).

To perform these activities, do the following:

- cut off the power supply to the unit
- with ceiling installation, disconnect the condensation discharge pipe;
- open the unit's cover by releasing its hooks;
- check and possibly clean the fans, the condensation discharge and the walls;
- close the cover by locking the hooks on the unit
- connect the power supply cable and turn on the unit from the switch on the side panel.

For cleaning you can use a vacuum cleaner, a cloth slightly dampened with water, a soft bristle brush or a low pressure compressor.

Caution! There are small metal clips on the blades to balance them, DO NOT remove them.





## 7 ALARMS

In case of any problems or failures, take note of any error code appearing on the remote control screen, take note of the model and the serial number of the unit you possess (data provided on the identification plate attached on the side of the unit) and contact the installer.

### 7.1 PROBLEMS WITHOUT ANY INDICATION OF THE ERROR ON THE DISPLAY

Problem	Causes	Solutions
Display off	No power supply (luminous switch off)	
		Check the connection to the electrical mains.
Poor or no air flow rate The rooms remain humid	Clogged filters	Change the filters
	Clogged exchanger	Clean the exchanger
	Frozen exchanger	Take the exchanger to a warm place and wait for it to defrost, do not heat with direct sources of heat.
	Dirty fan	Clean the fan
	Clogged fan ducts	Clean the fan ducts
	Outdoor temperature below 0 °C	The unit might be in anti-freeze mode, wait until the outdoor temperature rises or install an electric heater for pre-heating.
High noise level	Noise generated by the unit	Check for cracks and/or air leaks from the unit panels
		Check the trap connection
		Check whether the motors are spinning correctly (bearings)
	Noise coming from the ducts	Check for cracks on the suction / supply / exhaust ducts

High vibrations	Vibrating panels	Check the integrity of the unit panels and profiles
		Check the correct closing of the unit cover and the panel that covers the electronic board
		Make sure there are no walls that can transmit vibrations to the wall / floor / false ceilings
	Imbalanced fan blades	Check the integrity of the blades
		Clean the fans
		Make sure the small metal blade balancing clips are still on the fans
Condensation leak	Clogged condensation discharge	Clean the condensation discharge
	The condensation does not flow from the discharge duct to the collection tray	Make sure that the unit is perfectly level
		Check that the condensation discharge connections are not clogged



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