

INDOOR HR

Non ducted mechanical ventilation units for the tertiary sector



INSTALLATION / TECHNICAL MANUAL



GENERAL WARNINGS

This manual provides all the information necessary for the correct operation and maintenance of the unit.

Before using the product, each user and maintenance personnel of the unit must read this manual completely and with the utmost attention and comply with its contents; if the safety rules, warnings and instructions in this manual are not followed, personal injury or damage to the product may occur.

Keep this manual in areas protected from moisture and heat and consider it an integral part of the unit throughout its life, and give it to any other user or subsequent owner of the unit. Do not damage, remove, tear or rewrite the manual or parts of it for any reason whatsoever; if it is lost or partially ruined and it is no longer possible to read its contents completely, it is recommended to request a new one from the supplier.

This manual reflects the state of technology at the time the unit was placed on the market and cannot be considered inadequate simply because it was later updated to incorporate new technology. To request any updates or additions to the user manual, which shall be considered an integral part of the manual, please forward your request to the supplier.

No changes may be made to the product without the manufacturer's consent. Installation must be carried out in accordance with local regulations in force and only by a qualified installer.

The cleaning and maintenance operations indicated in the Maintenance section must be strictly adhered to.

SECURITY MEASURES AND PROVISIONS

In order to avoid accidental contact with live or moving parts, the unit must not be opened without using the appropriate tools. Safety guards must not be removed unless absolutely necessary, in which case appropriate measures must be taken immediately to highlight the possible danger. The guards must be reinstalled on the product as soon as the reasons for temporary removal cease to exist. In order to avoid the danger of possible accidental switching on, warning signs should be affixed to the switchboards with the words: "Attention! Control excluded, maintenance in progress".

Before connecting the power supply cable to the terminal blocks, check that the line voltage is suitable for the voltage indicated on the nameplate on the unit.

During all cleaning and maintenance work, it is mandatory to switch off the unit, disconnect the power supply (power cable disconnected) and wear clothing that complies with the essential safety requirements in force (safety shoes, gloves, protective mask for the respiratory tract and protective glasses).



CE MARKING AND DECLARATION OF CONFORMITY

The CE marking (on each unit) and the associated declaration of conformity attest to compliance with the following EU standards :

- Machinery Directive..... 2006/42/CEE
- Low Voltage Directive..... 2014/30/UE
- Electromagnetic Compatibility Directive..... 2014/35/UE
- European Regulation (ErP 2018) 1253/14/UE e 1254/14/UE
- Harmonised standards reference..... EN 12100, 2010; EN 60204-1, 2006

The analysis of residual risks was carried out in accordance with Annex I of the Machinery Directive 2006/42/EEC: all useful warnings and information to prevent possible damage to persons and/or property due to residual risks are given in this manual.

SIGNS ON BOARD THE MACHINE

There may be various signal pictograms on the unit, which must not be removed. The signals are divided into:



• **Warning/information signs:** they indicate the presence of live and rotating parts inside the container to which they are applied. They indicate the obligation to read the instructions/manual.

• **Prohibition signs:** they warn against repairing or recording during motion.

 invisible heating and cooling					
Viale Trento 101 - 33077 - SACILE (PN) ITALY - +39 0434 787511 - info@rdz.it		Diretta Machine 39647008 Diretta Base Terapie 39423008 Diretta Compatibilità Biomassapelle 39423008 Regulation Europe 17501008			
Codice Code					
 codice unita'					
Modello Model					
Recuperatore di calore XXX					
Anno Year	2019	Matricola Serial Number	700HR00H1EBxxxx		
Tensione Supply voltage	230 V	Frequenza Frequency	50 Hz	Portata Flow	540 m ³ /h
Potenza massima Maximum power	0,180 kW	Corrente massima Maximum current	1,5 A	Pressione Pressure	75 Pa

• **Identification signs:** the rating plate shows the product data and the address of the manufacturer or his authorised representative. If present, the CE mark certifies that the fan complies with EEC regulations.

(Other signs may be added to the product depending on the analysis made of the residual risk).

Do not remove the safety pictograms, information labels and identification plate (including CE marking) on the unit.

RESPONSABILITY

The unit is designed and manufactured for use within balanced ventilation systems with heat recovery; any other application will be considered as misuse and may possibly damage the unit or cause personal injury, for which the manufacturer cannot be held responsible.

The manufacturer shall not be liable for damage resulting from:

- non-compliance with the safety, operating and maintenance instructions in this manual;
- failure to carry out regular and constant maintenance work;
- use of the unit without the appropriate filters;
- use of components not supplied or not recommended by the manufacturer;
- unauthorised repairs or modifications;
- normal wear and tear;
- natural events, fire or static discharge.



DISPOSAL

END OF UTILISATION



In accordance with the provisions of the following European directives 2011/65/EU, 2012/19/EU and 2003/108/EC, regarding reducing the use of hazardous substances in electrical and electronic equipment, in addition to waste disposal.

The crossed out wheeled bins symbol on the equipment indicates that, at the end of its useful life, the product must be collected separately from general waste. Therefore, at the end of its useful life, the user must take the equipment to a designated electrical and electronic waste collection point, or return it to the dealer that, against the purchase of an equivalent appliance, it is obliged to collect the product for disposal free of charge. Appropriate differentiated waste collection for subsequent recycling, treatment and environment-friendly disposal of the discarded equipment helps preventing possible negative environmental and health effects and encourages recycling of the component materials of the equipment. Illegal disposal of the product by the user entails the application of sanctions provided by the regulations in force.



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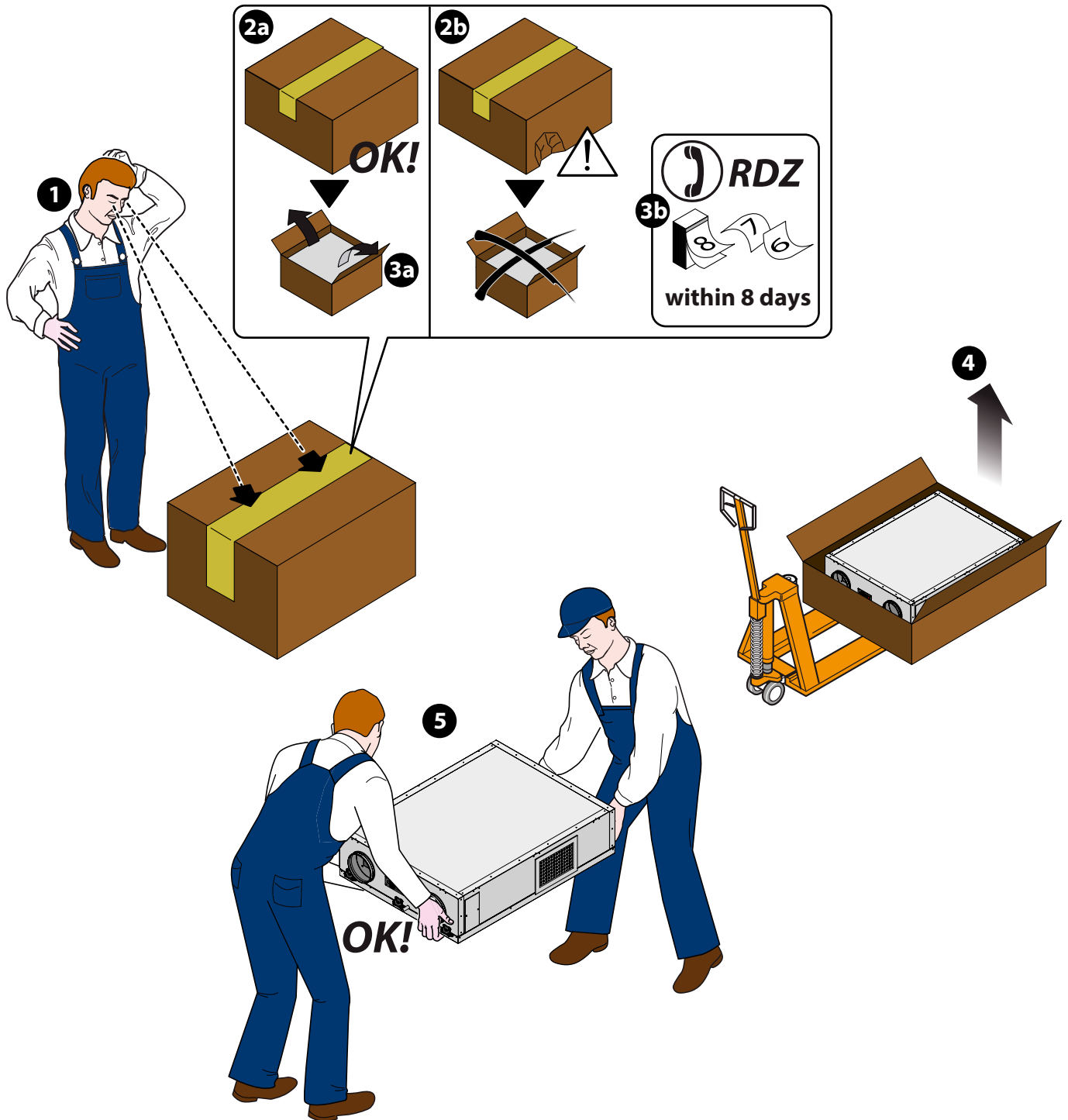
PRELIMINARY OPERATIONS

INSPECTION, TRANSPORT AND UNPACKING

Each product is carefully checked before being shipped, packed on pallets and secured to the same with straps and protective film, or in self-supporting cardboard boxes adequately secured to the pallet.

Upon receipt, it must be ensured that the product has not been damaged during transport; if not, promptly file a complaint with the carrier. The carrier is liable for any transport damage.

To handle the product, use a vehicle with an adequate load-bearing capacity (e.g. a fork-lift truck).



The unit's packaging must be removed carefully, avoiding possible damage to the machine.

The materials making up the packaging are of different kinds: wood, cardboard, nylon, etc. Store them separately and hand them over for disposal or eventual recycling, to the companies designated for this purpose and thus reduce their environmental impact.



1 GENERAL OVERVIEW

1.1 DESCRIPTION

The Indoor HR series of mechanical ventilation units are machines that do not require ducting on the room side, designed for continuous air renewal in tertiary sector environments such as schools, commercial spaces and RSAs.

Available in 400 and 1000 m³/h versions, they are designed to be easily integrated into existing buildings.

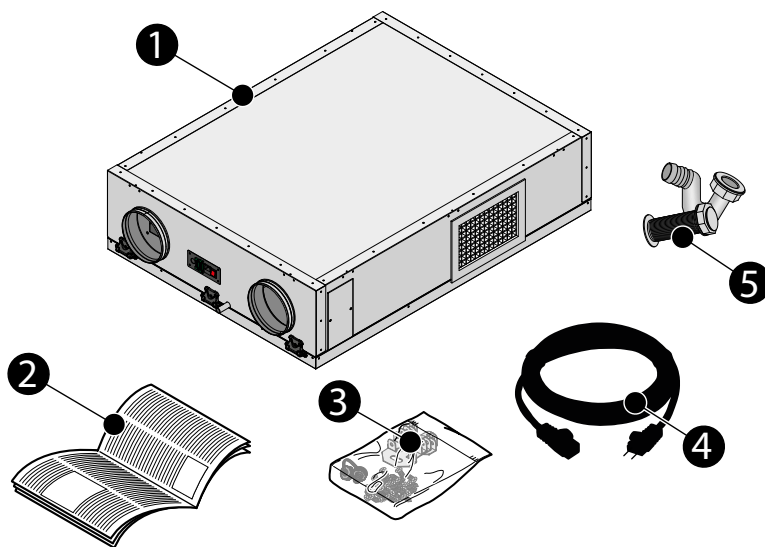
They are offered in different configurations to facilitate the connection of external air intakes (inlet and exhaust) and can be installed either on the ceiling or on the floor depending on the characteristics of the room that houses them.

The Indoor HR units consist of a minimalist self-supporting structure in white pre-painted sheet metal and are equipped with rock wool thermo-acoustic insulation, which guarantees high performance also in terms of silence.

The F7 filters (ePM1 70%), present in both the air intake and extraction ducts, are easy to replace and allow the preservation of the internal components of the machine but, above all, guarantee the entry of healthy air, free of fine dust, pollen and other pollutants.

1.2 PACKAGE CONTENTS






Ref.	Description
①	INDOOR HR unit
②	Installation / Technical Manual
③	Fixing Hardware
④	Power Cable
⑤	Condensate drain kit



1.3 OPTIONAL

The listed optional extras are located inside the machine.

They are installed at the factory, so it is not possible to order these accessories separately.

Description	Description	Description	Description
	MODULATING ELECTRICAL RESISTANCE (with Smart EB control panel) Heater with electrical duct element mounted on galvanized steel plate. It is provided with safety thermostat and 0-10 V electronic control managed by the unit.		FILTER KIT FOR INDOOR HR 400 and INDOOR HR 1000: ISO ePM1 70% (F7) filters
	QA PROBE: room or channel-type air quality probe		UV LAMP: germicide lamp with LED UV-C technology.
	PRESSUR SWITCH: differential pressure switch for air		



2 INSTALLATION

2.1 INSTALLATION CONDITIONS

The unit must be installed in accordance with national and local regulations governing the use of electrical devices and in accordance with the following guidelines:

- install the unit inside buildings with operating temperatures between 0 °C and 45 °C;
- avoid areas near sources of heat, steam, flammable and/or explosive gases and particularly dusty areas;
- install the unit in a frost-free location (condensation water must be drained off unfrozen, at a certain angle and using a siphon);
- do not install the unit in areas with high relative humidity (such as a bathroom or toilet) to avoid the formation of condensation on the external surface of the unit
- choose an installation location where there is sufficient space around the unit for air duct connections and for maintenance work;
- provide protection for the fan inlets to avoid contact with moving mechanical parts;
- the consistency of the ceiling where the horizontal units will be installed must be adequate for the weight of the unit and not cause vibrations.

In the room chosen for installation there must be:

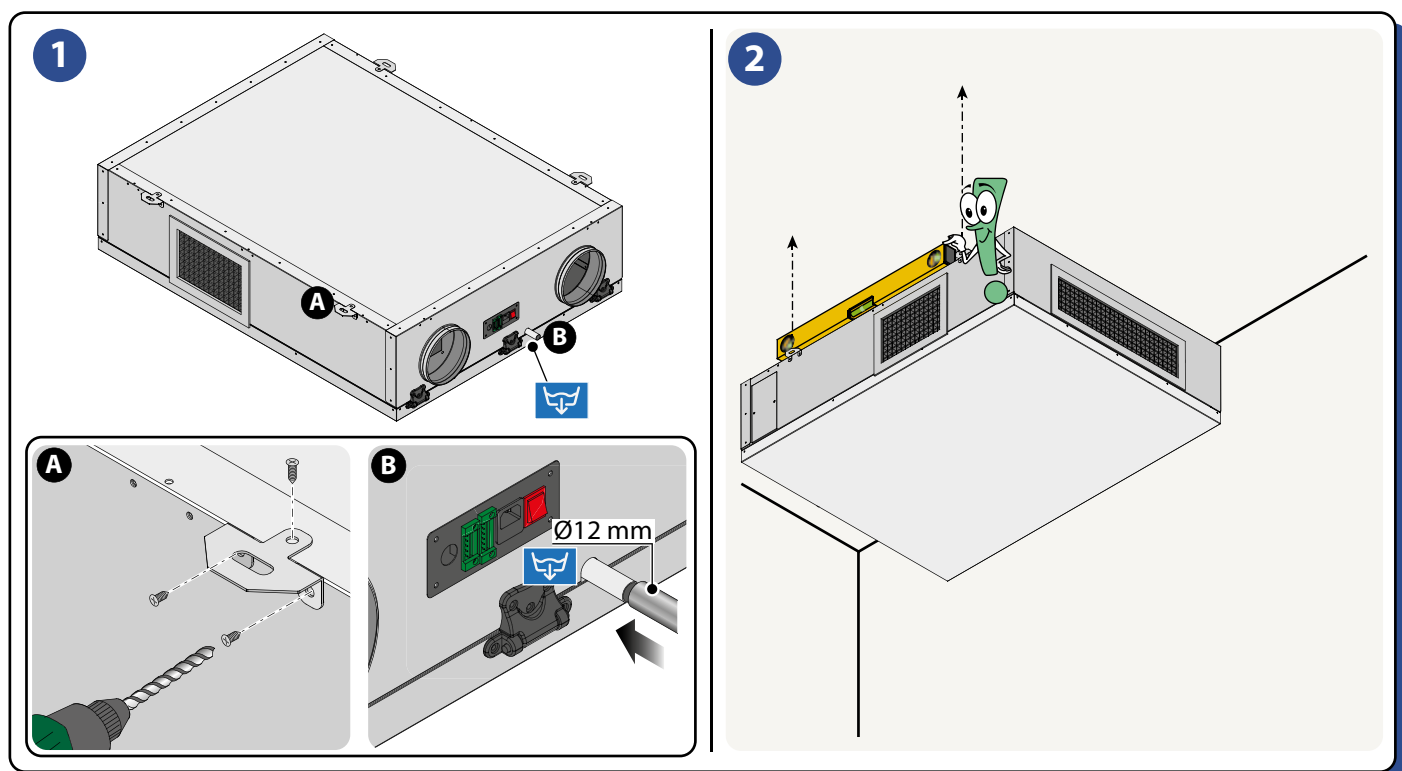
- holes in the wall for external air intake and exhaust;
- single-phase 230V or three-phase 380V electrical connection (depending on the version) in compliance with current regulations;
- connection for condensate drainage.

The unit is an integral part of a balanced ventilation system, with which stale air is extracted from some rooms and the same volume of fresh air is introduced into others. The spaces under the doors ensure good airflow circulation within the building: make sure that these spaces are never obstructed, e.g. by draught excluders or carpets, otherwise the system will not function optimally. If the unit and a natural draught boiler (or e.g. an open fireplace) are operated at the same time, this can cause a vacuum in the room, as a result of which exhaust gas backflow into the room can occur.

2.2 INSTALLATION ON CEILING (ONLY FOR INDOOR HR 400C AND INDOOR HR 1000C)

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

- 1 • position the support brackets on the rear side of the unit and fasten them with the self-drilling screws supplied, using a screwdriver drill (A); install the water discharge piping on the Ø12 mm stainless steel pipe positioned on the side (B);
- 2 • fix the unit to the ceiling, by means of the brackets previously positioned, using suitable anchoring systems (dowels, threaded bars, chains, etc.) and check levelling using a spirit level: the unit must be installed perfectly flat to ensure correct drainage of condensation water.

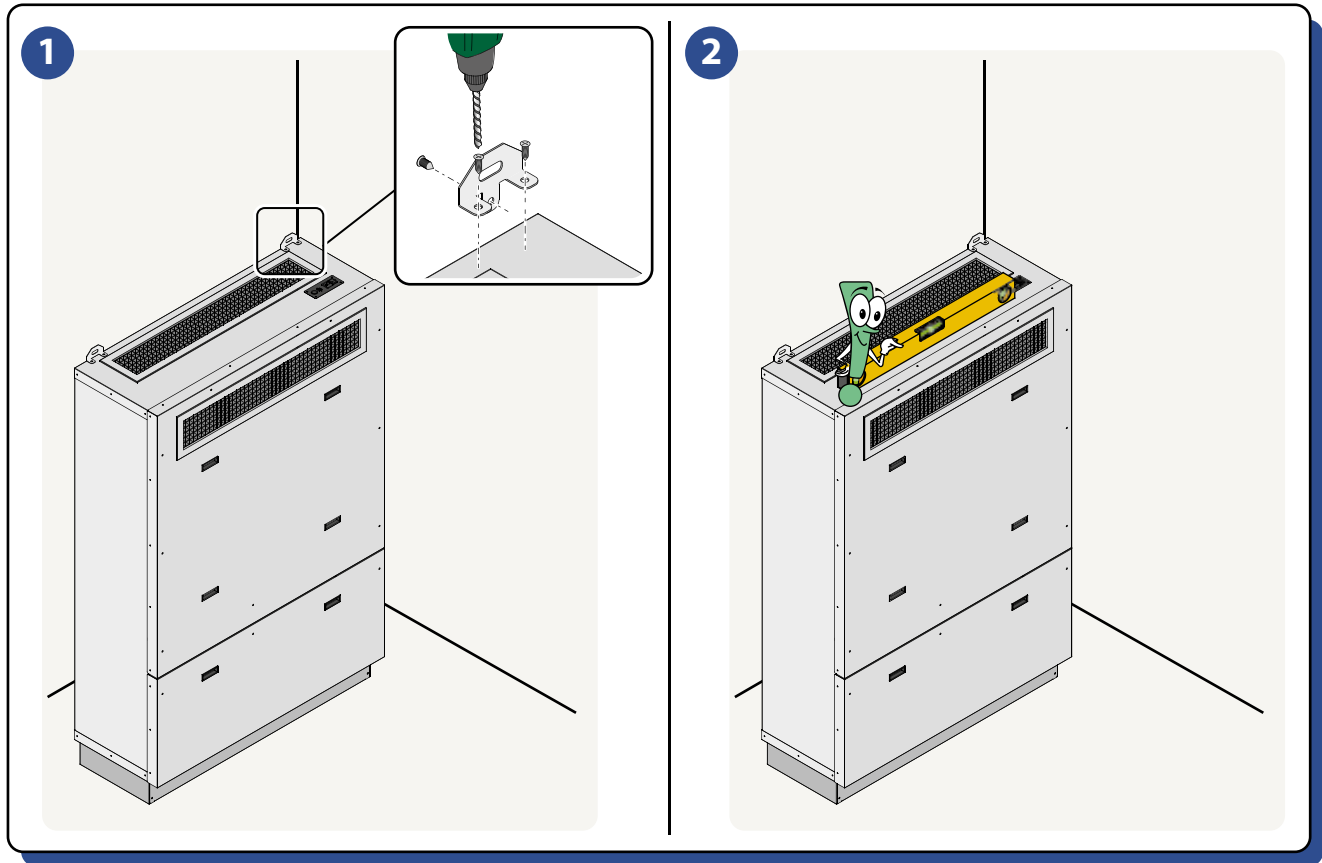




2.3 INSTALLATION ON THE FLOOR (ONLY FOR INDOOR HR 400F AND INDOOR HR 1000F)

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

- 1 • position the safety brackets on the sides of the unit (side or top) and secure them with the self-drilling screws provided, using a screwdriver drill. Position the unit in place, secure it to the wall using the brackets and using suitable anchoring systems (dowels, threaded rods, etc.).
- 2 • Using a spirit level, check that the unit is installed perfectly flat so as to ensure proper drainage of condensation water.





Vibration dampers can be placed between the wall and the brackets; do not mount the unit with the sides in direct contact with the walls to avoid possible contact noise.

Ensure sufficient space for maintenance activities: the opening of both covers of the unit must always be guaranteed (see MINIMUM SPACE ALLOWANCES chapter 2.4).

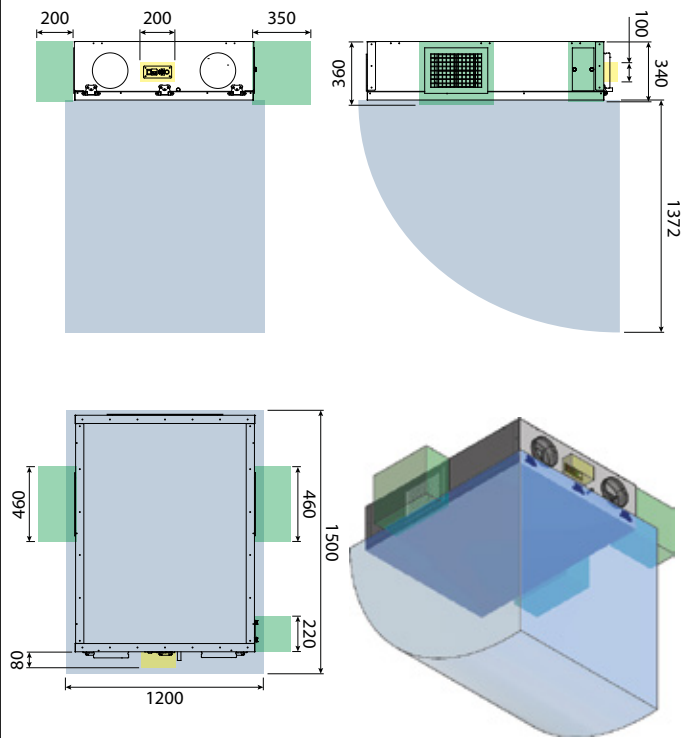
2.4 MINIMUM SPACE ALLOWANCES

 Filter inspection/ maintenance

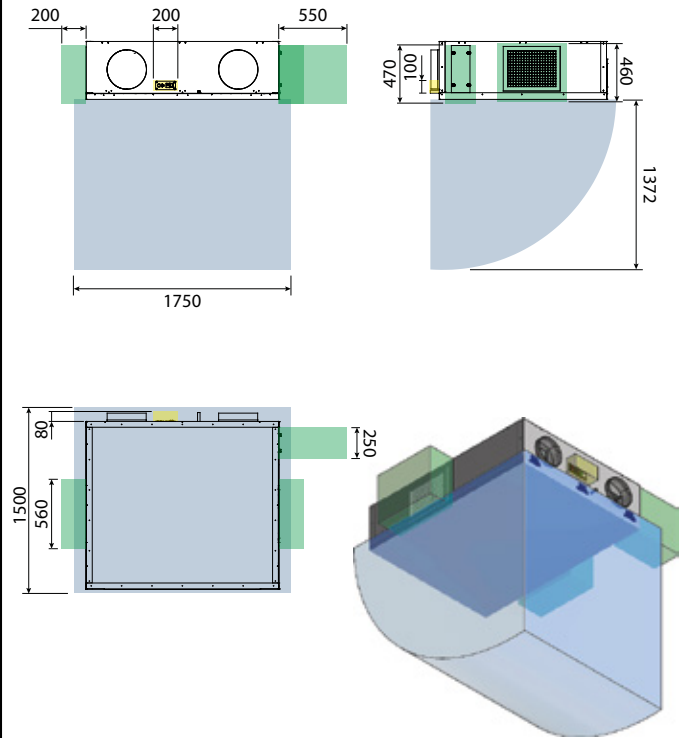
 Electrical panel inspection/maintenance

 Panel inspection/maintenance electrical exchanger and filters

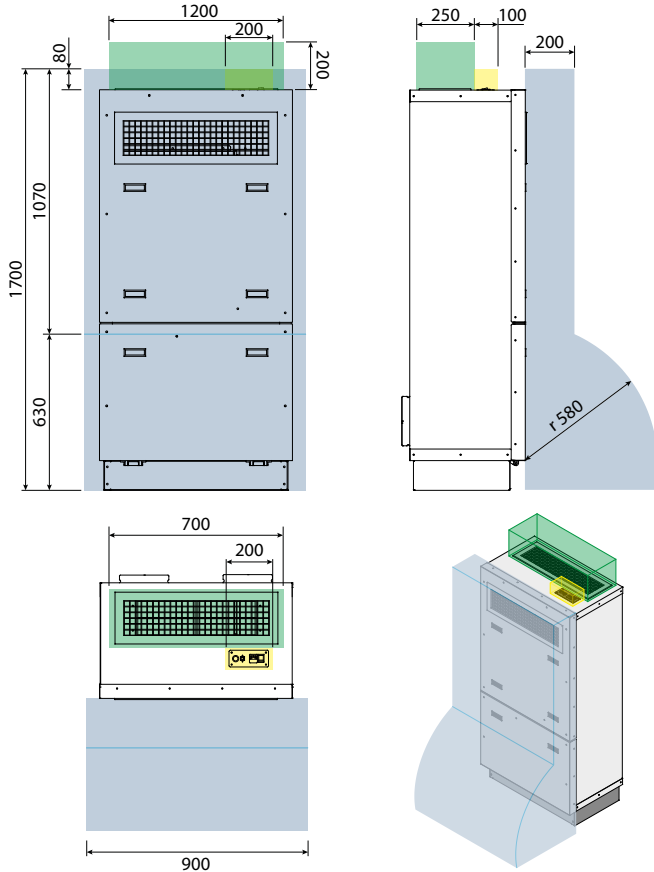
INDOOR HR 400C



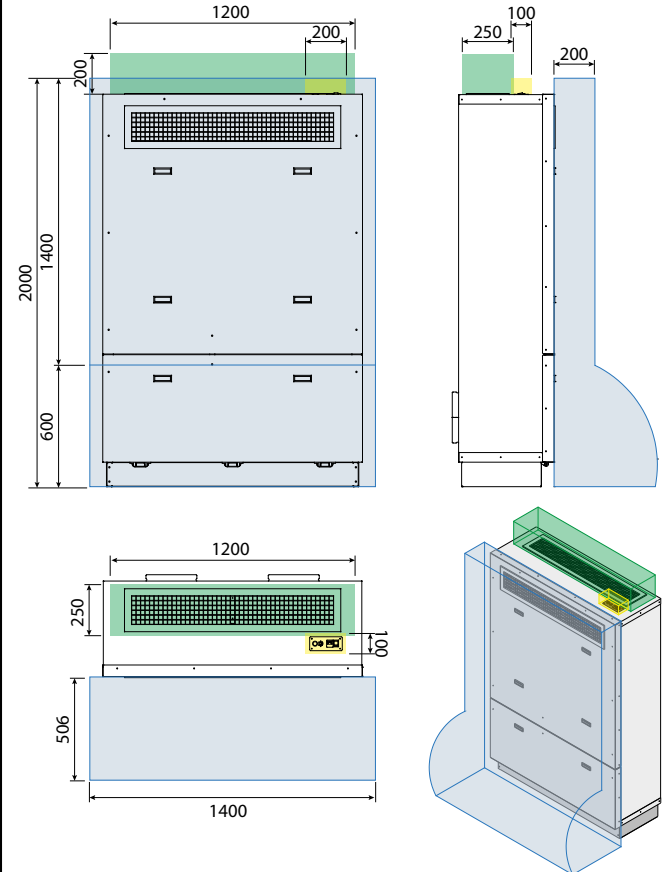
INDOOR HR 1000C



INDOOR HR 400F



INDOOR HR 1000F

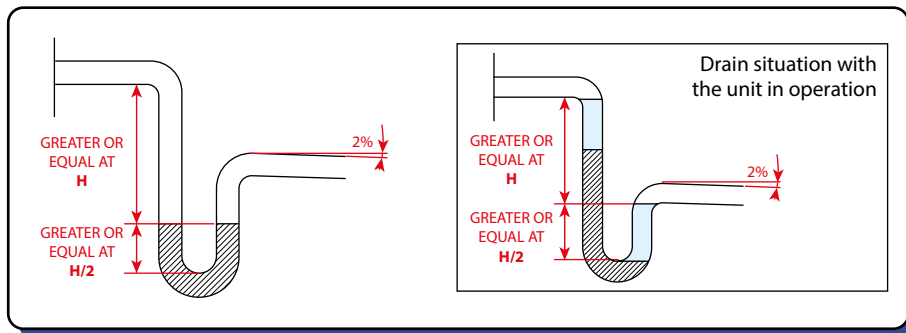


2.5 CONNECTION OF CONDENSATE DRAIN

Due to the heat recovery system (whereby the warm air extracted from the building is cooled by the incoming air inside the heat exchanger), the moisture contained in the indoor air condenses inside the unit, in the expulsion area (OUT). For correct operation of the unit, it is therefore necessary to connect the condensate drain to the hydraulic drainage system. In addition, the condensate drain must always be fitted with a suitable siphon to allow the condensate water to drain away correctly and avoid air suction.

The following rules must be observed when installing the condensate drain

- install a suitable condensate drain trap as close as possible to the unit and with a minimum height of 80 mm (H);
- give the drain pipe a slope of at least 2%;
- provide the possibility of disconnecting the drain pipe for maintenance;
- ensure that the discharge end of the pipe is at least below the water level of the siphon;
- ensure that the siphon is always full of water.



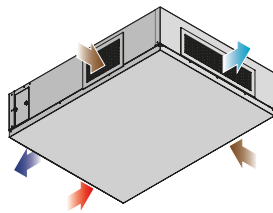
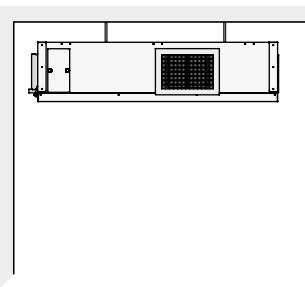
2.6 CONNECTION OF AIR DUCTS

The unit is equipped with two male connections for connecting the air ducts (different diameters depending on the model). For optimum operation, use ducts with a diameter equal to or greater than that of the connections (or rectangular ducts of equivalent cross-section), with the least possible air resistance.

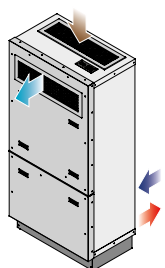
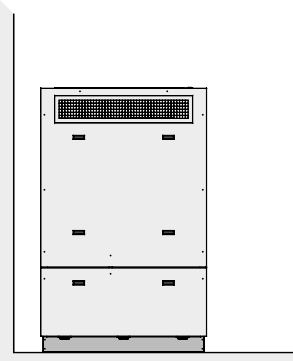
Install protective nets to prevent accidental contact with the fans.

For the correct connection of air ducts, refer to the labels on the panels with the air connections.

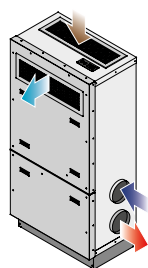
INDOOR HR 400C / INDOOR HR 1000C - horizontal installation on ceiling



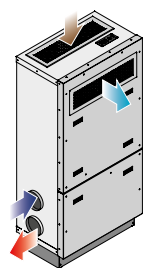
INDOOR HR 400F / INDOOR HR 1000F - vertical installation on the floor



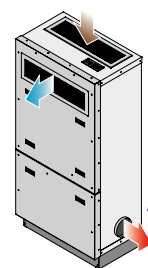
1 - Version PP



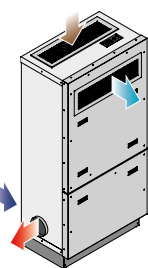
2 - Version DD



3 - Version SS



4 - Version PD



5 - Version PS

2.7 ELECTRICAL CONNECTIONS

The unit can be equipped with various types of control boards and their remote controls; below are general instructions for all controls, while the manuals for each control contain detailed instructions.

The unit has an internal electrical box, accessible from the main cover of the unit, in which the control board is located.

For the electrical connection refer to the wiring diagrams at the end of each control manual; **all electrical connections must be made by qualified personnel and in the absence of voltage.**

Power supply connection: insert the power supply cable (2 m cable with Schuko plug, supplied) into the appropriate connector (next to the ignition switch).

Remote control connection: for all versions simply plug the remote control cable (3 m cable supplied, with 3-pin, 4-pin or RJ45 connector depending on the type of control) into the appropriate connector.

• It is essential that the unit is connected to an efficient earth socket and protected by a circuit breaker for the exclusive use of the unit. The manufacturer disclaims all liability for failure to observe these precautions.

• To avoid tripping of the general differential due to possible interference from EC fans, it is recommended to use a B or B+ type differential switch with a rated tripping current of 30 mA for the exclusive use of the unit.

• Check that the electrical components chosen for the installation (circuit breaker, differential switch, cable cross-section and terminals) are suitable for the electrical power of the installed unit and that they take into account the inrush currents as well as the maximum load that can be reached (the data are indicated in chapter 6. TECHNICAL SPECIFICATIONS and on the unit's nameplate). **Absolutely avoid running electrical cables in direct contact with piping or other system components.**



Make sure the power supply to the unit is switched off (power cable disconnected) before opening the electrical boxes or the unit.

2.8 INSTALLATION OF SUPPLY AIR TREATMENT ACCESSORIES (OPTIONAL)

The unit has a very large inlet space that can be equipped with accessories for treating the supply air in the room (resistor with post-heating function, germicidal lamp, sanitiser, etc.). The various types of control boards available make it possible to interface with these accessories and manage them automatically.

It is also possible to monitor room air quality in real time thanks to the measurements made by the CO₂, VOC, humidity etc. probes that can be combined with the machine.

3 START-UP AND METHODS OF USE

Commissioning of the unit and any changes to the factory settings should only be carried out by qualified personnel (authorised installer).

The following checks must be carried out before switching on:

- check that there are no foreign bodies inside the unit and that all components are securely in place;
- manually try to turn the fan impellers to ensure that they turn freely without obstructions;
- check that the covers are tightly closed.

Switch on power to the unit, operate the speed regulator/switch (if present) and check that there are no operating anomalies (strange noises, excessive vibrations, etc.).

In order to guarantee the discharge of moisture that is naturally created inside the building, the unit must operate continuously at least at reduced speed (speed 1). If the ventilation unit is switched off, condensation could occur inside the unit and the building, which could lead to moisture damage.

For instructions on how to operate the unit, refer to the relevant control manual (supplied with this).

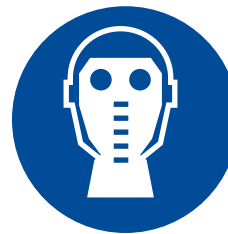
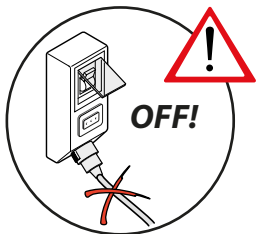
4 MAINTENANCE


To ensure that the unit always operates correctly, the following maintenance work must be carried out periodically:

- CLEANING OR REPLACEMENT OF THE FILTERS (par. 4.1)
- CLEANING OF THE HEAT EXCHANGER (par. 4.2)
- CHECK AND GENERAL CLEANING OF THE UNIT (par. 4.3)

During all cleaning and maintenance operations, it is mandatory to:

- switch off the unit and disconnect the power supply (power cable disconnected);
- wear clothing that complies with the essential safety requirements in force (safety shoes, gloves, protective mask for the respiratory tract and protective glasses).



 **The heat exchanger is secured in place by safety catches. After finishing cleaning or maintenance work, always remember to put the catches back in place, otherwise the exchanger could fall out the next time the cover is opened. In any case, always open the unit carefully and make sure that there are no unstable or shaky elements that could fall out.**

4.1 CLEANING OR REPLACEMENT OF THE FILTERS

For correct operation of the unit and to always have clean intake air, it is recommended to check the condition of the filters every 3 months of operation of the unit.

If the condition of the filters permits, they can be cleaned using a Hoover or a low pressure compressor; it is always recommended to replace the filters.

CLEANING / REPLACEMENT OF FILTERS IN INDOOR HR CEILING UNITS

- switch off the fans and switch off the power supply to the unit;
- remove the 2 intake grilles (EXT) by pulling them towards you and extract the dirty filters from their seats;
- remove the side cover of the renewal filter (IN) by unscrewing the screws and remove the dirty filter from its guides;
- insert the new filters, paying attention to the direction in which the air passes (there is an arrow on the filters indicating the direction in which the air passes);
- close the renewal filter cover (IN) with the screws;
- reposition the intake grilles (EXT);
- restore the power supply and switch the unit on at the desired speed;
- if the unit is equipped with electronic control, proceed to reset the filter hour counter (see control manual).



CLEANING / REPLACEMENT OF FILTERS IN INDOOR HR FLOOR UNITS

- switch off the fans and switch off the power supply to the unit;
- remove the intake grille by pulling it towards you and remove the dirty filter;
- unscrew the 5 screws located around the perimeter of the unit's lower cover and gently open it;
- remove the dirty renewal filter from its guides;
- insert the new filters, paying attention to the direction in which the air passes (there is an arrow on the filters indicating the direction in which the air passes);
- reposition the intake grille;
- close the lower cover (with its screws);
- restore the power supply and switch the unit on at the desired speed;
- if the unit is equipped with electronic control, proceed to reset the filter hour counter (see control manual).

every 90 days

EXT → F7 ePm1 70%

IN → F7 ePm1 70%

OFF!

OFF!

INSPECTION OF FILTERS AND OPENING OF THE COVER IN HORIZONTAL UNITS MOUNTING ON UNITS

INSPECTION OF FILTERS AND OPENING OF THE COVER IN FLOOR-STANDING VERTICAL UNITS

Open carefully the cover

4.2 CLEANING THE HEAT EXCHANGER

It is recommended to check the condition of the heat exchanger every time the filters are cleaned/changed and to clean it once a year. These operations should only be carried out by qualified personnel (installer).



Never touch the heat exchanger fins, handle the heat exchanger by holding it on its closed sides only.

CLEANING THE HEAT EXCHANGER IN CEILING-MOUNTED INDOOR HR UNITS

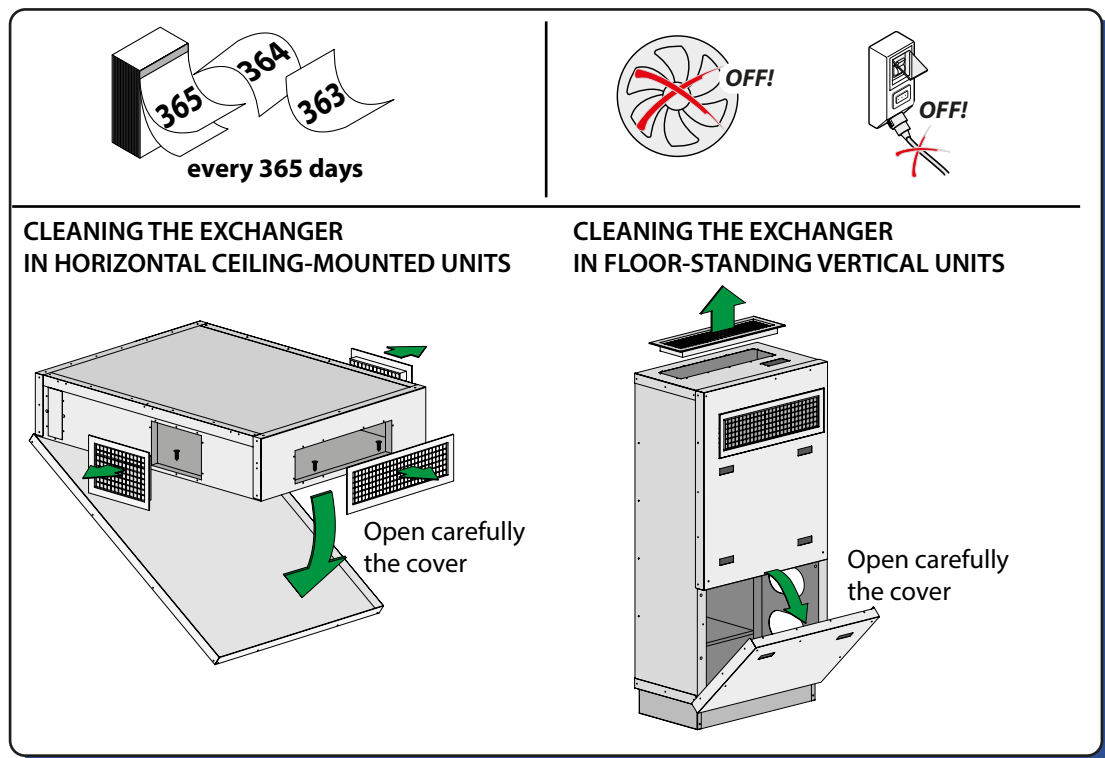
- switch off the fans and switch off the power supply to the unit;
- remove the two extract grilles (EXT) and the supply grille (SUP) by pulling them towards you;
- unscrew the four screws located at the rear of the frames housing the grills and open the unit cover gently;
- remove the condensation drip tray (unscrew the fixing screws located on the short sides);
- by unscrewing the fixing screws, remove the heat exchanger retainers;
- remove the heat exchanger with the help of the green clamp;
- clean very gently using a Hoover or a low-pressure compressor; if necessary, wash the heat exchanger with water and neutral soap;
- put the exchanger back in place and check its correct positioning; the exchanger has an identification label on its side or upper

side: position the exchanger so that this label is facing upwards;

- reposition the safety catches;
- reposition the condensate drain pan;
- close the unit cover by locking it with the screws, then reposition the grills;
- restore power and switch the unit on at the desired speed.

CLEANING THE EXCHANGER IN INDOOR HR FLOOR UNITS

- switch off the fans and remove power from the unit;
- unscrew the five screws located around the perimeter of the unit's lower cover and gently open it;
- unscrew the nine screws located around the perimeter of the unit's top cover and remove it;
- by unscrewing the fixing screws, remove the heat exchanger fasteners;
- remove the heat exchanger with the help of the green clamp;
- clean very gently using a Hoover or a low-pressure compressor; if necessary, wash the heat exchanger with water and neutral soap;
- put the exchanger back in place, checking that it is correctly positioned; the exchanger has an identification label on its side or upper side: position the exchanger so that this label is facing upwards;
- reposition the safety catches;
- close the upper and lower covers of the unit, securing them with the screws provided;
- restore the power supply and switch the unit on at the desired speed.



4.3 GENERAL INSPECTION AND CLEANING OF THE UNIT

It is recommended that the fans, condensate drains, internal walls of the unit and the heat exchanger be checked and, if necessary, cleaned at least once a year. These operations should only be carried out by qualified personnel (installer).

A Hoover, a cloth dampened slightly with water, a soft bristle brush or a low pressure compressor can be used for cleaning.



There may be small metal clips on the fan blades for balancing the blades, take care NOT to remove them.



GENERAL INSTRUCTIONS FOR CLEANING INDOOR HR CEILING UNITS

- switch off the fans and switch off the power supply to the unit;
- remove the two intake grilles (EXT) and the intake grille (SUP) by pulling them towards you;
- unscrew the four screws located at the rear of the frames housing the grilles and open the unit cover gently;
- remove the condensation collection tray by unscrewing the relative fixing screws located on the 2 short sides;
- proceed to check and clean the fans and check the tightness of the screws that secure them to the unit;
- proceed to check and, if necessary, clean the condensation drains, filters, exchanger and walls;
- reposition the condensate drain pan;
- close the unit cover, locking it in place with the appropriate screws and then reposition the grills;
- restore the power supply and switch the unit on at the desired speed.

GENERAL INSTRUCTIONS FOR CLEANING INDOOR HR FLOOR UNITS

- switch off the fans and remove power from the unit;
- unscrew the five screws located around the perimeter of the unit's lower cover and gently open it;
- unscrew the nine screws located around the perimeter of the unit's upper cover and remove it;
- proceed to check and, if necessary, clean the fans and check the tightness of the screws that secure them to the unit;
- proceed to check and, if necessary, clean the condensate drains, filters, exchanger and walls;
- close the upper and lower covers of the unit, securing them in place with the screws provided;
- restore the power supply and turn the unit on at the desired speed.

5 PROBLEMS AND FAILURES

In the event of problems or faults, check in the following table whether it can be remedied with the remedies indicated. On versions with electronic control, check whether an alarm is displayed on the remote control.

If the problem is not solved, take note of the model and serial number of the unit (indicated on the rating plate on the side of the unit) and contact the installer or supplier.

PROBLEM	CAUSE	REMEDY
Fans stopped Remote control off (electronic versions)	No power supply or wrong voltage	<ul style="list-style-type: none"> • Check the mains connection. • On sizes with a power switch, check and, if necessary, replace the fuse on the (black) power connector on the side of the unit (there is a spare fuse in the 'drawer'). • In electronic versions, check and, if necessary, replace the fuse on the control board.
	Control card malfunction or remote control	<ul style="list-style-type: none"> • Check the connections of the control board and the connection between the board and the remote control.
Low or no air flow rate Performance drop	Clogged filters	<ul style="list-style-type: none"> • Replace filters.
	Clogged exchanger	<ul style="list-style-type: none"> • Cleaning the exchanger.
	Frozen exchanger	<ul style="list-style-type: none"> • Move the heat exchanger to a warm place and wait for it to defrost; do not heat with direct heat sources.
	Dirty fan	<ul style="list-style-type: none"> • Cleaning the fan.
	Damaged impeller	<ul style="list-style-type: none"> • Check the integrity of the fan.
	Clogged fan ducts	<ul style="list-style-type: none"> • Clean ventilation ducts.
	Air leakage from ducts	<ul style="list-style-type: none"> • Check the suction/exhaust ducts for cracks.
Outside temperature below 0 °C	<ul style="list-style-type: none"> • The unit may be in antifreeze mode, wait until the outside temperature rises or consider installing a frost heater. 	
Air pulsations	Fan working near zero flow conditions, flow instability, obstruction or poor connection	<ul style="list-style-type: none"> • Check and/or clean the intake/exhaust ducts. • Adjust fan speed.
High noise level	Noise coming from the unit	<ul style="list-style-type: none"> • Check for cracks and/or air leaks from the unit panels. • Check whether the motors are running freely and correctly. • Adjust the speed of the fans.
	Noise from ducts	<ul style="list-style-type: none"> • Check suction/exhaust ducts for cracks.
High vibrations	Vibrating panels	<ul style="list-style-type: none"> • Check the integrity of the panels and the tightness of the screws. • Check the correct closing of the unit covers. • Check that there are no panels in contact with the walls.
	Unbalanced fan blades	<ul style="list-style-type: none"> • Check the integrity of the blades. • Clean the fans. • Check that the metal clips on the fan blades have not come loose.
Condensation leakage	Clogged condensate drain	<ul style="list-style-type: none"> • Cleaning the condensate drain.
	Condensate does not flow from the drain into the collection tray	<ul style="list-style-type: none"> • Check that the unit is perfectly level. • Check that the condensate drainage pipes are intact (especially between the unit and the siphon). • Check that the siphon is of the correct height.



6 TECHNICAL SPECIFICATIONS

Structure	Supporting structure made of aluminium profiles, external pre-painted sheet metal panels and internal galvanised sheet metal.
Insulation	Thermal and acoustic insulation with 50 mm-thick rock wool.
Operating conditions	Ambient temperature (inside the building) between 0 °C and 45 °C. Treated air temperature between -15 °C and + 40 °C.
Fans	Single-phase, plug-fan EC electric fans (backward-bladed centrifugal, directly coupled).
Heat exchanger	Aluminium countercurrent exchanger, high efficiency (~90%).
Filters according to EN 779	Class F7 low pressure drop for both Recovery (EXT room extraction) and Renewal (IN external air intake).

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